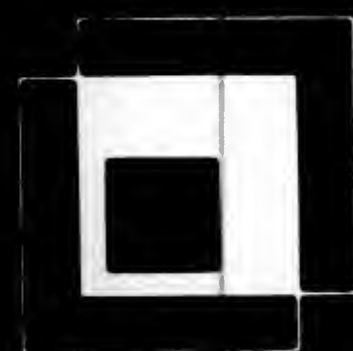


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OFFICIAL GAZETTE
UNITED STATES
PATENT OFFICE
VOL. 911
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MICRO PHOTO DIVISION



BELL & HOWELL

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OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

June 5, 1973

Volume 911

Number 1

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PATENT OFFICE NOTICES

Board of Appeals Decisions Rendered in the Month of April 1973

Examiner affirmed	179
Examiner affirmed in part	15
Examiner reversed	32
Total	226

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,694,692, Amos, McCurdy and McIntyre, METHOD OF MAKING LINEAR INTERPOLYMERS OF MONOVINYL AROMATIC COMPOUNDS AND A NATURAL OR SYNTHETIC RUBBER, filed Dec. 7, 1965, D.C. Del. (Wilmington), Doc. 3132, *Cosden Oil & Chemical Company v. The Dow Chemical Company*. Decision: Stipulation of dismissal with prejudice pursuant to Rule 41(a)(1)(ii) of the Federal Rules of Civil Procedure, Jan. 24, 1973.

2,782,448, J. W. Anderson, WINDSHIELD WIPER BLADE ASSEMBLIES; 2,782,449, same, WINDSHIELD WIPER BLADE AND CARRIAGE ASSEMBLIES; 3,372,422, same; 3,372,423, same, WINDSHIELD CLEANER, filed Jan. 30, 1973, D.C.R.I. (Providence), Doc. CA 5107, *Fram Corporation v. The Anderson Co.*

2,782,449. (See 2,782,448.)

2,898,786, J. R. Willingham, BLIND HOLE DRILL; 3,054,308, G. A. Larry, DRILL; 3,071,030, same, HOLE FORMING OR ENLARGING ASSEMBLY; Re. 24,924, J. R. Willingham, GUN DRILLING TOOL, filed Nov. 6, 1972, D.C., E.D. Mich. (Bay City), Doc. 3238, *John R. Willingham et al. v. Norman B. Lawton et al.*

2,984,416, N. B. Johnson (deceased), by K. S. Johnson (administrator), HOT AIR HEATING METHODS, filed Jan. 30, 1973, D.C., W.D.N.Y. (Buffalo), Doc. C-1973-50, *Johnson Heater Corporation v. Mosler Safe Company and Western New York Industrial Park, Inc.*

2,989,302, H. B. Clark, FIRE DOOR OPERATING APPARATUS; 3,166,155, same, MOTOR OPERATED FIRE DOORS WITH AUTOMATIC DOOR RELEASE, filed Jan. 30, 1973, D.C.N.J. (Newark), Doc. C-119-73, *Mesker Brothers Industries, Inc. et al. v. Henry B. Clark*.

3,009,525, R. DeLiban, GUIDANCE SYSTEMS; 3,147,817, same, filed Jan. 12, 1973, D.C., E.D. Mich. (Detroit), Doc. 39494, *Barrett Electronics Corporation v. Jervis B. Webb Co.*

3,028,877, J. W. Thieme, PRESSURE AND FLOW CONTROL VALVE, filed Jan. 22, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c185, *Acco International Inc. v. Swingline Inc.*

3,054,306. (See 2,898,786.)

3,071,030. (See 2,898,786.)

3,065,777, R. L. Hallock, DRIVEN FASTENER HAVING PENETRATING POINT FOR ATTACHING OBJECTS TO METAL, filed D.C., S.D. Ohio (Dayton), Doc. 3981, *Gripnail Corp. et al. v. H. A. Jones, Inc.* Final judgment on consent including permanent injunction. Plaintiffs owners of patent, and claims are valid; defendant agreed to a permanent injunction; counterclaims involved in this action, dismissed with prejudice as to all parties, Jan. 23, 1973.

3,114,349, S. Schuman, STERILIZATION INDICATORS, filed Nov. 13, 1972, D.C., S.D. Ohio (Cincinnati), Doc. 6611, *Propper Mfg. Co. Inc. v. Adhere Corp.* Decision: Stipulation of dismissal including all claims and counterclaims, shall be dismissed with prejudice pursuant to Rule 41(a)(1), Nov. 13, 1972.

3,137,119, C. Crouzet, PROCESS FOR THE PRODUCTION OF HIGH BULK YARNS; 3,382,656, H. Crouzet, FALSE-TWIST FRAMES AND METHOD FOR TEXTURING SYNTHETIC FILAMENTS, filed Jan. 3, 1966, D.C.S.C. (Spartanburg), Doc. 71-308, 70-968, 69-1096, 68-705, 69-777, 70-14, 70-189, 70-250, 70-295, 70-358, 70-385, 70-386, 70-391, 70-493, 70-622, 70-628, 70-677, 70-683, 71-87, 71-88, 71-89, 71-90, 71-91, 71-92, 71-93, 71-94, 71-95, 71-96, 71-97, 71-98, 71-99, 71-100, 71-101, 71-102, 71-115, 71-126, 71-

127, and 71-283, *The Duplan Corporation v. Deering Milliken Inc., Deering Milliken Research Corp., Moulinage et Retorderie de Chavanoz, Ateliers Roannais de Constructions Textiles, and ARCT Inc.; Deering Milliken Research Corporation v. Duplan Corp. and Burlington Industries Inc.; The Duplan Corp. et al. v. Deering Milliken Research Corporation and Deering Milliken Inc., Moulinage et Retorderie de Chavanoz, Ateliers Roannais de Constructions Textiles, and ARCT Inc.* Decision: Said U.S. patents invalid, Jan. 17, 1972.

3,147,817. (See 3,009,525.)

3,149,481, M. B. Blish, SELF-ALIGNING NECK CARD LABEL, filed Jan. 23, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c194, *Matthew B. Blish v. Goldblatt Brothers Inc. et al.*

3,166,155. (See 2,989,302.)

3,180,335, Duncan and Baker, DISPOSABLE DIAPER; Re. 26,151, same, filed Jan. 26, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c237, *Procter & Gamble Co. v. Weyerhaeuser Co.*

3,333,388, Williams and Williams, WALKING TRACTOR CABS, filed Jan. 22, 1973, D.C., N.D. Ind. (Fort Wayne), Doc. 73 F 13, *Original Tractor Cab Company Inc. v. International Harvester Company and Royal Industries Inc.*

3,372,422. (See 2,782,448.)

3,372,423. (See 2,782,448.)

3,382,456. (See 3,137,119.)

3,448,698, A. M. Namirowski, SALT-SEPARATING UNIT FOR BAKING APPARATUS, filed Jan. 23, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c196, *A. M. Namirowski v. National Biscuit Co.*

3,480,019, S. J. Popell, ROLLER, CLIP AND COMPOSITION OF MATTER; 3,493,722, same, HAIR CURLER STEAMER AND FACIAL SAUNA DEVICE; 3,493,723, same, ELECTRIC STEAMING APPLIANCE, filed Feb. 10, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c295, *Popell Brothers Inc. v. Schick Electric, Inc.* Findings of fact and conclusion of law, order complaints in 71c295, 71c591, 71c979, and 71c1352 dismissed, Nov. 14, 1972.

3,485,312, Swenson and Skine, SNOWMOBILE TREAD DRIVE AND SUSPENSION SYSTEM, filed Jan. 2, 1970, Doc. 70-C-4, *Arctic Enterprises Inc. v. Huber Paint & Glass Inc.* Decision: Plaintiff's complaint is dismissed; patent invalid, Jan. 23, 1973. Same, filed Feb. 18, 1970, D.C., E.D. Wis. (Milwaukee), Doc. 70-C-88, *Arctic Enterprises Inc. v. Boulder Parts Corporation*. Decision: Plaintiff's complaint is dismissed; patent invalid, Jan. 23, 1973.

3,493,722. (See 3,480,019.)

3,493,723. (See 3,480,019.)

3,514,798, R. Ellis, SURF-BOARD CONSTRUCTION AND METHOD OF MAKING SAME, filed Jan. 24, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73-142-JWC, *Neal Townsend v. W.A.V.E. Inc. and Karl Pope*.

3,561,146, R. H. Dembar, PHOTOGRAPH DISPLAY APPARATUS, filed C.A. Sixth Circuit, Mich. (Detroit), Doc. 72-1555, *Graphicana Corporation v. Bata Corporation*. Appellant is owner of patent; upon motion by the appellee for summary judgment, the District Court found that the appellee's device did not infringe upon the appellant's patent because it lacked one of the elements of that patent, the validity of the patent is not in issue. The summary judgment granted by the District Court on this issue will not be disturbed. The judgment of the District Court is affirmed, Jan. 30, 1973.

3,711,864, G. Dickstein et al. HELMET STRUCTURE, filed Jan. 25, 1973, D.C., N.D. Ohio (Cleveland), Doc. C-73-79, *George Dickstein v. Seventy Corporation and Grantham Inc.* Re. 24,855, E. M. Noel, CONTINUOUS GRIDDLE, filed Jan. 5, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c55, *International Multifoods Corp. v. Campbell Soup Co. and Pepperidge Farm Inc.*

Re. 24,924. (See 2,898,786.)

Re. 26,151, Duncan and Baker, DISPOSABLE DIAPER, filed Jan. 31, 1973, D.C., W.D. Wash. (Seattle), Doc. 70-73C2, *Weyerhaeuser Company v. Procter & Gamble Co.*

Re. 26,151. (See 3,180,335.)

JUNE 5, 1973

U. S. PATENT OFFICE

3

Certificates of Correction for the Week of June 5, 1973

D. 223,694	3,677,781	3,693,069	3,704,847
D. 225,483	3,678,713	3,693,106	3,705,076
D. 225,749	3,679,384	3,693,113	3,705,279
D. 225,799	3,679,749	3,693,253	3,705,468
D. 226,023	3,680,037	3,694,365	3,705,647
3,515,968	3,681,839	3,694,466	3,705,648
3,532,081	3,681,898	3,694,515	3,706,120
3,536,694	3,682,204	3,694,545	3,706,165
3,539,045	3,682,936	3,694,970	3,706,341
3,557,895	3,683,091	3,695,121	3,706,648
3,560,479	3,683,348	3,695,129	3,706,702
3,574,955	3,683,437	3,695,244	3,706,825
3,582,411	3,683,859	3,695,585	3,707,088
3,584,183	3,684,000	3,696,186	3,707,497
3,587,946	3,684,164	3,696,859	3,707,915
3,596,438	3,684,253	3,697,315	3,708,165
3,600,033	3,684,323	3,697,989	3,708,207
3,617,944	3,684,340	3,698,529	3,708,331
3,620,699	3,685,090	3,698,588	3,708,524
3,623,523	3,685,241	3,698,985	3,709,016
3,626,278	3,685,507	3,699,076	3,709,056
3,636,536	3,685,567	3,699,228	3,709,276
3,639,194	3,686,040	3,700,268	3,709,389
3,639,457	3,686,186	3,700,672	3,709,853
3,643,542	3,686,210	3,700,682	3,709,868
3,646,023	3,686,367	3,700,868	3,709,934
3,646,210	3,686,405	3,700,890	3,710,165
3,646,556	3,686,635	3,700,975	3,710,324
3,646,830	3,686,837	3,701,398	3,710,672
3,647,397	3,686,867	3,701,399	3,711,286
3,651,091	3,687,565	3,701,737	3,711,701
3,653,751	3,687,682	3,701,971	3,712,320
3,653,951	3,688,295	3,702,165	3,712,396
3,659,011	3,688,872	3,702,525	3,712,440
3,663,775	3,689,543	3,702,580	3,712,568
3,664,819	3,690,247	3,702,618	3,712,690
3,666,476	3,691,190	3,702,711	3,713,123
3,667,630	3,691,240	3,702,805	3,713,123
3,669,217	3,692,085	3,702,921	3,713,711
3,672,252	3,692,311	3,703,491	3,713,851
3,674,508	3,692,363	3,703,510	3,714,044
3,674,880	3,692,405	3,703,593	3,714,088
3,675,090	3,692,606	3,704,227	3,716,895
3,676,705	3,692,839	3,704,308	
3,677,255	3,692,879	3,704,676	
3,677,490	3,692,939	3,704,806	

Classification Order No. 411

Classification Order No. 411, dated Mar. 28, 1973, incorporates changes in the following classes:

- 60, POWER PLANTS
- 204, CHEMISTRY, ELECTRICAL AND WAVE ENERGY
- 250, RADIANT ENERGY
- 271, SHEET FEEDING OR DELIVERING

DESIGN CLASSES

- D1, FOODSTUFFS AND DIETETIC FOODS
- D6, FURNISHINGS
- D7, HOUSEHOLD GOODS, NOT ELSEWHERE SPECIFIED—Established
- D9, PACKAGES AND CONTAINERS
- D22, ARMS AND EQUIPMENT FOR HUNTING, FISHING, VERMIN AND INSECT TRAPPING
- D23, FLUID OR GAS DISTRIBUTION, SANITARY, HEATING, VENTILATION AND AIR CONDITIONING EQUIPMENT
- D26, ELECTRICITY
- D36, GLASS—Abolished
- D37, GRINDING AND POLISHING
- D44, HOUSEHOLD ARTICLES—Abolished
- D49, LAUNDRY, DRY CLEANING AND CLEANING
- D54, METAL WORKING
- D81, COOKING RANGES, STOVES AND COOKERS
- D89, VEGETABLE CUTTERS AND CRUSHERS—Abolished

All changes will be incorporated in the Manual of Classification pages dated April 1973.

E. E. YOUNG,
Acting Administrator,
Office of Patent Classification.

Patents Withdrawn From Register

General Electric Company hereby withdraws the following patent from the Register of Patents Available for Licensing or Sale. The patent was listed as being available in the OFFICIAL GAZETTE as indicated below:

3,532,931. PHOTOFLASH ASSEMBLY FOR SEQUENTIAL-FLASHING LAMPS UTILIZING VOLTAGE AND CURRENT RESPONSIVE DEVICES. Feb. 13, 1973.

Patents Available for Licensing or Sale

D. 222,363. DECORATIVE HANGING INCLUDING SKELETAL FRAMEWORK. Clifton Bullard, 310 Prescott Place, Plainfield, N.J., 07063.

2,762,485. AUTOMATIC COMPOSING MACHINE. Georges P. BaFour et al. Correspondence to: Cabinet Chereau and Cabinet Rodes, 107 Boulevard Perdre, 75017 Paris, France.

2,995,619. SYSTEM OF TELEVISION TRANSMISSION AND PHOTOGRAPHIC REPRODUCTION OF THE TELE-VISED IMAGE. Samuel Freeman, 13 Birchwood Court E., Syosset, N.Y., 11791.

3,465,373. HOSPITAL BED. Harriet A. Wilson, 115 Hill-top Road, Waverly, Pa., 18471.

3,474,799. TOOTH SPACE DENTAL FLOSS HOLDER CLEANER. Vito F. Cappello, 1047 Franklin St., Santa Monica, Calif., 90403.

3,602,389. CONTAINER OPENER AND HANDLE ASSEMBLY. David E. Russell, 110 Riverside Ave., Jacksonville, Fla., 32202.

3,609,533. FAULT LOCATING SYSTEM FOR DETERMINING DISTANCE, ETC. William H. Pardis, 1300 1st Ave. S., Great Falls, Mont., 59401.

3,636,938. PORTABLE COOKING GRILL. Edward J. Falterback, 19517 Almaden Road, San Jose, Calif., 95120.

3,642,325. PROCESS AND APPARATUS FOR MINING BY RETREAT REAMING. Charles S. Mulvaney, 2211 Greenleaf Ave., Chicago, Ill., 60645.

3,661,166. FLUID LOGIC CONTROL SYSTEM. R. W. Watson, Garlock Inc., Division St., Palmyra, N.Y., 14522.

3,698,512. COLLAPSIBLE LADDER DEVICE. John V. Cebular, 2126 Shallock St., Philadelphia, Pa.

3,703,210. MOLD BOARD MATERIALS GATE FOR MOTOR PATROLS. Marion Williams or Raymond R. Miller, Route #3, Box 74-C, Moscow, Idaho, 83843.

3,712,307. SKIN CONDITIONING APPARATUS. Veronica H. McLaughlin, 5521 El Sereno, Los Altos, Calif., 94022.

3,724,557. APPARATUS ADAPTED TO BE COUPLED TO A TRACTION VEHICLE SERVING FOR THE MAINTENANCE OR CONSTRUCTION OF WATERBOUND ROADS. Marcel Boschung et al. Correspondence to: Werner W. Kleemann, Suite 501, Crystal Plaza 1, 2001 Jefferson Davis Highway, Arlington, Va., 22202.

3,727,857. CONVERTIBLE FISHING REEL. George B. Chann, 160 Church St., Bridgeton, N.J., 08302.

First Kentucky Trust Company, Executor of the Donald McDonald Estate, offers to license or sell the following 2 patents. Replies should be directed to: First Kentucky Trust Company, P.O. Box 1677, Louisville, Ky., 40201. Attn. R. M. Biggs.

2,807,253. CAMERA.

3,136,612. DISH DRYER.

RCA Corporation offers to grant non-exclusive licenses on reasonable terms and conditions under the following 18 patents. Inquiries respecting licenses should be addressed to: RCA Corporation, Staff Vice President, Domestic Licensing, 1133 Avenue of the Americas, New York, N.Y., 10036.

3,719,981. METHOD OF JOINING SOLDER BALLS TO SOLDER BUMPS.

3,720,525. ELECTROLESS COPPER PLATING SOLUTIONS WITH ACCELERATED PLATING RATES.

3,720,922. CHARGE COUPLED MEMORY.

3,720,925. MEMORY SYSTEM USING VARIABLE THRESHOLD TRANSISTORS.

3,721,553. METHOD OF TRANSFERRING MAGNETIC TONER PARTICLES IN AN IMAGE CONFIGURATION AND APPARATUS THEREFOR.

3,721,857. WAVEFORM GENERATING CIRCUIT.

- 3,721,889. LOAD SENSING CIRCUITS.
- 3,721,918. NEGATIVE RESISTANCE SEMICONDUCTOR COUPLED TRANSMISSION LINE APPARATUS.
- 3,721,923. ELECTRICALLY VARIABLE WAVEGUIDE PHASE SHIFTER COMPRISING A SLAB OF SEMICONDUCTIVE MATERIAL.
- 3,721,924. VARIABLE DELAY LINE UTILIZING ONE PART REFLECTION TYPE AMPLIFIER.
- 3,721,930. DEFLECTION YOKE FOR USE WITH IN-LINE ELECTRON GUNS.
- 3,721,931. ELECTROMAGNETIC FOCUSING AND DEFLECTION ASSEMBLY FOR CATHODE RAY TUBES.
- 3,721,955. DISABLED VEHICLE SIGNALLING SYSTEM.
- 3,721,990. PHYSICALLY SMALL COMBINED LOOP AND DIPOLE ALL CHANNEL TELEVISION ANTENNA SYSTEM.
- 3,722,044. FABRICATION OF FOCUS GRILL TYPE CATHODE RAY TUBES.
- 3,723,651. OPTICALLY-SCANNED LIQUID-CRYSTAL PROJECTION DISPLAY.
- 3,723,833. HEAT SINKING OF SEMICONDUCTOR INTEGRATED CIRCUIT DEVICES.
- 3,723,905. DUAL-GATE MOS-FET OSCILLATOR CIRCUIT WITH AMPLITUDE STABILIZATION.
- The General Electric Company is prepared to grant non-exclusive licenses under the following 79 patents upon reasonable terms to domestic manufacturers.
Applications for license under the following 4 patents may be addressed to: Division Patent Counsel, Switchgear Equipment Business Div., General Electric Co., 8901 Elmwood Ave., Philadelphia, Pa., 19142.
- 3,395,443. METHOD OF FORMING A HIGH TEMPERATURE RESISTANT BOND BETWEEN ALUMINUM AND A DISSIMILAR METAL.
- 3,430,015. VACUUM-TYPE INTERRUPTER HAVING BRAZED JOINTS PROTECTED FROM WELD-INHIBITING CONSTITUENT IN CONTACT STRUCTURE.
- 3,495,165. VACUUM DEVICE GAS MEASUREMENT APPARATUS AND METHOD.
- 3,622,724. VACUUM-TYPE CIRCUIT INTERRUPTER HAVING CONTACTS WITH IMPROVED ARC-REVOLVING MEANS.
- Applications for license under the following 18 patents may be addressed to: Division Patent Counsel, Lamp Business Division, General Electric Co., Nela Park, Cleveland, Ohio, 44112.
- 3,598,984. PHOTOFLASH LAMP ARRAY.
- 3,598,985. CONSTRUCTION OF DISPOSABLE PHOTOFLASH LAMP ARRAY.
- 3,609,332. PHOTOFLASH LAMP ARRAY WITH REFLECTOR-LAMP MODULE.
- 3,617,763. DELAY LINE CIRCUIT FOR SEQUENTIALLY FLASHING PHOTOFLASH LAMPS.
- 3,619,715. RESISTOR CIRCUIT FOR SEQUENTIALLY FLASHING PHOTOFLASH LAMPS.
- 3,635,647. ELECTRICAL RESISTOR CIRCUIT FOR SEQUENTIALLY FLASHING PHOTOFLASH LAMPS.
- 3,663,861. CIRCUIT UTILIZING FEEDBACK AMPLIFIER FOR SEQUENTIALLY FLASHING PHOTOFLASH LAMPS.
- 3,668,488. SOLID STATE CIRCUITS FOR GUARANTEED SEQUENTIAL FLASHING OF PHOTOFLASH LAMP ARRAY.
- 3,669,607. SIMPLIFIED DIODE CIRCUIT FOR SEQUENTIALLY FLASHING PHOTOFLASH LAMPS.
- 3,670,639. FLEXIBLE ELECTRONIC INTEGRATED CIRCUIT CAMERA CONTROL ASSEMBLY.
- 3,676,044. CIRCUIT UTILIZING MAGNETIZED CORES FOR SEQUENTIALLY FLASHING PHOTOFLASH LAMPS.
- 3,676,045. SEQUENCING STATIC ELECTRONIC FLASHING CIRCUITS FOR PHOTOFLASH LAMP ARRAY.
- 3,676,046. RESISTOR CIRCUIT ASSEMBLY FOR SEQUENTIALLY FLASHING PHOTOFLASH LAMPS.
- 3,694,696. DIODE CIRCUIT FOR SEQUENTIALLY FLASHING PHOTOFLASH LAMPS.
- 3,694,697. TRANSISTOR CIRCUIT FOR SEQUENTIALLY FLASHING PHOTOFLASH LAMPS.
- 3,714,508. SEQUENTIAL FLASHING OF MULTIPLE LAMPS BY LOW COST STATIC CONTROL CIRCUIT OF INTEGRATED DESIGN.
- 3,718,422. PHOTOFLASH FIRING CIRCUITS EMPLOYING SERIES RESISTOR-DIODE COMBINATIONS.
- 3,725,893. LINEAR PHOTOFLASH LAMP ARRAY AND REFLECTOR UNIT THEREFOR.
- Applications for license under the following 57 patents may be addressed to: Patent Counsel Electronic Components Business Division, General Electric Company, 316 E. 9th St., Owensboro, Ky.
- 3,302,072. ELECTRICAL DEVICE WITH CASING SEAL MEMBERS COMPRISING A CAVITY IN MEETING SURFACE.
- 3,302,073. ELECTRICAL CAPACITORS AND ELECTRODE MATERIAL THEREFOR.
- 3,310,724. BATTERY CHARGING REGULATORS.
- 3,325,698. ELECTRICAL CAPACITOR ELECTRODE AND METHOD OF MAKING THE SAME.
- 3,335,073. METHOD OF MAKING ANODIZED TANTALUM FOIL.
- 3,351,794. ELECTRON BEAM DEVICE WITH HIDDEN CATHODE HAVING ANNULAR, FRUSTOCONICAL EMISSIVE SURFACE.
- 3,351,823. NON-AQUEOUS CAPACITOR ELECTROLYTE HAVING A SALT DISSOLVED IN A COSOLVENT.
- 3,356,533. SECONDARY CELL HAVING HYDROGEN-OXYGEN RECOMBINATION CATALYST IN COMMUNICATION WITH ELECTROLYTE CHAMBER.
- 3,365,626. ELECTRICAL CAPACITOR.
- 3,368,100. VACUUM PUMP HAVING A RADially SEGMENTED, ANNULAR ANODE.
- 3,378,408. ELECTROLYTIC CELL EMPLOYING ALUMINUM AS NEGATIVE ELECTRODE AND AN ALKALINE ELECTROLYTE CONTAINING HYPOCHLORITE ANIONS.
- 3,378,471. ANODIZED TANTALUM AND NIOBIUM AND METHOD OF FORMING AN OXIDE COATING THEREON.
- 3,378,767. MARKING INCREMENTAL LENGTHS OF INSULATED FOIL STRIP ELECTRODES IN EQUAL CAPACITANCES IN RESPONSE TO INTEGRATED SPEED AND CAPACITANCE SIGNALS.
- 3,382,102. ZINC-BROMINE SECONDARY CELL.
- 3,386,047. TRANSVERSE WAVE AMPLIFIER.
- 3,401,314. ELECTROLYTIC CAPACITOR HAVING A COVER WITH SEALING AND VENTING MEANS THEREIN.
- 3,409,978. METALCLADDING PROCESS.
- 3,415,689. FLUOROCARBON BONDED SPINAL OXYGEN ELECTRODE.
- 3,421,068. TRICKLE CHARGE VOLTAGE STABILIZATION NICKEL-CADMIUM BATTERY.
- 3,422,319. BONDED COMPOSITE END PLUG SEAL FOR ELECTROLYTIC CAPACITORS.
- 3,429,831. LITHIATED NICKEL OXIDE CRYSTALS.
- 3,434,812. THERMIONIC CATHODE.
- 3,437,949. OUTPUT CIRCUITS FOR MICROWAVE DISCHARGE DEVICES.
- 3,454,825. COMPOSITE MAGNET STRUCTURE.
- 3,458,754. INVERTED CROSS FIELD DEVICE HAVING AN ARCATELY SEGMENTED CATHODE.
- 3,459,651. PROCESS OF CONTINUOUSLY FORMING BIPOLAR ELECTRODES BY THE USE OF ELECTROPHORESIS.
- 3,475,297. METHOD OF MAKING BATTERY SEPARATORS.
- 3,475,572. ACCELERATION ACTUATED SWITCH WITH EXPLOSIVE CHARGE AND THERMITIC MATERIAL.
- 3,475,659. SELF-HEALING CAPACITOR ASSEMBLY.
- 3,477,875. BATTERY HAVING ELECTRODEPOSITED SEPARATOR ON THE PLATES AND METHOD OF MAKING SAME.

- 3,479,442. LEAD CONNECTION MEANS FOR VOLTAGE TUNABLE MAGNETRONS.
- 3,483,438. CAPACITOR HAVING ELECTRODE COATED WITH CONDUCTIVE SOLID POLYMER ELECTROLYTE.
- 3,484,861. MULTIPLE BEAM R.F. APPARATUS TUNER.
- 3,486,132. GUNN EFFECT DEVICE HAVING IMPROVED PERFORMANCE.
- 3,488,227. HERMETIC SEAL CLOSURE FOR AN ELECTROCHEMICAL CELL.
- 3,497,396. MOISTURE CONSERVING PRESSURE CONTROL UNIT FOR ELECTROCHEMICAL CELLS.
- 3,502,948. DUAL O-RING SEAL FOR CAPACITORS.
- 3,503,806. RECHARGEABLE BATTERY OF THE SPIRAL WOUND PLATE TYPE.
- 3,504,237. ELECTROLYTIC CAPACITOR AND ELECTROLYTE THEREFOR.
- 3,509,425. ELECTROLYTIC CAPACITOR AND ELECTROLYTE MATERIAL THEREFOR.
- 3,509,426. CAPACITOR WITH IONIC CONDUCTING CERAMIC ELECTROLYTE.
- 3,509,427. ELECTROLYTE CAPACITOR CASING STRUCTURE.
- 3,516,018. OPERATION OF SERIES CONNECTED GUNN EFFECT DEVICES.
- 3,516,862. RECHARGEABLE ALKALINE-ZINC CELL WITH POROUS MATRIX CONTAINING TRAPPING MATERIAL TO ELIMINATE ZINC DENDRITES.
- 3,521,146. MICROWAVE POWER RECTIFIER WITH MULTIPACTOR DISCHARGE.
- 3,525,135. THERMIONIC CATHODE.
- 3,525,895. LIQUID POOL CATHODE TYPE DISCHARGE DEVICE WITH COMPLEMENTARY BAFFLE MEANS.
- 3,525,897. ELECTRON DISCHARGE DEVICE.
- 3,527,976. LOG PERIODIC ELECTRON DISCHARGE DEVICE.
- 3,531,382. DRY OXIDE CAPACITOR AND METALLIZING PROCESS FOR MAKING SAME.
- 3,531,693. ELECTROLYTIC CAPACITOR WITH RUTHENIUM METAL CATHODE SURFACE.
- 3,532,555. ENCAPSULATED ELECTROLYTE BATTERY.
- 3,534,209. IMAGE ORTHICON TARGET ASSEMBLY AND SEALING GLASS COMPOSITION THEREFOR.
- 3,547,423. ELECTROLYTIC CAPACITOR AND ELECTROLYTE MATERIAL THEREFOR.
- 3,548,246. BICONICAL LOG PERIODIC AMPLIFIER.
- 3,548,264. ELECTROLYTIC CAPACITOR RIVET SEAL.
- 3,548,265. POROUS ANODE CAPACITOR.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant-Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MAY 15, 1973

PATENT EXAMINING GROUPS

Actual
Filing Date
of Oldest
New Case
Awaiting
Action

CHEMICAL EXAMINING GROUPS

GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director.
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro
Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and
Igniting Devices.
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director.
Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Pesticides; Medicines; Cosmetics; Steroids;
Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director.
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins
With Natural Polymers and Resins; Natural Resins; Reclaiming; Pre-Forming; Compositions (Part) e.g.: Coating; Molding;
Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director.
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical
Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director.
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas;
Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation;
Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.

ELECTRICAL EXAMINING GROUPS

INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director.
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches;
Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director.
Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-
Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director.
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Device and
Related Arts.
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director.
Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical
Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director.
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Net-
works; Optics; Radiant Energy; Measuring.
DESIGNS, GROUP 260—R. L. CAMPBELL, Director.
Industrial Arts; Household, Personal and Fine Arts.

MECHANICAL EXAMINING GROUPS

HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director.
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling;
Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics;
Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director.
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire
Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and
Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders; Woodworking; Tools; Cutlery; Jacks.
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director.
Amusement and Exercising Devices; Projectors; Animal and Plan Husbandry; Butchering; Earth Working and Excavation;
Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery;
Information Dissemination.
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director.
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and
Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gear-
ing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director.
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators;
Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations;
Coating; Textiles; Apparel and Shoes; Sewing Machines.

Expiration of patents: The patents within the range of numbers indicated below expire during May 1973, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,743,442 to 2,748,387, inclusive
Plant Patents..... Numbers 1,472 to 1,480, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED JUNE 5, 1973

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

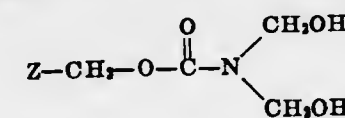
T911,001 DURABLE-PRESS TEXTILES OF IMPROVED STAIN RELEASE

Howard M. Lewis, 1912 Hermitage Drive 37664, and
Forrest F. Schrum, Jr., 839 Sir Echo Drive 37663,
both of Kingsport, Tenn.
Continuation of abandoned application Ser. No. 845,878,
July 29, 1969. This application Mar. 15, 1971, Ser.
No. 124,588

Int. Cl. D06m 9/00
U.S. Cl. 8—115.6

No Drawing. 19 Pages Specification

Durable-press, polyester-cellulosic blend textile material of improved stain release properties are prepared by impregnating said textile material with a composition comprising (A) a surface active agent selected from a polyalkylene glycol ether of bis(alkyl-substituted hydroxyphenyl)methane or the condensation product of castor oil and ethylene oxide (B) a carbamate compound having the structure:



wherein Z is H, an alkyl of 1 to 2 carbon atoms, HOCH₂— or CH₃O— and (C) a softener comprising the monomeric condensation product of a fatty acid having 10 to 18 carbon atoms and a polyethylene glycol.

T911,002 MAGNETIC TORQUE TRANSFER SYSTEM

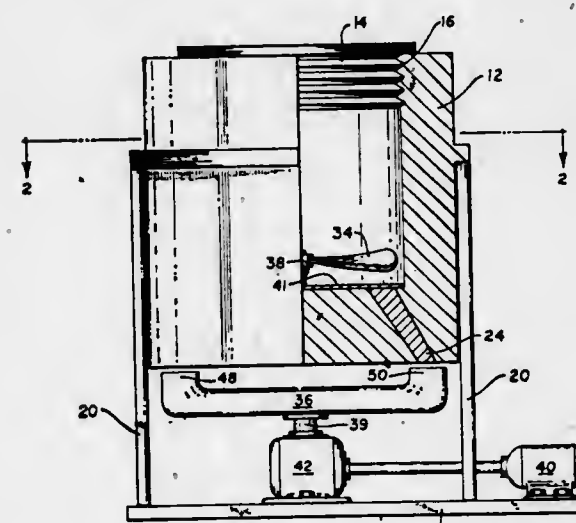
James W. Henry, 3958 Skyland Drive,
Kingsport, Tenn. 37664

Filed Sept. 9, 1971, Ser. No. 178,975

Int. Cl. B01f 13/08

U.S. Cl. 259—108

3 Sheets Drawing. 9 Pages Specification



A magnetic torque transfer system is disclosed in which a magnetized driving member is coupled to a magnetized

driven member through magnetic flux, wherein the members are separated by a reluctant shield, air gap, or both. The efficiency of the system is greatly increased by providing low reluctance, temporarily magnetizable elements between the magnetized driving and driven members, extending though the high reluctance shield or air gap. The efficiency may be further increased by the use of exciting coils on the elements. The system is particularly useful in autoclaves.

T911,003 GRANULATION SLITTER

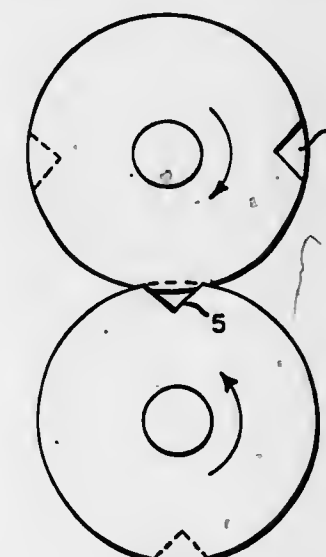
Louis Eugene Hjelmeireich, Jr., Louisville, Ky., assignor to
E. I. du Pont de Nemours and Company, Wilmington,
Del.

Filed Apr. 6, 1972, Ser. No. 241,682

Int. Cl. B26d 1/24

U.S. Cl. 83—675

1 Sheet Drawing. 3 Pages Specification



An improved rotary slitter wherein circular intermeshed slitting discs are notched. The slitter periodically leaves an uncut portion of the feed material, forming filaments which are interconnected.

T911,004 LITHOGRAPHIC PRINTING PLATE

James F. McKague, Kodak Park, Rochester, N.Y. 14650

Filed Apr. 20, 1972, Ser. No. 246,014

Int. Cl. G03f 7/02

U.S. Cl. 96—86

No Drawing. 20 Pages Specification

A lithographic printing plate comprises an aluminum surface coated with a coating of chromium phosphate and having thereon an image-forming layer which can be a radiation sensitive layer or a silver precipitating layer. The aluminum is typically immersed in an aqueous solution of chromium oxide, phosphoric acid and sodium fluoride. An image can be obtained on the plate by diffusion

transfer after which the plate is treated with an oleophilic compound to improve the ink water differential or the image may be formed using a light sensitive coating such as a silver halide emulsion, diazo resin, etc.

T911,005

POLY-ALPHA-OLEFIN GRAFT POLYMERS

Max F. Meyer, Jr., Robert L. Combs, and Willis C. Wooten, Jr., all of P.O. Box 511, Kingsport, Tenn. 37662

Continuation-in-part of application Ser. No. 779,643, Nov. 27, 1968, and a continuation of application Ser. No. 125,844, Mar. 18, 1971. This application May 30, 1972, Ser. No. 257,992

Int. Cl. C08f 15/00
U.S. Cl. 260—878 R

No Drawing. 32 Pages Specification

Graft polymers prepared by reacting poly-alpha-olefins containing monomers having at least 3 carbon atoms, and having an unsaturation of at least 0.05 percent with vinyl and acrylic monomers containing as a catalyst an organic peroxide selected from the group consisting of benzoyl peroxide and tertiary butyl perbenzoate.

T911,006

POLYETHYLENE GRAFT POLYMERS

Max F. Meyer, Jr., Robert L. Combs, and Willis C. Wooten, Jr., all of P.O. Box 511, Kingsport, Tenn. 37662

Continuation-in-part of application Ser. No. 779,637, Nov. 27, 1968, and a continuation of application Ser. No. 125,892, Mar. 18, 1971. This application May 30, 1972, Ser. No. 257,993

Int. Cl. C08f 15/00
U.S. Cl. 260—878 R

No Drawing. 23 Pages Specification

Graft polymers prepared by reacting polyethylene having unsaturation of at least 0.10 percent with vinyl and acrylic monomers containing as a catalyst an organic peroxide selected from the group consisting of benzoyl peroxide and tertiary butyl perbenzoate.

T911,007

AROMATIC POLYMERS

Ian Charles Taylor, Bengoe, England, assignor to Imperial Chemical Industries Limited, London, England

Filed June 27, 1972, Ser. No. 266,728

Claims priority, application Great Britain, July 5, 1971, 31,414/71

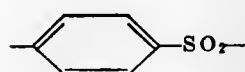
Int. Cl. C07c 147/06
U.S. Cl. 260—607 A

No Drawing. 7 Pages Specification

Polyarylene sulphides are homogeneously oxidized to polyarylene sulphones according to the process disclosed, which is characterized by first dissolving the oxidant that is selected in a sulfuric acid medium, then adding the polyarylene sulphide to the oxidant-containing sulfuric acid medium. The oxidation reaction is conducted in solution and may be terminated, if desired, at any stage of reaction to produce a polymer which is homogeneously oxidized throughout to an intermediate oxidation stage between the polyarylene sulphide and the ultimate polyarylene sulphone. Partially oxidized polymers are con-

veniently fabricated into fibers without need of initial filtration.

Illustrative is the oxidation of poly(phenylene sulphide sulphone) where a 30 weight percent solution of hydrogen peroxide in water is added to concentrated sulfuric acid and the resulting solution is added to the poly(phenylene sulphide sulphone) at a temperature between about -30° and 100° C. The resulting polymer had repeating units of the formula:



Only partially oxidized polymers are prepared by using sufficient oxidant, such as hydrogen peroxide, to oxidize only a portion of the thioether linkages to sulphone linkages. Partially oxidized polymers thus formed where the number of $-SO_2-$ and $-SO-$ linkages are about equal are soluble in concentrated sulfuric acid and may be wet spun into silky fibers.

T911,008

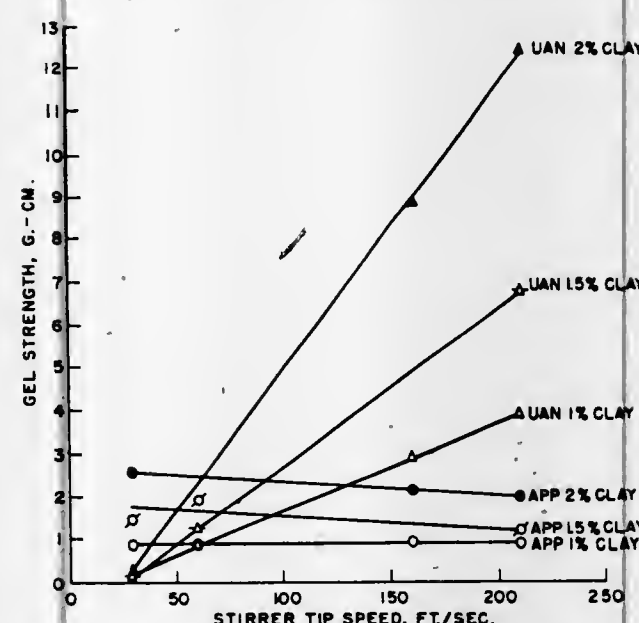
NITROGEN SOLUTIONS AND SUSPENSIONS

John G. Getsinger, 420 Eason, Florence, Ala. 35660

Filed July 31, 1972, Ser. No. 276,591

Int. Cl. C05c 9/00
U.S. Cl. 71—30

1 Sheet Drawing. 10 Pages Specification



COMPARISON OF EFFECTS OF SHEAR-TYPE STIRRING FOR 16 MINUTES AND CLAY CONTENT ON GEL STRENGTHS DEVELOPED IN UREA-AMMONIUM NITRATE (32% N) AND AMMONIUM POLYPHOSPHATE (11% N AND 37% P_2O_5)

The process produces improved fluid nitrogen fertilizers by addition of a gelling-type clay and utilizing high-shear agitation for dispersion of the clay. Clay is dispersed in nitrogen solutions, such as urea-ammonium nitrate solution, with a high-shear agitator or centrifugal pump. A high degree of shear is necessary for dispersing clay in nitrogen solutions; shear may be provided by high speed of agitator blades or impeller blades in a pump. Shear may be the result of cutting action of blades through the fluid or close clearance of two parts of a shearing-type agitator or pump. Products with clay well dispersed, as measured by a gelometer, have improved storage characteristics at low temperatures, may be used for direct application, and give improved suspensions when mixed

with fluids containing phosphate and potassium. In addition to the improvements in quality, the clay in the nitrogen solution eliminates the necessity of adding extra clay to the NPK fertilizers at the time of fertilizer mixing. Simple blending equipment and operation for mixing fluids can be used at the fertilizer mixing site, as compared with the use of more expensive equipment and operation for gelling the clay.

T911,009

METHOD FOR INCREASING THE AVAILABILITY OF DRUGS HAVING HIGH SERUM PROTEIN BOUND CHARACTERISTICS

John H. Perrin, Madison, Wis., assignor to the United States of America as represented by the Secretary, Department of Health, Education, and Welfare
Continuation of abandoned application Ser. No. 93,473, Nov. 27, 1970. This application Sept. 25, 1972, Ser. No. 292,248

Int. Cl. A61k 27/00
U.S. Cl. 424—317

No Drawing. 8 Pages Specification

A method for improving the availability of highly serum protein bound drugs by administering such drug in combination with a water soluble salt of trichloroacetic acid.

T911,010

SPARK GAP ASSEMBLY HAVING ARC-EROSION RESISTANT ELECTRODES

Eugene C. Sakshaug, Grove Ave., Lanesborough, Mass. 01237, and Earl W. Stetson, 132 Unkemet Drive, Pittsfield, Mass. 01201

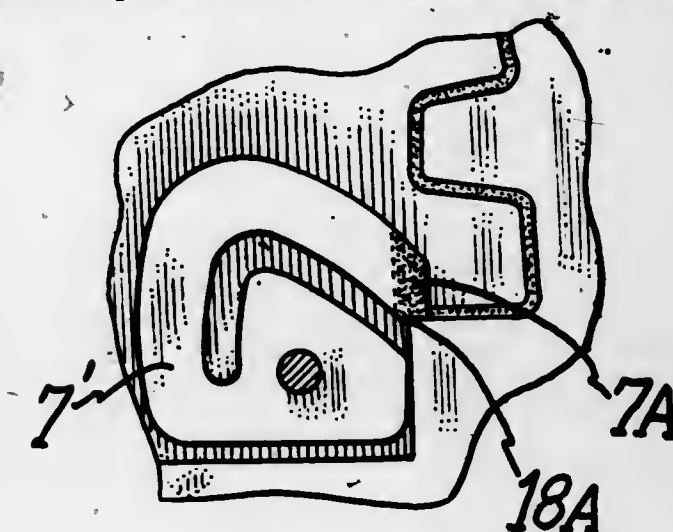
Continuation of application Ser. No. 869,043, Oct. 24, 1969. This application Sept. 29, 1972, Ser. No. 293,654

Int. Cl. H01n 1/00, 7/44, 13/46
U.S. Cl. 313—325

1 Sheet Drawing. 10 Pages Specification

A spark gap assembly of a type utilized in lightning arresters is provided with electrodes comprising arc-running surfaces having good electrical conductance, in com-

bination with arc-terminal portions formed of refractory metal that prevents arcs extinguished in the spark gap as-



sembly from eroding the arc-terminal portions of the electrodes.

T911,011

DE-INKABLE NEWS INK COMPOSITIONS

Michael Pugliese, Passaic, N.J., assignor to J. M. Huber Corporation, Locust, N.J.
Filed Oct. 20, 1972, Ser. No. 299,543

Int. Cl. C09d 11/00

U.S. Cl. 106—32

No Drawing. 12 Pages Specification

A news ink composition for use in printing newspaper, containing a water soluble, nonionic, dispersing and emulsifying agent to improve the brightness of the de-inked newsprint. The ink composition comprises carbon black, mineral ink oil and small quantities of a dispersing agent which physically or chemically attach to the ink ingredients. In the de-inking process the dispersing agent emulsifies the dark materials of the ink and frees them in a colloidal state from the web of the recovered pulp.

REISSUES

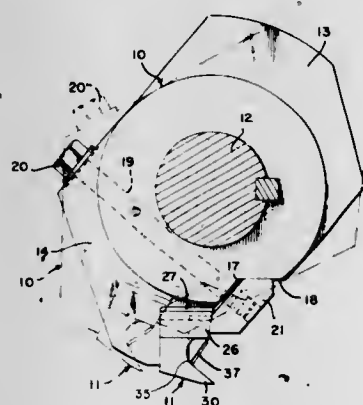
JUNE 5, 1973

Matter enclosed in heavy brackets **[]** appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,654
CUTTER-HEAD STRUCTURE
 Frederic F. Chapman, Coquitlam, British Columbia, and Daniel Hill, Kelowna, British Columbia, Canada, assignors to Ernest E. Runnion, Shelton, Wash.
 Original No. 3,487,865, dated Jan. 6, 1970, Ser. No. 661,062, Aug. 16, 1967. Application for reissue May 17, 1971, Ser. No. 144,159.
 Int. Cl. B27g 13/00

U.S. Cl. 144—229

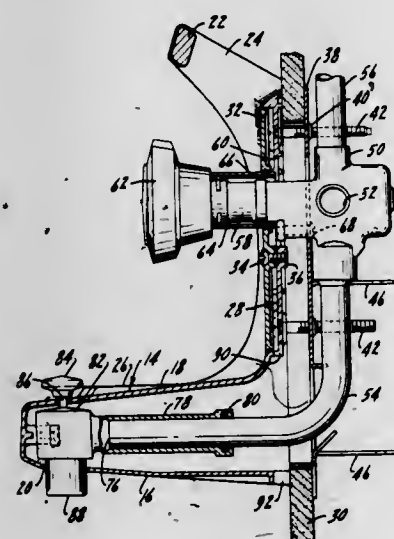
16 Claims



A cutter head with a chipping tooth for taking slices of wood from a work piece, the slices separating into cards by horizontal shear, and incorporating a splitter which initiates on the cards as they are projected from the cutting tooth a vertical shear to insure that the cards will be divided into chips of a width most desirable for the digesting process of a high-grade pulping operation.

27,655
BATHTUB COMBINATION PLUMBING FIXTURE
 Paul A. Mongerson, Elyria, and Joseph E. Ellison, Amherst, Ohio, assignors to Stanadyne, Inc., Hartford, Conn.
 Original No. 3,443,266, dated May 13, 1969, Ser. No. 685,375, Nov. 24, 1967. Application for reissue May 8, 1970, Ser. No. 35,948.
 Int. Cl. E03c 1/00; F16l 5/00
 U.S. Cl. 4—191

17 Claims



This invention relates to a plumbing fixture and means for mounting it. In particular the invention relates to a

bathtub combination plumbing fixture which may include, as an integral part of the fixture, a grab bar or hand grip, a mixing valve and a control member therefor, a soap dish, a spout for water discharge into the tub, and a diverter for controlling water flow to the spout or shower. The mounting for the plumbing fixture is formed by means of a mounting plate, positioned on the opposite side of the wall surface from the utilitarian and decorative portions of the plumbing fixture described above.

27,656
PROCESS OF CURING POLYMERIZABLE RESINS HAVING TERMINAL VINYL ESTER GROUPS USING HIGH ENERGY ELECTRONS
 Lewis S. Miller, Bellevue, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
 No Drawing. Original No. 3,560,237, dated Feb. 2, 1971, Ser. No. 721,152, Apr. 15, 1968. Application for reissue Oct. 28, 1971, Ser. No. 193,580.
 Int. Cl. B44d 1/50

U.S. Cl. 117—93.31

16 Claims

A process of coating a porous or nonporous substrate with a liquid polymerizable film and subjecting the coated substrate to ionizing radiation sufficient to impart to the coating composition a dose of from 1 to 10 megarads in one second or less. The coating compositions, capable of substantially complete polymerization in less than one second, contain undiluted vinyl ester resins having terminal vinyl ester groups, or the above dissolved in vinyl monomers. The vinyl ester resins are made by reacting:

- (1) A polyfunctional material selected from the group consisting of (a) dicarboxylic acids or acid chlorides having from 4 to 15 carbon atoms, and (b) [polyepoxides having terminal, reactive glycidyl groups, (c)] polyfunctional isocyanates having terminal, reactive isocyanate group **[]**, or (d) dicarboxylic acid esters of polyepoxides, polyamines, polyisocyanates, with 2-hydroxyalkyl acrylates or methacrylates; or
- (2) a half ester of 2-hydroxyalkyl acrylate[s] or methacrylate[s] and a dibasic acid with a polyepoxide.

Particularly useful are coating compositions containing resins having terminal acrylate groups and an acrylate monomer, the polyfunctional acrylate having more than one 2-oxyalkylacrylate end group per molecule with the end groups being joined by a hydrophobic molecule such as a dicarboxylic acid, polyfunctional isocyanate or polyepoxide.

27,657
BALE THROWER
 Gust Soteropulos and Theodore Marion Barnes, by Deere and Co., Moline, Ill., assignee
 Original No. 3,521,766, dated July 28, 1970, Ser. No. 756,886, Sept. 3, 1968. Application for reissue May 28, 1971, Ser. No. 148,247.
 Int. Cl. B65g 31/00, 67/22

U.S. Cl. 214—42 R

5 Claims

A pull-type pickup baler has a fore-and-aft bale case with a rearward discharge opening. A bale thrower is mounted on the baler and includes a horizontal pan which receives successive bales discharged from the bale case. The pan is mounted on a pair of swingable arms,

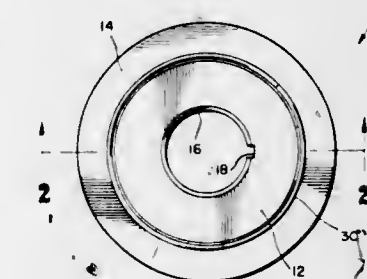
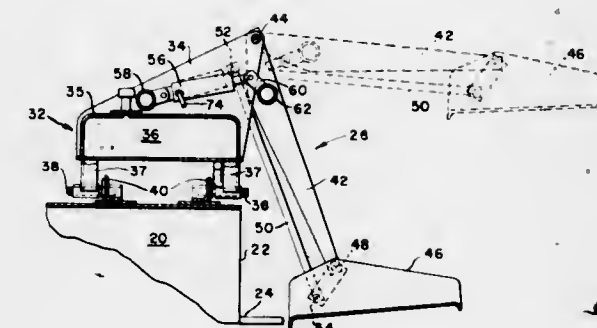
JUNE 5, 1973

U. S. PATENT OFFICE

11

which are actuated by a hydraulic cylinder and swing the pan upwardly and rearwardly when the bale moves onto

the recited relationship of the annuli, to cause molten metal from the solder member to flow into and fill the annular space, and then, while maintaining the recited relationship of the annuli, cooling the annuli to a temperature below the melting point of the solder member,



the pan, to accelerate the bale so that its momentum carries it into a trailing bale-receiving vehicle.

27,658

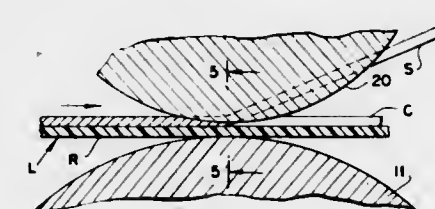
FLAT CABLE PROCESS

Lawrence R. Travis, Brockton, Mass., assignor to AMP Incorporated, Harrisburg, Pa.

Original No. 3,473,218, dated Oct. 21, 1969, Ser. No. 592,605, Nov. 7, 1966. Application for reissue Sept. 17, 1971, Ser. No. 181,405.

Int. Cl. H01b 13/00; H05k 3/00
 U.S. Cl. 29—624

4 Claims



The disclosure relates to a process of providing isolated electrical conductors on an insulative support by partially cutting conductive material affixed to said support and simultaneously removing portions of the partially cut material by pulling and tearing.

27,659

METHOD FOR MANUFACTURING AN IMPROVED COMPOSITE GEAR

Robert L. Wolfe and Augustine Trebnik, Columbus, Ind., assignors to Reliance Electric Company, Cleveland, Ohio

Original No. 3,557,423, dated Jan. 26, 1971, Ser. No. 755,902, Aug. 28, 1968. Application for reissue Apr. 24, 1972, Ser. No. 247,191.

Int. Cl. B21d 53/28; B21h 5/00; B21k 1/30; B23p 15/14; B29d 15/00
 U.S. Cl. 29—159.2

19 Claims

The method of fabricating an improved composite gear which comprises the steps of arranging an inner ferrous metal annulus and an outer bronze annulus to define a concentric annular space therebetween, placing a solder member adjacent the annular space, heating the annuli and the solder member concurrently, while maintaining

thereby to join the annuli and to improve the wear characteristics of the bronze annulus. Gear teeth may be machined in the external surface of the bronze annulus either before or after the two annuli are so joined. The method of the present invention contemplates heating and cooling the bronze annulus in such a manner as to improve its wear or durability characteristics.

27,660

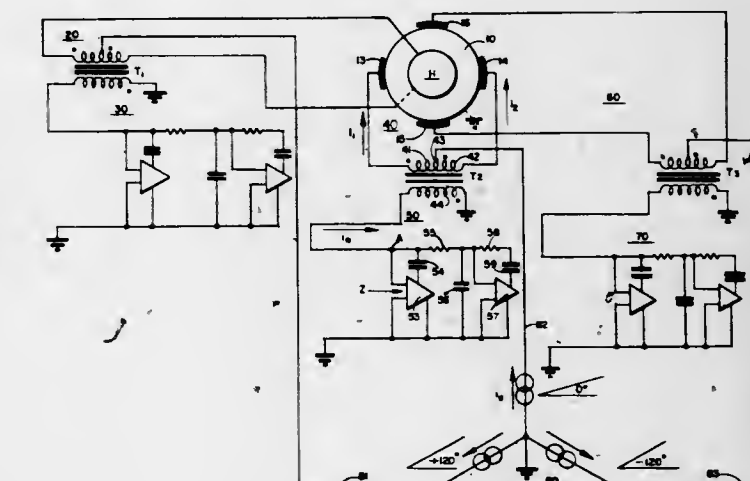
ELECTROSTATIC SUPPORT

James L. Atkinson, La Mirada, Calif., assignor to North American Rockwell Corporation

Original No. 3,411,838, dated Nov. 19, 1968, Ser. No. 532,371, Mar. 7, 1966. Application for reissue Apr. 8, 1970, Ser. No. 26,548.

Int. Cl. F16c 39/06
 U.S. Cl. 308—10

7 Claims



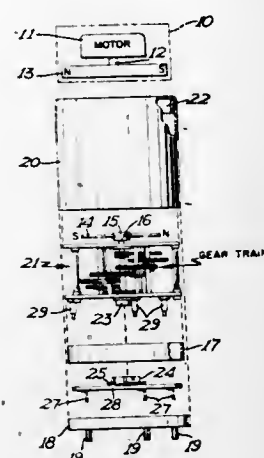
1. An electrostatic support system for supporting a member between a pair of electrodes comprising in combination:

electrostatic support circuit establishing an alternating potential between said member and said electrodes for electrostatically supporting said member; sensing means providing an alternating signal indicative of the displacement of said member from a centered position between said pair of electrodes; and negative impedance means responsive to said alternating signal and providing a signal to said electrostatic support circuit varying said alternating potential between said member and said electrodes so as to effect

substantial centering of said member between said pair of electrodes.

27,661
MAGNETICALLY COUPLED IMPLANTABLE SERVOMECHANISM
Lee R. Bolduc, St. Louis Park, and George F. Schwoboda, New Brighton, Minn., by Medtronic, Inc., assignee
Original No. 3,569,894, dated Mar. 9, 1971, Ser. No. 815,857, Apr. 14, 1969. Application for reissue Oct. 18, 1971, Ser. No. 190,193
Int. Cl. H01c 1/12

U.S. Cl. 338-12 **8 Claims**
A magnetically coupled servomechanism wherein a remote magnetic device is driven by a motor and is magnetically coupled to a second rotatable magnetic device in a hermetically sealed unit for implantation in the body of an animal, which device imparts its resultant motion to an [output] input shaft connected to a stepdown gear train having an output shaft which imparts torque to the element it is desired to rotate. The input shaft, gear train and output shaft are also in the hermetically sealed unit. The output shaft may be electrically insulated from the element to be driven, such as a potentiometer. The



mounted on the output shaft of the gear train, to be selectively slid longitudinally along the shaft to couple with the selected element for driving.

PLANT PATENTS

GRANTED JUNE 5, 1973

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,350
NECTARINE TREE
Robert E. Pinkerton, 4445 Avenue 416, Reedley, Calif. 93654
Filed Oct. 20, 1971, Ser. No. 191,043
Int. Cl. A01h 5/03

U.S. Cl. Plt.-41 **1 Claim**
A large to medium size nectarine tree which is vigorous, upright to spreading, and a regular and productive to very productive bearer of large, uniform, symmetrical, globose, clingstone fruit which ripens about ten days later than the Gold King nectarine (United States Plant Patent No. 1,424); the fruit ripening evenly, being glossy, and having yellow skin substantially overspread with red at maturity, and firm, crisp, meaty, yellow flesh, the surface of the pit cavity being red which streaks into the flesh.

3,351
ROSE PLANT
Samuel McGredy IV, Portadown, Northern Ireland, assignor to Armstrong Nurseries, Inc., Ontario, Calif.
Filed Mar. 3, 1971, Ser. No. 120,782
Claims priority, application Great Britain, Mar. 9, 1970, AFB/5/138
Int. Cl. A01h 5/00

U.S. Cl. Plt.-20 **1 Claim**
A hardy spreading bush rose of the floribunda class characterized primarily by striking color difference between margins and centers of the flower petals, the margins being distinctly pale, particularly where the plants are grown in areas of low light intensity, the plant being of the spreading type, thickly branched, displaying new leaves with an inconspicuous raised dark green area, the peduncles, although otherwise smooth, having a number of very small short stipitate glands.

3,352
AZALEA PLANT
Carl Pearlstein, San Francisco, Calif., assignor to Nurserymen's Exchange, Inc.
Filed May 4, 1970, Ser. No. 34,644
Int. Cl. A01h 5/00

U.S. Cl. Plt.-57 **1 Claim**
1. A new and distinct variety of azalea plant of the Belgian Indica class substantially as herein shown and

described primarily characterized by: its vegetative similarity to "Improved Red Wing" of which it is a sport and by its Phlox Pink (H.C.C. 625/1).

3,353
CHRYSANTHEMUM PLANT
Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio
Filed Aug. 31, 1971, Ser. No. 176,756
Int. Cl. A01h 5/00

U.S. Cl. Plt.-79 **1 Claim**
1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the cultivar Golden Belair by its more intense bronze flower color, particularly under high light and temperature conditions, higher flower crown and more formal flower form, three to four days earlier and more uniform response, and its 2 inch shorter habit; and characterized as to uniqueness when compared to the cultivar Bronze Belair by its more intense bronze color and better color retention under high light and high temperature conditions and during maturity of flower.

3,354
CHRYSANTHEMUM PLANT
Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio
Filed May 17, 1971, Ser. No. 144,191
Int. Cl. A01h 5/00

U.S. Cl. Plt.-80 **1 Claim**
1. A new and distinct variety of chrysanthemum characterized particularly as to its uniqueness when compared to the cultivar Carillon by its 1/2" larger flowers; greater flower production, averaging 4 more flowers per stem; 3"-4" more vigor; stipules formation; a smoother lavender color with less fading under high temperature, high light conditions; a broader, less sharply pointed petal; and by its larger, darker, less indented, and serrated foliage with less prominent ribs and veins.

PATENTS

GRANTED JUNE 5, 1973

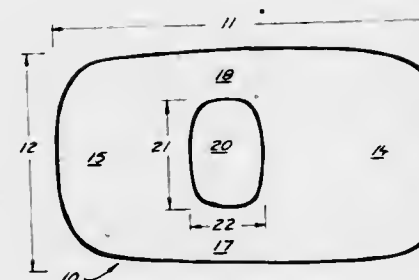
GENERAL AND MECHANICAL

3,736,595
PROTECTIVE SUIT
Oteried Siegmann, Buntweg 17a, Hannover-Kirchrode, Germany
Filed Aug. 30, 1971, Ser. No. 175,904
Int. Cl. A41d 13/00
U.S. Cl. 2-2 **7 Claims**



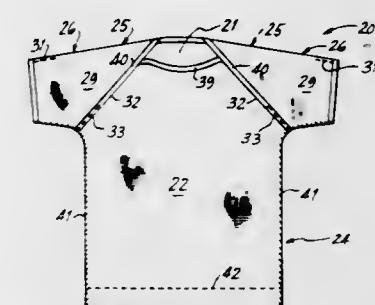
A protective suit worn to prevent spread of infectious agents comprising a coat and hood made from disposable paper and having closures consisting of pressure sensitive adhesive strips which bond together the overlapping edges of the openings which permit donning the suit. The adhesive strips are protected with foil until it is desired to close the openings after donning.

3,736,596
DRESS AND METHOD OF DRESSING
Karen Louise Rowden Milne, 4118 West 11th Avenue, Vancouver, British Columbia, Canada
Filed Mar. 21, 1972, Ser. No. 236,653
Int. Cl. A41d 1/22
U.S. Cl. 2-74 **10 Claims**



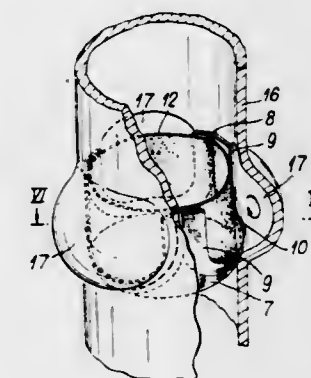
A one-piece dress being a generally rectangular blank of fabric with a generally rectangular body receiving opening forming a front skirt panel and a rear cape panel connected by spaced side straps. Dressing method includes positioning body in body-receiving opening, facing skirt panel, and pulling skirt panel about waist by crossing straps at back. Cape panel is passed over head and straps recrossed at front, before passing cape panel again over the head so that the cape falls about the shoulders. Opening has rounded corners and a perimeter sufficient to enable the cape panel to be passed over the head according to method, yet being sufficient to snugly fit the body.

3,736,597
PULL-OVER INFANT'S GARMENT
William Walter Artzt, 116 East 68 St., New York, N.Y.
Filed Aug. 12, 1971, Ser. No. 171,148
Int. Cl. A41b 9/06
U.S. Cl. 2-111 **8 Claims**



A pull-over garment, particularly for infants, comprises front and back body panels joined to each other along the sides of the garment to define a body portion with a central neck opening at the top, and shoulder and sleeve portions extending laterally outward from each side of the neck opening and including a back part joined to the back body panel, an outer front part joined to the back part along the top of the shoulder and sleeve portions and along the bottom of the sleeve portion and having an inner edge sloping downwardly from the neck opening to the bottom of the sleeve portion, and an inner front part joined to the front body panel and underlying said outer front part, the inner front part having an upper edge extending substantially along the top of the shoulder and sleeve portions and being joined to the outer front part along only the outer end portion of such upper edge and along only the lower end portion of the mentioned downwardly sloping edge, so that the neck opening can be expanded for ease in application of the garment to an infant and is restored to its normal configuration by outward pulling of the tops of the sleeves.

3,736,598
PROSTHETIC CARDIAC VALVE
Brian John Bellhouse, The Ridings, Islip near Oxford, and Francis Hewitt Bellhouse, 34 Hill Rise, Old Woodstock, both of England
Filed June 10, 1971, Ser. No. 151,740
Int. Cl. A61f 1/22; F16k 15/14
U.S. Cl. 3-1 **6 Claims**



A prosthetic aortic or pulmonary valve for permanent cardiac implantation into the natural valve root having a

framework which is made from sheet woven of knitted textile fabric material and which consists of an annular ring with three equiangularly spaced projecting legs which extend substantially parallel to one another in the axial direction from the ring. Each leg is folded about its longitudinal center line so that the side edges of the legs form radially outwardly projecting flanges, the adjacent flanges of adjacent legs merging through curves into the portion of the ring lying between those two legs whereby a substantially U-shaped continuous outwardly projecting flange is formed between each pair of the three pairs of adjacent legs. The framework supports three separate cusps made of thin flexible impermeable sheet material, each cusp having a substantially U-shaped edge which overlies one of the substantially U-shaped flanges and is bonded to it, and a free edge which extends between the free ends of the corresponding pair of legs and has a length substantially equivalent to one third of the internal diameter of the framework ring.

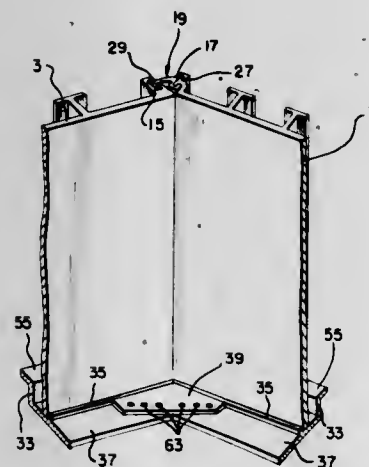
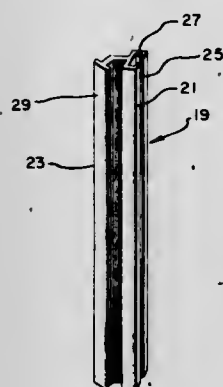
3,736,599

SWIMMING POOL CONSTRUCTION

Frank L. Kessler, Broomall, and Stephen F. Kendall, Penn Valley, both of Pa., assignors to Ben Carson, Bala Cynwyd, Pa.
Filed Mar. 25, 1971, Ser. No. 128,078
Int. Cl. E04h 3/16, 3/18

U.S. Cl. 4—172.19

3 Claims



The disclosure relates to a swimming pool which is made of component parts which are prefabricated and assembled at the site of the installation. A plurality of side wall members are interlocked to form a shell, the shell receiving a flexible liner which holds the water within the pool.

3,736,600

TOILET-BOWL DISINFECTANT-DETERGENT HOLDER AND DISPENSER

James M. Drinkwater, 950 E. Lakeside Drive, Fayetteville, Ark.

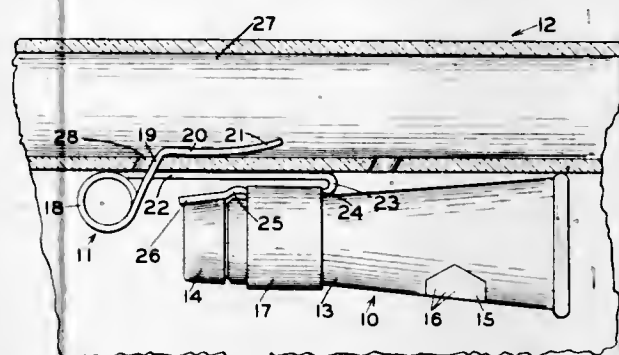
Filed Dec. 20, 1971, Ser. No. 209,819
Int. Cl. E03d 9/03

U.S. Cl. 4—231

8 Claims

A collapsible-wall tube-type dispenser containing a fluid disinfectant and detergent composition, removably disposed

in the flush-water path of a toilet bowl, releases no fluid to flush water impinging on the tube, discharge of fluid being effected only by manually pressing an object against the tube wall. The dispenser holder is adapted for use in bowls having inclined vortex-type flush-water inlets.



in the flush-water path of a toilet bowl, releases no fluid to flush water impinging on the tube, discharge of fluid being effected only by manually pressing an object against the tube wall. The dispenser holder is adapted for use in bowls having inclined vortex-type flush-water inlets.

3,736,601

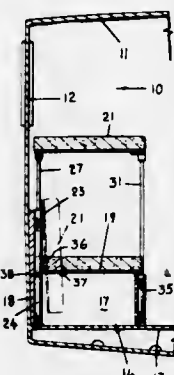
CONVERTIBLE SOFA

George Henry Wiseman Riches, 170 Roehampton Avenue, Toronto, Ontario, Canada

Continuation-in-part of Ser. No. 094,497, Dec. 2, 1970. This application Oct. 12, 1971, Ser. No. 188,327
Int. Cl. A47c 17/10, 17/14

U.S. Cl. 5—9 R

10 Claims



A couch which by day serves as a seat for several people and can be converted into an upper and lower bed by night. The back of the couch is constructed with a portion which telescopes into the seat and is concealed therein when the couch is used in the daytime as a seat. The back of the couch is mounted on telescopic support members permitting the back to be elevated, the telescopic members being releasably locked in the elevated position, when so raised, the back is then swung out to a horizontal position. A pair of rigid posts are then placed in position under the front edge of the raised back. The back thus becomes an upper bed having a width substantially or approximately the same as a conventional single bed.

3,736,602

ADJUSTABLE WIDTH KING SIZE BED FRAMES

Richard A. Miller, Bedford Hts., Ohio, assignor to Rusco Industries, Inc., Los Angeles, Calif.

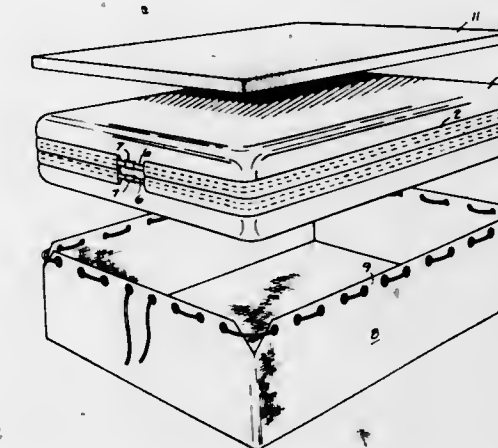
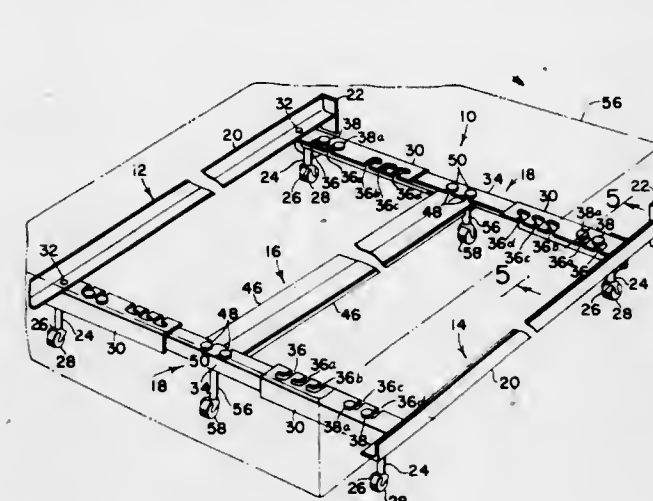
Filed Nov. 4, 1971, Ser. No. 195,644
Int. Cl. A47c 19/12

U.S. Cl. 5—176 R

6 Claims

A bed frame which is assembled without the use of nuts and bolts or other loose fastening members. The frame consists of a pair of side rails, cross rail subassemblies, and a center support subassembly. Each cross rail subassembly consists of a pair of end cross rail sections which are connected to the respective side rails and a center cross rail section. The center

cross rail sections have pairs of upwardly projecting shouldered rivets at each end and L-shaped notches or slots are provided in the end cross rail sections for receiving the rivets.



Multiple pairs of the notches are provided so that the frame may be adjusted for different widths of beds. The center cross rail sections are secured to the center support subassembly by a pair of headed rivets engaging slots in the center cross rail.

3,736,603

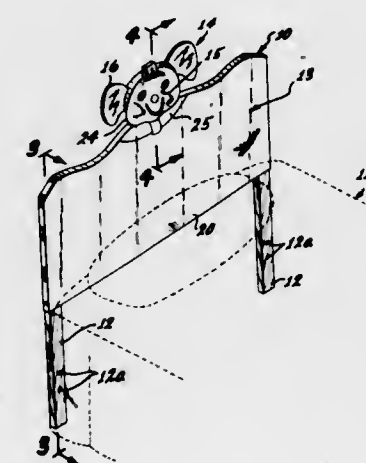
CHILD'S PLUSH FIGURE HEADBOARD

Lillian Rothman, 7002 Forbes Avenue, Van Nuys, Calif.
Filed Mar. 17, 1972, Ser. No. 235,557

Int. Cl. A47c 21/00

U.S. Cl. 5—317 R

7 Claims



A headboard for a child or youth bed incorporating an integral plush figure in the form of an animal or the like. The projections of the figure portion of the headboard such as the head and ears, are flexibly and resiliently mounted to the solid portion of the headboard to prevent damage to the headboard or injury to a child as a result of rough handling or intentional attempts of destruction by a child.

3,736,604

FLUID FILLED MATTRESS

Robert N. Carson, Jr., San Rafael, Calif., assignor to Carson Manufacturing Co., San Rafael, Calif.

Filed Mar. 1, 1971, Ser. No. 119,706

Int. Cl. A47c 27/08

U.S. Cl. 5—348 WB

11 Claims

A fluid filled mattress surrounded by a protective sheet with a fireproof sheet on the top held in place by a cover sheet, provided with means to form a flexible framework adjustable to suitable pressures of the fluid in the mattress; also provided with flap means inside of the mattress dividing it into compart-

ments, the flap means being either perforated or freely swingable so as to resist excessive motion of the body or fluid within.

the mattress when displaced by weight thereon; also securing means to hold the lining and cover in position in a box in which the fluid mattress is confined.

3,736,605

DEVICE

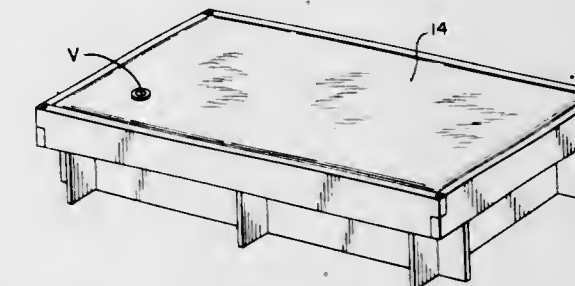
Nicholas L. Klein, Jr., Dayton, Ohio, assignor to Louis Capelle, Dayton, Ohio

Filed May 24, 1971, Ser. No. 146,311

Int. Cl. A47c 27/08

U.S. Cl. 5—348 WB

5 Claims



This disclosure is directed to a fluid envelope, e.g., water bed, frame comprised of an underlying pedestal assembly, an intermediately located platform upon which the fluid envelope rests and an upper rail section containing a plurality of side rails and end rails secured together at their ends by a plurality of common fastening means. The underlying pedestal section is comprised of two or more notched support members having positioned thereon in mating fashion a plurality of pedestal cross members whose notches fit with the notches provided in the pedestal support members.

3,736,606

TWISTED PAIR UNTWISTING AND STRIPPING TOOL

John F. Raum, Winston-Salem, and Henry R. Tillman, Forsyth, both of N.C., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed June 1, 1971, Ser. No. 148,682

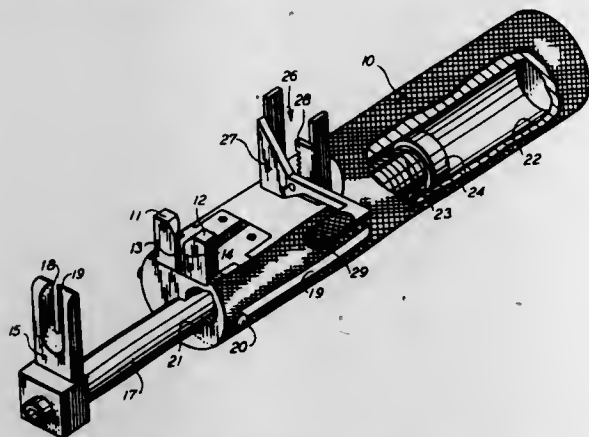
Int. Cl. H02g 1/12

U.S. Cl. 7—14.1 R

4 Claims

A tool has a pair of untwisting projections and a spring biased slide with an insulation stripping blade. The projections have rounded edges forming a slot for untwisting a twisted pair of wires when the wires are pulled therethrough. The bias of the slide positions the stripping blade adjacent to the untwisting projections with the untwisting projections aligned with the stripping blade in position to receive the ends of the

twisted pair of wires. During first movement of the wires relative to the tool, the ends of the wires are untwisted while the



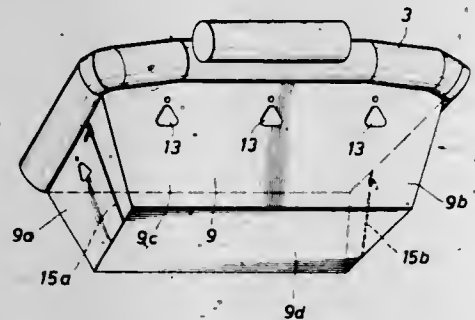
stripping blade and slide moves with the wires. When the slide engages a stop, continued movement of the wires strips the insulation from the ends of the wires.

3,736,607

LIFE RAFT STABILIZER

Matthew I. Radnoffsky, Seabrook; James H. Barnett, Jr., Alvin; Floyd L. Harrison, and Ralph J. Marak, both of Houston, all of Tex., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Nov. 30, 1971, Ser. No. 203,405
Int. Cl. B63b 7/08, 39/02

U.S. Cl. 9-2 A



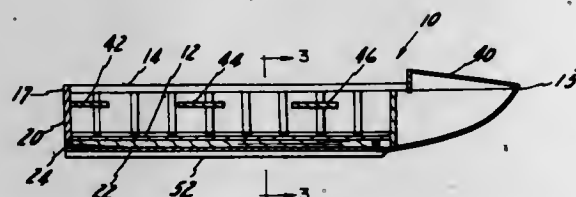
An improved life raft stabilizer for reducing rocking and substantially precluding capsizing. The stabilizer may be removably attached to the raft and is defined by flexible side walls which extend a considerable depth downwardly to one another in the water. The side walls, in conjunction with the floor of the raft, form a ballast enclosure. A weight is disposed in the bottom of the enclosure and water port means are provided in the walls thereof. Placement of the stabilizer in the water allows the weighted bottom to sink, producing submerged deployment thereof and permitting water to enter the enclosure through the port means, thus forming a ballast for the raft.

3,736,608

WATER VESSEL HAVING DOUBLE HULL

Stanley Whitehead, 629 West Baltimore, Detroit, Mich.
Filed Mar. 29, 1971, Ser. No. 128,914
Int. Cl. B63b 3/00, 5/00

U.S. Cl. 9-6



A water vessel having a double hull, including a main bottom with side walls extending upwardly from the edges of the

main bottom and provided with a plurality of longitudinally and laterally extending partitions on which an auxiliary bottom is attached to form a plurality of water retaining pockets opening to the sides of the vessel. One of the pockets formed between the main bottom and the auxiliary bottom of the vessel is so partitioned as to form a water pocket opening to the stern of the vessel.

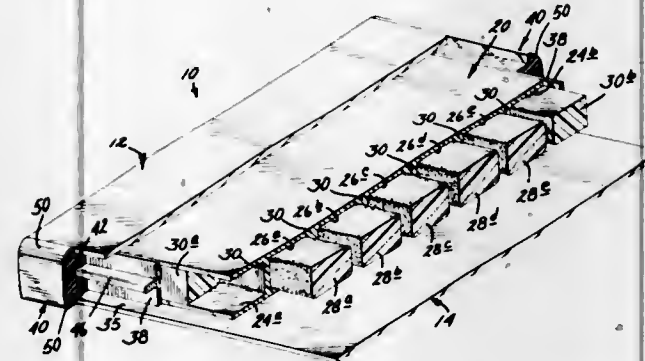
3,736,609

LAMINATED WATER SKI

David O. Saucier, Minnetonka, Minn., assignor to Compo-Tek Corporation, Eden Prairie, Minn.
Filed Apr. 5, 1971, Ser. No. 130,990
Int. Cl. A63c 15/00

U.S. Cl. 9-310 A

5 Claims



6 Claims

A laminated water ski having mechanical vibration dampening surfaces in the form of unidirectional fiberglass skin layers and a neoprene rubber edging extending about the periphery of the ski. The fiberglass skin layers are bonded to the top and bottom surfaces of an extruded center core having a plurality of laterally spaced, longitudinally extending tunnels filled with a buoyant plastic foam for preventing buckling of the ski. The rubber edging includes a groove along the inner surface thereof which is filled with epoxy resin for further increasing the dampening effect of the edging.

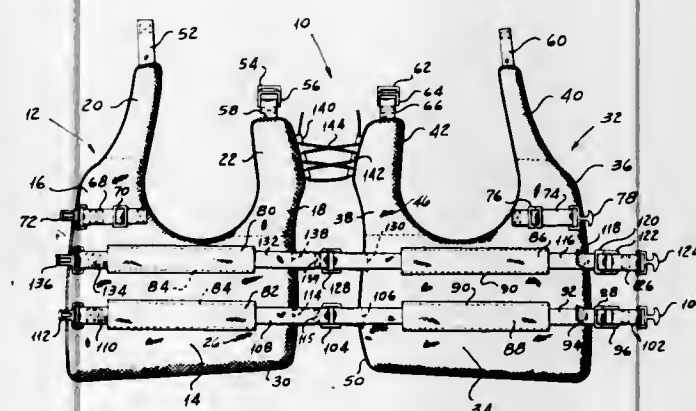
3,736,610

ADJUSTABLE BUOYANT JACKET

Leonard P. Frieder, Jr., Waverly, Pa., assignor to Gentex Corporation, New York, N.Y.
Filed Mar. 25, 1971, Ser. No. 128,347
Int. Cl. B63c 9/10

U.S. Cl. 9-342

14 Claims



An adjustable buoyant jacket made up of right-hand and left-hand buoyant bodies each of which has a front edge and a back edge, the jacket being provided with manually operable adjusting means accessible at the front of the jacket for concomitantly adjusting the distance between the front edges and the distance between the rear edges in the waist region without disturbing the positions of the buoyant bodies on the person of the wearer, together with adjustable means for connecting the back edges in the shoulder region thereof.

3,736,611

APPARATUS FOR PRESSING TREATMENT OF SHOE UPPERS

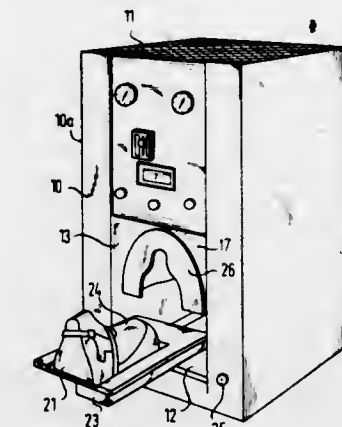
Egon Drelbholz, 56 Wuppertal-Barmen, Germany, assignor to Firma Frohane, 56 Wuppertal-Barmen, Germany
Filed Sept. 9, 1971, Ser. No. 179,038

Claims priority, application Germany, Sept. 10, 1970, G 70 33 703.0

Int. Cl. A43d 11/00

U.S. Cl. 12-54.2

4 Claims



An apparatus for pressing treatment of a shoe upper mounted on a last, which comprises a housing partly open on the service side and covered with a perforated sheet as well as closed all round and heat-protected on both sides. A movable shoe last includes a drive-and-control device. A pressing cushion includes drive- and control members, liftable from and lowerable to the shoe last. The shoe last and the pressing cushion are disposed in the housing. A cover plate has an insert opening corresponding with the configuration of the shoe last seen in vertical direction covering the pressing cushion within the range of its rearward end face. An insert device operates in a horizontal plane transmitting the shoe last from a ready position in front of the housing into a working position below the pressing cushion inside of the housing and reversing the same. Electric-pneumatic controls are provided which self-control the lifting movement of the pressing cushion; the driving movement of the insert device and the engagement of the pressing cushion in a timely dependent manner.

3,736,612

METHOD OF FITTING SKI BOOTS

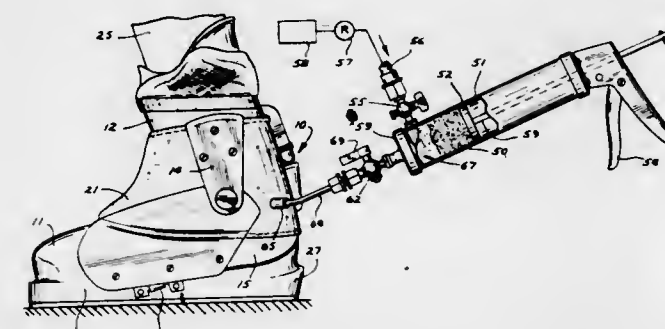
Donald R. Check, Bloomington; Gary B. Ader, Eden Prairie, and Edward A. Pauls, Excelsior, all of Minn., assignors to Bass Sports, Inc., Edina, Minn.

Filed Mar. 11, 1971, Ser. No. 123,360

Int. Cl. A43d 9/00; A43b 00/00

U.S. Cl. 12-142 P

15 Claims



A method of fitting ski boots using a conformable material made up of separable small discrete particles covered with a film of a lubricating or liquid material. The material is fluidized with air under pressure for injecting the material into the pads, in order to fit closely to the foot and to insure a close

fit in a short time. The apparatus includes a gun member which utilizes fluid under pressure that forms a turbulent mixing zone and discharges the material into the pad in a boot fitting, and which has means for advancing the bulk material into the mixing zone as necessary.

3,736,613

METHODS OF MANUFACTURING WELTED SHOES

John Tusa, Horndon-on-the-Hill; Leslie Charles Lawrence, Stanford-Le-Hope, and Stanley Norman Plampton, East Tilbury, all of England, assignors to The British Bata Shoe Company Limited, London, England
Division of Ser. No. 26,320, April 7, 1970, abandoned. This application Oct. 18, 1971, Ser. No. 190,420

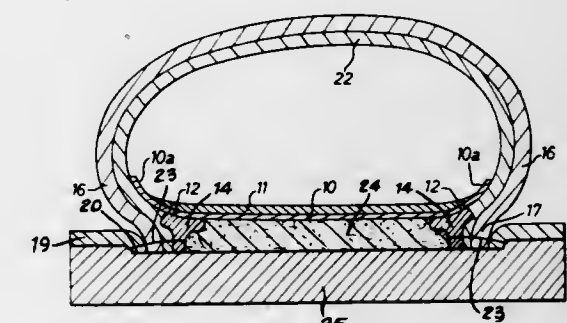
Claims priority, application Great Britain, May 14, 1969,

24697/69

Int. Cl. A43b 9/00

U.S. Cl. 12-142 D

3 Claims



A method of manufacturing welted footwear in which a shaped board is temporarily secured to one side of a flexible insole prior to the securing of a lasted upper to the insole, the flexible insole being formed with extended marginal portions which in the finished article of footwear extend up the sides of the upper so as to cradle the foot.

3,736,614

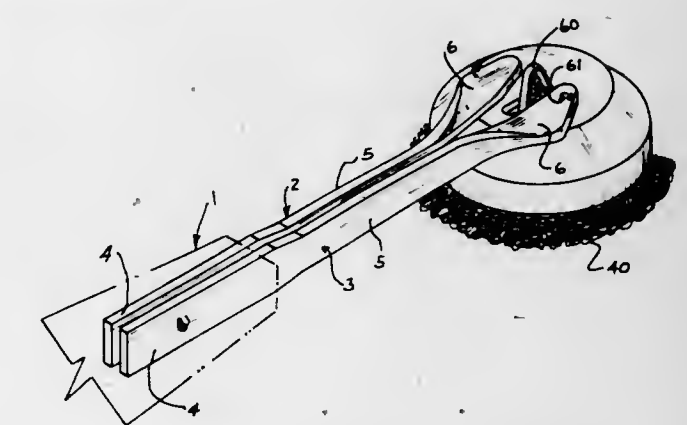
ABRADING DEVICE FOR ATTACHMENT TO ELECTRIC KNIFE DRIVE

Sharon M. Crostic, 1423 Twin Oaks Drive, Arnold, Mo., and William E. Froelich, Route 1, Box 8, Barnhart, Mo.
Filed Jan. 10, 1972, Ser. No. 216,658

Int. Cl. A47l 17/04

U.S. Cl. 15-97 R

5 Claims



A portable power-driven abrading or scouring device has two arms adapted to be connected at one end to power means for reciprocating at least one of the arms with respect to the other, the arms having at their outer ends a pair of spaced pivot means, preferably in the form of balls. The pivot means are spaced laterally and are connected to an abrasive holder. When the pivot means are balls, the abrasive holder preferably is a block with sockets in which the balls are seated, to provide, within limits, two degrees of freedom.

3,736,615 SLAG REMOVING EQUIPMENT FOR HIGH TEMPERATURE FURNACES

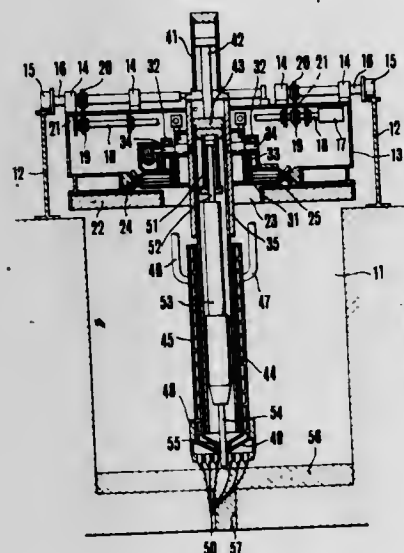
Kozo Kumaki, Osaka, Japan, assignor to Nakamichi Kikai Co., Ltd.; Nichimen Co., Ltd. and Nippon Pneumatic Manufacturing Co., Osaka-shi, Osaka-fu, Japan

Filed June 8, 1971, Ser. No. 150,967

Int. Cl. C21d 9/70

U.S. Cl. 15-104.1 C

1 Claim



Slag removing equipment for removing slag from high temperature furnaces. The equipment has a power-driven casing mounted so as to be capable of travelling on the furnace. A power-driven rotary table is mounted on the casing so as to be capable of rotating horizontally, and a power-driven vertical cylindrical member is mounted on the rotary table so as to be capable of inclining. A power-driven movable cylinder is elevatably mounted on the cylindrical member, the movable cylinder being provided with collecting claws at the lower end thereof. A power-driven impact hammer is elevatably mounted inside the movable cylinder, and has an impact hammer provided with a chisel at the lower end thereof which is capable of extending out of and withdrawing into the lower ends of the collecting claws.

3,736,616 ADJUSTABLE PAD PAINTER

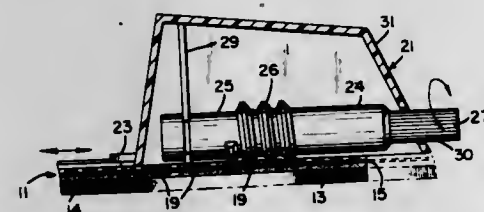
Donald P. Seip, Union, N.J., assignor to Red Devil Incorporated, Union, N.J.

Filed Feb. 8, 1972, Ser. No. 206,781

Int. Cl. A46b 15/00; B25g 1/04

U.S. Cl. 15-210 R

4 Claims



The paint applying pad of a pad painter is slideably coupled to a handle member by lateral flanges. Fixed spaced guides extend outwardly of the handle parallel to the pad. The pad may be longitudinally displaced with respect to the ends of the guides by means of a worm rotatably carried within the handle member and a series of spaced slots in the top of the pad with which the worm is in mesh.

3,736,617 DEVICE FOR CLEANING THE GLASS ON VEHICLE HEADLIGHTS

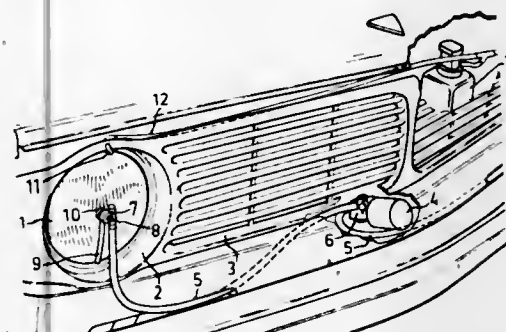
Dan Ragnar Ahlen, Ockero, Sweden, assignor to Aktiebolaget Volvo, Gothenburg, Sweden

Filed July 19, 1971, Ser. No. 163,875

Int. Cl. B60s 1/20, 1/44

U.S. Cl. 15-250.22

4 Claims



The present invention relates to a device for cleaning the glass of a vehicle headlight. The device comprises a gear box placed in front of the glass and having a shaft supporting a rotatable wiper blade. The gear in the gear box is operated by a motor via a flexible cable. The device is chiefly characterized in that the motor is arranged to operate the cable at a high speed, that the worm gear in the gear box is arranged to provide in one step the reduction required to produce a speed of rotation suitable for the wiper blade, and that a stopper rotating synchronously with said wiper blade is provided to actuate the motor to stop said wiper blade in a predetermined fixed position. The shaft of the gear box is journaled in a boss, or the like, which is glued or otherwise secured on the outside of the glass.

3,736,618 TOOL FOR TREATING OR CLEANING WIRE ROPE

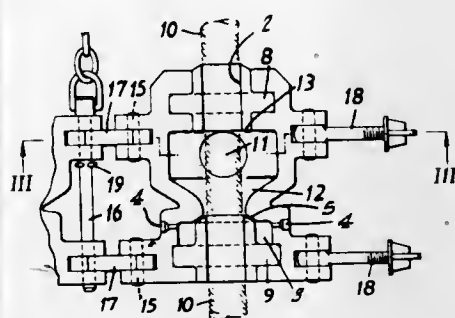
Samuel Terry Ramsey, 25, Victoria Road, Gorsleston, GT Yarmouth, Norfolk, England

Filed Mar. 24, 1971, Ser. No. 127,501

Int. Cl. A47i 5/38

U.S. Cl. 15-306 A

7 Claims



A body defining a cylindrical passage receives a wire rope to be cleaned. An annular orifice extends about the wall of the passage and cooperates with a supply chamber for supplying pressurized fluid to the orifice. A duct between the chamber and the orifice directs fluid against the rope and is angled at more than 45° with respect to the axis of the passage.

3,736,619 WATER REMOVAL MACHINE FOR ARTIFICIAL TURF

Frank J. Zamboni, Paramount, Calif., assignor to Frank J. Zamboni & Co., Paramount, Calif.

Filed Nov. 4, 1971, Ser. No. 195,790

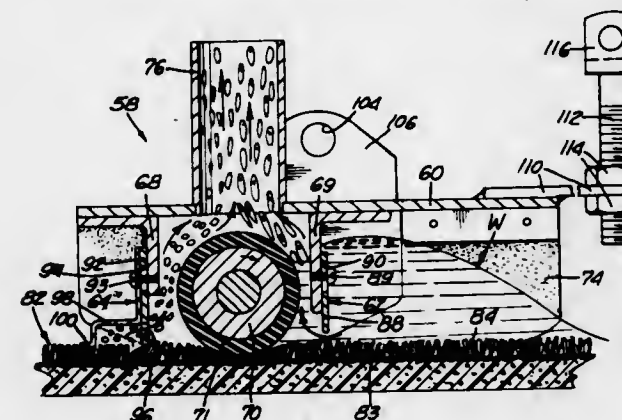
Int. Cl. A47i 7/00

U.S. Cl. 15-340

8 Claims

A machine for removing standing water from artificial turf, comprising an automotive vehicle carrying air and water

pumps, air/water separation tank, nozzles, and associated equipment, and having a transverse water pick-up device including a roller that rolls on the turf and piles up a wave of water ahead of it. The roller is enclosed within a narrow, elongated housing having top, front and rear walls, and end plates. The bottom edge of the front wall just clears the turf and forms a narrow gap through which the piled up water flows into the housing ahead of the roller, where it is picked up by the vacuum suction and carried through a plurality of hoses to the tank. Here, the water is separated from the air and is pumped in a high-velocity jet to one side of the machine or the other, so that on successive passes over the turf, the machine



moves all of the water to one side of the playing field where it can be drained off. The bottom edge of the rear housing wall extends slightly down into the turf and bends the pile forwardly, then releases it to flip droplets of water into the air behind the rear wall, where they are picked up by the air stream and carried through openings in the rear wall into the housing and thence through the hoses into the tank. An apron extends rearwardly from the rear wall, forming a confined space behind the housing, into which water droplets are flipped up by the turf. The trailing bottom edge of the apron rests lightly on the top of the turf, causing air to be sucked under the bottom edge of the apron and through the turf, to help pick up any remaining water.

3,736,620 MASTER CARRIER FOR DRAPERY TRAVERSE ROD

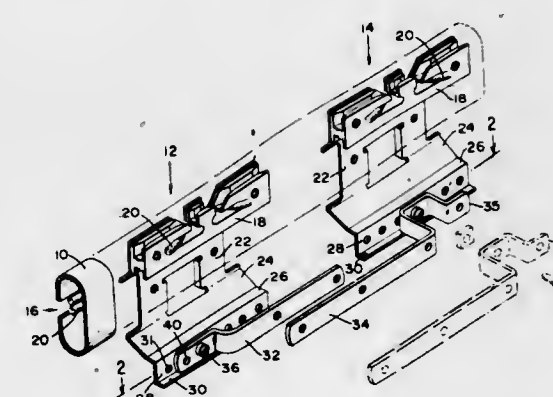
John E. Williamson, West Barrington, R.I., assignor to Kenny Manufacturing Company, Warwick, R.I.

Filed Jan. 17, 1972, Ser. No. 218,171

Int. Cl. A47h 13/00

U.S. Cl. 16-87.4 R

1 Claim



A drapery traverse rod master carrier is provided with a detachable drapery support arm adapted for attachment at various locations to a mounting portion on a master carrier, and for interchange from right to left to permit either one of a pair of master carriers to carry the outer, overlapping margin of the drapery. The mounting portion on the master carrier has holes spaced along its length. The support arm may be attached with a screw and nut through any one of the holes.

Flanges extending at an angle from the mounting portion serve to keep the support arm in fixed orientation and prevent the nut from rotating. The support arm which carries the overlapping margin of the drapery is provided with two arm portions, one of which may be called primary and the other secondary. The primary arm supports the overlapping margin while the secondary arm is spaced laterally of the primary arm at the same level and stepped rearwardly thereof to accommodate a gradual angle between the general plane of the drapery and the overlapping marginal portion.

3,736,621 SHEATHED SOFT-FEEL HANDLE AND METHOD OF MAKING SAME

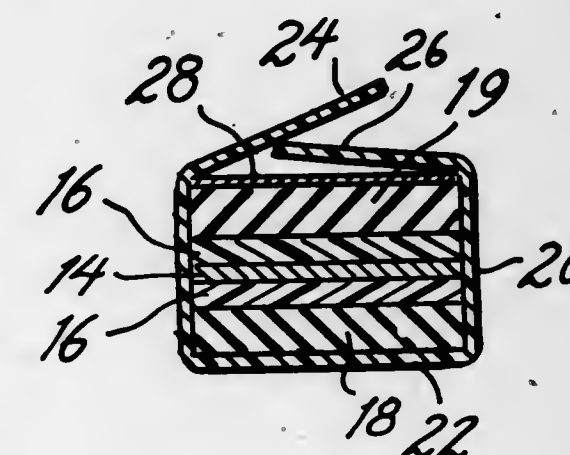
Marton T. Szabo, Camden, N.J., assignor to Philadelphia Handle Company, Inc., Camden, N.J.

Filed Aug. 4, 1971, Ser. No. 168,828

Int. Cl. A47b 95/02

U.S. Cl. 16-116

10 Claims



A soft-feel handgrip for a handle construction in which cushioning members for the top and bottom of the grip are provided with a flexible conductive member on the outer face of the bottom cushioning member and an open thermoplastic sheath wrapped around the members to provide overlapped sheath ends directly against the conductive member whereby the overlapped sheath ends can be effectively sealed dielectrically. The handgrip may include non-metallic fillers or stiffeners and/or a spring metal bar spaced from the overlapped sheath ends by the bottom cushioning member.

3,736,622 METHOD AND APPARATUS FOR SLAUGHTERING ANIMALS

Charles H. Wallace, Sylvania, Ohio, assignor to International Telephone and Telegraph Corporation, New York, N.Y.

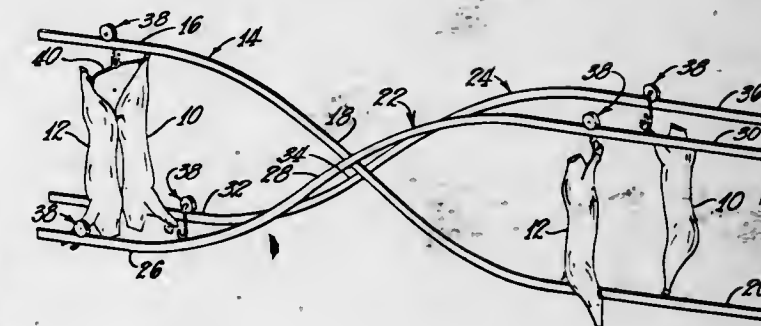
Division of Ser. No. 47,216, June 18, 1970, Pat. No. 3,657,770.

This application Dec. 29, 1971, Ser. No. 213,488

Int. Cl. A22c 7/00; B65g 47/24

U.S. Cl. 17-24

6 Claims



An animal is slaughtered in a head-down position and is subsequently inverted after bleeding to place the hindquarters

down while the animal muscles are still flaccid. The carcass is maintained in the latter position until rigor mortis sets in, the carcass is thoroughly chilled, or both. By positioning the animal carcass with the hindquarters down and with the animal muscles flaccid, the meat drifts or settles downwardly toward the hindquarters. Consequently, the meat is distributed more toward the hindquarters of the animal carcass where the more expensive cuts are located. Higher monetary value of the carcass is thus achieved. To increase the movement of the muscle or meat toward the hindquarters, the carcass can be subjected to vibrations or shock in addition to the force of gravity. Also, this movement of the meat can be increased by subjecting the carcass to centrifugal force with the animal rotated about an axis which is perpendicular to the longitudinal extent of the carcass and is located nearer to the forefeet than the hind feet.

3,736,623

MEAT TENDERIZER APPARATUS

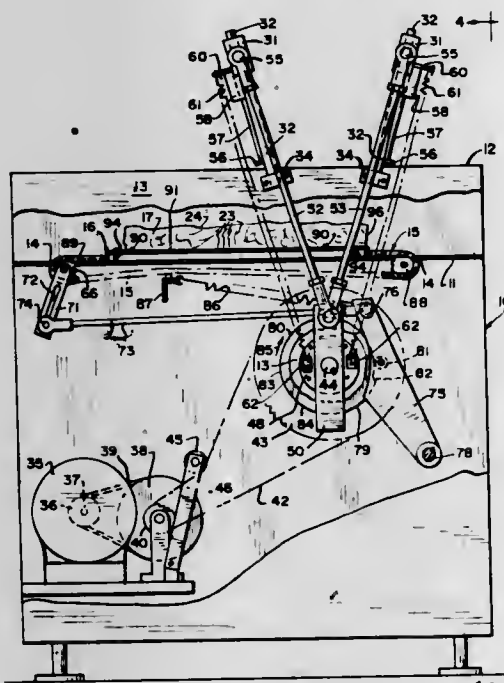
James J. O'Malley, and Murray C. Strickland, both of Granada Hills, Calif., assignors to Hollymatic Corporation, Park Forest, Ill.

Filed July 16, 1971, Ser. No. 163,288

Int. Cl. A22c 9/00

U.S. Cl. 17-25

18 Claims



Apparatus for tenderizing meat comprising a support for the meat, a plurality of elongated cutting elements each comprising a blade with a cutting edge end with the blades being in two sets of a plurality of blades each and with each set arranged at an acute angle to the support and to each other and being reciprocable at their acute angles into and from meat held by the support to sever fibers and other severable toughening portions of the meat. The disclosure also includes an apparatus for tenderizing meat comprising a plurality of cutting elements reciprocable into and out of meat held on a support and hold-down means for holding the meat on the support during the reciprocating and means operatively interconnecting the hold-down means and the blades on the reciprocating of the blades away from the meat for withdrawing the hold-down means together with means for releasing this interconnecting means on the reciprocating of the blades into the meat for unrestricted spring urging of the hold-down means into meat engagement. The disclosure also includes the blades and the means for reciprocating the blades into and out of the meat in combination with drive means for moving a support and meat thereon relative to the blade together with indexing means for indexing the drive means in successive increments of movement comprising a reciprocable ratchet connected to the drive means for indexing on movement of the reciprocable ratchet in one direction. The disclosure also in-

cludes an apparatus for tenderizing meat including a support for the meat, a drive means for moving the support and thus the meat comprising a longitudinally extensive member such as a link chain and securing means releasably connecting the support and the extensive member for moving the support along with the extensive member.

3,736,624

BALE REDUCING APPARATUS AND METHOD OF REDUCING FIBER BALES

Hans Rudolf Alt, Elgg; Christian Just, and Rudolf Wildbolz, both of Winterthur, all of Switzerland, assignors to Rieter Machine Works, Ltd., Winterthur, Switzerland

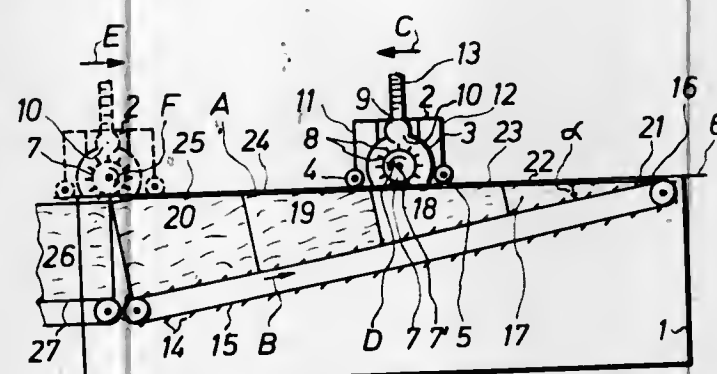
Filed Dec. 7, 1970, Ser. No. 95,454

Claims priority, application Switzerland, Dec. 12, 1969, 18498/69

Int. Cl. D01g 7/06

U.S. Cl. 19-80 R

18 Claims



A number of bales are opened by passing the fiber removing device over the surfaces of consecutive bales in a reciprocating manner. The bales are fed to the reducing plane at an angle by the supply means so that a continuous opening and blending operation is carried out in a single machine.

3,736,625

APPARATUS FOR COILING TEXTILE SLIVER

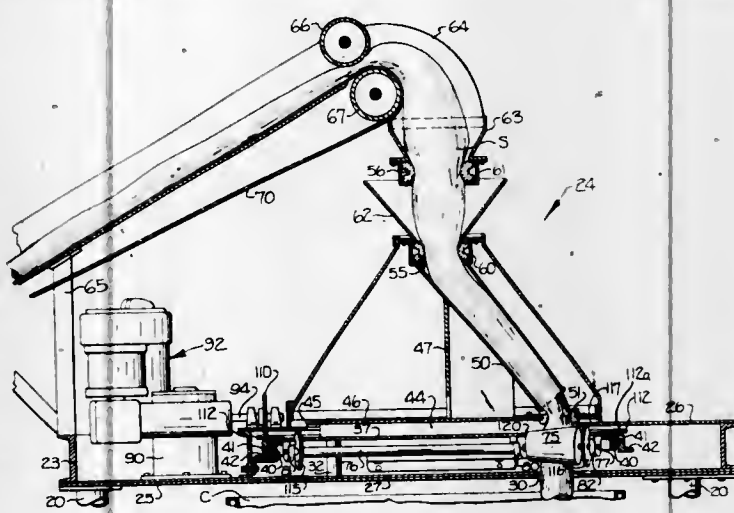
Herman S. Johns, Patterson, N.C., assignor to Wellman Industries, Inc., Johnsonville, S.C.

Continuation-in-part of Ser. No. 46,866, June 17, 1970, abandoned. This application Dec. 18, 1970, Ser. No. 99,352

Int. Cl. B65h 54/80

U.S. Cl. 19-159 R

8 Claims



Apparatus for coiling sliver through a coiler head, in which the sliver is guided downwardly into and through an inclined tube rotating on a substantially vertical axis, and the sliver is advanced through the tube by nippingly engaging and applying a pulling force to the sliver at a point adjacent the lower end of the inclined tube. Further, the tube is tapered to form an inclined converging passage which progressively compacts the sliver in its course through the tube.

3,736,626

SUPPORT MEANS FOR TOP ROLL CARRIER ARM OF TEXTILE DRAFTING UNIT

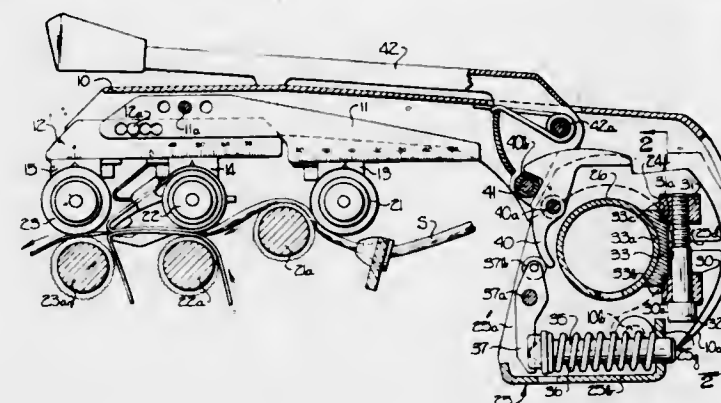
Stefan Staneff, Herzogenaurach, Germany, assignor to Industriewerk Schaeffler, OHG, Herzogenaurach, Germany

Filed June 16, 1971, Ser. No. 153,616

Int. Cl. D01h 5/56

U.S. Cl. 19-295

7 Claims



A bracket for pivotally supporting the top roll carrier arm of a loading system for a drafting unit includes spaced sidewall members provided with openings for mounting the same on a shaft positioned rearwardly of the drafting unit. First and second bridging elements are carried by and extend across the space between the sidewall members, and a clamping block is adapted to engage the shaft and extends between the bridging elements, with means being provided for cooperating with the bridging elements to pull the same toward each other, and at least one of the bridging elements and the adjacent portion of the clamping block are provided with cooperating cam surfaces thereon tending to force the block inwardly away from the outer edges of the sidewall members when the bridging elements are pulled toward each other so as to clamp the bracket on the shaft extending therethrough.

3,736,627

CONNECTOR

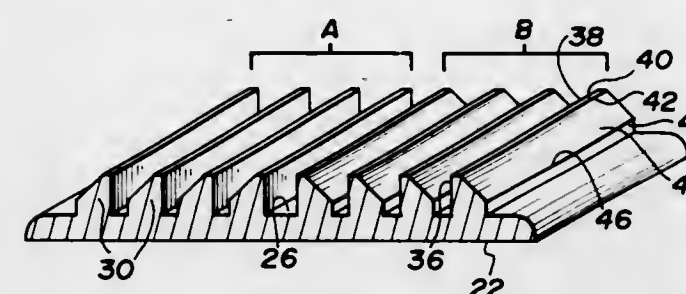
Charles W. Sosinski, Linden, N.J., assignor to Thomas Betts Corporation, Elizabeth, N.J.

Filed Nov. 2, 1971, Ser. No. 194,890

Int. Cl. B65d 63/06; H01r 5/08

U.S. Cl. 24-23 W

12 Claims



An insulation and oxide piercing connector employable, for example, for simultaneously interconnecting a plurality of insulated or oxide coated electrical conductors such as magnet wire, flat conductor, or the like, and comprising a plurality of selectively contoured, multi-surfaced, deflectable ridges suitable oriented on at least one interior surface of the connector and proportioned to engage, pierce, and be deflectably locked within the conductors as the connector is crimped thereabout. The ridges may be either straight or curved and formed to cross-sectionally define, alternatively, a generally truncated right triangle, or selective variations thereof, and may be juxtapositionally arranged in either similarly or oppositely facing groups or pairs. Coupling means may be provided for attaching the connector to a further connector or support member.

3,736,628

STRINGER HAVING BONDED COUPLING ELEMENT

Harry Hansen, 2500 Copenhagen-Valby, Denmark, assignor to Lysta A/S, Copenhagen-Valby, Denmark

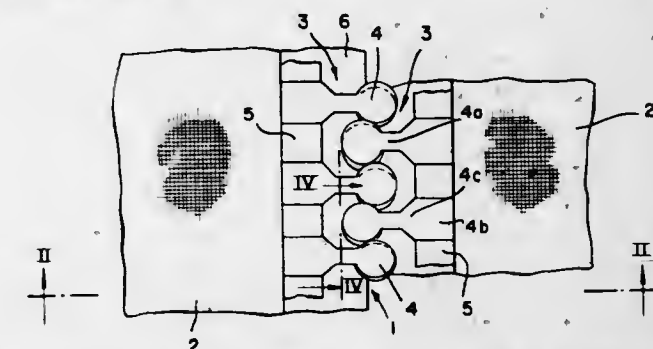
Filed Feb. 10, 1971, Ser. No. 114,331

Claims priority, application Germany, Feb. 14, 1970, P 20 06 823.9

Int. Cl. A44b 19/14, 19/32

U.S. Cl. 24-205.1

5 Claims



A stringer for an "invisible" or concealed slide fastener has a pair of stringer halves each comprising a support tape with a doubled-over edge flap to which is bonded an elongated coupling element formed by a series of coupling members. Each element is bonded to the edge flap right up to the edge fold and to this end is formed with a planar surface containing the edge flap. Each member comprises a coupling head of sufficient thickness to ensure a good grip with the opposing members, and a much thinner connecting piece which connects its respective head with the neighboring head to make the fastener flexible.

3,736,629

CLAMPING DEVICE

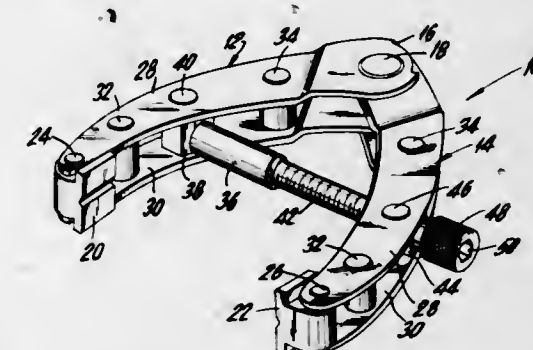
John B. Blake, 103 Oak Avenue, Park Ridge, N.J.

Filed Mar. 16, 1971, Ser. No. 124,676

Int. Cl. A44b 21/00

U.S. Cl. 24-248 SA

9 Claims



A clamping device includes two, preferably curved, arms which are pivotally connected together at an apex and which may be shifted inwardly and outwardly by means of a force applying threaded sleeve and screw member which are pivotally connected to the respective arm portions. The sleeve member is mounted on a block which is pivoted to one of the arms and a threaded spindle or screw member is passed through a block which is pivoted to the other arm and engages within the sleeve member. The outer ends of each arm includes clamping jaws which are shifted with the arms inwardly or outwardly in order to provide a clamping action by rotation of the screw relative to the sleeve member. At least one of the arms may pivot not only about the pivotal connection at the apex of the two arms but also about the pivot of either of the threaded sleeve or the threaded spindle block supports which are arranged intermediate in length of the respective arm. A final tightening clamping action may be obtained by means of an eccentric portion of the pivot for the apex of the two arms which has the effect of shifting one end of one arm at the location at the apex in a direction outwardly so that it pivots about its intermediate connection to the force applying sleeve or spindle member.

3,736,630 APPARATUS AND METHODS FOR MAKING MINIATURE INCANDESCENT LAMPS AND THE LIKE

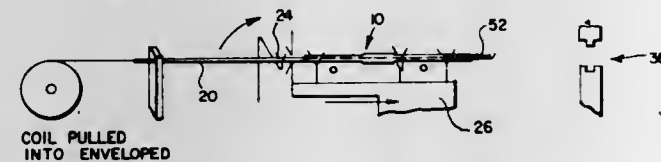
Donald J. Belknap, Takoma Park, Md., assignor to Nelson H. Shapiro, Rockville, Md., and Milton M. Field, Alexandria, Va., part interest to each

Filed July 31, 1969, Ser. No. 846,466

Int. Cl. H01J 9/48

U.S. Cl. 29—25.2

33 Claims



Filaments for axial geometry lamps as small as microminature are formed and inserted in envelopes completely automatically. An envelope is fed from a magazine to a carriage; the carriage is moved to thread the envelope over a length of filament wire; a clamp engages the end of the filament wire projecting from the envelope and draws it past a winding assembly; a filament coil is wound and detached from the winding assembly; the envelope carriage moves in reverse to draw the filament coil into the envelope; the filament coil is separated from the supply of filament wire; and the envelope containing the filament is unloaded from the carriage.

3,736,631 LADDER MECHANISM FOR AN ASSEMBLING APPARATUS FOR THE MANUFACTURE OF COMPLETELY OR PARTLY FINISHED PACKAGES OF SLATS FOR VENETIAN BLINDS

Gerardus Hendrikus Edixhoven, Voorachoten, Netherlands, assignor to Hunter Douglas International N.V., Willemstad, Curacao, Netherlands Antilles

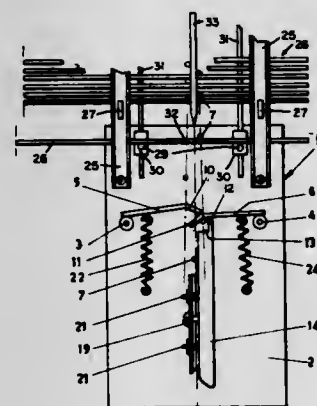
Filed Aug. 26, 1971, Ser. No. 175,151

Claims priority, application Netherlands, Sept. 4, 1970, 7013154

Int. Cl. B23p 19/04

U.S. Cl. 29—24.5

10 Claims



The application discloses a ladder mechanism for an assembling apparatus for the manufacture of at least partly finished packages of slats for venetian blinds of the type equipped with ladders comprising side cords and rungs therebetween and with means for lifting the ladders, said mechanism comprising movable means for directing rungs of a ladder to be placed alternately on one side and on the other side of the plane of the ladder, said movable means comprising two hinged rung positioning means such as a plate, brace and the like, each having a free end for cooperating with the rungs of a ladder, said free ends, when being in the inoperative position, being directed toward one another and overlapping one another as well as the plane of supply of the ladder in question, the rung positioning means being arranged and embodied such that during the operation of the assembling apparatus a rung always comes

into contact with the free end of one of the positioning means and takes along said free end simultaneously with the overlapping free end of the second positioning means in its subsequent movement from the receiving position, said contact causing a lateral displacement of the rung, and that during the continued movement first the overlapping of the free end of the second positioning means is removed and said free end assumes its receiving position for cooperation with the next rung, and thereafter the first-mentioned rung is released from the free end of the respective positioning means which subsequently assumes the overlapping position. The apparatus also includes a side cord guiding and spreading means and a rung stretching means below the rung positioning means, said guiding and spreading means and the rung stretching means comprising two rung stretching and side cord spreading plates secured to a supporting plate and having edge guides diverging in the direction of the rung positioning means.

3,736,632 METHOD OF MAKING AN ELECTROACOUSTIC TRANSDUCER

Gilbert C. Barrow, Hingham, Mass., assignor to Massa Division, Dynamics Corporation of America, Hingham, Mass.

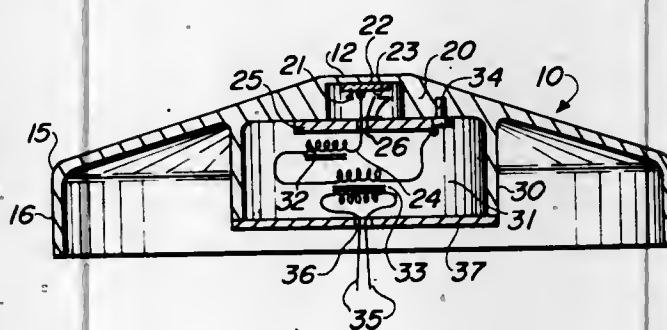
Continuation of Ser. No. 866,785, Sept. 16, 1969, abandoned.

This application Mar. 18, 1971, Ser. No. 125,880

Int. Cl. B01J 17/00; H04r 17/00

U.S. Cl. 29—25.35

9 Claims



The invention provides a low cost electroacoustic transducer. The transducer housing has incorporated into its rear surface, a counterbored or cavity section opposing a flat portion on the outside surface of the housing. This construction results in a clamped vibratile disk to which a piezoelectric ceramic disk is attached. In addition, the invention includes a low cost method for adjusting the resonant frequency. First, the resonant frequency of the structure is measured after assembly. Then, material is removed from the external flat surface of the housing to achieve the desired resonant frequency.

3,736,633 FINISHING DEVICE FOR INTERNAL AND EXTERNAL SURFACES

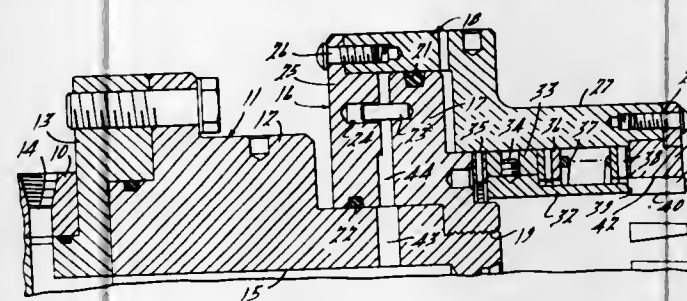
Stuart E. Kalen, Sterling Heights, Mich., assignor to Cogsdill Tool Products, Inc., Farmington, Mich.

Filed Sept. 21, 1971, Ser. No. 182,360

Int. Cl. B21c 37/30; B24b 39/00

U.S. Cl. 29—90 R

8 Claims



The device has an arbor which is driven in rotation for driving a plurality of truncated conical rollers mounted in a cage

with internal or external lines of contact with a cylindrical or flat surface. Fluid is delivered through the arbor to a ram having a cylinder element and piston element which are movable relative to each other by the fluid and returned to initial position by spring means for advancing and retracting the rollers. The cage for the rollers is secured to one of the elements while the mandrel or race is secured to the other element so that one is movable relative to the other for increasing or decreasing the diameter on which the rollers operate.

3,736,634 ROTARY CUTTING TOOL

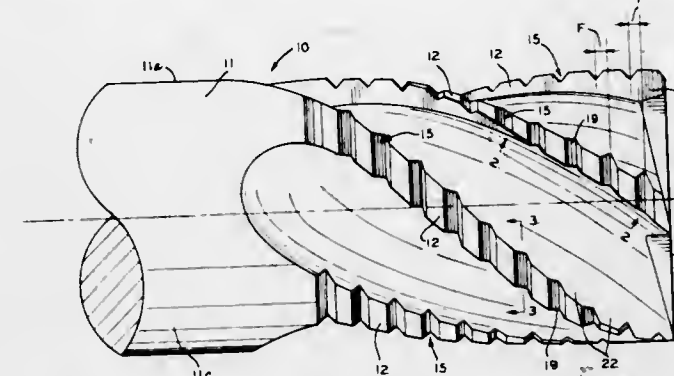
John R. Sonnie, Eastlake, Ohio, assignor to HiCarb Corporation, Cleveland, Ohio

Filed Mar. 17, 1971, Ser. No. 125,166

Int. Cl. B26d 11/12

U.S. Cl. 29—103 A

3 Claims



An end mill is provided which comprises a cylindrical body of solid carbide material having a plurality of parallel helical flutes in the outer surface thereof. Each of the flutes is provided with a plurality of notches having root lines perpendicular to the axis of the tool body, and the root line of each notch on one of the flutes is axially offset from the root line of a notch on the preceding flute a distance such that the offset notches axially overlap one another. The offset between notches of adjacent flutes is in the same direction as the hand of the helical flutes and preferably is approximately 0.015 inch. Further, the notches are defined by walls which are inclined approximately 40° relative to the axis of the tool. The tool structure provides for extremely small chips to be removed from a workpiece against which the tool is moved, whereby the tool can be operated at an extremely high spindle speed and with an extremely high linear tool feed rate to achieve heavy metal removal from a workpiece without chipping or breakage of the tool.

3,736,635 METHOD OF MAKING A BALL AND SOCKET JOINT

Hugh Frank Romer, Bushey, and Rodney Thomas Beazley, Maldstone, both of England, assignors to The Glacier Metal Company Limited, Wembley, Middlesex, England

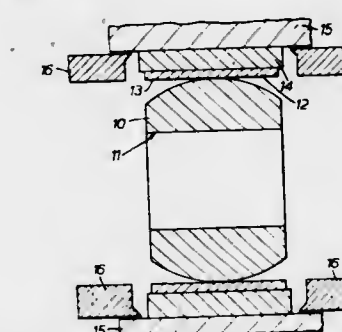
Filed Mar. 8, 1971, Ser. No. 122,020

Claims priority, application Great Britain, Mar. 9, 1970, 11,186/70

Int. Cl. B21d 53/10; B23p 11/00

U.S. Cl. 29—149.5 B

5 Claims



A method of making a ball and socket joint in which the ball is placed inside two co-axial cylindrical blanks which are then

placed in a die which prevents outward expansion of the blanks. Force is then applied to the ends of the blanks to deform them to form the socket with the inner surface of the inner blank forming a bearing surface for the ball.

3,736,636 AN APPARATUS FOR ADJUSTING THE ALTITUDE OF THE CHORD OF AN EXPANDING ROLL

Kan Tawa, Takatsuki, Japan, assignor to Yamauchi Rubber Industry Co., Ltd., Hirakata-shi, Osaka, Japan

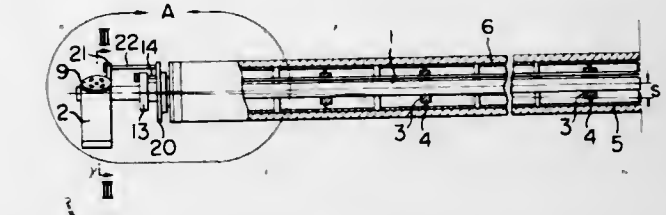
Filed June 3, 1971, Ser. No. 149,526

Claims priority, application Japan, June 5, 1970, 45/048612

Int. Cl. B21b 13/02

U.S. Cl. 29—116 AD

3 Claims



An apparatus for adjusting the altitude of a chord of an expanding roll characterized in comprising: a central shaft bent in an arc-shape with the amount of its radial deflection increasing successively toward the middle thereof with respect to an imaginary straight line corresponding to the axis of an unbent central shaft; a plurality of eccentric discs or bushes rotatably fitted around said shaft and being spaced lengthwise along the axis thereof, said bushes having the eccentricities increasing successively toward the middle of said central shaft; a plurality of sleeves in which said bushes are inserted and are rotatably supported therein by means of intermediate ball bearings; a rubber roll covering said sleeves and integrated therewith to form a single rotatable unit; a plurality of coupling members, each of which penetrates through each of said bushes respectively to intercouple therewith; a bearing journaling said central shaft so as to keep said central shaft fixed thereto and, in case of need, to permit said shaft to turn round therein; and a clutch means effecting, against said bush positioned adjacent to one axial end of said central shaft, an alternate engagement with said central shaft and with said bearing.

3,736,637 PROCESS FOR ASSEMBLING CONCRETE REINFORCEMENT

Georgi Oroschakoff, Simon-Denk-Gasse 7/7, Vienna, Austria

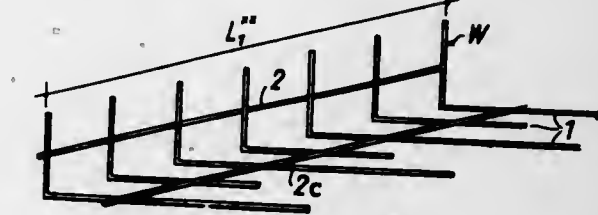
Division of Ser. No. 93,822, Nov. 30, 1970. This application

Mar. 6, 1972, Ser. No. 231,865

Int. Cl. B23p 17/00, 15/12

U.S. Cl. 29—155 R

2 Claims



A method of assembling concrete reinforcement in which a pair of reinforcing sections is provided, each of which comprises orthogonal sets of rods. The two sections are pushed into one another so that one of the sets of rods of one section extends at an angle to the corresponding rods of the other section while the other sets of rods are parallel. Upon engagement of a rod of each of these other sets with a rod of the other set of the other section, the sections are turned into a position in which the rods of the first-mentioned sets of the two sections lie in a common plane.

3,736,638 METHOD FOR BONDING OPPOSED PARTS OF A HOLLOW ARTICLE TOGETHER

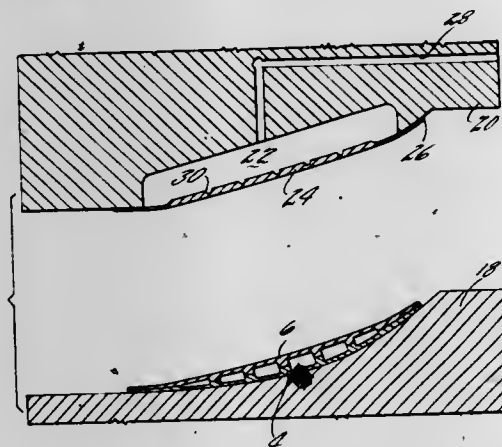
Hilton F. Stone, Jr., Glastonbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Apr. 7, 1971, Ser. No. 131,966

Int. Cl. B21k 3/04; B23p 15/02, 15/04

U.S. Cl. 29—156.8

4 Claims



Apparatus for and method of bonding together the parts of a two part hollow article having projecting ribs on at least one part engaging cooperating surfaces on the other part and in which a high pressure is applied during the bonding operation to the portions of the parts that are in contact with one another without a corresponding pressure on the remainder of the surfaces of the article.

3,736,639 CONNECTING-ROD AND METHOD FOR ITS MANUFACTURE

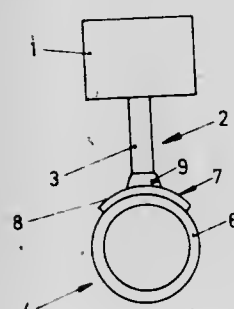
Hans Ulrik Leffers, Augustenborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

Division of Ser. No. 864,025, Oct. 6, 1969, abandoned. This application Aug. 11, 1971, Ser. No. 170,945

Int. Cl. B23p 15/10

U.S. Cl. 29—156.5 A

1 Claim



The invention relates to a connecting rod assembly and to a method of manufacturing the assembly. The head for the rod is cut from a length of tubing. A saddle shaped member having a bore for the connecting rod is stamped and pressed from sheet metal. The three parts, namely the head, saddle and rod, are joined metallurgically in a soldering furnace after soldering material is added.

3,736,640 METHOD OF FORMING A METAL VALVE SEAT

Frederick E. Freiheit, East Lansing, Mich., assignor to FMC Corporation, San Jose, Calif.

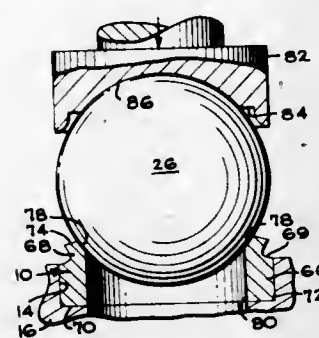
Filed Dec. 15, 1970, Ser. No. 98,221

Int. Cl. B21k 1/20, 29/00

U.S. Cl. 29—157.1 R

A metal valve seat and method of forming the same which includes providing an annulus having a thick annular body and

a thin neck defining a sealing end of the body. After the annulus has been mounted in the valve body, a ball is placed on the



neck and an impact force is applied to the ball thereby deforming the neck and forming an annular concave sealing surface which conforms to the contacted curvature of the ball.

3,736,641 TUBULAR FILTER AND METHOD OF MAKING THE SAME

Dale P. Fosdick, Ann Arbor, Mich., assignor to Pittsfield Products, Inc., Ann Arbor, Mich.

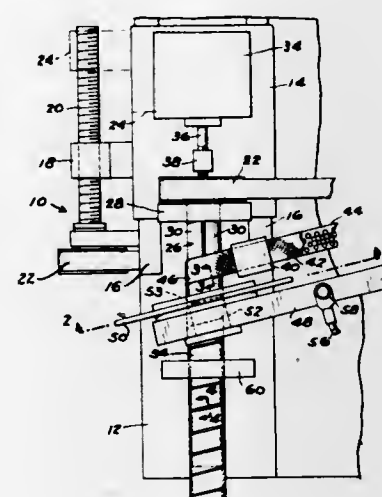
Continuation of Ser. No. 96,950, Dec. 10, 1970, abandoned.

This application Mar. 23, 1972, Ser. No. 237,503

Int. Cl. B23p 15/16

U.S. Cl. 29—163.5 F

2 Claims



A tubular reinforced filter comprising overlying strips of screen and perforated reinforcement helically wound and having adjacent windings bonded together, and the method of making the same comprising helically winding overlying strips of screen and perforated reinforcement and bonding adjacent windings together.

3,736,642 CONNECTION FORMING APPARATUS

James H. Miller, Minneapolis, and Edward G. Schaumburg, St. Paul, both of Minn., assignors to Gould, Inc., Mendota Heights, Minn.

Division of Ser. No. 786,285, Dec. 23, 1968, abandoned. This application Feb. 22, 1971, Ser. No. 117,665

Claims priority, application Belgium, Dec. 22, 1969, 83100; Canada, Sept. 15, 1969, 061963; France, Dec. 16, 1969, 6943606; Germany, Dec. 22, 1969, P 19 64 262.7; Italy, Dec. 20, 1969, 26110 A/69; Luxembourg, Dec. 19, 1969, 29124; Netherlands, Dec. 22, 1969, 6919236

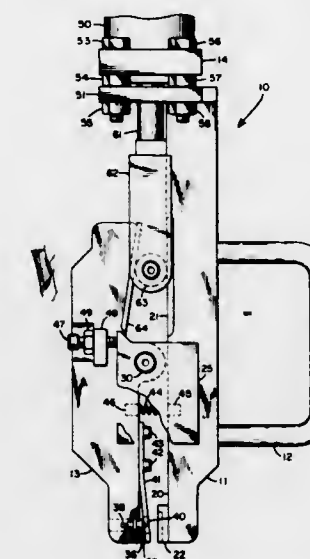
Int. Cl. H01m 35/18

U.S. Cl. 29—204

An apparatus for forming a tight sealing relation between intercell connector lugs of a storage battery. The apparatus

7 Claims

comprises a pair of jaw members that squeeze the intercell connector lugs of a storage battery together and a flaring



member that expands the intercell connector lugs to form a tight sealing relation.

3,736,643 TOOL FOR REMOVING CONCENTRIC KNOCKOUTS

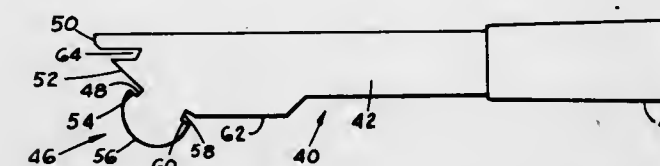
Frank W. Pepe, 637 Prospect Drive, Lorrship, Conn.

Filed May 20, 1971, Ser. No. 145,387

Int. Cl. B23p 19/04

U.S. Cl. 29—267

7 Claims



A tool for removing concentric ring knockouts from electrical conduit boxes of various construction after removal of the center disc knockout. The tool has opposed groove defining means set at an angle relative to each other and spaced apart by a distance less than a minimum predetermined diameter of a ring knockout to be removed, the groove defining means being adapted to alternately engage opposite points on the ring knockout in response to a backward and forward movement of the tool so as to fracture the knockout by a series of oscillatory movements about a pivot point until the points of connection of the ring knockout with the rest of the box fracture.

3,736,644 PLIERS

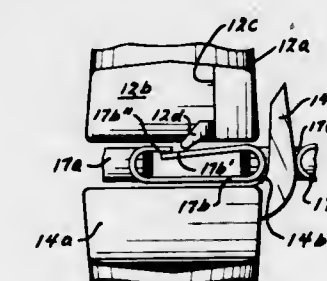
Oscar J. Simon, 5059 Tippecanoe Drive, Evansville, Ind.

Filed Oct. 6, 1971, Ser. No. 186,939

Int. Cl. B23p 19/04; B21 21/00; B25b 27/22

U.S. Cl. 29—268

7 Claims



A specialized form of pliers having particular adaptability for use on a link bracelet as for adding, removing or replacing one or more links.

3,736,645 ASSEMBLY METHOD FOR HYDRAULIC ENERGY ABSORBERS

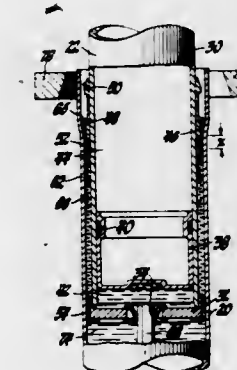
Wayne V. Fannin; Loren R. Gute, both of Dayton, and Wilbur J. Zimmerle, Bellbrook, all of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 5, 1971, Ser. No. 196,138

Int. Cl. B23p 17/00

U.S. Cl. 29—422

5 Claims



An hydraulic energy absorber unit comprising telescopic cylinder and piston tubes defining variable volume liquid-filled chambers therein and adapted to absorb energy upon displacement from a rest or normal extended position to an inwardly telescoped position is assembled in a manner to have one of the variable volume chambers filled in the rest position of the unit with a predetermined quantity of reserve fluid transmitting to the remainder of the unit a preload force exerted by a spring chamber piston within the piston tube. The piston tube subassembly is loaded with a gas at an initial predetermined pressure prior to insertion thereof within the cylinder tube subassembly filled with liquid, such insertion being accomplished with the aid of a sealing ring on the piston tube which causes the latter to displace the predetermined quantity of fluid into the piston tube chamber and further pressurize the gas spring up to the final desired pressure, whereafter the piston and cylinder tube subassemblies are provided with a one-way limit stop preventing further extension of the unit from the rest or as-assembled normal extended position.

3,736,646 METHOD OF ATTACHING SURGICAL NEEDLES TO MULTIFILAMENT POLYGLYCOLIC ACID ABSORBABLE SUTURES

Edward Emil Schmitt, Norwalk, and Martin Epstein, Stamford, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed Oct. 18, 1971, Ser. No. 190,290

Int. Cl. B23p 3/00, 25/00

U.S. Cl. 29—458

3 Claims

Useful surgical elements consist of a sterile synthetic copolymer containing, by mol percent, about 15 to 85 percent glycolic acid and 85 to 15 percent lactic acid, which has enhanced tissue absorption as compared with polylactic acid and enhanced solubility in organic solvents as compared with polyglycolic acid and hence can be cast into sheets during preparation and implantation. Such surgical element may be used alone or in combination with polyglycolic acid or a coating of polyglycolic acid. Other comonomers may be introduced into the system.

3,736,647

METHOD FOR MAINTAINING CONSTANT THE DISTANCE OF A CUTTING OR WELDING TORCH FROM THE WORK PIECE

Georg Roeder, Frankfurt/Main, and Claus Schmidt, Eberstein-burg, both of Germany, assignors to Messer Griesheim GmbH, Frankfurt/Main, Germany

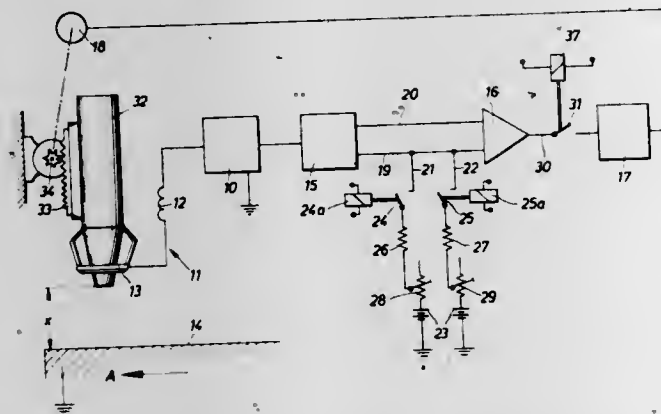
Filed Aug. 10, 1970, Ser. No. 62,440

Claims priority, application Germany, Aug. 16, 1969, P 19 41 728.8

Int. Cl. B23k

U.S. Cl. 29—470

6 Claims



A method of maintaining constant the distance of a cutting or welding torch from a work piece being cut or welded according to which a capacitance is formed between a sensing electrode having a predetermined sensing surface secured to the torch and the work piece surface, the varying magnitude of the capacitance being effective to operate a device to adjust the position of the torch to a predetermined height, a change of said capacitance due to a change of the magnitude of the sensing surface of the sensing electrode projected on said work surface is then compensated, such change occurring when the sensing electrode passes over an edge portion of the work piece.

3,736,648

METHOD OF BONDING A ZIRCONIA MEMBER WITH ANOTHER MEMBER

David Henry Spielberg, and Charles J. Levesque, both of Des Plaines, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed Dec. 20, 1971, Ser. No. 210,135

Int. Cl. B23k 31/02

U.S. Cl. 29—473.1

13 Claims

Method of bonding together two members, one of which comprises zirconia. A mixture is prepared comprising an active metallic component such as titanium, zirconium, titanium hydride, or zirconium hydride, and a brazing metallic component such as silver, copper, gold, or the like. The mixture is applied to the region of the zirconia member to be bonded. The members are placed together in a contiguous relationship in the regions to be bonded. The members are then heated to above the melting point of the mixture in a non-oxidizing environment, such as in helium. After the members are bonded, they are cooled to an annealing temperature of the zirconia, and oxygen is slowly introduced into their environment. The oxygen makes up any deficiency of oxygen in the zirconia member resulting from the bonding procedure.

3,736,649

METHOD OF MAKING CERAMIC-TO-METAL SEAL

Robert H. Bristol, Ballston Lake, N.Y., assignor to General Electric Company, Owensboro, Ky.

Division of Ser. No. 130,265, April 1, 1971, Pat. No. 3,700,420. This application Aug. 2, 1972, Ser. No. 277,262

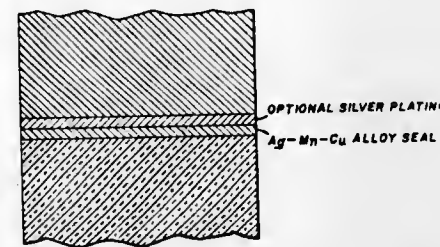
Int. Cl. B23k 31/02

U.S. Cl. 29—473.1

3 Claims

A ceramic-to-metal seal is described which comprises a silver-manganese-copper alloy. Metal may be sealed to ceramic

in a one step process without prior metallizing of the ceramic. The alloy melts at temperatures which are sufficiently



below the melting point of silver to enable one to seal silver-plated metal parts to ceramic without melting the silver plating.

3,736,650

METHOD FOR MAKING METAL-TO-CERAMIC SEALS

Norman C. Anderson, Foster City, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed June 1, 1971, Ser. No. 148,891

Int. Cl. B23k 31/02

U.S. Cl. 29—473.1

13 Claims

An alkali metal corrosion resistant vacuum tight metal-to-ceramic seal is formed between a high alumina ceramic body and a refractory alkali metal resistant metal member, such as Cb-12r, by interposing a powdered brazing mixture comprising by weight a majority of elemental columbium powder and a second metal powder selected from the class consisting of iron and nickel, and firing the assembly in vacuum at a temperature between 1,500°C and 1,675°C to partially melt a portion of the powder to form a melted bonding phase component interstitially of the undissolved columbium particles for bonding the ceramic to the metal part.

3,736,651

AUTOMATIC PIN INSERTION AND BONDING TO A METALLIZED PAD ON A SUBSTRATE SURFACE

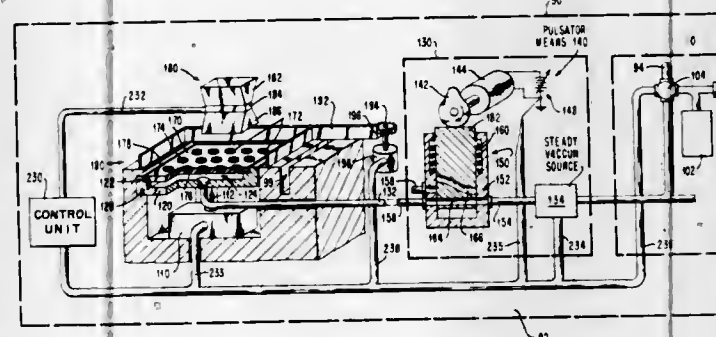
John M. Law, Lighthouse Point; Alfred A. Strickler, and Walter Von Kaenel, both of Pompano Beach, all of Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 31, 1971, Ser. No. 176,575

Int. Cl. B23p 19/00

U.S. Cl. 29—428

6 Claims



The invention is a method of automatically bonding elongated articles such as headed pins to metallized contact pads on a ceramic substrate. The elongate articles are automatically inserted into the carrier by (1) placing the carrier in a carrier support, (2) releasing elongate articles onto the carrier, (3) vibrating the support to vibrate the carrier and agitate the elongated articles, (4) applying a pressure differential between the tops and the bottoms of the holes to create air flow into the tops of the holes to suck the elongate articles into the holes, and (5) periodically reducing the pressure differential to allow the vibration to dislodge any jammed arti-

cles. The frequency and amplitude of the vibration and the duty cycle and period of the pressure differential are adjusted to dislodge jammed articles during the time the pressure differential is reduced, while retaining in the holes the elongate articles which have been inserted into the holes in a proper orientation. The bonding method comprises the steps of (1) inserting the elongate articles into holes in a carrier, (2) removing any excess articles, (3) masking the carrier to prevent bonding material adhering to the carrier, applying bonding material to the ends of the elongate articles in accordance with the mask, (5) bringing the ends of the elongate articles into contact with the contact points on the substantially flat surface to which the articles are to be bonded, (6) applying pressure to each elongate article individually, (7) heating the contact points on the substrate surface and the elongate articles to form a permanent bond between them and (8) cooling the elongate articles and contact points to allow the bonding material to set.

3,736,652

METHODS FOR FORMING WIRE BUNDLES AND AN APPARATUS FOR CARRYING OUT THE METHOD

Ralph P. Fletcher, Jr., Everett, Wash., assignor to The Boeing Company, Seattle, Wash.

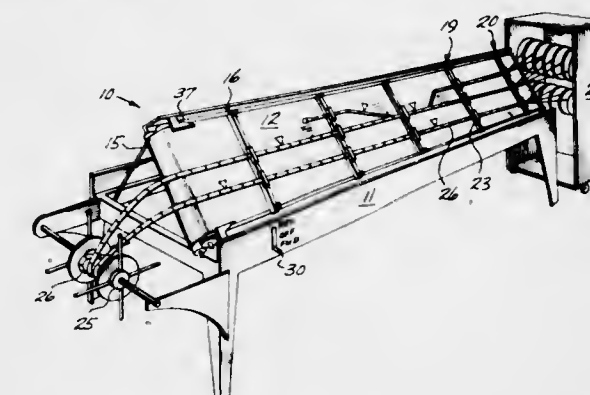
Continuation of Ser. No. 55,502, July 16, 1970, abandoned.

This application Mar. 6, 1972, Ser. No. 231,925

Int. Cl. B23p 19/00; H05k 13/00, 3/32

U.S. Cl. 29—429

12 Claims



Two methods are disclosed for forming wire bundles, one method for forming an elongated wire bundle longer than the conventional working table and a second method for forming a shorter wire bundle. An apparatus for carrying out both methods comprises an endless canvas belt stretched between two rollers mounted at the ends of an elongated table, a drawing on rollers at each end of the table and overlying and supported by the belt for moving therewith, and a plurality of wires from reels at one end of the table for being positioned over the drawing and held in precise position with detachable brackets during the forming of the wire bundle. Then after completion of the wire bundle, or portion thereof, the endless belt is started moving and as the completed wire bundle winds on to a storage reel, the brackets are released by a trigger device to permit the drawing to separate from the endless belt and wind up on a storage roller.

For carrying out the former method, as the first portion of the drawing for which the wire bundle has been completely assembled, is wound on the storage roller, it pulls the second portion of the drawing and the wire related to that portion out over the table for being clamped to the endless belt so that the rest of the bundle may be formed thereover. This continuous forming and storing of the wire bundle portions is carried on until all of the elongated wire bundle is coiled on its storage reel before the next wire bundle is begun.

For carrying out the latter method, as a complete wire bundle is formed over the drawing, the finished wire bundle is disconnected from the drawing and the endless belt, and wound on the storage reel as the drawing is wound on its storage roller. Then the drawing is reversed and rewound back on the table for permitting the forming of another wire bundle like the first.

For ease of working on the wire bundles by human beings working over the drawing, the portion including the drawing and its rollers, the supporting endless belt and its rollers, the clamping brackets attaching all together, and the wires extending over the drawing may be tilted to a convenient angle.

A quick opening bracket with a plurality of clamps thereon is disclosed which opens instantly upon contact with a trigger device at the end of the work table.

3,736,653

PROCESS FOR SOLDERING USING PRE-FLUXED SOLDER POWDER

Theodore Materson, Dayton; Harry L. Roe, Jr., Centerville, and James E. Williams, Kettering, all of Ohio, assignors to The National Cash Register Company, Dayton, Ohio

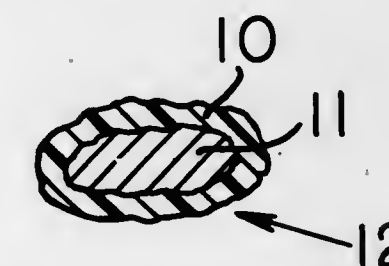
Division of Ser. No. 35,414, May 7, 1970, Pat. No. 3,703,254.

This application Dec. 1, 1971, Ser. No. 203,923

Int. Cl. B23k 31/02, 35/36

U.S. Cl. 29—496

2 Claims



A solder powder is disclosed comprising minute particles of metallic alloy solder coated by a thin layer of rosin soldering flux such that the flux performs a triple function of: (a) insulating the individual alloy solder particles from electrical conductance; (b) adhesively holding individual particles of solder in place by virtue of the sticky characteristics of the preferred fluxes used to coat the solder powder; and (c) providing, when melted, an agent to clean substrates and workpieces to be joined by soldering.

3,736,654

EXPLOSIVE BONDING OF WORKPIECES

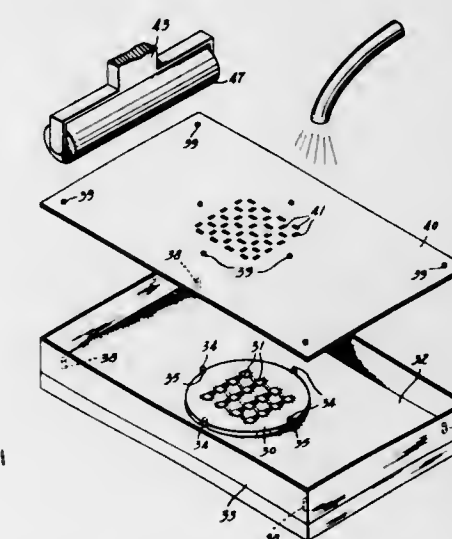
Benjamin Howell Cranston, Trenton, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.

Division of Ser. No. 68,431, Aug. 31, 1970, which is a continuation-in-part of Ser. No. 6,829, Jan. 29, 1970, abandoned. This application Nov. 26, 1971, Ser. No. 202,278

Int. Cl. B23k 21/00

U.S. Cl. 29—470.1

13 Claims



First workpieces, for example, beam-leaded integrated circuits, and the like, are bonded to second workpieces, for ex-

ample, metallized ceramic substrates by first depositing a quantity of primary explosive, such as lead azide, onto each beam lead and then detonating the explosive to explosively bond the integrated circuits to the substrate. In another embodiment of the invention, the explosive bonding force is applied through a buffer sheet of plastic or metallic material which protects the surface of the substrate from contamination and which, in addition, dampens the shock of the explosion. In yet another embodiment of the invention, metal conductive paths are explosively bonded directly to a ceramic or glass substrate to form a "printed circuit pattern." The same techniques are used to manufacture resistors, capacitors, inductors, etc.

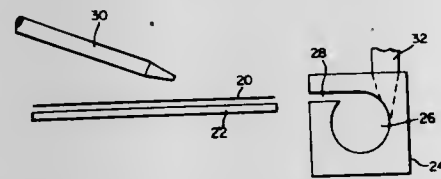
3,736,655
METHOD FOR FORMING AND PLACING TUBULAR BATTERY SEPARATORS AND MEANS EMBODYING THE METHOD

Milo H. Beckman, Madison, Wis., assignor to ESB Incorporated, Philadelphia, Pa.

Filed Nov. 18, 1970, Ser. No. 90,641
Int. Cl. B31c 3/00

U.S. Cl. 29—592

6 Claims



Battery separator material in strip form and cut to proper size is entered tangentially into a borehole. Air streams directed tangentially to the borehole cause the strip of material to roll up into a tube of controlled diameter. When the tube is wound, a pressure differential between the two ends of the borehole causes the tube to eject into a waiting battery assembly placed on the trajectory of the rolled tube.

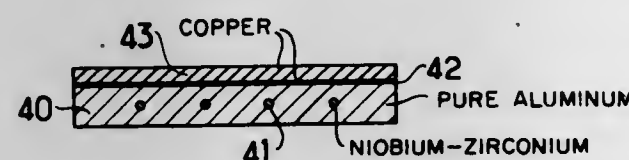
3,736,656
METHOD OF MANUFACTURING ASYMMETRICAL SUPERCONDUCTIVE CABLES FOR CARRYING EITHER ALTERNATING OR DIRECT CURRENT

Marcel Anpoix, Paris; Francois Moisson Franchhauser, Bretigny-sur-Orge, and Jean Royet, Orsay, all of France, assignors to Compagnie Generale D'Electricite, Paris, France
Division of Ser. No. 887,848, Dec. 24, 1969, Pat. No. 3,600,498. This application Nov. 17, 1970, Ser. No. 90,436

Int. Cl. H01v 11/00

U.S. Cl. 29—599

11 Claims



A cable for cryogenic connection having one or more pairs of conductive layers insulated electrically from each other and consisting of several super-conductors arranged in spiral formation over the opposing surfaces of the conductive layers.

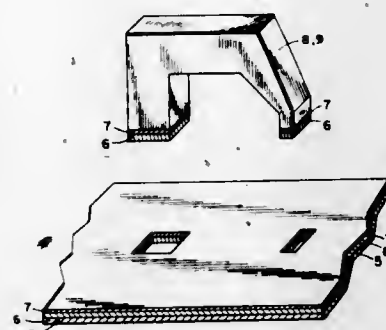
3,736,657
METHOD OF MANUFACTURING A TRANSDUCER HEAD FOR MAGNETIC RECORDING/REPRODUCING APPARATUS

Peter F. Varadi, 10500 Rockville Pike, Stamford, Conn., and Laslo Gabor Sebestyen, 41 Ashbourne Road, London, England

Division of Ser. No. 870,293, Nov. 28, 1969, Pat. No. 3,641,281, which is a continuation of Ser. No. 390,435, Aug. 18, 1964, Pat. No. 3,495,045. This application June 22, 1971, Ser. No. 155,632
Int. Cl. H01f 7/06

U.S. Cl. 29—603

6 Claims



A magnetic recording/reproducing head is formed to provide a controlled non-magnetic transducer gap by bonding prefinished pole faces with a thin layer of transferable bonding material to form a unitary structure.

3,736,658
THERMIONIC GAS-PRESSURE-BONDED SHEATHED INSULATORS AND METHOD OF PRODUCING SAME

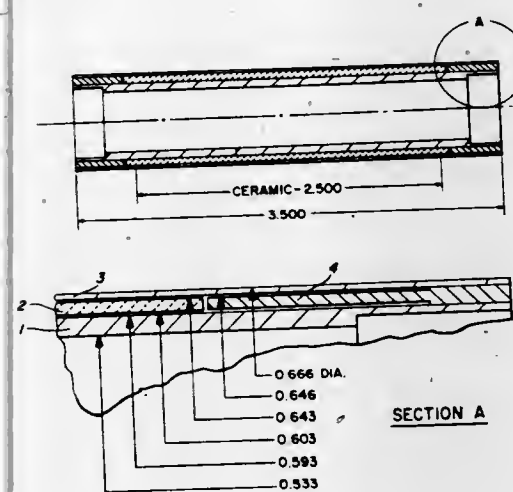
Cliff V. Weaver; William A. Ranken, and Robert G. Lawton, all of Los Alamos, N. Mex., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Oct. 12, 1970, Ser. No. 79,786

Int. Cl. H01b 19/00

U.S. Cl. 29—631

19 Claims



The collector of a thermionic converter, an insulator, and a metal sheath for the insulator are directly gas-pressure-bonded together such that the trilayer thus formed is stress relieved and maintains good structural integrity during machining and during thermocycling caused by operation of the converter. The insulator is alumina and the collector and sheath consist either of niobium metal or Nb-1 wt percent Zr alloy.

3,736,659
POWER OPERATED CAN OPENER WITH UNIQUE THRUST LINK

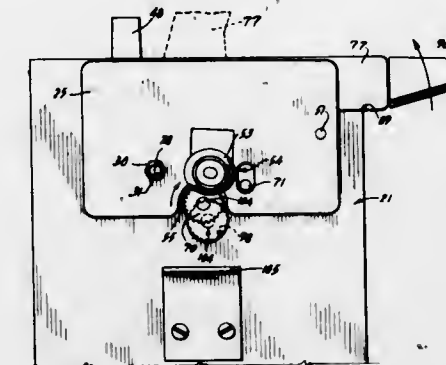
Robert E. McLean, Kansas City, Mo., assignor to Rival Manufacturing Company, Kansas City, Mo.

Filed Feb. 19, 1971, Ser. No. 116,905

Int. Cl. B67b 7/38

U.S. Cl. 30—4 R

8 Claims



An electrically powered can opener has a selectively removable cutter mounting plate which carries the cutting element thereon and suitable components for initiating power-pierce and automatic shutoff. The cutter mounting plate is removably fastened to the can opener upright frame by a single pin member and latch. The upright frame further supports the thrust means which is pivotally movable in order to properly orient the can feed wheel with respect to the cutter element. The thrust means operates to move the can feed wheel, yet maintains the center distance between certain gears normally associated with the feed wheel drive shaft regardless of the vertical position of the can feed wheel.

3,736,660
DEVICE FOR THE OPENING OF FOIL SEALED CONTAINERS

Hans Jeger, and Rudolf Rohre, both of Schaffhausen, Switzerland, assignors to Schweizerische Aluminium AG, Chippik (VS), Switzerland

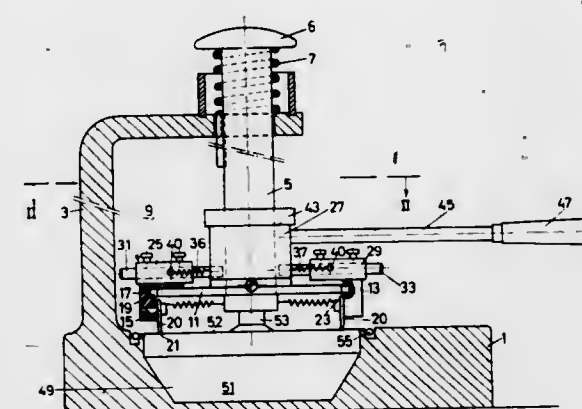
Filed May 7, 1971, Ser. No. 141,312

Claims priority, application Switzerland, June 5, 1970, 8431/70

Int. Cl. B67b 7/30

U.S. Cl. 30—6.4

16 Claims



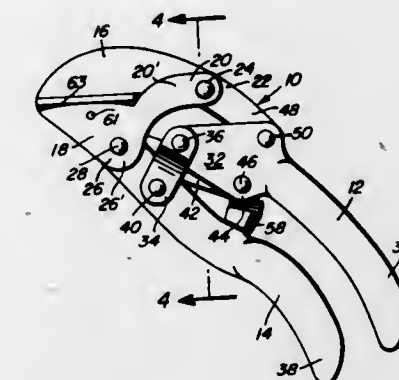
Device for opening a sealed container comprising: a knife; means for raising and lowering the knife off the container; rotating means for rotating the knife around the container portion to be cut out; a fixedly positioned jig shaped in the shape of the portion of the container to be cut out; biasing means holding the knife against the jig guide surface to guide the cutting to the desired shape.

3,736,661
SHEAR CONSTRUCTION

Charles G. Stewart, P. O. Box 327, Birmingham, Ala.
Continuation-in-part of Ser. No. 872,615, Oct. 30, 1969, Pat. No. 3,638,307. This application Jan. 3, 1972, Ser. No. 214,863
Int. Cl. B26b 17/00

U.S. Cl. 30—192

2 Claims



A pair of shears including relatively swingable jaws and relatively swingable levers. The jaws are pivotally connected for relative swinging about a first axis stationarily positioned relative to both jaws and the levers are also connected for relative swinging movement. The levers are further operatively connected to the jaws for relative swinging of the latter in response to swinging of the levers with the axis of relative swinging of the jaws shifting relative to both levers during relative swinging of the jaws.

3,736,662
HAND-OPERATED SLICING CUTTER MECHANISM

Horst Hartmann, Stuttgart, Germany, assignor to K. Zysset & Co. AG, Lyss, Switzerland
Filed Feb. 17, 1972, Ser. No. 227,131

Claims priority, application Germany, Mar. 1, 1971, G 71 07 546.2

Int. Cl. B26b 3/03

U.S. Cl. 30—283

4 Claims



A hand-operated slicing cutter mechanism wherein a flexible cutting blade is clampingly mounted at its ends in spanned condition at support means which, in turn, are displaceably mounted at an impact element possessing an impact surface intended to bear against the material to be cut, for the purpose of changing the spacing between the cutting blade and the impact surface. According to important aspects of the invention, the support means consists of the legs of a rigid substantially

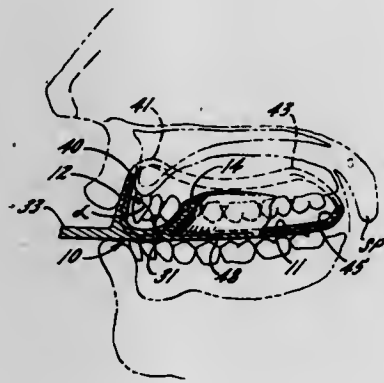
U-shaped support element at which there is guided the impact element in a direction which is disposed perpendicular to the plane of the cutting blade and the impact surface. At one of both elements there is rotatably mounted an adjustment shaft parallel to the cutting blade which is equipped at the region of the legs with similar pinion teeth which mesh with the teeth of a gear rack present at the other of both elements.

3,736,663 IMPRESSION TRAY

Velton C. White, 17 North Broadway, Des Plaines, Ill.
Filed Jan. 31, 1972, Ser. No. 221,985
Int. Cl. A61c 9/00

U.S. Cl. 32-17

6 Claims

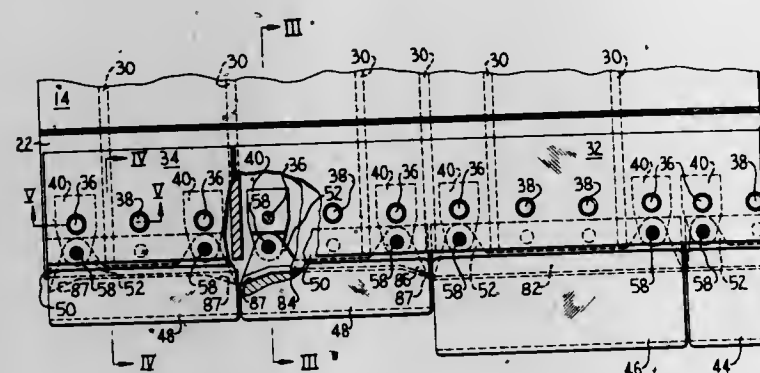


Novel dental impression trays are provided which are compatible with any usual patient's dental anatomy. A tray set includes trays for use with maxillary and mandibular deciduous, mixed and permanent dentition. Each tray is made of a flexible inner mesh form and an outer covering, and is hand moldable through a limited range of shapes.

3,736,664
REPLACEABLE PINNED-ON CUTTING EDGE
William J. Black, Wilmington; William E. Lanz, and Eugene M. Wilson, both of Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Oct. 12, 1971, Ser. No. 188,219
Int. Cl. E02f 9/28
U.S. Cl. 37-141 R

6 Claims



A quickly and easily replaceable cutting edge assembly for an earthmoving scraper or the like having a plurality of discrete cutting edge elements which are removably secured by means of "drive out" pins to a cutting edge support member. The cutting edge support member is integral with the scraper bowl or the like. Each cutting edge element is provided with a bifurcated portion which engagingly straddles the edge support member. Holes are provided in each edge element which register with holes in the support member to provide bores through which the drive-out pins are inserted to retain the cutting edge elements in place.

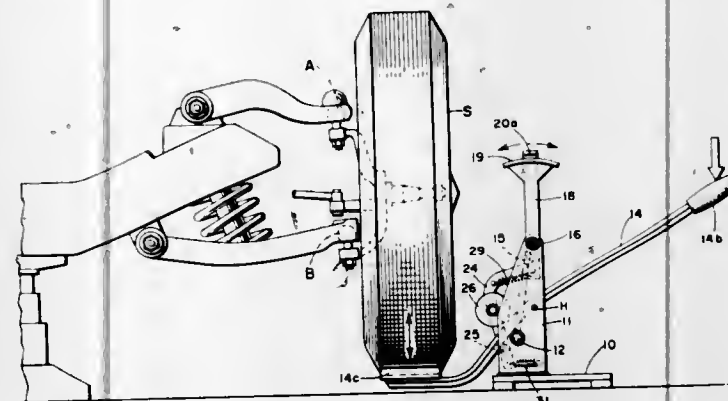
3,736,665 DEVICE FOR TESTING BALL JOINTS, KING PINS AND THE LIKE

Clarence E. La Moreux, Winter Haven, Fla., assignor to Maurer Inc., Orlando, Fla.

Filed Oct. 30, 1970, Ser. No. 85,325
Int. Cl. G01b 5/24, 3/22

U.S. Cl. 33-169 R

10 Claims



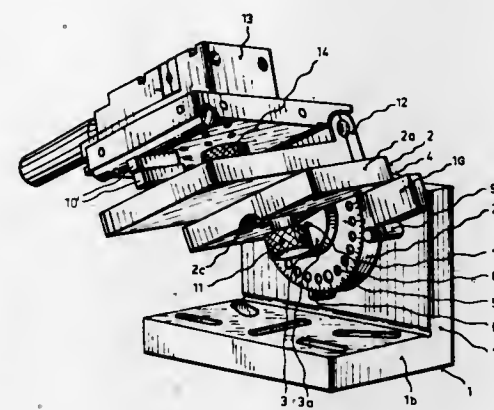
A ball-joint or king pin tester for automotive vehicles having means to oscillate the ball joint or king pin so as to displace the wearing parts thereof with respect to one another, and having means to measure the amount of such displacement so that appropriate maintenance may be provided if necessary. The device also comprises a pressure roller for testing tire out-of-roundness.

3,736,666
UNIVERSAL SINE DEVICE
Franz Sutter, Niederdorf, Basel-Land, Switzerland, assignor to Institut Dr. Ing. Reinhard Straumann AG, Waldenburg, Switzerland

Filed Aug. 31, 1970, Ser. No. 68,064
Claims priority, application Switzerland, Sept. 5, 1969, 13473/69

Int. Cl. B23q 3/00
U.S. Cl. 33-174 TC

2 Claims



A sine device comprises modified standard fixtures found in every workshop and which can be assembled to form a sine table having a greater range of tilting movement than commercially available sine tables. The sine device comprises a first angle plate having a horizontal leg and a vertical leg, and a second angle plate, constituting a tilting table, having a vertical leg pivotally mounted on the vertical leg of the first angle plate for tilting about a horizontal axis. Pin means are disengageably insertable in apertures in the vertical leg of the first angle plate to serve, either alone or in combination with gauge blocks, as references and supports for the tiltable table in any angularly adjusted position of the table. The horizontal leg of the table may be formed with inverted T-slots and apertures whereby various components may be adjustably positioned

thereon, such components including, for example, a commercial sine table, a vise, or the like. The vertical leg of the table may be formed with a suitable scale of angular graduations and a circular series of apertures to receive locating pins engageable in a locating aperture in the vertical leg of the first angle plate. All or most of the elements are usable separately and independently of each other.

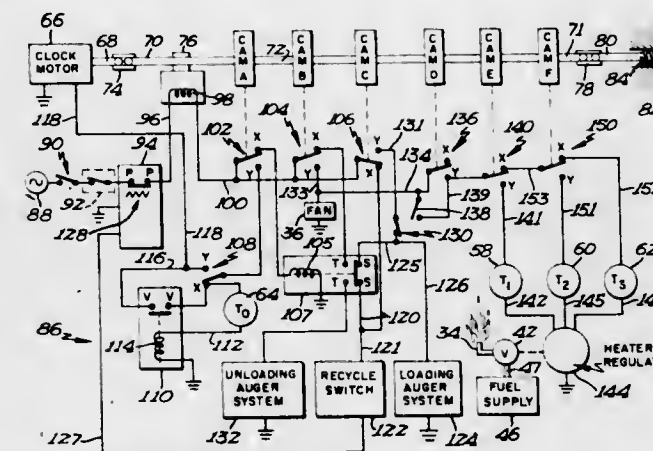
3,736,667 GRAIN DRYER

Jay L. McClaren, Box 559, Litchfield, Minn.

Filed June 28, 1971, Ser. No. 157,373
Int. Cl. F26b 19/00

U.S. Cl. 34-48

17 Claims



A batch dryer for conditioning grain having a clock driven control system including a plurality of successively activated electric circuits for regulating drying bin temperature. The successively activated circuits maintain successively lower drying bin temperature levels defined by individual thermostats in each temperature regulating circuit. A clock drive controls a plurality of cam actuated switches which turn the temperature regulating circuits on and off. The control system prevents the loading of wet grain into the drying bin late in the control cycle so that all grain then in the bin has ample time for thorough drying.

The purpose of the foregoing abstract is to enable the Patent Office and the public generally, and especially the scientists, engineers, or practitioners in the art who are not familiar with patent or legal terms of phraseology, to determine quickly from a cursory inspection the nature and essence of the technical disclosure of the application. The abstract is neither intended to define the invention of the application, which is measured by claims, nor is it intended to be limiting as to the scope of the invention in any way.

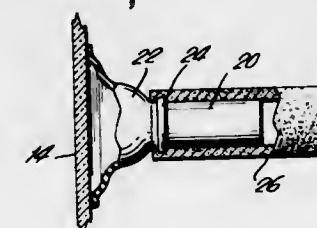
3,736,668 DEVICE FOR DRYER APPLIED TEXTILE CONDITIONERS

Alan Dillarstone, Somerset, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

Filed May 19, 1971, Ser. No. 144,774
Int. Cl. F26b 11/04

U.S. Cl. 34-60

3 Claims



A device for dryer applied textile conditioners and for a clothes dryer comprising a suction cup having associated

therewith the fabric conditioning material. The conditioning material is physically attached to the suction cup and may be in the form of a rod, tube or sheet.

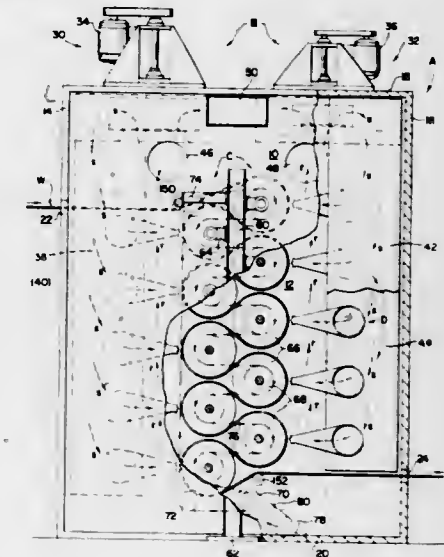
3,736,669 NOZZLE DESIGN FOR A FABRIC WEB TREATING FACILITY

Charles H. Amidon, Jr., Warminster, and Vincent A. Galeone, Warrington, both of Pa., assignors to Gulf & Western Systems Company, New York, N.Y.

Filed Sept. 20, 1971, Ser. No. 181,793
Int. Cl. F26b 19/00

U.S. Cl. 34-229

8 Claims



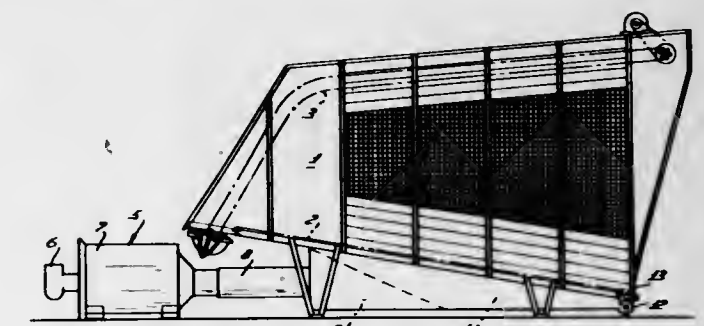
A nozzle design for particular use with a fabric web treatment facility in which heated air is periodically impinged against the web through nozzles as it is processed through the facility around a plurality of elongated rolls. The design provides for ease of access into the facility for cleaning and threading the web onto the rolls by providing a pivotal mounting for the nozzles in order that they may be arcuately moved between a first operative position closely spaced to the web and a second position spaced remote therefrom. Each nozzle includes three air outlet passages extending transversely thereacross in order that the heated air flow therethrough will impinge the web at varied angles and eliminate return air velocities.

3,736,670
CROP DRIERS
Ary van der Lely, 10, Weverskade, Maasland, Netherlands

Filed June 7, 1971, Ser. No. 150,287
Claims priority, application Netherlands, June 11, 1970, 7008488

Int. Cl. F26b 19/00
U.S. Cl. 34-218

7 Claims



A crop drier has an enclosed drying space and a heater which forces heated air through a lower air passage and into contact with crop being moved through the drying space. At the lower aspect of the passage, a debris collecting and cleaning device is positioned. The cleaning device can be displaced relative to the remainder of the drier for debris removal.

3,736,671

EDUCATIONAL APPARATUS

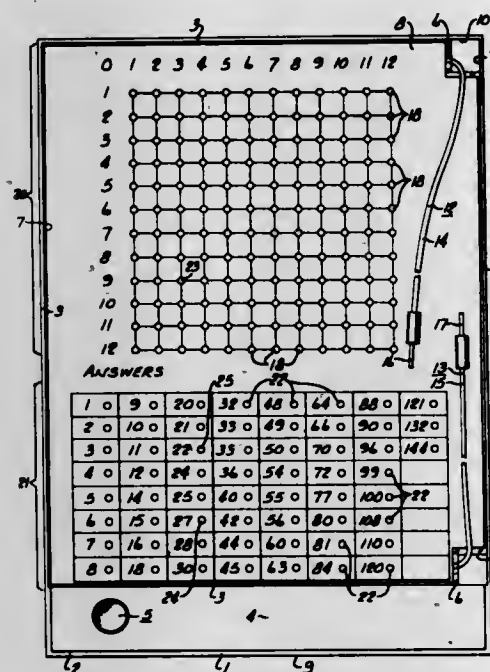
Julius Oleinick, 121 Penhurst Drive, Pittsburgh, Pa.

Filed June 24, 1971, Ser. No. 156,233

Int. Cl. G09b 7/10

U.S. Cl. 35-9 C

7 Claims



Educational apparatus with a circuitry board provided to receive a program pannel having a problem or question section and response or answer section to permit the operator to first, through contact engaging means, select a question in the question section to be answered, and, secondly, seek proper selection of an answer through contact engaging means in the answer section, the correct response being indicated by signal means, such as, in the form of a light or bell. Selective switch means is provided in the circuitry board operative to indicate to the operator at any time desired the proper and correct response to the question selected through the signal means.

3,736,672

READING MACHINE FOR THE BLIND

John B. Skewis, 2427 Alvin Street, Mountain View, Calif., and

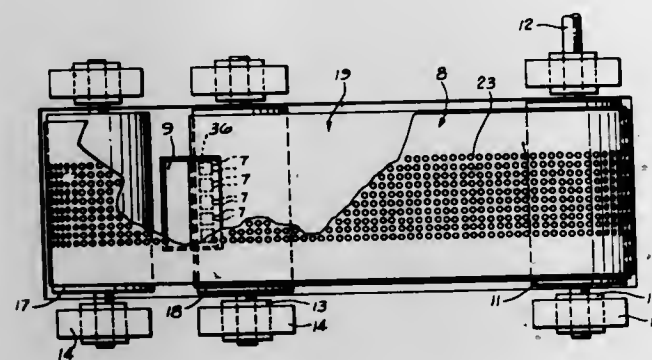
James Y. Lawrie, 145 Johnson Avenue, Los Gatos, Calif.

Filed Dec. 29, 1971, Ser. No. 213,449

Int. Cl. G09b 21/00

U.S. Cl. 35-35 A

10 Claims



Equipment which assembles and presents upon a controlled moving belt a succession of raised replicas of characters delineated on a sheet to enable the reading of any work by a blind person by tactual sensing of the raised replicas of the characters as presented in the same order and spacing on said belt as on such sheet.

3,736,673

CUSHION SHOE INNERSOLE CONSTRUCTION

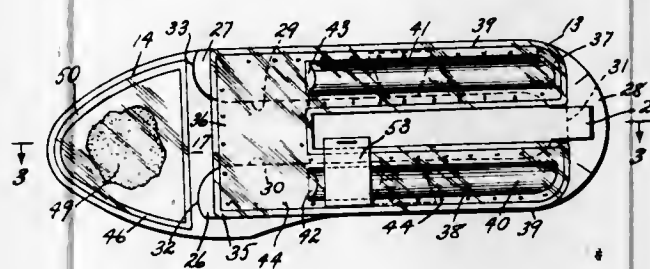
Benjamin B. Dubner, 229-02 Merrick Road, New Hyde Park, N.Y.

Filed Oct. 1, 1971, Ser. No. 185,724

Int. Cl. A43b 13/38

U.S. Cl. 36-44

6 Claims



A cushion type innersole for use with a shoe comprising a first relatively upwardly positioned innersole element conforming generally to the shape of a foot of a wearer, a second innersole element moveably interconnected to and at least partially disposed beneath said first innersole element, the second innersole element being of a generally U-shaped configuration and extending rearwardly from that part of said first innersole element normally underlying the metatarsal area of said foot. Disposed beneath the second innersole element is a U-shaped sealed envelope, each leg of which contains a frangible flexible container in turn containing one phase of a two phase rigid foam system. The two phases are manually mixed before insertion of the device into the shoe of a wearer, and the foot placed thereupon to enable the foam upon expanding and curing to conform the upper surface of the device to the foot of the wearer. Optionally, the U-shaped sealed envelope may be provided with small perforations through which a small amount of foam, upon expanding passes to provide a cementitious effect serving to anchor the insole in position within a shoe. Forwardly of the metatarsal area, the toe cushioning portion of the device is provided with a sealed envelope containing a soft wax which conforms to the toes of the wearer as the device is used. In one embodiment, the device is formed in two pieces, whereby a variety of shoe sizes is readily accommodated by one size of device.

3,736,674

IMPELLER

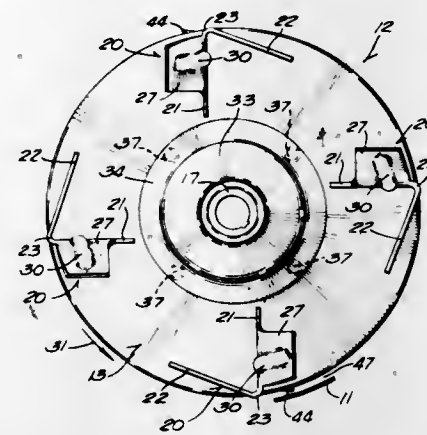
Edward W. Enters, Fredonia, Wis., assignor to Gibson Bros. Co., Plymouth, Wis.

Filed Sept. 22, 1970, Ser. No. 74,379

Int. Cl. E01h 5/00

U.S. Cl. 37-43 R

7 Claims



A second stage impeller for a snow blower. The impeller parts are made of light gauge sheet metal. The impeller base rotor is stamped in a dome shape to increase its strength and has attached thereto sheet metal impeller flights, each of which comprises a paddle transverse to the path of impeller

rotation and a bracing strut behind the paddle. The paddle desirably has a top portion curved forward in the direction of impeller rotation and a reinforcing rib embossed in the curved portion. The base rotor has an opening through which the impeller shaft hub extends. A sheet metal cap is superimposed over the base rotor and has a rim fastened to the face of the base rotor and has an apertured crown spaced from the base rotor and through which the shaft hub extends.

3,736,675

CORNER CONSTRUCTION FOR LOADER BUCKETS OR THE LIKE

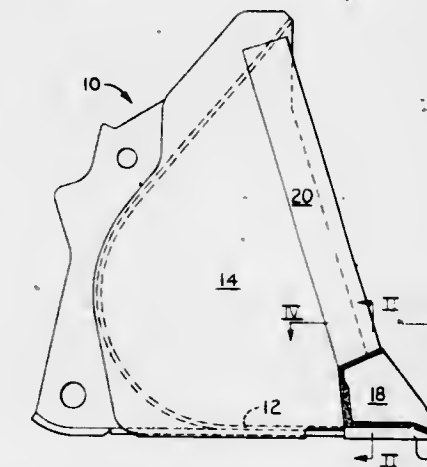
Robert F. Shankwitz, Oswego, and Jerome A. Thies, Kaneville, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Jan. 13, 1971, Ser. No. 106,118

Int. Cl. E02f 9/28; A01b 35/20

U.S. Cl. 37-141 R

5 Claims



A loader bucket corner member for connecting the cutting edge of the bucket to the side walls thereof. The corner member is a vertically disposed hardened member located within the outer confines of the cutting edge and protected from wear thereby. The corner member has a thickness substantially greater than that of the bucket side walls and substantially the same as that of the cutting edge to provide a uniform section modulus transition between the corner member and the cutting edge and consequent stress distribution. The corner member can comprise a forging or casting having a flared lower portion which provides a smooth inner surface at the junction between the cutting edge and the side walls or it can comprise a hardened flat plate member. Chamfers are provided along the surfaces of connection between the side walls, cutting edge and corner member to facilitate weld-joining of these parts.

3,736,676

EXCAVATING TOOTH HAVING OUTWARDLY SLANTED RIBS

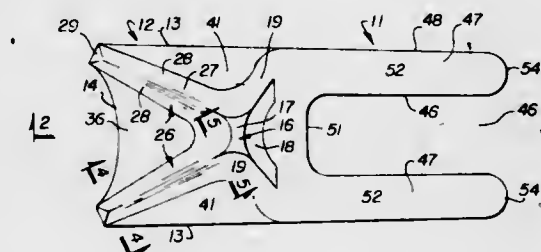
Walter L. Sturgeon, Sunnyvale, Calif., assignor to Pengo Corporation, Sunnyvale, Calif.

Continuation-in-part of Ser. No. 40,326, May 25, 1970, abandoned. This application Feb. 10, 1972, Ser. No. 225,118

Int. Cl. E02f 9/28

U.S. Cl. 37-142 R

4 Claims



A replaceable tooth for excavating equipment, such as earth augers, has a distal portion which is generally rectangular in

plan but has an inwardly curved cutting edge. The distal is formed with ribs on the upper surface which originate at a transverse protuberance at the rear of the distal and slant forwardly-outwardly to the front corners of the tooth. On the bottom surface, a corresponding protuberance and ribs of lesser dimension than those on the upper surface underly the upper surface ribs. Between the ribs and outside the ribs the tooth is relatively thin and comprises webs. In use, the webs wear faster than the ribs and expose the ends of the rib in points which improve digging action.

3,736,677

SILT DREDGING METHOD

Henry Albert Loy, 87 North 11th W., Provo, Utah

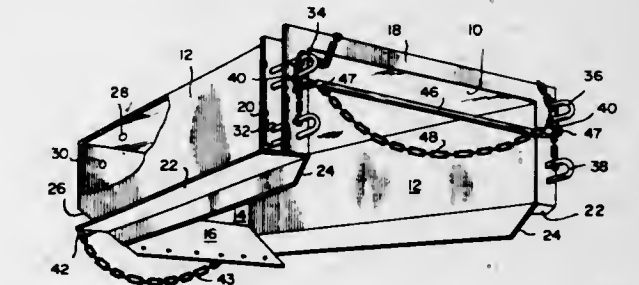
Division of Ser. No. 54,910, July 13, 1970, Pat. No. 3,679,004.

This application Mar. 24, 1972, Ser. No. 237,757

Int. Cl. E02f 5/28

U.S. Cl. 37-195

4 Claims



A method involving two aspects. One comprises dragging a suitable scraper from a position remote from the shore of a body of water toward it and lifting the scraper, i.e., not dumping it, at the place the silt is to be deposited above its load of silt. The second aspect, which can be used alone or preceding the first comprises dragging the scraper along the bottom of the body of water only in the area to be deepened to loosen and agitate the silt to put it in suspension so that normal currents in the body of water carry it towards the shore. Thereafter, if desired, and with relatively short path of travel, a scraper can pull redeposited silt near the shore onto it.

ERRATUM

For Class 37-141 R see: Patent No. 3,736,664

3,736,678

FEEDER APPARATUS

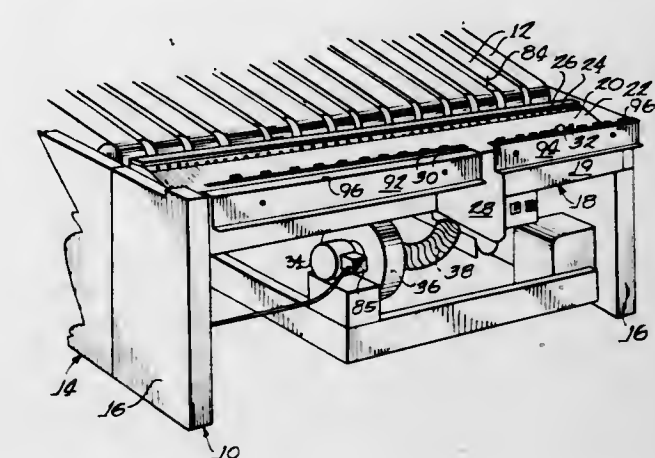
Eduard F. Kamberg, Deerfield, Ill., assignor to Chicago Dryer Company, Chicago, Ill.

Filed Dec. 3, 1971, Ser. No. 204,614

Int. Cl. D06f 67/04

U.S. Cl. 38-143

9 Claims

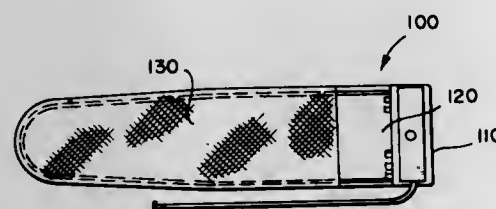


A feeder apparatus adapted for use with folding machines and ironers is employed in the processing of flexible textile

items such as sheets, towels and the like. A feed table is provided having a transverse vacuum section which tends to exert a "drag" on the sheet being fed into the processing device having continuous belt members which pull the fed article over the vacuum section. Opposed series of brushes moving transversely to the direction of movement of the sheet engage the undersurface of the sheet fed into the apparatus, so as to move the same toward the opposed sides of the feeder. The feeder thus exerts simultaneous drag and spreading effects on a sheet, thereby removing all wrinkles therefrom so that the same may be efficiently folded or ironed in subsequent operations.

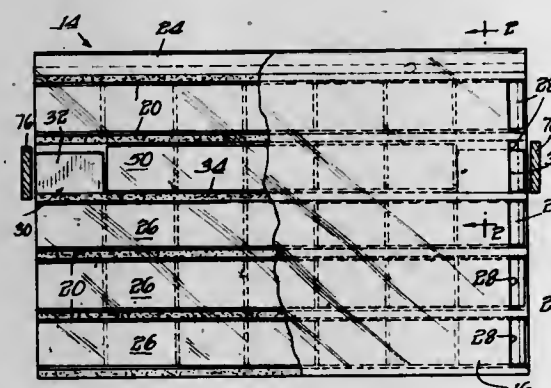
3,736,679
ARTICULATED IRONING BOARD
Orlando Cabezas, 2707 Central Avenue, Apt. A-3, Union City, N.J.

Filed May 26, 1971, Ser. No. 146,983
Int. Cl. D06f 81/00
U.S. Cl. 38—139 4 Claims



This is a portable ironing board which in combination includes a basic ironing board of collapsible construction so that it may be handily placed in a utility closet. At one end of the board on a base member there is disposed means for applying a water spray to the ironing board, and along the extension of a base member is an articulated board having hinge connection with cloth covering, said cloth covering being stretched on a frame in operation and being selectively removable during operation for facile disposition of the clothes to be ironed thereon. The device presupposes that the iron used does not contain built-in vaporizing means, although it is indeed operable with such modern domestic vaporizer means.

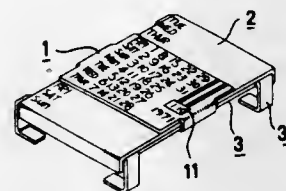
3,736,680
MICROFILM HOLDER
Ernest A. Dahl, Jr., 729 Greenwood Avenue, Wilmette, Ill.
Filed Oct. 2, 1970, Ser. No. 77,582
Int. Cl. G09f 7/10
U.S. Cl. 40—105.5 2 Claims



The present invention relates generally to microfilm types of microfilm strip holders and more particularly to microfilm strip holders adapted for use in a fanning type magnetic file tray system. An embodiment of the invention illustrated in the drawings comprises front and rear rectangular panels of transparent and flexible synthetic plastic material, commonly referred to as a microfilm master, which provides a plurality of horizontal pockets for receiving microfilm strips. At least

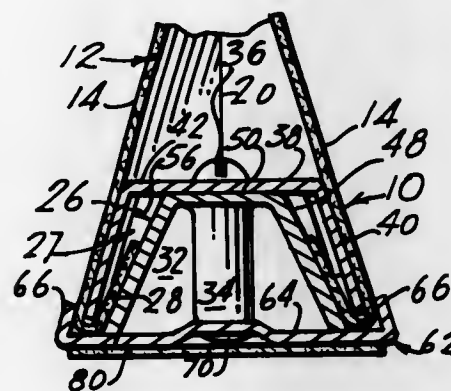
one of these pockets has mounted therein a magnetic strip, the opposite extremities of which terminate adjacent the vertical edge portions of the microfiche master or holder in position for cooperation with the magnets of a filing tray, to effect fanning apart of the upper margins of a predetermined group of holders.

3,736,681
CALENDAR FOR MOUNTING ON WATCH BAND
Shih-Chieh Chang, 37 Mo Fan Street, Alley 2, Min Lung Li, West District Tai Chung, Taiwan
Filed Dec. 1, 1970, Ser. No. 93,985
Int. Cl. G09d 3/00
U.S. Cl. 40—109 1 Claim



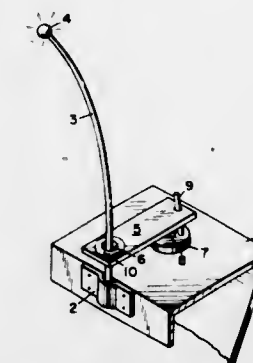
This invention is an improved calendar for mounting on a watch band comprising a fixed reference plate and a calendar plate slidable on the fixed plate to obtain an annual calendar.

3,736,682
SIGN WITH BRACKET
Kenneth R. Farmer, Atlanta, and Larry G. Hanson, Austell, both of Ga., assignors to said Farmer, by said Hanson, Atlanta, Ga.
Filed June 11, 1971, Ser. No. 152,241
Int. Cl. G09f 07/00
U.S. Cl. 40—125 H 9 Claims



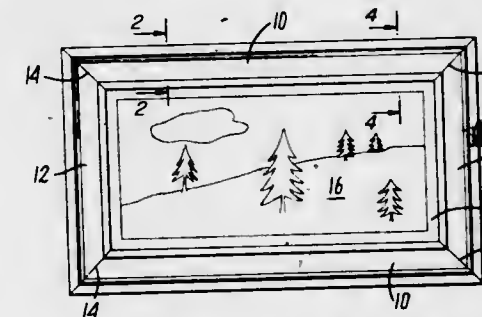
Especially useful for advertising on top of gasoline pumps, a two-sided sign constructed from folded sheet material such as plastic or cardboard has the side edges joined and sealed by glue providing an overseas cap-like arrangement and the bottom edges along the bottom opening each has an inwardly bent tab fitting into a respective side of the bracket which comprises a case attached by pressure sensitive tape to the top of the gas pump and depressions or indentations on each side of the case in which the sign tab fits. A bottom plate on the case with an upturned edge provides a bottom channel in which the depending side plates of a top cover cap extend to provide a closed slot overlying the respective indentations in which fit the tab thereby making it difficult to displace the sign from the bracket.

3,736,683
NON-REPETITIVE FLASHING DISPLAY MECHANISM
Elmer G. Paquette, Madison, Wis., assignor to Bjorkstem Research Laboratories, Inc., Madison, Wis.
Filed Feb. 23, 1971, Ser. No. 118,023
Int. Cl. G09f 19/00
U.S. Cl. 40—126 B 7 Claims



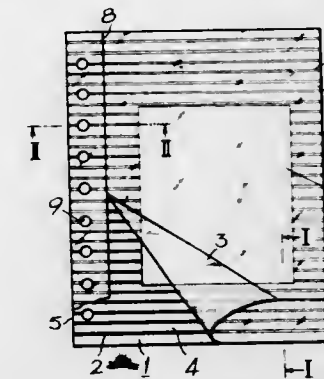
An advertising display which simulates a firefly, comprising an unrepitive or random motion device based on reciprocating means actuating a flexible rod carrying a flashing device, where the motion is distorted by means of an off vertical crank shaft.

3,736,684
CUSTOM FRAMING SYSTEM
Peter P. Grad, 900 Yerry Hill Road, Woodstock, N.Y.
Filed Apr. 15, 1971, Ser. No. 134,316
Int. Cl. G09f 1/12
U.S. Cl. 40—152 2 Claims



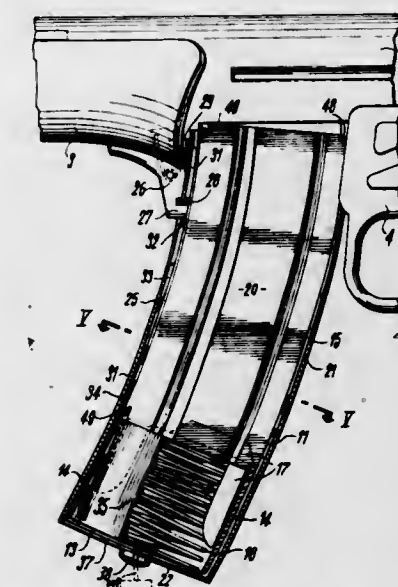
Frames for prints, photographs, paintings, and the like, are custom made from materials in a kit including lengths of framing members, fasteners and a composite backing sheet. The framing members have one side of ornamental configuration and a reverse side provided with longitudinal locking grooves and a recessed edge. The framing members are mitre cut to appropriate lengths for the finished frame and the segments thereof are firmly fastened together at the mitred intersections by means of angle fastening members that snap into the locking grooves in the reverse sides of the framing members. The framed picture or photograph is secured within the recess formed on the rearwardly facing side of the assembled frame around its inner edge. A backing and protective support for the picture or photograph includes a layer of stiff pressboard or similar material with one surface suitably finished to provide a pleasing border or mat for the visual display. The finished surface of the pressboard is coated with a transparent pressure-sensitive adhesive and covered by a sheet of transparent peelable plastic film. Before cutting the framing members to length, the composite of pressboard and plastic film is cut to size to accommodate the picture with a border or mat of desired width. The picture is mounted on the pressboard by peeling off the plastic film, applying the picture on the exposed adhesive coated surface of the pressboard in its desired position, and then replacing the plastic film over the picture, securing it to the pressboard by means of the exposed adhesive on the mat areas. The frame members may then be cut to appropriate length to accommodate the mounted picture, assembled and the picture secured within the frame.

3,736,685
ADHESIVE SHEET MATERIAL
Ryoji Shibata, No. 390, Okayama-cho, Higashi-ku, Osaka, Japan
Continuation-in-part of Ser. No. 352,855, March 18, 1964, abandoned. This application Jan. 12, 1968, Ser. No. 697,532
Claims priority, application Japan, Nov. 14, 1963, 38/61263; Nov. 14, 1963, 38/85736; Nov. 22, 1963, 38/62791; Nov. 22, 1963, 38/87935; Dec. 1, 1963, 38/65144
Int. Cl. G09f 1/10
U.S. Cl. 40—158 6 Claims



A sheet material for mounting items in albums, scrapbooks and the like, comprising an adhesive backing sheet and a transparent protective sheet. A suitable pattern of pressure sensitive adhesive films is printed on the backing sheet, leaving a certain amount of unprinted areas which are substantially lower than the printed portions.

3,736,686
AUTOMATIC HAND FIREARM WITH INTERCHANGEABLE MAGAZINE
Tilo Moller, and Dieter Ketterer, both of 7238 Oberndorf, Germany, assignors to Heckler & Koch GmbH, Oberndorf (Neckar), Germany
Filed June 15, 1971, Ser. No. 153,349
Claims priority, application Germany, June 19, 1970, P 20 30 228.7
Int. Cl. F41c 25/00, 25/02
U.S. Cl. 42—6 18 Claims



An automatic firearm is provided with a magazine support structure which is fixed to the firearm and which includes magazine engaging lips located in the firearm in the conventional position, and a cartridge feeder member which is displaceable in the support structure by a feeder spring disposed at the free end of the support structure. The support structure has a lateral opening for inserting therein a magazine containing cartridges. Means are provided for releasably closing the opening. A flat tubular magazine is disclosed which is open at both ends, one of which is adapted to be engaged and secured by the magazine lips, the other one is arranged to be entered

by the feeder member for delivering the cartridges to the breech. The magazine may be used as a packaging container for the cartridges.

3,736,687

LOCK FOR A RECIPROCATING MECHANISM

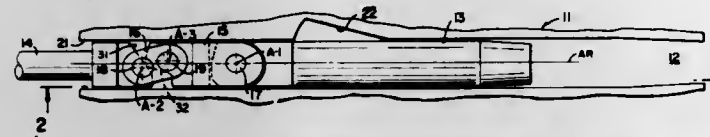
Thomas M. Broxholm, Palo Alto, Calif., assignor to Pulsepower Systems Inc., San Carlos, Calif.

Filed Oct. 15, 1970, Ser. No. 80,846

Int. Cl. F41c 11/06; F41d 3/00, 3/02

U.S. Cl. 42-16

6 Claims



A linkage reciprocates in a groove and has offset pivotal connections which cause an end of one of the links to engage a notch in the groove at the forward end of travel of the linkage. The engaging surfaces of the link and the notch are curved to produce a quick release from the lock by the rearward movement of the linkage.

ERRATUM

For Class 42-78 see:
Patent No. 3,736,693

3,736,688

MOUNTING MEANS FOR ANIMATING EXISTING DECOY

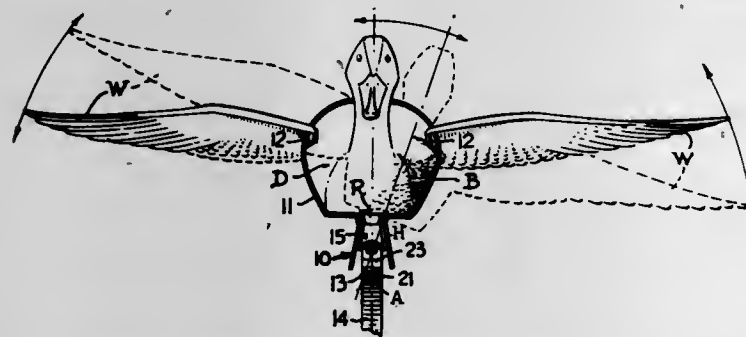
Samuel Caccamo, 1102 Camino Pablo, San Jose, Calif.

Filed Mar. 18, 1971, Ser. No. 125,595

Int. Cl. A01m 31/06

U.S. Cl. 43-3

5 Claims



A means for animating an existing decoy on the end of a flexible arm for up and down movement therewith as well as pivotal movement into the direction of the wind and rockability from side to side about a horizontal axis upon a releasable attaching means so mounted on the end of the flexible arm.

3,736,689

MOLE TRAP

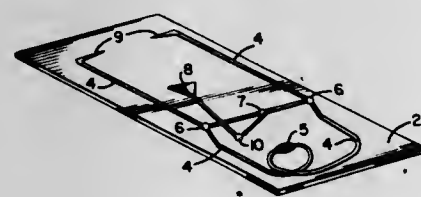
Robert E. Haynes, 1925 Mill Road, South Pasadena, Calif.

Filed May 11, 1970, Ser. No. 36,293

Int. Cl. A01m 23/36

U.S. Cl. 43-77

1 Claim



The invention comprises of a U-shaped steel spring with pointed ends mounted within a housing. The pointed ends of

the steel spring tending to close when not held in the open position. The pointed ends of the steel spring being held in the open position by an in-line hinged bar; the in-line hinged bar being tripped to an off position by depressing a trip bar.

3,736,690

COMBINATION BOBBER-SINKER

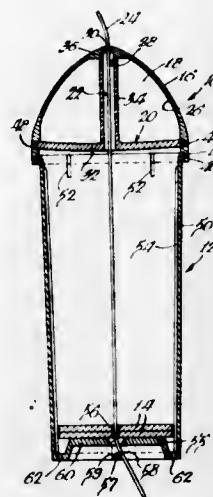
Sigmund Witkowski, 312 North Washington Street, Westmont, Ill.

Filed May 24, 1971, Ser. No. 146,014

Int. Cl. A01k 95/00

U.S. Cl. 43-43.14

7 Claims



A combination fishing bobber-sinker. The bobber-sinker includes a bullet-shaped float trailing a removable, apertured weight receiving chamber. A passageway extends through both the float and the chamber for receipt of a fishing line. The float alone may be used as a bobber or the combined float and weight receiving chamber may be used as a bobber with the buoyancy controlled by the number of weights received in the latter. Alternatively, the entire assemblage may be used as a sinker with the bullet shape of the head tending to easily slip past underwater obstructions during trolling or the like. The lower portion of the chamber has an elevated bottom platform to support the weights.

3,736,691

CHROME SLIDE LOCK BEAD BAIT HOLDER

Lewis L. Gist, 1039 Azalea Avenue, McKinleyville, Calif.

Filed Sept. 30, 1971, Ser. No. 185,232

Int. Cl. A01k 83/06

U.S. Cl. 43-44.8

2 Claims



A bait holding hook assembly for sports fishing, the device consisting of an elongated wire shaft having a back hook permanently affixed to a rear end of the wire shaft. A slide hook is slideable along the length of the wire shaft and is selectively securable along any position thereof by means of a lock bead. The shank of the slide hook has an obtuse bend, and the lock bead is slidably fitted on the slide hook shank between the bend and its hook portion and also around the wire shaft so that the slide hook can be relatively closer or further from the back hook.

3,736,692

MOLE EXTERMINATOR

James M. Stone, Jr., Nacogdoches, Tex.

Filed Oct. 29, 1971, Ser. No. 193,772

Int. Cl. A01m 23/30

U.S. Cl. 43-77

4 Claims



A mole exterminator including a ground piercing rod adapted to be forced into the ground intersecting a mole run. A recess in the rod is provided for holding a razor blade secured thereto by a machine screw. The razor blade is arranged with its cutting edges parallel to the axis of the rod and the rod is forced into the ground to a depth which will position the razor blade centrally of the mole run. The mole, upon contacting the razor blade, will become lacerated and will bleed to death.

3,736,693

FIREARM BARREL

Theodor Koch, Oberndorf (Neckar), Germany, assignor to Heckler & Koch GmbH, Oberndorf (Neckar), Germany

Continuation of Ser. No. 711,546, March 8, 1968, abandoned.

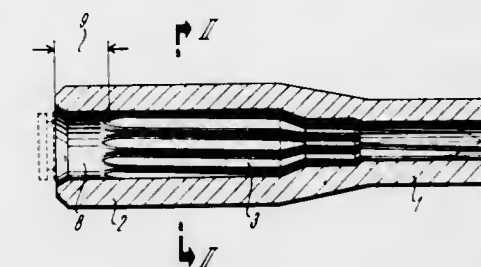
This application Jan. 13, 1971, Ser. No. 106,264

Claims priority, application Germany, Mar. 8, 1967, H 62 052

Int. Cl. F41c 21/00, 21/12; F41f 17/10

U.S. Cl. 42-78

12 Claims



The cartridge chamber of a firearm is provided with release grooves by virtue of polygonal shaping extending to a cylindrical sealing surface at the cap end of the cartridge. This permits simplified production as the chamber can be formed by forging at the same time that rifling of the barrel is effected.

3,736,694

PRESSURE-ACTUATED BUBBLE BLOWING TOY

Steven Allen Lebensfeld, Queens Village, N.Y., assignor to Hot Items Incorporated, Newark, N.J.

Filed Apr. 27, 1972, Ser. No. 248,049

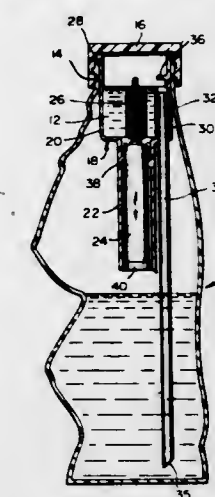
Int. Cl. A63h 33/28

U.S. Cl. 46-7

10 Claims

A bubble-blowing toy comprises a hollow, compressible container having a film-forming and liquid feeding insert

mounted in the interior thereof. The insert comprises a cylindrical well frictionally mounted in the container neck and having a cylinder depending centrally therefrom and a piston longitudinally slidable in the cylinder. The cylinder also has a liquid inlet tube to which is connected a pipe leading to the bottom of the container for feeding bubble-forming liquid from the interior of the container to the well when the con-



tainer is compressed by squeezing. A film-forming ring is mounted on the top of the piston and is normally located in the well and submerged in the liquid therein. When the container is squeezed, pressure of the compressed air therein elevates the piston within the cylinder, thereby raising the ring, with a film formed thereon, to an exposed position above the top of said well and container neck.

3,736,695

TOY FOR USE WITH DOLLS

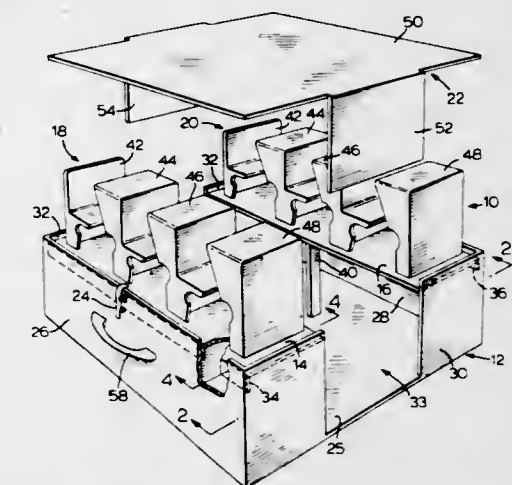
Mary Ellen Wannan, 183 Arthur Street, Dryden, Ontario, Canada

Filed Oct. 7, 1971, Ser. No. 187,401

Int. Cl. A63h 33/30

U.S. Cl. 46-12

2 Claims



A toy is provided which is in the form of a collapsible toy classroom having desk structures in which dolls can be seated by children playing with the dolls. The device is movable between an open position in which the desks receive the dolls and a closed position in which the device resembles a carrying case.

3,736,696

CONSTRUCTION TOY UTILIZING REAL OR SIMULATED HOUSEHOLD TOOLS AND SIMULATING A REAL OR IMAGINED LIVING THING

Alexandra B. Laird, Venice, and Sidney Bass, Los Angeles, both of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Dec. 13, 1971, Ser. No. 207,427

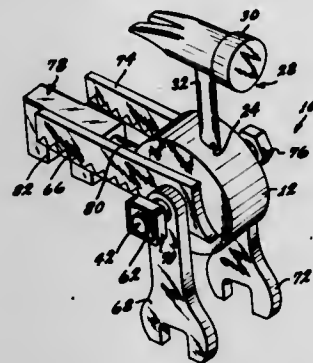
Int. Cl. A63h 33/06

U.S. Cl. 46-17

6 Claims

Simulated bird is made from wooden construction elements including a thick disc for a body member, a wooden hamer for

a neck and head assembly, a pair of simulated wooden open-end wrenches for feet and legs, a pair of simulated wooden hand saws for wings and a simulated wooden monkey wrench for a tail. The legs and wings are mounted on an axle which



can only be removed after the legs and wings have been removed in a predetermined sequence. The axle keys the hammer handle in position on the disc so that the axle must be removed before the hammer can be removed.

3,736,697

ICE CREAM CONE SAND TOY

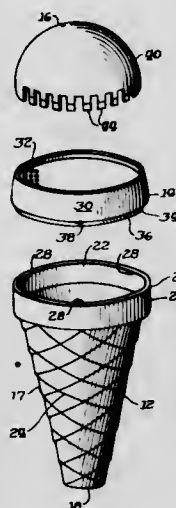
Mervyn L. Kec, Highland Park, Ill., assignor to Tarrson Company, Dowagiac, Mich.

Filed Dec. 10, 1971, Ser. No. 206,597

Int. Cl. A63h 33/06

U.S. Cl. 46-17

6 Claims



A child's sand toy having individual take apart structural members which have separate utility in connection with sand play. The toy comprises a simulated ice cream cone having a lower base portion simulating the cone which serves as a container, a center portion having a sieve for sifting sand and an upper portion simulating a scoop of ice cream which serves as a sand scoop.

3,736,698

AMUSEMENT DEVICE

William E. Nesbitt, P.O. Box 356, Santa Ynez, Calif.

Filed Apr. 12, 1972, Ser. No. 243,231

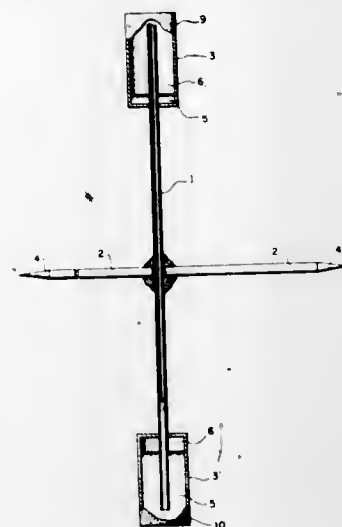
Int. Cl. A63h 29/10

U.S. Cl. 46-41

16 Claims

An amusement device is disclosed that operates on a scientific principle of pressure differential produced by heat which causes a rotor to turn. The rotor is constructed of at least one elongated tubular member having a reservoir secured around each end thereof in a liquid tight relationship. The tubular member may be provided with a pair of pivot pins centrally located along its length with one pivot pin extending outwardly from opposite sides of the member to provide an axis

of rotation. Likewise, one or more rotors may be surrounded by a rim with a rolling motion being imparted to the rim during rotation of the rotor or rotors. A liquid that exhibits a high vapor pressure is provided in the reservoirs and tubular member with the remaining space therein being filled with the vapor of the liquid. Each reservoir is provided with heat collection means, the heat collection means on one reservoir



3,736,699

CAM-CONTROLLED BOAT

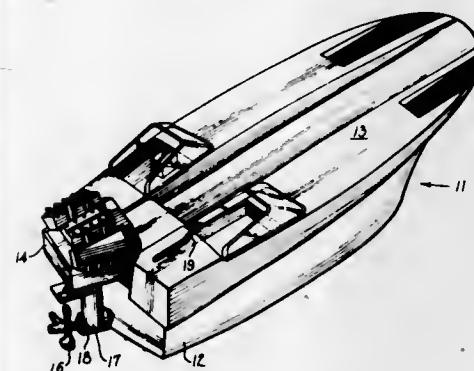
Edwin Nielsen, Oceanside, N.Y., assignor to Ideal Toy Corporation, Hollis, N.Y.

Filed Sept. 27, 1971, Ser. No. 184,089

Int. Cl. A63h 23/04

U.S. Cl. 46-93

11 Claims



A combined propulsion and steering mechanism for a toy boat. An electric motor, geared down to drive a cam, is connected by gears to a propeller on a simulated outboard motor mounted in a special pivotal holder in the stern section of the boat. A cam follower linkage connects the cam to the pivotal holder to pivot the outboard motor and propeller according to the cam profile.

3,736,700

CAR TRACK

Rikihachiro Kizumi, Tokyo, Japan, assignor to Cosmo Toys

Manufactory Limited, Taikoktsui, Kowloon, Hong Kong

Filed Aug. 30, 1971, Ser. No. 176,004

Int. Cl. A63h 17/00

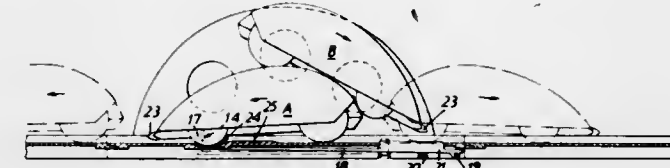
U.S. Cl. 46-206

4 Claims

The invention provides a toy comprising a track adapted to support a wheeled vehicle and to guide it in a closed path, and a plurality of powered wheeled vehicles to run on said track,

each vehicle being provided at its leading end with cam means adapted to coast with the cam means of another such vehicle, when they meet head-on, and cause the leading end of one

window and guides it as it is moved vertically. The post includes rack teeth and a pinion is provided on the carrier plate.



vehicle to commence to ride up and over the leading end of the other vehicle, the vehicles being shaped such that said one vehicle may ride completely over said other vehicle and down onto the track.

3,736,701

REVOLVING DOOR

Carl Jackson Rush, Agincourt, Ontario, and Horst Appel-

mann, Day Ridges, Ontario, both of Canada, assignors to C.

J. Rush Limited, Scarborough, Ontario, Canada

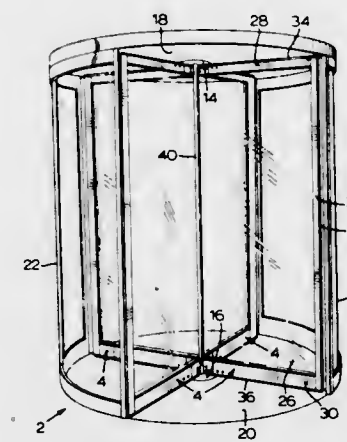
Filed Jan. 7, 1972, Ser. No. 216,177

Claims priority, application Canada, Feb. 18, 1971, 105,677

Int. Cl. E05d 15/02

U.S. Cl. 49-44

18 Claims



A revolving door having upper and lower mechanisms mounted in the doorway about a vertical axis, with the upper mechanisms suspended from a roof of the doorway and the lower mechanism in the floor. The door leaves are in upright and spaced apart relationship to move as a unit with the mechanisms about the vertical axis. In a preferred embodiment, air sealing means is provided to prevent excessive air movement past inner extremities of the leaves.

3,736,702

WINDOW REGULATOR

Joseph Pickles, Birmingham, Mich., assignor to Ferro Manu-

facturing Corporation, Detroit, Mich.

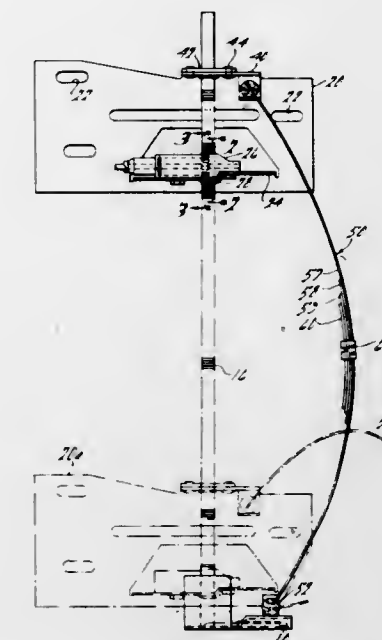
Filed July 29, 1971, Ser. No. 167,228

Int. Cl. E05f 11/42

U.S. Cl. 49-362

5 Claims

An automobile window is mounted on a generally vertically extending post by means of a carrier plate which supports the



The pinion may be rotated by motor means or manually to effect generally vertical guided movement of the window.

3,736,703

MECHANISM FOR EXPANDING A HONING TOOL

Mark R. Estabrook, Rockford, Ill., and Wilfred F. W. Treder, Beloit, Wis., assignors to Barnes Drill Co., Rockford, Ill.

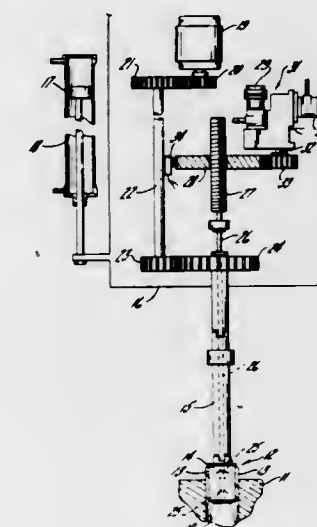
Continuation-in-part of Ser. No. 10,757, Feb. 12, 1970,

abandoned. This application Aug. 27, 1971, Ser. No. 175,430

Int. Cl. B24b 49/18

U.S. Cl. 51-165.8

6 Claims

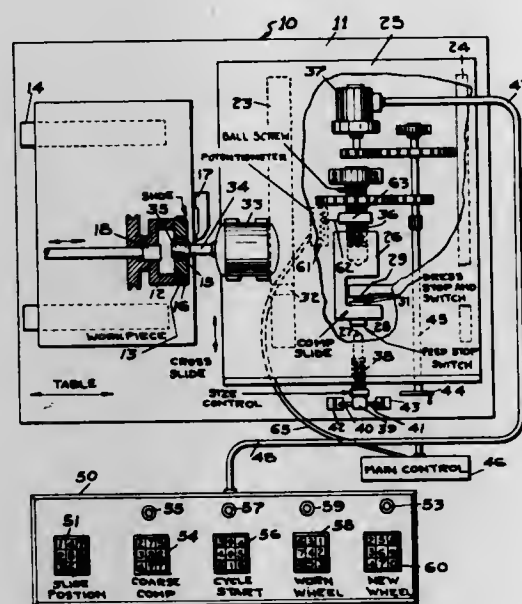


A rapid traverse motor drives a hone expanding shaft at a comparatively fast rate until the stones of the hone engage the work at which time this motor is stopped and a feed motor turns the shaft at a slower rate. Between the rapid traverse motor and the shaft and isolated from the drive motor is a resilient connection in the form of a torsion spring which prevents inertial rotation of the rapid traverse motor, once that motor has been inactivated, from being transmitted to the shaft.

3,736,704 GRINDING MACHINE

Edward G. Robillard, Cherry Valley, and Robert H. Lizotte, Leominster, both of Mass., assignors to Cincinnati Milacron-Heald Corp., Worcester, Mass.
Filed May 17, 1971, Ser. No. 143,925
Int. Cl. B24b 49/10

U.S. Cl. 51-165.78



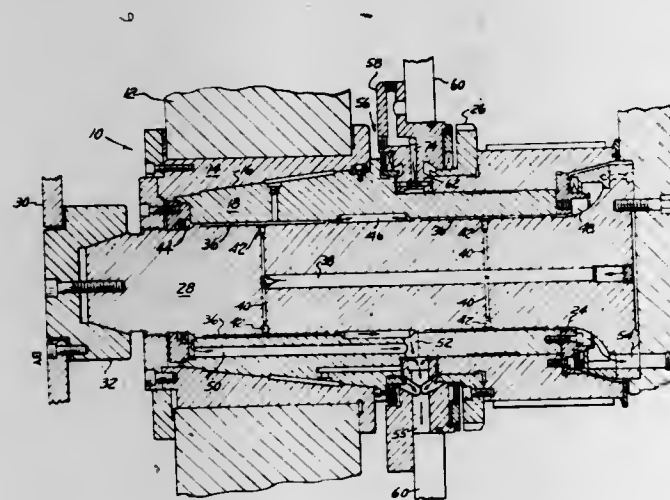
A grinding machine operative under controlled-force and controlled-rate conditions, wherein the rate of feed is controlled in accordance with the size of the abrasive wheel.

3,736,705 THRUST BEARING ARRANGEMENT FOR A DEADSHAFT MOUNTED GRINDER WHEELHEAD

Merle E. Ryan, and William D. Stremel, both of Dayton, Ohio, assignors to The Bendix Corporation, Southfield, Mich.

Filed June 24, 1971, Ser. No. 156,277
Int. Cl. B24b 41/00

U.S. Cl. 51-168



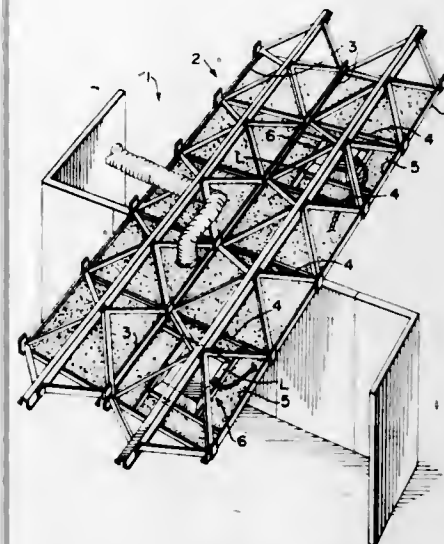
A thrust bearing arrangement is disclosed for a grinder wheelhead of the type that is rotatably mounted on a fixed central shaft, and comprises locating the thrust surfaces on a separate portion of the housing proximate the grinding wheel rather than on the fixed central shaft in order to minimize errors due to thermal expansion of the fixed central shaft.

3,736,706 SUB-DIVIDING SECONDARY SUPPORT GRID FOR A CEILING FIXTURE

Fred J. Stephenson, Lawrence, Kans., assignor to Butler Manufacturing Company, Kansas City, Mo.
Filed Oct. 26, 1971, Ser. No. 192,213
Int. Cl. E04b 5/62

5 Claims U.S. Cl. 52-28

6 Claims



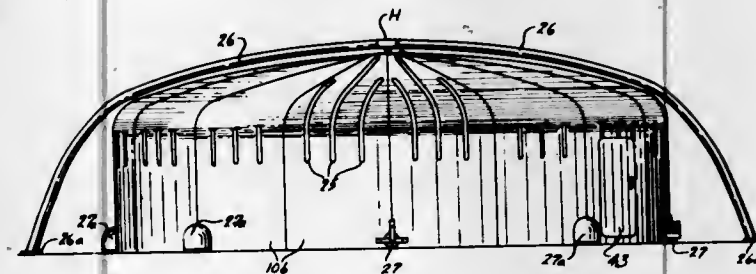
A sub-dividing secondary support grid for ceiling fixtures such as a lighting fixture or the like wherein a plurality of substantially identical parts are interlocked and rotated as a unit into position in an opening in a primary ceiling grid structure for providing a smaller opening in which the ceiling fixture is supported.

3,736,707 AIRCRAFT HANGAR CONSTRUCTION

Leo G. Neufeld, Box 35, Rantoul, Kans.
Filed Dec. 18, 1970, Ser. No. 99,459
Int. Cl. E04b 1/346

U.S. Cl. 52-65

2 Claims



A circular aircraft hangar construction has two semicircular (when viewed from above) halves mounted on wheels and movable relative to each other. The halves move in concentric circles with the wheels appropriately spaced so as to not interfere with the movement. The halves are interconnected at their upper portion by a central hub which permits the relative movement thereof. Arcuately shaped light weight supports extend from the central hub structure over the top of the halves and finally anchor in the ground a space distance away from the vertical sides of the hangar. Each half is constructed from a plurality of sections which are easily connected and which have reinforcing rib surfaces on the upper portion thereof.

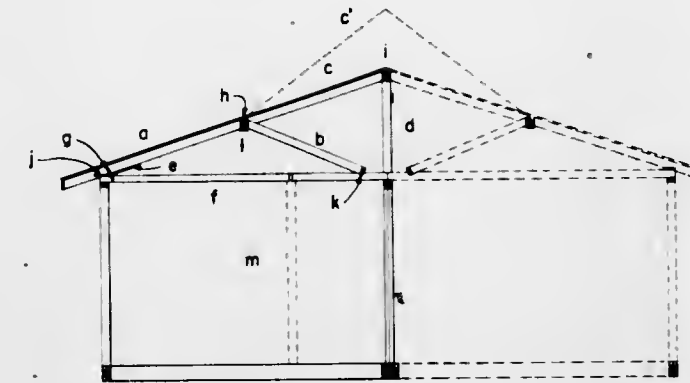
In operation, the hangar construction is completely opened by simply moving one of the halves relative to the other. An airplane may be located therein and the same side returned to its original position thereby forming the circular structure and completely enclosing the aircraft.

3,736,708 COLLAPSIBLE ROOF FOR PREASSEMBLED BUILDING

Grosvenor Chapman, Washington, D.C., assignor to Chapman & Miller Architects, Washington, D.C.
Filed Feb. 1, 1972, Ser. No. 222,665
Int. Cl. E04b 1/32, 7/16

U.S. Cl. 52-92

2 Claims



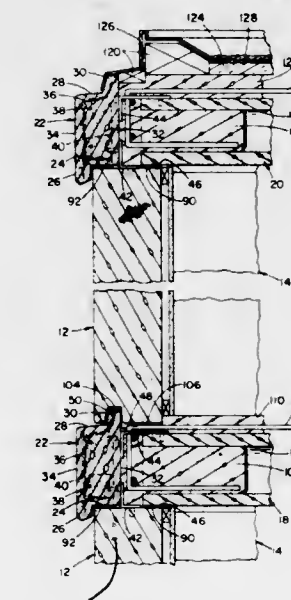
The purpose of the invention is to provide a system for using normal and high pitched roofs for buildings preassembled in box-like units at a factory and transported to the building site over the highway or other means, wherein low road clearances and other restrictions prohibit the use of assembled units exceeding a certain height and width. The invention permits the roof, which otherwise would exceed the height limitation, to be unfolded after delivery at the building site in such a manner that it will assume the desired position with a minimum of site labor. The system is not limited to any particular structural, roof deck, or roofing material nor to a building of any particular size or number of stories.

3,736,709 BUILDING SYSTEM

Carl Koch, Concord, and Joel Leon Lipshutz, Lexington, both of Mass., assignors to Techcrete, Inc., Boston, Mass.
Filed July 13, 1971, Ser. No. 162,036
Int. Cl. E04b 1/04

U.S. Cl. 52-97

8 Claims



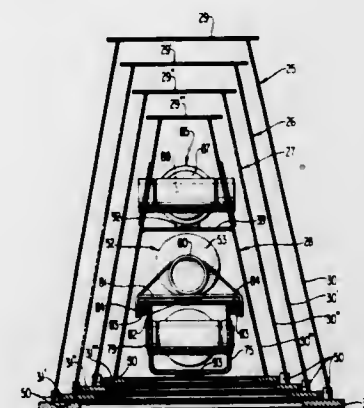
A building system includes a precast bearing wall, a series of precast floor planks resting on the bearing wall and structure above the bearing wall. Precast junction components are disposed in the space between the bearing wall and the structure above and contribute to the sealing of that joint.

3,736,710 FOUR-SECTION FULLY HYDRAULICALLY OPERATED CRANE BOOM HAVING THREE INDIVIDUALLY SUPPORTED SINGLE PISTON RAMS CONTAINED WITHIN FLY SECTION

Russell L. Sterner, Greencastle, Pa., assignor to Walter Kidde & Company, Inc., Clifton, N.J.
Continuation-in-part of Ser. No. 75,886, Nov. 28, 1970. This application Dec. 3, 1970, Ser. No. 94,812
Int. Cl. E04h 12/34; B66c 23/04, 23/54

U.S. Cl. 52-115

12 Claims



A four-section fully hydraulically operated telescoping crane boom is constructed so that the three operating rams of the boom can be contained within the boom fly section and are independently supported and operated. Single piston rams are utilized throughout. The ram which interconnects the base section and the inner mid-section of the boom is reversed from the conventional arrangement with the rod end of this ram anchored to the base section and the cylinder end cantilevered forwardly from a rear pivotal connection with the inner mid-section of the boom and having a sliding support and guide means on its forward end engaging a core or box forming a part of the outer mid-section of the boom. As a result of the arrangement of the rams the vertical heights of the several boom sections can be made nearly equal and the amount of metal utilized in the boom is minimized while maintaining maximum rigidity.

3,736,711 TRAILER ANCHORS

Lloyd E. Thornbrugh, P.O. Box 1124, Natchez, Miss.
Filed Dec. 29, 1971, Ser. No. 213,681
Int. Cl. E02d 5/74

U.S. Cl. 52-149

10 Claims



Various different types of anchors and an anchor system using these anchors for house trailers and the like are disclosed.

closed. One of the anchors disclosed is designed for use in a concrete slab and the others are designed to meet specific soil conditions. Thus, of the various different anchors disclosed, the one chosen for a given anchor system depends upon either the soil conditions where the trailer is located or the existence of a concrete trailer pad. In addition, the anchors are designed so that they can be driven in place by means of power tools. The anchor system comprises a plurality of anchors and a chain and turnbuckle arrangement associated with each anchor. Brackets are attached to the trailer frame at various different points along the frame. The anchors are driven into the ground or concrete as the case may be along the trailer and a separate chain and turnbuckle arrangement is connected between each anchor and frame bracket. The turnbuckles are then adjusted to remove any slack in the chain.

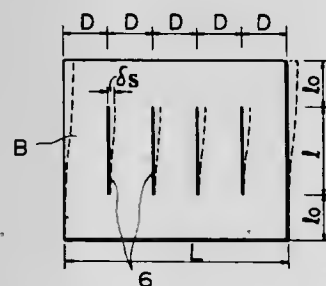
3,736,712 COMPOSITE BUILDING STRUCTURE AND WALLS THEREFOR

Kiyoshi Muto; Takao Itoh, and Nobutsugu Ohmori, all of Tokyo, Japan, assignors to Kajima Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 17,062, March 6, 1970, abandoned. This application Feb. 28, 1972, Ser. No. 229,964 Int. Cl. E04h 9/02

U.S. Cl. 52-167

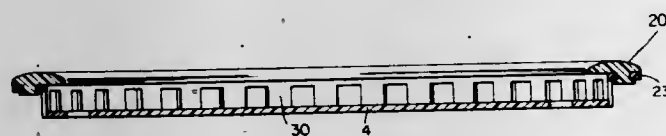
16 Claims



A composite flexible-rigid building structure comprising a flexible skeleton structure and a plurality of bearing wall members having slits formed therein. The overall composite building structure normally behaves as a rigid structure for load smaller than a certain predetermined magnitude but transfers to a flexible structure upon occurrence of an extremely heavy load in excess of said magnitude. Each slit wall member normally acts as a rigid frame structure, and has a large ductility so as to absorb a large amount of seismic energy after being yielded at a certain predetermined load before complete failure.

**3,736,713
CARPET TRIM**
Charles T. Flachbarth, Parkersburg, W. Va.; Robert W. Hadfield, Belpre, Ohio, and William H. Harding, Parkersburg, W. Va., assignors to Textron Inc., Providence, R.I.
Filed Jan. 7, 1972, Ser. No. 216,163
Int. Cl. E04b 5/48; A47g 27/02
U.S. Cl. 52-221

2 Claims



Carpet trim having flanges overlying the edges and flush with the carpet surface and supported so that when stepped on will yield or move down similarly as the carpet yields but without lateral movement (which otherwise could dislodge the

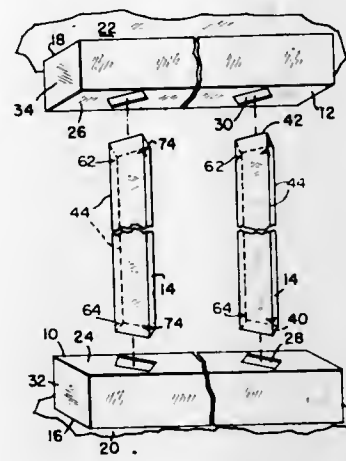
edges or upset the pedestrian) and then return to flush position when the foot is removed. The support for the flanges provides for gradual lowering of the flush position as the carpet mats or wears.

3,736,714 WALL STUD SYSTEM

J. Fred Brenner, Box 161 R.D. 3, Kennett Square, Pa.
Filed Apr. 26, 1971, Ser. No. 150,870
Int. Cl. E04h 12/22

U.S. Cl. 52-300

5 Claims



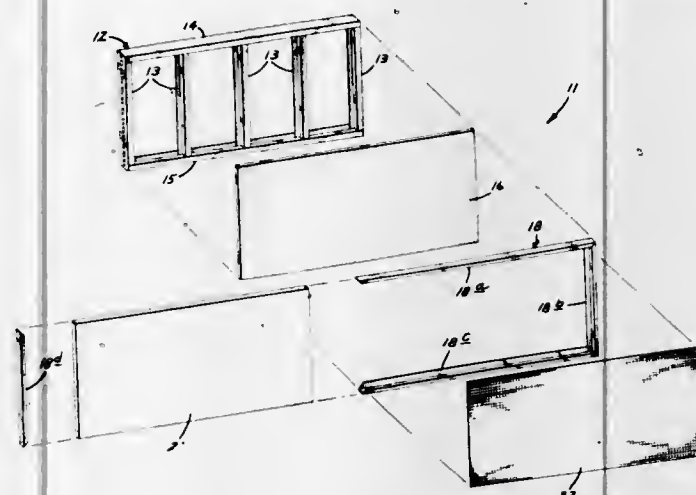
A wall stud system comprising a plurality of horizontal floor and ceiling beams arranged in parallel spaced relationship and a plurality of vertical hollow studs extending between the floor and ceiling beams. Each stud is formed to a similar cross-sectional configuration and each floor and ceiling beam is provided with vertically aligned openings to receive the top and bottom of the studs therein. Each aligned opening is positioned in rotative angular relation to the final position of the stud when installed. The studs are provided with wedge-shaped notches at all corners about the periphery of the stud near the tops and bottoms thereof to lock each stud into the beam material after insertion and rotation through the predetermined angle.

3,736,715 PREFABRICATED WALLS

Leland J. Krumwiede, Hibbing, Minn., assignor to Nomeco Building Specialties, Inc., Hibbing, Minn.
Filed Sept. 15, 1971, Ser. No. 180,693
Int. Cl. E04b 1/80; E04c 2/26

U.S. Cl. 52-309

10 Claims



A prefabricated load-supporting building panel is disclosed. The panel consists of a metal stud frame to which a sheet of moisture proof gypsum board is affixed. A thickness of molded polystyrene, supported by a peripheral casing attached to the frame, is bonded to the gypsum board. Exterior finish for the panel consists of synthetic plastic which is trowled onto a glass fiber fabric bonded to the polystyrene.

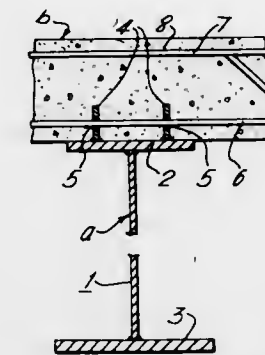
3,736,716 MEANS FOR REDUCING SLIPPAGE OF STEEL BEAM RELATIVE TO CONCRETE SLAB

Akira Nishimura, Sakyo-ku, Kyoto, Japan, assignor to Long Span Bridge Consultants Inc., Chuo-ku, Tokyo, Japan
Filed Apr. 7, 1971, Ser. No. 132,186

Claims priority, application Japan, Apr. 11, 1970, 45/30503 Int. Cl. E04b 1/38

U.S. Cl. 52-334

5 Claims

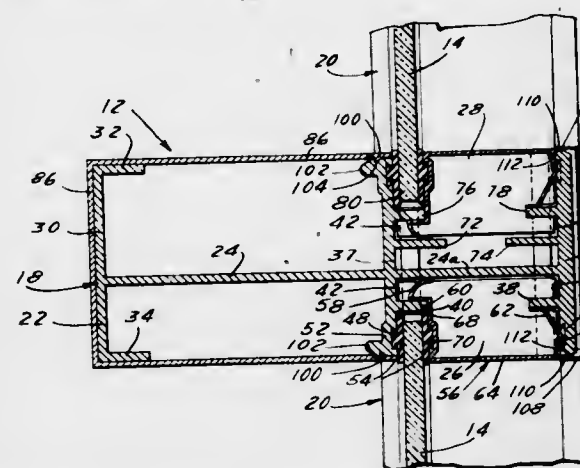


A slip-preventive means to prevent a steel beam from slipping relative to a concrete slab in a bridge or the like structure, which includes one or more ribs welded to the upper flange of the steel beam, the ribs being connected to reinforcing iron bars in the concrete slab.

**3,736,717
WINDOW AND PANEL FRAME STRUCTURE**
Walter J. Farley, 2328 Montera Drive, Hacienda Heights, Calif.
Filed June 21, 1971, Ser. No. 155,109
Int. Cl. E04b 2/88

U.S. Cl. 52-476

10 Claims



A frame structure for supporting window and panel materials, wherein the frame structure comprises a vertical mullion assembly and a horizontal transom assembly joined together to form various sized frame-supporting structures. Both the mullions and transoms are formed from elongated channel-like extrusions adapted to receive different sized windows and panels, particularly for construction of outer walls of buildings. The windows and panels alike are locked into place by a snap-in casing that is accommodated in both the mullions and transoms. The transom assembly is secured in and supported by the upright mullion assembly, which when assembled together form a box-like frame structure having the windows and panels supported therein.

**3,736,718
BUILDING CONSTRUCTION MEMBER**
Joseph Sylvan, 27216 Red River Drive, Lathrup Village, Mich.
Filed July 13, 1972, Ser. No. 271,296
Int. Cl. E04c 3/07

U.S. Cl. 52-720

2 Claims

An elongated stud or beam, formed of sheet material, and provided at each end with protruding sharply pointed tabs. It

is intended that the stud would be disposed between upper and lower horizontally elongated wooden, building construction members, with the sharply pointed tabs imbedded in said

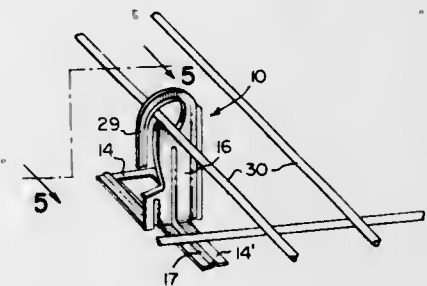


wooden members to resist withdrawal therefrom, and to further resist lateral displacement of the sheet material stud relative to the elongated wooden members.

**3,736,719
REINFORCING ROD CHAIRS**
Marcus Sylvester Wise, 1405 S. Liberty Street, Muncie, Ind.
Filed July 22, 1969, Ser. No. 843,320
Int. Cl. E04c 5/18

U.S. Cl. 52-677

6 Claims



A support for reinforcing bar-mats used in continuously reinforced pavements and other building construction. When the bar-mat is laid on the ground the support chair which is provided with an open slot is laid over a bar forming a part of the mat. Thereupon, when the bar-mat is raised into its required position above the ground, the bar will slide up the slot to a point where it will rest in a cradle forming a part of the support or chair. Should the bar-mat be raised before the chair is laid over a bar it can be dropped vertically downwardly over a bar and the bar will slide up the slot to the point where it will rest in the cradle. The support, known in the art as a rod chair, is formed by stamping the same from sheet metal.

**3,736,720
ORNAMENTAL DESIGN STRUCTURES AND METHOD OF MAKING THE SAME AND COMPONENTS THEREOF**
Ellis DeLoy Larson, 225 East State Road, Pleasant Grove, Utah

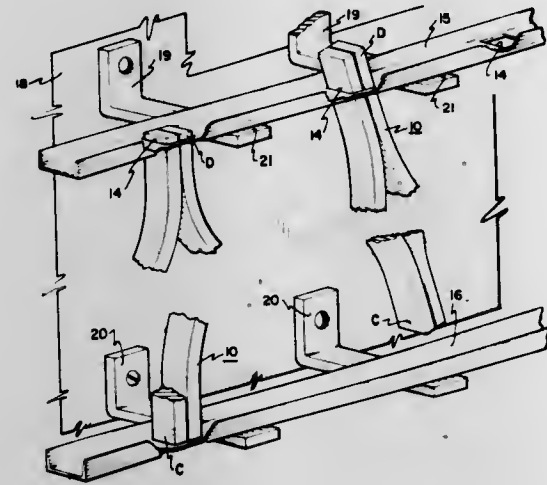
Filed Feb. 18, 1971, Ser. No. 116,425
Int. Cl. B23p 5/12; E04b 17/16

U.S. Cl. 52-741

1 Claim

Ornamental grillwork designs, design combinations, railings and columns wherein an elemental design structure used includes press-formed parts secured together at corresponding, contiguous ends. At least one set of ends is constructed and arranged for insertion in a positioning aperture, to accommodate ease of attachment as by welding. Multiple convolu-

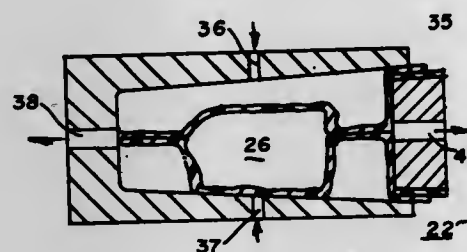
tions and intricate designs are possible, both as to individual design pairs and to also as to composite designs wherein respective pair-structures are placed contiguously together. a first strip of paper initially past a first product discharge and compressing station where the product is given the desired shape, and then past a second station where a second strip of



Fabrication, thus, becomes greatly simplified and possible breakage and damage during transit, minimized. Improved methods of fabrication of both elemental designs and composite structures are disclosed.

3,736,721
METHOD FOR MAKING A SKIN PACKAGE USING A SINGLE FILM WEB
Robert O. Wolfelsperger, 23 Glenroy Road, Fairfield, N.J.
Filed May 10, 1971, Ser. No. 141,520
Int. Cl. B65b 31/02
U.S. Cl. 53—22 A

5 Claims

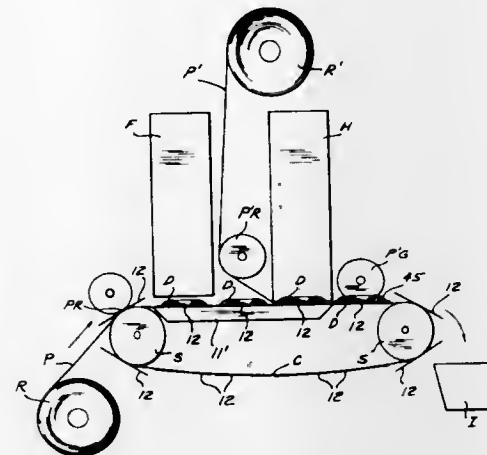


A method and apparatus is provided for forming a skin package particularly for food products, hardware and the like in which a single film web is arranged around the product and by pressure differential is formed around the product. A pair of U-shaped chamber members is disposed to slidably engage the open ends of each other to form a sealed chamber with the film retained against or nearly against three sides of the chamber. After the film has been brought to a heated heat-sealable condition, atmosphere or low pressure air is used to push the film tightly around the product and into sealing condition with facing portions of the same film.

3,736,722
PACKAGING MACHINE
Harry Rosenberg, Springfield, N.J., assignor to New Jersey Machine Corporation, Hoboken, N.J.
Filed July 1, 1971, Ser. No. 158,744
Int. Cl. B65b 63/02, 9/04
U.S. Cl. 53—124 E

5 Claims

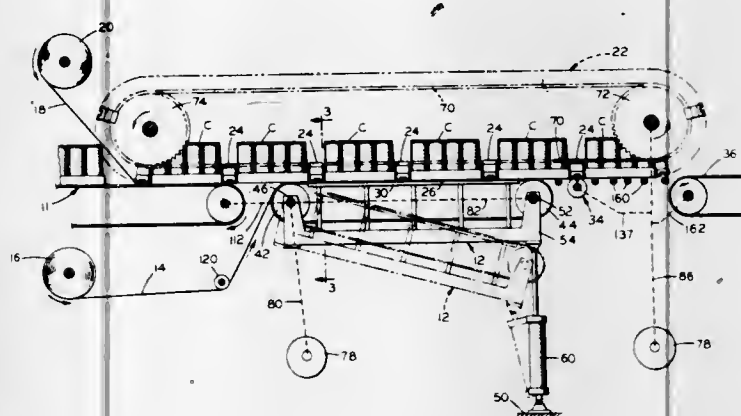
The machine is provided with a conveyor provided with a series of platens having package-shaped recesses for carrying



paper deposited upon the first paper strip and the compressed product is heat sealed to the first paper strip and the package is completed and separated from the two strips.

3,736,723
FILM WRAPPING MACHINE
Horst G. Lattke, Middletown, Conn., assignor to Emhart Corporation, Bloomfield, Conn.
Filed May 19, 1971, Ser. No. 144,844
Int. Cl. B65b 51/30
U.S. Cl. 53—180

16 Claims

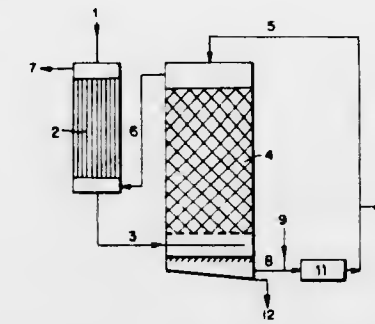


A film wrapping machine is disclosed for enveloping articles in a transparent, shrinkable film. The articles are translated serially onto a conveyor while a first film is fed between the articles and the conveyor and a second film is laid over the articles. A flight bar carrier folds or tucks the second film between the articles and presses the second film into contact with the first film. Heat is applied to the areas of contact between the two films so that the films become welded together in one or more seams as the articles and films are transported along the conveyor. A cutting mechanism severs the films between articles along or adjacent the welded seams. The separated articles enveloped by the films are then accelerated to a shrink tunnel which heats the films and causes them to shrink tightly against the article.

3,736,724
METHOD OF DRYING AND DEMERCURIZING HYDROGEN
Ewald Wygasch, 10 Eberstrasse, 6700 Ludwigshafen, Germany

Filed Jan. 13, 1972, Ser. No. 217,513
Int. Cl. B01d 53/14
U.S. Cl. 55—29

2 Claims

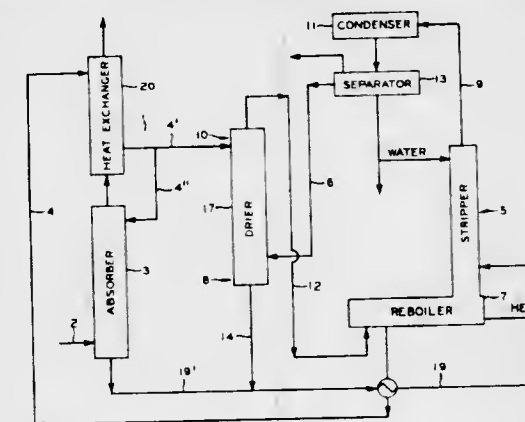


Hydrogen produced in the electrolysis of alkali metal chlorides by the amalgam process is dried and demercurized by direct cooling with aqueous solutions of alkali metal hydroxides having a temperature of below 0°C.

3,736,725
APPARATUS AND METHOD FOR DRYING GAS BY GLYCOL SCRUBBING
Carl E. Alleman, and William F. Tuckett, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed May 13, 1971, Ser. No. 143,017
Int. Cl. B01d 53/14
U.S. Cl. 55—32

10 Claims



Apparatus and method for drying a gas by passing said gas stream through an absorber where water and some hydrocarbons are removed therefrom, passing the absorbent and removed water and hydrocarbons to a stripping zone, removing the hydrocarbons and water from the absorbent, separating the water and hydrocarbons one from the other and drying and recycling the hydrocarbons to the stripping zone for stripping water from the absorbent flowing therethrough.

3,736,726
PROCESS FOR THE REMOVAL OF DIMETHYL SULFATE FROM GASES BY ADSORPTION ON ACTIVE CHARCOAL
Richard Grimm; Willi Herzog, and Rudolf Lademann, all of Frankfurt/Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft Vormals, Meister Lucius & Brunling, Frankfurt am Main, Germany
Filed Dec. 20, 1971, Ser. No. 210,049
Claims priority, application Germany, Dec. 22, 1970, P 20 63 071.1

Int. Cl. B01d 53/04

U.S. Cl. 55—73

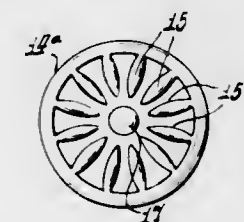
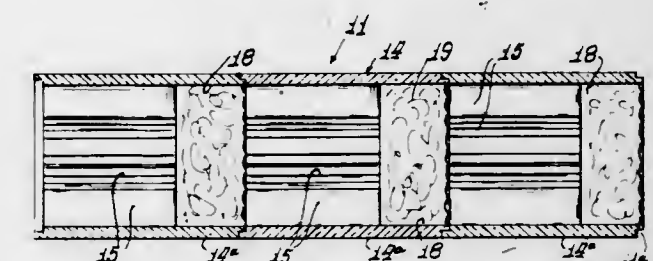
1 Claim

Dimethyl sulfate is removed from gases, e.g., from indoor or exhaust air. The gases are conducted through active charcoal

to absorb the dimethyl sulfate. The active charcoal is regenerated with a base, then washed with water and re-used for the absorption of dimethyl sulfate without any intermediate drying.

3,736,727
AIR POLLUTION REDUCTION SYSTEM
Walter Shriner, 1409 Stevenson Drive, Springfield, Ill.
Filed Oct. 6, 1971, Ser. No. 186,857
Int. Cl. B03c 3/30
U.S. Cl. 55—103

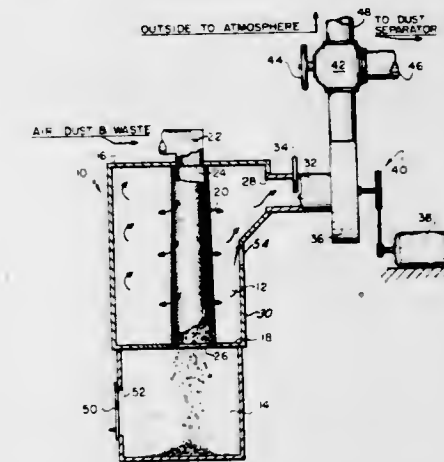
11 Claims



An air pollution reduction system embodying dielectric means to induce electrostatic forces in the path of a polluted fluid stream to cause precipitation of solids in said stream.

3,736,728
WASTE MATERIAL SEPARATOR AND COLLECTOR
Edwin A. Kleissler, Jr., Edison, N.J., assignor to G. A. Kleissler Company, Edison, N.J.
Filed Aug. 3, 1970, Ser. No. 60,307
Int. Cl. B01d 46/04
U.S. Cl. 55—341

16 Claims



An enclosure is provided having a substantially horizontal, centrally disposed partition plate or member for dividing the interior volume thereof into an upper plenum chamber and a lower collecting bin or chamber. Interiorly of the plenum chamber are fixedly supported one or more vertically oriented, tapered, tubular shaped, filter screen elements each one of which communicates at its upper end with an intake duct through a port or opening in the upper wall member of the enclosure, and communicates at its lower end with the collecting bin through an aperture in the partition plate or member. A mixture of waste materials and dust impregnated air or gas is delivered into the enclosure through the intake ducts whereupon the dusty air passes laterally through the mesh of the screen elements and into the surrounding plenum chamber. The escaping dust laden air is then exhausted to the

outside through an exhaust fan and duct means. The larger pieces of waste material, however, are constrained or trapped by the screen elements and under the force of gravity settle or fall downwardly through the openings in the partition plate whereupon they are deposited in the collection bin. In an alternate preferred form of the invention, means are provided in lieu of the collecting bin for directly conveying the separated waste materials to a machine for utilization therein.

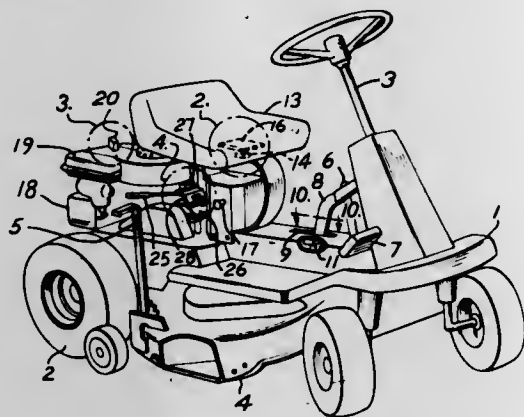
3,736,729

SAFETY INTERLOCK SYSTEM

Clifford D. Peterson, Marshalltown, Iowa, assignor to Cooper Manufacturing Company, Inc., Marshalltown, Iowa
Filed Feb. 28, 1972, Ser. No. 229,646
Int. Cl. A01d 35/26

U.S. Cl. 56-10.5

4 Claims



A safety interlock system for a riding lawn mower powered by an internal combustion engine which includes a switch responsive to the engagement of the transmission, a switch responsive to the engagement of the cutting blade, a switch responsive to the operation of the engine and an ignition switch. The transmission, cutting blade and engine switches are in a circuit connected to ground whereby the ignition switch must be on and the transmission and cutting blade disengaged to start the engine. Also disclosed is an additional switch responsive to the occupation of the driver's seat disposed in parallel circuit with the engine switch, whereby, to start the engine, irrespective of the occupation of the seat, the cutting blade and transmission must be disengaged. If the operator leaves the driver's seat with either the cutting blade or the transmission engaged, the engine will stop.

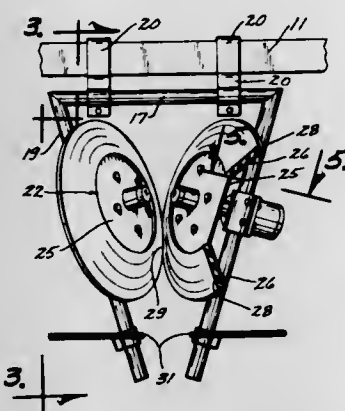
3,736,730

APPARATUS FOR REMOVING TASSELS

Ora B. Dobson, Ralston, Iowa
Filed Feb. 24, 1972, Ser. No. 229,047
Int. Cl. A01d 45/02

U.S. Cl. 56-63

5 Claims



Apparatus for removing tassels from plant stalks is disclosed herein. The apparatus includes a pair of wheels mounted on a framework at an angle one to the other with an area of contact between portions of the two wheels. One of the wheels is

rotated by suitable power means and the other wheel preferably is rotated by frictional contact with the rotated wheel. The wheels are formed, in profile, in the shape of a frustum, and the area of contact between the wheels results from mounting the wheels such that the side surfaces of the frustums are adjacent one another at the rear of the apparatus.

The wheels preferably have a spring wire skeletal framework, and a resilient material forms at least the side surfaces of the wheel.

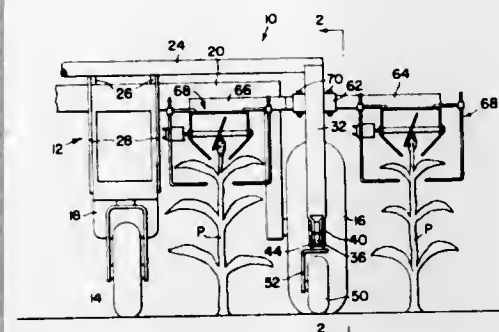
3,736,731

DETASSELING APPARATUS

Harold Valentine Hansen, Rock Island County, Cordova, Ill., assignor to Deere & Company, Moline, Ill.
Filed June 30, 1971, Ser. No. 158,260
Int. Cl. A01d 45/02

U.S. Cl. 56-63

9 Claims



Apparatus for mechanically removing the tassels from corn plants in a plurality of adjacent rows, the apparatus including a mobile frame adapted to advance along the rows and a plurality of individual detasseling units adjustably carried by the frame for receiving the plants in the adjacent rows and severing the tassels therefrom. Each detasseling unit consists of a housing defining a fore-and-aft passage for receiving the upper portions of the plants, a pair of guide members for directing the plants into the passage, and a circular blade mounted in canted fashion on a transverse shaft extending across the passage. As the shaft is rotated and the unit advanced along the plant row, the blade describes a substantially rectangular swath encompassing the tassel portion of the plants received within the housing, thereby severing the tassels from the plants. The configuration of the housing is such that the leaves of the plants are excluded from the passage and are thus not contacted by the blade.

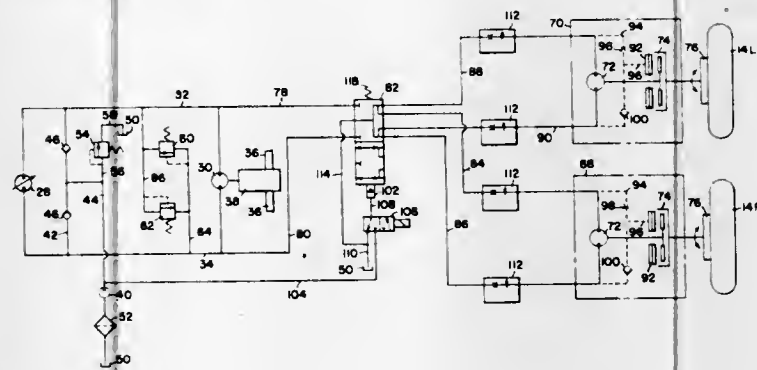
3,736,732

AUXILIARY DRIVE SYSTEM FOR COMBINES

Mearl James Jennings, Bernard Francis Vogelaar, and Kenneth Robert Lamp, all of Moline, Ill., assignors to Deere & Company, Moline, Ill.
Filed Oct. 12, 1971, Ser. No. 188,340
Int. Cl. A01d 41/02

U.S. Cl. 56-10.9

9 Claims



The steerable rear wheels of a hydraulically driven combine are provided with hydraulic motors which are connected in

parallel with each other and in parallel with the motor for the main drive wheels. A directional flow control valve permits the hydraulic motors for the steerable wheels to be optionally connected and disconnected from the main pump. Pressure compensated flow control valve means limit the maximum flow of fluid to the hydraulic motors for the steerable rear wheels. When the rear wheel drive system is in use, the torque applied to the steerable rear wheels is proportional to the torque applied to the main drive wheels and spin-out of either one or both of the steerable rear wheels will not result in loss of power to the main drive wheels. Also, by varying the ratio of the transmission interconnecting the main hydraulic motor with the main drive wheels, the ratio of the torque applied to the main drive wheels to the torque applied to the steerable rear wheels will be varied.

3,736,733

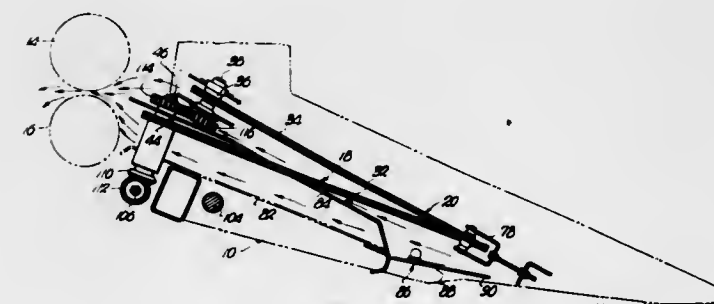
THREE-ROW CROP HEADER FOR FORAGE HARVESTERS

Ferol S. Fell, Newton; William D. Long, Hesston, and Kenneth R. McMillen, Moundridge, all of Kans., assignors to Hesston Corporation, Hesston, Kans.

Filed Nov. 4, 1970, Ser. No. 86,767
Int. Cl. A01d 45/02

U.S. Cl. 56-98

2 Claims



A row crop forage harvester has three, inclined pairs of pronged gathering chains on a header attachment for rearward conveyance of stalks that are severed by a transverse cutter at the lower front end of the header. The stalks are delivered rearwardly by the chains at their upper, rear ends butt first directly between a pair of transverse rolls that compress and feed the stalks into a transverse rotatable reel-type chopper cooperating with a shear bar. The severed butt ends of the stalks slide upwardly along ramps parallel to and disposed beneath the chains. All of the chains and their ramps terminate at their upper ends within substantially the same vertical plane immediately ahead of the rolls. At their discharge ends a pair of medial chains are driven by and overlap adjacent chains, the latter of which diverge toward the cutter.

3,736,734

ROW CROP HEADER ATTACHMENT

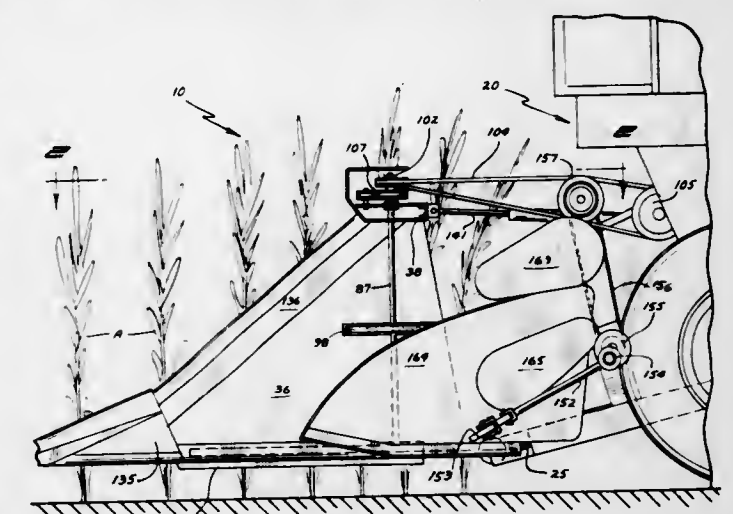
Raymond F. Pavel, R.R., Scotland, S. Dak.
Continuation-in-part of Ser. No. 81,672, Oct. 19, 1970, abandoned. This application Jan. 12, 1972, Ser. No. 217,118
Int. Cl. A01d 45/02

U.S. Cl. 56-119

11 Claims

An apparatus for harvesting a crop such as a sunflower seed crop with said apparatus being formed as an attachment to a conventional combine and which embodies the use of spaced pairs of forwardly extending tapered hood members respectively arranged and constructed to carry cooperating pairs of endless brush belts having a run therebetween, said belts being

disposed to travel substantially in a horizontal plane, the stalks of plants being engaged and drawn into the harvester by the brush belts which hold the stalks in a relatively stable position



until engagement with the cutting member of the combine and the delivery of said stalks into the combine with the result of very little, if any, loss of seed.

3,736,735

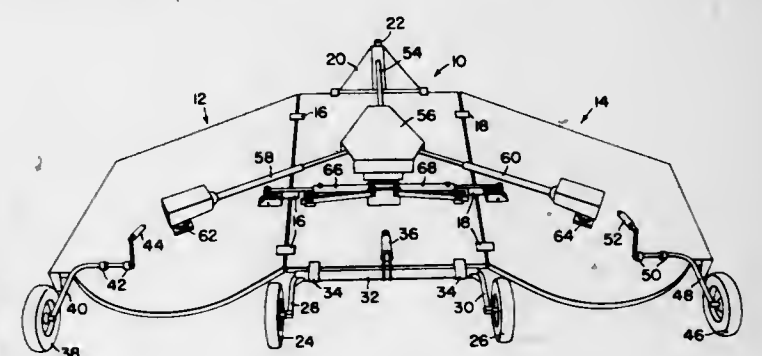
MECHANISM FOR RETAINING THE WING SECTION OF AN IMPLEMENT IN ITS RAISED POSITION

John Kulak, Port Colborne, Ontario, and Kenneth Lawrence Kirkpatrick, Welland, Ontario, both of Canada, assignors to Deere & Company, Moline, Ill.

Filed July 14, 1971, Ser. No. 162,429
Int. Cl. A01d 55/28

U.S. Cl. 56-13.6

16 Claims



A mechanism for retaining the wing section of an agricultural implement in its raised, transport position, the wing section being hingedly secured to a main frame section and movable between raised and lowered positions by means of an extensible and retractable hydraulic cylinder. The mechanism includes a link member mounted at one end on a pin pivotally connecting the anchor end of the cylinder to the main frame section, the link having an apertured opposite end biased to automatically engage a pin connecting the rod end of the cylinder to the wing section when the latter is moved into its raised position. A manually-operated lock mechanism is provided to lock the apertured end of the link out of engagement with the pin, thereby permitting the wing section to return to its lowered position.

3,736,736

BALING ATTACHMENT FOR LAWN MOWERS

Herbert Arthur Myers, Coal Valley, Ill., assignor to Deere & Company, Moline, Ill.

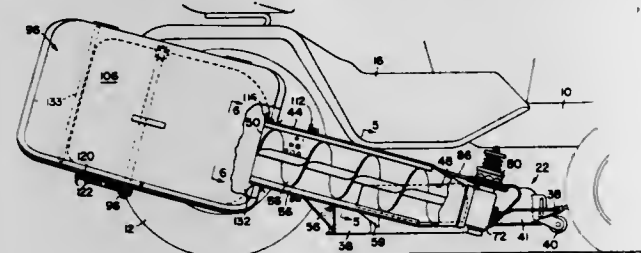
Filed Mar. 6, 1972, Ser. No. 231,890
Int. Cl. A01d 14/02

U.S. Cl. 56-14.5

27 Claims

A lawn and garden type tractor has a belly-mounted rotary lawn mower with a side discharge opening communicating

with the forward end of a generally fore-and-aft tubular auger housing. An auger is journaled in the housing and is rotated by a drive connected to and driven by the mower drive, so that it moves material discharged by the mower unit through the rearward open end of the auger housing and into a relatively large enclosure supported alongside the rear wheel of the tractor.



The material can be compressed directly into the enclosure, which can be dumped, or it can be compressed into a plastic bag or liner mounted within the enclosure with its open end over the outlet end of the auger housing, the bags, or liners being removable from the enclosure when they are filled with the compacted material.

3,736,737

CONTROL DEVICE FOR RAISING AND LOWERING THE CUTTER MECHANISM OF HARVESTERS

Gustav Schumacher, II, and Gunter Schumacher, both of Haus near 51, 5231 Eichelhardt, Germany

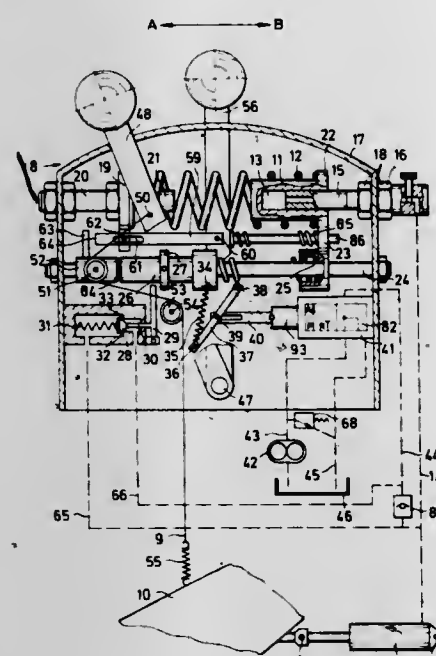
Filed May 21, 1971, Ser. No. 145,621

Claims priority, application Germany, Nov. 18, 1970, P 20 56 931.7

Int. Cl. A01d 67/00

U.S. Cl. 56—208

4 Claims



A hydraulic control device for raising and lowering the cutter mechanism of a harvester, for example a combine harvester, which device is operable by manual actuation and by the hydraulic pressure in a displacement cylinder of the cutter mechanism through a control cylinder acting against a counterforce, and which device is for installation on a part of the combine harvester, preferably the drivers platform, which constitutes a stationary part as opposed to the movable cutter mechanism, wherein the arrangement of the actuating lever of the "raise" valve and/or the "lower" valve relative to the control cylinder, which acts directly or through intermediate links, depends on the position of the cutter mechanism, and this arrangement is variable with reference to the position of the cutter mechanism for adjusting the required working position of the cutter mechanism.

3,736,738

ROW CROP HARVESTER

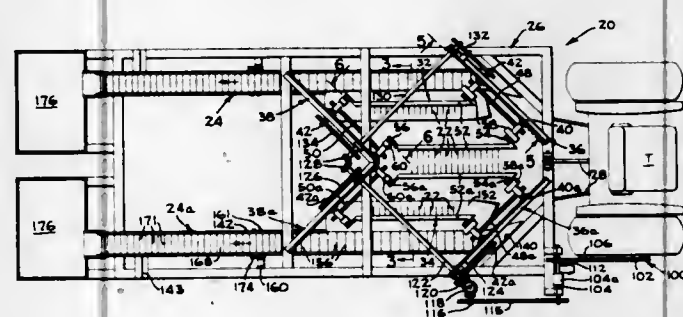
James P. Carr, East Lansing, Mich., assignor to FMC Corporation, San Jose, Calif.

Filed Mar. 18, 1971, Ser. No. 125,675

Int. Cl. A01g 19/00

U.S. Cl. 56—330

11 Claims



A mobile harvester includes a pair of endless stripper conveyors disposed on opposite sides of the longitudinal centerline of a ridge containing two rows of strawberries or the like. Each conveyor having a lower run moving rearwardly and outwardly relative to the harvester. A plurality of longitudinally extending rows of stripping fingers are individually supported on each conveyor by parallelogram linkages which allow the fingers to float when contacting the ground. The shanks of the fingers are maintained substantially vertical throughout their movement and the conveyors are each driven at a speed relative to the forward speed of the harvester which causes the fingers while in their lower runs to move rearwardly at substantially the same speed as the forward movement of the harvester causing the fingers to move transversely through the associated row of plants outwardly through the shortest possible distance thereby dislodging the berries from the plants and moving them outwardly into collecting means with a minimum of damage to the berries.

3,736,739

WINDING MACHINE

Marc Walter, Buc, France, assignor to Agence Nationale De Valorisation De La Recherche Anvar, Neuilly-sur-Seine, France

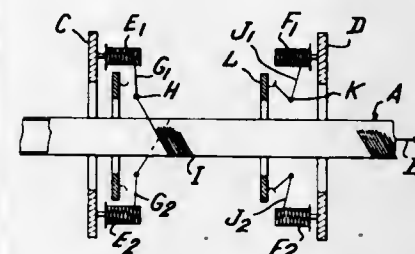
Filed Dec. 8, 1971, Ser. No. 205,896

Claims priority, application France, Dec. 11, 1970, 7044649

Int. Cl. B65h 81/08

U.S. Cl. 57—13

6 Claims



Two parallel and coaxial flange plates which are driven separately in rotation carry reels mounted in uniformly spaced relation about the common axis of the flange plates. Threads or ribbons are delivered from the reels and wound on a cylindrical element which is displaced continuously along the axis of the flange plates. Each flange plate is associated with a parallel and coaxial annular member which is mounted upstream of the reels with respect to the direction of displacement of the cylindrical element. The annular members are subjected to a relative movement of rotation in the direction opposite to the movement of the corresponding flange plates and means are provided on the annular members for attaching and cutting the ends of the threads or ribbons of the reels.

3,736,740

ELECTROMAGNETIC TIMING MECHANISM

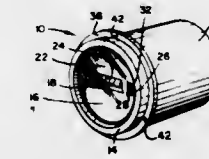
Stuart M. Pindell, Jr., Winooski, Vt., assignor to Novox, Inc., Winooski, Vt.

Filed Oct. 22, 1971, Ser. No. 191,741

Int. Cl. G04c 3/00, 3/04

U.S. Cl. 58—23 D

31 Claims



A timing mechanism employs a rotary oscillatory member which is biased toward a neutral position and is pulsed electromagnetically in one direction about its axis so that it oscillates at a selected natural frequency. The timed oscillations of the member may be transformed into unidirectional motion of a second rotary member. This second member may then drive counting wheels which provide a visual indication of time as measured from a selected time base.

3,736,741

DEVICE FOR SECURING AN ELECTRICAL CELL IN A TIMEPIECE MOVEMENT

Daniel Paratte, Neuchatel, Switzerland, assignor to Montres Rolex S.A. Dussaud, Geneva and Manufacture Des Montres Rolex S.A., Bienne, Switzerland

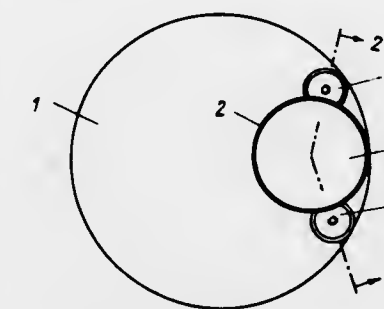
Filed Nov. 4, 1971, Ser. No. 195,566

Claims priority, application Switzerland, Nov. 27, 1970, 17617/70

Int. Cl. G04c 3/00; G04b 37/00

U.S. Cl. 58—23 BA

4 Claims



An electrical cell is secured in a trough shaped housing in a plate of a timepiece movement by a device located at the periphery of the housing. Said device comprises at least one member such as a washer with a cut-away edge held by means of a screw which moves it, from a rest position in which the cell is free, downwardly and inwardly into the housing to an operative position biting into the wall of the cell which is firmly held against a contact in the housing.

3,736,742

RADIO COMBINED WITH A DIGITAL CLOCK

Osamu Mabuchi, Dobbs Ferry, N.Y.; Yoshitaka Toshima, Sagami-hara, and Takashi Sato, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Mar. 2, 1972, Ser. No. 231,283

Claims priority, application Japan, Mar. 5, 1971, 46/14364

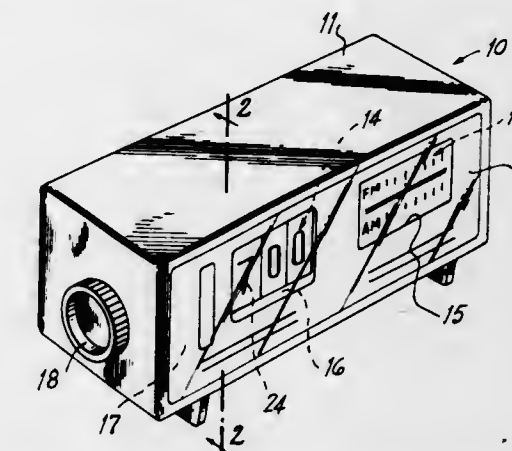
Int. Cl. G04b 19/30

U.S. Cl. 58—50 A

3 Claims

A clock having an indicating assembly with phosphorescent indicia for emitting visible light when exposed to ultraviolet radiation, and preferably combined with a radio receiver, is provided with a light tube which emits ultraviolet radiation directed against the phosphorescent indicia. Such light tube is preferably disposed between the indicating assembly of the clock and a filter plate which bars the passage of ultraviolet

radiation therethrough towards the viewer. The light tube desirably includes a sealed tubular envelope interiorly coated with a phosphor for emitting the ultraviolet radiation when excited by a discharge between main electrodes within the opposite end portions of the envelope, and auxiliary electrodes



are disposed adjacent the main electrodes for the generation of ions therebetween by which the main discharge is promoted. The auxiliary electrodes are preferably connected with respective resistors which are disposed adjacent the end portions of the envelope for heating the electrodes therein.

3,736,743

TIMEPIECE REGULATING MECHANISM

Kenichi Koike, Suwa-gun, Nagano-ken, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

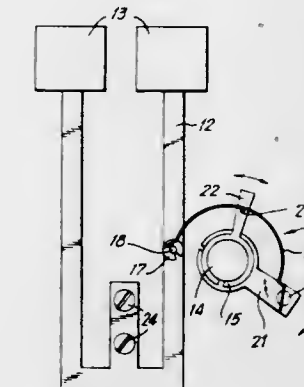
Filed Sept. 13, 1971, Ser. No. 180,040

Claims priority, application Japan, Sept. 14, 1970, 45/80021; Dec. 28, 1970, 45/120061; Dec. 29, 1970, 45/128120

Int. Cl. G04b 17/14

U.S. Cl. 58—109

14 Claims



In a timepiece driven by a vibrator, a spring having a spring constant much lower than that of the vibrator is coupled to the vibrator. The effective length of the spring is adjustable by varying the point of contact between a regulating mechanism and the spring. Adjustment of the vibration frequency can be effected from the exterior of the timepiece and can be carried out step-wise.

3,736,744

PROPELLANTS FROM EARTH'S HEATS

Wayne Bailey, Schaghticoke Hill, Schaghticoke, N.Y.

Filed Oct. 13, 1970, Ser. No. 80,331

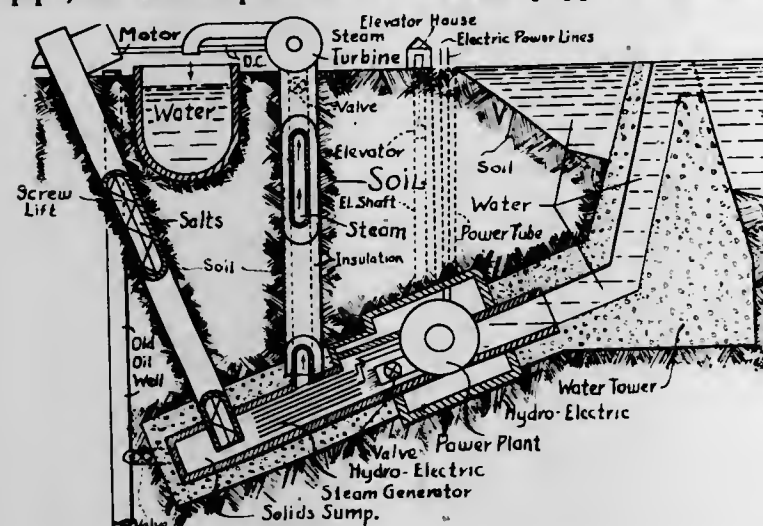
Int. Cl. F03g 7/00; F01d 13/00

U.S. Cl. 60—6

10 Claims

A power plant apparatus combination including a first hydroelectric prime mover positioned deep in the earth furnishing water and electricity to a steam boiler supplying

steam to a second prime mover through a heat insulated steam pipe; the second prime mover is also equipped to generate



electric current. Excess water run-off means is provided and units for recovering fresh water and sea salt when these are desired can also be provided.

3,736,745

SUPERCritical THERMAL POWER SYSTEM USING COMBUSTION GASES FOR WORKING FLUID

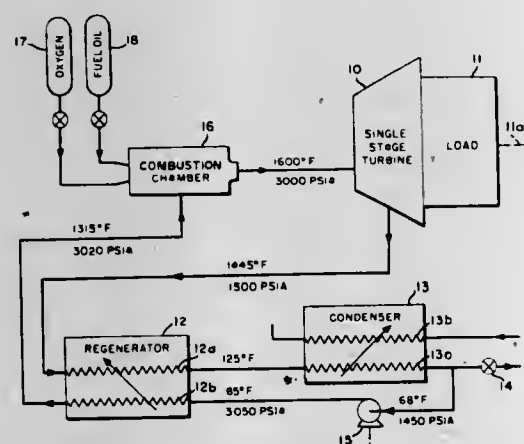
Horace E. Karig, La Jolla, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed June 9, 1971, Ser. No. 151,331

Int. Cl. F02n 25/06

U.S. Cl. 60—39.02

8 Claims



A supercritical thermal power system including components conventionally included in a Rankine cycle, uses a portion of its own combustion gases as its only working fluid. The system recirculates all the combustion gases, cools them, and purges the excess amounts from the system. The cooled remainder portion is reheated to conserve energy and mixed with oxygen and fuel in the combustion chamber to lower the temperature of the burning gases to pass cooler combustion gases to a turbine for minimizing failure otherwise due to excessive heat in the system. By using a portion of the system's own combustion gases as the only working fluid, the system's overall efficiency is significantly increased over contemporary systems.

3,736,746

RECIRCULATING ANNULAR SLOT FUEL/AIR CARBURETING SYSTEM FOR GAS TURBINE COMBUSTORS

Thomas L. DuBell, and Jack R. Taylor, both of Cincinnati, Ohio, assignors to General Electric Company

Filed Aug. 13, 1971, Ser. No. 171,639

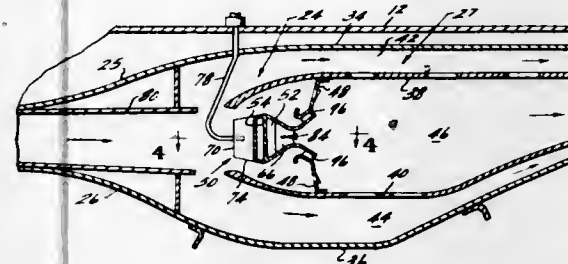
Int. Cl. F02c 3/24

U.S. Cl. 60—39.36

13 Claims

A combustion system for a gas turbine engine is equipped with a fuel carbureting device which delivers a uniform

fuel/air mixture to the primary combustion zone through a continuous annular exit slot. Fuel and air are provided as a continuous tangential flow to an annular premixing chamber, which is configured so as to provide a throat, a diffuser zone, and the annular exit slot. Radial swirl vanes are positioned within the premixing chamber to turn the fuel/air mixture axi-



ally, and counterswirl vanes surround the exit slot to provide additional primary combustion air to rapidly mix with the fuel/air mixture and to provide flame stabilization regions around the entire annular combustion chamber. Recirculation of the hot gases in the primary combustion zone is achieved by providing a diffuser zone upstream of the exit slot with a bluff body splitter for radially turning the fuel/air mixture.

3,736,747

COMBUSTOR

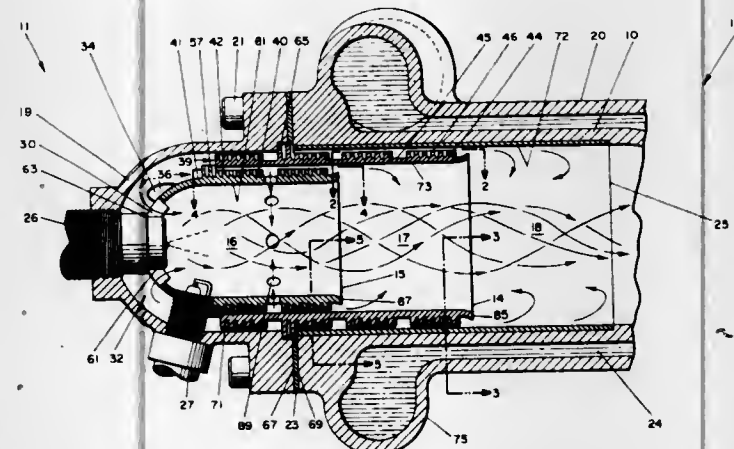
Glenn B. Warren, 1361 Myron St., Schenectady, N.Y.

Filed July 9, 1971, Ser. No. 161,179

Int. Cl. F02c 3/00, 7/12

U.S. Cl. 60—39.65

14 Claims



A combustor is provided having a housing with a liquid coolant jacket and having a combustion chamber which is divided into separate combustion zones. Each zone is regeneratively cooled by members disposed within the combustor which are arranged to swirl the process air and to contain and cool the flame. The heat removed from the flame is returned to the process air before it is supplied for staged combustion. The combustor is capable of operating at high temperatures, high equivalence ratios and high efficiencies.

3,736,748

SPARK IGNITER FOR COMBUSTION CHAMBERS

Robert C. Walker, Glastonbury, Conn., and Sidney S. Wyde, Monticello, N.Y., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Apr. 7, 1972, Ser. No. 242,046

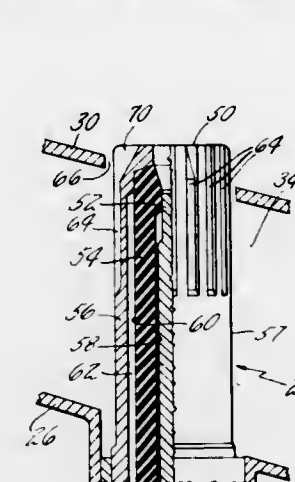
Int. Cl. F02c 3/18, 7/26

U.S. Cl. 60—39.67

11 Claims

A spark igniter adapted to project into a combustion chamber and having a plurality of circumferentially spaced,

axially extending grooves formed within its outer sleeve. The continuous speed, variations in overall thrust being effected by the use of a thrust reversal device. A variable area intake is



sleeve over the end of the igniter exposed to the hot combustion gases to cool the end.

3,736,749

OPEN LOOP ON-DEMAND VARIABLE FLOW GAS GENERATOR SYSTEM WITH A TWO-POSITION INJECTOR

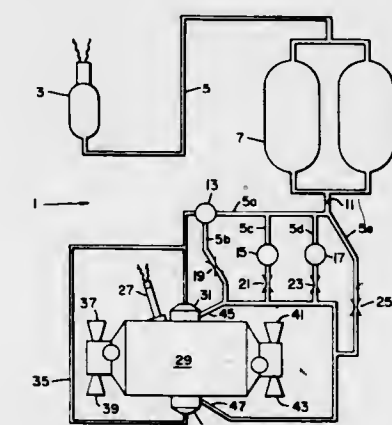
Willi K. Kretschmer, Santa Cruz, and Paul A. Heady, Jr., Mount Herman, both of Calif., assignors to Lockheed Missiles & Space Company, Inc., Sunnyvale, Calif.

Filed Aug. 20, 1971, Ser. No. 173,508

Int. Cl. F02k 9/02

U.S. Cl. 60—39.74 A

10 Claims



An open loop on-demand generator system with a two-position injector to provide a variable gas flow for a reaction control system. The injector system includes two two-position injectors located on opposite sides of the gas generator to provide a constant pressure to match the flow demand for each thrust step. Each injector includes a swirl device to provide swirled fuel at idle flow as well as maximum demand flow. Each injector also provides four intermediate thrust steps between idle flow and maximum demand flow.

3,736,750
POWER PLANT

Jack Britt, Ambergate, Derbyshire, England, assignor to Rolls Royce Limited, Derby, England

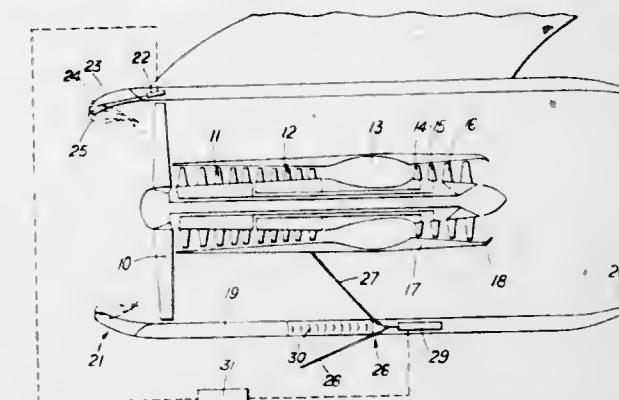
Filed Mar. 12, 1971, Ser. No. 123,753

Int. Cl. F02k 3/02

U.S. Cl. 60—226 A

5 Claims

A power plant for an aircraft comprises a gas turbine engine which in at least one mode of operation is run at maximum



provided, and because of the high mass flow in this mode, need not produce a very large reduction in the throat to achieve intake silencing.

3,736,751

GAP CONTROL APPARATUS

John Rodney Dyson Fuller, Downend, England, assignor to Secretary of State of Defense in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed May 26, 1971, Ser. No. 147,265

Claims priority, application Great Britain, May 30, 1970, 26,186/70

Int. Cl. F02c 7/28; F16j 15/40

U.S. Cl. 60—262

12 Claims



In order to maintain a substantially constant clearance between static and rotating sealing elements of a gas turbine engine, one of the elements is connected to a thermally expandable control tube which is fed with hot gas from the engine in direct proportion to the size of the sealing clearance e.g. by using fluid which has leaked through the seal. The control tube is additionally fed with cold air and vented to a low pressure via a restrictor.

When the seal clearance is set to the desired value the pressures of hot and cold fluid are such that there is no flow along the control tube. Enlargement of the clearance gives an increase in pressure to the hot fluid which flows along the tube heating the tube and the resulting expansion reduces the sealing clearance. Reduction in sealing clearance reduces the pressure of the hot fluid so that the colder fluid flows along the tube and the resulting contraction enlarges the sealing clearance.

3,736,752

COMBUSTION CHAMBERS

Jean Melchoir, Fontenay-aux-Roses, France, assignor to Etat Français representé par le Ministre d'Etat Charge de la Defense Nationale; Delegation Ministerielle pour l'Armement Direction Technique des Armements Terrestres et Ateliers de Construction d'Issy-les-Moulineaux, Caserne Sully, France

Filed June 28, 1971, Ser. No. 157,460

Claims priority, application France, July 7, 1970, 7025074

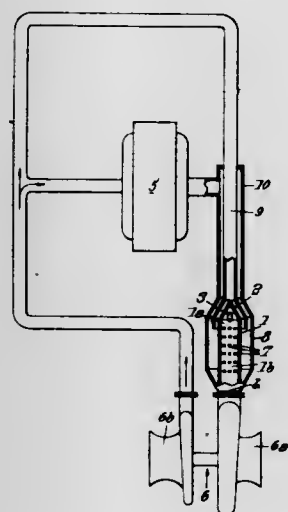
Int. Cl. F02c 7/08

U.S. Cl. 60—13

10 Claims

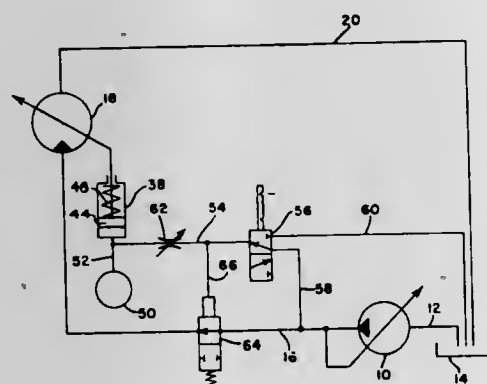
The combustion chamber has a burner tube whose closed end has at least one fuel injector and whose open end emerges

into a pipe leading the gaseous mixture towards its position of use. The burner tube includes a number of orifices distributed circumferentially and along axially staggered sections. An outer enclosure is arranged around the burner tube and con-



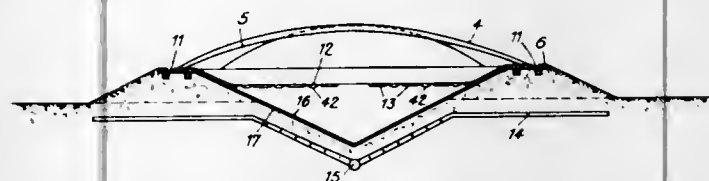
nected in sealed manner to the open end of the said burner tube. A first pipe, supplied with oxygen-rich gas, is connected in the neighborhood of the closed end of the burner tube. A second pipe supplied with oxygen-poor gas, is connected in the neighborhood of the open end of the burner tube.

3,736,753
HYDRAULIC DRIVE
Wolfgang Roth, Oberauerbach, Germany, assignor to Deere & Company, Moline, Ill.
Filed Sept. 22, 1971, Ser. No. 182,604
Int. Cl. F15b 15/18, 15/24
U.S. Cl. 60—489 14 Claims



A hydraulic drive includes a hydraulic pump and a variable displacement axial piston type hydraulic motor. The swash plate of the motor is adjusted by a hydraulic cylinder having an accumulator connected to the pressurized end of the cylinder so that the motor displacement is at a maximum value when the pressure in the accumulator and the cylinder is below a predetermined value and decreases as the pressure in the accumulator builds up. A pilot-operated valve controls the flow of pressurized fluid from the pump to the motor, the pressure to open the pilot valve being supplied through a manually shiftable valve which also directs fluid pressure to the accumulator through an orifice, which retards the pressure buildup in the accumulator to gradually decrease the motor displacement after the control valves are shifted to their open positions.

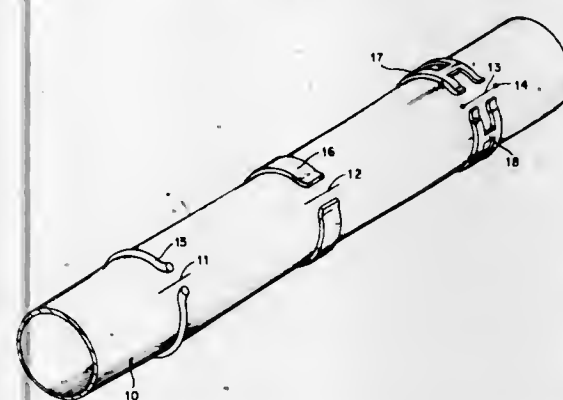
3,736,754
RESERVOIRS FOR THE STORAGE OF LIQUIDS ESPECIALLY VOLATILE LIQUIDS
Jean P. Azalbert, Ablon-sur-Seine; Adrien Giraud, Paris, and Roger Andre Marquaire, Vaucresson, all of France, assignors to Compagnie Francaise Des Petroles, Paris, France
Filed Apr. 14, 1971, Ser. No. 133,931
Claims priority, application France, Apr. 14, 1970, 7013376
Int. Cl. B65g 5/00
U.S. Cl. 61—.5 12 Claims



This invention pertains to a reservoir with a very large capacity, in excess of 200,000 tons, for the storage of petroleum products.

A cavity, natural or artificial, is covered with a sheet 16 consisting of waterproof material that is also impermeable to petroleum products. A sheet 12, essentially gasproof, supported by floats 13, covers the surface of the liquid. The edges of sheets 12 and 16 are anchored in the concrete ring 6 which is poured above the talus. The upper portion of the roof 4 is also connected to ring 6. The roof is inflated by fans which blow air between the envelope 4 and the sheet 12. Cable 5 reinforces the roof, a ditch 11 moves the runoff waters along. A central collector 15 catches the infiltration water.

3,736,755
IRRIGATION SYSTEM
Roland P. Hammond, 879 W. Outer Drive, and John W. Michel, 104 Caldwell Drive, both of Oak Ridge, Tenn.
Filed Feb. 23, 1972, Ser. No. 228,676
Int. Cl. E02b 13/00
U.S. Cl. 61—12 4 Claims

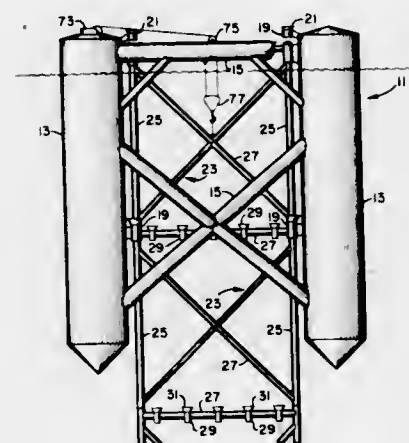


The invention relates to a distribution system for subsurface or trickle irrigation of arid land using plastic pipe with spaced wall slits therein. Spring clips encircle the pipe at each slit to define pressure-initiated opening of each slit and the subsequent closure thereof. The pressure of the system may be increased to bring about opening of the slits with the resultant exit of water from each slit. More uniform water distribution results from use of this system and longer runs of piping may be used. Also, occasional application of higher pressure minimizes blockage of the slits by foreign particles.

3,736,756
METHOD AND APPARATUS FOR ASSEMBLING AN OFFSHORE STRUCTURE
James R. Lloyd, Houston, Tex., assignor to Esso Production Research Co., Houston, Tex.
Filed Nov. 3, 1971, Ser. No. 195,087
Int. Cl. E02b 17/00
U.S. Cl. 61—46.5 9 Claims

Method and apparatus are disclosed for constructing a buoyantly supported tower at an offshore worksite. Apparatus

is disclosed for assembling an elongated tower at an offshore location by connecting a number of tower segments in end-to-end relationship. The apparatus includes a rigid buoyant structure provided with a central vertical well. The buoyant structure is provided with means for locking a tower segment in a preselected position within the well to permit connection of its upper end to an additional tower segment, and for releasing the locked segment to permit the newly connected tower segment to be lowered within the well and locked in place for the



connection of an additional tower segment thereto. The method includes the step of positioning a tower segment at a preselected position within the well, aligned with the locked segment and rigidly connected thereto. The locked segment is then released and the rigidly connected segments are lowered and locked into place to permit the joining of additional tower segments. Additional segments are joined to the assembled section and lowered toward bottom until the tower extends to bottom. The buoyant assembly may then be elevated relative to the tower and rigidly affixed to the upper end.

3,736,757
CAST-IN-SITU CONCRETE PILES
Carl D. Hartzell, Oakland, N.J., and Thomas P. Schwarzer, Miramar, Fla., assignors to Raymond International, Inc., New York, N.Y.
Filed Mar. 17, 1971, Ser. No. 125,089
Int. Cl. E02d 5/38
U.S. Cl. 61—53.64 3 Claims



This invention relates to cast-in-situ concrete piles and methods of forming same wherein a shell section is positioned in the ground about the upper portion of a substantially rigid casing so that when the casing is withdrawn from the ground the void formed thereby is filled with concrete from the shell section, thereby preventing dirt and foreign substances from sluffing into the hole.

3,736,758
PROCESS FOR TREATING NON-AGRICULTURAL GROUNDS
Thale Dolfing, Winschoten, and Jan Lolkema, Hoogezand, both of Netherlands, assignors to Scholten-Honig Research N.V., Foxhol, Netherlands
Filed Mar. 3, 1972, Ser. No. 231,727
Claims priority, application Netherlands, Mar. 5, 1971, 7102972
Int. Cl. E02d 3/12 13 Claims

U.S. Cl. 61—36 R
Non-agricultural grounds, in particular storage sites for chemical products, are rendered impermeable to liquids by incorporating and homogeneously distributing a binder in the soil down to a depth of at least about 2.5 cm, said binder being selected from the group consisting of organic and inorganic, natural and synthetic binders, and being used in a proportion ranging from about 0.75 to about 15% by weight, calculated on the soil treated and after having moistened the soil, compacting the soil thus treated in still moist condition to form a homogeneous, compact mass, and coating the surface of the thus compacted upper layer of the soil with a thin layer, to be formed in situ, of a water-insoluble polymer selected from the group consisting of polyurethanes, polyesters, polyepoxy resins and polyvinyl compounds.

3,736,759
PILE COVERING
Werner Blose, 2000 Hamburg 20, Germany, assignor to Schlegel Manufacturing Company, Rochester, N.Y.
Filed Feb. 10, 1972, Ser. No. 225,217
Claims priority, application Germany, Feb. 17, 1971, P 21 07 446.4
Int. Cl. E02d 5/60 7 Claims

U.S. Cl. 61—54

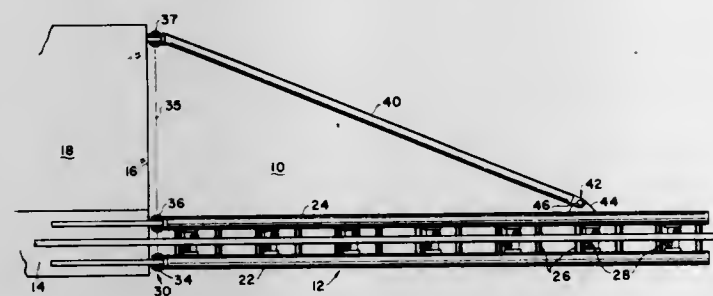


The invention applies to sheaths for protecting underwater bodies such as piles by surrounding the body with the lower end of the sheath secured to the body and the space between the sheath and the body filled with a yieldable filler material. The improvement is that the filler material is an expandable, synthetic material expanded in place between the shell and the body to form a closed-cell foam having a snug, sealing bond with the surface of the body.

3,736,760
LATERALLY-STABILIZED STINGER SUSPENSION SYSTEM
Daniel K. Carstens, and Beverly C. D. Edwards, Jr., both of Houston, Tex., assignors to Fluor Corporation, Los Angeles, Calif.
Filed Oct. 7, 1971, Ser. No. 187,363
Int. Cl. B63b 35/04 5 Claims

U.S. Cl. 61—72.1
A laterally-stabilized stinger suspension system is provided to reduce the bending moments exerted on conventional st-

inger hitches. The suspension system includes at least one diagonal strut articulately connected between the stinger and



a point on the stern of the pipelaying vessel removed from the pipe ramp.

3,736,761

CRYOGENIC REFRIGERATOR

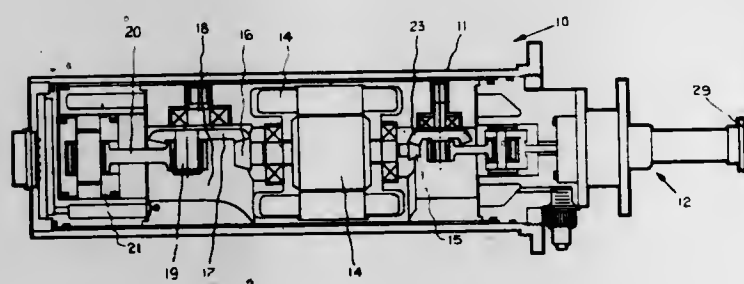
Thomas C. Richmond, Cumberland, and Peter K. Bertsch, Esmond, both of R.I., assignors to U.S. Phillips Corporation, New York, N.Y.

Filed Aug. 9, 1971, Ser. No. 170,316

Int. Cl. F25b 9/00

U.S. Cl. 62-6

11 Claims



A Stirling-cycle refrigerator within a straight cylindrical housing, with a drive means inbetween aligned compression and displacer pistons which are axially movable to define variable-volume compression and expansion spaces, heat exchangers at opposite ends of the housing adjacent the pistons respectively, a regenerator carried by the displacer, and a gas duct interconnecting the variable-volume spaces.

3,736,762

METHOD OF PRODUCING THE GASEOUS AND LIQUEFIED NITROGEN AND AN APPARATUS USED THEREFOR

Akira Toyama, Suma-ku, Kobe-shi, Hyogo-ken; Itsuro Matsumoto, Tarumi-ku, Kobe-shi, Hyogo-ken, and Tetsuo Izumichi, Takarazuka-shi, Hyogo-ken, all of Japan, assignors to Kobe Steel, Ltd., Kobe-shi, Hyogo-ken, Japan

Filed Oct. 20, 1970, Ser. No. 82,394

Claims priority, application Japan, Oct. 20, 1969, 44/83730

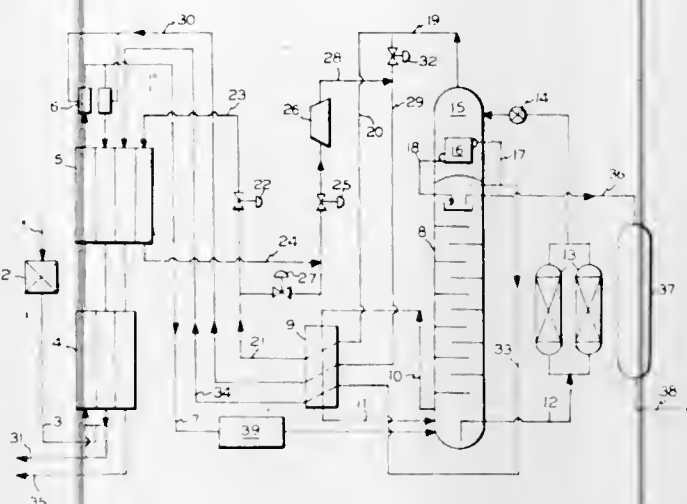
Int. Cl. F25j 3/02, 3/04

U.S. Cl. 62-13

4 Claims

In a method of producing gaseous and liquefied nitrogen having a pressure higher than atmospheric pressure, by the use of an apparatus comprising a reversible heat exchanger and a single column rectifier, the combination of following steps: the impure gas obtained by heat-exchanging, in a condenser-evaporator, of liquefied air with nitrogen gas, each of which has been separated in the column, is divided into two parts;

one of these parts is again divided into two parts; one part of this second division is passed through a control valve and then through the heat exchanger, after which it is united and admixed with the remaining part of the gas resulting from the second division, which has passed through a control valve; this admixture is supplied to an expansion turbine; the expanded



impure gas is united and admixed with the remaining part of the gas resulting from the original division, which has passed through a control valve; and this admixture, after having been passed through the air-liquefier and then the heat exchanger, is taken out of the apparatus. Adopting the abovementioned process makes it possible to industrially and advantageously produce gaseous nitrogen and liquefied nitrogen.

3,736,763

CONDENSER PRESSURE CONTROL APPARATUS

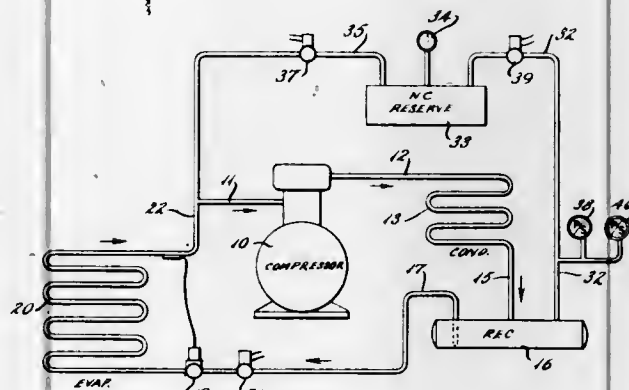
Milton W. Garland, Waynesboro, Pa., assignor to Frick Company, Waynesboro, Pa.

Filed Sept. 3, 1971, Ser. No. 177,548

Int. Cl. F25b 41/00

U.S. Cl. 62-85

6 Claims



Non-condensable gas in a storage chamber is introduced into a refrigeration system to maintain condenser pressure above a desired minimum, and is permitted to escape from the refrigeration system back to the storage chamber to relieve high condenser pressures. Pressure responsive switches monitor the high side of the refrigeration system and control the flow of the non-condensable gas into and out of the refrigeration system.

3,736,764

TEMPERATURE CONTROLLER FOR A FLUID COOLED GARMENT

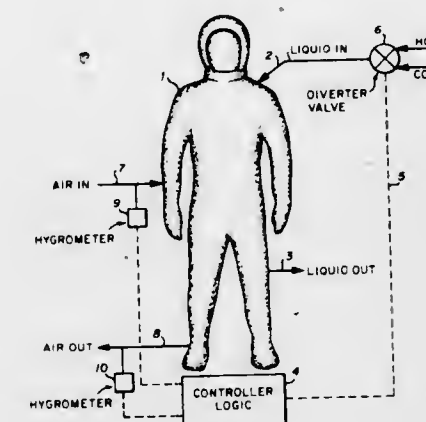
Alan B. Chambers, Los Altos; James R. Blackaby, Palo Alto, and John Billingham, Portola Valley, all of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Apr. 25, 1972, Ser. No. 247,481

Int. Cl. F25d 17/06

U.S. Cl. 62-89

8 Claims



The inlet coolant temperature to a liquid cooled garment, as worn underneath an air ventilated space suit, is controlled as a function of the wearer's evaporative water loss rate (sweat rate) to provide comfort for the wearer over a wide range of work load rates.

3,736,765

APPLIANCE INCLUDING ELECTRIC DIAGNOSIS MEANS

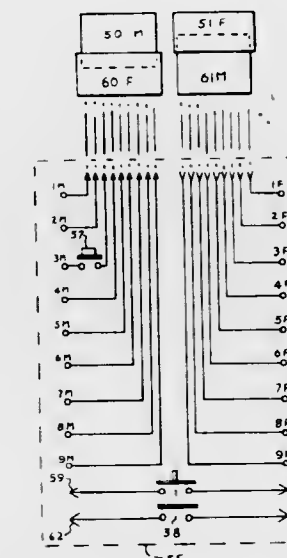
George B. O'Dell, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Jan. 5, 1972, Ser. No. 215,575

Int. Cl. F25b 49/00

U.S. Cl. 62-127

3 Claims



A household appliance including a plurality of electrical components is provided with readily accessible multiple circuit connector means for quickly checking and diagnosing the quality and operation of the individual components by means of test equipment adapted to be connected to the appliance through the connector means.

3,736,766

ADJUSTABLE WEIGHT CONTROL FOR A DOMESTIC ICE MAKER

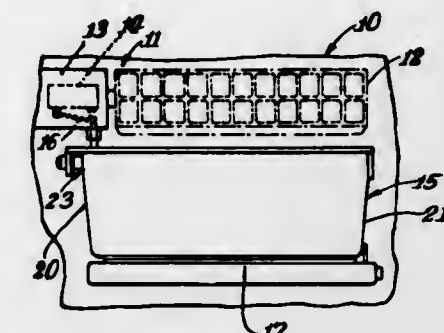
William J. Linstromberg, Evansville, Ind., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Oct. 9, 1970, Ser. No. 79,398

Int. Cl. F25c 5/18

U.S. Cl. 62-137

5 Claims



Means for controlling the amount of ice bodies collected in a storage bin. The bin is yieldably supported to move downwardly as a function of the weight of the ice bodies collected therein. An adjustable means is mounted on the collecting bin for adjustable actuation of a shut-off control mechanism for controlling the means for transferring ice bodies to the collecting bin so as to prevent further transfer of ice bodies to the collecting bin when the level of ice bodies in the collecting bin reaches a preselected level.

3,736,767

AUTOMATIC ICEMAKER INCLUDING REVERSIBLE MOLD CAVITIES

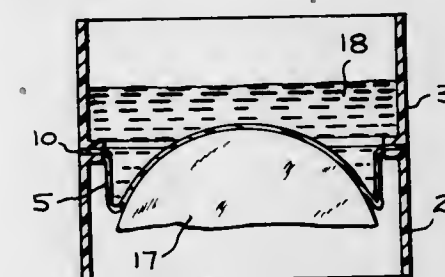
Robert M. Lukes, Beechwood Village, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Mar. 6, 1972, Ser. No. 231,901

Int. Cl. F25c 1/10

U.S. Cl. 62-349

1 Claim



An icemaker comprising a rotatable member including oppositely facing receptacles having a common wall formed in part by a flexible and reversible wall portion defining a mold cavity in which a charge of water is frozen to form an ice piece. When the mold member is inverted and a charge of water introduced into the then upwardly facing receptacle, a previously formed ice piece is heat released from the mold cavity and the added charge of water causes the flexible wall portion to turn inside out to form a mold cavity for receiving the charge.

3,736,768

MACHINE COMPARTMENT ARRANGEMENT FOR A REFRIGERATING DEVICE

Phillip F. Harbour, and Charles A. Wilcox, both of Columbus, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 29, 1971, Ser. No. 157,897

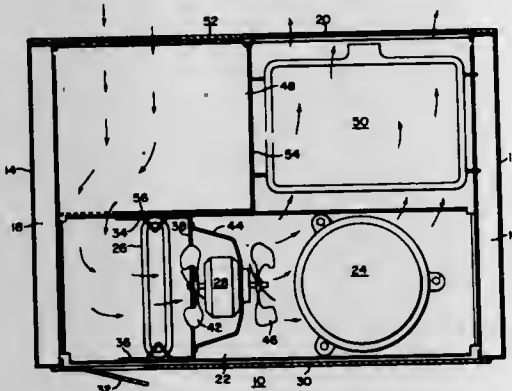
Int. Cl. F25d 19/00

U.S. Cl. 62-455

5 Claims

For a domestic refrigerator or freezer, a machine compartment arrangement to improve cooling of the compressor and

condenser therein by providing double, serially-arranged fans, the upstream one being arranged to draw air through the condenser, and the downstream one being arranged to direct air directly against the compressor. The arrangement is also intended to maintain a cooling air flow against the compressor as dirt builds up on the upstream face of the condenser by



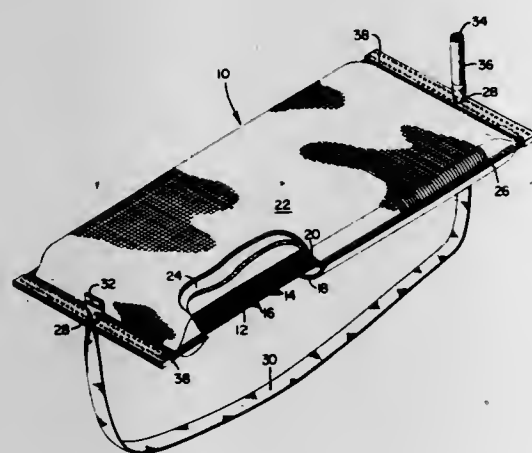
providing a bypass around the condenser in the plenum in which the condenser is located. Additionally, the inlet air duct to the machine compartment has its inlet spaced above the floor, and a clean-out door giving access to the upstream face of the condenser is provided in the back wall of the machine compartment.

3,736,769 COOLING DEVICE

Donald Edwin Petersen, Pleasantville, N.Y., assignor to Union Carbide Corporation, New York, N.Y.
Filed July 1, 1971, Ser. No. 158,828
Int. Cl. F25d 3/08

U.S. Cl. 62-530

3 Claims



A cooling device is provided having a core of a cold storing material sandwiched between two thin, flexible walls having different heat transfer rates such that one side of the cooling device is colder to the touch than the opposite side of the device.

3,736,770 ADJUSTABLE RING HAVING BRIDGE ELEMENT AND FIRMLY SECURED NOTCHED LATCH BAR

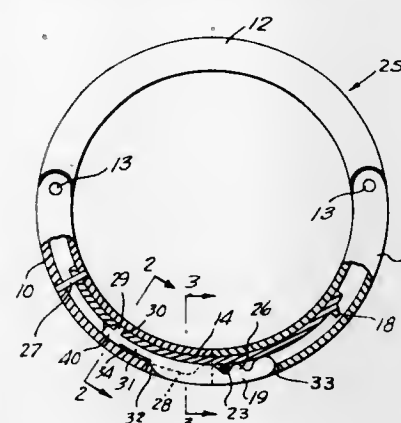
Joseph Kelrick, 4 Hawthorn Lane, Lawrence, N.Y.
Filed Feb. 26, 1971, Ser. No. 119,218
Int. Cl. A44c 9/02

U.S. Cl. 63-15.7

8 Claims

An adjustable finger ring having two tubular pivoted sections, one having a slot with a transverse catch pin and the second pivoted section having an arcuate spring slidably engaged in the first pivoted section and an arcuate notched latch receivable in the slot and lockingly engageable with the transverse catch pin. The inner end of the latch has a tooth engaged

in an aperture in the spring, and the spring is channelled to receive the inner end of the latch. The interengaged inner end



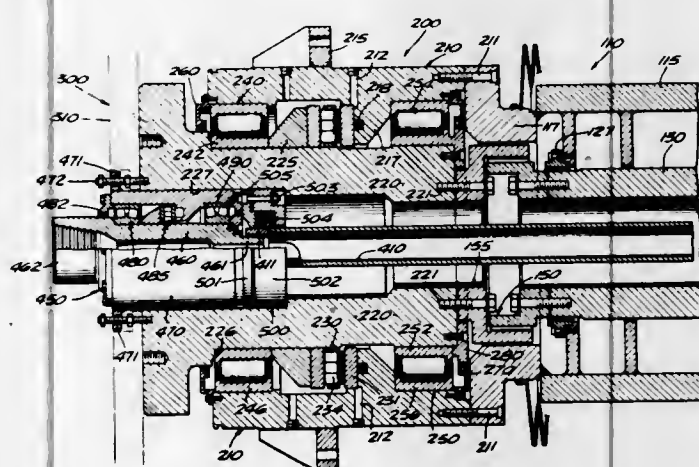
portions of the latch and spring are telescopically received in the second pivoted section and the inner end of the spring is fastened to the second pivoted section by a pin.

3,736,771 REMOVABLE BEARING ASSEMBLY FOR TUNNELING MACHINE

Frank Safar, Fullerton, Calif., assignor to Smith International, Inc., Newport Beach, Calif.
Division of Ser. No. 863,783, Oct. 6, 1969. This application
Aug. 30, 1971, Ser. No. 175,824
Int. Cl. F16d 3/06; F16c 19/14

U.S. Cl. 64-23.5

6 Claims



An easily replaceable bearing assembly for a tunneling machine including a housing, a rotor within the housing, radial bearings for supporting respective ends of the rotor from the housing, a thrust bearing intermediate the radial bearings and disposed between respective thrust collars on the housing and rotor so that a forward thrust on the housing can drive the rotor forward, removable means for applying a forward drive to the rearward end of the housing and a rotating drive to the rearward end of the rotor, and means for attaching a rotating cutter to the forward end of the rotor so as to be concurrently driven forwardly and in rotation.

3,736,772 LID LATCH OFF-BALANCE SWITCH

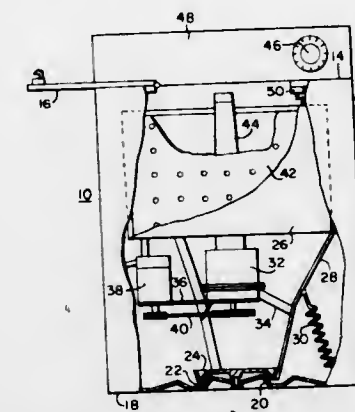
Colin J. Baker, Orange, New South Wales, Australia, assignor to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed May 11, 1971, Ser. No. 142,305
Int. Cl. D06f 33/02, 37/24, 37/42

U.S. Cl. 68-12 R

7 Claims

The invention provides an unbalance switch for a centrifugal extraction washing machine which deenergizes the machine when sufficient unbalance occurs to cause undesir-

ble gyrations. The switch is associated with a lid latch which prevents the user from merely opening the machine to redis-



tribute the load and first requires shutting off the main switch and moving the timer out of the spin extraction mode before the lid can be opened and the load accessible.

3,736,773 ADDITIVE DISPENSER FOR AUTOMATIC WASHING MACHINE

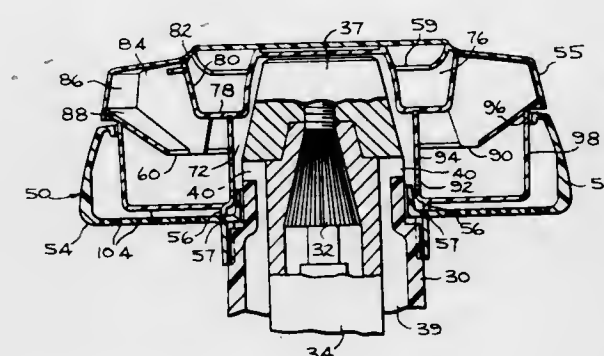
Richard A. Waugh, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Oct. 12, 1971, Ser. No. 188,328

Int. Cl. D06f 39/02

U.S. Cl. 68-17 A

5 Claims



A dispenser for receiving additives such as a cleaning agent, an oxidizing agent and a fabric conditioner, diluting these additives where necessary and then dispensing them into the basket of an automatic washing machine at the proper time during an operating cycle of the machine. A plurality of chambers are located within the dispenser. These chambers include an inner chamber for storing the fabric conditioner during a wash cycle; a holding chamber for receiving the fabric conditioner ejected from the inner chamber by centrifugal force during a spin cycle; and a dilution chamber for receiving, dispensing and diluting the oxidizing agent, as well as for receiving, diluting, and dispensing the fabric conditioner which falls into this chamber at the start of a rinse cycle. In addition, a provision for receiving a detergent and dispensing it into the basket during a wash cycle is also included. Means are also provided for automatically cleaning the fabric conditioner residue from the holding chamber by forcefully propelling thereinto, rinse water from the dilution chamber so as to prepare the dispenser for the next operative cycle.

3,736,774 DRY CLEANING AND LAUNDRY APPARATUS

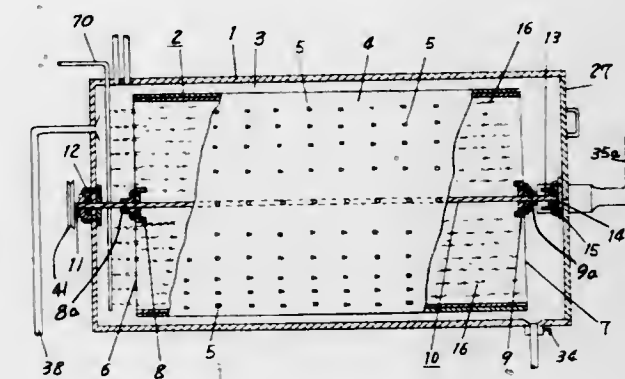
Masaji Shibata, 23, No. 30, Kamishima-cho, Kadoma, Japan
Filed Jan. 24, 1972, Ser. No. 220,343
Int. Cl. D06f 43/02

U.S. Cl. 68-18 R

9 Claims

Dry cleaning and laundry apparatus suitable for use on a mobile unit and having a rotatable drum inside a stationary

tank. The drum has apertured side walls and open ends so that cleaning fluids supplied to the tank are distributed throughout the articles being cleaned inside the rotating drum. A plurality of semi-circular arrays of elongated brushes are mounted inside the drum, with the articles to be cleaned being placed between adjacent series of brushes. Each series of brushes is fixed to the drum for rotation therewith and each individual brush within the series is independently rotatable relative to the drum. One end of each series of brushes is movable



through a limited distance in the circumferential direction, so that the varying gravitational and centrifugal forces on the brushes, due to rotation of the drum, cause each brush series to reciprocate, thereby enhancing the cleaning action on the articles located between adjacent brush series. The brushes are also longitudinally movable relative to the drum so that they may be withdrawn from the drum through a door in the rear end of the stationary tank to facilitate placement of the articles to be cleaned between the brushes, and subsequent removal of the articles therefrom.

3,736,775 OSCILLATABLE TUB WITH FLEXIBLE BLADE

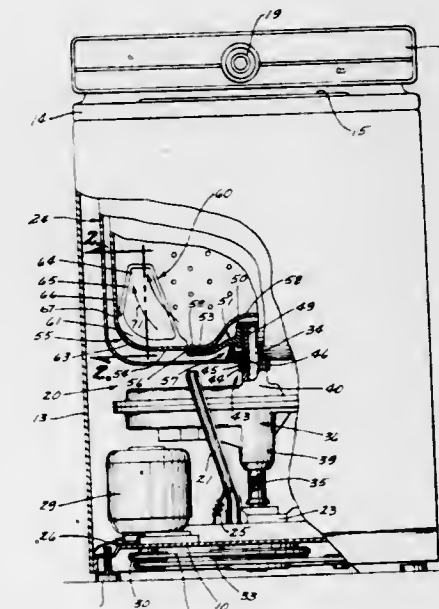
Thomas R. Smith, Newton, Iowa, assignor to The Maytag Company, Newton, Iowa

Filed Mar. 9, 1972, Ser. No. 233,231

Int. Cl. D06f 23/04, 37/14

U.S. Cl. 68-23

10 Claims



An oscillatable tub for a washing machine includes at least one flexible blade attached to and oscillatable with the tub for effecting a washing action. The flexibility of the blade enhances the movement of the washing fluid and articles contained therein.

3,736,776

SKIN SPLITTING MACHINE

Silvio Repetto, Modena, Italy, assignor to S.p.A. Luigi Rizzi & Co., Modena, Italy

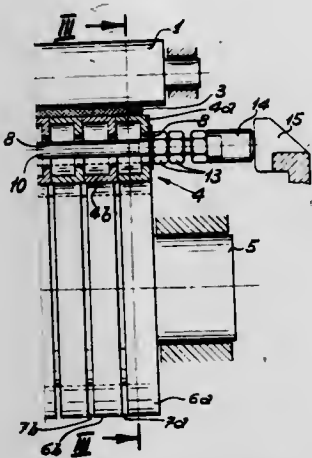
Filed Apr. 12, 1971, Ser. No. 133,034

Claims priority, application Italy, Apr. 14, 1970, 23281 A/70

Int. Cl. C14b 1/14

U.S. Cl. 69-13

8 Claims



A skin splitting machine having a knife, and a conveyor for carrying the skin to the knife and means for pressing the skin to the conveyor. The pressing means comprises a series of axially aligned resilient discs and a non-resilient roller interposed between each disc and the conveyor. Each disc and roller cooperating independently to press the skin to the conveyor.

3,736,777

LOCKING ATTACHING MECHANISM FOR DISK-PACK STORAGE CONTAINER

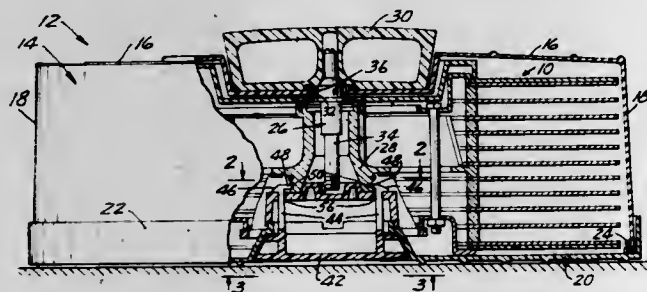
Wayne M. Wirth, North Saint Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Nov. 1, 1971, Ser. No. 194,150

Int. Cl. E05b 65/52

U.S. Cl. 70-63

5 Claims



A mechanism for releasably attaching the bottom cover of a disk-pack storage container to a disk pack, including a key-operated cylinder lock which may be operated to lock the mechanism in the attached position.

3,736,778

COMBINATION LOCK

Lazlo Bako, Woodcliff Lake, N.J., assignor to Presto Lock Co., Division of Walter Kidde & Company Inc., Clifton, N.J.

Filed Dec. 15, 1971, Ser. No. 208,086

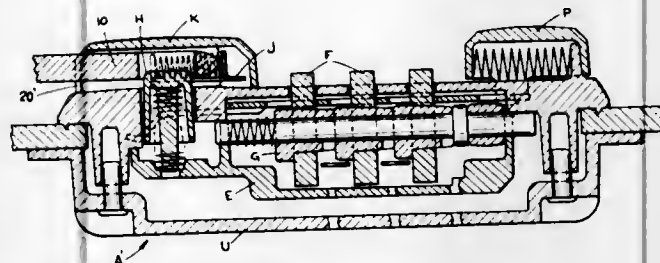
Int. Cl. E05b 65/50

U.S. Cl. 70-70

12 Claims

A combination lock of the multiple dial type employs a resiliently mounted plunger cooperable with a hasp to releasably connect the hasp to the combination lock. The lock includes a slide member mounted for movement to respective latched and unlatched positions, and means are provided permitting the slide member to move to unlatched position only when the dials are on predetermined open combination. The

slide member and the plunger are provided with cooperable means to retract the plunger upon movement of the slide



member to unlatched position. Ejector means located adjacent the plunger acts to forcibly separate the hasp from the combination lock upon retraction of the plunger.

3,736,779

LOCK

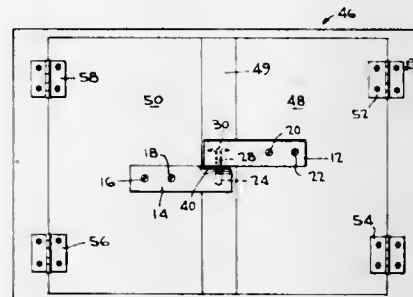
Eugene L. Pratt, 717 A Wolcott Drive, Philadelphia, Pa.

Filed Apr. 26, 1971, Ser. No. 137,176

Int. Cl. E05b 47/00

U.S. Cl. 70-276

11 Claims



A lock is disclosed comprising an upper locking unit and a lower locking unit, said upper locking unit comprising an opening, a plunger disposed within said opening, said opening being so dimensioned as to permit said plunger to be slidably displaced within said opening, said plunger being of such a material that said plunger is caused to be slidably displaced within said opening by a magnetic force being placed in close proximity thereto, said lower locking unit comprising an opening so dimensioned as to receive said plunger, means retaining the upper portion of said plunger in said upper locking unit when the lower portion of said plunger is disposed in said opening of said lower locking unit whereby said upper locking unit is locked to said lower locking unit when said plunger is disposed within said openings in said upper and lower locking units and whereby said upper locking unit is unlocked from said lower locking unit when a magnetic force is brought into close proximity with said plunger causing said lower portion of said plunger to be removed from within said opening in said lower locking unit.

3,736,780

DEVICE FOR ALTERING LOCK CYLINDER TO RECEIVE A NEW KEY

M. Leonard Singer, 60 Brandon Avenue, Wayne, N.J.

Filed Apr. 28, 1971, Ser. No. 138,207

Int. Cl. E05b 15/08

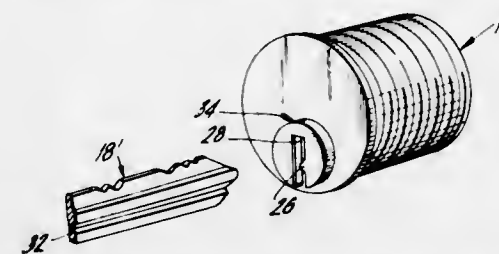
U.S. Cl. 70-453

4 Claims

A device for altering a lock cylinder to receive a new key comprises a plate which is adapted to be secured to the entrance opening of the lock cylinder and which is formed with one or more projections in order to define a new configuration of the key access opening in order to alter the lock so that it

must receive a new key. The entrance plate is formed with a projection which may be selectively located in respect to the

by directly electrically detecting a movement of a thrusting ram received in a hydraulic cylinder for adjusting an amount of stroke of rolls relative to each other.



previous access opening and the key which previously fit into the lock must be altered to define a recess to accommodate the projection in order that it may be received in the lock.

3,736,781

ADJUSTABLE SHACKLE KEY HOLDER

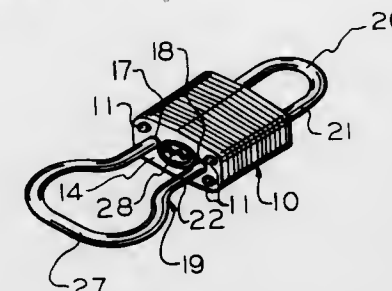
Daniel J. Foote, Wauwatosa, Wis., assignor to Master Lock Company, Milwaukee, Wis.

Filed July 22, 1971, Ser. No. 165,172

Int. Cl. A47g 29/10

U.S. Cl. 70-456 R

4 Claims



The present key holder simulates a padlock and is characterized by a double-ended shackle on which a case is mounted intermediate the ends of the shackle for relative reciprocal movements, with one side leg of the shackle being split. Each end of the shackle projects beyond its respective end of the case. The shackle ends are adjustable relative thereto to expose the leg split for one or the other shackle ends for respective key loading thereof. A certain reciprocal movement of the shackle relative to the case will locate and secure the leg split within the case to confine keys, of several classes if desired, on the shackle ends which were so loaded.

3,736,782

THRUSTING DEVICES FOR ROLLING MILLS

Nobuhiro Fujino, and Toshiyuki Kajiwara, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

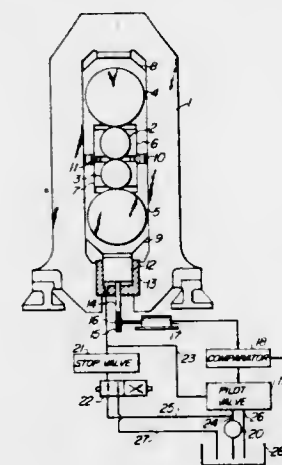
Filed Oct. 20, 1970; Ser. No. 82,277

Claims priority, application Japan, Oct. 22, 1969, 44/83895

Int. Cl. B21b 37/08

U.S. Cl. 72-8

8 Claims



A thrusting device for rolling mills, comprising an electric resetting mechanism in which the position of rolls is fed back

3,736,783

FIXTURE FOR FORMING HEATING ELEMENTS BY HYDRAULIC PRESSURE

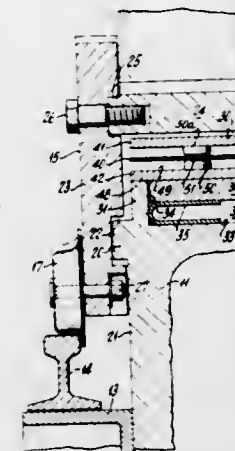
Ernest S. Fabri, Willingboro, N.J., assignor to Rosenblad Corporation, Princeton, N.J.

Filed Jan. 17, 1972, Ser. No. 218,429

Int. Cl. B21d 26/02

U.S. Cl. 72-57

9 Claims



A fixture for forming heating elements of the dimpled plate type includes a flat piston plate carried on an inflatable bag for uniformly supporting an envelope made of metal sheets sealed together around their edges during inflation of the envelope. The envelope is positioned between two studded plates for restraining opposed portions of the sheets against separation as the envelope expands under internal hydraulic pressure. An upper portion of the fixture is mounted on a movable carriage so that the envelope can be placed in the fixture by loading from above.

3,736,784

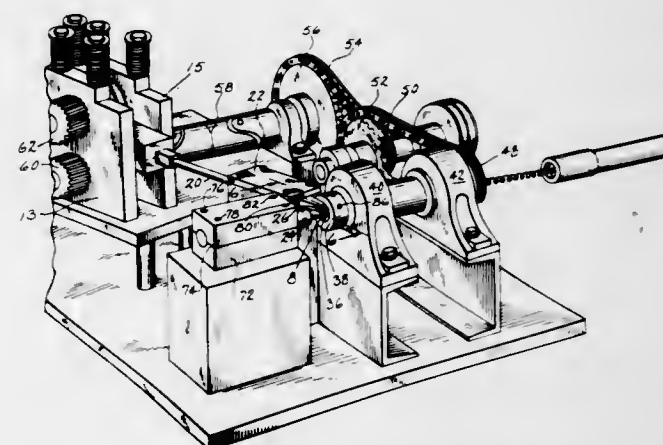
ROLLER DIE COILER WITH FIXED HELICAL MANDREL
Paul J. Felker, Marshfield, Wis., assignor to Penetred Corporation, Marshfield, Wis.

Filed July 1, 1971, Ser. No. 158,700

Int. Cl. B21f 3/04, 9/02

U.S. Cl. 72-145

10 Claims



Coiled wire is formed by forcing linear wire around a helical groove in a fixed mandrel by means of a hollow, rotating die which surrounds a portion of the groove in the fixed mandrel, there being feed mechanism which forces wire into the helical groove. The rotating die and feed mechanism are driven in synchronism with each other from a common rotary power source.

3,736,785

ROLLING MILL

Hans Friedrich Marten, Kreuztal-Kredenbach, Germany, assignor to Siemens-Siemag Maschinenbau, G.m.b.H., Germany

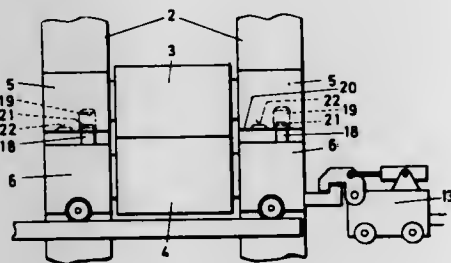
Filed May 7, 1971, Ser. No. 141,310

Claims priority, application Germany, May 8, 1970, P 20 22 385.2

Int. Cl. B21b 31/08

U.S. Cl. 72-238

1 Claim



This disclosure of this invention relates to a roll stand of a rolling mill wherein the working rolls are lowered and raised together with their corresponding chocks, in which on the bottom side of the upper roll or on the upper side of the bottom roll there are mounted spacer pins which in the rolling operation pass into corresponding indentations on the opposite surfaces of the chocks of the other roll, but which during roll changing when the roll sets are lowered or raised engage supporting surfaces of the opposite surfaces of the chocks of the other rolls, subsequent to a relative displacement of both rolls in axial direction, to thereby maintain the rolls at a distance to each other during roll changing.

3,736,786

EXTRUDING APPARATUS AND METHOD

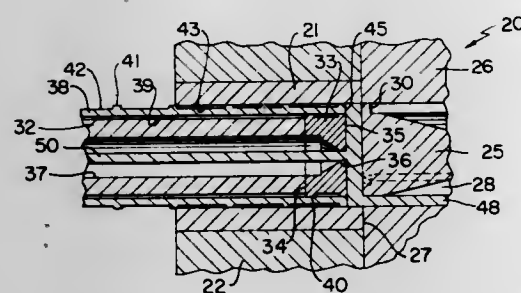
Nicholas A. Wagner, Chester, Va., assignor to Reynolds Metals Company, Richmond, Va.

Filed July 9, 1971, Ser. No. 161,170

Int. Cl. B21c 23/00

U.S. Cl. 72-255

20 Claims



An extruding apparatus having a support for receiving and supporting a metallic billet to be extruded therefrom through a die of the apparatus that is disposed adjacent one end of the billet upon relative movement between the billet and a ram of the apparatus that is operatively associated with the billet. A shearing device is provided for removing the billet skin at the end of the billet that is to be extruded through the die while the billet is supported by the support to produce at least a scalped portion of the billet prior to the extrusion of that scalped portion of the billet through the die upon relative movement between the ram and the billet.

3,736,787

METHOD AND APPARATUS FOR FORMING CONVOLUTED METAL ANNULUS

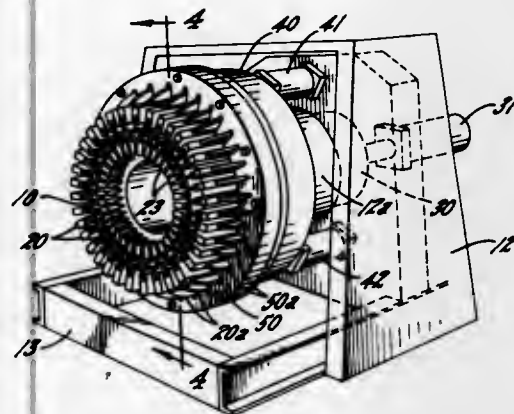
Vernon R. Fencel, Northbrook, and Albert Roze, Chicago, both of Ill., assignors to Grotz Machine Works, Inc., Chicago, Ill.

Filed Feb. 14, 1972, Ser. No. 226,057

Int. Cl. B21d 13/02

U.S. Cl. 72-385

6 Claims



A method and apparatus for forming a radially convoluted annulus from a cylindrical blank of sheet metal. The convoluted annulus may be used in disc brake assemblies, for example. Two circular sets of individually pivoted forming tools initially grip the cylindrical blank on opposite sides thereof, and are then pivoted inwardly to convert the cylinder to an annulus which may be either flat or tapered. At the same time, the two sets of forming tools are advanced relatively toward each other so as to form radial convolutions in the metal blank. The pivotal movement of the two sets of forming tools is controlled by hydraulically actuated cams.

3,736,788

CRIMPING OR SWAGING APPARATUS

Michael William Olive-Jones, Maidenhead, and Douglas Raymond Randall, London, both of England, assignors to BTR Industries Limited, London, England

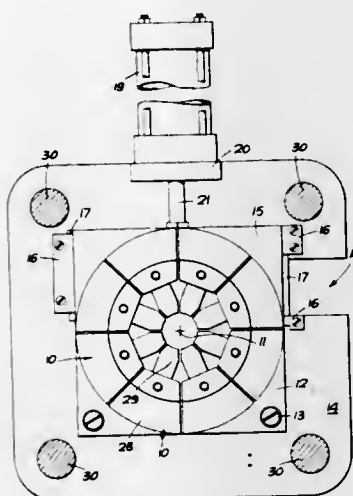
Filed Nov. 12, 1971, Ser. No. 198,392

Claims priority, application Great Britain, Dec. 3, 1970, 57,496/70

Int. Cl. B21d 41/00

U.S. Cl. 72-402

7 Claims



Apparatus for crimping comprising a ring of dies, each die independently mounted on a support for radial sliding movement. The outer surfaces of the dies and the bore of a member are shaped so that relative movement between the member and ring, when the dies are in contact with the bore, causes the dies to move radially inwardly to effect crimping. The dies are wedge-shaped when viewed along the axis of the ring and the

outer surfaces thereof may form a continuous surface when the dies are in the crimping position. The support may be in two parts relatively movable in a plane perpendicular to the ring axis, and means may be provided between adjacent dies to urge the dies apart.

3,736,789

TEST AND CALIBRATING DEVICE FOR INTRA-OCULAR PRESSURE INSTRUMENTS

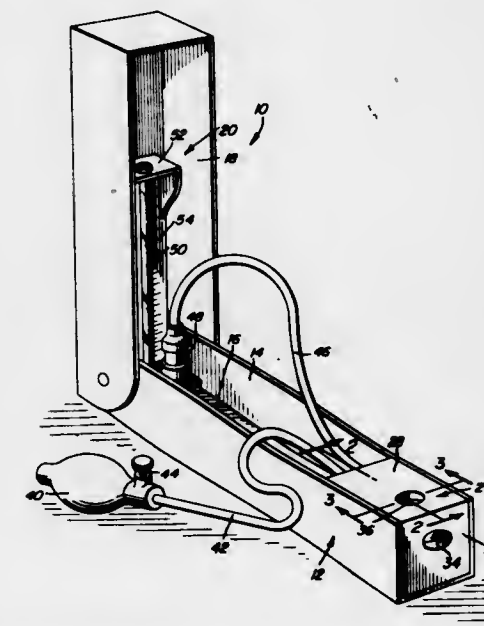
Norman J. Drew, 229 South St., Glens Falls, N.Y.

Filed Aug. 24, 1971, Ser. No. 174,389

Int. Cl. G011 25/00

U.S. Cl. 73-1 B

9 Claims



An eyeball simulating sphere enclosed within a block and exposed through an oval opening in at least one face of the block, is internally pressurized by a squeeze bulb to any desired pressure in order to test or calibrate tonometers or provide a practice model for digital palpation. The sphere is made of a flexible material and connected by tubing to the squeeze bulb and a pressure gauge.

3,736,790

APPARATUS FOR NON-DESTRUCTIVELY TESTING FUEL FILTERS

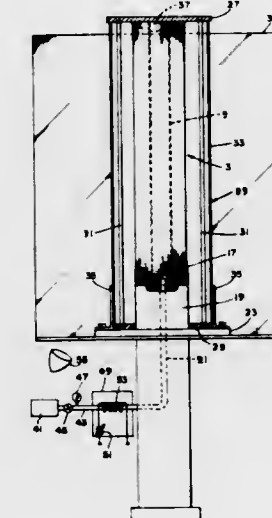
Anthony P. Pontello, 447 Thomson Avenue, Springfield, Pa.

Filed Aug. 26, 1971, Ser. No. 175,238

Int. Cl. G01m 3/38

U.S. Cl. 73-37

8 Claims



Subject invention relates to novel and improved apparatus for non-destructive detection of flaws in aircraft fuel filtering or coalescing elements. The improved apparatus provides for

the conduction of heated pressurized air through the coalescer element to be tested into contact with a plastic film which is positioned about the outer peripheral surface of the coalescer element. The outer surface of the film is coated with a predetermined cholesteric liquid crystal material or a combination of the same. Flaws present in the coalescer element produce uneven conditions of the heated air flow through the coalescer and temperature gradients on the liquid crystal coated film. Resulting color patterns on the coated film identify the location and nature of flaws in the coalescer element.

3,736,791

GYRO AXIS PERTURBATION TECHNIQUE FOR CALIBRATING INERTIAL NAVIGATION SYSTEMS

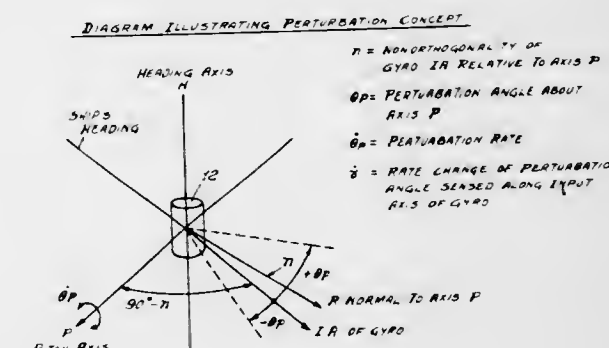
Joseph R. Cantwell, Huntington; Samuel L. Fagin, New York, and Hyman Strell, Jericho, all of N.Y., assignors to The United States of America as represented by the Secretary of the Navy

Filed Aug. 18, 1967, Ser. No. 662,274

Int. Cl. G01c 25/00

U.S. Cl. 73-1 E

9 Claims



A method whereby the misalignment of the east-seeking-gyro input axis of a ship's inertial navigator system (SINS) is measured relative to the pitch axis of its stable platform. The roll axis of the platform is nominally perpendicular to the pitch axis and is constrained to a fixed angle about the heading axis. The east-seeking-gyro input axis is oscillated (perturbed) about the platform pitch axis at a relatively high rate but small amplitude, θ_p . If the input axis is not orthogonal to the pitch axis by an amount n , a rate $\dot{\gamma} = \dot{\theta}_p \sin n$ is sensed along the input axis of the gyro. Processing of this rate through suitable computer circuits provides the amount of non-orthogonality, or misalignment, n .

3,736,792

APPARATUS AND METHOD FOR MONITORING AND RECORDING FUMIGANT CONCENTRATIONS IN CHAMBER FUMIGATION

Stephen D. Poulsen, Kingsburg, Calif., assignor to Sun-Maid Raisin Growers, Kingsburg, Calif.

Filed July 16, 1971, Ser. No. 163,365

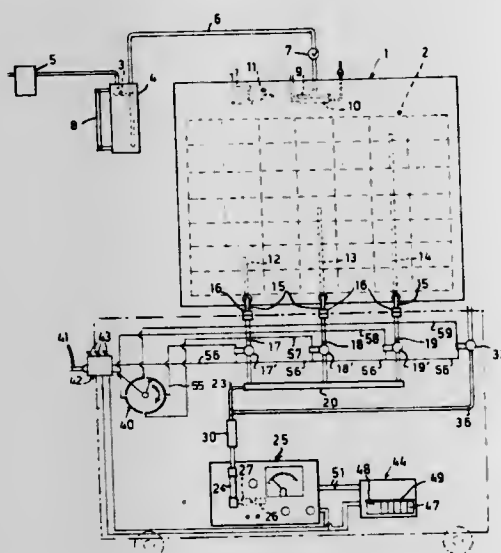
Int. Cl. G01n 31/00, 1/22; A231 1/00

U.S. Cl. 73-27 R

7 Claims

A system of monitoring the concentration of a gaseous fumigant within an enclosed chamber having the product or products to be fumigated, the monitoring being automatic in a predetermined order in different locations within said

chamber in successive cycles for a predetermined period of time in each cycle. The degree of concentration is automatically graphically recorded during each of the successive periods of time within each cycle. The fumigant is withdrawn from said different locations through separate tubes within said chamber releasably connectible outside the chamber for separate couplings with a corresponding number of tubes that in turn connect with a single conduit for delivering the withdrawn air-fumigant mixture to a sensing device for mea-

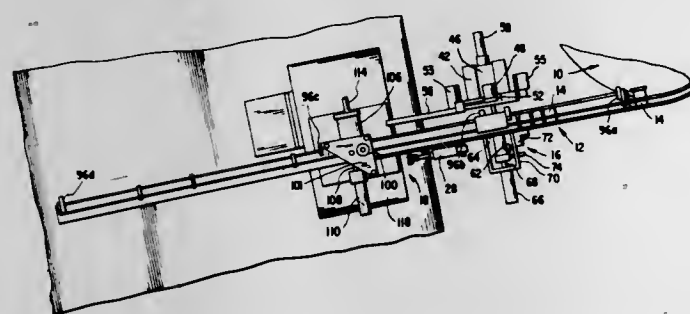


suring the fumigant concentration. The sensing device electrically transmits the degree of concentration to a recorder where it is graphically recorded. Control structure in the tubes between said couplings and said single conduit include valves respectively in said tubes automatically opened in succession for uniform periods of time to admit the air-fumigant mixture to said sensing device, and said structure includes a valve to automatically open said single conduit to air between cycles to clear the conduit for the next cycle.

3,736,793
CARTRIDGE FLASH HOLE INSPECTION APPARATUS
George L. Christensen, Los Angeles, Calif., assignor to Martin Marietta Aluminum Inc., Torrance, Calif.
Filed Sept. 15, 1971, Ser. No. 180,789
Int. Cl. G01n 15/08

U.S. Cl. 73—38

5 Claims

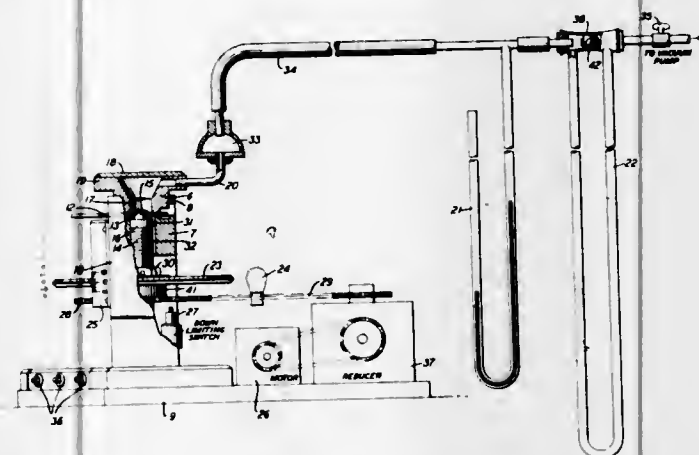


An apparatus for inspecting the number and capacity of vent or flash holes in a cartridge case having an optical tester to count the vent holes and pass a case upon detection of a minimum number of vent holes and an air flow tester for directing a measured flow of air through the vent holes of cartridge cases passed by the optical tester to detect the capacity thereof and pass the cartridge case upon detection of a capacity within predetermined limits.

3,736,794
APPARATUS FOR TESTING DUCTILITY OF SHEETS
Frank J. Biondi, Brooklyn, N.Y., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed Apr. 2, 1946, Ser. No. 265,894
Int. Cl. G01n 3/26

U.S. Cl. 73—102

4 Claims

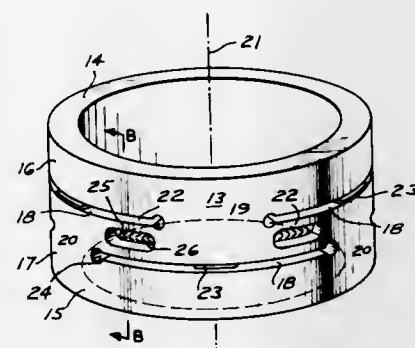


This invention relates to apparatus for testing the ductility of sheet materials such as sheet metal.

3,736,795
TUBULAR TRANSDUCER WITH STRAIN GAUGES AND SENSITIVE TO A FORCE TRANSMITTED TO ITS END SURFACES VIA LOAD SURFACES
John-Erik Andersson, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden
Filed May 20, 1971, Ser. No. 145,409
Claims priority, application Sweden, June 1, 1970, 7552/70
Int. Cl. G01l 1/22

U.S. Cl. 73—141 A

9 Claims



A tubular transducer for measuring compressive forces applied to the end thereof is provided with a plurality of axially and azimuthally displaced slots which make angles with the axis of the transducer to provide intermediate regions in the surface of the transducer that are joined by bridging regions which support strain gauges.

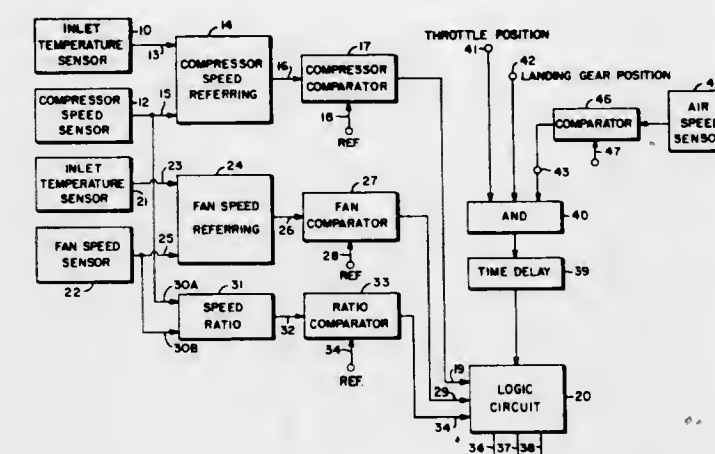
3,736,796
FAN ENGINE THRUST MONITOR
Rudolph Hohenberg, Trumbull, Conn., assignor to Avco Corporation, Stratford, Conn.
Filed Mar. 27, 1972, Ser. No. 238,243
Int. Cl. G01m 15/00

U.S. Cl. 73—178 T

5 Claims

A warning signal is generated if a high bypass ratio fan-type gas turbine engine fails to develop adequate thrust for takeoff of an aircraft. Two engine operating parameters are derived, referred compressor speed and referred fan speed. After a takeoff is initiated, a warning signal is developed under any

one of three conditions: (1) if the referred compressor speed is less than a pre-established reference level; (2) if the referred

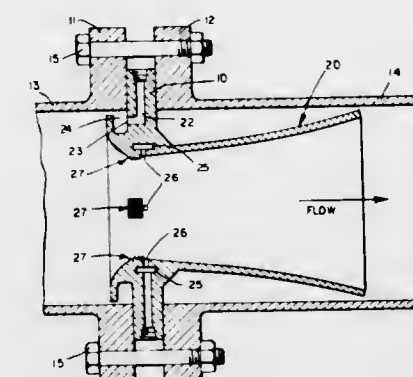


fan speed is less than a pre-established reference level; and (3) if the ratio of compressor speed to fan speed is less than a pre-established reference level.

3,736,797
VENTURI DEVICE
William R. Brown, 341 W. Mt. Vernon St., Lansdale, Pa.
Continuation-in-part of Ser. No. 826,624, May 21, 1969, Pat. No. 3,636,765. This application July 23, 1971, Ser. No. 165,608
Int. Cl. G01f 1/00

U.S. Cl. 73—213

11 Claims



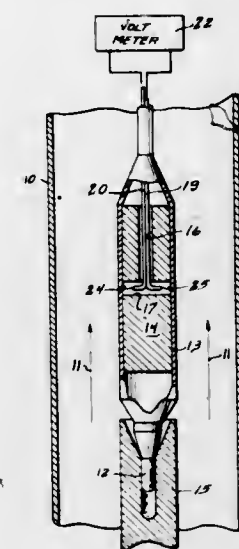
A compact, high differential, low loss, curvilinear Venturi utilizing a convergent section which is modified to provide a means for creating and constantly maintaining turbulent action of the boundary layer in the general locale of the point of greatest constriction, regardless of Reynolds Number, flow patterns and types of media being measured, a geometric throat of no length aspect and a recovery section tangential to or in continuous surface relation thereto.

3,736,798
PERMANENT MAGNET PROBE FLOWMETER
Myrick R. Wood, Richland; Bernard H. Duane, Pasco, and Delbert L. Lessor, Richland, all of Wash., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed June 24, 1971, Ser. No. 174,384
Int. Cl. G01f 1/00; G01p 5/08

U.S. Cl. 73—194 EM

8 Claims

A probe-type flowmeter for measuring the flow of conducting fluids, in particular liquid sodium, is described. The probe

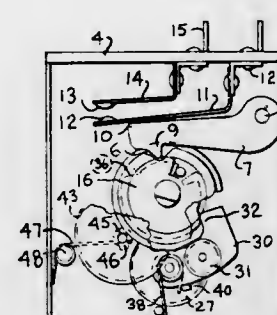


measuring the e.m.f. developed in the conducting fluid. The magnitude of the e.m.f. is a function of the fluid velocity.

3,736,799
DUAL RANGE MANUAL PRESET TIMER
John L. Harris, Delafield, Wis., assignor to Deltrol Corp., Bellwood, Ill.
Filed Oct. 26, 1971, Ser. No. 192,171
Int. Cl. G05g 21/00

U.S. Cl. 74—3.52

2 Claims



A dual range manual preset timer drives through the first part of its timing range at relatively high speed to give short timings of relatively high accuracy. It drives through the second part of its timing range to low speed to give long timings where high accuracy is not required. The low speed timing gears are always in mesh to insure against hang up. The high speed gear engages at the change over point in the timing range and drives from this point to the off position. A one way drive on the low speed timing gears permits the faster rotation by the high speed gears.

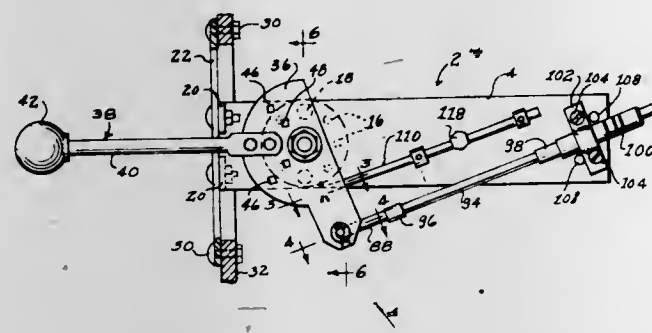
3,736,800
CONTROL UNIT
Ted W. Gregory, Mundelein, Ill., assignor to Arens Controls, Inc., Evanston, Ill.
Filed Feb. 12, 1971, Ser. No. 114,815
Int. Cl. 74 526; G05g 1/00

U.S. Cl. 74—491

9 Claims

A lever operated control unit includes two brackets of metal stampings which are adjustably connected together. A lever crank, which is also a metal stamping, is rotatable on a pivot bolt secured to the brackets, and a lever is adjustably mounted

on the lever crank. The lever crank is adapted to operate a control member such as a push-pull cable. A rod is pivoted to

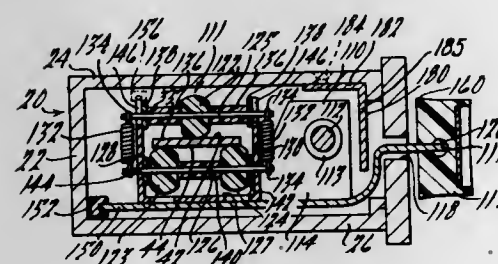
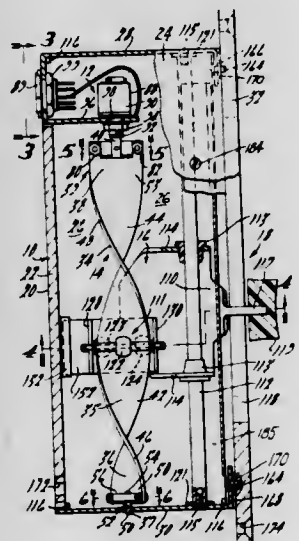


the lever crank and has stop collars that cooperate with a pivot fitting on one of the brackets to limit the travel of the cable.

3,736,801
SLIDE ANTENNUATOR
Robert A. Bloom, Lathrup Village; Charles R. Sturtz, Romulus, and Timothy P. McGrath, Detroit, all of Mich., assignors to Audio Designs and Manufacturing, Inc., Roseville, Mich.
Filed Sept. 22, 1971, Ser. No. 182,660
Int. Cl. F16h 27/02

U.S. Cl. 74-89

10 Claims

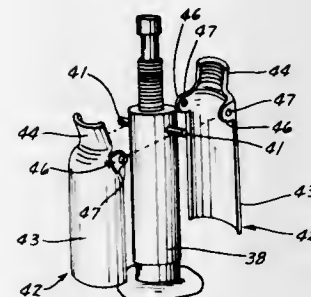
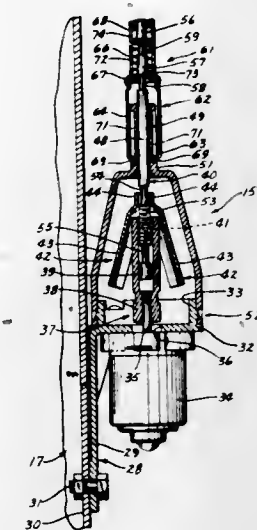


Apparatus for effecting a smooth, quiet, and reversible operation without backlash of the rotatable control member of an electrical device which member is rotatable to vary the electrical output characteristic of such device. A substantially rigid rotatable cam of the form of a helically twisted ribbon presenting opposed surface portions extending helically lengthwise of the axis of rotation of the cam, a resilient coupling between the cam and control member, cam drive means comprising a roller carriage slideable with low friction along a linear path determined by a fixed slide rod and roller means carried by the carriage spring biased into resilient contact with said opposed surface portions of the cam.

3,736,802
APPARATUS FOR OBTAINING A CONTROLLED RECTILINEAR MOVEMENT OF A ROTATABLY DRIVEN ACTUATOR MEMBER
Willis L. Kibler, Detroit, Mich., assignor to McCord Corporation, Detroit, Mich.
Continuation of Ser. No. 887,168, Dec. 22, 1969, abandoned.
This application Apr. 20, 1971, Ser. No. 113,222
Int. Cl. F16h 27/02

U.S. Cl. 74-89.15

10 Claims

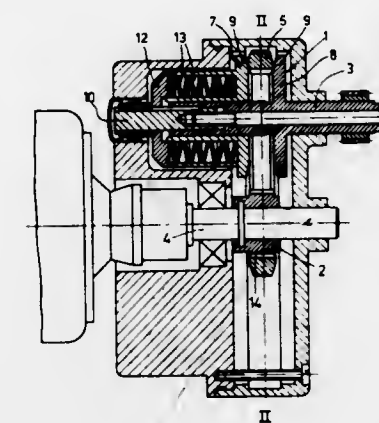


The actuator member of the apparatus is supported for axial movement relative to a reversible rotatable drive member and is locked against rotational movement relative to the drive member. A centrifugally actuated clutch unit on the drive member has separable half nut sections, which when the drive member is rotated, are movable together to form a split nut for engaging a screw section on the actuator member. On axial movement of the actuator member in either direction the split nut overruns the screw section, but is yieldably held in an abutting relation with the screw section for threaded engagement therewith on a reversed rotation of the drive member. When the drive member is stationary and the split nut disengaged from the screw section, the actuator member is yieldably supported for manual movement axially of the drive member through a predetermined distance to maintain at least one end of the screw section in a position to engage the split nut on rotation of the drive member.

3,736,803
VARIABLE SPEED TRANSMISSION MECHANISM
Alexandre Horowitz, Eindhoven; Bernard Joseph Beusink, Orie, and Martinus Hubertus Cuypers, Eindhoven, all of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Mar. 25, 1971, Ser. No. 128,045
Claims priority, application Netherlands, Mar. 26, 1970, 7004605
Int. Cl. F16h 15/42, 37/00, 37/06
U.S. Cl. 74-192
A variable-speed transmission for use between two substan-

8 Claims

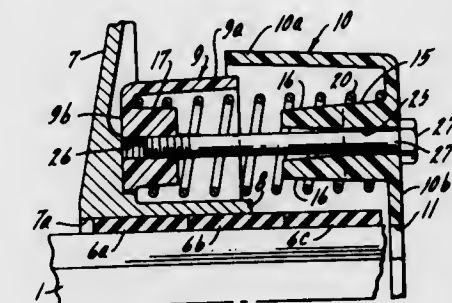
tially parallel shafts for permitting continuous drive engagement during continuous speed-variation, and during power-



variation of one shaft and corresponding change in operation of the other shaft.

3,736,804
PULLEY ASSEMBLY
Raymond W. Giegerich, South Haven, Mich., assignor to Lovejoy, Inc., River Forest, Ill.
Filed Mar. 26, 1971, Ser. No. 128,245
Int. Cl. F16h 9/18
U.S. Cl. 74-230.17 C

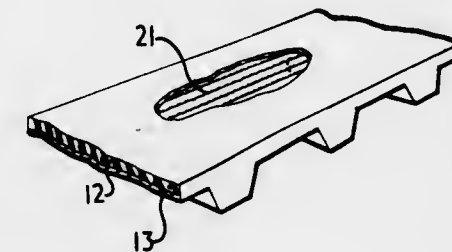
6 Claims



A variable speed pulley having a fixed and a movable disk, the movable disk being urged by a cartridge assembly of spring covers urged apart by a plurality of spaced springs and means for drawing said covers together.

3,736,805
TOOTHED BELTS
Michael Dent, Healdgreen, England, assignor to Dunlop Holdings Limited, London, England
Filed Apr. 27, 1971, Ser. No. 137,889
Claims priority, application Great Britain, May 2, 1970, 21,194/70
Int. Cl. F16g 1/22, 1/28
U.S. Cl. 74-237
A toothed belt comprising a continuous strip of elastomeric material having embedded therein at least one wire reinforcing cord comprising at least one bunch of fine gauge metal filaments, of which the following is a specification.

20 Claims



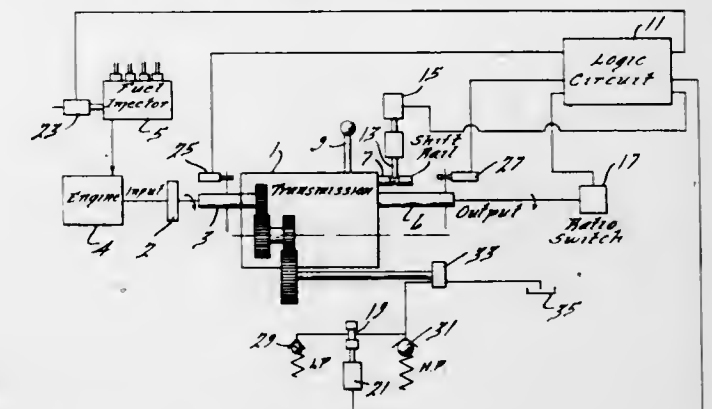
A toothed belt comprising a continuous strip of elastomeric material having embedded therein at least one wire reinforcing cord comprising at least one bunch of fine gauge metal filaments, of which the following is a specification.

911 O.G.—3

3,736,806
MOTOR VEHICLE TRANSMISSION
Eric John Banks, Thorpe Bay, England, assignor to Ford Motor Company, Dearborn, Mich.
Filed Aug. 30, 1971, Ser. No. 176,084
Int. Cl. F16h 5/46

U.S. Cl. 74-336

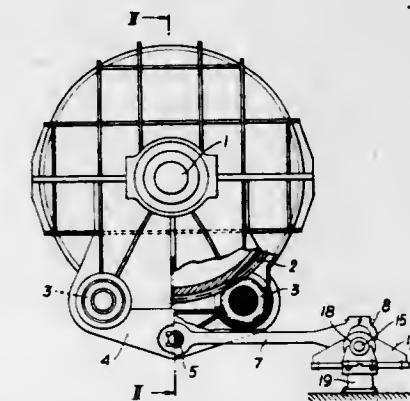
7 Claims



A multiple ratio power transmission for trucks having synchronized ratio changes comprising a driver-operated gear shift linkage mechanism for shifting torque delivery clutch elements into and out of engagement, separate speed sensors for determining the speed of the torque input member and the speed of the torque output member for the transmission mechanism and an electronic logic circuit sensitive to the output signals of each speed sensor for conditioning the transmission mechanism for ratio changes when the speeds of the torque delivery elements are in synchronism and for controlling the relative speeds of the torque input member and the torque output member to effect synchronism during ratio changes.

3,736,807
TILTING DRIVE FOR CONVERTERS
Gunter Reitter, Linz, and Ernst Riegler, Enns, both of Austria, assignors to Vereinigte Österreichische Eisen- und Stahlwerke Aktiengesellschaft, Linz
Filed Mar. 26, 1971, Ser. No. 128,414
Claims priority, application Austria, June 10, 1970, A 5208/70
Int. Cl. F16h 57/00
U.S. Cl. 74-410

8 Claims

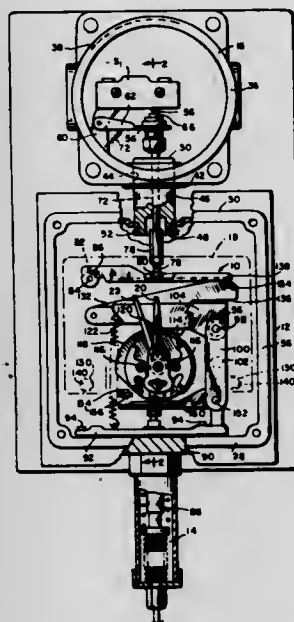


The invention relates to a tilting drive for converters comprising a gear wheel fixed to a converter tilting trunnion and a pinion carrier suspended on said tilting trunnion to swing in pendulum fashion and supporting at least one driving pinion, said pinion carrier being resiliently supported in relation to a foundation by a torque support comprising a linkage rod, a lever producing a torsional moment and a torsional rod, wherein the improvement resides in at least one of the following features, i.e.

a. that for fixing said torsional rod a bearing block is provided which is axially displaceable relative to the torsional rod so that the effective length of the torsional rod may be changed; and

b. that the effective lever length of the lever producing the torsional moment is adjustable. This torque support is provided with great elasticity towards shocks. It is possible to change the spring constant and/or the spring damping so that the torque moment may correctly and optimally be adjusted to the operational conditions. The wobble movements of the converter do not cause changes of the spring resistance of the torque support.

3,736,808
CONTROL INSTRUMENT
Robert D. Reis, Hingham, Mass., assignor to United Electric Controls Company, Watertown, Mass.
Filed Jan. 24, 1972, Ser. No. 220,224
Int. Cl. G05g 1/00
U.S. Cl. 74-469

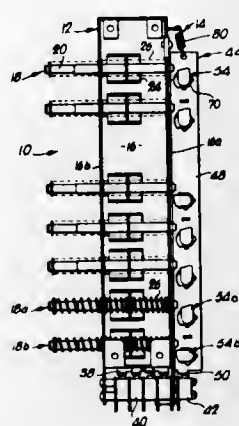


In a control instrument, a switch embodying an actuating element, an arm arranged to effect actuation of the actuating element, said arm having an arcuate portion against which the actuating element is held, a support mounting the arm for movement about a pivot axis located at the center of curvature of said arcuate portion and for movement relative to said pivot axis, a transmitter supported with an end adjacent the arm, said transmitter being operable to move the arm relative to said pivot axis to effect actuation of said actuating element, and a cam operably associated with the arm adapted to effect movement of the arm about said pivot axis relative to said transmitter to select the conditions for which the transmitter will become operative to effect actuation of said actuator element.

3,736,809
SELECTABLE PRICE-VOLUME DISPENSING APPARATUS
Kenneth G. Crabaugh, and Arthur R. Templeman, both of Kansas City, Mo., assignors to The Vendo Company, Kansas City, Mo.
Filed Mar. 23, 1972, Ser. No. 237,457
Int. Cl. G05g 1/100

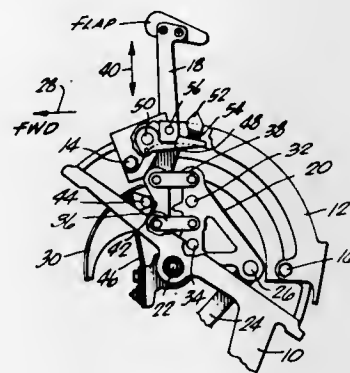
U.S. Cl. 74-483 PB
An auxiliary selection control assembly may be preset to modify the operation of the main selection control assembly of a vending or dispensing machine, such modification causing, for example, an extra amount of beverage to be dispensed

over and above that provided by the same selection when the latter is in an unmodified condition. Each selection may be set



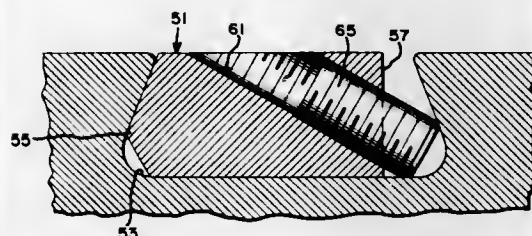
11 Claims for a modified or a normal dispensing operation independently of all other selections such that individual price and volume combinations may be established.

3,736,810
SLAT RETRACT GATE
Carlos P. Fernandez, Westminster, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.
Filed July 6, 1971, Ser. No. 159,722
Int. Cl. G05g 5/02
U.S. Cl. 74-491



A gate mechanism utilized in conjunction with various cams, followers and linkages to prevent inadvertent retraction of aircraft wing slats during flap retraction. A downward movement of the control lever is required before rotationally retracting the lever to the end of the quadrant for retracting both slats and flaps. Gate closure prevents the lever returning the same way to the slat extension position.

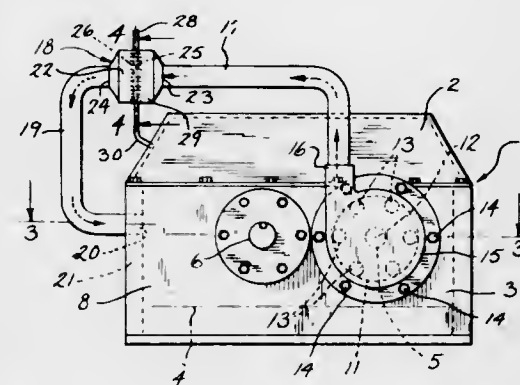
3,736,811
BALANCE WEIGHT ATTACHMENT FOR TURBINE WHEELS
Richard A. Neary, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed Aug. 19, 1971, Ser. No. 173,101
Int. Cl. F16f 15/32
U.S. Cl. 74-573



A balance weight attachment for use in the balance groove of a turbine wheel wherein the necessity of an access slot for

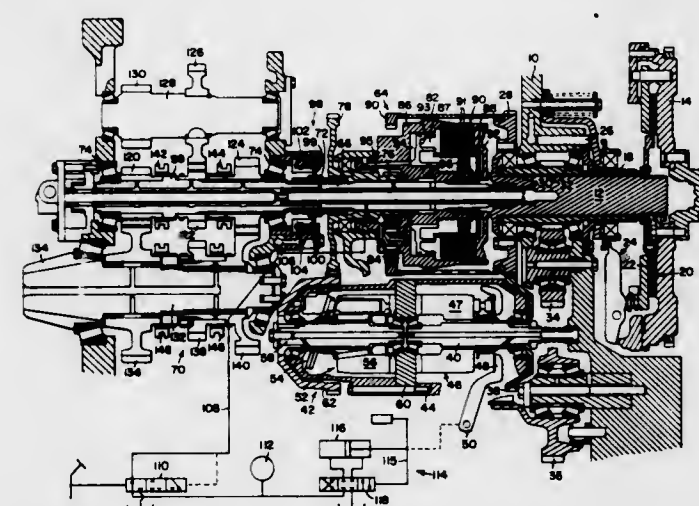
inserting the balance weight attachment is obviated. The balance weight attachment is formed so that it may be inserted anywhere along the balance groove and then locked in place by a screw adjustment which loads against the side of the groove.

3,736,812
SPEED REDUCER RECIRCULATING COOLING SYSTEM
Edward J. Wellauer, Wauwatosa, Wis., assignor to The Falk Corporation, Milwaukee, Wis.
Filed June 28, 1971, Ser. No. 157,205
Int. Cl. F16n 39/02
U.S. Cl. 74-606 A



A closed recirculating air cooling system for a speed reducer having a plurality of gears disposed in a housing which comprises a driven fan for withdrawing warm air from inside the housing, a cooling network for receiving and cooling the warm air, and duct means for conducting cooled air back into the housing. Provision may also be included for collecting oil entrapped in the air and returning it into the speed reducer housing.

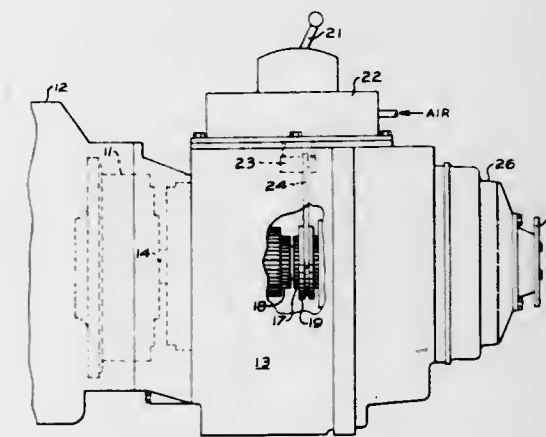
3,736,813
COMBINED HYDROSTATIC AND MECHANICAL TRANSMISSION
James Henry Kress, Cedar Falls; Richard Arlo Michael, Waterloo, and Lyle Robert Madson, Cedar Falls, all of Iowa, assignors to Deere & Company, Moline, Ill.
Filed Dec. 27, 1971, Ser. No. 211,968
Int. Cl. F16h 5/36, 47/04
U.S. Cl. 74-740



A hydro-mechanical vehicle transmission has a constant speed engine-driven input shaft, which drives a variable displacement reversible hydraulic pump, which, in turn, drives a fixed displacement hydraulic motor at infinitely variable speeds between zero and a predetermined speed in either direction. The hydraulic motor drives the sun gear of the planetary gear train, while the input shaft drives the ring gear of the gear train, the carrier serving as the output of the gear

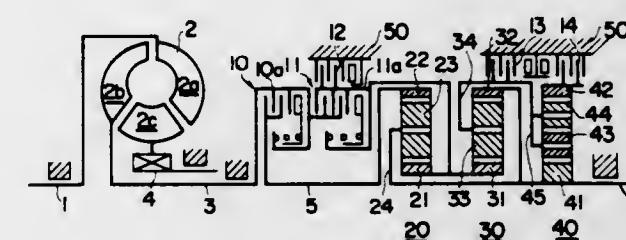
train and being connected to an output shaft by means of a main transmission clutch. The output shaft provides the input to a four-speed forward, one-speed reverse collar shift transmission, which provides different speed ranges with infinitely variable speed characteristics within a limited range, the gear ratios being selected so that the ranges overlap to give infinitely variable output speeds over a relatively wide range.

3,736,814
TRANSMISSION INPUT CLUTCH
Charles H. Herr, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Jan. 14, 1972, Ser. No. 217,784
Int. Cl. F16h 5/36, 3/38, 57/10
U.S. Cl. 74-740



Clutch mechanism for coupling an engine to a transmission of the form in which ratio gears are decoupled from both the driving and driven shafts and braked to a stop to facilitate shifting has epicyclic gear means for imparting a predetermined slow rotation to the ratio gears just prior to full recoupling of the ratio gears to the driving engine and driven load. This assures that all necessary gear engagements are accomplished smoothly and without damage prior to the re-application of full torque load to the transmission.

3,736,815
POWER TRANSMISSION MECHANISM
Shin Ito, and Seitoku Kubo, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan
Filed Jan. 20, 1972, Ser. No. 219,266
Claims priority, application Japan, Feb. 15, 1971, 46/6183
Int. Cl. F16h 3/44, 57/10
U.S. Cl. 74-759



A four-forward-speed transmission comprising an intermediate shaft, two sets of single pinion planetary gears, and a double pinion planetary gear, with all of said components being concentrically arranged between an input shaft and an

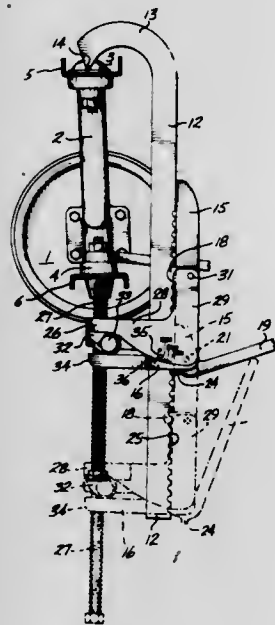
output shaft. A first clutch is adapted to apply an input to the intermediate shaft, and a second clutch is adapted to apply an input to both sun gears of the two sets of single pinion planetary gears which are integrally connected. A first brake is adapted to restrict the rotation of both the sun gears of the two sets of single pinion planetary gears, and a second brake is adapted to simultaneously restrict the rotation of a carrier of the second single pinion planetary gear of said two sets of single pinion planetary gears as well as the rotation of a carrier of the double pinion planetary gear. A third brake is adapted to restrict the rotation of a ring gear of the double pinion planetary gear. The first clutch is always in operation when a vehicle is moving forward, and therefore first speed is obtained by operation of the first brake, the fourth speed by the operation of the second clutch, and reverse speed by operation of the second clutch and the third brake.

3,736,816
AUTOMOTIVE WHEEL SUSPENSION BALL JOINT TONGS

Lloyd O. McAfee, 9036 S. W. 37th, Seattle, Wash.
Filed Feb. 24, 1971, Ser. No. 118,397
Int. Cl. B25b 5/06, 1/06

U.S. Cl. 81—3 R

10 Claims



The upper end of a wheel mount spanning bar has a pointed hook engageable with the upper control arm of a wheel suspension adjacent to the upper ball joint. A slide which can be latched in various positions along the spanning bar carries a pivoted angle having a threaded aperture in its swinging end to receive a screw having a pointed end engageable with the lower control arm of the wheel suspension adjacent to the lower ball joint. Pivoted cam lugs bearing on the slide can swing the angle relative to the slide for moving the screw toward the spanning bar hook to relieve the load from the ball joints and check their backlash. The degree of angle to slide movement is indicated by a scale.

3,736,817
BOTTLE OPENER
Otto Huff, Feuerbachstrasse 19, Bochum, Germany
Filed Aug. 4, 1971, Ser. No. 168,837

Claims priority, application Germany, Apr. 21, 1971, P 21 19 359.9

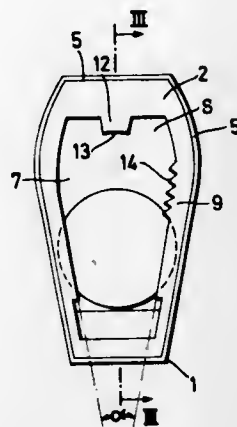
Int. Cl. B67b 7/44

U.S. Cl. 81—3.1 C

20 Claims

A combined bottle opener and reclosure device for crown cap and twist-open type bottle closures is composed of a flat, normally open box-like structure rectangular in cross-section

and provided with a cover plate across the open side which has an opening therein. The circumferential edge of the opening is provided with a plurality of cap-engaging projections and a



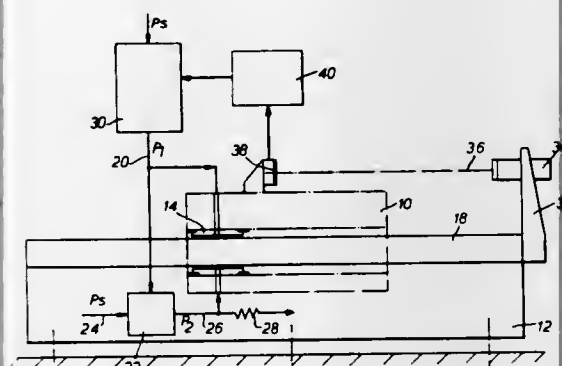
compressible resilient seal pad is retained in the box-like structure below said opening at one end thereof adapted for reclosure of a previously opened bottle.

3,736,818
HYDROSTATIC BEARINGS
Brian Ennis, Yorkshire, Halifax, England, assignor to William Asquith Limited, Halifax, England
Filed Feb. 16, 1971, Ser. No. 115,421
Claims priority, application Great Britain, July 10, 1970, 33,657/70

U.S. Cl. 82—1 R

Int. Cl. B23b 3/00, 19/02

7 Claims



A machine tool has a movable member supported by hydrostatic bearings and the bearing arrangement is controlled by a detector system referenced with a datum element which is independent of the part of the machine tool on which the movable member is supported. The datum element may be a laser beam.

3,736,819
PARTING-OFF BOX FOR AUTOMATIC SCREW MACHINES
John D. Gibbon, 11922 Pavillion Street, Pierrefonds, and Stanley McCarthy, 3499A 42nd Avenue, St. Michel, Quebec, both of Canada
Filed May 12, 1971, Ser. No. 142,536
Claims priority, application Great Britain, May 14, 1970, 23,410/70

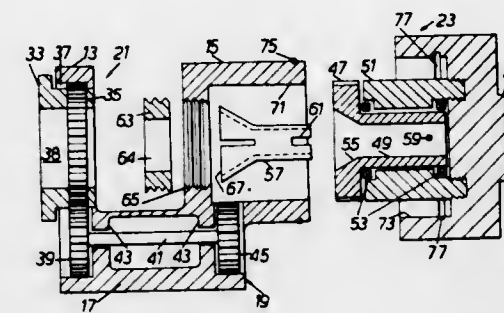
U.S. Cl. 82—2.5

Int. Cl. B23b 15/00

4 Claims

The invention is particularly directed toward providing a device which can be used with a single-spindle, turret type, au-

tomatic screw machine to support the free end of the rotating article while the parting-off cut is being made. The device sup-

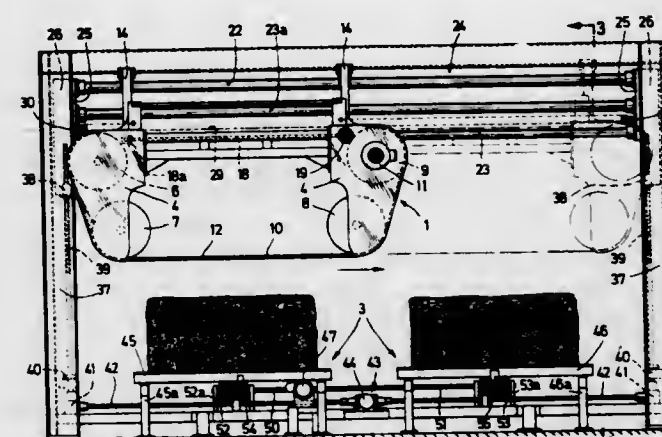


ports and rotates the article at the same speed as the machine for the entire parting-off cut so that the article will not separate from the rod when the cut is nearly completed.

3,736,820
SLICING MACHINE FOR EXPANDED PLASTICS AND SIMILAR MATERIALS
Rolf Jung, 705 Fellbach, Germany, assignor to Krauss u. Reichert Spezialmaschinenfabrik, Fellbach/Wurtemberg, Germany
Filed Dec. 22, 1971, Ser. No. 210,822
Int. Cl. B26d 3/28

U.S. Cl. 83—4

11 Claims



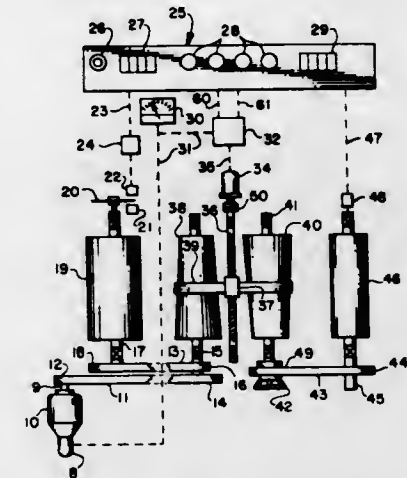
A machine for slicing blocks of material into uniform layers, or sheets, utilizes two oppositely reciprocating parallel tables to supply two blocks of material, and a slicing blade mounted so that it can be alternately applied to each of the two blocks when moving in one of the two reciprocating directions, whereby a layer will be sliced from one or the other of the blocks during each traverse of the two tables.

3,736,821
ELECTRONICALLY ADJUSTED VARIABLE RATIO DRIVE
David Noel Obenshain, Swanton, Md., assignor to Westvaco Corporation, New York, N.Y.
Filed June 10, 1971, Ser. No. 151,724
Int. Cl. B26d 5/24

U.S. Cl. 83—76

5 Claims

A widely adjustable ratio drive mechanism capable of infinite variation in ratio utilizing timing belts and timing gears is

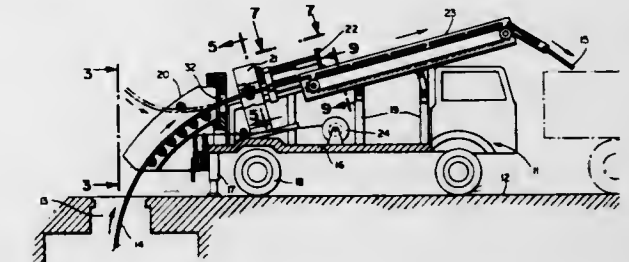


drive either on demand or automatically, depending upon the mode of operation of the electronic sensing means.

3,736,822
MOBILE APPARATUS FOR SALVAGING UNDERGROUND AND OVERHEAD CABLE
Arthur K. McVaugh, Box 42, Vernfield, Pa.
Filed June 14, 1971, Ser. No. 152,697
Int. Cl. B26d 1/08

U.S. Cl. 83—155

5 Claims

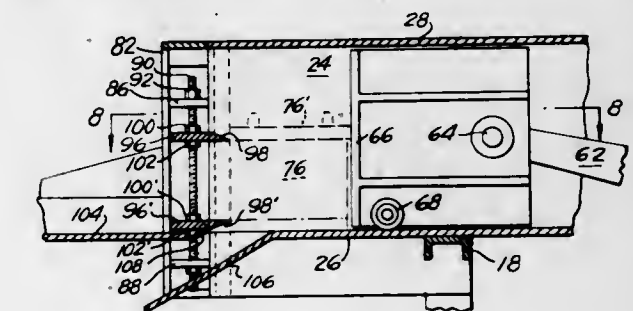


An apparatus and method is provided for salvaging underground and overhead electrical cable. The apparatus of this invention includes a mobile platform such as a truck on which there is mounted an adjustable cable guide which guides the cable to a cable puller which draws the cable from either an underground conduit or from overhead installation. The cable is then fed to a cable cutter which is synchronized with the rate of feed of the cable so as to cut the cable into predetermined lengths. The cut lengths of the cable are then fed to a truck or the like and hauled away to a smelter for recovery of the metal.

3,736,823
STORAGE BATTERY CASING SLICER
Henry Albert Dingler, P.O. Box 143, Cedartown, Ga.
Filed May 14, 1971, Ser. No. 143,475
Int. Cl. B26d 1/02, 7/26

U.S. Cl. 83—165

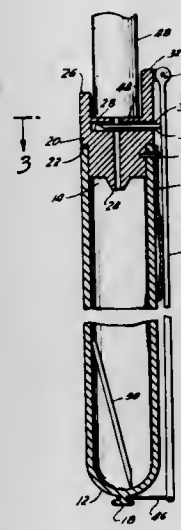
5 Claims



A storage battery casing slicer has a reciprocable ram movable on a table. A battery is placed on the table to be thrust for-

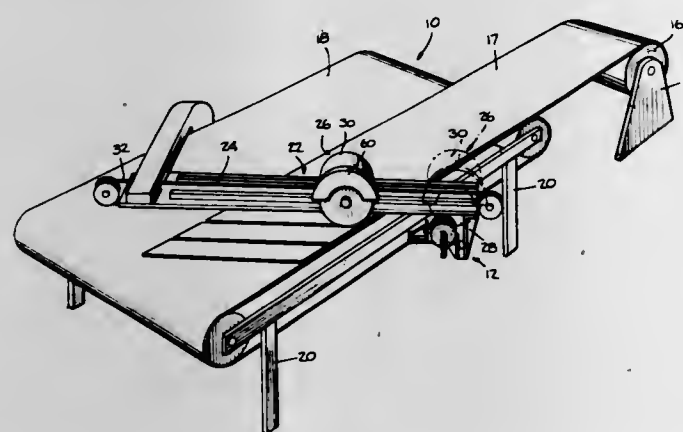
ward by the ram. At least one fixed knife is placed transverse the path of the battery and shears away at least one (preferably the top) wall of the battery casing on forward movement of the plunger.

3,736,824
HYPODERMIC NEEDLE DESTRUCTION DEVICE
Ward G. Dunnigan, Clifton, and Carol S. Sutryn, Allendale, both of N.J., assignors to Becton, Dickinson & Company, East Rutherford, N.J.
Filed July 12, 1971, Ser. No. 161,717
Int. Cl. B26d 5/10
U.S. Cl. 83—167



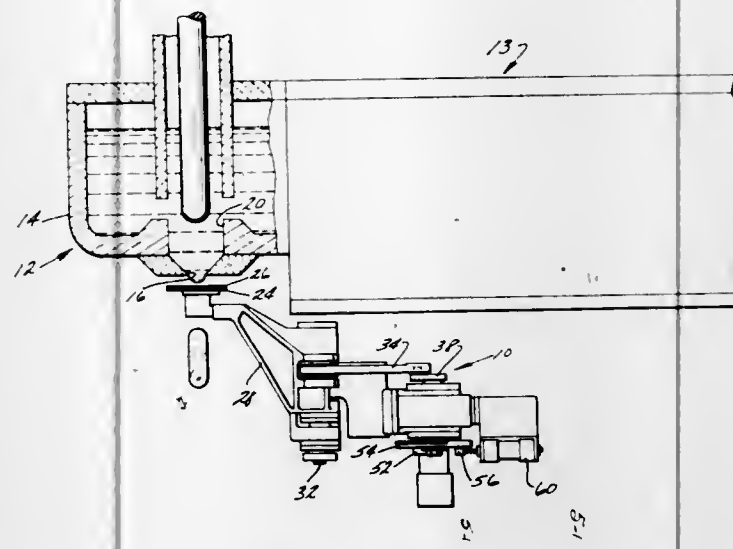
An elongated enclosed receptacle has an orifice formed in a first end thereof for receiving a cannula of a hypodermic syringe. A lever is pivotally mounted to the receptacle and has a blade mounted thereto that moves laterally across the orifice when the lever is rotated about its pivotal connection. A spring member urges the lever to a first position in which the blade does not overlay the orifice. A member is provided on a second end of the receptacle for receiving a loop which is attached to the lever so that the lever may be held against the force of the spring member in a second position in which the blade overlays the orifice and closes the receptacle.

3,736,825
CUTTING MACHINE BLADE SHARPENER
Gerald P. Covell, Taylor, Mich., assignor to Uniroyal, Inc., New York, N.Y.
Filed July 6, 1971, Ser. No. 159,678
Int. Cl. B26d 7/12
U.S. Cl. 83—174



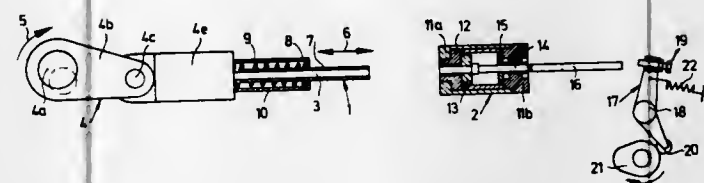
A sharpener operatively associated with a cutting machine for intermittently honing the blade of the cutter assembly thereof.

3,736,826
APPARATUS FOR SHEARING UNIFORM CHARGES OF GLASS FROM A MOLTEN STREAM OF GLASS
William R. Ward, Jr., Columbus, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Dec. 28, 1971, Ser. No. 213,123
Int. Cl. B26d 5/08
U.S. Cl. 83—600



A shearing apparatus for sequentially severing gobs of glass from the end of a vertically descending molten stream of glass at precisely controlled uniform intervals. A pair of arms having cooperating shear blades on their outer ends are pivotally mounted on a common shaft for swinging the blades into and out of contact with each other through arcuate paths of less than 180° in adjacent parallel planes. The blade arms are synchronously driven by connecting rods rotatably attached to eccentrics which are affixed to meshing spur gears powered by a rotary hydraulic motor drivingly connected to one of the gears. An abutment affixed to a rotatable member of the drive train cooperates with a releasable stop which is controlled by a timing means to start and stop the drive train once for each revolution of the abutment. A cam operated deceleration valve retards the motor speed during the latter portion of each cutting cycle.

3,736,827
DEVICE FOR MANUFACTURING A PAIR OF ANNULAR MEMBERS FROM A PREFORMED BLANK
Bruno Hof, Munchenstein, Switzerland, assignor to F.B. Hatebur AG, Basle, Switzerland
Filed Dec. 30, 1971, Ser. No. 214,175
Claims priority, application Germany, Dec. 30, 1970, P 20 64 440.0
Int. Cl. B26f 1/14
U.S. Cl. 83—126



This invention relates to a device for manufacturing two annular members capable of fitting one within the other, from a preformed blank in the form of a cup-shaped inner part integral with and axially displaced relative to an outer annular

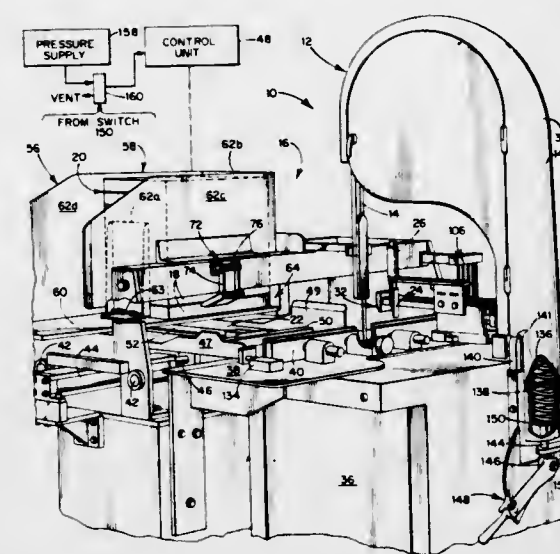
part. The apparatus includes two co-operating die and punch members for respectively separating the two annular parts and for perforating the inner cup-shaped part. Further, a fluid actuated arrangement is provided for controlling movement of the die members during operation of the apparatus.

3,736,828
A BIMETALLIC HIGH-SPEED CUTTING BLADE
Toshiei Funakubo, Odawara-shi, Kanagawa-ken, Japan, assignor to Kabushiki-Kaisha Eishin, Tokyo, Japan
Filed Jan. 15, 1971, Ser. No. 106,681
Claims priority, application Japan, Dec. 5, 1970, 45/107780
Int. Cl. B26d 1/46
U.S. Cl. 83—661



A bimetallic high-speed cutting blade having a series of teeth provided to one of longitudinal edges thereof with a desired space therebetween, the body of each teeth being provided at its forward top end a cut-out portion on which a tip of super-hard materials molded before finally being sintered into a shape substantially equal to a desired final configuration which can act as cutting edge having sharp square corners is welded to brazed so that the machining work of said tip to said desired final configuration after it has been welded or brazed to the tooth body shall be minimized, and the super-hard materials constituting said tip being selected from those having such hardness and flexural strength which shall not be affected by the heat to be applied thereto when the tip is welded or brazed firmly onto the tooth body.

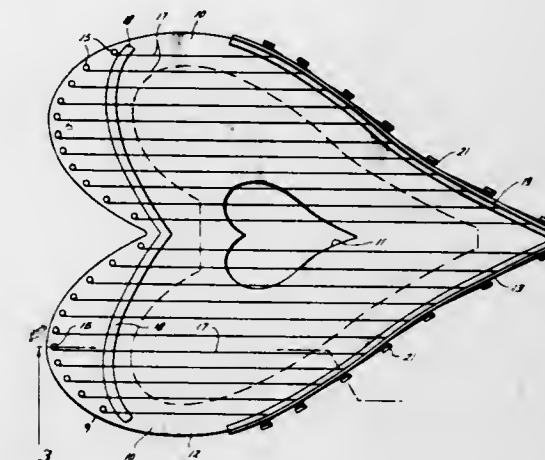
3,736,829
SLICER HAVING AUTOMATIC MATERIALS FEED
Mario J. Pedl, 16 Wickham Road, Winchester, Mass.
Filed Sept. 10, 1971, Ser. No. 179,464
Int. Cl. B26d 1/00
U.S. Cl. 83—788



Apparatus for feeding pieces of material to a cutting tool which sequentially cuts slices from each piece of the material stores block-like pieces of the material in a stack from which a single piece is discharged to be sliced, displaces the uncut portion of a piece to the side away from the cutting tool after

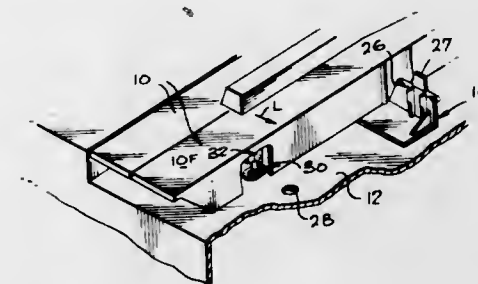
completion of each slicing advance thereby to retract the uncut portion past the tool without interference, engages the residual portion of the piece which is too thin to be again sliced to control its removal from the machine, and separates the residual piece from the last slice cut from it without damage to the slice.

3,736,830
STRINGED MUSICAL INSTRUMENT
Adele Korry Ledford, 3211 Castlewood, Houston, Tex.
Filed Jan. 31, 1972, Ser. No. 221,892
Int. Cl. G10d 1/12
U.S. Cl. 84—285



A heart shaped stringed musical instrument comprises one hollow sound box having two sound boards with one heart shaped sound hole in the center of the top sound board with a fixed sidewall connecting the top and bottom sound boards, with sidewall also furnishing the drilled holes to house the dual set of rotatable tuning pegs, a flat narrow V shaped extension bridge with a dual set of string holes on the upper edge of both sides, said bridge mounted to the pointed edge and lower sides of the sound board, a wing shaped dual scale bar mounted on the upper surface of sound board to support a dual set of musical strings stretching parallel over the sound board whereby a complete scale of individual musical tones may be produced from either side of the sound board without the use of frets with strings being divided in the center and arranged in a reversible sequence so that instrument may be played with equal dexterity in reversible position, a V shaped bridge on top of the lower boundary to give elevation and support to the lower ends of the strings, and a desirable number of tension pegs situated between the string holes on both of the lower sides of V shaped bridge.

3,736,831
KEY MOUNT FOR ORGAN
Richard L. May, Manhattan Beach, and Alwyn Flicker, Carson, both of Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Feb. 7, 1972, Ser. No. 224,099
Int. Cl. G10c 3/12
U.S. Cl. 84—434



A simplified arrangement for mounting the keys of an organ keyboard, to provide silent stops that limit the downward and

upward movement of the keys and that help to fix the lateral positions of the keys along the keyboard. The system includes a row of rubber grommets mounted in holes formed in the keyboard plate below each key, and limit members mounted on each key and extending downwardly through a grommet. Each limit member has a guide portion that can slide up and down through the hole of the grommet, an upper stop portion that hits the upper surface of the grommet when the key is depressed to a maximum extent, and a lower stop portion that hits the grommet when the key is released to spring up to its uppermost position. The rearward, or fulcrum regions of the keys are pivotally mounted on a bar which has tabs extending into the keys to also fix the locations of the fulcrum regions of the keys.

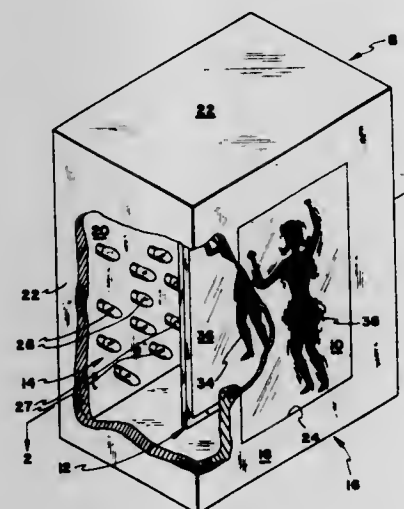
3,736,832 LIGHT DISPLAY

Harold P. Franke, 839 W. Third North, Salt Lake City, Utah, and Raymond M. Franke, 1624 Calif. Avenue, Salt Lake City, Utah

Filed Jan. 26, 1970, Ser. No. 5,458
Int. Cl. A63J 17/00; G09F 13/34

U.S. Cl. 84-464

5 Claims



A light display apparatus comprising a plurality of light sources controlled by circuitry and a display screen. The display apparatus can project images of an object onto the screen in several relative positions to create apparent motion in coordination with a sound wave signal. Illumination of the respective light sources is coordinated to respond to various amplitudes of a sound wave signal by contact structure placed in different actuated positions under control of divers voltage amplitudes of an output signal from an audio-amplifier.

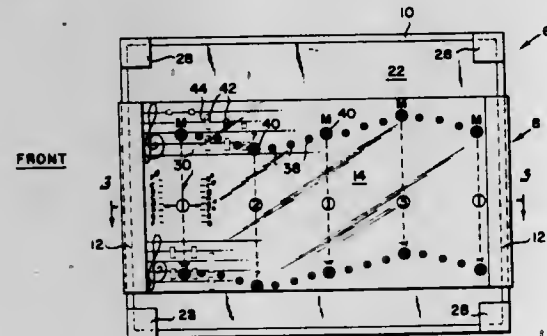
3,736,833 MUSIC CHORD TEACHING DEVICE

Samuel Laboy Alvarado, Esparta St. No. 60, Reparto Apolo, Guaynabo, P.R.

Filed Sept. 30, 1971, Ser. No. 185,257
Int. Cl. G09b 15/02

U.S. Cl. 84-473

12 Claims



A music chord teaching device wherein a chord diagram is presented to indicate the proper finger positions for a stringed

instrument, such as a guitar. The device comprises a two-sided graph, one side of which is provided with a music key selector means and the other side of which displays an associated group of chord diagrams. The indicia is so arranged as to present diagrams for three basic chords and three relative minor chords simultaneously. The key selector means side of the device is also provided with an indication of modulating notes between chord positions and sharps associated with a selected musical key.

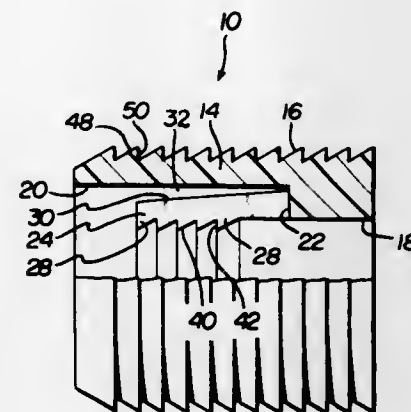
3,736,834 CONNECTOR SYSTEM

Robert D. MacDonald, Metamore, Mich., assignor to Cardinal of Adrian, Inc., Adrian, Mich.

Filed Apr. 7, 1972, Ser. No. 242,120
Int. Cl. F16b 13/00

U.S. Cl. 85-7

2 Claims



A connector system comprising plastic male and female elements provided with interlocking barbs and serrations so dimensioned that attempted separations of the elements acts to tighten the interlocking forces between them.

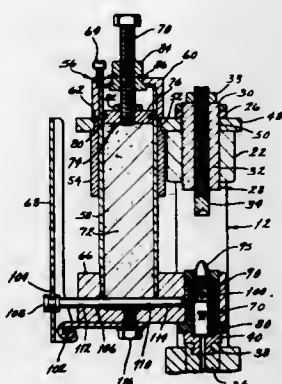
3,736,835 RELOADING DEVICE

Roy R. Hanson, 155 Cumberland Drive, Maryland Heights, Mo.

Filed June 30, 1971, Ser. No. 158,366
Int. Cl. F42b 31/02

U.S. Cl. 86-19

25 Claims



A bullet sizer-seater-lubricator is combined with a cartridge-reloading press having a movable actuating ram. The sizer-seater-lubricator includes oppositely disposed sizing and seating dies and a displaceable lubricator mechanism having a base portion that supports one of the dies. The base portion is engageable by the movable ram to bring the sizing and seating dies in cooperative relationship during the sizing and seating operations. Bullet lubrication follows bullet sizing and is accomplished by feeding lubricant through communicating means in the base portion for injection into the sizing die.

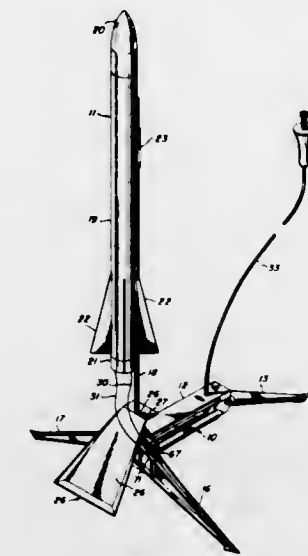
3,736,836 LAUNCHING PAD ASSEMBLY FOR MINIATURE ROCKETS

Jack G. McAllister, Minneapolis, Minn., assignor to Century Engineering Company, Inc., Phoenix, Ariz.

Filed July 21, 1971, Ser. No. 164,523
Int. Cl. F41f 3/04

U.S. Cl. 89-1.814

8 Claims



A launching pad assembly having an upright launching rod for releasably supporting a miniature rocket during the initial flight phases of ignition and liftoff. The launching pad assembly base has spaced support legs adjustable to launch the rocket at a predetermined angle to the ground. The assembly further includes a pneumatically operated electrical ignition system to activate the igniter of the miniature rocket with a minimal power supply operable at a position remote from the rocket. A safety key is provided which concurrently indicates continuity of the electrical system and prevents accidental activation of the igniter.

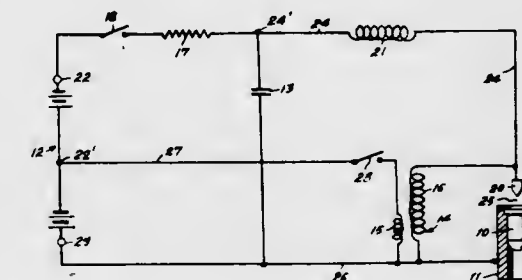
3,736,837 ELECTRICAL INITIATION OF PERCUSSIVE-PRIMED CARTRIDGES

Edward K. Kaprelian, Mendham, N.J., and Howard I. Carroll, Aberdeen, Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 28, 1971, Ser. No. 212,962
Int. Cl. F41f 9/00; F41d 9/00

U.S. Cl. 89-28 R

5 Claims



Disclosed is an electrical firing circuit for initiating percussive-primed cartridges wherein the base of the cartridge forms one electrode of a spark gap which has connected thereacross an RF pulse generating means and a charged capacitor. When energized, the pulse means ionizes the air in the spark gap whereupon the capacitor discharges thereacross causing heating of the cartridge base containing the primer mix whereby the primer mix is initiated and hence the cartridge.

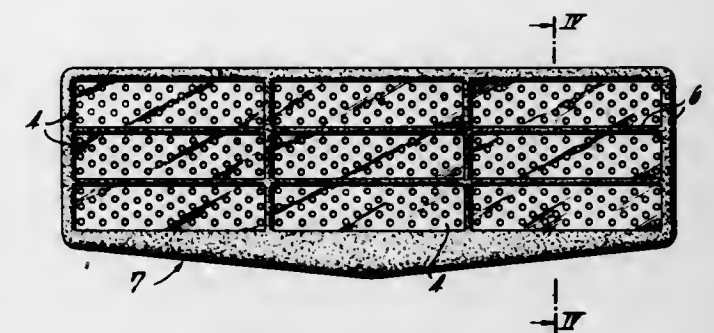
3,736,838 PROTECTIVE SHIELDING

Artur Butterweck, Hagen, and Wilhelm Bromsen, Berchum, both of Germany, assignors to Hoesch Aktiengesellschaft, Dortmund, Germany

Claims priority, application Germany, Dec. 18, 1969, P 19 63 405.0
Filed Dec. 16, 1970, Ser. No. 98,628
Int. Cl. F41h 5/04, 7/04

U.S. Cl. 89-36 A

2 Claims



A protective shield of steel, especially for chains of armored cars and tanks, which comprises steel plate means each having a plurality of groups of holes with the holes of each group so arranged that the vertical projection of the connecting lines of their central axes defines a quadrangle while a fifth hole has its axis passing through the point of intersection of the diagonals of said quadrangle, rubber means surrounding said steel plate means.

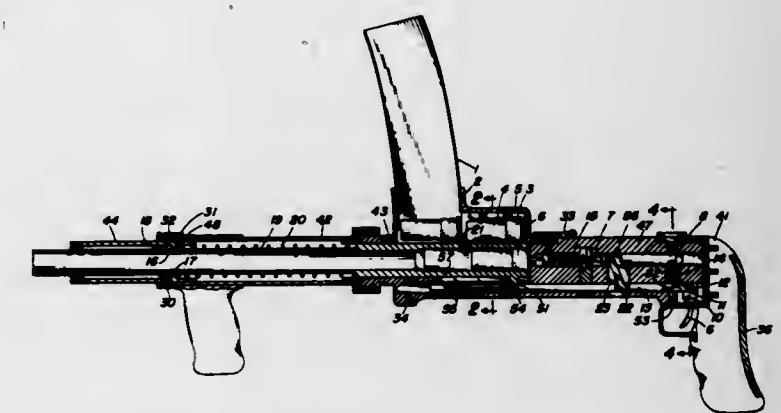
3,736,839 DUAL MODE SHOTGUN

Carroll Dean Childers, Fredericksburg, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 24, 1972, Ser. No. 228,882
Int. Cl. F41c 11/08; F41d 5/10

U.S. Cl. 89-128

10 Claims



A dual mode shotgun employing a gas driven forwardly moveable barrel to eject spent rounds and automatically reload. The gun is convertible from automatic to a single fire mode. In the single fire mode the driving gas is vented to the atmosphere to prevent movement of the barrel and the gun may be breech loaded with special purpose rounds. In the automatic mode the forward movement of the barrel provides for reloading and mechanically recocks the gun.

3,736,840 WORKTABLE EXTENSION AND SUPPORTING STRUCTURE

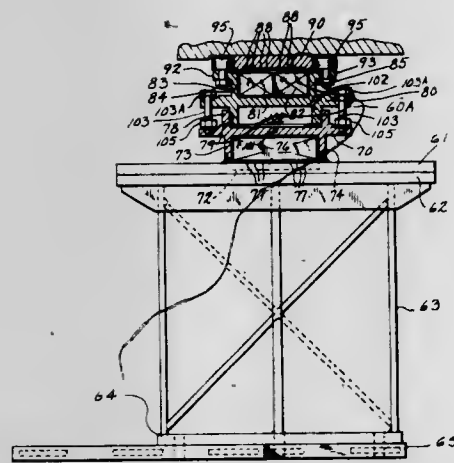
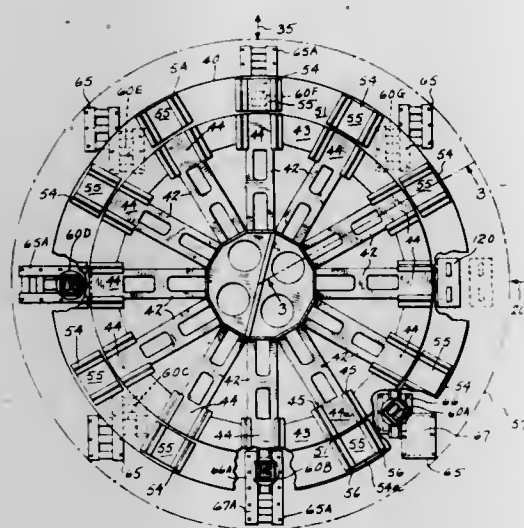
Alex A. Durand, Milwaukee, Wis., assignor to The Falk Corporation, Milwaukee, Wis.

Filed Dec. 14, 1971, Ser. No. 207,845

Int. Cl. B23c 1/14; B23f 23/00

U.S. Cl. 90—58 B

8 Claims



A work table extension system for a machine tool which is arranged with an existing work table of a machine in order to enlarge its workpiece capacity, i.e. to enable the machine to handle large diameter and/or heavier workpieces. The system includes a work table extension adapted to fit onto the existing work table of a machine, outrigger support members positioned to support the peripheral edge of the work table extension, and a hydraulic system for equalizing the load between the outrigger supports. The outrigger supports are constructed to enable rotary motion and linear motion of the work table extension.

**3,736,841
DIAL FOR ENGRAVING FINGER RINGS AND THE LIKE**
Sadao Usami, Naka-ku, Nagoya-shi, Japan, assignor to B. Jadow and Sons Inc., New York, N.Y.

Filed Dec. 7, 1971, Ser. No. 205,661

Claims priority, application Japan, Dec. 28, 1970, 45/141629 (utility model)

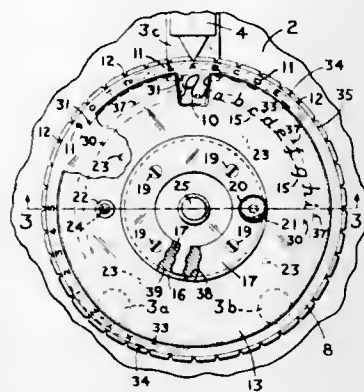
Int. Cl. B23c 1/16; B43I 13/10

U.S. Cl. 90—62 R

15 Claims

A character dial assembly used with a machine for engraving characters on finger rings and other metallic ornamental articles, which comprises a lower circular dial member and an upper circular dial member having a diameter smaller than the lower dial member. Each of the two dial members has its

upper surface engraved with a set of various characters which are disposed circumferentially on the dial member in equal spaced relationship with one another. The lower dial member also has its upper surface impressed with index characters on its upper surface corresponding to the characters engraved



thereon and disposed radially outwardly of the corresponding engraved characters. The upper dial member has a cut out section for obtaining access to the engraved characters on the lower dial member. The lower and upper dial members are coaxially connected together for rotation relative to each other.

3,736,842 BREATHING AND FAILURE DETECTION SYSTEM FOR SPRING BRAKES

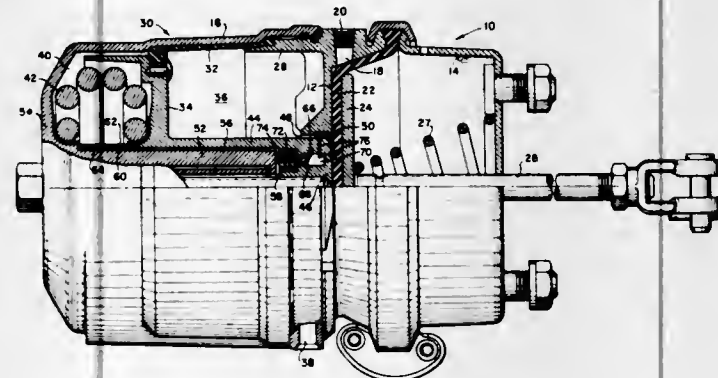
Harry M. Valentine, Elyria, Ohio, assignor to The Bendix Corporation, South Bend, Ind.

Filed Feb. 22, 1972, Ser. No. 228,024

Int. Cl. F01b 25/26, 7/00, 21/02

U.S. Cl. 91—1

8 Claims



A service and spring brake actuator including service and spring brake chambers arranged in tandem, the spring brake chamber including a spring cavity and a control cavity and wherein valve means are provided for interconnecting the spring cavity with the service chamber and the control chamber during operation of the spring brake actuator in order to prevent the entry of dirt and other foreign matter into the spring cavity. Means are also provided for automatically indicating a failure or loss of load of the main spring and failure or serious leakage of the seal between the control and spring cavities.

**3,736,843
VIBRATOR APPARATUS**
James A. Leibundgut, Waterford, Wis., assignor to Applied Power Industries, Inc., Milwaukee, Wis.

Filed May 20, 1971, Ser. No. 145,186

Int. Cl. F01I 21/02

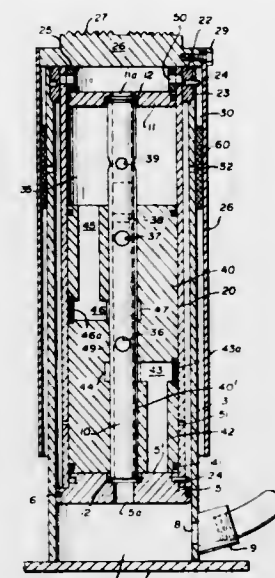
U.S. Cl. 91—234

11 Claims

A vibrator apparatus adapted to impart vibrations to a body and including a base structure and a tubular member attached thereto at one end to create a fluid cylinder. A ram piston is

mounted in sliding relationship within the fluid chamber and is operably connected to a vibrator piston assembly. The second end of the tubular member is adapted to receive the vibrator piston assembly having attached thereon a bearing surface to contact the body being vibrated. Fluid pressure is introduced into the fluid cylinder in the area between the base plate and

subject to secondary forces such as a die or a core of an injection molding machine. The combination includes a piston-cylinder power system incorporating a cross-block movable by a camming force into a locking recess in a power cylinder wall, and a release mechanism utilizing the cross-block to mechanically exert a high breakaway force on the actuable member upon the initiation of a retraction motion.



the ram piston whereby the vibrator assembly and ram moves in a direction to cause contact of a predetermined force between the bearing surface and the body being vibrated. Thereafter, the fluid pressure within the cylinder causes the vibrator assembly to reciprocate in a manner to impart a desired amplitude and frequency of vibration on the body being vibrated.

ERRATUM
For Class 91—390 see:
Patent No. 3,736,845

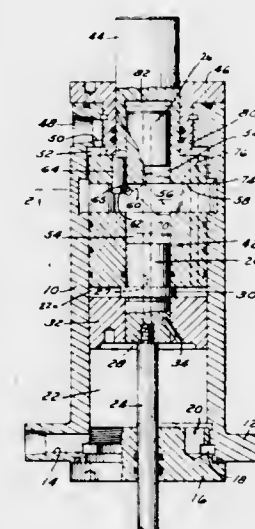
**3,736,844
LINEAR ACTUATOR WITH LOCKING MEANS**
William R. Jahnke, Rochester, Mich., assignor to KMS Industries, Inc., Ann Arbor, Mich.

Filed Apr. 29, 1971, Ser. No. 138,434

Int. Cl. F15b 15/26

U.S. Cl. 92—24

13 Claims



A linear actuator, lock, and release mechanisms for coupling the rod of a power cylinder to an actuable member

3,736,845 VARIABLE LENGTH UPPER GUIDE ROD FOR A THREE- POINT LOADING RACK

Helmut Welste, 4771 Sieningsen, and Ferdinand Schumacher, Coesterweg 42, Soest, both of Germany

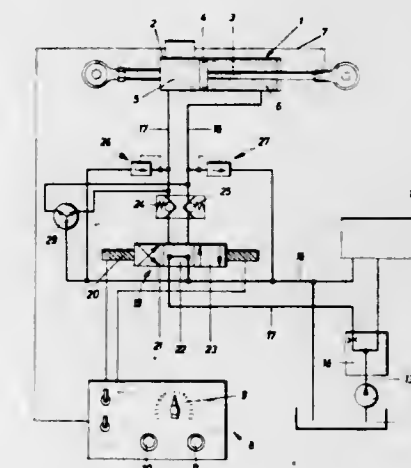
Filed May 18, 1971, Ser. No. 144,527

Claims priority, application Germany, May 22, 1970, P 20 25 040.2

Int. Cl. F15b 13/16

U.S. Cl. 91—390

8 Claims



A hydraulic three-point loading rack, for agricultural prime movers, has a variable length upper guide rod in the form of a cylinder, a piston guided in the cylinder, a piston rod connected to the piston and hydraulic supply-return lines connected to the cylinder chambers on opposite sides of the piston. Respective normally closed, pressure-holding valves are connected in each of the two supply-return lines and opened only by a predetermined supply pressure in the associated line, these valves being interposed between a hydraulic pump, with associated return reservoir, and the cylinder chambers. A distributing valve is connected between the pump and the shut-off valves and has a neutral position shutting off both cylinder chambers from the pump, and a pair of operating positions, in each of which one line is supplied with hydraulic fluid and the other line returns hydraulic fluid to the reservoir. A nominal-actual value setter is associated with an actual value selsyn connected to the piston rod, and may be selectively bypassed. A three-way cock is connected to the two supply-return lines and communicates with the reservoir.

**3,736,846
NON-CYLINDRICAL CONTAINER BODY MAKER**
Henry E. Frankenberg, Hinsdale, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Feb. 12, 1971, Ser. No. 114,930

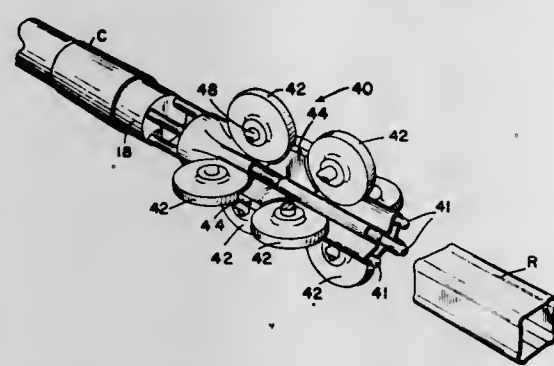
Int. Cl. B31b 1/38

U.S. Cl. 93—82

8 Claims

A container body maker including means for forming a completed cylindrical container body and a means for reshaping the cylindrical container body. The reshaping means in-

cludes angularly spaced posts arranged to support the cylindrical container and bending means disposed between the posts.

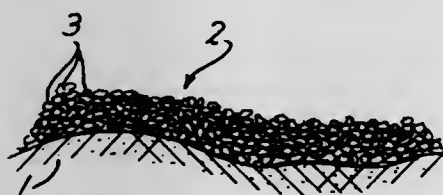


The bending means serve to depress the portions of the cylindrical body spanning the posts to reshape the body.

3,736,847 SYNTHETIC TERRAIN COVERING

James R. Hickey, Green Bay, Wis., assignor to Robert H. Mosher, doing business as R. M. Associates, Neenah, Wis.
Filed Sept. 7, 1971, Ser. No. 177,959

Int. Cl. E01c 13/00
U.S. Cl. 272-56.5 10 Claims



A synthetic terrain covering comprising a multiplicity of small, curved, irregularly shaped flakes or platelets of thermoplastic resin. The peripheral edges of the platelets are provided with slits or serrations which, along with the curved configuration, enables the platelets to mechanically interlock and resist shifting, particularly on steep terrain. The platelets can be used alone as a substitute for snow, or it can be used with natural or artificial snow as a covering for ski hills and trails, tobogganing areas, snowmobile trails, and other recreational areas.

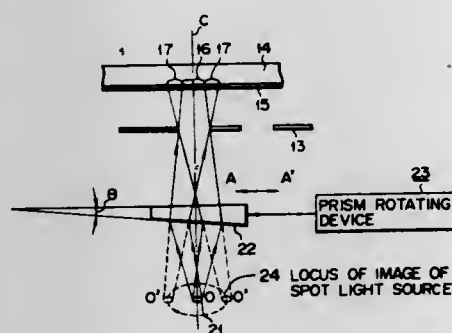
3,736,848 METHOD OF PREPARING THE SCREEN OF A COLOUR TELEVISION PICTURE TUBE AND DEVICE PERFORMING THE METHOD

Asahide Tsunetsu, Kawasaki, and Makoto Ikegaki, Fukaya, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Oct. 15, 1971, Ser. No. 189,723
Claims priority, application Japan, Oct. 20, 1970, 45/91623
Int. Cl. G03b 27/00

U.S. Cl. 95-1 R

5 Claims



A method of preparing the screen of a color television image pickup tube by photographic printing which consists in

disposing a prism tapered to a prescribed angle between a screen being prepared and a source of light so fixed as to face the screen and projecting light on the screen while causing the prism to revolve, thereby forming on the screen light-exposed portions having a smaller area than the light-permeable portions of a shadow mask and a device for performing the method.

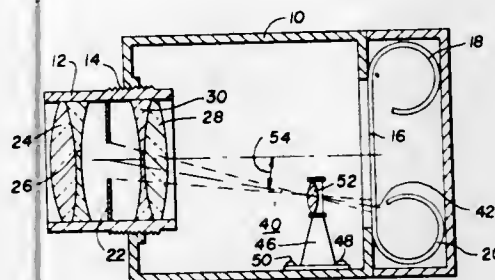
3,736,849 ON-FILM OPTICAL RECORDING OF CAMERA LENS SETTINGS

Richard E. Thompson, Houston, Tex., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 17, 1971, Ser. No. 125,236
Int. Cl. G03b 17/24

U.S. Cl. 95-1.1

10 Claims



Apparatus is provided for recording a representation of the camera lens aperture and focus setting on the film of a camera at the same time that the photographic image is recorded on such film. A data lens means is provided intermediate the camera lens and camera film whereby the aperture and focus setting of the camera lens may be determined through measurement of both the location and the size of a data image provided by such data lens means. Such data lens means requires no electrical power, is low in weight, and does not result in an increase in the external dimensions of the camera in which such data lens means is installed.

3,736,850 SINGLE-LENS REFLEX CAMERA PROVIDED WITH A DATA PHOTOGRAPHING DEVICE

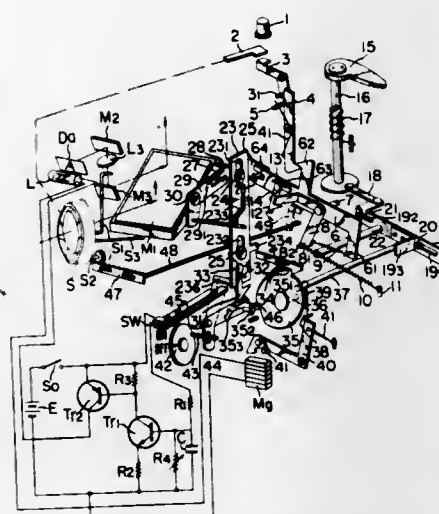
Mitsuo Ishikawa, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 22, 1971, Ser. No. 210,757

Claims priority, application Japan, Dec. 28, 1970, 45/123916

Int. Cl. G03b 17/24

6 Claims



A single-lens reflex camera provided with a data photographing device which comprises a mirror movable up and down

in response to shutter operation. The mirror is disposed in a data-photographing optical path and may be maintained in raised position for a predetermined time, during which the image of data illuminated by a light source may be projected and recorded under proper exposure on the surface of a sensitive film simultaneously with object-photographing.

3,736,851 AUTOMATIC EXPOSURE TIME CONTROL CIRCUIT FOR ELECTRONIC SHUTTERS

Sheigo Ono, Koboku-ku, Yokohama; Ichiro Hamaguchi, Shinagawa, Tokyo, and Kenji Toyoda, Shinyuku-ku, Tokyo, all of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

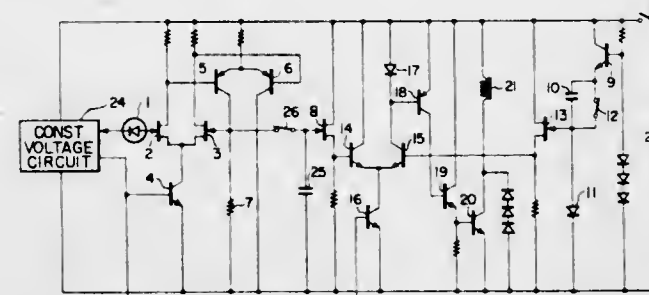
Filed Sept. 29, 1971, Ser. No. 184,780

Claims priority, application Japan, Sept. 30, 1970, 45/85418

Int. Cl. G03b 7/08

U.S. Cl. 95-10 CT

13 Claims



A circuit for automatically controlling the open time of an electronic shutter in accordance with the light of a scene being photographed having a charging circuit which includes a capacitor and a silicon diode connected in series and which is charged responsive to the opening of the shutter, a silicon photodiode for providing a terminal voltage logarithmically proportional to the intensity of the light, and an electrical circuit for combining the terminal voltages of the silicon diode and the silicon photodiode and closing the shutter when the combined terminal voltage reach a predetermined value.

3,736,852 CAMERA BATTERY CHECKER

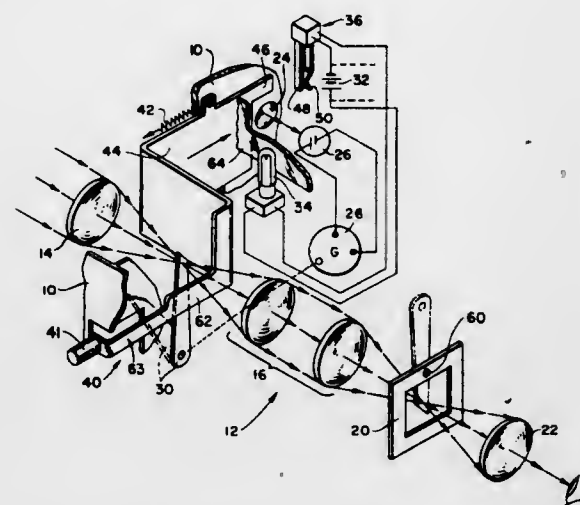
William Phillip Ewald, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 28, 1972, Ser. No. 229,936

Int. Cl. G03b 17/18; G01J 1/42

U.S. Cl. 95-10 C

7 Claims



Battery checking apparatus for use in cameras utilizing a photosensitive element in circuit with a galvanometer, the galvanometer having a deflection related to the intensity of scene light incident onto the photosensitive element. The apparatus

provides a tungsten lamp which is connectable in circuit with a battery to be checked, and a shield which is operative for blocking the scene light from impinging onto the photosensitive element. When the tungsten lamp is connected in circuit with the battery and scene light is blocked, the photosensitive element is illuminated only by light from the tungsten lamp, the luminosity of which varies with the battery voltage. The varying luminosity is received by the photosensitive element which results in a deflection of the galvanometer that is related to the voltage available from the battery. The amount of deflection of the galvanometer may be shown by a signal utilized to indicate the voltage level of the battery.

3,736,853 APPARATUS FOR AUTOMATICALLY FIRING PERCUSSION-IGNITABLE FLASHLAMPS

Shogo Suzuki, Atsumi, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

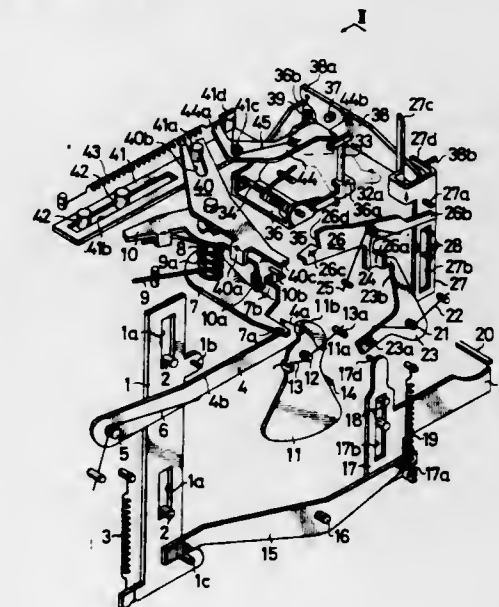
Filed Jan. 19, 1972, Ser. No. 218,897

Claims priority, application Japan, Jan. 21, 1971, 46/1848; Nov. 25, 1971, 46/94726; Nov. 25, 1971, 46/94727

Int. Cl. G03b 15/04, 17/20

U.S. Cl. 95-11.5 R

15 Claims



A camera is provided with a socket for receiving a flash unit containing percussion-ignitable flash lamps and spring loaded strikers retained in cocked positions. A sensing system includes a shift member which moves to a first position in the absence of a flash unit, a second position in the presence of a cocked striker and a third position when the cocker is in its uncocked position. A transmission lever is located in the path of the spring loaded shutter opening member when the shift member is in its second position so that upon release of the shutter opening member it drives the shift member to release the striker and ignite a flashlamp. A light detecting member shifts the transmission lever out of the path of the opening member when the ambient light is sufficient for photography. A system provides a warning signal in the absence of a flashlamp or when a cocked striker is not in position.

3,736,854 FILM METERING MECHANISM FOR CAMERAS

David E. Beach, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 1, 1971, Ser. No. 203,524

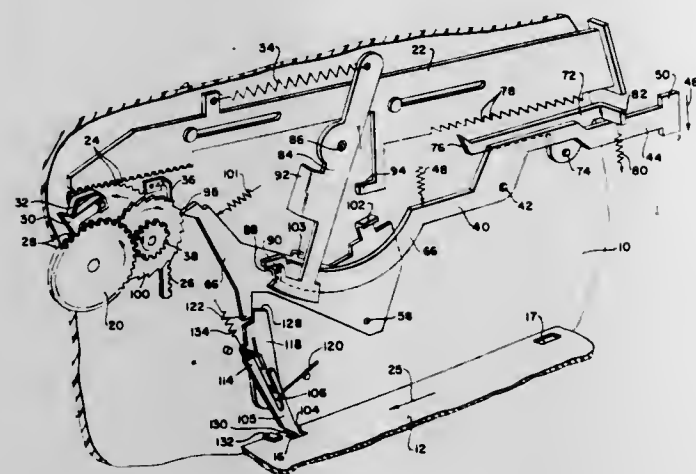
Int. Cl. G03b 1/62, 9/68

U.S. Cl. 95-31 FM

11 Claims

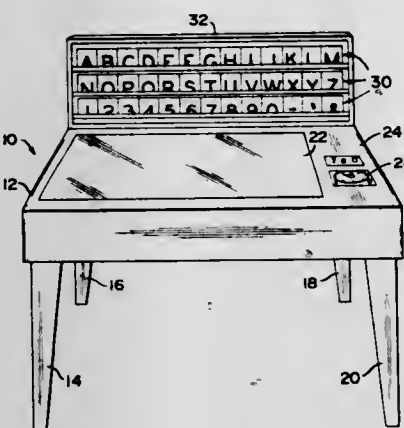
A camera for perforated roll film includes a transport mechanism for advancing film along an exposure plane and a metering mechanism for selectively disabling the transport mechanism. A film sensing pawl is movable from a retracted position on one side of the exposure plane to an extended

position transversing the exposure plane when intersecting one of the film perforations, at which time, movement of the film along the exposure plane moves the sensing pawl to meter the transport mechanism. After exposure, movement of the film moves the sensing pawl into a cam surface to return the



pawl to its retracted position. The metering mechanism is moved to an inactive position following film exposure by kinetic energy transferred from a high energy lever used to operate the camera's shutter. A backup system is provided for preventing the metering mechanism from moving to its active position in the event of a false movement of the sensing pawl.

3,736,855
VISUAL TYPESETTER
Eduardo Cuenca, 2735 Bel-Aire Circle, Tampa, Fla.
Filed Mar. 8, 1971, Ser. No. 121,796
Int. Cl. B41b 13/02
U.S. Cl. 95-4.5

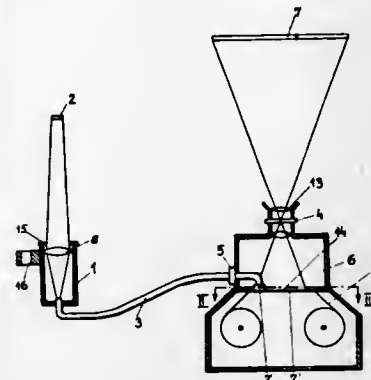


A device and method for setting copy comprising placing various copy, in the form of indicia-bearing material, half-tones, or other art work, onto a translucent plaque having an electrostatic charge thereon. The copy is capable of carrying the electrostatic charge such that it is removably positioned thereon yet maintains the desired position until further processing. A photographic sheet is then placed over the pre-arranged copy and exposed to light transmitted through the translucent plaque whereupon a positive or negative is formed. The sheet is then used in lithography, typography, engraving, silk screen printing, sign making and similar technologies which utilize photographic sheets.

3,736,856
PHOTOGRAPHIC CAMERA
Walter Grossmann, Russikon, and Kurt Thaddey, Buchs, Zurich, both of Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland
Filed Feb. 23, 1971, Ser. No. 117,890
Claims priority, application Switzerland, Feb. 27, 1970, 2946/70; Jan. 8, 1971, 241/71
Int. Cl. G03b 17/24

U.S. Cl. 95-1.1

8 Claims



Apparatus for photographing stationary objects such as paintings comprises a mobile camera structure in which is located a principal objective lens for forming an image of the object to be photographed and an image receiving means such as film, and a stationary housing having an auxiliary objective lens for forming an image of a stationary reference object which is subject to the same illumination as the principal object. The fixed position housing containing the auxiliary objective lens is located spatially from the mobile camera structure and is coupled to the latter by means of a flexible light conductor which thus provides mobility for the camera and carries the image formed by the auxiliary objective lens into the camera for imaging on the film adjacent the image of the principal object. Either a single shutter or two separate synchronized shutters are used to expose a film in the image plane of the principal objective lens to the images formed by the principal and auxiliary objective lenses. Instead of a flexible light conductor the mobile camera structure and stationary housing for the auxiliary objective lines can be coupled by a flexible electric cable which transmits signals from photoelectric cells in the auxiliary objective lens housing and mounted behind the auxiliary objective lens to lamps mounted in the camera structure above the image plane of the principal objective lens.

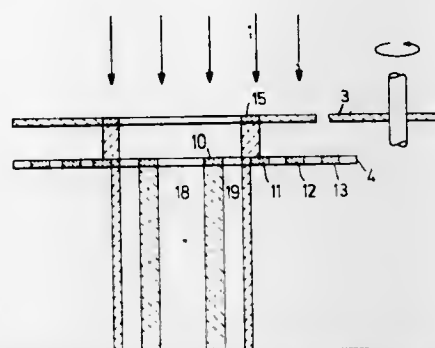
3,736,857
PRINTED CIRCUIT MASK MANUFACTURE
Reginald Ian Williamson, Sandbach, and Roy Lowe, Poynton, both of England, assignors to L. T. W. Electronics Limited, Congleton, England
Filed Feb. 8, 1971, Ser. No. 113,348

Claims priority, application Great Britain, Mar. 4, 1970, 10,358/70

U.S. Cl. 95-12

Int. Cl. B43I 13/18

8 Claims



Apparatus for forming a photographic image used in printed circuit formation comprising a very accurate fixed master

mask with a plurality of colored or polarized transparencies, a diaphragm with a like plurality of colored or polarized transparencies any one of which can be brought into alignment with the master mask to select one of the transparencies thereon, and an optical system sending light through the diaphragm and mask to form an accurately dimensioned and located image of the mask on a photographic surface.

3,736,858
AIR VENTS

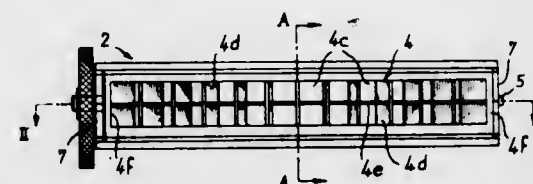
Jacques Mercier, Billancourt, France, assignor to Regie Nationale des Usines Renault, Billancourt (Haute de Seine) and Automobiles Peugeot, Paris, France
Filed Mar. 19, 1971, Ser. No. 125,952

Claims priority, application France, Mar. 24, 1970, 7010581

Int. Cl. F24f 13/06

U.S. Cl. 98-406

7 Claims



This air vent intended for private or office rooms, or for the passenger compartments of vehicles, notably automobiles, comprises an air outlet and a diffuser movable fitted therein to permit a variable and orientable diffusion of the air stream flowing therefrom, said outlet comprising part-cylindrical lips receiving a drum-shaped diffuser comprising in turn two opposite cylindrical sectors rotatably fitted in said lips about their common axis, at least one of said sectors being adapted to act a shutter to close said outlet completely in one position, air circulation passage being formed between said sectors, said passages being wider at one end than at the opposite end, whereby a divergent diffusion or a convergent projection is obtained accordingly as the drum is disposed with the wider or narrower ends of its air circulation passages on the outlet side of the diffuser, the air stream thus obtained being adapted to be oriented at will also by rotating said drum.

3,736,859
COOKING IRON

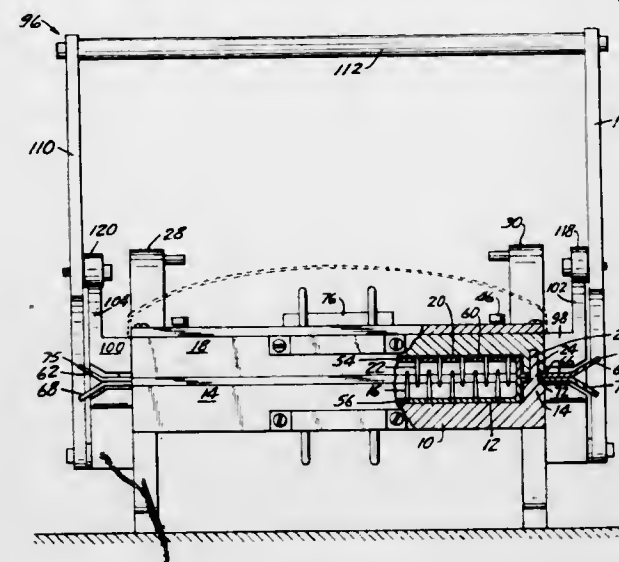
Arnold August Carlson, 4350 Pilot Knob Road, Saint Paul, Minn.

Filed June 10, 1971, Ser. No. 151,805

Int. Cl. A47j 37/04

U.S. Cl. 99-331

10 Claims



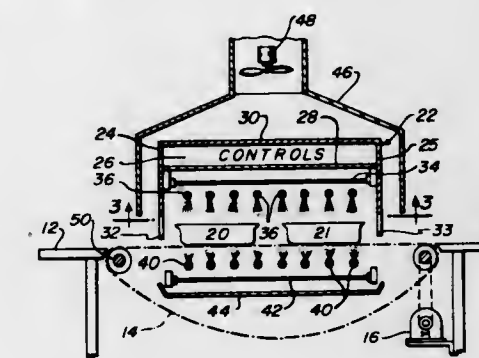
A cooking iron which includes opposed upper and lower platens each having a surface bearing a plurality of outwardly

extending, food-piercing metal needles, and a pair of removable perforated stripper plates adapted to lie against the upper and lower platens, the needles of said platens protruding through the perforations in the stripper plates. The cooking iron may also include pressural means for urging the platens into facing, closed relationship and spring loaded hinge means for connecting said upper and lower platens.

3,736,860
INFRARED COOKING APPARATUS
Alfred Vischer, Jr., Tucson, Ariz., assignor to Vischer Products Company, Chicago, Ill.
Filed Apr. 6, 1971, Ser. No. 131,734
Int. Cl. A47j 37/04

U.S. Cl. 99-339

5 Claims



The cooking method involves the simultaneous application of infrared radiation to a food product and the spraying of steam onto the food product to provide improved heat penetration into the product and to minimize the loss of juices and moisture from the product. The cooking apparatus includes infrared radiating elements disposed in a cooking chamber above and below a perforate support for the food product and a plurality of steam spray tubes interposed between the food product and the source of radiation, the food product support being a motor driven conveyor belt for carrying the food into, through and out of the cooking chamber.

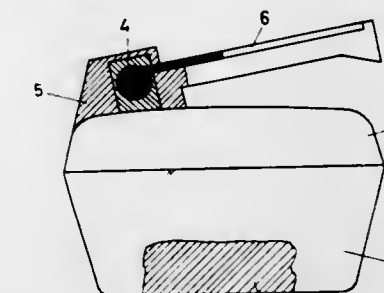
3,736,861
COOKING UTENSIL WITH GAUGE
Karl Kristian Kobs Kroyer, Vigy J., and Erik Nielsen, Højbjerg, both of Denmark, assignors to said Kroyer, by said Nielsen
Filed Feb. 2, 1971, Ser. No. 111,813

Claims priority, application Great Britain, Feb. 2, 1970, 4,890/70; Nov. 20, 1970, 55,294/70

U.S. Cl. 99-343

Int. Cl. A47j 36/00

6 Claims



A cooking utensil having a heat indicator comprising an angularly shaped tube closed at both ends and partially filled with a liquid evaporating at normal cooking temperature, one end of said tube being located adjacent to the cooking space of the cooking utensil and the other end being located in such a manner that vapor generated at said first end of the tube is condensed at said other end.

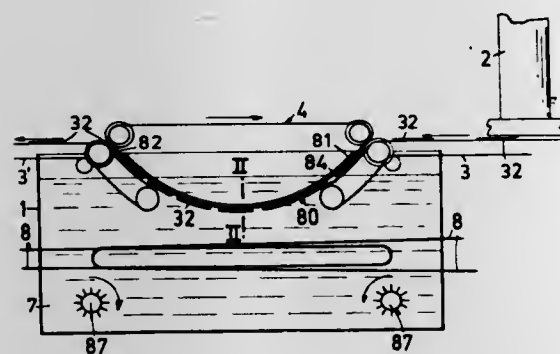
3,736,862
DEVICE FOR THE MANUFACTURE OF A COOKED DELICACY

Herman Crommelljack, Destouvillestratt 5, Schaarbeek, Belgium

Filed Jan. 13, 1969, Ser. No. 790,798
Claims priority, application Belgium, Jan. 12, 1968, 53296;
Jan. 16, 1968, 53384

Int. Cl. A475 27/14
U.S. Cl. 99—353

13 Claims



Apparatus for cooking slices of dough includes an endless conveyor member such as a belt or drum dipping into a pan of hot fat for conveying the slices through the fat and a supply belt and discharge belt cooperating with the endless conveyor for gripping the slices therebetween at least at the surface of the fat. A shaping device bends the cooked slices to the shape of potato chips.

3,736,863
TRASH COMPACTOR

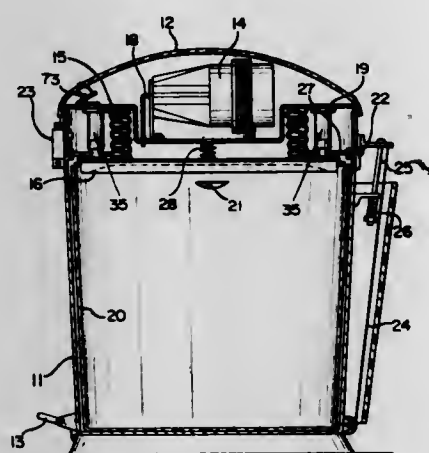
William S. Brucker, Towson, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md.

Filed May 21, 1971, Ser. No. 145,762

Int. Cl. B30b 1/32

U.S. Cl. 100—45

9 Claims



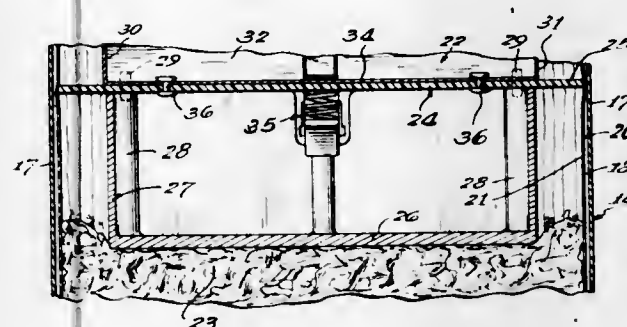
A trash compactor for home use including a receptacle, a lid, a latch connecting the lid to the receptacle and an air-operated compacting apparatus. This apparatus includes an expandable air bag and a compressor for producing a pressure therein. Preferably, the air bag is supported by the lid and terminates in a stiff platen member which cooperates with the bottom of the receptacle to compress trash placed therein. The compressor is operated until a predetermined condition is reached, whereupon it is automatically shut down and the air is exhausted from the bag. Means may be provided for guiding the platen and/or returning the bag to its contracted position.

3,736,864
REFUSE COMPACTOR WITH RAM WIPER
Michael J. Bottas, Saint Joseph, and Charles R. Difley, Niles, both of Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Continuation of Ser. No. 876,401, Nov. 13, 1969. This application Apr. 29, 1971, Ser. No. 138,776
Int. Cl. B30b 15/06

U.S. Cl. 100—53

10 Claims



A refuse compactor having a cabinet with top and bottom sections, a refuse receiver receptacle in the bottom section having an open top and side walls, a refuse holding bag in the receptacle having flexible sides, a compacting ram in the top section movable in a cycle into and out of the receiver receptacle and bag for compacting refuse in the bag and a flexible wiper blade extending from the ram and having an outer periphery contacting the bag inner surface during the cyclic movement to press the bag against the side walls of the receptacle and also to provide a barrier across the bag in the space between the ram and the bag.

3,736,865
FRUIT PROCESSING APPARATUS

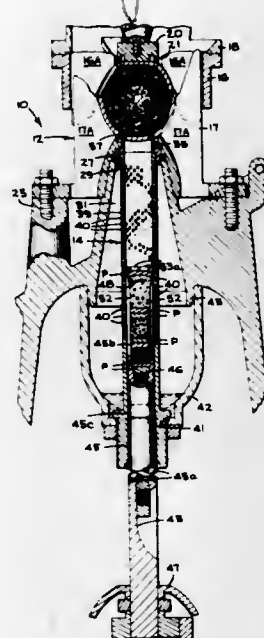
James M. Halt, San Jose, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed Apr. 19, 1971, Ser. No. 135,256

Int. Cl. B30b 9/02

U.S. Cl. 100—98 R

7 Claims



A perforated finishing tube of a juicing machine receives a reciprocable one-piece tubular plunger which has a plurality of slots in its wall extending longitudinally of the plunger to define a plurality of finger-like members that move in close proximity to the inner surface of the discharge tube to remove fruit material caught in the perforations of the tube and extending inwardly thereof.

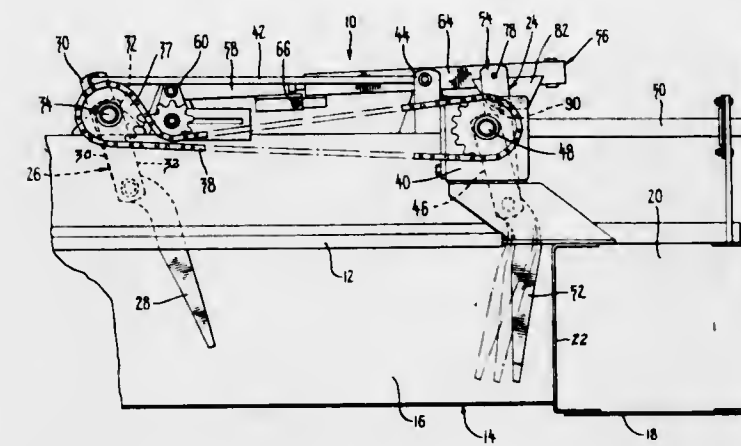
3,736,866
BALE PACKER FORK ADJUSTMENT
Frank T. Herrick, Pontiac, Mich., assignor to Massey-Ferguson Inc., Detroit, Mich.

Filed Aug. 16, 1971, Ser. No. 171,893

Int. Cl. B30b 1/00

U.S. Cl. 100—189

6 Claims



Adjustment mechanism for a baler packer in which a pair of feed-fork assemblies are operated in timed relation to each other for delivery and conveying of crop material into a baler chamber. One of the fork assemblies in the feeder mechanism is adjustable in vertical and longitudinal directions in a plurality of predetermined locations. The adjustment means comprise a plurality of selectively alignable apertures of differing configurations and a connecting pin is provided for insertion through selected ones of aligned apertures at predetermined adjusted positions to thereby prevent inadvertent incorrect repositioning of the fork assembly relative to the drive mechanism and the baling chamber to prevent interference of the fork assembly with the walls of the baling chamber.

3,736,867
TRAVELING CYLINDER PRINTER WITH SELECTIVELY SLIDABLE CODE BARS HAVING PLURAL MARKING MEANS

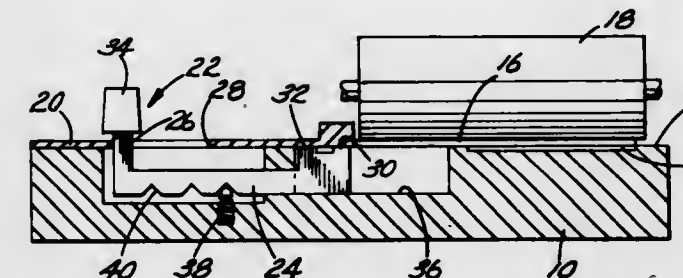
Darwin S. Bates, Euclid, and Edward R. Szymanski, Chesterland, both of Ohio, assignors to Addressograph-Multigraph Corporation, Cleveland, Ohio

Filed Aug. 11, 1971, Ser. No. 170,857

Int. Cl. B41j 7/32; B41f 3/20

U.S. Cl. 101—45

5 Claims



Apparatus for mechanically imprinting a document with machine scannable code indicia including timing marks and detail data marks. The timing marks are imprinted along one edge of the document, selectively by fields, and the detail marks are imprinted in the same columnar location, selectively within the fields, in vertical spaced alignment with the timing marks. The apparatus comprises a bed for supporting an embossed printing plate and a document to be imprinted. A plurality of selectively settable indicia marking elements are provided, each including a plural code marking means, for manually positioning the code marking means to a printing

position in printing relationship with the document. A platen is provided for movement across the bed to imprint the document from the code marking means at the position and, simultaneously, from the printing plate.

3,736,868
APPARATUS FOR PRINTING SERIALY RECEIVED DATA

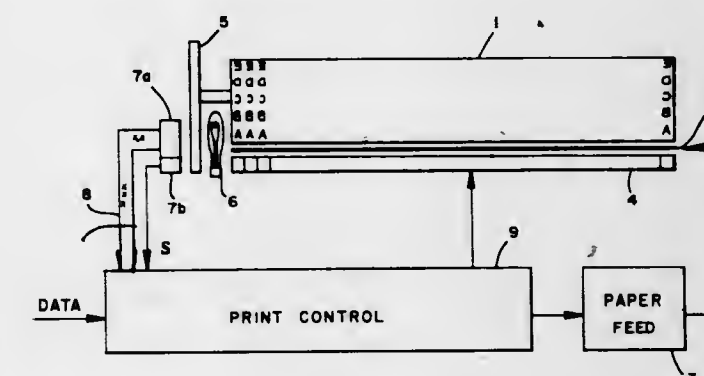
Henry P. Briggs, Beverly, Mass., assignor to Mohawk Data Sciences Corporation, Herkimer, N.Y.

Continuation of Ser. No. 25,535, April 3, 1970. This application Mar. 1, 1972, Ser. No. 231,049

Int. Cl. B41j 1/34; G06f 7/00, 15/00

U.S. Cl. 101—93 C

3 Claims



A printer and method for printing continually received serially arranged data in which those characters to be printed in a group of columns at the beginning of each line are individually stored in single-character storage registers during operations performed to initiate the line as line feed and carriage return. A separate control circuit is associated with each of these beginning columns and causes the stored character to be printed by an individual print hammer dedicated to the column. The hammers for printing in the remaining columns of the line share control circuits and storage registers. The printer has a moving type carrier and the number of control circuits and storage registers for the remaining columns is substantially equal to the ratio of the time the carrier requires to present a complete font of type characters to the document to the time interval at which successive characters are received from the data source. This allows printing of all those characters to be printed in the remaining columns with a minimum number of storage registers and control circuits.

3,736,869
PRESSURE ROLLER DEVICE FOR A ROTOGRAVURE PRINTING PRESS

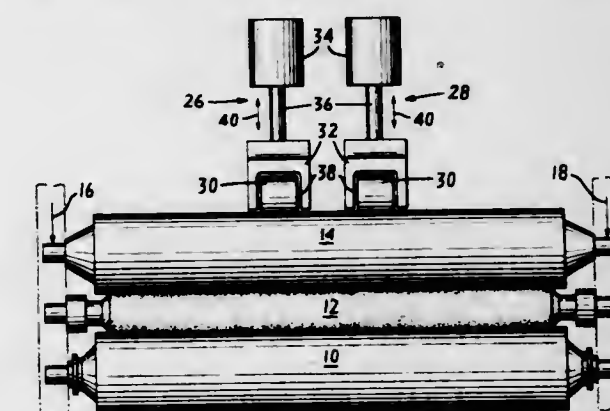
John C. Motter; John C. Motter, Jr., both of York, Pa., and Louis A. Lachman, Princess Anne, Md., assignors to John C. Motter Printing Press Co., York, Pa.

Filed Mar. 16, 1971, Ser. No. 124,832

Int. Cl. B41f 9/00

U.S. Cl. 101—153

10 Claims



Pressure roller device for equalizing the printing pressure in a rotogravure press. The press includes a printing cylinder, an

impression roller and a back-up roller arranged in tangential relationship. It also includes common movable supports for the ends of the impression roller and back-up roller to maintain the impression roller and back-up roller in tangential relationship and to bring the impression roller into pressure engagement with the printing cylinder. At least one pressure roller device is provided, according to the present invention, for applying a force against the back-up roller intermediate the ends thereof in the direction of the impression roller and the printing cylinder. This force increases the uniformity of the pressure applied by the impression roller against the surface of the printing cylinder.

3,736,870

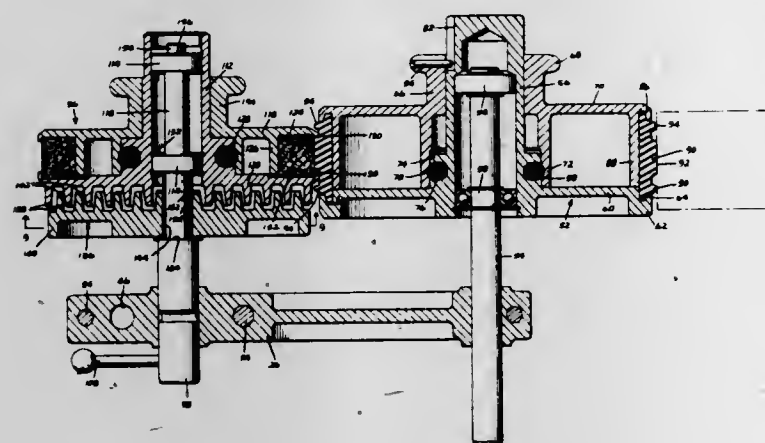
ROTARY IMPRINTER WITH INK WHEEL HAVING TEMPERATURE CONTROLLED INK PAD

Leonard L. Johnson; Tennis Mahoney, and Harry L. Hart, all of Fort Wayne, Ind., assignors to Lincoln Logotype Co., Inc., Fort Wayne, Ind.

Filed Dec. 23, 1970, Ser. No. 100,879
Int. Cl. B41f 13/10, 31/26

U.S. Cl. 101—329

8 Claims



A marking apparatus which includes marking and inking wheels mounted individually for rotation and with the peripheries thereof in operative engagement. The marking wheel includes a rim portion having a closed loop of rubber type removably telescopically fitted over the exterior thereof. The opposite circumferential edge portions of the type loop are secured to the wheel so as to prevent the loop from becoming separated from the wheel during rotation. The means for securing the loop to the wheel is in two parts, these parts being removably secured together such that removal of one of the parts permits facile replacement of the type loop on the wheel.

The inking wheel includes an annular ink-retaining pad on the periphery thereof which maintains the type on the marking wheel continuously coated with ink during marking wheel rotation. Means are provided on the inking wheel for controlling the temperature of the pad such that transfer of ink from the pad to the type is always assured.

3,736,871

COPPER (I) SALT-HYDROPHILIC BINDER LITHOGRAPHIC IMAGES

Ralph Kingsley Blake, Westfield, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 864,867, Oct. 8, 1969, abandoned. This application Aug. 3, 1970, Ser. No. 60,619
Int. Cl. B41n 1/00, 3/00; G03f 7/02

U.S. Cl. 101—456

11 Claims

A lithographic printing plate having an ink-receptive image comprising a hydrophilic colloid binder, an insoluble salt or

complex of copper (I) with an oleophilic compound, and metallic silver is made by treating a hydrophilic colloid-silver image with an activator containing cupric ions and said oleophilic compound. Activators are aqueous solutions containing copper (II) ions and a halogen ion.

3,736,872

LITHOGRAPHIC PRINTING PLATE AND PROCESS

Richard H. Martens, and Ralph D. Zaffrann, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 4, 1971, Ser. No. 103,925

Int. Cl. B41n 3/00

U.S. Cl. 101—462

12 Claims

A printing plate is prepared by coating on a support a lithographic layer comprising a self-hardening copolymer such as a copolymer of acrylamide and 2-acetoacetoxyethyl methacrylate, colloidal silica and titanium dioxide. Over the lithographic coating can be located a silver precipitating layer preferably comprising nickel sulfide and silver iodide. An image is provided in the silver precipitating layer by diffusion transfer and treated with a thiol or similar sulfur containing material to improve the ink-water balance of the plate. In an integral product the nucleated lithographic layer is coated with a silver halide layer and processed to provide a silver image after which the silver halide layer is removed.

3,736,873

PLANOGRAPHIC PRINTING PLATE ASSEMBLY AND METHOD OF MAKING

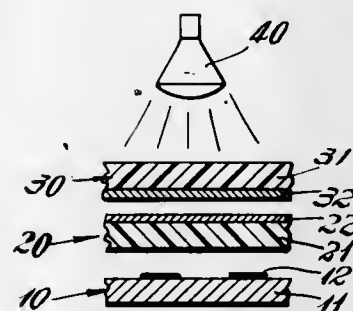
Douglas A. Newman, Glen Cove, N.Y., assignor to Columbia Ribbon and Carbon Manufacturing Co., Inc., Glen Cove, N.Y.

Filed July 12, 1971, Ser. No. 161,743

Int. Cl. B41m 1/06; B41n 1/12

U.S. Cl. 101—467

10 Claims



Thermographic copying process employing planographic printing plate assembly comprising a translucent film-base printing plate and a translucent film-base transfer sheet containing a heat-transferable oleophilic imaging layer. The plate comprises a normally heat-shrinkable plastic film foundation having a thin planographic layer thereon and imaging occurs at a temperature below the shrink temperature of the plate.

ERRATUM

For Class 101—2 R see:
Patent No. 3,736,882

3,736,874

CHEMILUMINESCENT EXPULSION DEVICE

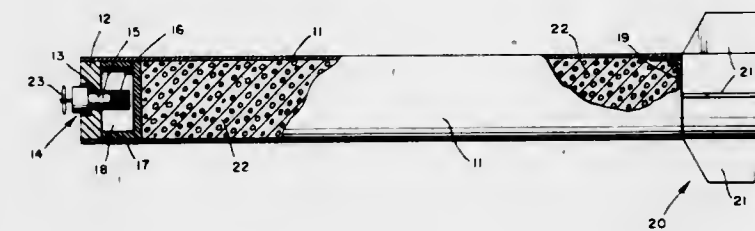
Robert L. Gerber, Ridgecrest, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 28, 1970, Ser. No. 48,625

Int. Cl. F42b 25/12

U.S. Cl. 102—2

1 Claim



An improved dispenser for disseminating chemiluminescent particles from the air in a concentrated signal pattern which increases signal utility in conditions of high background illumination.

3,736,875

EXPLOSIVE CHARGE WITH ANNULAR IGNITION GAP

Ludwig Bucklisch, A-4866 Unterach, Austria, assignor to Dynamite Nobel Aktiengesellschaft, Troisdorf, Germany

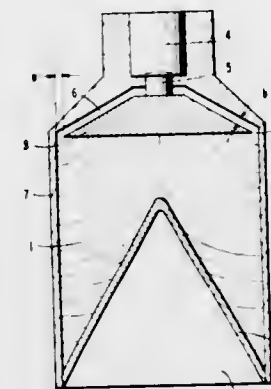
Filed Sept. 23, 1970, Ser. No. 74,801

Claims priority, application Germany, Sept. 23, 1969, P 19 48 058.1

Int. Cl. F42b 3/08

U.S. Cl. 102—24 HC

9 Claims



An explosive charge separated from an annular propagation charge by a conical inert element so as to form an annular ignition gap between the propagation charge and the explosive charge, the annular ignition gap having a width of only 1-5 mm.

3,736,876

CATALYST GENERATOR

Steven M. Little, China Lake; John H. Lyons; Ronald C. Noles, both of Ridgecrest; Pierre St. Amand, China Lake, all of Calif.; Donald R. Hazelton, Winslow, Ind.; Duane M. Johnson, Carthage, Ind., and James J. Riester, Bloomington, Ind., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed June 26, 1970, Ser. No. 48,786

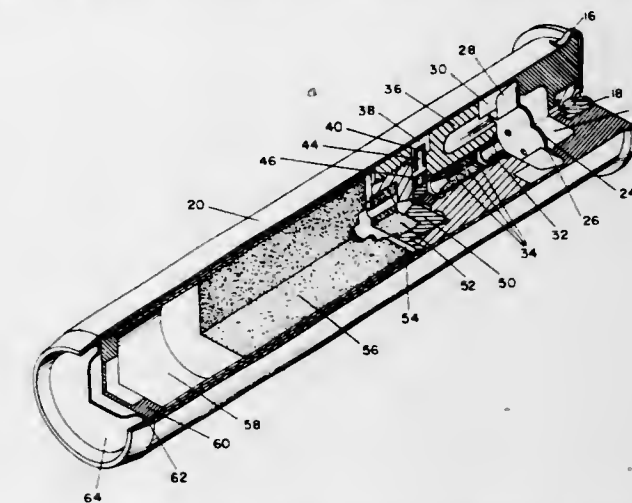
Int. Cl. C06d 1/00

U.S. Cl. 102—32

3 Claims

A catalyst generator cartridge for weather modification having a spring loaded slider for moving a detonator into alignment with the ignition chain only when the pyrotechnic has been ejected from the cartridge case. If the pyrotechnic

remains in the cartridge case after an ejection charge has been fired, the cartridge case prevents the slider from aligning the detonator with the ignition chain, thereby preventing the detonator from eroding through an ignition blocking device and igniting the pyrotechnic. But, if the pyrotechnic is ejected



from the cartridge case, the spring is permitted to move the slider, thereby aligning the detonator with the ignition chain and allowing the pyrotechnic to be ignited. Delay compositions are included to allow the pyrotechnic to reach a predetermined distance before it is ignited.

3,736,877

IGNITION SYSTEM FOR A PARACHUTE FLARE

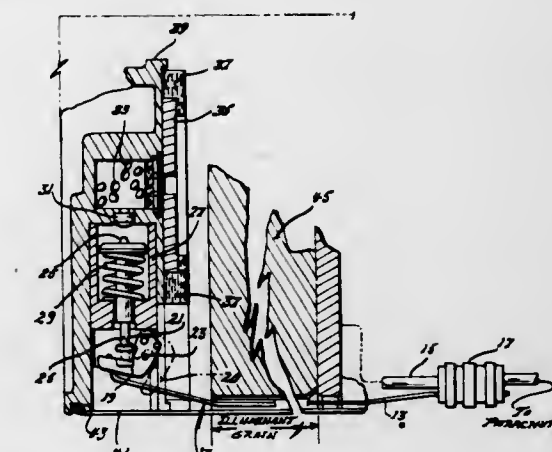
Henry J. Roberts, Roy; James R. Thurston, Perry, and Vern Thomas Dinsdale, Brigham City, all of Utah, assignors to The United States of America as represented by the Secretary of the Air Force

Filed Sept. 10, 1970, Ser. No. 70,968

Int. Cl. F42b 13/38

U.S. Cl. 102—35

3 Claims



An ignition system for air dropped illuminating flares or the like, including a cord attached to a parachute which exerts a shock force. The other end of the cord is attached to a bell crank which is rotated when the parachute opens causing a firing pin to strike a primer which ignites some pellets causing a wafer of polymer type ignition propellant to ignite. The flare illuminant is then ignited and emits the required smoke and flame signal as the flare floats downward to earth.

3,736,878

DEVICE FOR DESTROYING MACHINERY

Hans Guntermann, Essen-Steele, Germany, assignor to Elektro-Thermitt GmbH, Essen, Germany

Filed July 14, 1971, Ser. No. 162,504

Claims priority, application Germany, July 18, 1970, P 20 35 737.3

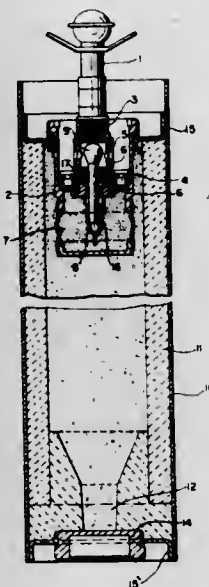
Int. Cl. F42b 11/24

U.S. Cl. 102—90

6 Claims

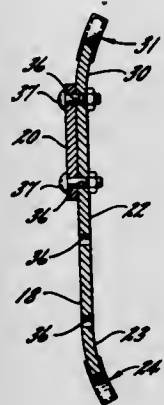
This invention relates to an improvement in a device for destroying machinery comprising a highly fire-resistant outer

casing containing an aluminothermic reaction mixture, at least one outlet opening in the casing, and igniter means in said casing. The improvement comprises ignition transmitter means connected to said igniter means and including inner casing means closed on one end, perforated inner tubing means mounted in said inner casing means, perforated annular ring



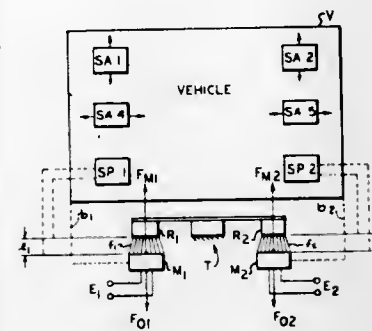
means between said inner tubing means and said inner casing means, easily meltable means covering the perforations in said inner tubing means and said annular ring means, an ignition mixture in said inner casing, and ignition rod means extending at one end into said explosive mixture and at the other end into said inner tubing means.

3,736,879
BALLAST TAMPER BLADE
James E. Anderson, Ludington, Mich., assignor to Jackson Vibrators, Inc., Ludington, Mich.
Filed May 13, 1971, Ser. No. 143,114
Int. Cl. E01b 27/16
U.S. Cl. 104-12 1 Claim



A reversible tamping blade is provided for use with a railroad ballast tamping machine. The blade includes an elongated body adapted for attachment to the tamping machine. At one end of the body there is a curved shank and a tip which is notched and formed for tamping operations on a left side of a rail. Another curved shank and a tip notched and formed for tamping operations on the right side of the rail is provided at the opposite end of the blade body. By reversing the orientation of the blade, the blade may be installed for tamping operation on either side of the rail, thus providing a single replacement part for two previously required parts.

3,736,880
FEEDBACK CONTROL CIRCUIT FOR MAGNETIC SUSPENSION AND PROPULSION SYSTEM
James A. Ross, La Jolla, Calif., assignor to Rohr Industries Inc., Chula Vista, Calif.
Continuation-in-part of Ser. No. 131,041, April 16, 1971, Pat. No. 3,638,093. This application Jan. 21, 1972, Ser. No. 219,713
Int. Cl. H02k 41/02
U.S. Cl. 104-148 MS 37 Claims



A linear motor uses the same magnetic flux for suspension and propulsion of a high speed tracked vehicle and operates below a support rail without physical contact therewith. Displacement and inertial sensors carried by the vehicle sense the length of the motor-to-rail gap and any acceleration of the vehicle causing changes in the gap.

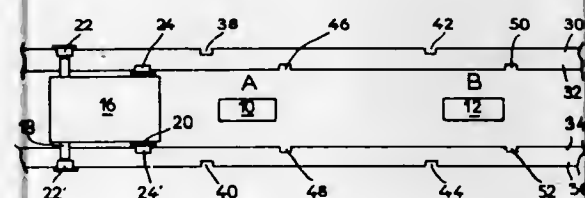
A non-linear feedback circuit responds to the sensor signals and controls the voltage applied to the phased windings of the motor to maintain the selected gap. The feedback circuit provides uniform stability and dynamic response over a wide range of gap, maintains the selected gap substantially constant notwithstanding track irregularities and variations in vehicle loading, and gradually corrects for unevenness.

The inertial sensor is made to be sensitive to vertical acceleration of the vehicle and insensitive to irregularities of the rail thereby assuring a "smooth" or "easy" ride notwithstanding irregularities of the rail.

The frequency of the applied voltage is varied upwards from zero to adjust the linear speed of the motor, and the voltage is increased with the frequency to compensate for the increase in inductive reactance of the windings.

A wide dynamic range of motor control voltage is provided to cover the propulsion range from standstill to high speed without requiring a wide dynamic range in the feedback control elements.

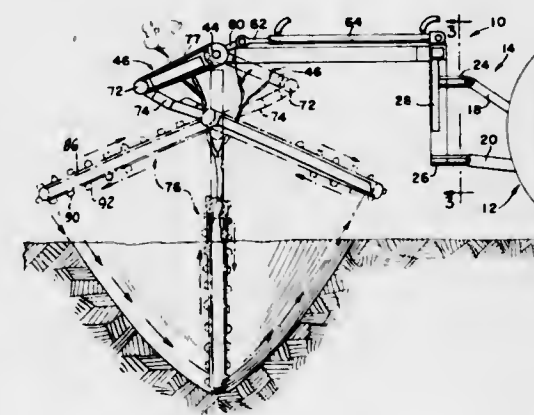
3,736,881
STANDSTILL-POSITIONING AND RESTARTING ARRANGEMENT FOR A LINEAR INDUCTION MOTOR DRIVEN VEHICLE
Jean-Paul Philippe Lorinet, Grenoble, France, assignor to Merin Gerin, Societe Anonyme, Grenoble, France
Filed Feb. 8, 1972, Ser. No. 224,540
Claims priority, application France, Feb. 11, 1971, 7104704
Int. Cl. B601 13/00; H02k 41/02
U.S. Cl. 104-148 LM 18 Claims



An arrangement permitting standstill-positioning and subsequent restarting of a vehicle running on a track under the

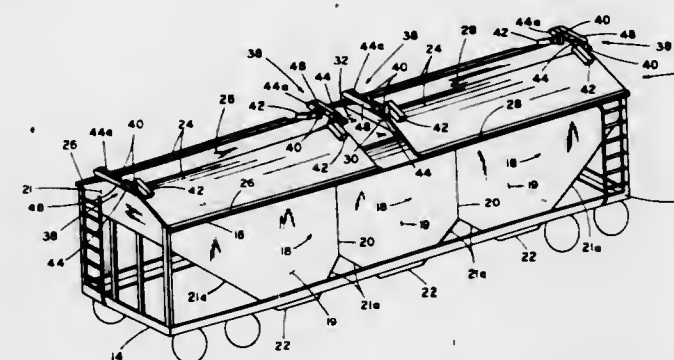
action of a linear induction motor. The track and the support members on the vehicle have cooperating projections and recesses which coincide at predetermined stop-and-go points of the track to mechanically catch the vehicle and to increase the restarting force by reducing the distance between the magnetic field and armature structures of the motor.

3,736,882
TRANSPLANTER USING PIVOTAL CUTTER CHAINS
Kermit Quinten Stephenson, State College, Pa., assignor to Research Corporation, New York, N.Y.
Filed Sept. 17, 1970, Ser. No. 73,084
Int. Cl. A01g 23/02
U.S. Cl. 101-2 R 9 Claims



A machine for digging balled plant material has a pair of complementally inclined endless chain carrying booms with each boom being bodily supported at its upper end for pivotal and swivel self-aligning cutting movement by a vertically orientated linkage that is power actuated by a hydraulic ram in opening and closing movements and controlled in its articulating movements by a timing chain. Each linkage has an upper link pivotally mounted on a leg of a plant straddling frame which is adjustably carried by the hitch of a tractor and a lower link having an intumed end carrying a boom with the booms being relatively intumed. The booms are each provided with a chain carrying cutters and shovels and the booms are swung curvilinearly in complemental unison from intumed forward positions to intumed rearward positions in respect to the frame and a plant material to be balled.

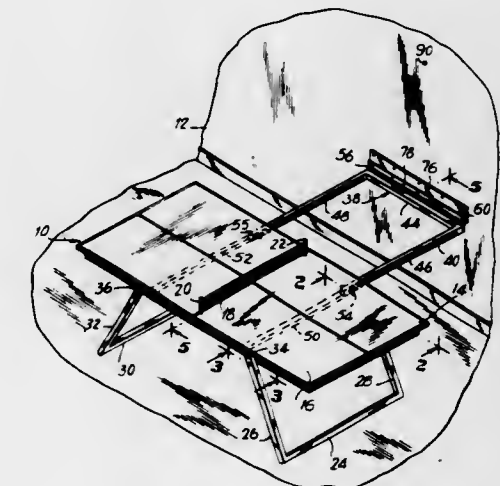
3,736,883
DUAL OPENING ROOF ARRANGEMENT FOR COVERED HOPPER CARS
Tung H. Yang, Munster, Ind., and Theodore A. Branson, Harbert, Mich., assignors to Pullman Incorporated, Chicago, Ill.
Filed Apr. 20, 1971, Ser. No. 135,670
Int. Cl. B61d 39/00
U.S. Cl. 105-377 5 Claims



A railway hopper car roof structure including roof hatch covers pivotally attached to the roof central portion and interconnected by a linkage mechanism to permit simultaneous upward and inward rotation of the hatch covers when a lifting

force is applied to but one of the covers. In the open position the covers form an inverted V on top of the hopper car and in this manner aid in directing lading through the hatches.

3,736,884
COLLAPSIBLE TABLE
Michael R. Kohner, 12 Rhoda Terrace, Parsippany-Troy Hills, N.J.
Filed Sept. 9, 1971, Ser. No. 179,085
Int. Cl. A49c 31/00
U.S. Cl. 108-48 4 Claims

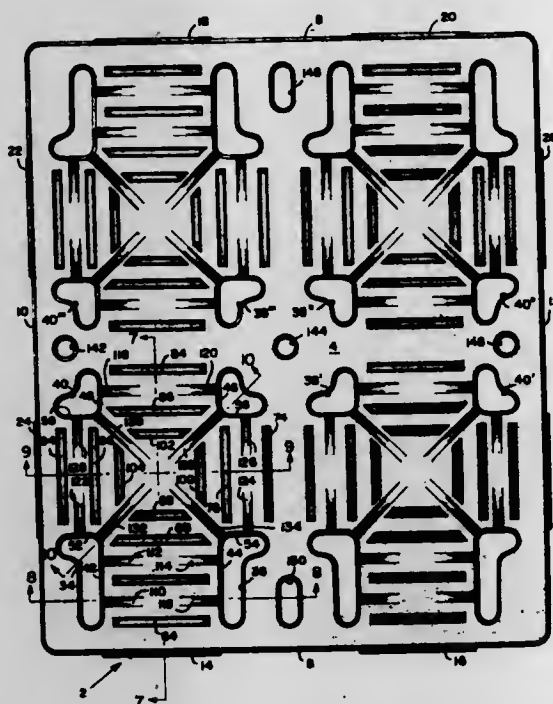


This is a collapsible table tennis structure having a top playing surface and a decorative undersurface. The table consists of a frame positioned adjacent to the outer edge of the undersurface of the table when the table is closed. The frame includes four legs wherein one end of each leg is hinged to the table so as to enable the other end of each leg to swing away from the undersurface of the table when the table is being opened until the legs are so situated as to support the table in the horizontal position. Means are provided for transferring the table from the horizontal to the vertical position when closing the table, and from the vertical to the horizontal position when opening the table. Means coupled to the transferring means are provided for moving the table toward the wall when closing the table, and away from the wall when opening the table. Additional means coupled to the transferring means are provided for supporting the table against the wall, and still further means are provided for holding the table against the wall in the vertical position whereby the table is stored against the wall when not being used.

3,736,885
PALLET
James R. Freund, Warminster, Pa., assignor to Pennsylvania Pacific Corporation, Warminster, Pa.
Filed Apr. 27, 1972, Ser. No. 248,037
Int. Cl. B05d 19/38
U.S. Cl. 108-58 1 Claim

A pallet adapted to be handled by a fork lift truck has an upper and a lower deck connected by side walls each having a pair of spaced openings for fork tines with the openings in opposite side walls being in alignment and each quarter of the pallet having a pair of said openings. Using imaginary planes perpendicular to the decks and bisecting the sides to divide the pallet into quarters, each quarter of the pallet has four hollow generally L-shaped columns disposed generally at the four corners of a rectangle with three of the columns being adjacent

the sides of openings in the side walls and one being located adjacent the center of the pallet. One side of each column is generally aligned with the side of one opening in said quarter and a second side of each column is generally aligned with a side of the other opening in the same quarter to provide for



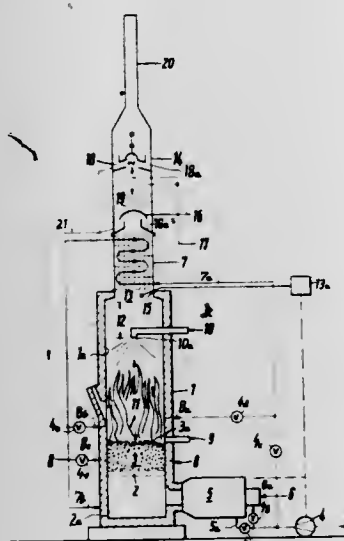
guidance of the fork tines. Hollow depending ribs extend between each adjacent column in each quarter. Arcuate ribs extend from each column in the direction of the diagonally opposed column in said quarter. At least one arcuate rib parallel to the pallet side walls extends from each column in the direction of each adjacent column in each quarter.

3,736,886 METHOD OF AND APPARATUS FOR THE COMBUSTION OF SLUDGE

Richard Menigat, 6051 Dietzenbach, Germany, assignor to Metallgesellschaft Aktiengesellschaft, Frankfurt/Main, Germany

Filed July 19, 1971, Ser. No. 163,905
Claims priority, application Germany, July 29, 1970, P 20 37 560.4

Int. Cl. F23g 5/00
U.S. Cl. 110-7 R 10 Claims



A method of and an apparatus for the combustion of sludge wherein the sludge is caused to fall freely through a fluidized-bed chamber from above through at least a sufficient distance to permit volatile components to be released by the cascading

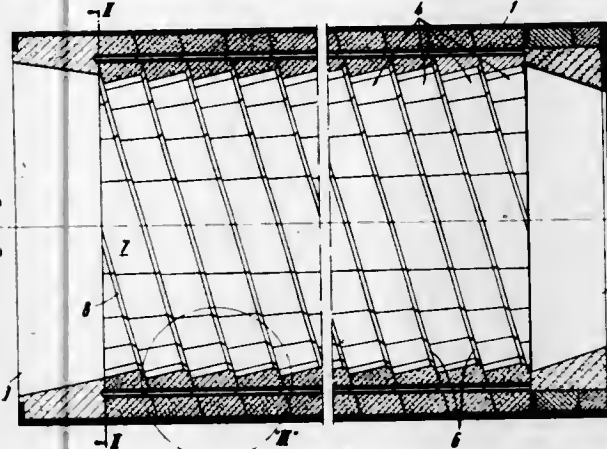
sludge and afterburning of these volatile components. The exhaust gases are removed at least three meters above the sludge inlet to the chamber.

3,736,887 ROTARY DRUM FURNACE

Wolfgang Wiedermann, Immenweg 19, 2092 Horst Post Maschen, Germany

Filed May 5, 1971, Ser. No. 141,061
Claims priority, application Germany, May 6, 1970, P 20 126.5; Aug. 5, 1970, P 20 38 896.9

Int. Cl. F23g 3/00
U.S. Cl. 110-8 R 12 Claims

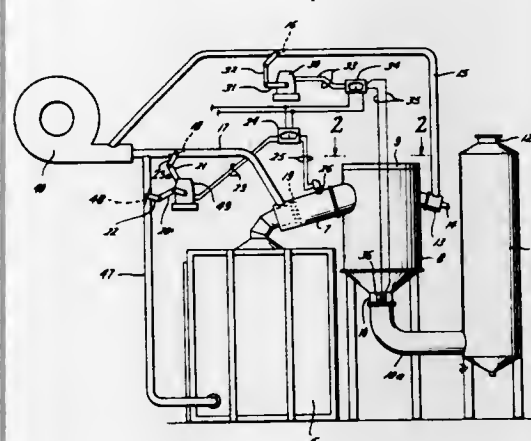


A drum-shaped casing has spaced axial ends provided with inlets and outlets, respectively, and is rotatable about a longitudinal axis which intersects both of these ends. A lining in the interior of the casing is composed of a plurality of axially arrayed annuli of refractory material each of which has a general plane inclined to the longitudinal axis of rotation. Between consecutive annuli radially inward steps are provided which extend circumferentially over most of the circumference of the lining and each of which is bounded by at least two circumferentially extending axially consecutive surface portions which are mutually inclined.

3,736,888 SMOKE AND FUMES ABATEMENT APPARATUS

George F. Lomax, Waco, Tex., assignor to Fred E. Mosley, Waco, Tex.

Filed July 29, 1971, Ser. No. 167,210
Int. Cl. F23g 5/12
U.S. Cl. 110-8 A 15 Claims



Smoke, fumes, and odors are reduced in or eliminated from combustion products from a burn box, incinerator, or furnace by being directed through an exhaust duct to a secondary burner chamber wherein the exhaust products are caused to spiral in one direction along the wall of the secondary burner chamber in a vortex, thence are reversed and directed in the

opposite direction through the center of the vortex before being discharged to a scrubber for further treatment or directly to the exhaust stack. Air is added to the primary burning box and to the mentioned exhaust duct in accordance with the temperature of the gases in the duct while the temperature of the secondary burner chamber is controlled, further, in accordance with the temperature of gases emerging therefrom.

3,736,889 METHODS FOR TRANSPLANTING PLANTS AND TREES

Sidney G. Reid, Oakville, Ontario, Canada, assignor to Ontario Research Foundation, Sheridan Park, Ontario, Canada

Filed Apr. 9, 1971, Ser. No. 132,909
Claims priority, application Great Britain, Apr. 14, 1970, 17,670/70

Int. Cl. A01g 9/02
U.S. Cl. 111-1 9 Claims

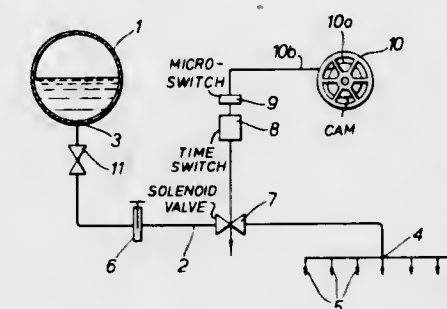


A method for transplanting plants or trees growing in soil or the like in a container involves the use of a container fabricated of prestressed glass, the embedding of the container in soil or the like and then fracturing of the container at a point to cause the container to break up into many small pieces.

3,736,890 METER

Edward Barnes, 7, Dene Way, Speldhurst, England
Continuation of Ser. No. 822,791, April 2, 1969, abandoned.
This application Sept. 16, 1971, Ser. No. 181,032
Int. Cl. A01c 23/02

U.S. Cl. 111-7 5 Claims



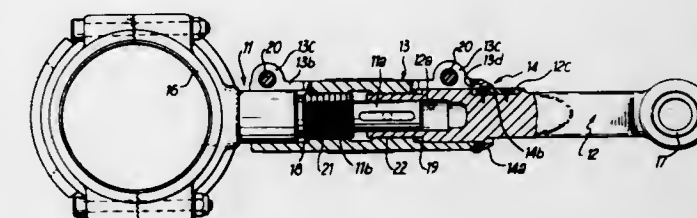
A device for delivering anhydrous ammonia to the soil so as to provide substantially uniform treatment of the soil which comprises a conduit or delivery pipe connected to a supply of anhydrous liquid ammonia through a valve which is opened for a set pre-determined period of time by a time switch. Means are provided for actuating the time switch at times spaced in proportion to the rate of movement of the apparatus over the soil.

3,736,891 CONNECTING RODS IN COMBINATION WITH A TUFTING MACHINE

Ronald Parsons, Rishton, Blackburn, England, assignor to The Singer Company (U.K.) Limited, London, England
Filed Aug. 12, 1971, Ser. No. 171,048

Claims priority, application Great Britain, Aug. 22, 1970, 40,558/70

Int. Cl. D05c 15/20
U.S. Cl. 112-79 R 4 Claims



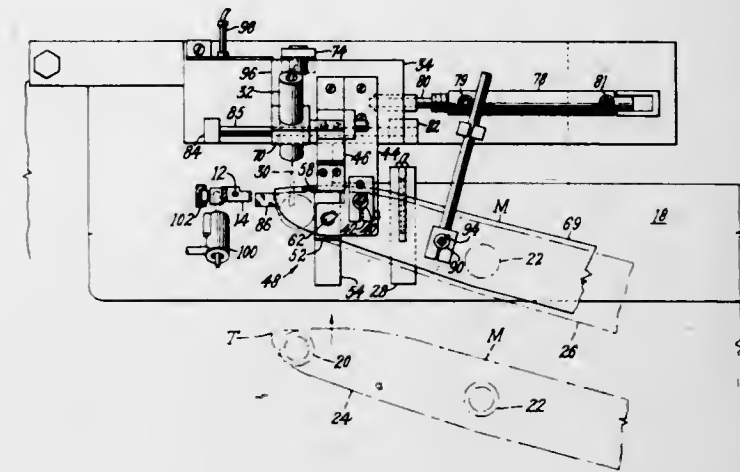
A connecting rod for transmitting a drive to a looper or knife shaft of a tufting machine includes an adjustment means for varying the effective length thereof, the adjustment means comprising a turn-buckle in screw-threaded engagement with and connecting together axially aligned rod-parts and a locking means for maintaining such rod-parts in an adjusted relative disposition.

3,736,892 AUTOMATIC HEMMING MACHINES

Richard W. Gray, Marblehead, Mass., assignor to USM Corporation, Flemington, N.J.

Filed July 30, 1971, Ser. No. 167,690
Int. Cl. D05b 35/02

U.S. Cl. 112-141 8 Claims



A system is provided for enabling a sewing machine to fold and secure edge portions of successive work pieces uniformly. More specifically, automatic mechanism is provided for the hemming of shirt collar bands and the like, each collar band being introduced and appropriately registered and controlled with respect to operating instrumentalities to enable the hemming to be precisely executed from one extremity of a collar band tip to the other whereupon the sewing thread is severed. The mechanism is particularly well adapted to cooperate cyclically in the coordinating of an automatic fabric feeder and the sewing machine.

3,736,893 SEAM CONNECTION AND METHOD FOR MANUFACTURING THE SEAM

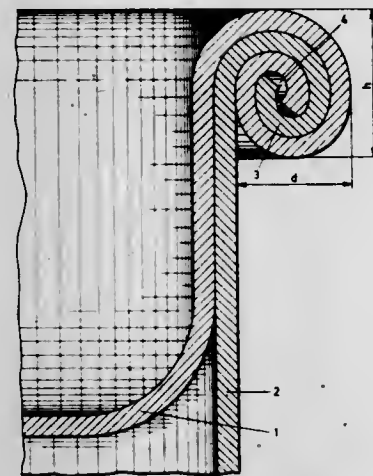
Matheus J. M. Coppens, Heide-Kalmthout, Belgium, and Heinrich J. Steen, Roosendaal, Netherlands, assignors to Koninklijke Emballage Industrie Van Leer N.V.
Filed July 27, 1970, Ser. No. 58,619

Claims priority, application Netherlands, Aug. 1, 1969, 6911769

Int. Cl. B21d 51/00

U.S. Cl. 113—120 Y

4 Claims



This application involves a method of forming spiral sheet metal seams of the type that are required between the side walls and ends of a steel drum. The seam is made in a spiral having a seal in its heart. The sheets which define the spiral are in mutual contact for the full length of at least one of them.

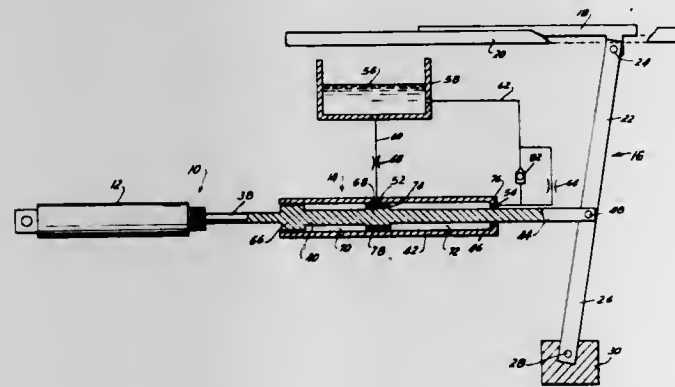
3,736,894 WORK FEED CONTROL

Leighton R. McKee, El Paso, Tex., assignor to Farah Manufacturing Company, Inc., El Paso, Tex.
Filed Nov. 3, 1971, Ser. No. 195,240

Int. Cl. D05b 27/00

U.S. Cl. 112—203

14 Claims



In a sewing machine having a work feed plate for supporting and reciprocally moving an article to be sewn between first and second positions beneath the sewing head of the machine at varying speeds and in a predetermined sequence in order to vary the spacing between stitches sewn into the article, means is provided for reciprocating the plate in accordance with the predetermined sequence, which means includes a double acting hydraulic ram or air cylinder applying a uniform pressure to the plate to move it between its first and second positions and means for variably resisting movement of the plate in accordance with the predetermined sequence to vary the speed of movement of the plate from its first to its second position. The resisting means includes a hydraulic control cylinder having at least two ports therein, a fluid reservoir in communication with the cylinder through the ports and a plunger in the cylinder operatively connected to the plate and cooperating with fluid in the cylinder to resist movement of the plate. The

plunger initially returns fluid in the cylinder to the reservoir through only one of the ports, then through both ports and finally through only one port so that movement of the plate is variably resisted and the plate is moved faster between the first and second position when fluid is returned to the reservoir through both of the ports than when fluid is returned to the reservoir through only one of the ports.

3,736,895 GUIDING APPARATUS FOR A STITCHING MACHINE

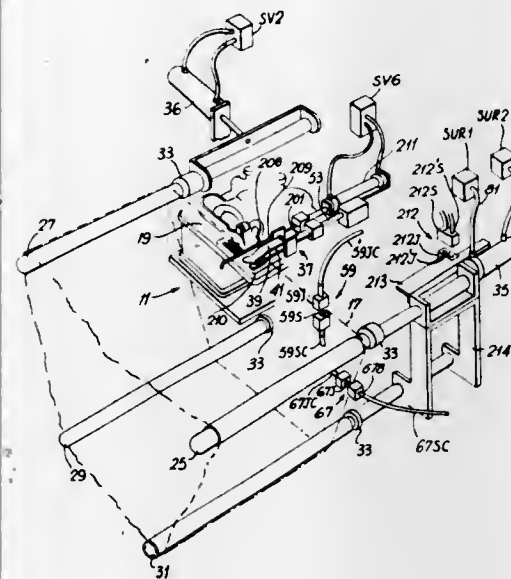
Trevor Alfred Farrar, Ravenshead, Nottingham; David George Hodson, Sherwood, Nottingham, and Derek Peat, Aspley, Nottingham, all of England, assignors to National Research Development Corporation, London, England
Filed June 17, 1971, Ser. No. 154,137

Claims priority, application Great Britain, June 18, 1970, 29,640/70

Int. Cl. D05b 27/00

U.S. Cl. 112—203

19 Claims



Apparatus for guiding an edge portion of an article through a stitching machine has supports for supporting the article and sensor means such as a fluid jet and sensor interrupted by the edge of the cloth. The sensor means provides a sewing guidance signal indicative of the position of the edge of the article to be stitched and means responsive to the sewing guidance signal move one or more of the supports to guide the said edge towards the said predetermined position. Preferably the supports support a tubular article in tubular form. In cases where the edge of a tubular article after the stitching operation is displaced relative to the position the edge had before the stitching operation, there may be included seam detector means arranged to detect the beginning of the stitched edge of the tubular article and to discontinue guidance of the edge.

3,736,896 METHOD AND APPARATUS FOR SEPARATING END PORTIONS FROM METAL CANS

Harry B. Osborn, Jr., and John H. Maxim, both of Cleveland, Ohio, assignors to Park-Ohio Industries, Inc., Cleveland, Ohio

Filed May 23, 1972, Ser. No. 256,154

Int. Cl. B23p 7/00

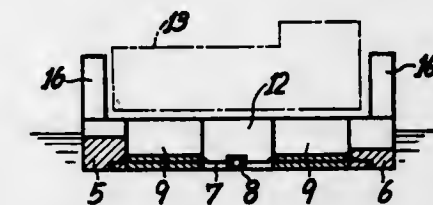
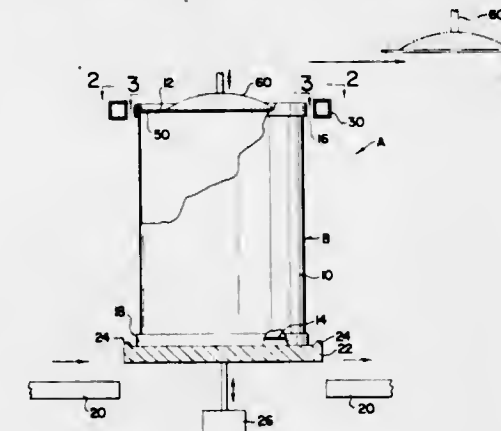
U.S. Cl. 113—1 K

10 Claims

A method and apparatus for separating the end portions, or

lids from a metal can including a cylindrical steel body portion and aluminum end portions wherein the aluminum end por-

which controls the depth of flotation. Each pontoon has a vertical pipe with a float in it which is responsive to the depth of flotation which operates an indicator for the second system.



Automatic controls may be provided for both systems and the systems for each pontoon may be coupled with the systems for the other pontoons in the dry dock.

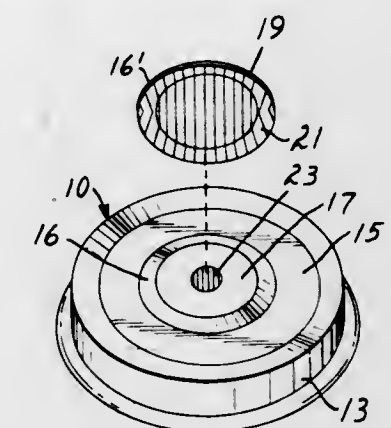
3,736,899 PRESSURE CHANGE INDICATOR

Wendell J. Manske, St. Paul, Minn., assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn.
Filed Oct. 28, 1971, Ser. No. 193,350

Int. Cl. G011 19/12

U.S. Cl. 116—70

11 Claims



The disclosed closure device for a hermetically sealable container has a flexible panel which is drawn inward in response to a vacuum within the container, and which pops outward when pressure in the container is restored; the outward movement of the flexible panel is made very dramatic by virtue of a contrasting color appearing on the top of the closure. The color is preferably provided by reflection from the flexible panel. The reflection occurs when visible light strikes the colored undersurface of a disc-like member attached to the flexible panel.

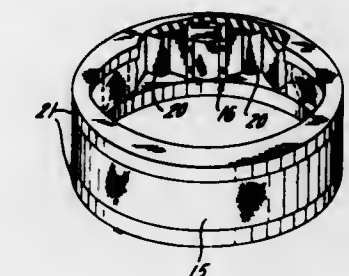
3,736,900 CARBURETOR AIR INTAKE FILTERS

Raymond M. Nowicki, 30 Linn Road, Nutley, N.J.
Filed Jan. 10, 1972, Ser. No. 216,365

Int. Cl. G011 19/12

U.S. Cl. 116—70

1 Claim



An annular pleated filter element with a vibrating reed warning device clamping ends of the filter paper and being bonded to end gaskets.

tions are melted adjacent the periphery of the body portion to allow separation from the can.

ERRATUM

For Class 113—120 see:
Patent No. 3,736,893

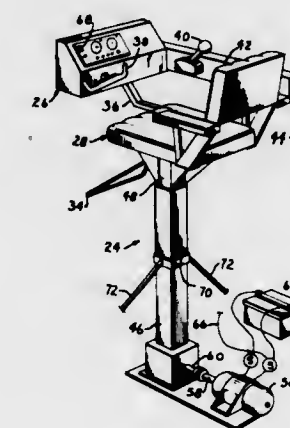
3,736,897 ELEVATING SKIPPER CHAIR FOR BOATS

Kenneth W. Krutz, 498 Uppermill Heights, Salina, Kans.
Filed Mar. 24, 1971, Ser. No. 127,581

Int. Cl. B63b 17/00, 29/04

U.S. Cl. 114—0.5

4 Claims



A control station for a motor boat is constructed to permit operation of the boat from either a deck-side location or a flying bridge using a single set of controls and control panel. The controls and control panel are rigidly secured to an operator's chair which is supported by a lifting mechanism. When the lifting mechanism is activated, the control panel, controls and operator's chair are all moved between a first position adjacent the deck and a second position at the flying bridge. A flexible umbilical cord assures uninterrupted connection between the control station and the operating mechanism.

3,736,898 DEVICE FOR CONTROLLING LIST AND LEVEL OF PONTOON

Ietoshi Yamura, Nerimaku, Tokyo, Japan, assignor to Mitsui Shipbuilding and Engineering Co. Ltd., Tokyo, Japan
Filed Nov. 18, 1970, Ser. No. 90,713

Int. Cl. B63c 1/02

U.S. Cl. 114—45

2 Claims

For a floating dry dock comprising a plurality of pontoons which are interconnected, means for leveling each pontoon. The apparatus has two interconnected systems, one of which corrects the list or inclination of the pontoon and the other of

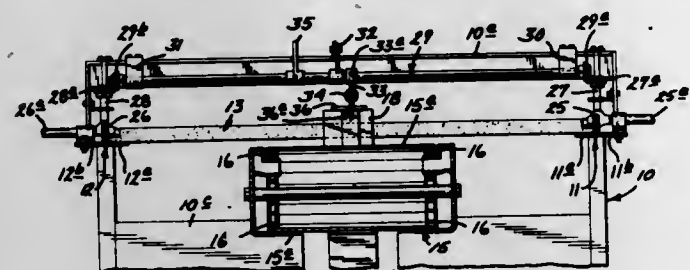
3,736,901

TILE GROOVING AND PAINTING MACHINE

Lawrence A. Aspenon, 2150 Sunrise Drive, La Crosse, Wis.
Filed June 4, 1971, Ser. No. 150,022
Int. Cl. B05c 7/00, 11/02

U.S. Cl. 118-2

4 Claims



Apparatus for grooving and painting the edges of ceiling tiles is disclosed. The tiles are conveyed past a first station where routers are mounted to form the grooves. The grooved tiles are then conveyed past a second station where a stream of paint is applied to each groove. Finally, the tiles move past a third station where a wheel-like paint roller smooths out the paint in each groove.

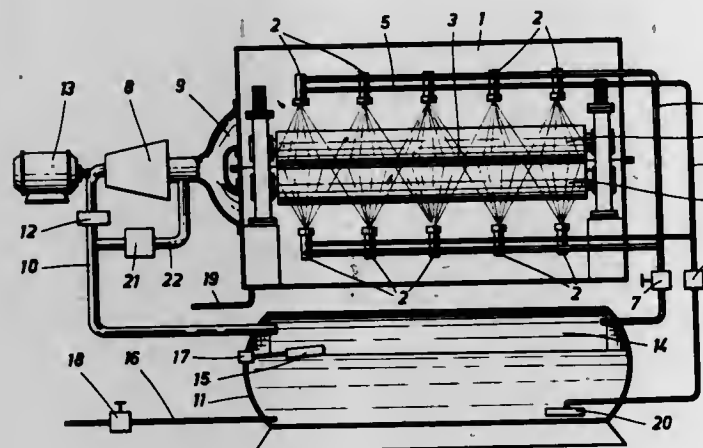
3,736,902

APPARATUS FOR OILING SHEET METAL STOCK
Stefan Glanzer, Linz, Austria, assignor to Vereinigte Österreichische Eisen- und Stahlwerke Aktiengesellschaft, Linz, Austria.

Filed Sept. 28, 1971, Ser. No. 184,489
Claims priority, application Austria, Oct. 19, 1970, 9378
Int. Cl. B05c 5/00, 11/15, 11/16

U.S. Cl. 118-50

6 Claims



Chamber-defining means define a chamber, a sealing inlet to said chamber and a sealing outlet from said chamber. Stock-feeding means are operable to feed sheet metal stock through said inlet, chamber, and outlet along a predetermined path. A plurality of nozzles open in said chamber and are spaced apart transversely to said path and directed toward said path and operable to discharge an oil-air mixture toward said path. A suction conduit is connected to said chamber. A compressor is connected between said suction conduit and a closed container and operable to such surplus oil-air mixture from said chamber and to deliver compressed air and oil to said container so as to form in said container a body of oil and a body of compressed air above said body of oil. An oil conduit is connected to said nozzles and to said container to communicate with said body of oil. A compressed air conduit is connected to said nozzles and to said container to communicate with said body of compressed air.

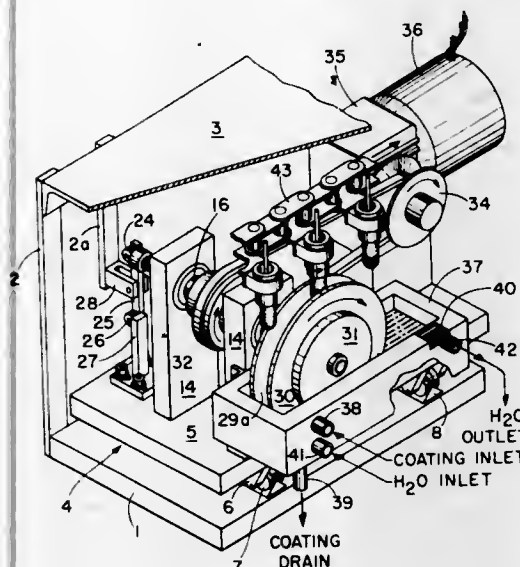
3,736,903

COATING APPLICATOR ARRANGEMENT

Bruce A. Townsend, Oshkosh, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed Dec. 21, 1970, Ser. No. 100,215
Int. Cl. B05c 1/02

U.S. Cl. 118-218

3 Claims



A coating device for coating generally cylindrical articles such as tampons. The device includes a pair of discs rotatable through a bath of coating material in a direction to present the discs with coating material spread thereon to a line of continuously advancing rotatably supported tampons. The tampons engage and pass between inner faces of the discs. The lubricant is one which aids tampon insertion by a user.

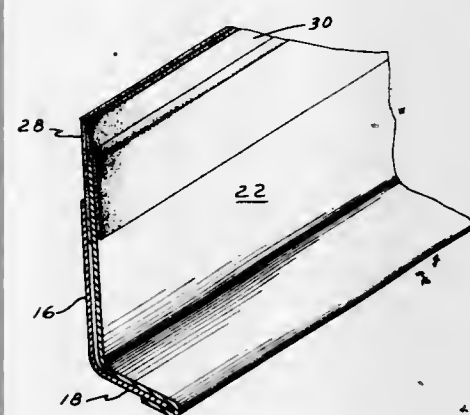
3,736,904

PAINTING GUARD

Alvin P. Kus, 43 Better Way, Springfield, Mass.
Filed July 3, 1972, Ser. No. 268,867
Int. Cl. B05b 15/04

U.S. Cl. 118-505

6 Claims



A painting guard for masking a wall portion while painting an adjacent portion. The painting guard comprises two inter-fitting L-shaped members wherein the outer L-shaped member has a vertical section which substantially overlaps the vertical member of the inner L-shaped member. The painting guard is used in association with two strips of masking tape or the like, wherein the first strip is positioned partially on the vertical section of the inner L-shaped member between the two L-shaped members, and the second strip is positioned on the vertical section of the outer L-shaped member and in partial contact with the first strip.

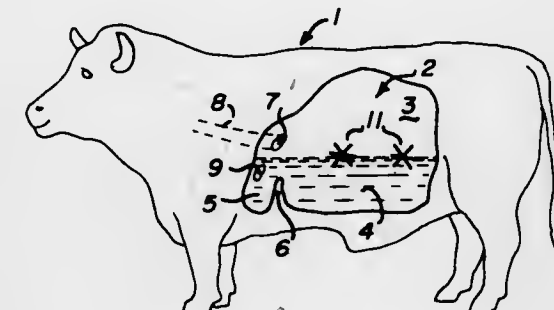
3,736,905

ARTIFICIAL RUMEN STIMULATOR AND METHOD OF
ADMINISTERING SAME

Parviz Kamangar, 11740 Berryessa Road, San Jose, Calif.
Filed Aug. 2, 1971, Ser. No. 168,336
Int. Cl. A01k 67/00

U.S. Cl. 119-51

17 Claims



The inside wall of the rumen of a ruminant is artificially stimulated for increasing the production of saliva to allow more rapid processing of a relatively greater volume of food. The artificial stimulator comprises a compressible or collapsible resilient structure having a plurality of outwardly directed fingers or prongs for massaging the inside wall of the rumen. The stimulator structure is collapsed and inserted within a retaining tube for oral administration to the ruminant. Once inside the rumen the fluids therein attack the restraining tube to release the stimulator which then expands due to its own resilience to a size sufficiently large to be retained within the rumen for the remaining life of the ruminant.

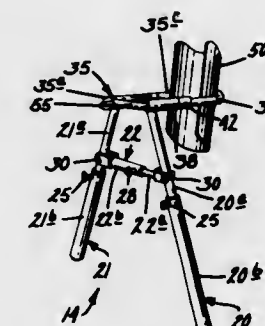
3,736,906

ANIMAL TAIL HOLDER

Wallace Peterson, Route 2, Boyceville, Wis.
Filed Oct. 8, 1971, Ser. No. 187,683
Int. Cl. A01k 13/00

U.S. Cl. 119-105

6 Claims



Apparatus for retaining the tail of an animal (e.g. a cow) in an upright forward position so as to render the hind legs of the cow generally immovable. The apparatus includes a generally A-shaped frame having adjustable legs attached to an upper frame portion and which are positionable on the rump of a cow. A channel member suitable for receiving the tail of a cow therein is attached to the upper frame portion in a spaced, rearward relationship therewith. The A-shaped frame and the attached channel member are retained in a generally upright position by an adjustable length chain which is attached to the holder frame and secured to an immovable object (e.g. a stanchion).

3,736,907

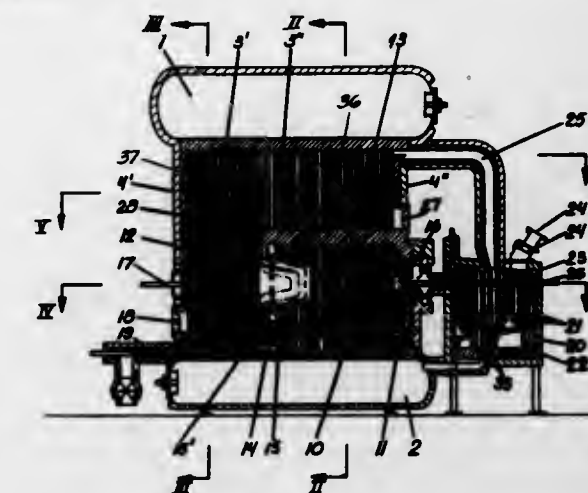
STEAM GENERATOR HAVING AT LEAST ONE
COMBUSTION CHAMBER FOR BURNING SOLID,
LIQUID AND/OR GASEOUS FUELS

Jacobo Agrest, Avda Belgrano 355, Buenos Aires, Argentina
Filed Apr. 16, 1971, Ser. No. 134,745
Claims priority, application Argentina, Apr. 20, 1970, 228173

Int. Cl. F22b 31/00

U.S. Cl. 122-2

5 Claims



Steam generator includes a watertube boiler having an upper and lower drum, a plurality of steam tubes extending between the drums and surrounding and defining a forward and rearward radiation chamber, and means for alternately and simultaneously burning solid, liquid and gaseous fuels for heating the boiler comprising a cylindrical tornado-flow combustion chamber disposed in a lower region of the boiler at an axial end thereof, the tornado-flow combustion chamber being lined with part of the steam tubes defining the radiation chambers and having tangential nozzles for feeding combustion air and fluid fuel thereto, the tornado-flow combustion chamber also having a burner and a conically outwardly flaring combustion gas outlet extending into the forward radiation chamber located at an axial end thereof, solid particulate fuel-burning additional combustion chamber lined with water tubes and located outside the boiler and adjacent the tornado-flow combustion chamber, the additional combustion chamber having a combustion gas line extending from the top thereof and communicating with the radiation chambers and further having a gas outlet communicating with the tornado-flow combustion chamber burner.

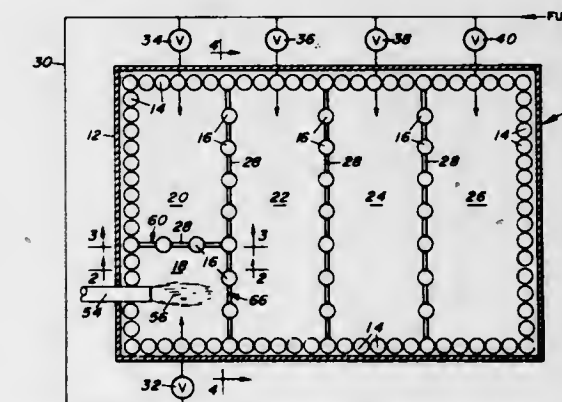
3,736,908

SYSTEM FOR STARTING A FLUIDIZED BED BOILER
Shelton Ehrlich, Bowie, Md.; John W. Bishop, Alexandria, Va.,
and Ernest B. Robison, Silver Spring, Md., assignors to The
United States of America as represented by the Secretary of
the Interior, Washington, D.C.

Filed Oct. 8, 1971, Ser. No. 189,471
Int. Cl. F22b 1/00

U.S. Cl. 122-4 D

12 Claims



Vertical barriers divide a large fluidized bed boiler into smaller regions. During starting, openings in the barriers con-

trol mixing of the bed particles without mechanical intervention.

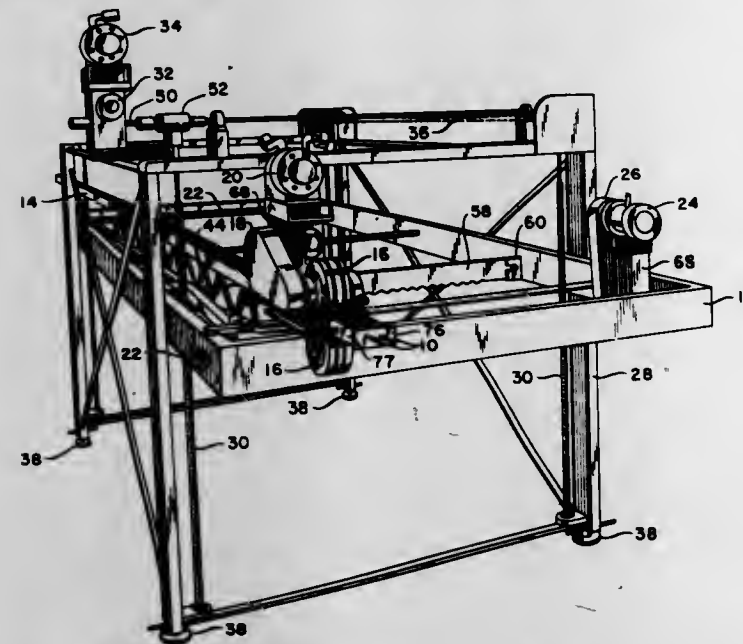
3,736,909 RODDING DEVICE

Elvino Marangoni, Martinez, and Douglass G. Webb, Jr., Walnut Creek, both of Calif., assignors to Shell Oil Company, Houston, Tex.

Filed Sept. 27, 1971, Ser. No. 184,138
Int. Cl. F23j 3/00

U.S. Cl. 122—390

10 Claims



An apparatus for cleaning the interior surface of tubes in a bank of tubes such as heat exchanger or furnace tubes, which includes a frame carrying a vertically adjustable carriage, the carriage provided with a horizontally adjustable means for supporting a fluid-carrying rod and a motor driven means for inserting and retracting the rod into the tubes, the motor driven means being positioned closely adjacent to a vertical boundary of the carriage to enable it to force the rod into a tube without buckling of the rod, and the process for employing the rodding device.

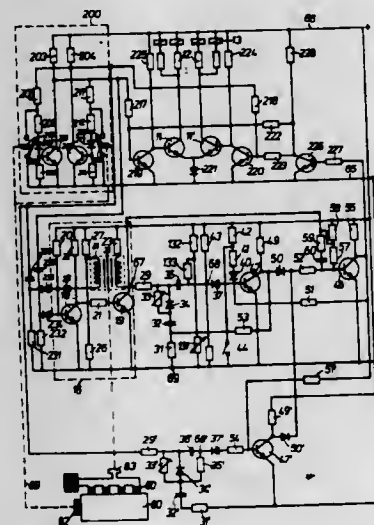
3,736,910 CONTROL CIRCUIT FOR CONTROLLING A FUEL INJECTING SYSTEM

Lothar Raff, 7141 Hochberg, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed July 13, 1971, Ser. No. 165,797
Claims priority, application Germany, July 14, 1970, P 20 34 764.2

Int. Cl. F02d 31/00; F02b 3/00
U.S. Cl. 123—32 EA

15 Claims



A control arrangement in internal combustion engines for controlling a group of electromagnetically actuated injection

valves simultaneously. A monostable multivibrator provides pulses synchronously with the rotational speed of the engine for the purpose of determining the opening duration of the injection valves as a function of at least one operating parameter, particularly the intake manifold pressure. A first electronic circuit operable only when the throttle valve is closed, inhibits the pulses when the engine is above an upper limit, and switches the pulses back on when the engine speed is below a lower limit which is above the idling speed. A second electronic circuit which is operable at all positions of the throttle, serves to switch off the pulses when the engine speed is above a maximum value, and then switches the pulses back on when the speed drops below this maximum value.

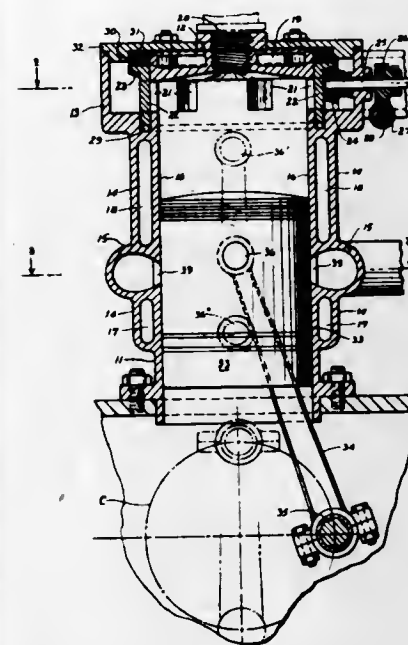
3,736,911 INTERNAL COMBUSTION ENGINE

Frederick C. Melchior, 258 Riverside Drive, New York, N.Y.

Filed June 28, 1971, Ser. No. 157,172

Int. Cl. F02b 75/02; F02d 39/04; F01i 7/00
U.S. Cl. 123—65 VA

11 Claims



An internal combustion piston type two-cycle, compression ignition engine having its cylinder walls provided with a plurality of substantially tangentially disposed spaced exhaust ports which are opened by the piston near the end of each power stroke, and a plurality of substantially tangentially disposed air intake ports at the end of the compression stroke, said intake ports being surrounded and controlled by a rotating sleeve having slots shaped and spaced to match the said intake ports, said sleeve being rotated at a speed equal to that of the engine crankshaft divided by the number of the intake ports therein.

3,736,912 APPARATUS FOR COMPENSATION OF THE OPERATION OF A NEGATIVE PRESSURE CONTROL TYPE FUEL INJECTION APPARATUS

Takao Okura, Iruma-gun, Saita-ken; Kiyoshi Miyaki, Asaka-shi, Saitama-ken, and Sakuji Arai, Kitaadachi-gun, Saitama-ken, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

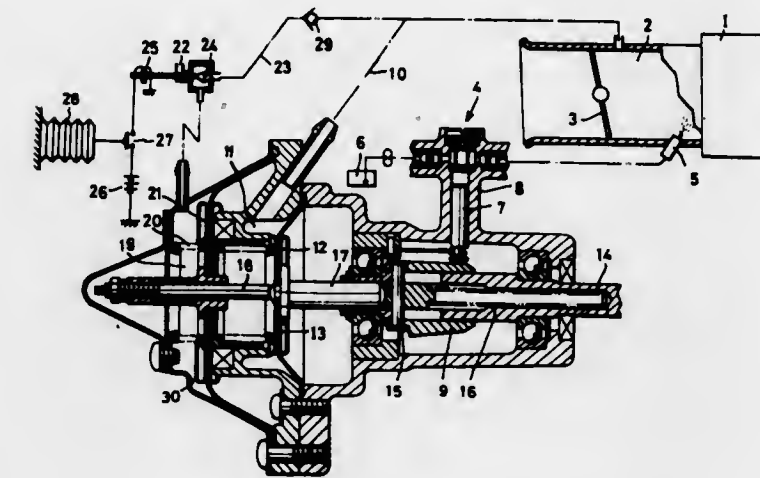
Filed Sept. 30, 1971, Ser. No. 185,298
Int. Cl. F02d 1/06; F02m 51/00

U.S. Cl. 123—140 MP

9 Claims

An apparatus of the type in which the amount of fuel injected to an internal combustion engine is controlled by a control member arranged to be moved with a front wall urged forwardly by a return spring and rearwardly by negative pressure in a negative pressure chamber connected to an air intake passage of the internal combustion engine. A second negative pressure chamber is provided behind the foregoing negative

pressure chamber and the foregoing return spring is supported by a second front wall, which is urged forward by a second return spring in the second negative pressure chamber, the in-



terior of the second negative pressure chamber being selectively connected to the atmosphere and the air intake passage of the engine through a change-over valve.

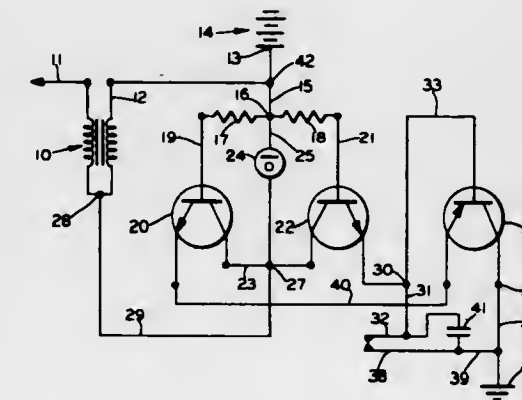
3,736,913 INDUCTOR CURRENT RELAY SWITCH

Peter G. Crisafulli, Sr., 1438 France Lane, Plainfield, N.J.

Filed June 8, 1971, Ser. No. 150,959

Int. Cl. F02p 1/00
U.S. Cl. 123—148 E

3 Claims



An inductor relay switch ignition system for an internal combustion engine having a vehicular electrical system incorporating an ignition coil, a battery and a pair of intermittently-opened breaker points, includes a lead connecting the positive terminal of the coil with the battery, a neon lamp connected by a lead to the battery on one side and to the negative coil terminal on the other side, a resistance connected at the battery side of the lamp on one end, an NPN transistor connected at its base terminal to the other end of the resistance, a second resistance connected at the battery side of the lamp on one end and a second NPN transistor connected at its base terminal to the other end of the latter resistance. A common lead connects the collector terminals of both NPN transistors with the other side of the lamp. Also, a PNP transistor has a lead connecting its base terminal with the emitter terminal of one of the NPN transistors, a lead connecting its emitter terminal with the emitter terminal of the other NPN transistor, and a lead from its collector terminal is connected to ground. The lead connecting the base PNP transistor terminal with the NPN transistor emitter terminal also is connected to one of the breaker points. Finally, the second breaker point is connected with the ground lead.

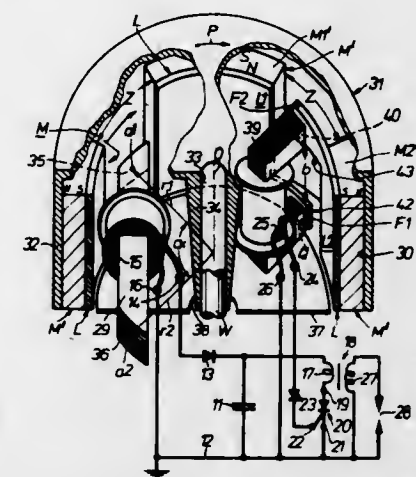
3,736,914 ELECTRONIC IGNITION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Peter Schmaldienst, Nurnberg, and Gunter Brand, Stuttgart, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed July 7, 1971, Ser. No. 160,413
Claims priority, application Germany, July 7, 1970, P 20 33 484.3

Int. Cl. F02d 1/00
U.S. Cl. 123—148 E

7 Claims



A plurality of magnets rotated by the engine induces an alternating current voltage in a winding for charging the ignition capacitor, the discharge of the capacitor being controlled by a thyristor of which the control electrode is connected to a winding in which is induced, one each complete rotation of the magnets, a control voltage. Two neighboring magnets have extension pieces that cooperate with the core of the control winding to induce therein the control voltage, the remaining magnets being so positioned with respect to the core that during rotation these magnets induce no control voltage.

3,736,915 CARBURETOR EMISSION CONTROL DEVICE

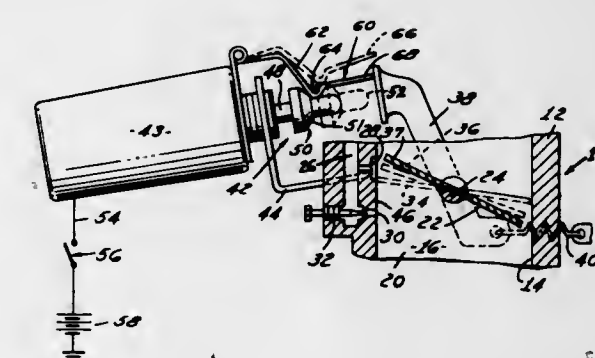
William E. Dickensheets, Southfield, and Alvin P. Nowroski, Livonia, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Nov. 29, 1971, Ser. No. 202,894

Int. Cl. F02m 3/02; F02b 77/08; F02d 11/08

U.S. Cl. 123—198 DC

12 Claims



The throttle valve of a carburetor is limited in its closing movement by a mechanically and electrically controlled stop, a solenoid connected to the engine ignition circuit is energized upon engine start up to limit closing movement of the throttle valve to a normal idle speed position, engine shutdown permitting closing of the throttle valve by deenergization of the solenoid, subsequent depression of the vehicle accelerator pedal opening the throttle valve and positioning an additional stop means to prevent closing of the throttle valve beyond a fast idle position, for starting purposes.

3,736,916

SELF-CLEANING OVEN DOOR STRUCTURE

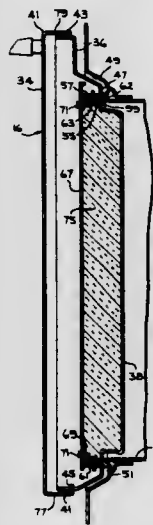
James A. White, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Sept. 5, 1972, Ser. No. 286,450

Int. Cl. F23m 7/00

U.S. Cl. 126—198

5 Claims



An oven door of sheet metal construction having an outer door panel, an inner door liner and an inner panel that is adapted to be exposed to the internal oven temperatures. The inner panel is of shallow pan configuration with a peripheral flange that extends into a large opening in the inner door liner. A strip of gasket material encircles the inner panel and spaces the inner panel from the inner door liner in the manner of a thermal break. An insulation guard closes the inner panel to form a closed box-like structure that is substantially filled with thermal insulating material. A cooling air channel is located between the insulation guard and the outer door panel so that currents of cooling air may pass up through the cooling channel.

3,736,917

VENTING MEANS FOR COOKING UTENSIL

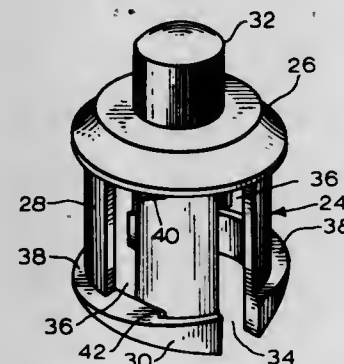
Frank E. Stepanek, La Grange Park, Ill., assignor to American Home Products Corporation, New York, N.Y.

Filed Jan. 28, 1972, Ser. No. 221,625

Int. Cl. A47j 27/08, 27/092

U.S. Cl. 126—389

10 Claims



A valve for a cooking utensil has means to lock the same in an open position, in a closed position, or to allow the same to jiggle freely as an audible and visual warning signal when a predetermined vapor pressure has been reached in the utensil. The valve can be used for either "waterless" or regular cooking methods.

3,736,918

METHOD AND APPARATUS FOR IN VIVO MEASURING BLOOD VELOCITY IN CAPILLARIES

Ralf E. Mutschelknauss, Roxel; Johannes P. Schumann, Munster, both of Germany, and Manfred Bergman, Geneva, Switzerland, assignors to Institut de Recherche Woog, Geneva, Switzerland

Filed Oct. 5, 1970, Ser. No. 78,107

Claims priority, application Switzerland, Oct. 2, 1970, 14670/70

Int. Cl. A61b 5/02

U.S. Cl. 128—2.05 F

27 Claims

A non-destructive method and apparatus for measuring blood flow for use, for example, in objectively evaluating massaging effects on skin and mucous membranes, for example the effects of a massage of the gingiva by dental devices. An area containing a blood vessel to be investigated is intravitaly sensed to provide a magnified image of the area which is continuously recorded. The velocity of the blood flow in the blood vessel is quantitatively sensed from the reproduced magnified image. In a preferred embodiment, the blood vessel is sensed by the use of an intravital microscope in combination with a split opaque illuminator to provide a magnified image of the blood vessel for recording, for example, by a videotape recorder. The recorded videotape image is reproduced on a suitable screen and the velocity of blood flow is quantitatively sensed by causing a spot of light to traverse the screen at about the same rate of the blood flow appearing on the screen. The rate of the traverse of the flying spot indicates the velocity of the blood flow. By sensing the difference in the velocity of the blood flow before and after massaging of the gingiva by a dental device, the effect of the massage may be objectively determined.

3,736,919

SPECULUM LATCHING MECHANISM

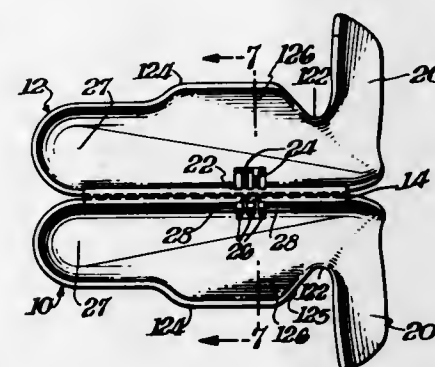
John Cotey, Haddonfield, N.J., assignor to Medspecs, Inc., Frederick, Md.

Filed Sept. 13, 1971, Ser. No. 179,929

Int. Cl. A61b 1/30, 1/32

U.S. Cl. 128—17

5 Claims



A latching mechanism is provided for a speculum. The speculum itself is formed of a stiffly flexible plastic material whereby two blade-like members are joined along one edge by a hinge which integrally connects the two blades together for pivotal movement between open and closed positions. The latching mechanism comprises interlocking, teeth-like protuberances formed integrally on the interior surfaces of the blades contiguous to the blade edges. These protuberances are interleaved such that they frictionally engage each other thereby to maintain the relative open or closed position of the blades. The tips of the engaging surfaces may have a raised pad to increase the frictional contact and yet maintain constant loading on blade pivotal movement.

3,736,920

TRAVELING MASSAGER ASSEMBLY

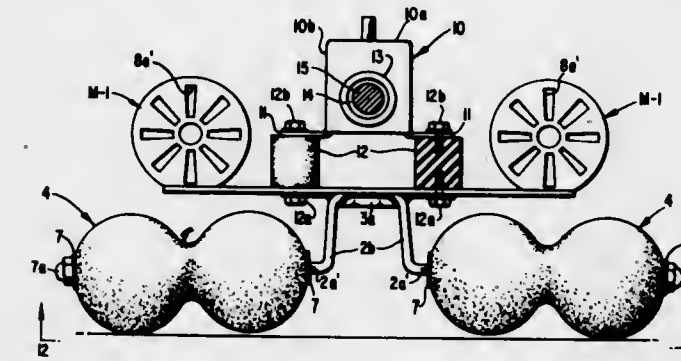
Kenneth R. Mathers, Fredonia Village, and Reuben T. Carlson, Jamestown, both of N.Y., assignors to Niagara Therapy Manufacturing Corporation, Brocton, N.Y.

Filed Mar. 18, 1971, Ser. No. 125,482

Int. Cl. A61h 1/00

U.S. Cl. 128—33

26 Claims



A traveling massager assembly adapted for association with a massage table or the backrest of a reclining chair whose body supporting cushioning features a hammock forming sheet of strong and flexible material secured at its perimeter to the cushioning framework, and a relatively thick slab of highly resilient padding having efficient vibration transmitting capabilities supported by said hammock forming sheet without framework attached springs; said cushioning operating in combination with a traveling massage carriage supported by a suspension shaft extending longitudinally of the cushioning framework along the approximate centerline of the hammock forming sheet with the ends of the shaft resiliently and adjustably suspended from the cushioning framework; the massage carriage embracing a series of resilient massage rollers positioned in rolling contact with a tough and flexible inner liner secured to the hammock forming sheet on opposite sides of the shaft, the massage rollers being resiliently supported in cantilever suspension by a roller supporting framework whose center sections are rigidly secured to a vibratory motor supporting baseplate, the carriage baseplate being connected to a carriage suspension member rockably journaled on the shaft by a pair of resilient and flexible mounts secured in spaced relation to the baseplate along the approximate centerline thereof; and driving mechanism for slowly reciprocating the carriage suspension member along the shaft.

3,736,921

FACIAL MASSAGER

Sohji Kawada, 49-6, Nakano 5-chome, Nakano-ku, Tokyo, Japan

Filed Nov. 25, 1970, Ser. No. 92,687

Int. Cl. A61h 7/00

U.S. Cl. 128—56

1 Claim



A facial massager, wherein at the opening end of a case an elastic friction plate is mounted on a rotary shaft of a motor contained in the case and projecting fins are provided on the surface of the friction plate. A piston in a cylinder which is disposed at right angles to the case is reciprocated by a crank

of the rotary shaft, and stains on the face are absorbed by the absorbing action of the piston, massaging the face with the friction plate.

3,736,922

NOZZLE ASSEMBLY FOR A HYDROTHERAPEUTIC UNIT

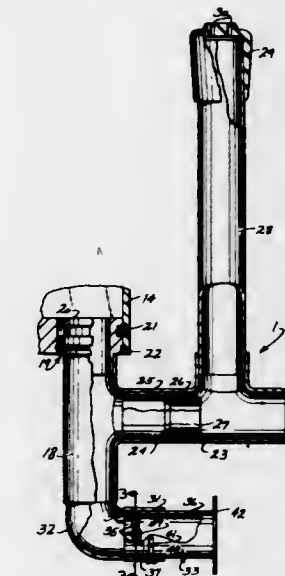
Richard C. Schneider, 701 N.E. 23rd Terrace, Pompano Beach, Fla.

Filed Aug. 16, 1971, Ser. No. 171,953

Int. Cl. A61h 9/00

U.S. Cl. 128—66

9 Claims



A dual nozzle assembly for a hydrotherapeutic unit. The nozzle assembly includes a primary nozzle having a fixed orifice and combined with a secondary nozzle having a variable orifice. Both of the nozzles are located beneath the level of water in a tub or tank, and water under pressure is introduced into the inlet of the nozzle assembly. The water passing through the primary nozzle provides an aspirating action to draw air into the primary nozzle through a standpipe which extends above the water level. Air is mixed with the water and the aerated high pressure stream is discharged beneath the water level. By adjusting the variable orifice of the secondary nozzle, the amount of water directed through the primary nozzle can be varied to thereby vary the velocity of the water being discharged.

3,736,923

ORAL HYGIENE DEVICE

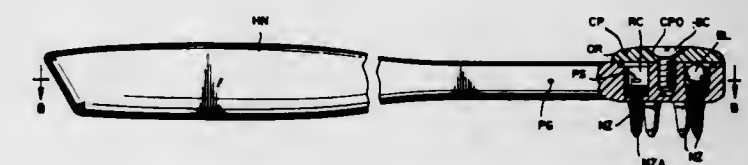
Richard Grant Parkison, Louisville, Ky., assignor to American Standard Inc., New York, N.Y.

Filed Jan. 4, 1971, Ser. No. 103,463

Int. Cl. A61h 9/00

U.S. Cl. 128—66

18 Claims



A hydraulic oral hygiene structure which produces a pulsed stream of water without employing a pump or other motor driven reciprocating device. The structure includes an elongated handle having an opening therein which leads to a race chamber which may enclose a spherical ball which is rotatable over a circular path or paths within the race chamber. A plurality of apertured nozzles are affixed to the race chamber and they are so arranged that, as the ball revolves within the chamber, water flowing through the race chamber will be

emitted through the apertures of the nozzles in a pulsed stream or streams. The nozzles are tapered and flexible so that their ends may be moved between the teeth or against the gums or both.

3,736,924

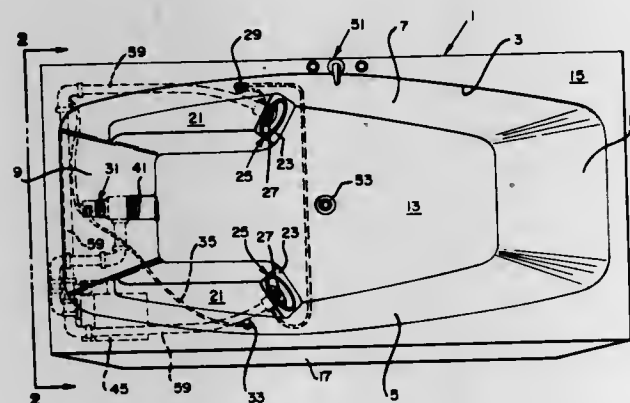
HYDROMASSAGE TUB ASSEMBLY

Roy A. Jacuzzi, Moraga, and Peter L. Kosta, Lafayette, both of Calif., assignors to Jacuzzi Research, Inc., Berkeley, Calif.
Filed Jan. 26, 1972, Ser. No. 220,813

Int. Cl. A61h 9/00

U.S. Cl. 128—66

6 Claims



A hydromassage tub assembly involving a tub in which one end is contoured with a relatively steep end wall and associated arm rests to provide a back rest and arm supports for relaxed sitting posture, while the opposite end of the tub is contoured with an end wall of shallow slope to permit of a comfortable substantially full reclining position by an occupant of such tub. A jet assembly is installed in the end of each arm rest to provide general hydromassage action, while a jet assembly installed in the back rest end wall provides hydromassage action directly to the neck, shoulders and back while in the sitting posture.

3,736,925

FACE-LIFTING APPARATUS

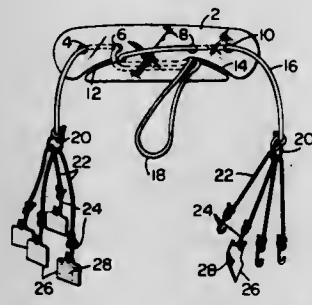
Allan Erman, Los Angeles, Calif., assignor to Marce Cosmetics, Ltd., Beverly Hills, Calif.

Filed Mar. 11, 1971, Ser. No. 123,264

Int. Cl. A61f 5/08

U.S. Cl. 128—76 B

1 Claim

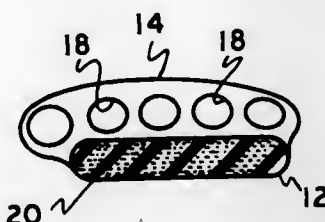


A face-lifting apparatus comprising a plate with four aligned holes and two spaced grooves, an elastic line threaded through the holes and sufficiently slack between the center holes to form an extended loop which is wedgedly positionable in the grooves, a ring at each end of the line with strings threaded therethrough and suspended therefrom, a hook at either end of each string, and adhesive tabs removably attached to the hooks.

3,736,926
HAND COVERING DEVICE
James E. Irby, Route 3, Box 145, Spartanburg, S.C.
Filed Apr. 16, 1971, Ser. No. 134,723
Int. Cl. A61f 5/37

U.S. Cl. 128—133

13 Claims



An article is disclosed to be worn on the hand comprising a palm covering member with which is associated a resilient body. Additionally, means are provided for securing the palm covering member and the resilient body to the hand of a wearer with the resilient body being placed adjacent the palm of the hand. The palm covering member may be integral with a glove to be worn on the hand or may be a member which is wrapped around the hand and secured thereto. In the embodiment where a glove is provided, the finger portions of the glove may be open-ended so as to permit the fingers to extend therethrough. One purpose of the device of the present invention is, when worn, to prevent an infant from picking up small articles that could prove dangerous to the infant because of sharp edges or the like on the article, or that could be placed into the mouth of the infant and prove dangerous when swallowed. As such, the resilient body used with the device of the present invention should be of sufficient size to prevent interaction between the thumb and fingers of the wearer necessary for the grasping and lifting of objects. The device of the present invention has other uses as will be elaborated on hereinafter.

3,736,927

SELF-CONTAINED AIR PURIFIER AND CONDITIONER UNIT

Fazlollah Leo Misaki, 1407 Meadowlark Drive, Pittsburgh, Pa.
Continuation-in-part of Ser. No. 841,432, July 14, 1969,
abandoned. This application May 17, 1971, Ser. No. 144,080

Int. Cl. A62b 7/00

U.S. Cl. 128—145.6

2 Claims



An integrated composite component, self-contained air purifier and conditioner unit for portable use by individuals. A compact battery driven air blower and protective head covering adapted for delivery of and electrically purifying and/or conditioning air to the face of a user are incorporated in the unit.

3,736,928

COLLAPSIBLE FACE MASK

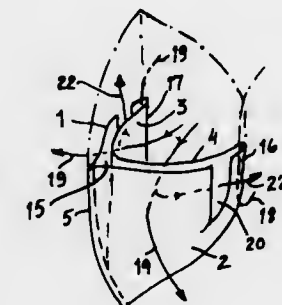
Erik Arne Andersson, and Bror Axel Erling Andersson, both of Stockholm, Sweden, assignors to Nils O. W. Rundblad, Markaryd, Sweden

Filed Mar. 15, 1971, Ser. No. 124,259

Int. Cl. A62b 23/02

U.S. Cl. 128—146.2

1 Claim



The invention is concerned with a hygienic face mask formed from a single sheet of air-filtering fibrous sheet material so folded as to provide a free space between outer and inner walls of the mask. Air flow openings are or may be provided at the rear end portion of the outer walls. The mask is held snugly against the nose and adjacent portion of the face of the wearer by means of a stiff but deformable clip member inserted in slits in the top of the mask.

3,736,929

SELF-SHAPING EARPLUGS

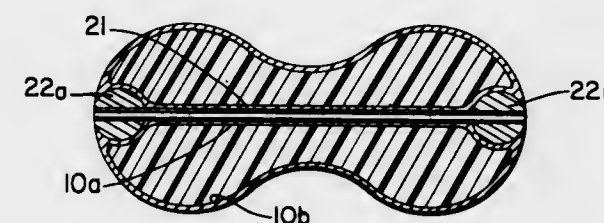
Allen William Mills, 11 College Avenue, Arlington, Mass.

Filed July 9, 1970, Ser. No. 53,384

Int. Cl. A61f 11/02

U.S. Cl. 128—152

14 Claims



An earplug preferably having a dumbbell shape and preferably of an elastic material, a filler contained therein to attenuate audible sound but plastic enough to be deformed, and a stiffening member at the axis of the earplug to assist in inserting the earplug into the ear canal.

3,736,930

PARENTERAL ADMINISTRATION FLUID FLOW CONTROL SYSTEM

Heinz W. Georgi, La Jolla, Calif., assignor to Ivac Corporation, San Diego, Calif.

Filed Apr. 14, 1970, Ser. No. 28,398

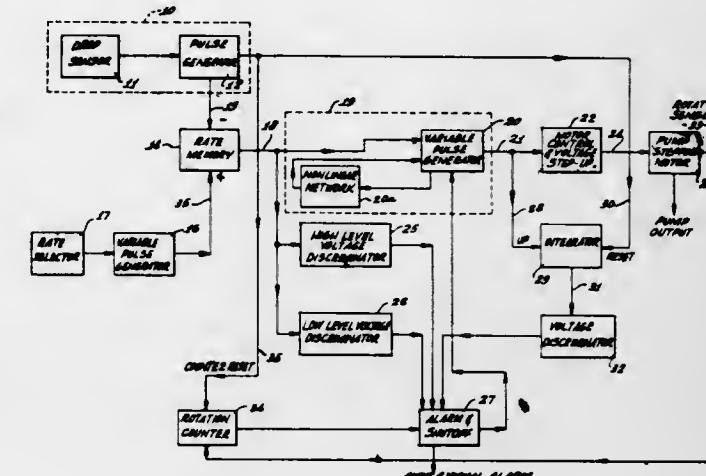
Int. Cl. A61m 5/16

U.S. Cl. 128—214 E

25 Claims

Apparatus for parenteral administration of medical fluids, wherein a peristaltic infusion pump is automatically regulated by a digital control system to establish a fluid flow rate at any selected rate in a wide dynamic range, typically a 100 to 1 range. Measured and desired flow rates are converted to digital signals and compared, the electrical difference being used to vary a control voltage which establishes the frequency

of pulses energizing a stepping motor drive for the pump. Aural and visual alarms respond to out-of-limit conditions de-



ected by appropriate monitoring circuits in the control system.

3,736,931

CATAMENIAL NAPKIN

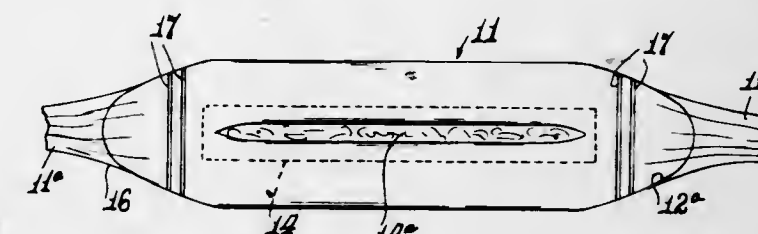
Jacob A. Glassman, 1680 Meridian Avenue, Miami Beach, Fla.

Filed June 9, 1971, Ser. No. 151,209

Int. Cl. A61f 13/16

U.S. Cl. 128—290 R

7 Claims



A catamenial napkin having an outer non-compressed layer of fluid absorbent material and an inner core of highly compressed fluid absorbent material enclosed therein. The napkin preferably is V-shaped in cross section and is arch-shaped in its longitudinal direction by die compression. When the inner core is wetted, it swells and dynamically expands the outer non-compressed layer in all directions and thereby adjusts itself to each wearer.

3,736,932

INJECTION APPARATUS WITH FILTER

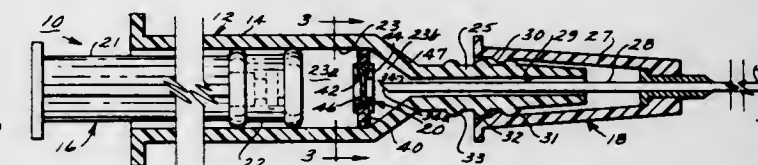
Fred E. Satchell, Chesterfield, Mo., assignor to Sherwood Medical Industries Inc., St. Louis, Mo.

Filed Feb. 15, 1972, Ser. No. 226,615

Int. Cl. A61b 10/00; A61m 5/00

U.S. Cl. 128—218 R

20 Claims



A fluid medicament injection device is provided which has a housing, a chamber in the housing, a metallic filter dividing the chamber into forward and rearward portions, and a needle mounted for movement relative to the filter. In one position of the needle, it is in direct fluid communication with the forward portion of the chamber so that fluid flowing between the forward and rearward chamber portions is filtered by the filter, and in another position, the needle by-passes the forward

chamber portion and the filter, and is in direct fluid communication with the rearward chamber portion.

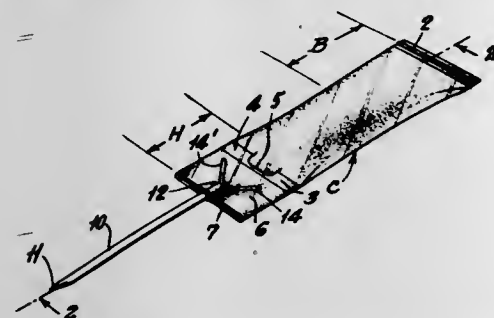
3,736,933

BURSTABLE SEAMED HYPODERMIC APPLICATORS

Bela G. Szabo, 5138 Delford St., Pittsburgh, Pa.
Filed Dec. 2, 1970, Ser. No. 94,381
Int. Cl. A61m 5/00, 1/00

U.S. Cl. 128—216

9 Claims



Single-use hypodermic applicators are formed of single or multiple chambers containing liquid medicaments of all types. These low-cost applicators are formed from synthetic plastic tubing in flattened form with a sterile hollow needle sealed therein and projecting from the front end of the applicator body with the inner end of the needle enlarged and sealed within a chamber formed in tubing forwardly of the medicament chamber. A normally heat-sealed seam between chambers is adapted to be ruptured by finger pressure imposed on the outer walls of the medicament chamber to force the medicament from the latter into the forward chamber and through the hollow needle for ejection through the pointed end thereof when the same is inserted into a receiving body. The applicator body is formed with one, two or more medicament chambers separated by burstable seams extending in straight lines transversely of the longitudinal axis of the tubing and provided with critically dimensioned and oriented weakenings so that finger pressure applied selectively to these chambers will control the dosage of medicament forced forwardly towards the enlarged end of the hypodermic needle. The needles are designed to be packaged compactly and dispensed conveniently for use in large or limited number. Also, the only two components of the applicators, namely, the needles and the plastic medicament containers, may be salvaged and processed for re-use.

3,736,934

SURGICAL DRAINAGE APPLIANCE

Alexander J. Hennessy, 55 Essex St., Cambridge, Mass.
Continuation-in-part of Ser. No. 838,122, July 1, 1969,
abandoned. This application Sept. 21, 1971, Ser. No. 182,467
Int. Cl. A61f 5/44

U.S. Cl. 128—283

7 Claims



A surgical drainage appliance adapted to collect body wastes of patients who have had colostomy, ileostomy and ileum bladder operations. The appliance is positively adhered

to the skin surrounding the stoma and is adapted to removably hold a disposable waste receptacle having an opening in registration with the stoma. The receptacle may be easily changed without affecting the face plate of the appliance which remains adhered to the patient without the necessity of belts and absorbent pads.

3,736,935

SURGICAL SPONGE

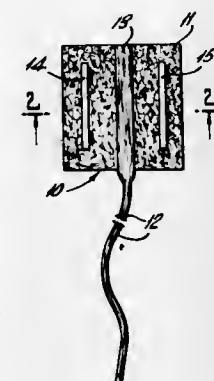
Harry G. Reimels, Braintree, Mass., assignor to Codman & Shurtleff, Inc., Rudolph, Mass.

Filed Feb. 17, 1971, Ser. No. 116,187

Int. Cl. A61f 13/00

U.S. Cl. 128—296

4 Claims



A surgical sponge useful for delicate surgical procedures is made by providing a strip of nonwoven fibers which are securely bonded against delamination, and bonding a plastic retrieval thread to the surface of the strip by heat-softening a portion of the thread to cause it to flow partially into the surface of the strip. The resulting sponge may also have a band of radiopaque material bonded to its surface by heat-softening the plastic material of the band.

3,736,936

CRYOGENIC HEAT TRANSFER DEVICE

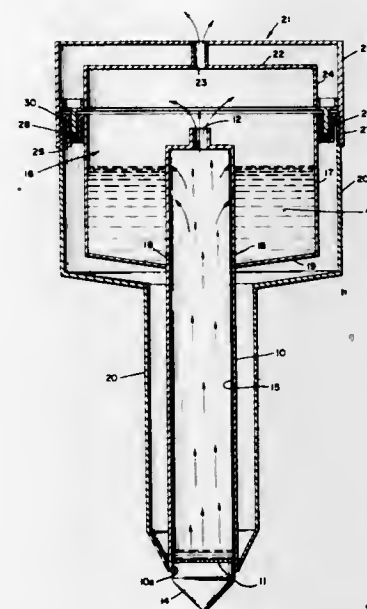
Algerd Basiulis, Redondo Beach, and Elmer E. Reed, Jr.,
Downey, both of Calif., assignors to Hughes Aircraft Co.,
Culver City, Calif.

Filed Dec. 13, 1971, Ser. No. 207,431

Int. Cl. A61b 17/36; F25d 3/00; A01k 11/00

U.S. Cl. 128—303.1

13 Claims



Heat transfer devices especially suitable for cryosurgery are disclosed each including an elongated tubular housing of low thermal conductivity having an open end and a closed end. A conical probe member of high thermal conductivity is mounted at and extends from the closed end of the housing. A

capillary wick lining the inner lateral surface of the housing is adapted to convey a volatile working fluid such as liquid nitrogen at a temperature of -196°C from the vicinity of the open end of the housing to the vicinity of the closed end. A working fluid reservoir is disposed about the open end of the housing in fluid communication with the capillary wick. An annular evacuated chamber is provided about the outer surface of the reservoir and a substantial portion of the outer lateral surface of the housing to afford thermal insulation.

3,736,937

CRYOGENIC TOOL

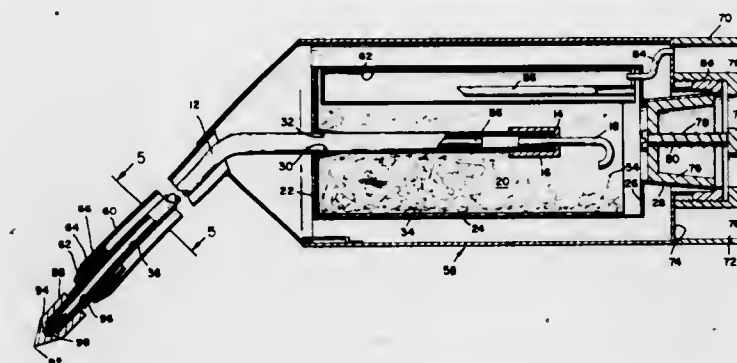
Algerd Basiulis, Redondo Beach, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed June 8, 1972, Ser. No. 260,873

Int. Cl. A61b 17/36; F25d 3/00; A01k 11/00

U.S. Cl. 128—303.1

26 Claims



The external surface of the working tip of the cryogenic tool is applicable to any point where cooling is desired, for example, affected tissue in cryosurgery. An inner surface of the tip is supplied with a cryogenic liquid thru a capillary active surface from a reservoir. The boiled off cryogen vapor exits from the cryogenic tool to atmosphere.

3,736,938

OPHTHALMIC METHOD AND APPARATUS

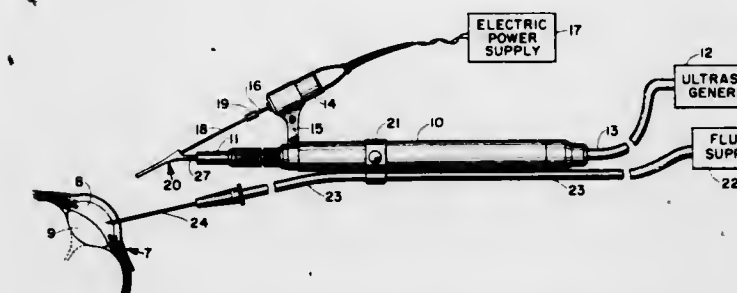
John C. Evvard, Strongsville; William J. McGannon, Lakewood, and Donald J. Vargo, Seven Hills, all of Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Nov. 15, 1971, Ser. No. 198,885

Int. Cl. A61b 17/32, 17/00

U.S. Cl. 128—305

13 Claims



A method and apparatus for removing material and components such as the lens from an eye is described. High speed rotary cutting members at one end of a rod macerate the lens while an annular tubing disposed around the cutting members vibrates ultrasonically to coact with the cutting members in macerating the lens. At the same time, a liquid is supplied to the chamber behind the cornea of the eye. Spiral grooves extending along the rotating rod from the cutting members evacuate the liquid and the macerated material from the eye. An alternate embodiment of the apparatus includes a tube through which liquid is supplied to the operative site of the ultrasonically vibrating tube and the cutting members in the area of the lens.

3,736,939

BALLOON CATHETER WITH SOLUBLE TIP

Glenn N. Taylor, Barrington, Ill., assignor to The Kendall Company, Walpole, Mass.

Continuation of Ser. No. 1,471, Jan. 8, 1970, abandoned,

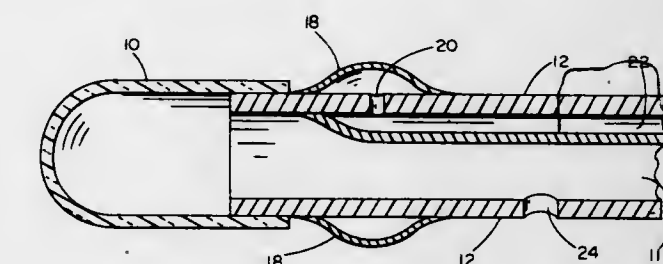
Continuation-in-part of Ser. No. 692,853, Dec. 22, 1970,

abandoned. This application Jan. 7, 1972, Ser. No. 216,230

Int. Cl. A61m 25/00

U.S. Cl. 128—349 B

1 Claim



A flexible retention catheter of the balloon inflation type is provided with an auxiliary drainage opening in the wall of the catheter, situated below the inflation balloon, and with an imperforate tip composed of a material which is soluble in body fluids. During insertion, drainage is initiated only through the auxiliary opening. Upon dissolution of the tip, the whole diameter of the lumen of the catheter becomes available for drainage.

ERRATUM

For Class 128—418 see:
Patent No. 3,737,579

3,736,940

CIGARETTE WITH ASH-RETAINING MEANS

Joseph Saint-Pastou, 5 rue Pierre Mouren, 13-Marseille 7, Bagnol, France

Continuation-in-part of Ser. No. 741,924, June 2, 1968, Pat.

No. 3,632,384. This application June 24, 1971, Ser. No.

156,450

Claims priority, application France, July 18, 1967,
67114557; July 24, 1967, 67115396; Nov. 4, 1967, 6722035;
Dec. 19, 1967, 6722085; Jan. 18, 1968, 6822155

Int. Cl. A24d 01/12

U.S. Cl. 131—4 A

6 Claims



A cigarette comprises a tubular envelope of paper impregnated with a network of intersecting narrow bands of a non-combustible material defining an array of paper areas. The paper with the impregnated network is shrunk relative to the paper areas which bulge outwardly. Upon combustion, the non-combustible material vitrifies and welds the intersections of the network lines to form a rigid network armature for supporting cigarette ash.

3,736,941

CIGARETTES AND THE LIKE

Desmond W. Molins, London, England, and Francis A. M. Labbe, Neuilly-sur-Seine, France, assignors to Molins Machine Company Limited, London, England
Filed Mar. 26, 1970, Ser. No. 22,955

Claims priority, application Great Britain, Apr. 2, 1969, 17,135/69

Int. Cl. A24c 5/18, 5/34

U.S. Cl. 131—21 R

5 Claims

Cigarettes are made with a filler comprising an outer annulus of tobacco surrounding a core of a tobacco or other material different from that in the outer annulus. The annulus tobacco may be showered to form a layer which is then bent into a U-section to receive the core, after which further tobacco is showered on to the U-section plus core to enclose the core in tobacco. Alternatively the core material may be incorporated in the filler by pneumatically rolling a carpet of an annular of tobacco round the core.

3,736,942

APPARATUS FOR COMMUNUTING AND DRYING OF TOBACCO LEAVES

Uwe Elsner, Hamburg-Bramfeld, and Waldemar Wochnowski, Hamburg, both of Germany, assignors to Hauni-Werke Kober & Co. KG, Hamburg, Germany

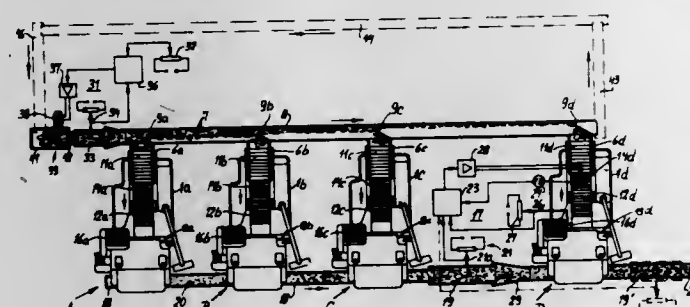
Filed May 7, 1971, Ser. No. 141,164

Claims priority, application Germany, May 11, 1970, P 20 22 816.4; Dec. 17, 1970, P 20 62 343.2

Int. Cl. A01d 55/18

U.S. Cl. 131—22 R

12 Claims



Several parallel tobacco comminuting machines deliver tobacco shreds onto a conveyor system which transports a stream of such shreds into a drying apparatus. The last comminuting machine is adjustable by a control system connected with a weighing device which is located upstream or downstream of the last machine and causes the control system to regulate the output of the last machine in such a way that the combined output of the machines forms a constant stream of tobacco shreds. The weighing device weighs successive increments of the tobacco stream which includes the output of all machines, the output of all but the last machine, or successive increments of a stream which is being withdrawn from a magazine serving to receive the output of all machines.

3,736,943

VEHICLE BODY ASH TRAY CIGARETTE EXTINGUISHER

Robert D. Hodgson, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 26, 1972, Ser. No. 247,738

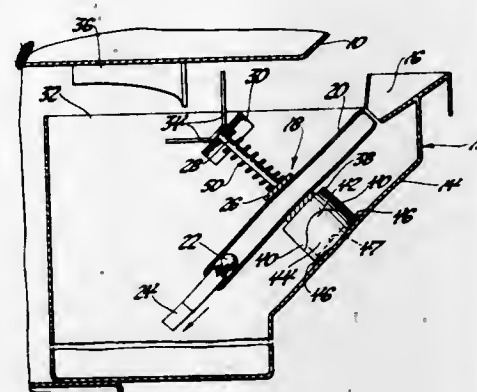
Int. Cl. A24f 19/14

U.S. Cl. 131—235 R

5 Claims

An ash tray includes an ash receptacle mounted for movement between open and closed positions relative to a vehicle body occupant compartment panel structure. A tubular member is mounted on the ash receptacle for movement between a pair of horizontally inclined positions rotated end-for-end from each other to alternately expose the opposite ends of the tubular member in upwardly oriented cigarette

receiving positions during successive movements of the ash receptacle to open position. A ball is received within the tubular member for captured movement between the opposite ends thereof and gravity moves the ball to the lower end of the tubular member each time it is rotated. A lit cigarette inserted into the upper end of the tubular member through a funnel-like guide mounted on the ash receptacle is thus extinguished by limited oxygen flow to its burning end. Downward ball movement also aids in expelling a previously extinguished



cigarette from the tubular member into the ash receptacle as it is opened for subsequent use. A first set of camming portions including a fixed camming portion on the panel structure and a pair of camming portions movable with the tubular member provide each initial rotation of the tubular member. An over-center arrangement including a helical spring and a second set of camming portions is moved overcenter by this initial rotational movement and thus completes the rotation of the tubular member each time the ash receptacle is opened.

3,736,944

COMPOSITIONS AND PROCEDURES FOR EFFECTING A PERMANENT WAVE OR SET IN THE HAIR

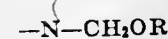
Guiliana Ghilardi, Gregoire Kalopissis, Henri Philippe De Beaulieu, and Jean-Louis Abegg, Le Perreux, all of Paris, France, assignors to Societe Anonyme dite: L'Oreal, France
Division of Ser. No. 844,645, July 24, 1969, Pat. No. 3,676,546. This application Dec. 17, 1971, Ser. No. 209,470

Int. Cl. A45d 7/04

U.S. Cl. 132—7

5 Claims

A composition for use in the neutralizing stage of a permanent wave operation. The active component of the composition contains an



group where R is hydrogen or lower alkyl. The neutralizing composition can be used with an oxidant which reacts with the active component to increase the temperature of neutralization. The neutralizing composition may be applied to the hair before or after it is placed on rollers.

3,736,945

PLASTIC HAIR WAVE DEVICE AND METHOD OF WAVING HAIR

Ralph E. Kruck, Clinton, Conn., assignor to VCA Metal Fabrications Inc., Waterbury, Conn.

Filed Aug. 5, 1971, Ser. No. 169,274

Int. Cl. A45d 1/00

U.S. Cl. 132—9

11 Claims

A "home-permanent" hair waving device involving a molded plastic multiple clip having an elongate, centrally-disposed body member and two integral, resilient side arms

3,736,947

COIN COUNTER OR VERIFIER

Ronald C. Gdansk, 10 Sunnylea Crescent, Grimsby, Ontario, Canada

Filed Sept. 21, 1971, Ser. No. 182,386

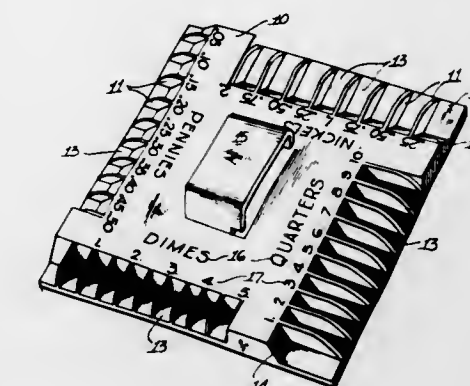
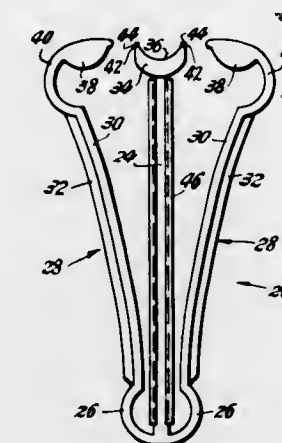
Claims priority, application Canada, June 25, 1971, 116692

Int. Cl. G07d 9/00

U.S. Cl. 133—8 R

3 Claims

coextensive with the body member and adapted to clamp against the latter. A foil-backed or faced wrapper paper can be arranged for clamping between one arm and the body. The other clip arm is adapted to clamp strands of hair against the body member, which are to be curled or waved, such clamping being carried out closely adjacent the scalp. The clamped hair strands are disposed so as to overlie the foil-backed paper, which has flaps or marginal portions that are then folded over the hair along longitudinal fold lines to provide an essentially flat, three-layer thickness or assemblage. Such assemblage can



then be rolled, starting at its free end, into a more or less tight curl, depending on the type of wave desired. The folded and curled wrapper retains hair treating solutions which have been applied to the hair, and maintains the hair strands moist for a desired interval, after which the user uncoils the paper wrapper and releases the arms of the plastic clip device for removal of the same. The arms and body member of the clip device are so constituted that the entire unit can be economically molded as a single piece and in a single operation, in simple molds whereby the fabrication cost is held to a minimum.

A coin counter or verifier has at least one straight edge along which are a series of regularly spaced ribs extending outwardly from the base of the counter. The ribs are sized according to the denomination of coin to be counted, operation of the counter entailing the insertion of the edge with the ribs into a trough of coins along one side thereof. The ribs force coins at regular intervals out of alignment in the trough to facilitate counting thereof.

3,736,948

WASHING AND SANITIZING APPARATUS FOR CARTS SUCH AS HOSPITAL CARTS

Bert Crosswhite, 10745 S.E. Ridgeway Drive, Portland, Oreg.

Filed July 28, 1971, Ser. No. 166,832

Int. Cl. B60s 3/04; B08b 3/02

U.S. Cl. 134—95

7 Claims

**3,736,946
APPLIANCE AND PROCESS FOR NAIL ORNAMENTATION**

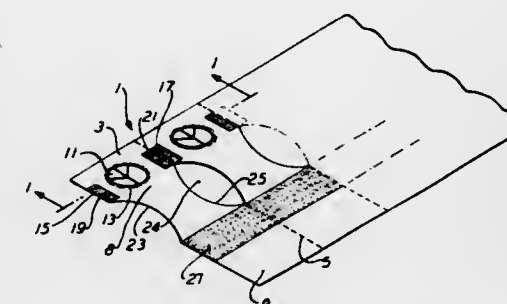
Stephen Yando, 315 W. 57th St., Apt. 16A, New York, N.Y., and Gloria Wagner, 225 E. 74th St., New York, N.Y.

Filed Mar. 15, 1971, Ser. No. 124,370

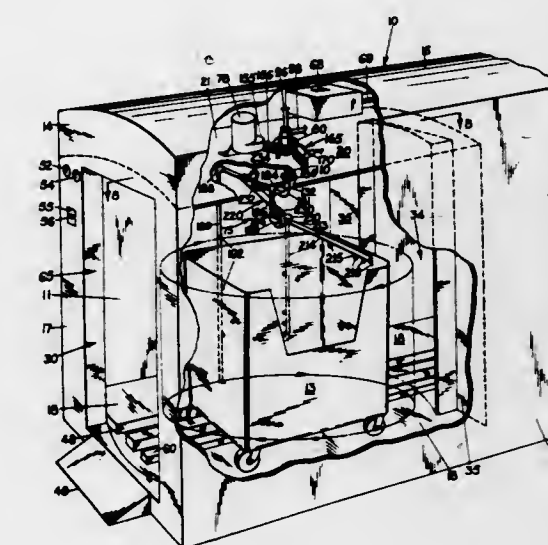
Int. Cl. A45d 40/30

U.S. Cl. 132—88.5

5 Claims



An ornamentation appliance for applying designs to human nails. A support strip adapted to overlie a human digit carries on a shiny surface thereof a planar design in weakly adherent contact. The design and adjacent shiny surface are overcoated with a transfer adhesive whereby pressure transfer of overcoating and adherent design to said nail is enabled. Adhesive bands are provided on the strip for anchoring it during the pressure transfer step. A method for use of the appliance is also set forth, wherein following transfer the design and adjacent nail are overcoated with a composition including a film-former solute in a solvent which does not substantially dissolve the material of the design.



A washing apparatus especially adapted for washing and sanitizing containers such as hospital carts. The apparatus includes a washing chamber having selectively closable door openings on opposite sides thereof adapted for receiving and discharging carts to be washed. A track is provided on the floor of the chamber between the door openings for guiding

carts through the chamber. A washing mechanism is provided within the washing chamber, adapted to receive washing and sanitizing fluid from a remote source and to direct a spray of such fluid upon the carts. The washing mechanism is suspended from the ceiling of the washing chamber and includes a first nozzle boom that normally extends vertically down along the outside of a cart positioned within the chamber, and a second nozzle boom that normally extends horizontally above the cart. A washing fluid operated cylinder is provided for selectively moving or pivoting the second nozzle boom downwardly into the interior of the cart, whereby it assumes a vertical position generally opposite the first nozzle boom. A motor is provided for selectively rotating the washing mechanism with respect to the cart during a washing cycle with the force of the spray delivered against the outer surface of the cart by the first nozzle boom being offset by the oppositely directed force of the spray delivered against the inside of the cart by the second nozzle boom. A timer control is provided for automatically controlling the delivery of fluids to the washing mechanism during a washing operation and a blower is provided in a separate drying chamber for circulating hot air around the sanitized cart to dry it.

3,736,949

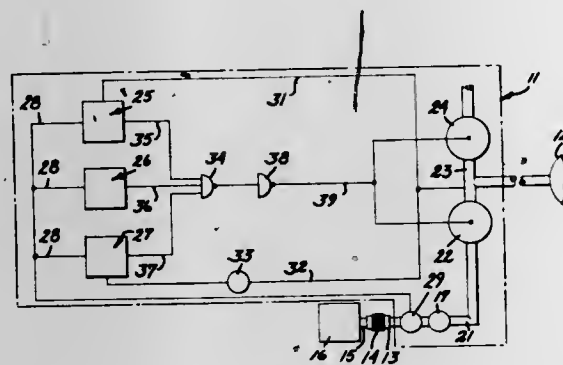
FLUIDIC RESPIRATOR

Charles R. Wolter, 2020 Forest View Road, Rockford, Ill., and Thomas G. Gustafson, 224 Guilford Road, Hoyt Lakes, Minn.

Filed Feb. 8, 1971, Ser. No. 113,149
Int. Cl. A62b 7/00

U.S. Cl. 137—102

15 Claims



A respirator as disclosed which is controlled by pneumatic logic components. The respirating apparatus has a first control mode, in which a patient's lung pressure is sensed to control the breathing function. When lung pressure falls below a predetermined low limit air is supplied to the patient, and as lung pressure approaches and exceeds a predetermined high limit, the supply of air is cut off. In a second control mode, respirating air is again supplied on the basis of sensing pressure below the low limit, but air supply cut off is effected after a predetermined volume of air has been delivered to the patient's lungs. Supplemental to either type of control is apparatus which counts the number of output "breaths," and when a predetermined number has been reached a "sigh breath" of increased volume is provided to break the constant breath pattern and thereby preclude lung collapse.

3,736,950

ANTI-CONTAMINATION VENT VALVE

Donald L. Smallwood, Fort Mitchell, Ky., assignor to Dover Corporation, New York, N.Y.

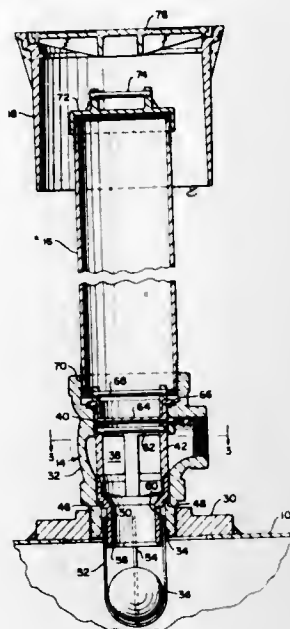
Int. Cl. F16k 1/14

U.S. Cl. 137—202

4 Claims

An anti-contamination vent valve for preventing fluid escape to a vent line is disclosed. The valve provides for the venting of fumes from an enclosure to a vent line under nor-

mal conditions. The valve provides a closure member for preventing excess fluid from the enclosure escaping into the



3,736,951

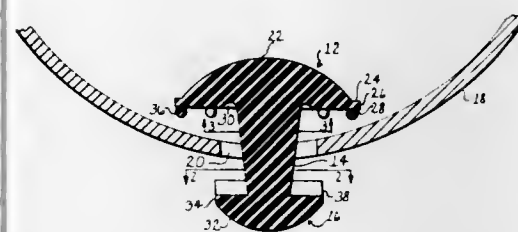
MUSHROOM-SHAPED DRAIN VALVE AND METHOD OF USING THE SAME

Rufus J. Purtell, P.O. Box 1152, Brownfield, Tex.
Filed Mar. 20, 1972, Ser. No. 235,921

Int. Cl. F16k 45/00

U.S. Cl. 137—217

8 Claims



A mushroom-shaped drain valve for draining irrigation pipes has ribs placed around the periphery of the flat radial surface of the cap, which is the valve seating surface. The ribs hold the seating surface up from the pipe for a greater clearance to allow the water to drain faster, and, also, enables the valve to be used upon a flat surface. The flange which holds the valve in place has radial ridges so the valve may also be used as a vent valve and the flange does not seal upon venting.

3,736,952

FIRE HOSE RACK

William Stanley Thompson, Elkhart, Ind., assignor to Elkhart Brass Manufacturing Co., Inc., Elkhart, Ind.

Filed Sept. 30, 1971, Ser. No. 185,218

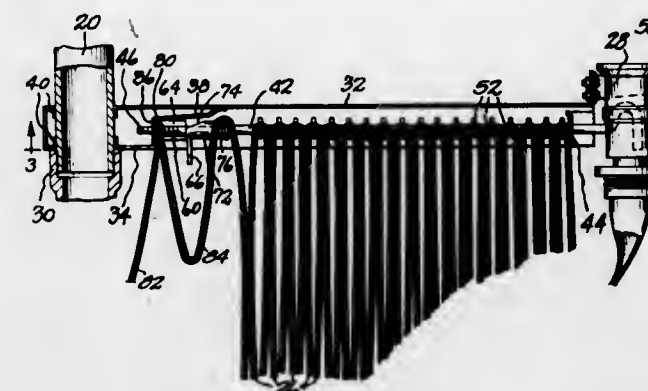
Int. Cl. B65h 75/36

U.S. Cl. 137—355.28

5 Claims

A fire hose rack having an arm swiveled laterally on a vertical support and providing releasable means for supporting spaced points of a fire hose and a clamp for a portion of the hose to prevent water flow through the hose until intentionally released by a pull on the hose when released from its supports. The hose clamping action occurs at a return bend of the hose located between an abutment on the arm and a clamp bar pivoted to the arm and retained in clamping position by a rotatable retainer normally engaging the clamp bar at a sur-

face having a recess which permits release of the bar when the retainer is rotated in response to tensioning of the hose tend-



3,736,953

LOW PRESSURE CHECK VALVE

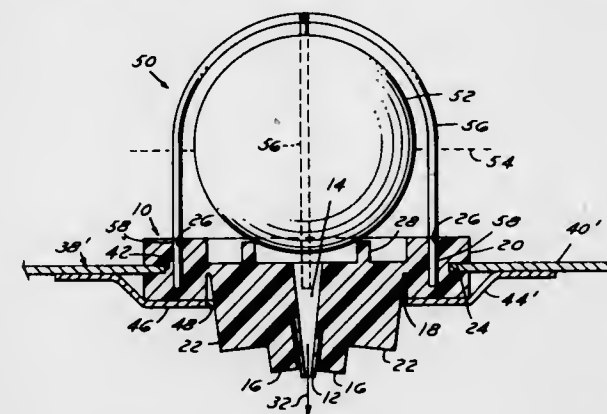
Thomas T. Vaalburg, Ann Arbor, Mich., assignor to Sarns, Inc., Ann Arbor, Mich.

Filed Nov. 30, 1971, Ser. No. 203,140

Int. Cl. F16k 31/18, 15/14

U.S. Cl. 137—430

15 Claims



A low fluid pressure check valve with a one-piece body having a supple diaphragm with a pair of integral spaced lugs extending from one face thereof. A pair of flexible lips of an oval shaped tube which is integral with the diaphragm extend between the lugs to provide a fluid passage through the body of the valve. Displacement of the diaphragm moves the free ends of the lugs toward and away from each other to engage and disengage the lips and thereby close and open the fluid passage.

3,736,954

SELF-ATTACHING CHECK VALVE

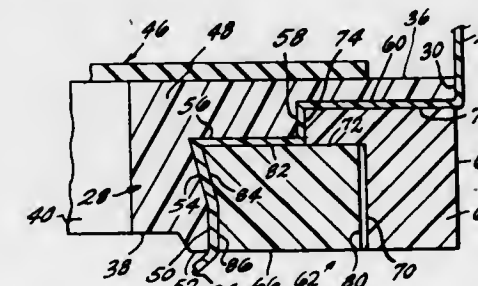
Ronald R. Milligan, Chelsea, and James W. Widenhofer, Jackson, both of Mich., assignors to Sparton Corporation, Jackson, Mich.

Filed May 20, 1971, Ser. No. 145,133

Int. Cl. F16k 15/14

U.S. Cl. 137—525

2 Claims



Check valve structure self-attachable to flexible sheet material, such as plastic film, wherein the check valve body is

of an annular configuration having a central region through which passages are defined for fluid flow and a valve member of the flexible flap type limits flow through the passages in a single direction. The valve body includes shoulders and surfaces which cooperate with a two-piece retaining ring wherein the flexible sheet material is interposed between the shoulders and surfaces establishing a sealed interconnection between the valve body and flexible sheet.

3,736,955

IRRIGATION CONDUIT STREAM DIVIDER

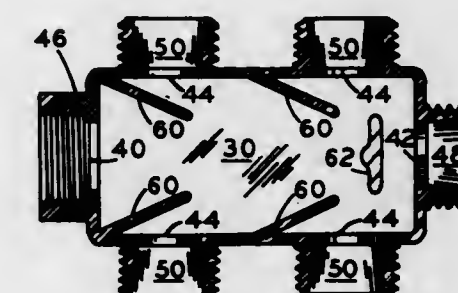
Adolph Schlessner, 1145 Phillips St., Vista, Calif.

Filed June 14, 1971, Ser. No. 152,566

Int. Cl. F16l 41/00

U.S. Cl. 137—561

7 Claims



In a divider housing, baffles interposed between irrigation water source conduit and distribution conduits preventing direct flow therebetween thereby substantially equalizing flow to the distribution conduits.

3,736,956

FLOATING BAFFLE TO IMPROVE EFFICIENCY OF LIQUID TRANSFER FROM TANKS

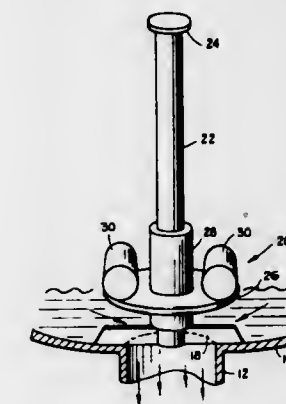
Frank S. Howard, Indian Harbor Beach, Fla., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Sept. 16, 1971, Ser. No. 181,023

Int. Cl. F16k 21/14, 31/18

U.S. Cl. 137—582

5 Claims



A floating baffle which rides up and down on a vertical shaft over a drain in a tank as the liquid level within the tank varies. When the baffle is in the raised position the liquid is allowed to flow out of the drain at an unrestricted rate, whereas, when the baffle is in the lowered position such prevents pull-through of air or gas that is above the liquid, which would interfere and reduce the flow of liquid from the tank.

3,736,957

INJECTOR CUTTING TORCH OR A COMBINED INJECTOR WELDING AND CUTTING TORCH

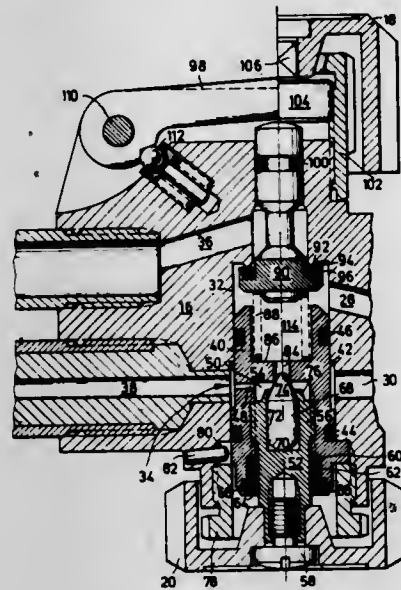
Traugott Gutermann, Ober-Roden-Waldacker, and Edmund Diehl, Frankfurt/Main, both of Germany, assignors to Messer Griesheim GmbH, Frankfurt/Main, Germany
Filed Feb. 1, 1971, Ser. No. 111,195

Claims priority, application Germany, Feb. 26, 1970, P 20 08 971.8

Int. Cl. B23k 7/00

U.S. Cl. 137—604

3 Claims



An injector cutting torch or combined injector welding and cutting torch has a valve for regulating the heating oxygen pressure and a mixing nozzle assembly wherein the axis of the mixing nozzle boring intersects the axis of the heating oxygen supply and wherein the mixing nozzle assembly and heating oxygen valve are formed as a common constructional unit.

3,736,958

FOUR-WAY SOLENOID SELECTOR VALVE

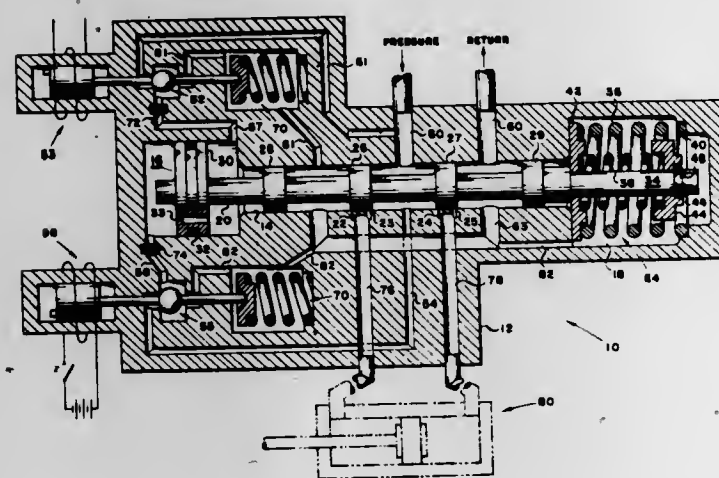
Nels C. Rostad, Glendale, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Apr. 13, 1972, Ser. No. 243,697

Int. Cl. F16k 11/00

U.S. Cl. 137—625.6

17 Claims



A four-way solenoid selector valve comprising a valve spool slidable in a housing bore; input, outlet and return ports communicating therewith; a chamber piston mounted on the one end of the spool, subject to fluid pressure changes on its faces to cause its axial translation in either direction; and restrictive orifices disposed in passageways communicating with the piston chamber. Solenoid actuated poppet valves close and open such passageways to the return port while ducts which communicate with the input port are connected to the poppet

valves. Energization of a solenoid of one or the other of such valves provides uncovering of corresponding metering slots for the two outlet ports as a result of translation of the valve spool. The corresponding restrictive orifice controls or programs the rate of flow from the piston chamber so as to effect a relatively slow time span desired in opening or uncovering such metering slots. A spring system mounted at the other end of the spool, in a cavity, is provided to return the selector valve to its neutral state upon de-energization of the solenoid.

3,736,959

SINGLE LEVER FAUCET

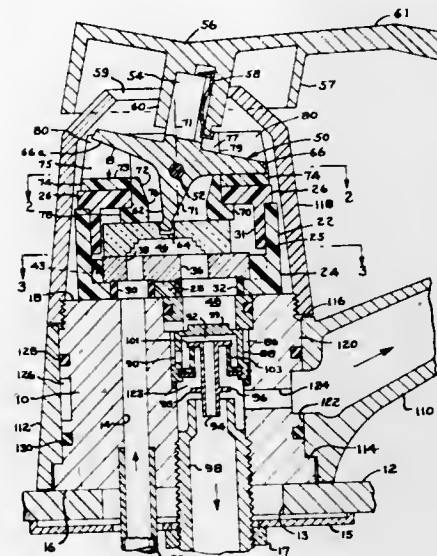
Richard G. Parkison, Somerville, N.J., assignor to American Standard Inc., New York, N.Y.

Continuation-in-part of Ser. No. 698,830, Jan. 18, 1968, which is a continuation-in-part of Ser. No. 423,534, Jan. 5, 1965, abandoned. This application Dec. 9, 1971, Ser. No. 206,400

Int. Cl. F16k 11/00

U.S. Cl. 137—625.17

16 Claims



A water mixing faucet having a support pedestal which rotationally receives the barrel portion of a rotary spout. The pedestal contains water passages for the hot supply stream, the cold supply stream, and the mixed stream leading to the rotary spout. Flow control is achieved by means of ceramic disc valve elements contained within a novel cartridge positioned atop the pedestal. Valve replacement can only be achieved by substitution of a new valve cartridge.

3,736,960

DIGITAL VALVE

Kenneth W. Cohen, Chesterland, Ohio, assignor to Bailey Meter Company, Wickliffe, Ohio

Filed May 24, 1971, Ser. No. 146,035

Int. Cl. F16k 31/365

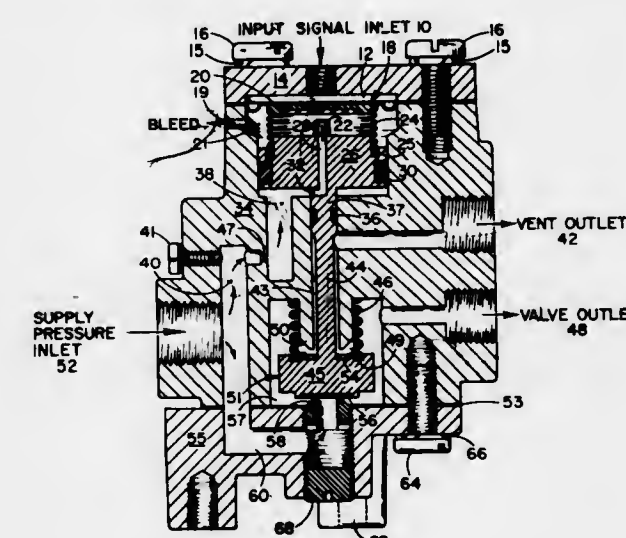
U.S. Cl. 137—625.6

7 Claims

A snap-acting, fluid amplifying valve having an input pressure chamber actuating a spring loaded diaphragm. Depending on whether the input pressure is higher or lower than a preset level, the diaphragm, respectively, expands or contracts to restrict or relieve a nozzle assembly mounted on a slidable piston, within the body of the valve, causing the piston to act in a digital manner. This digital action results from the positive feedback of pressure from the nozzle restriction to the driving side of the piston which forces the piston and nozzle to move farther in the direction of initiated motion. The slidable piston is rigidly connected to a second piston which alternately seals either a supply pressure port or a vent port of the outlet

chamber and, in this way, a digital signal of supply pressure is obtained. The spring loading of the diaphragm is determined

tor. The present invention is characterized primarily in that the support on the base of the loop comprises a collar-like reinforcement and the end of the loop comprises a conical ex-



of nozzle restriction and consequently digital action occurs at pressure levels preset by the stiffness of the spring used.

3,736,961

HEAT EXCHANGER FOR FURNACE PIPES AND THE LIKE

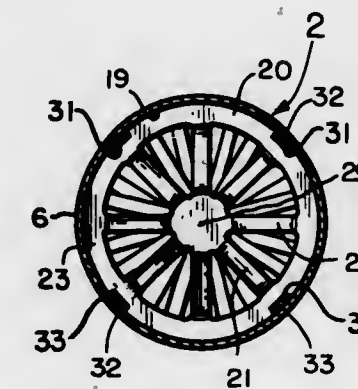
Robert D. Walsh, 11 S. 544 Oakwood Avenue, Lemont, Ill.

Filed Nov. 10, 1971, Ser. No. 197,228

Int. Cl. F15d 1/02; F28f 1/40

U.S. Cl. 138—38

7 Claims



A heat exchanger device for use between a furnace or boiler and chimney comprising a housing pipe and heat transfer thin metal disks with vanes arranged spoke like. Each disk has an annulus in tight contact with the interior of the pipe and the vanes, being thin and confined between a center hub-like structure and the annulus, tend to warp to increase their angular deflection of the gasses as the temperature rises to effect pronounced scouring on the interior of the pipe to maximize heat transfer into the pipe and thereby to the atmosphere. The annuli of the axially spaced disks are rigidified by interconnecting rods.

3,736,962

HARNESS CONNECTOR FOR JACQUARD MACHINES

Albert Rademacher, Willich, Germany, assignor to Maschinenfabrik Carl Zangs Aktiengesellschaft, Krefeld, Germany

Filed Dec. 16, 1971, Ser. No. 208,585

Int. Cl. D03c 13/00

U.S. Cl. 139—85

4 Claims

A one-piece harness connector of suitable synthetic material for Jacquard machines which has a loop at one end which can be bent apart; when the loop is closed, the end rests in a support provided on the base of the loop, the support being operative in the longitudinal direction of the harness connec-



tension with a longitudinal slotted cutout which is adapted to overlap the reinforcement and to embrace and partially catch behind the shank of the harness connector.

3,736,963

WEFT YARN CONTROL DEVICE

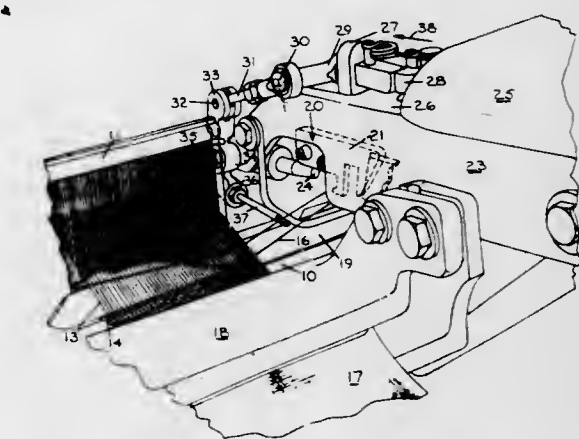
Leroy K. Allison, Blacksburg, S.C., assignor to North American Rockwell Corporation, Pittsburgh, Pa.

Filed Dec. 21, 1971, Ser. No. 210,391

Int. Cl. D03d 47/34

U.S. Cl. 139—122 R

1 Claim



A weft yarn control device for assuring proper positioning of the weft yarn during the second phase of the weaving cycle in shuttleless looms of the type wherein weft yarn from a stationary source is inserted individually into separate sheds of warp threads in pairs of interconnected picks.

3,736,964

WEFT STORAGE DEVICE

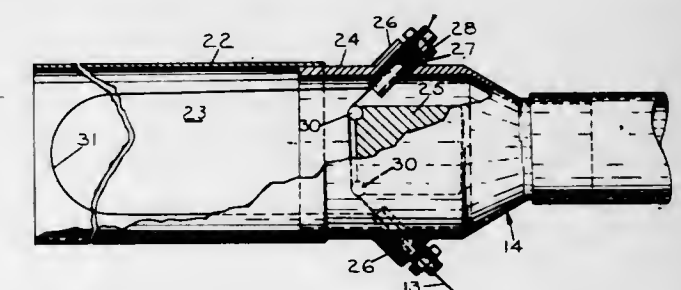
Joseph M. Budzyna, East Douglas, Mass., assignor to North American Rockwell Corporation, Pittsburgh, Pa.

Filed Jan. 24, 1972, Ser. No. 220,194

Int. Cl. D03d 47/34

U.S. Cl. 139—122 H

2 Claims



A weft storage device for shuttleless looms having a stationary source of weft supply which includes an elongated air

passage device defining a weft chamber through which air is directed to temporarily store a pre-measured length of weft under tension prior to its insertion into a shed of warp threads.

3,736,965

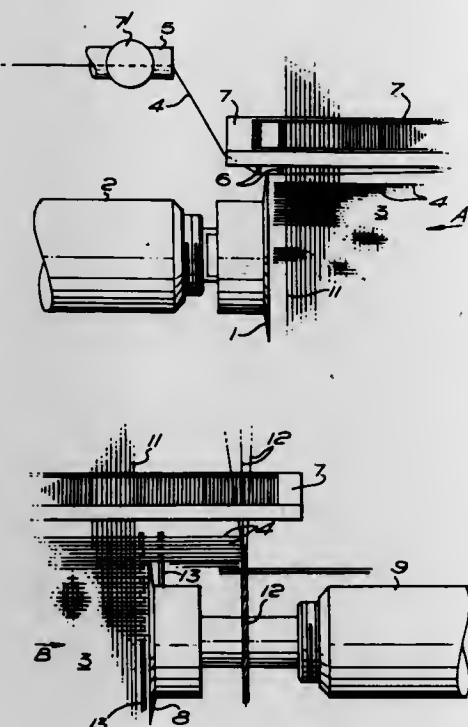
MEANS FOR SEVERING OF WEFT YARN DURING WEAVING

Sidney Yates, Todmorden, England, assignor to Fothergill & Harvey Limited, Summit, Kitleborough, England
Filed May 19, 1971, Ser. No. 144,837

Claims priority, application Great Britain, May 26, 1970, 25,140/70

Int. Cl. D03d 49/70

U.S. Cl. 139—302



An improved method and apparatus for severing weft yarns in a fabric woven from glass or carbon yarns on a loom in which the weft is inserted by a water jet or other shuttless device in which the weft yarn is presented to a continuously rotating abrasive disc during beat up to sever the yarn.

3,736,966

QUICK-CONNECT VENT TUBE STRUCTURE

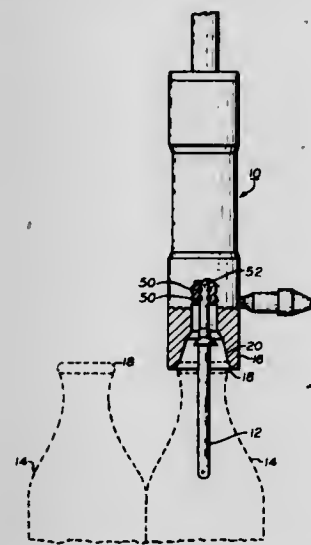
Anthony J. Dichlara, 133-03 128th Street, South Ozone Park, Queens, N.Y.

Filed Nov. 18, 1971, Ser. No. 199,947

Int. Cl. B65b 3/18; B67c 3/00

U.S. Cl. 141—392

9 Claims



A quick-connect vent tube used in the filler valves of automatic bottle and can beverage filling machines. Vent tube is of

unitary one-piece construction formed from corrosion-resistant metal or thermoplastic material for long term use and high resistance to bacterial accumulation on the vent tubes, and has an O-ring seal connection for mounting in a valve. The seal acts as a sealing arrangement and concurrently retains the tube in the filler valve. In another embodiment, a filler valve, which is of the standard threaded vent tube connector type, has an adaptor fastened thereto to provide for the quick-connect seal connection of a vent tube having no threaded connecting portion thereon.

3,736,967

FEEDER FOR WOOD FLAKING OR CHIPPING MACHINE

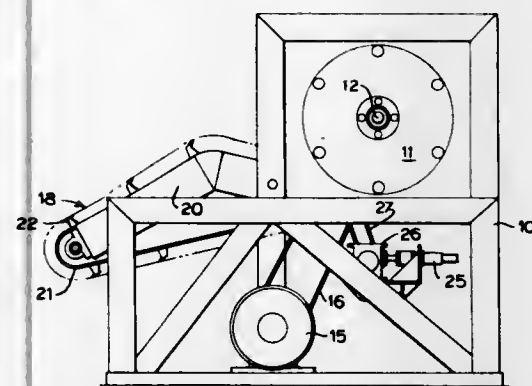
Warren A. Wood, Oswego, Oreg., and John T. Fechner, Lewiston, Idaho, assignors to Potlatch Forests, Inc., San Francisco, Calif.

Filed Aug. 16, 1971, Ser. No. 172,070

Int. Cl. B27c 1/12

U.S. Cl. 144—172

3 Claims



A device for producing wood particles, such as chips, wafers, flakes or strands, by moving solid wood material toward a moving cutter head. Movement of the material is accomplished along a feed conveyor in the form of an endless conveying apparatus having transverse pushing bars. The conveyor is powered by a pneumatic power source, such as a rotary pneumatic motor directly geared to the conveyor elements. The resilient nature of the pneumatic power source assures quick recovery of the wood material as it is urged toward the moving cutter head, thereby producing particles of more uniform thickness.

3,736,968

METHOD AND APPARATUS FOR PROCESSING LOGS

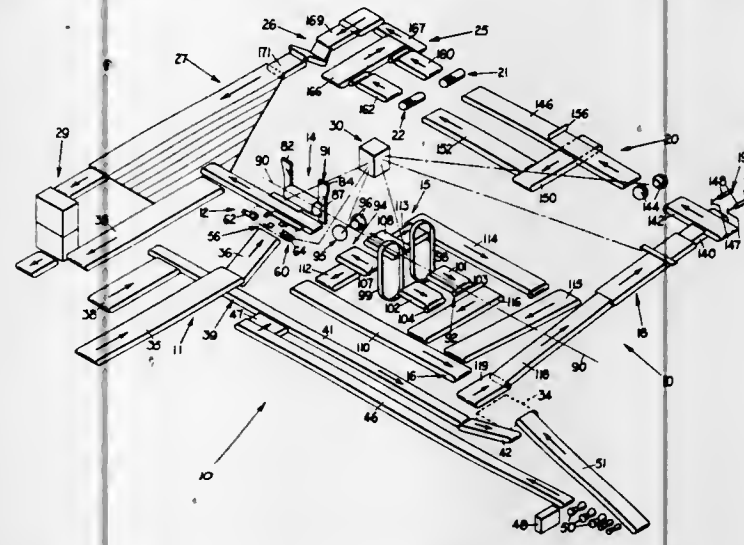
Howard C. Mason, Oregon City, Oreg., assignor to Sun Studs, Inc., Roseburg, Oreg.

Filed Nov. 25, 1970, Ser. No. 92,581

Int. Cl. B27b 1/00

U.S. Cl. 144—312

5 Claims



A method and apparatus for processing logs to obtain an optimum amount of wood products of predetermined quality

from each log. The method includes the steps of positioning each log along a reference axis, electronically scanning the log to determine certain of its dimensions with respect to the reference axis, computing the center axis of the largest surface of a preselected shape that can be superimposed within the measured dimensions, and repositioning the log with the center axis parallel to an index line such as the cutting line of a predetermined processing equipment. Scanning arrangements and processing apparatus are disclosed for practicing the steps of the method in the processing of logs of different diameters.

3,736,969

PIERCE NUT

Herman K. Warn, Asvagen 16, Hallstahammar, and Sixten H. Lejdegard, Lilla Annehill, Ramnas, both of Sweden

Continuation of Ser. No. 871,661, Nov. 3, 1969, abandoned.

This application July 20, 1971, Ser. No. 160,313

Claims priority, application Sweden, Sept. 22, 1966, 12776/66; Dec. 6, 1966, 16641/66

Int. Cl. F16b 39/00

U.S. Cl. 151—41.73

5 Claims



A pierce nut having an attachment member extending axially from one end of a nut body. The attachment member is adopted to pierce a sheet member and then secure the nut to the sheet member. The attachment member is substantially square in transverse section and has a groove formed in its sides so that it can engage and grip the sheet member. The sides of the attachment member taper outwardly from its outer edge forming a cutting edge for piercing the sheet member.

3,736,970

TIRE TRACTION DEVICE

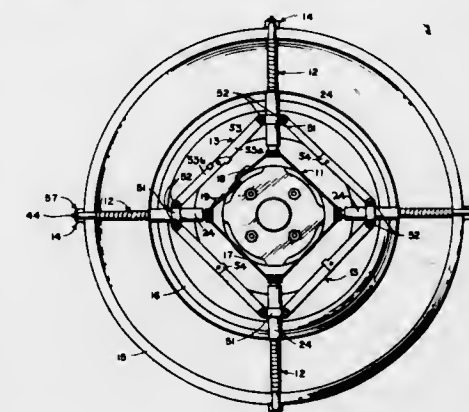
John R. Clark, East 13717 Heroy Avenue, Spokane, Wash.

Filed Aug. 12, 1971, Ser. No. 171,062

Int. Cl. B60c 27/04

U.S. Cl. 152—226

5 Claims



A tire traction device, that can be placed from one side upon a tire resting on a supporting surface, providing a central, flexible, fastening band carrying plural radial extending traction arms to fit about the outer side and periphery of a tire with medial, releasably positioned spacing means communicating between adjacent traction arms. The peripheral portion of the traction arms adjust to accommodate to tires of varying widths and the inner fastening band adjusts to accommodate to tires of varying diameters. The traction arms are movably biased to accommodate to change in tire shape upon motion and the traction elements, per se, are releasably held for simple replacement.

3,736,971

AMPHIBIOUS TIRES WITH IMPROVED TORQUE RESISTANCE PROPERTIES

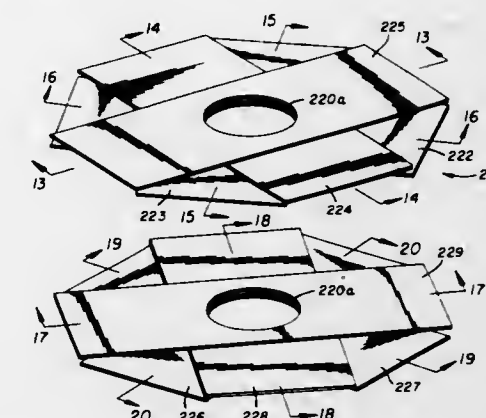
Richard Henry Paul, and James Perry Wilson, Indianapolis, both of Ind., assignors to Uniroyal, Inc., New York, N.Y.

Filed Apr. 14, 1971, Ser. No. 133,861

Int. Cl. B60c 9/00

U.S. Cl. 152—353

15 Claims



An amphibious tire construction for use with "all-terrain" vehicles and having improved resistance to failure, particularly in the hub area under severe acceleration and braking stresses are disclosed. In such a tire, the axial openings in the sidewalls are disposed concentrically with a rigid, tubular hub, and the side-walls are vulcanized or bonded at their radially inwardmost edge regions bounding said openings, directly to the respective opposite ends of the hub. The sidewalls are reinforced by respective centrally apertured disc-shaped patches incorporated in the sidewalls concentrically with the hub. Each such patch consists of a laminate of a plurality of strips of calender coated fabric stock superimposed on each other in a crossing, asterisk-like fashion so that the patch is thickest in the region thereof which is immediately adjacent its central opening and decreases in thickness gradually through the surrounding regions located radially outwardly of the central region. A tire so reinforced has a greater rigidity at the critical area thereof, which is in the vicinity of the hub, than at other sidewall areas, with this rigidity decreasing in the direction radially outwardly from the hub so that overall sidewall flexibility is effectively not impaired.

3,736,972

PNEUMATIC TIRE AND METHOD FOR THE MANUFACTURE THEREOF

Ernst Petraschek; Oskar Mick, both of Maria Enzersdorf; Erich Kresta, Perchtoldsdorf; Josef Windbichler, Gemeinde Lanzenkirchen, and Johann Zöchling, Baden, all of Austria, assignors to Semperit Aktiengesellschaft, Vienna, Austria

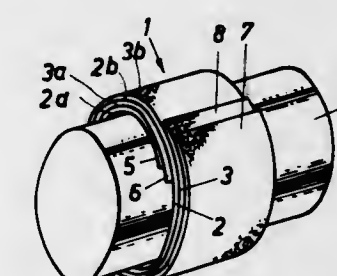
Filed Feb. 5, 1971, Ser. No. 112,957

Claims priority, application Austria, Feb. 20, 1970, A1591/70

Int. Cl. B60c 9/12

U.S. Cl. 152—354

7 Claims



There is disclosed an improved pneumatic tire and method of manufacturing thereof wherein such pneumatic tire incorporates a compounded layer consisting of at least two plies and arranged in spiral-like configuration at the tire.

3,736,973 RADIAL TIRES HAVING A SIDEWALL-STIFFENING STRUCTURE

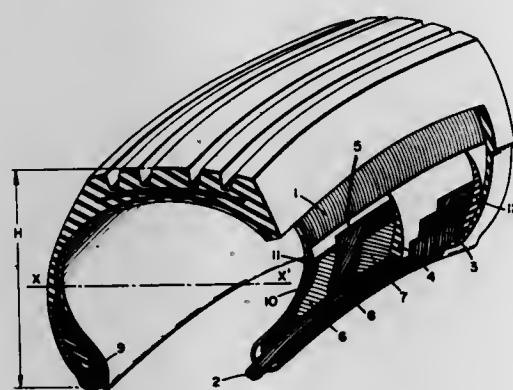
Mario Mezzanotte, Milan; Ferdinando Carretta, Monza, and Gianni Turchetti, Bresso, all of Italy, assignors to Industries Pirelli S.p.A., Milan, Italy

Filed Mar. 6, 1972, Ser. No. 231,953

Claims priority, application Italy, Mar. 17, 1971, 21876 A/71

Int. Cl. B60c 15/06
U.S. Cl. 152—354

8 Claims



A pneumatic tire is disclosed having improved sidewall flexibility by using a reinforcing structure between the bead zone comprised of at least two strips of textile cord sandwiching a strip of metal cord. The angle formed between the textile cord strips and the circumferential line of the tire is 15° to 40° and the textile cords are parallel to one another. The metal cords are also parallel to one another. The angle formed between the metal cord strip and the tire's circumferential line is from 2° to 10° greater than the angle between the textile cords and the circumferential line. The angle of inclination of the metal cord strip is in a direction opposite to the textile cord strips.

3,736,974 TIRE HAVING BEAD WIRES TANGENT TO ONE ANOTHER

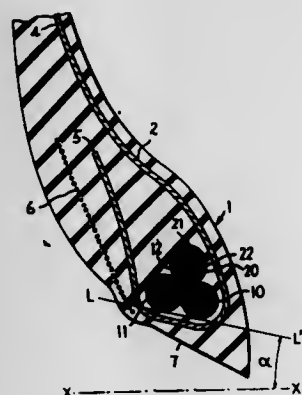
Daniel LeJeune, Clermont-Ferrand, France, assignor to Compagnie Generale Des Etablissements Michelin, raison sociale Michelin & Cie, Clermont-Ferrand (Puy-de-Dome), France

Filed Mar. 10, 1971, Ser. No. 122,934

Claims priority, application France, Mar. 13, 1970, 7009583

Int. Cl. B60c 15/04
U.S. Cl. 152—362 R

10 Claims



A tubeless radial truck tire is formed with an assembly of three bead wires in each bead around which the ends of the carcass ply or plies are wound. The bead wires are braided and of circular cross section and in each bead each bead wire is tangent to the other two.

3,736,975 TIRE BEAD SEATING AND INFLATING APPARATUS

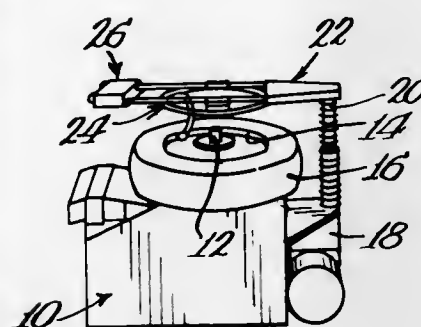
Elmer J. Strang, and Ray A. Scott, both of Fort Dodge, Iowa, assignors to The Coats Company, Inc., Fort Dodge, Iowa

Filed Sept. 10, 1971, Ser. No. 179,298

Int. Cl. B60c 25/12

U.S. Cl. 157—1.1

11 Claims



A tire bead seating and inflating apparatus particularly suited for attachment to tire changers. Included is a base which mounts, for vertical sliding and horizontal pivoting movement, an upright member which in turn mounts, in a cantilevered fashion, a circular air conduit having a plurality of jets and adapted to engage the side wall of a tire radially outwardly from the rim and inject air between the bead and the rim while air is being applied to the tire through the valve by means of a selectively actuatable air chuck.

3,736,976 RETRACTABLE AWNING STRUCTURE

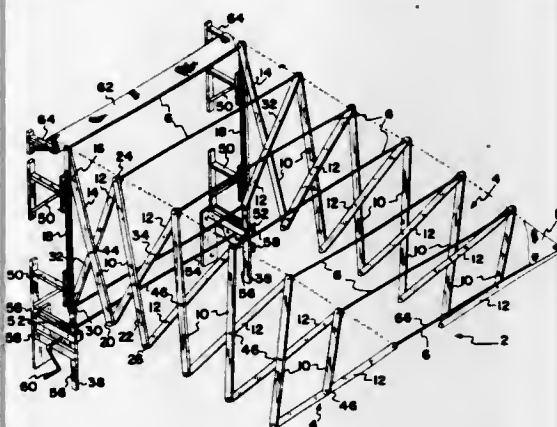
Timothy Hoyt Palmer, 6714 South 1680 East, Salt Lake City, Utah

Filed June 17, 1971, Ser. No. 154,096

Int. Cl. E04f 10/06

U.S. Cl. 160—70

1 Claim



A retractable awning structure providing a convexly curved exterior surface formed with a pair of scissor-type expansion members each having a plurality of upwardly and outwardly inclined elements and having the corresponding downwardly and outwardly inclined elements pivotally connected to each other below the midpoints thereof, and a fabric cover supported by said expansion members.

3,736,977 METHOD OF PROTECTING BUTT JOINTS OF PLATE MOLDS FOR CONTINUOUS CASTING

Walter Stockinger, S-14700 Tumba, Sweden, assignor to Concast AG, Zurich, Switzerland

Filed Mar. 24, 1971, Ser. No. 127,838

Claims priority, application Sweden, Mar. 26, 1970, 4596/70

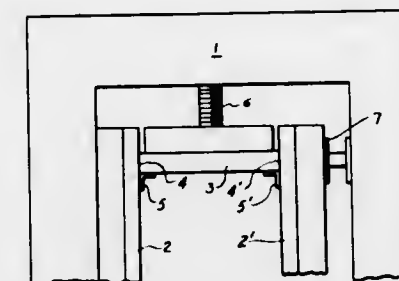
U.S. Cl. 164—14

Int. Cl. B22d 11/02

5 Claims

In a plate mold for continuous casting the gaps which may be formed at the butt joints between the longitudinal and

transverse mold walls due to thermal expansion are sealed by axially extending passageways through the collar and threaded portions of the mandrel for flow of casting material to form



covering the joints and the areas of the mold walls immediately adjacent the joints with a thin layer of protective material.

3,736,978 MOLD FORMING APPARATUS WITH FLASK HAVING OPPOSED SHOULDER PORTIONS

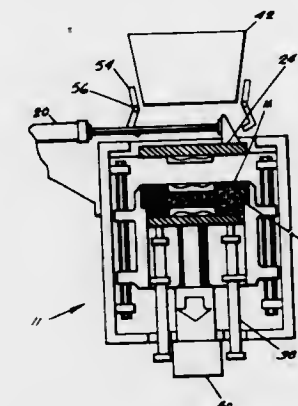
Russell W. Taccone, Erie, Pa., assignor to Bangor Punta Operations, Inc., Greenwich, Conn.

Filed Feb. 26, 1971, Ser. No. 119,112

Int. Cl. B22c 15/08, 17/06, 21/00

U.S. Cl. 164—187

10 Claims



The mold forming apparatus includes a flask, upper and lower pattern plates, a chute for disposing molding medium into the mold chamber formed by the flask and lower pattern plate, and a plurality of fluid actuated cylinders for raising the flask and lower pattern plate to compress the molding medium against an upper pattern plate, and for displacing the completed mold through the flask to an elevated position. The flask includes a shoulder portion along its opposite sides and intermediate its open ends for forming a complementary shoulder portion about the side edges of the mold. When the mold is elevated above the flask, support fingers engage the shoulder portion of the mold for supporting the latter.

3,736,979 DIE FOR TUBE PROFILES

Heribert Krall, Wurzburg, and Hans Adalbert Koch, Hochberg, both of Germany, assignors to Technica-Guss GmbH, Wurzburg, Germany

Filed Jan. 22, 1971, Ser. No. 108,758

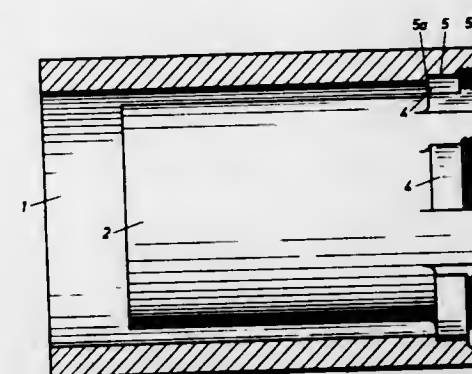
Claims priority, application Germany, Jan. 30, 1970, P 20 04 193.4

Int. Cl. B22d 11/10

U.S. Cl. 164—281

4 Claims

A die arrangement for continuous casting tube profiles having an outer cylindrical-like die portion and a mandrel spaced in the bore of the outer die portion, the mandrel is held radially in the bore by a cylindrical collar thereon at one end fitting into a surrounding cylindrical recess in the outer die portion and is held in an axial direction by a threaded portion on the same end of the mandrel threadably received in a surrounding threaded portion of the outer die portion. There are



the tube in the space between the mandrel and the surrounding outer die portion.

3,736,980 MOLD FOR CONTINUOUS CENTRIFUGAL CASTING

Pierre Peytavin, Neuilly-sur-Seine, and Louis Babel, Sauvignyles-Bois, both of France, assignors to Societe Civile D'Etudes DeCentrifugation, Paris, France

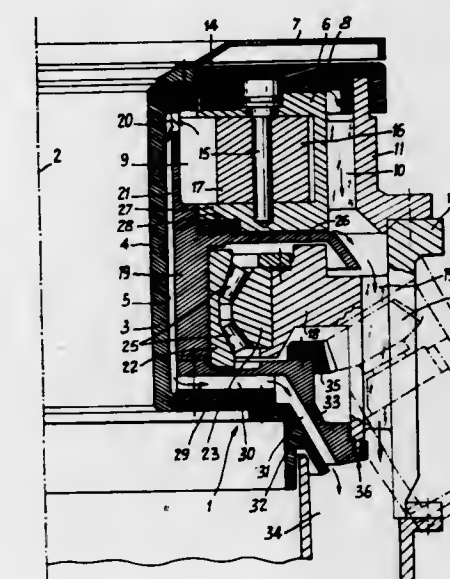
Filed Dec. 28, 1971, Ser. No. 212,997

Claims priority, application France, Dec. 30, 1970, 7047337

Int. Cl. B22d 11/06, 13/02

U.S. Cl. 164—283

19 Claims



Mold for continuous centrifugal casting comprises a rotary inner part in contact with the metal being cast and a stationary outer part through which cooling liquid is supplied, the two parts being connected by rotary seals of the labyrinth type.

3,736,981 DEVICE AND METHOD FOR STORING AND COOKING FOODSTUFFS IN A REFRIGERATED ENVIRONMENT

Thomas S. Shevlin, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Aug. 20, 1971, Ser. No. 173,414

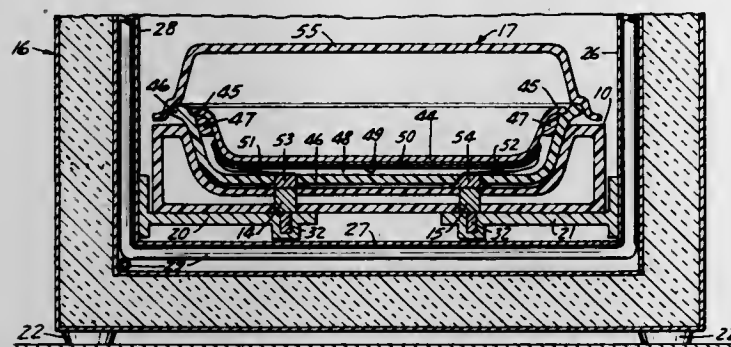
Int. Cl. F25b 13/00

U.S. Cl. 165—2

6 Claims

A method and device for storing and preparing entire meals in a refrigerated environment. Thermally insulated heating casseroles adapted to cook an entree from a frozen state along with unheated thermally insulated casseroles containing side dishes in frozen and/or chilled state are placed in removable trays which in turn are inserted into a chamber maintained at refrigerated temperatures. Each tray is adapted to hold at least one heating casserole to cook the entree along with one or more casseroles containing side dishes. Heat is applied to

selected heating casseroles to cook the entrees therein while the chamber and all remaining casseroles are maintained at refrigerated temperatures. After the selected entrees are cooked, they are served with related side dishes by means of the trays. The process can be repeated with respect to the remaining casseroles in the chamber to carry out a repetitive series of meal cooking and serving for periods up to 24 hours.



The refrigerated temperature levels within the chamber and the thermal insulation of each of the casseroles retards the exchange of heat between the contents of the unheated casseroles and the immediate environment so that any frozen entrees not selected for cooking and frozen side dishes do not thaw to a substantial degree and chilled side dishes do not freeze to a substantial degree.

3,736,982

COMBINATION SHEARING AND SHUT-OFF RAM FOR BLOWOUT PREVENTER

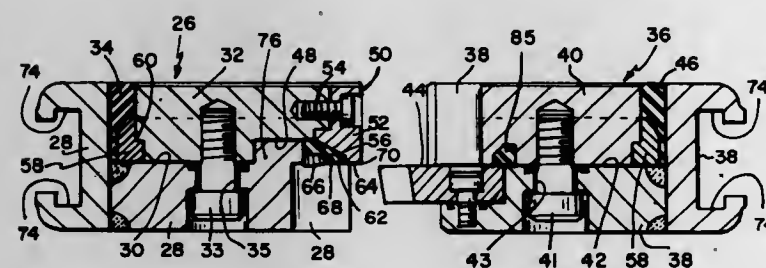
Ado N. Vujanovic, Houston, Tex., assignor to The Rucker Company, Houston, Tex.

Filed May 1, 1972, Ser. No. 249,291

Int. Cl. E21b 29/00

U.S. Cl. 166—55

18 Claims



A ram block is carried by ram holders in each of two ram assemblies in ram-receiving chambers within a blow-out preventer. One ram block is provided with a downwardly opening recess formed to accommodate a seal member on the lower side thereof but spaced from a diametrical open side of the ram block. The other ram block is provided with a shearing blade projecting from a diametrical open side of the second ram block holder and adapted to coact with the first ram block to shear a drill string and after the shearing action to sealingly engage the seal member of the first ram block when the rams are moved to the closed position.

3,736,983

WELL PUMP AND THE METHOD OF PUMPING

Franklin Beard, and Nelson E. Schwartz, both of 11710 Old Main Loop, Houston, Tex.

Filed July 26, 1971, Ser. No. 166,208

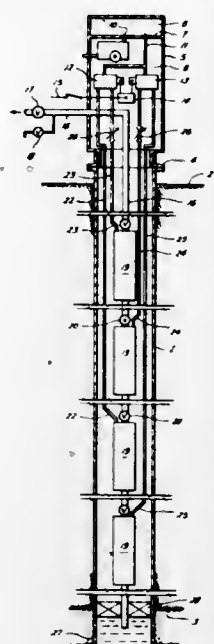
Int. Cl. E21b 43/00; F04b 23/02

U.S. Cl. 166—313

6 Claims

A pump for use in wells having a production string in which is mounted pressure tanks into which an air flow is directed in

an alternating cycle to pressurize and exhaust said tanks and the novel method of pumping fluid from a well by alternately



pressurizing and exhausting air from alternate chambers at timed intervals and on preregulated cycles.

3,736,984

DOWNHOLE WELL CASING HANGER ESPECIALLY SUITABLE FOR ARCTIC ENVIRONMENT

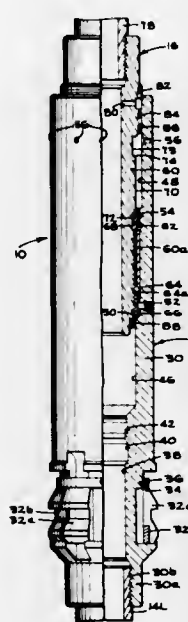
Michael R. Garrett, Houston, Tex., assignor to FMC Corporation, San Jose, Calif.

Filed Jan. 11, 1972, Ser. No. 217,023

Int. Cl. E21b 43/10

U.S. Cl. 166—208

7 Claims



A downhole well casing hanger apparatus especially suitable for use in arctic areas where a layer of permafrost covers the ground. The apparatus comprises a hanger unit for suspending a string of casing at a subsurface location, such as in the consolidated earth below the permafrost layer, and a combined casing landing sub-cement squeeze tool for interconnecting an upper section of casing to the hanger, for cementing the well, and also for conducting a squeezing operation on the well. The landing subsqueeze tool is connected to, and released from, the hanger unit solely by right hand rotation, which can be performed without damaging the sheath of insulation material that surrounds the section of casing that extends through the permafrost layer between the hanger and the surface.

3,736,985

DRY CHEMICAL UNIT-FIRE TRUCK

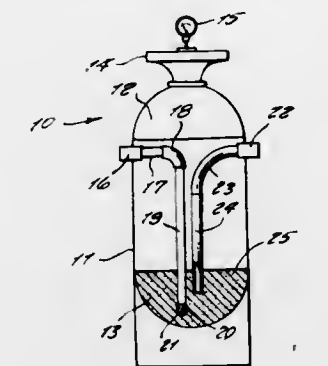
William E. Beckley, 821 Fairwood Avenue, Marion, Ohio

Filed Sept. 17, 1971, Ser. No. 181,365

Int. Cl. A62c 13/00

U.S. Cl. 169—31 P

1 Claim



An appliance for safely and economically combating fires in oil fields, the appliance comprising a large container for holding dry chemical which is discharged at high pressure with a dry gas comprising nitrogen.

3,736,986

SWIVEL ASSEMBLY

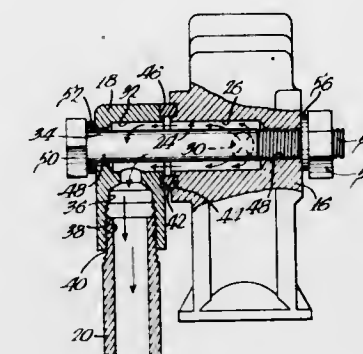
John T. Magdars, Northbrook, Ill., assignor to General Fire Extinguisher Corporation, Northbrook, Ill.

Filed July 28, 1971, Ser. No. 166,833

Int. Cl. A62c 13/00

U.S. Cl. 169—31 R

2 Claims



A simplified swivel assembly for a fire extinguisher. The assembly includes a fire extinguisher valve body including a bore comprised of an enlarged portion through which fire extinguishing material may pass and a reduced, threaded portion for receiving the threaded end of a conventional bolt. A swivel block having an inlet adapted to be aligned with the bore enlarged portion and an outlet at an angle thereto is also provided. The inlet terminates in a reduced diameter portion having a diameter approximately equal to that of the shank of the bolt so that a bolt may pass therethrough to be received in the threaded reduced portion of the bore in the valve body to rotatably mount the swivel block on the valve body. A ring of bearing-like sealing material is interposed between the valve body and the swivel block.

3,736,987

OUTRIGGER BOOM FOR EARTHWORKING VEHICLES

Gene B. Easterling, Decatur, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Nov. 22, 1971, Ser. No. 201,087

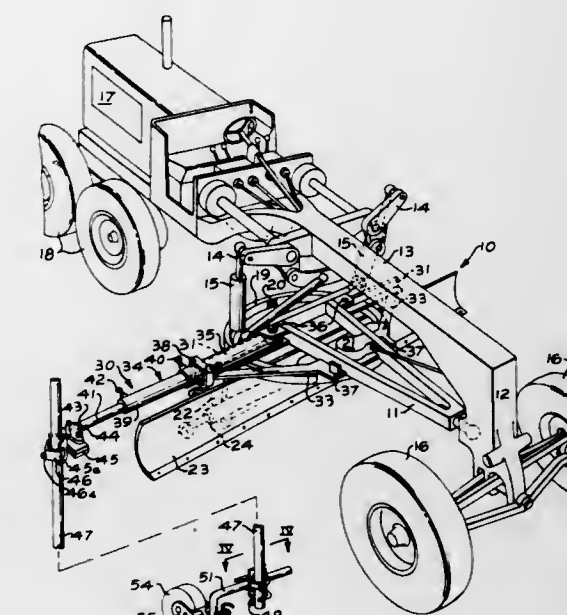
Int. Cl. A01b 63/111; E02f 3/76

U.S. Cl. 172—4.5

5 Claims

An outrigger boom has an elongated, angular support cradle which can be attached to an earthworking vehicle or its movable earthworking element and a telescoping boom assembly

having its inner end pivoted on the inboard end of the cradle so that the boom assembly can be aligned with the cradle and tightly clamped therein when in use to rigidly couple them so a universally adjustable mounting device at the outer end of the



boom assembly can attach and orient sensing transducers whereby external references can be utilized for control system reference even though such references are located somewhat remote to the vehicle's operating area.

3,736,988

DEPTH AND SIDE DRAFT CONTROL SYSTEM FOR AGRICULTURAL IMPLEMENTS

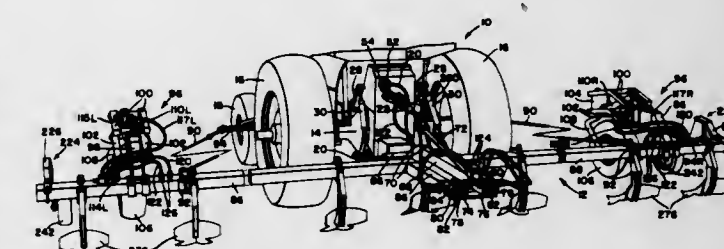
John Isaac Cantral, and Robert Otto Taube, both of Moline, Ill., assignors to Deere & Company, Moline, Ill.

Filed May 17, 1971, Ser. No. 143,938

Int. Cl. A01b 63/112

U.S. Cl. 172—7

27 Claims



A control system for the outer sections of an integral flexible implement automatically adjusts the outer sections in response to deviations of the outer sections from a preselected position with respect to the ground surface. Provision is also made whereby one of the outer frame sections may selectively be made responsive to draft loads so that when unequal draft forces are imposed upon opposite sides of the tractor hitch, the one frame section is vertically adjusted to balance the draft loads on opposite sides of the tractor hitch. The control system also includes means to render the depth sensing and side draft sensing means inoperative and raise the outer frame sections on their gauge wheels to a raised transport position.

3,736,989
FLEXIBLE PLASTIC TRASH PLATE FOR A
MOLDBOARD PLOW

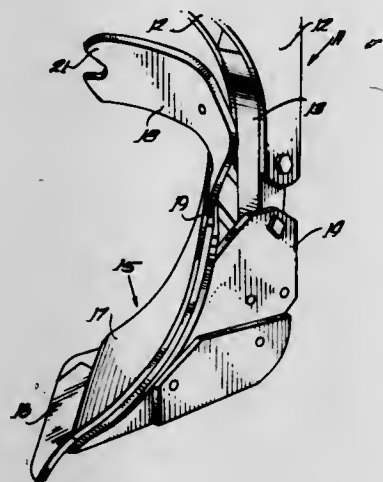
Kent B. Randol, Naperville, and Robert L. Redford, Westmont, both of Ill., assignors to International Harvester Company, Chicago, Ill.

Continuation of Ser. No. 443,029, March 26, 1965, abandoned. This application Aug. 17, 1970, Ser. No. 64,624

Int. Cl. A01b 15/00

U.S. Cl. 172-759

5 Claims



A trash plate for securement to a moldboard plow having a smooth soil engaging surface and made from a flexible plastic material. The trash plate having sufficient rigidity to withstand the soil pressure thereagainst and sufficient flexibility under said pressure to inhibit the adherence of soil thereto.

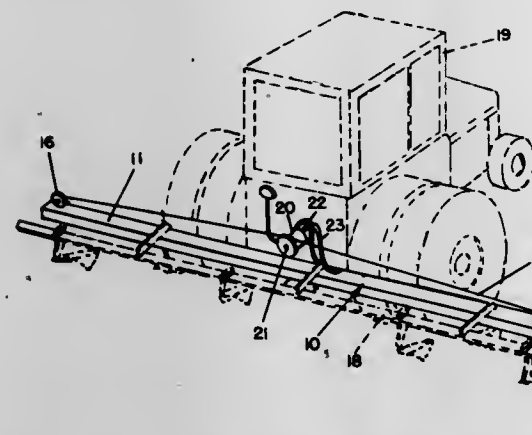
3,736,990
TELESCOPING ROW MARKER

J. O. Rogers, Jr., Star Route, Pearce, Ariz.
Filed Sept. 20, 1971, Ser. No. 181,708

Int. Cl. A01b 17/00

U.S. Cl. 172-131

4 Claims



This invention consists of a steel tube that is mounted on and at right angle to a tractor. The aforesaid steel tube is rectangular when viewed from the end and has two steel tubes that are round when viewed from the end mounted in the first mentioned steel tube. The aforesaid two steel tubes are equally spaced and parallel to each other and are suitably secured together by means of a plurality of equally spaced and parallel rectangular plates on the top thereof. A spring-loaded row marker is hingedly secured to each end of the aforesaid two last mentioned steel tubes. The just mentioned two steel tubes are slidably moved in and out of the first mentioned steel tube by means of a steel cable having its ends suitably secured to the aforesaid two steel tubes. The aforesaid steel cable is wrapped around a pulley mounted on the shaft of a reversible hydraulic motor that is secured to the rear end of the tractor. The aforesaid hydraulic motor is activated through the two hydraulic hose that connect the motor to the hydraulic system of the tractor.

3,736,991
DRILLING ATTACHMENT FOR CHAIN SAW

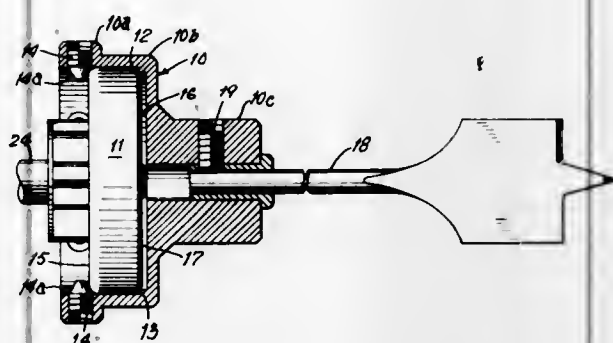
Nelson D. Maine, Church St., Hillsborough, N.H.

Filed July 23, 1971, Ser. No. 165,667

Int. Cl. B27g 17/00

U.S. Cl. 173-29

3 Claims



This disclosure describes a tool holding attachment for accommodating a drill or other tool, which attachment is adapted for securing to the exposed clutch member of a portable powered chain saw, thus converting such a saw, for example, to a portable powered drill which can bore large diameter holes in a relatively short period of time.

3,736,992
CONTROL COLLAR AND BEARING SUPPORT FOR
POWER TOOL SHAFT

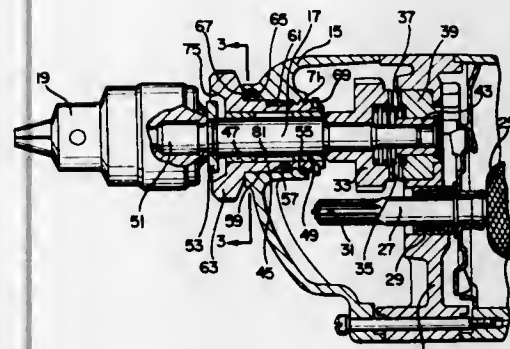
Richard L. Zander, Reisterstown; Erich Ostwald, Baltimore, both of Md., and Daniel H. Sides, New Freedom, Pa., assignors to The Black and Decker Manufacturing Company, Towson, Md.

Filed July 14, 1971, Ser. No. 162,417

Int. Cl. E02d 7/02

U.S. Cl. 173-48

7 Claims



A portable electric tool having a motor supported within a housing and adapted to rotate an output shaft. A toothed, hammer member is fixed to the output shaft and, when engaged with a stationary toothed member, imparts longitudinal impact blows to the output shaft during rotation thereof. An adjustable collar supports the shaft in the tool housing and is operable, in one position of adjustment, to allow the toothed members to engage, and in another adjusted position, to prevent the toothed members from engaging. The collar embodies a novel, simplified construction and is frictionally retained in position during use of the tool. In addition, a novel bearing arrangement is provided between the collar and the shaft to insure proper lubrication of the shaft during use of the tool.

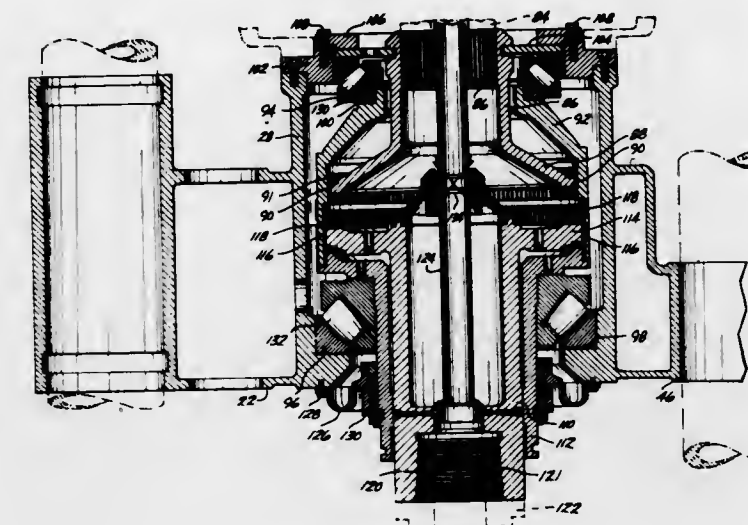
3,736,993
HIGH TORQUE BORING MACHINE
Harold H. West, Seattle, Wash., assignor to The Robbins Com-
pany, Seattle, Wash.

Filed July 15, 1971, Ser. No. 162,843

Int. Cl. E21b 3/02

U.S. Cl. 173-163

7 Claims



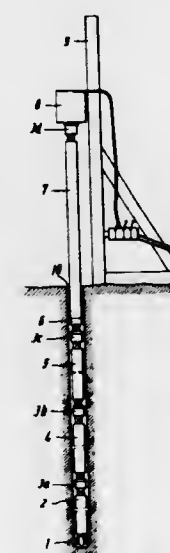
A traveling support frame is mounted for up and down travel along upstanding guide columns. Drilling equipment is carried by the traveling frame. The drilling equipment includes a drive head and means coupling it to a rotary drive member in such a way that bending forces imposed on the drill stem are not transmitted by the drill head to such drive member.

3,736,994
COMPRESSED-AIR DRILLING EQUIPMENT
Josef Vida, Johann Boehmstrasse 21, and Florian Hasewend, Straussgasse 7, both of Kapfenberg, Austria
Continuation of Ser. No. 740,771, June 6, 1968, abandoned, which is a continuation of Ser. No. 411,280, Nov. 16, 1964, abandoned. This application Sept. 2, 1970, Ser. No. 69,184

Int. Cl. E21b 3/12

U.S. Cl. 175-103

7 Claims



Pneumatic hammer rock drilling apparatus which is ice free and adapted to be operative in a bore hole wherein a water-dirt separator is utilized in the borehole in juxtaposition with the drill.

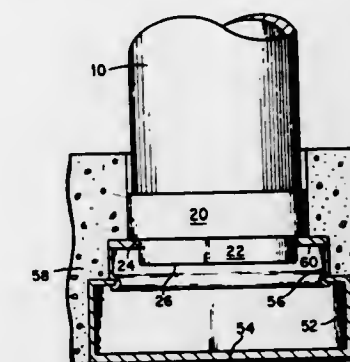
3,736,995
DIAMOND-IMPREGNATED MASONRY BIT WITH
RADIALLY-STEPPED CUTTING FACES
Albert H. Salter, 4114 Redwine Drive, Greensboro, N.C.

Filed June 16, 1972, Ser. No. 263,413

Int. Cl. E21b 9/36

U.S. Cl. 175-330

8 Claims



A masonry core drilling bit for cutting through cast concrete into preplaced utility conduit cells beneath the surface. The bit has two concentric, axially offset, end cutting faces on a unitary cutter head arranged at the end of a hollow shank for simultaneously cutting through concrete and through the metal cover of the embedded cell while, at the same time, providing an enlarged hole in the concrete to accept an insert for a utility outlet. The cutter head of the bit contains 5 to 60 volume per cent uniformly dispersed diamonds in a matrix of substantially pure iron powder, or an iron powder containing 20-80 vol. percent WC, infiltrated during fabrication with a relatively low-melting alloy. Spaced diamonds are provided along the internal and exterior cylindrical surfaces of the cutter head of the bit.

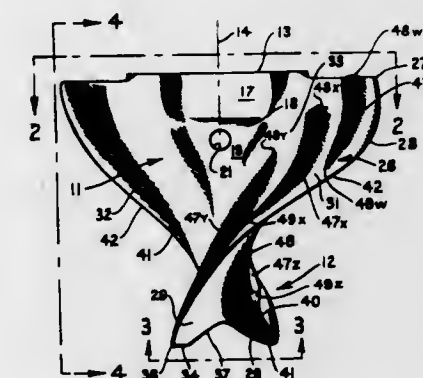
3,736,996
PILOT BIT WITH REINFORCING RIBS
Arthur R. Winters, Fremont, Calif., assignor to Pengo Corporation, Sunnyvale, Calif.

Filed Aug. 28, 1971, Ser. No. 176,773

Int. Cl. E21b 9/22

U.S. Cl. 175-392

8 Claims



Earth auger pilot bit is an improvement upon U.S. Pat. No. 2,773,673. The body of the bit is triangular when viewed in side elevation from one direction and narrower and thinner when viewed turned 90°. There is a "fish-tail" lower extremity. There are two (or more) spiral cutting blades protruding from the body and extending into the fishtail, the second blade on each side joining the leading blade of the other at the bottom of the bit to reinforce same. The improvement consists of having one or more reinforcing ribs supplementing and reinforcing the fishtail and also the leading spiral blades. The reinforcing ribs resist fracture of the bit upon severe impact and absorb wear, thereby prolonging the life of the bit.

3,736,997 WALKING BEAM CONVEYOR WITH WEIGHING APPARATUS

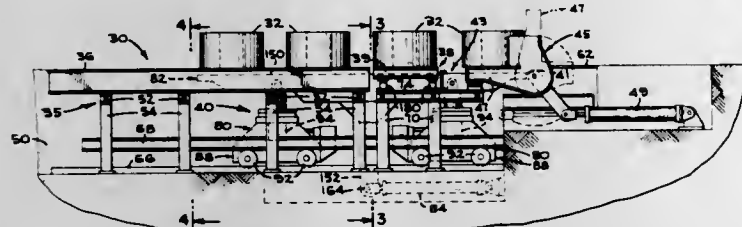
Robert G. Bottorf, Jenkintown, Pa., assignor to FMC Corporation, San Jose, Calif.

Filed June 21, 1972, Ser. No. 265,007

Int. Cl. G01g 19/00

U.S. Cl. 177-145

25 Claims



A hydraulically operated, long stroke walking beam conveyor with provision for weighing the article being conveyed and suitable for operation in high temperature environments is disclosed. The weighing is accomplished by load cells mounted on a fixed structure within the path of the movable carriage of the walking beam conveyor or the load cells are built into the carriage itself. Both embodiments avoid the need for a separate weighing scale.

3,736,998 DEVICE FOR APPLICATION OF FORCE

Rune Nils Allan Flinthe, and Kjell Helge Nordstrom, both of Vasteras, Sweden, assignors to Safelink AB, Vasteras, Sweden

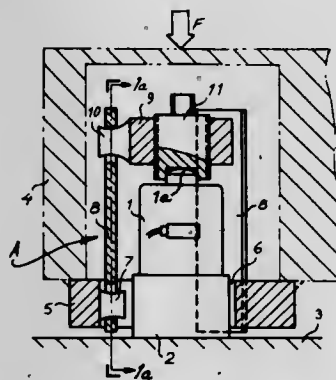
Filed Apr. 20, 1971, Ser. No. 135,622

Claims priority, application Sweden, May 5, 1970, 6168/70

Int. Cl. G01g 21/10

U.S. Cl. 177-187

22 Claims



A device or adaptor for transmitting force between load supporting structure and a load cell including a first member which rests on the load cell and a second member connected to the load supporting structure with the two members being interconnected by at least three force transmitting elements such that side loading forces applied to the load supporting surface permits the two members to move relative to each other thereby to isolate the load cell from the side loading. Upon removal of the side loading the two members automatically return to their original positions. Provision is also made to compensate for shock loads or overloads through the use of resilient elements incorporated in the device.

3,736,999 AUTOMATIC VEHICLE COUNTING AND WEIGHING SYSTEM

Ernest E. Lademann, Park Ridge, N.J., assignor to The Bendix Corporation, Teterboro, N.J.

Filed Sept. 30, 1971, Ser. No. 185,021

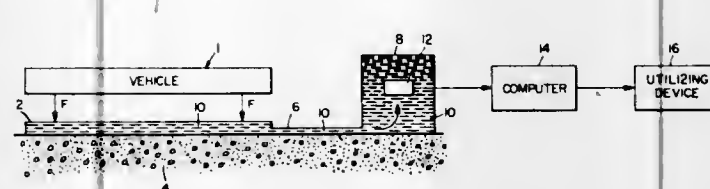
Int. Cl. G01g 5/04

U.S. Cl. 177-208

2 Claims

A vehicle exerts a force on a fluid in a container and which force is transmitted to a sensor supported in the container.

The sensor senses the force and provides corresponding signals, and means are provided for utilizing said signals to



determine predetermined vehicle parameters which are a function of the force.

3,737,000 PLANETARY REDUCTION DRIVE

John C. Knobloch, and Ray M. Shepard, both of 7515 Fritz Road, Fort Wayne, Ind.

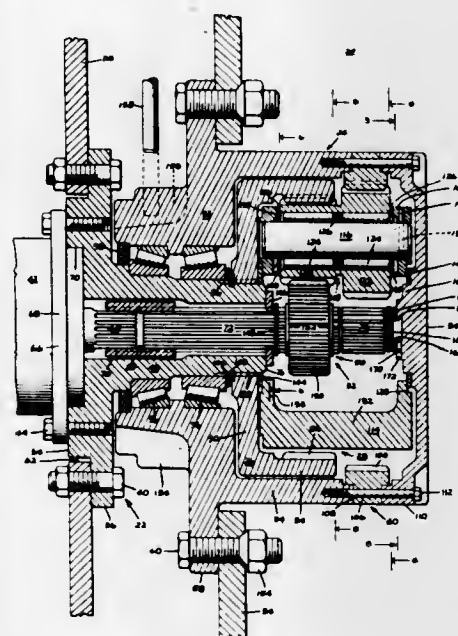
Division of Ser. No. 132,707, April 9, 1971, Pat. No.

3,686,928. This application May 9, 1972, Ser. No. 251,828

Int. Cl. B60k 17/30, 23/00

U.S. Cl. 180-43 B

7 Claims



A planetary reduction drive, particularly for a vehicle wheel. A mounting flange adapted to be secured to the vehicle frame has a hollow spindle extending from one side, and a drive motor is mounted on the other side of the flange with its output shaft extending into the spindle. An input shaft is coupled to the motor shaft and extends outwardly from the spindle. A fixed ring gear surrounds the input shaft and is secured to the spindle adjacent its outer end. A housing has a first hub portion surrounding and rotatably mounted on the spindle and a second hub portion surrounding the fixed ring gear, the wheel being mounted on the housing. An output ring gear also surrounds the input shaft and is secured to the second hub portion of the housing. A planet carrier is positioned within the ring gears and supports at least two planet shafts, each of the planet shafts having a cluster of first and second planet gears thereon, the first planet gears meshing with the fixed ring gear and the second planet gears meshing with the output ring gear. The mesh of the planet gears with the ring gears comprises the sole support for the carrier. A sun gear is splined to the input shaft and meshes with one planet gear of each cluster.

3,737,001 TRACK ASSEMBLY FOR CONVERTING WHEELED VEHICLES

Rudolf Rasenberger, Rheinfelder Strasse 19, Grenzach, Germany

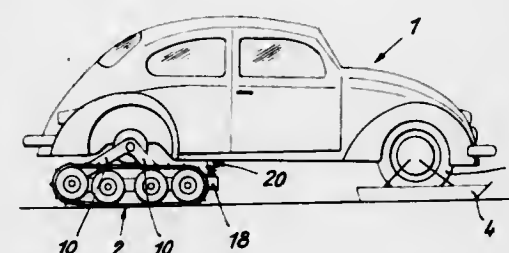
Filed May 28, 1971, Ser. No. 147,783

Claims priority, application Germany, May 29, 1970, P 20 26 295.7

Int. Cl. B62d 55/04; B62m 27/02

U.S. Cl. 180-5 A

18 Claims



A track assembly for converting a normally wheeled motor vehicle having a plurality of wheel mounts at least one of which is driven, into a track-laying vehicle. Support means of the track assembly has mounted thereon wheel means including ground wheels and drive wheels. Tracks are trained about the wheels and engage with the drive wheels so as to be driven by the same, and coupling means can be bolted or otherwise secured to the driven wheel mount or wheel mounts of the vehicle and is connected in motion-transmitting relationship with the drive wheels of the track assembly so as to transmit motion to the latter.

3,737,002 SUCTION GAS PROTECTIVE DEVICE IN MOTOR VEHICLE

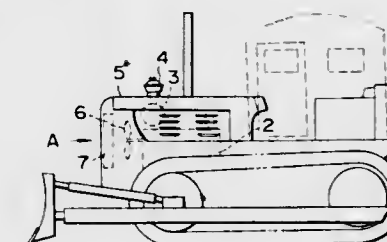
Kokichi Yotsumoto, Sagami-hara, Japan, assignor to Caterpillar Mitsubishi Ltd., Tokyo, Japan

Filed Sept. 10, 1970, Ser. No. 71,052

Int. Cl. B60k 13/02; B01d 50/00

U.S. Cl. 180-69 R

1 Claim



A device including a conduit extending through an opening in a hood of a vehicle and having a circular protection means disposed about the conduit and the opening and serving as a passageway for conducting air from an inlet disposed in the hood into the passageway and thence into the conduit which in turn is connected to an air cleaner.

3,737,003 ADJUSTABLE CONTROL CONSOLE FOR VEHICLES

Duane E. Beals, and Russell D. Page, both of Decatur, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed May 3, 1971, Ser. No. 139,362

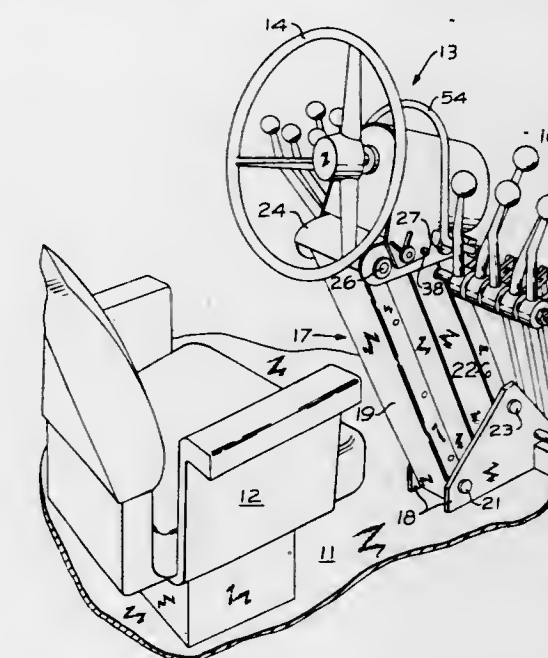
Int. Cl. B60k 29/00

U.S. Cl. 180-78

11 Claims

The steering wheel together with other controls of an earth moving vehicle such as a motor grader are mounted on a pedestal which may be selectively tilted for optimum positioning for different operators and to enable a particular operator to sit or stand at his convenience. The pedestal is defined by links pivoted together in a configuration which maintains the

steering wheel at a substantially constant inclination and which maintains the other controls at preferred positions relative to the steering wheel and is provided with latch means for locking and releasing the pedestal at a selected inclination



with a minimum of effort and diversion of attention. The pedestal and controls are arranged to increase safety by obstructing forward pitching of the operator in the event of abrupt vehicle stoppage while providing for rapid escape from the operator's station at either side of the vehicle.

3,737,004 COMPOSITE ACOUSTIC DECOUPLER

Roland W. Higgs, Orchard Lake, Mich., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Feb. 10, 1972, Ser. No. 225,054

Int. Cl. G10k 11/00; H04b 11/00; E04b 1/99

U.S. Cl. 181-0.5 A

7 Claims



An acoustic decoupler which isolates both shear and longitudinal acoustic waves comprises a body of transversely isotropic low acoustic impedance material with a thin layer of elastomer material attached to one surface of the body of low acoustic impedance material.

3,737,005 THRUST AUGMENTING AND SOUND SUPPRESSING APPARATUS

Remo Tontini, San Diego, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

Filed Oct. 14, 1971, Ser. No. 189,309

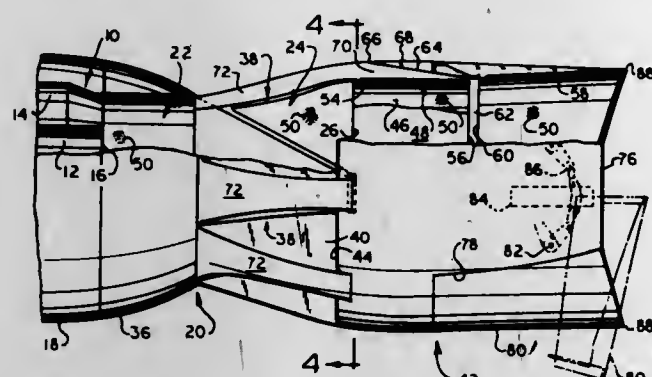
Int. Cl. B64d 33/06; F01n 1/14, 1/16

U.S. Cl. 181-33 HC

12 Claims

An aircraft jet engine is provided with an ejector nozzle which suppresses jet noise and augments thrust during takeoff and climb. The nozzle is formed as an ejector barrel supported aft of the exhaust nozzle and defines, with the nozzle, inlet passage means for free stream air to enter and mix with engine gases in the mixing zone defined by the barrel. The inner wall of the barrel is formed primarily of acoustical and structural honeycomb paneling perforated on the mixing zone side which suppresses noise and makes the inner wall virtually self

supporting. A plenum chamber in the barrel supplies energized gas to an auxiliary jet nozzle in the form of a peripheral slot through the inner wall and receives the gas from the engine through conduits connected to a secondary exhaust nozzle.



zle. The latter includes a lobed section in which the side walls of the lobes are formed of acoustical and structural honeycomb to further suppress noise and make the lobe side walls self supporting.

3,737,006

APPARATUS HAVING AN OPERATOR CARRYING AND PROTECTIVE DEVICE

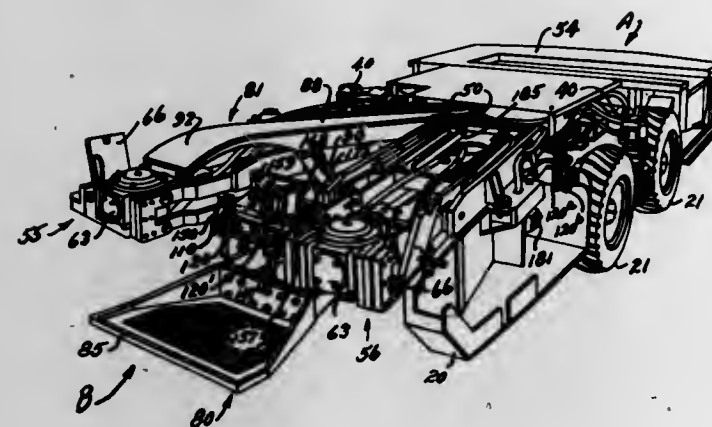
John B. Long, Oak Hill, W. Va., assignor to The Marmon Group, Inc., Chicago, Ill.

Filed Mar. 30, 1971, Ser. No. 129,337

Int. Cl. E04g 1/26

U.S. Cl. 182-112

14 Claims



An operator protective device for operator controlled apparatus, the protective device including a platform upon which an operator may be situated and a canopy extending over at least a portion of the platform and having at least an overhanging portion thereof spaced from the platform to provide a protective cover over an operator situated on the platform. Means is provided to selectively increase and decrease the relative spaced apart distance between the platform and the portion of the canopy which extends thereover, which means may also include means for movement of both the platform and the canopy as a unit with respect to the apparatus while maintaining a fixed relative spaced apart distance between the platform and the portion of the canopy which extends thereover.

3,737,007

ADJUSTABLE SCAFFOLD

Robert C. Herrell, Indianapolis, Ind., assignor to Baker-Ross Inc., Indianapolis, Ind.

Filed May 20, 1971, Ser. No. 145,281

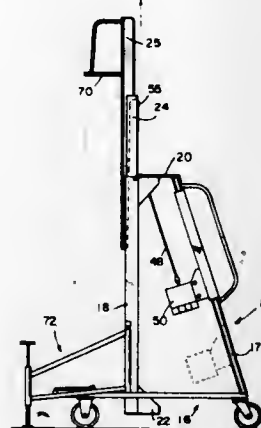
Int. Cl. E06c 5/04

U.S. Cl. 182-210

8 Claims

An adjustable scaffold has movable ladder sections and a base with a fixed ladder portion. Cable and pulley assemblies

in conjunction with a counterweight permit raising and lowering of the movable ladder sections. Guide means are mounted on the fixed ladder portion to guide movement of the counterweight.



A locking device has dogs which selectively engage a plurality of vertically spaced openings in a movable ladder section to lock the movable sections in desired positions.

3,737,008

LUBRICATING DEVICE FOR A DRIVING WORM ENGAGING A STATIONARILY ARRANGED WORM GEAR RACK

Hans O. Wagner, Buttgen-Vorst, Germany, assignor to Schless Aktiengesellschaft, Dusseldorf-Oberkassel, Germany

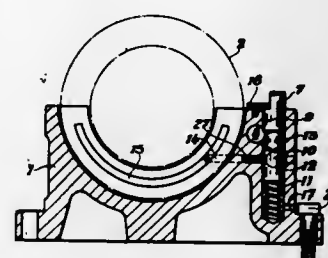
Filed Feb. 14, 1972, Ser. No. 225,817

Claims priority, application Germany, Feb. 13, 1971, P 21 06 917.0

Int. Cl. F16h 1/20

U.S. Cl. 184-6.14

6 Claims



A lubricating device for a driving worm which meshes with a stationary worm gear rack and drives a machine tool part, according to which the gear rack has control pistons movably arranged therein which normally prevent fluid communication between a lubricant supply conduit and bores in said rack which bores lead to the worm teeth flanks. These pistons when actuated by control bar means connected to the machine tool part are by the control bar means moved into position for establishing communication between the lubricant supply conduit means and the respective adjacent worm teeth flanks.

3,737,009

WHEEL CHAIR LIFT

Joseph L. Stoddard, 9450 Nogales Highway, Tucson, Ariz.

Filed Nov. 1, 1971, Ser. No. 194,675

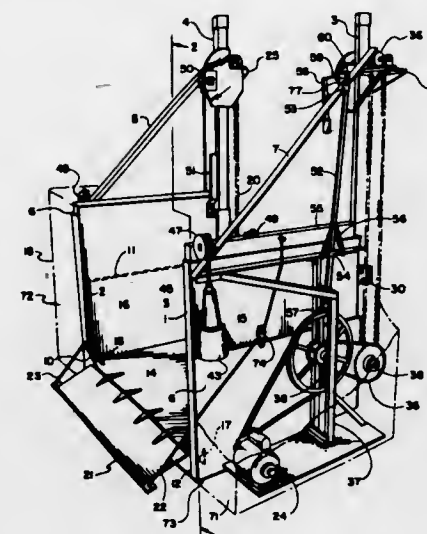
Int. Cl. B66b 11/04

U.S. Cl. 187-17

7 Claims

A lift is described which provides a convenient and safe means for lifting objects and/or personnel for a limited height. In particular, the lift provides a means whereby a person in a wheel chair may be raised a given distance, such as the height necessary to enter a trailer. In addition to the basic lifting mechanisms, the lift provides a safety feature whereby a lip, connected to the lifting platform and actuated by the upward movement of the platform, pivots upwardly and prevents an inadvertent roll-off of the wheel chair. The structure about the platform includes sheet material about three sides and a

hinged flap across the fourth side. As the platform is raised, the hinged flap, normally urged into a horizontal position by a spring, is pivotally raised underneath the rising platform whereby the fourth side is sealed off to prevent children or pets from crawling under the raised platform with subsequent



injury should the platform lower upon them. On descent, the frontal lip pivots forwardly and downwardly whereby, when the platform contacts the ground, the lip will provide a short ramp to the ground. Simultaneously, the flap, raised into an upright position on ascent, pivots to a horizontal position under force of the spring.

3,737,010

RETRACTABLE POST

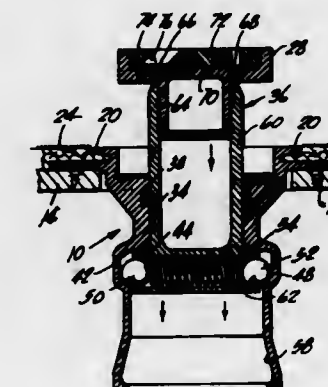
Harold C. Nelson, Long Beach, Calif., and Richard A. Sharp, Lakewood, Colo., assignors to McDonnell Douglas Corporation, Santa Monica, Calif.

Filed June 3, 1971, Ser. No. 149,461

Int. Cl. B60t 1/14

U.S. Cl. 188-32

6 Claims



A floor mounted retractable post to restrain a serving cart in an aircraft in areas where a fixed post protruding above the floor would present a hazard. A spring-loaded, flush-mounted post is extendible by manual manipulation and is maintained flush with the floor upon depression when not in use.

3,737,011

ADJUSTING DEVICE FOR BRAKE LININGS OF FRICTION BRAKES

Hans-Dieter Rehnartz, Frankfurt-Hausen, Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Feb. 16, 1972, Ser. No. 226,777

Claims priority, application Germany, March 13, 1971, P 21 12 241.8

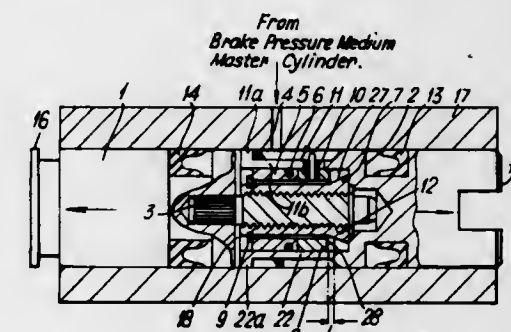
Int. Cl. F16d 65/56

U.S. Cl. 188-196 BA

9 Claims

This invention relates to a brake lining clearance adjusting device capable of being used in drum brakes and disc brakes. Compared with existing adjusting devices, the present adjust-

ing device saves space, is less expensive to manufacture and has an easy operating motion. The torque of the back rotation after adjustment does not change the adjustment made. An adjusting spindle which has one end thereof secured to a piston has an adjusting nut threaded thereon, the piston, spindle and nut being disposed coaxially of the longitudinal axis of a cylinder. The first piston has extending therefrom a cylindrical projection which is disposed coaxially of the longitudinal axis and spaced from the inner surface of the cylinder with its end remote from the first piston slidably engaging the inner surface of the cylinder. The cylindrical projection includes a guideway therethrough having a first portion which is included at a given angle with respect to the longitudinal axis. A catch ring is disposed coaxially of the adjusting nut and in a sliding



relation with the inner surface of the cylindrical projection and includes thereon a guide pin engaging the guideway. One end of the catch ring is spaced from a conical portion of the adjusting nut by an amount equal to the desired brake lining clearance. A friction ring is disposed coaxially of the adjusting nut in contact with the other end of the catch ring and in a friction contact with the inner surface of the cylindrical projection. During an adjusting step the end of the catch ring frictionally engages the conical portion of the adjusting nut and through means of the guideway causes rotation of the nut with respect to the spindle to provide the desired adjustment. The friction ring, after an adjustment is made, cooperates in preventing rotation of the adjusting nut to prevent any change in the adjustment made.

3,737,012

SLACK ADJUSTER FOR RAILWAY BRAKE APPARATUS

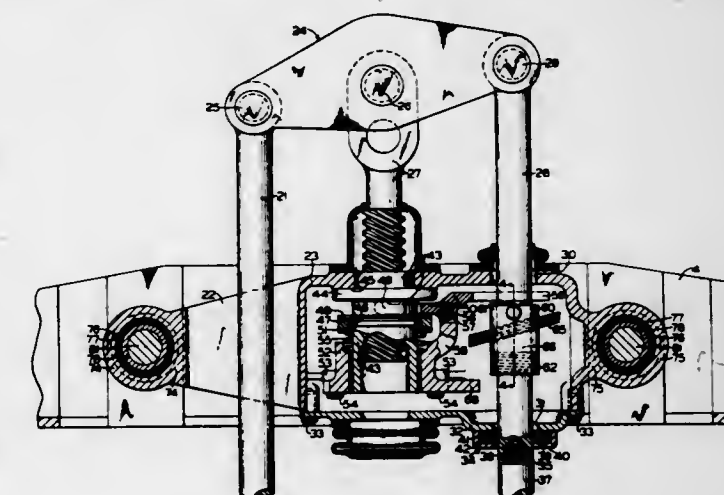
Andrew G. Haydu, Pittsburgh, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Mar. 1, 1972, Ser. No. 230,581

Int. Cl. F16d 65/56

U.S. Cl. 188-202

12 Claims



This invention relates to a railway car truck braking rigging including two brake beams one of which carries a brake cylinder device the piston rod of which is so connected by a lever and a link to both brake beams that, upon effecting a brake application, the brake shoes carried by these beams are pressed against the tread surface of the wheels. A slack ad-

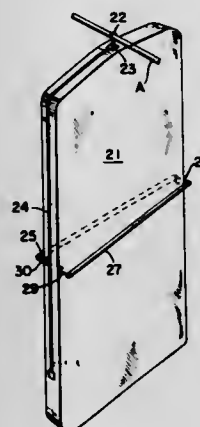
juster mechanism comprises a non-rotatable member that has the lever pivotally mounted thereon adjacent one end thereof. An external non-self-locking screw thread on this member carries a similarly threaded nut, this member being longitudinally movably mounted relative to one of the brake beams. One end of the nut constitutes a clutch face that is normally spring-biased against a stationary clutch face formed on a slack adjuster housing to prevent rotation of the nut and longitudinal movement of the screw member. The slack adjuster mechanism further comprises a clutch dog disposed about the link and normally locked thereto. Means are provided for rocking the dog out of locking engagement with this link upon the occurrence of shoe wear during a brake application after which the link is moved relative to the dog. Upon effecting a release the dog is relocked to the link and thereafter its movement is transmitted via a pivoted lever to the nut to disengage the clutch. The nut is then spun on the non-rotatable member to effect longitudinal movement of this member which is effective to adjust the lever, link and piston rod relative to the brake beams to maintain constant brake shoe clearance.

3,737,013

GARMENT CASE WITH HANGER-LIKE SUPPORT

William D. Powell, 247 La Espiral, Orinda, Calif.
Filed Sept. 23, 1971, Ser. No. 183,021
Int. Cl. A45c 13/26

U.S. Cl. 190-43



A flexible garment case includes a rigid support member attached to its mid-section on one of its outer surfaces and a carrying handle on the opposite side connected to the support member whereby the case and its clothing contents can be neatly folded over the rigid support member and conveniently carried like a suitcase by the handle without substantial wrinkling of its contents and the carrying handle can be moved out of the way to facilitate the admission and removal of clothing when the garment case has been unfolded and suspended from a suitable fixture for this latter purpose.

3,737,014

COUPLING ASSEMBLY

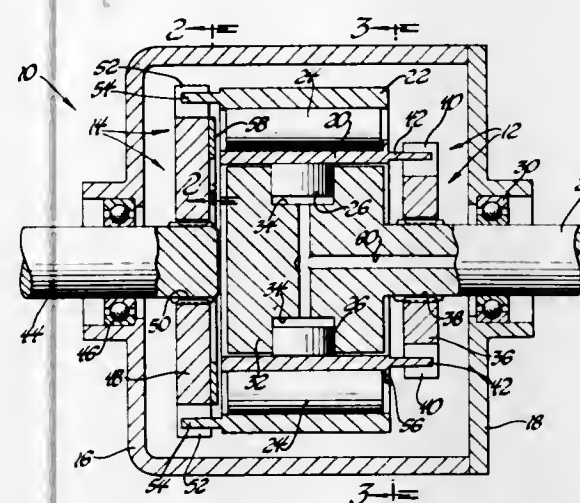
William P. Dalrymple, 415 University Drive, Rochester, Mich.
Filed Sept. 27, 1971, Ser. No. 183,929
Int. Cl. F16d 25/06, 23/00

U.S. Cl. 192-30 R

15 Claims

A coupling assembly which may be utilized as a brake, torque convertor or differential. The basic assembly includes a pair of concentric cylindrical members with roller elements disposed therebetween and in rolling engagement with the concentric members. Normally one concentric member may be freely driven or rotated relative to the other, however, the system also includes actuation means for distorting one of the concentric members into an elliptical or other configuration to provide a distortion in the other member which moves therealong in a wave-like fashion, the transmission of energy

between the members being proportional to the amount of distortion, i.e., the number or frequency of distortions or the



amplitude of a single distortion or various combinations thereof.

3,737,015

SPRING MOUNTING ARRANGEMENT FOR ONE-WAY ROLLER CLUTCH

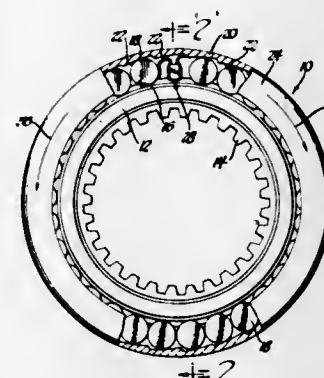
Lawrence P. Johnson, Huron, and Oscar G. Kitchin, Port Clinton, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed May 24, 1972, Ser. No. 256,345

Int. Cl. F16d 41/06

U.S. Cl. 192-45

4 Claims



An improved arrangement for mounting a roller engaging spring on the outer clutch member of a one-way roller clutch comprises a pair of spring mounting lugs protruding from flanges on the outer clutch member and a channel as an integral part of the spring. The channel is snapped onto the lugs in a generally radial direction past resilient detent tabs located at the open end of the channel. The tabs retain the lugs against the bottom of the channel securing the spring to the outer clutch in the radial direction. Securement in the circumferential direction is provided by the flanking engagement of the channel with the lugs. A hook portion may be included on the spring for engagement with the outer clutch member to take up tolerance between the channel and the lugs.

3,737,016

BLOCKING SYNCHRONIZATION FOR CHANGE-SPEED TRANSMISSIONS OF MOTOR VEHICLES

Gunter Wörner, 7053 Rommelshausen, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Nov. 30, 1971, Ser. No. 203,238

Claims priority, application Germany, Dec. 2, 1970, P 20 59 218.1

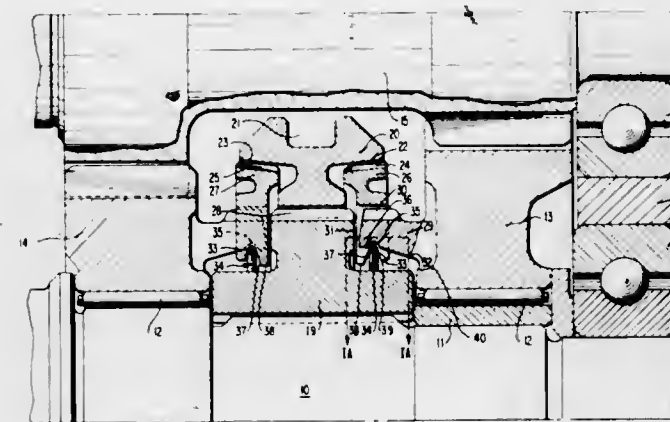
Int. Cl. F16d 23/06

U.S. Cl. 192-53 F

14 Claims

A blocking synchronization for a gear-type change-speed transmission, especially for motor vehicles, in which a shifting

sleeve is non-rotatably but axially displaceably arranged on a carrier and is provided with coupling teeth for the engagement in corresponding counter teeth at a gear; the shifting sleeve is additionally provided with an internal conical surface for the cooperation with the external conical surface of a synchronizing ring which by means of radially inwardly projecting extensions is within limits rotatable and axially displaceable against spring action within apertures of an annular gear extension projecting from the gear toward the shifting sleeve and carrying the counter teeth; inclined surfaces are also provided at



the extensions of the synchronizing ring for the cooperation with correspondingly inclined blocking surfaces provided at the sides of the apertures; the inwardly facing circumferential surface at the annular extension of the gear is constructed as a conical abutment surface for the abutment of an annular spring whereby this abutment surface increases in diameter in the direction toward the shifting sleeve while the annular spring is arranged in an annular groove of the extensions of the synchronizing ring which annular groove is open in the radially inward direction.

3,737,017

FLUID DISPENSING APPARATUS PRESELECTOR SYSTEM

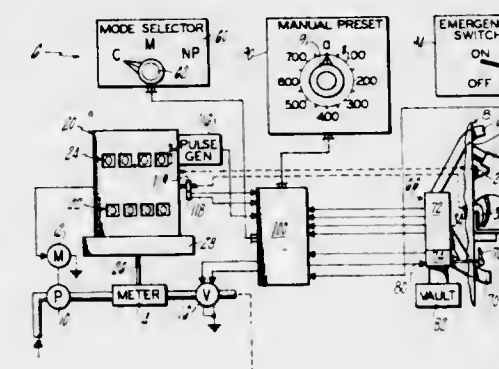
Peter P. Brunone, Hartford, Conn., assignor to Veeder Industries Inc., Hartford, Conn.

Filed May 20, 1971, Ser. No. 145,398

Int. Cl. G07f 13/02

U.S. Cl. 194-13

5 Claims



Fuel dispensing apparatus having a coin operated preselector, a knob operated preselector, a mode selector with coin, knob and nonpreselector settings and a logic circuit for operating a two-stage shutoff valve for terminating the delivery of fuel after the preselected amount is dispensed.

3,737,018

ONE WAY CLUTCH AND BRAKE DEVICE

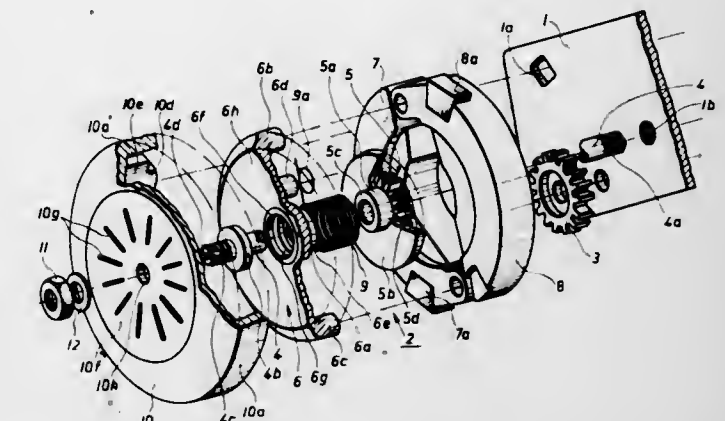
Helmut Helmers, Wilhelmshaven 294, Germany, assignor to Olympia Werke A.G., Wilhelmshaven, Germany
Filed Feb. 4, 1971, Ser. No. 121,018

Claims priority, application Germany, Mar. 28, 1970, P 20 14 996.6

Int. Cl. B41j 19/02

U.S. Cl. 197-64

10 Claims



A brake is operated by a typewriter carriage moving in a tabulating direction due to the operation of a one way clutch having cylindrical input and output portions connectable by a coiled clutch spring, and being spaced by an axial gap. A manually turnable shaft has a flange abutting the output part and is threaded into a housing wall for effecting relative axial displacement of the cylindrical input and output portions, and thereby an adjustment of the width of the gap.

3,737,019

CONVEYOR SYSTEM

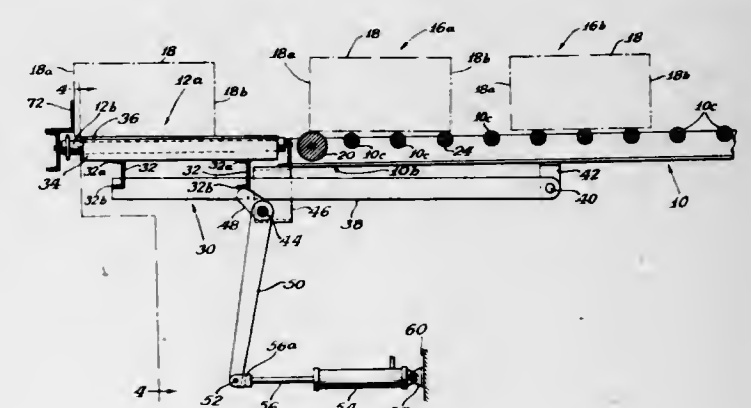
Marvin H. Coleman, Winnetka, and Walter A. Leibfritz, Niles, both of Ill., assignors to Conveyor Systems, Inc., Morton Grove, Ill.

Filed Sept. 15, 1971, Ser. No. 180,626

Int. Cl. B65g 47/42, 47/26

U.S. Cl. 198-21

5 Claims



A conveyor system for transferring an article from one continuously driven conveyor to another continuously driven conveyor which is positioned at an abrupt angle with relation to the first driven conveyor while properly maintaining a given article orientation. The system in its preferred form comprises a first continuously driven conveyor for moving an article along a given path of travel to a discharge station. A second continuously driven conveyor, having an inlet station positioned at the discharge station of the first conveyor, is provided to move the article along a second given path of travel which is at substantially a right angle to the path of travel of the article along the first conveyor. Vertically movable article support means is provided at the inlet station of the second conveyor which, in a raised condition, receives an article propelled thereon from the discharge station of the first con-

veyor, and supports the article above the inlet station of the second conveyor until the article comes to rest. Lowering of the article support means transfers the article to the second conveyor. Article accelerating means advantageously is positioned at the discharge station of the first conveyor for propelling the article onto the article support means. In addition, article abutment means is provided adjacent to the article support means for engaging a side of the article to assure a given article orientation prior to moving the article along the second conveyor.

3,737,020

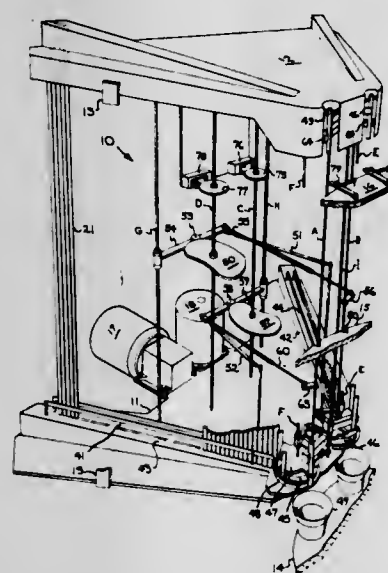
APPARATUS FOR FEEDING GLASS RODS

Francis E. Bauman, Vineland, N.J., assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Dec. 31, 1970, Ser. No. 103,326
Int. Cl. B65g 47/06, 47/80

U.S. Cl. 198—22 R

6 Claims



An apparatus for feeding glass tubes to a machine that severs the tubes to a prescribed length. The apparatus includes a plurality of storage racks for storing the glass tubes prior to their advancement. An advancement wheel that moves the tubes one at a time along a curvilinear path to a transfer point where the glass tubes are, either singularly or in pairs, deposited in holding guides that permit the glass tubes to move in a longitudinal direction as they are consumed by the severing machine. The invention also incorporates a finger arrangement that effects a very rapid horizontal translation of the glass tubes while they are maintained in vertical alignment.

3,737,021

DEVICE FOR TRANSFERRING GROUPS OF RODS FROM A RAKE-TYPE COOLING BED TO A SERIES OF ROLLERS FOR CHARGING A COOLING BED COLD SHEARS

Erich Reth, 41 Duisburg-Buchholz, and Walter Uthmann, 41 Duisburg, both of Germany, assignors to DEMAG, Duisburg, Wolfgang-Reuter-Platz, Germany

Filed Apr. 5, 1971, Ser. No. 131,089

Claims priority, application Germany, Apr. 20, 1970, P 20 18 849.2

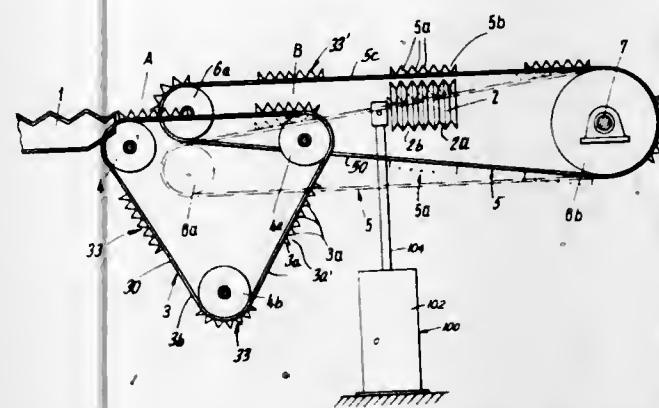
Int. Cl. B65g 47/00

U.S. Cl. 198—20 R

1 Claim

A device for transferring articles such as rods from a first location such as from a rake type cooling bed to a second location such as onto a series connected roller bed for feeding or charging a cooling bed cold-shears comprises at least one endless conveyor belt which is located between the first station and the second station. The endless conveyor belt if only one is employed includes an effective reach which is shiftable upwardly and downwardly in a vertical plane in order to shift the end thereof which is remote from the pickup or first station in respect to the delivery or second station.

Each conveyor belt includes a plurality of areas along the length which have receiving teeth between which the rods to be transferred are engaged and also an area which is smooth between each receiving tooth section. The apparatus may include a stationary endless conveyor arranged adjacent the



receiving station and an additional conveyor extending from the first conveyor to the depositing station and which is shiftable in a vertical plane in order to provide an interception of the feed for lift off from the first conveyor and a delivery of the material to the second or receiving station.

3,737,022

RAPID RETRACTING TORQUE ACTIVATED DRIVE ROLLER UNIT FOR CONVEYOR SYSTEMS

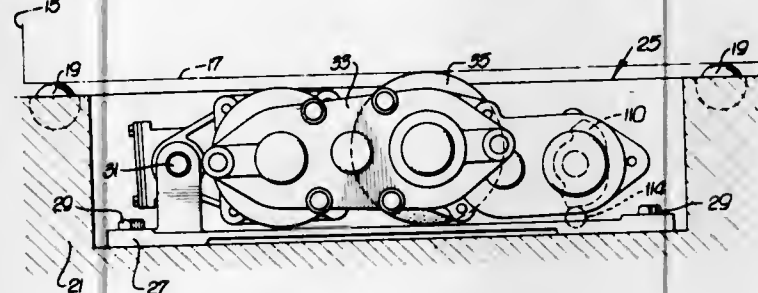
John H. DeNeefe, Cerritos; Conrad Pistel, Fullerton, and John G. Schwarzbeck, Downey, all of Calif., assignors to Western Gear Corporation, Lynwood, Calif.

Continuation of Ser. No. 80,709, Oct. 14, 1970, abandoned.
This application Apr. 14, 1972, Ser. No. 244,306

Int. Cl. B65g 13/02

U.S. Cl. 198—127 R

8 Claims



Improvements in a torque controlled power roller unit for propelling loads along a conveyor plane defined by associated load-supporting means, in which the roller normally is disposed below the conveyor plane and is translated into contact with a load by the same drive means which also rotates the roller. The improvements facilitate the restoration of the roller to a position below the conveyor plane and out of contact with the load, upon cessation of power operation, and include a planetary drive train located in relation to the roller and roller translating mechanism so as to minimize drive train friction incident to such restoration; employment of a variable restraint upon roller rotation which reduces resistance to roller rotation during such restoration; and provision of a torque spring to assist in such restoration.

3,737,023

CONVEYOR CHAIN ASSEMBLIES

Paul Arthur Collier, Tresco Rock near Kidderminster, Worcestershire, England, assignor to Parsons Chain Company Limited, Stowport-on-Severn, England

Filed Sept. 15, 1971, Ser. No. 180,627

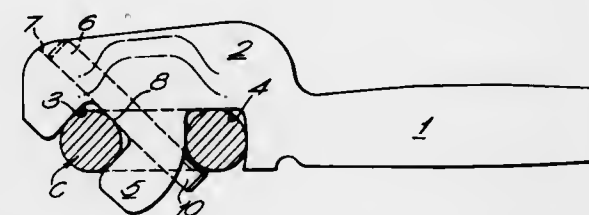
Int. Cl. B65g 19/00

U.S. Cl. 198—175

4 Claims

The invention relates to a chain scraper assembly in which scraper bars are secured at spaced intervals to chain lengths.

The inventive feature resides in the means for connecting the scraper bar to the conveyor chain by means of a connector having transverse slots adapted to receive a chain link, the chain link being secured in position within the slots by a pin or



pins inserted in a hole or holes provided in the connector and so angled as to cut through the bottom of the outer slot and merge in the side wall of the inner slot, the inner end of the or each pin, when the link is in position, making engagement with the outer face of inside limb of the link.

3,737,024

WORK-SUPPORTING FIXTURE FOR A CONVEYOR SYSTEM

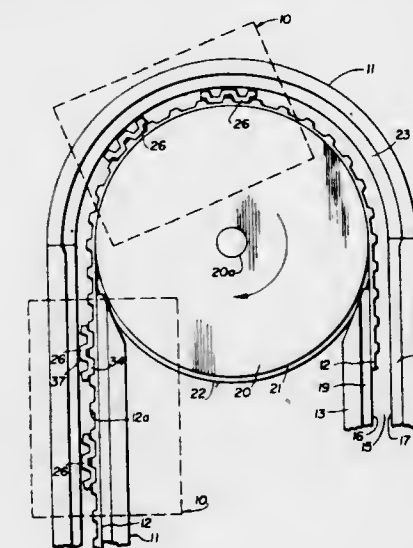
John R. Gelzer, 4660 Kenny Road, Columbus, Ohio

Filed Nov. 24, 1971, Ser. No. 201,795

Int. Cl. B65g 17/00

U.S. Cl. 198—181

5 Claims



A work-supporting fixture is provided for a conveyor system having an endless conveyor formed with positive engagement elements supported for traversal of a path including arcuate portions. The work supporting fixtures each include a base frame adapted to engage and support a workpiece thereon and a pair of guide tongues adapted to interengage with the conveyor system for support and traversal of the conveyor path. The guide tongues are pivotally mounted on the base frame in spaced relationship with the pivot points or pivot axes being spaced apart a distance such that the pair of tongues will remain in proper engagement with the conveyor throughout the fixture's course of travel.

3,737,025

CLEANING DEVICE FOR BUCKET ELEVATOR

Thomas F. Miller, Elmhurst, and Richard C. Zeck, Bellwood, both of Ill., assignors to FMC Corporation, San Jose, Calif.

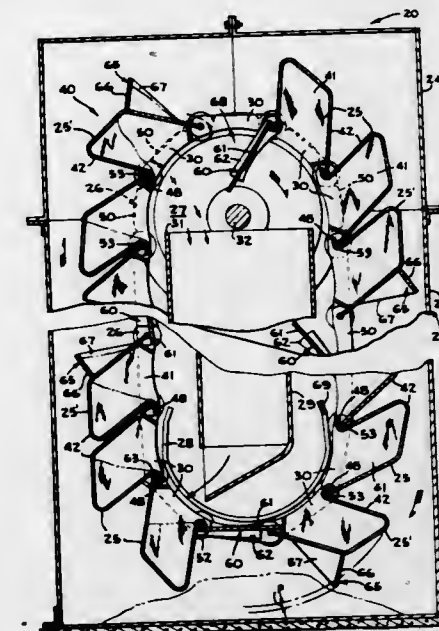
Filed Oct. 26, 1971, Ser. No. 192,123

Int. Cl. B65g 45/00

U.S. Cl. 198—229

18 Claims

In a bucket elevator a cleaning lip is attached to a few buckets of the bucket and chain line to protrude beyond the normal outer edge of the bucket to remove material in the bottom part of the elevator casing. The material is conveyed to the head of the elevator and combined with the normally



spilled material at the bottom which might interfere with and cause damage to the bucket and chain line or the drive.

3,737,026

STACK PACKAGE

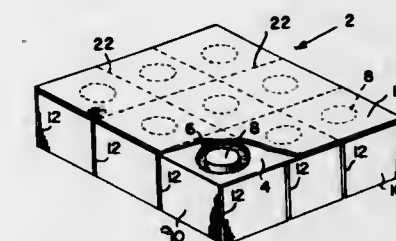
Alten E. Whitecar, Westville, N.J., assignor to Smith Kline & French Laboratories, Philadelphia, Pa.

Filed Mar. 12, 1971, Ser. No. 123,613

Int. Cl. B65d 71/00, 83/04

U.S. Cl. 206—42

1 Claim



A plurality of containers each have multiple pockets for articles. A rupturable cover sheet covers the pockets of each container. A peripheral flange extends substantially below the bottom of each container for telescopically engaging a container below it to removably unite the containers into a single package. The flange alternatively has detent means.

3,737,027

COMPOSITE CARTRIDGE PACK FOR HARDENING RESINS

Malcolm James Ball, Troon, Scotland, assignor to Imperial Chemical Industries Limited, London, England

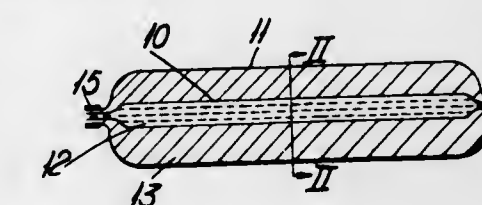
Filed Aug. 16, 1971, Ser. No. 172,114

Claims priority, application Great Britain, Sept. 1, 1970, 41,733/70

Int. Cl. B65d 81/32

U.S. Cl. 206—47 A

12 Claims



A composite pack for a two-component hardening resin comprises two flexible frangible containers, one within the

other, each end of the inner container being within an end of the outer and the ends being closed by a compression closure member, one container containing the resin and the other a resin hardener.

3,737,028 PACKAGED ADHESIVE LAMINATE AND METHOD OF MAKING THE SAME

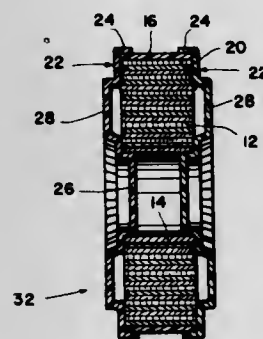
Russell L. Carlson, Tallmadge, Ohio, assignor to Morgan Adhesives Company, Stow, Ohio

Filed Apr. 8, 1971, Ser. No. 132,437

Int. Cl. B65d 85/67

U.S. Cl. 206—52 R

10 Claims



A packaged adhesive laminate is formed by rolling up a laminate adhesive sheet or other material on a cylindrical core, securing a sheet of heat sealable material to the end of the laminate sheet and wrapping the heat sealable sheet around the rolled up laminate, cutting the rolls of material into individual rolls, positioning plastic end caps on each side of the individual rolls, and heat sealing the end caps to the heat sealable material. The end caps have lip portions which overlie the heat sealable wrapping. The invention also concerns a novel method for packaging adhesive laminates or the like.

3,737,029

PHARMACAL PACKAGE CONSTRUCTION

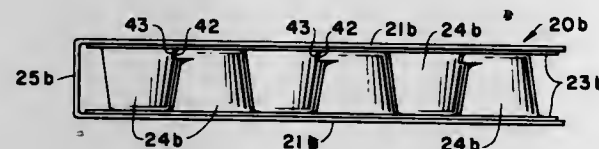
John J. Serrell, Haverford; George C. Sparks, Harleysville, and Howard M. Trower, Jr., Willistown, all of Pa., assignors to Parke, Davis & Company, Detroit, Mich.

Division of Ser. No. 877,075, Nov. 17, 1969, which is a continuation-in-part of Ser. No. 831,557, June 9, 1969. This application Aug. 9, 1971, Ser. No. 170,050

Int. Cl. B65d 83/04

U.S. Cl. 206—56 AB

4 Claims



A pharmacical package wherein a pair of blister sheets are closed by respective backing sheets, the backing sheets being hinged together and the blister sheets being held in adjacent relation.

3,737,030

PREVENTION OF GAUGE BANDS IN ROLLS OF FILM

Donald F. Stewart, Whippany, N.J., assignor to Allied Chemical Corporation, New York, N.Y.

Filed Oct. 27, 1971, Ser. No. 192,986

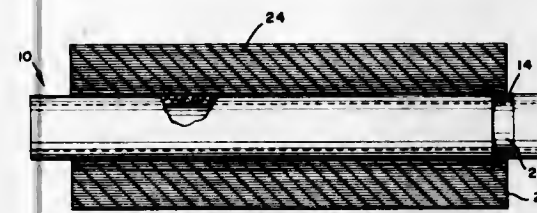
Int. Cl. B65d 85/67; B65h 75/02

U.S. Cl. 206—59 E

11 Claims

A core used in winding plastic film provided with a compressible liner at areas of the core which tend to develop

gauge bands when plastic film is wound in a roll about the core. The liner rests in an undercut portion of the core. The



core is capable of preventing gauge band formation in plastic film wound thereabout.

3,737,031

INTERLOCKING MAGAZINE STRUCTURE

Richard W. Carroll, Los Angeles, Calif., assignor to U.S. Industries, Inc., New York, N.Y.

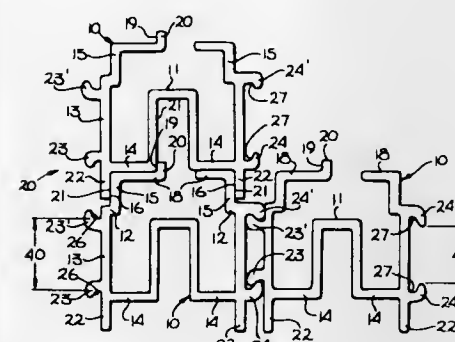
Continuation of Ser. No. 3,433, Jan. 16, 1970, abandoned.

This application Dec. 3, 1971, Ser. No. 204,720

Int. Cl. B65d 21/02, 71/00

U.S. Cl. 206—65 F

5 Claims



An elongate magazine is adapted to contain a plurality of like electronic components. The magazine includes an elongate support section adapted for the support of the electronic components. A pair of side walls extend upward and downward from the base of the magazine and are spaced from the support section, the top portion of each side wall has an inwardly projecting panel to secure the miniaturized electronic components upon the support section, the panel having an upward projection to permit vertical nesting of like magazines. Catches extend outwardly from each side wall, the catches being adapted to horizontally engage like interlocking magazine structures.

3,737,032

COAL PREPARATION PROCESS AND MAGNETITE RECLAIMER FOR USE THEREIN

Sherman C. Burkitt, Arlington Heights, Ill., assignor to FMC Corporation, San Jose, Calif.

Filed Jan. 28, 1971, Ser. No. 110,569

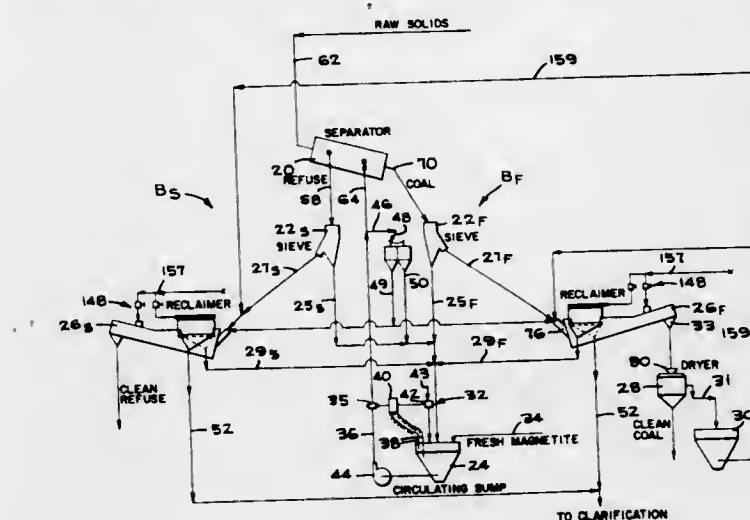
Int. Cl. B03b 7/00; B03c 1/30

U.S. Cl. 209—10

21 Claims

A coal preparation process includes a dense medium coal separator which utilizes a magnetite media for separating raw coal from refuse. A sieve receives coal from the separator and is utilized to drain a portion of the magnetite media from the coal before the coal is passed into a new magnetite reclaimer wherein paddles agitate the coal causing abrasive contact between the coal particles to dislodge the magnetite which adheres to the coal. The magnetite free coal is conveyed out of the reclaimer by a screw conveyor while the released magnetite is removed by a magnetic drum. The magnetite

removed from the coal is directed into a sump for re-use in the system. A similar process is utilized to treat the refuse so as to



recover the magnetite which passes from the separator with the refuse.

3,737,033

PRECISION SORTING APPARATUS

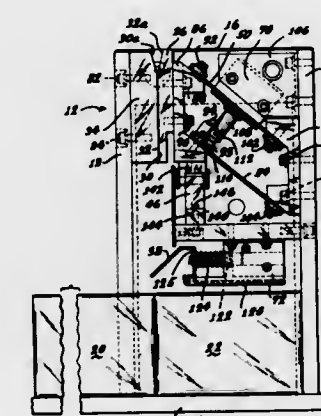
John E. Toth, 13544 Orchard Gate Road, Poway, Calif., and Arthur G. Grant, 7014 Colorado Avenue, La Mesa, Calif.

Filed July 12, 1971, Ser. No. 161,735

Int. Cl. B07c 5/06

U.S. Cl. 209—74 R

14 Claims



A sorting apparatus which is automatic and high speed having two relatively movable parallel walls, one wall having four leaf springs connecting the wall to a housing. A micrometer positions a tapered block which in turn causes a vertical movement component of the one wall; the springs permit only an oblique movement of which one component is that vertical movement caused by the tapered block; the horizontal component which can be readily calculated, provided controllable spacing between the two walls. Solenoids are provided to allow passage of a larger item than the spacing between the parallel walls, and direct this item to a predetermined collection receptacle different from the collection receptacle receiving those items freely falling between the parallel walls which do not cause activation of the solenoids.

3,737,034

LUMBER UNSTACKING APPARATUS

Joseph W. Icard, Hudson, N.C., assignor to Broyhill Furniture Industries, Lenoir, N.C.

Filed Oct. 6, 1971, Ser. No. 186,842

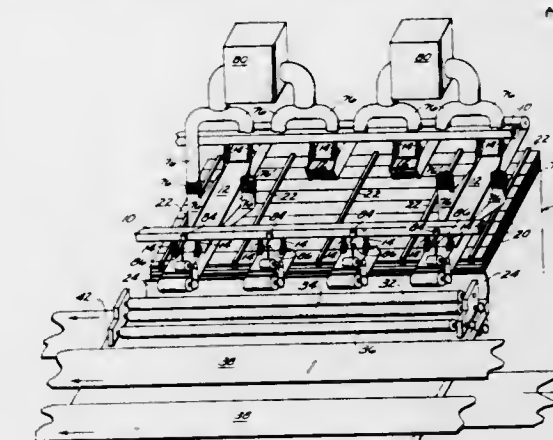
Int. Cl. B07b 13/04

U.S. Cl. 209—84

23 Claims

A stack of lumber, including a plurality of alternating layers of boards extending in parallel relationship to each other within the layer and spacer sticks extending in spaced parallel relationship to each other and substantially perpendicular to

said boards, is sequentially lifted into engagement with a plurality of elongate vacuum conveyors positioned above the uppermost layer of said stack. The vacuum conveyors, which are arranged between and generally parallel to the sticks, operatively grip the uppermost layer of boards as the remainder of the stack is lowered and transport the uppermost stick layer and board layer in a direction transverse to the boards to a



discharge station, during which time a pair of nip rolls automatically separate the sticks from the boards which are sequentially dropped from the ends of the vacuum conveyors. Broken spacer sticks are also automatically separated from unbroken or unusable spacer sticks. The conveyor are flexibly suspended above the stack to insure engagement of each vacuum conveyor with the uppermost layer of boards at points throughout their length.

3,737,035

APPARATUS FOR CLEARING THE SCREEN OF CROP-HARVESTING PRODUCT

George Allan, Peterborough, England, assignor to FMC Corporation, San Jose, Calif.

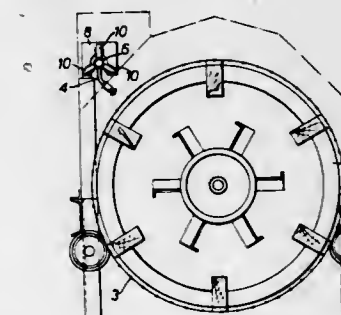
Filed Aug. 20, 1970, Ser. No. 65,421

Claims priority, application Great Britain, Aug. 20, 1969, 41,459/69

Int. Cl. B07b 1/50

U.S. Cl. 209—380

2 Claims



A pea viner comprises a screen drum for separating the crop, which passes through the drum, from the unwanted parts of the plant. The drum is cleaned, to prevent clogging, by jets of pressurized gas directed through the drum.

3,737,036

FILTER FOR POLYMER PROCESSING AND METHOD OF MANUFACTURE

Walter Kasten, Franklin, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Continuation of Ser. No. 67,113, Aug. 26, 1970, abandoned.

This application Aug. 21, 1972, Ser. No. 282,088

Int. Cl. B01d 37/00

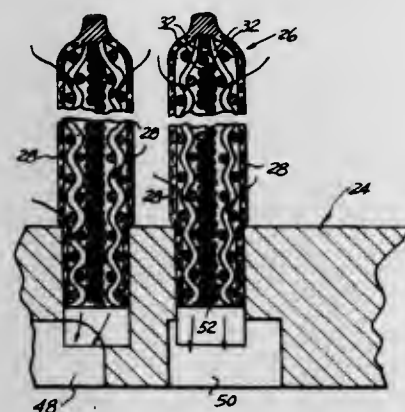
U.S. Cl. 210—70

5 Claims

A filter arrangement for a method of molten polymer processing is disclosed in which a plurality of filter elements are disposed in a filter cavity, with each element including filter surfaces aligned with the general direction of flow

through the filter cavity, to thereby increase the effective filter surface area, and each element also including restrictive flow paths internally of the filter surface to maintain a relatively large pressure drop across the filter required for proper polymer processing in which conditioning of the molten polymer occurs to create long link molecules.

The method of manufacture includes the steps of assembling a sandwich of outer layers of a filtering mesh and inner



layers of a coarser mesh, diffusion bonding the layers together, sealing the edges, cutting the resulting sandwich in half by an electro-discharge, electron beam, laser machining, or other suitable process, pressing the open edge of each half into a respective opening in a manifold plate, and bonding each half thereto. In a preferred version of the process, the sealing step is performed by compressing the edges under a degree of pressure necessary to create cold flow of the metal, sufficient to seal and bond the periphery thereof.

3,737,037

DRILLING FLUID TREATMENT

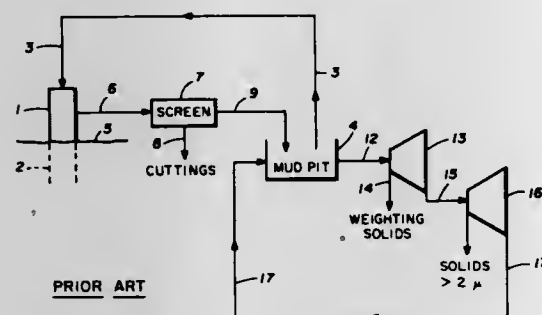
Lee Bone, III, Richardson, Tex., assignor to Atlantic Richfield Company, New York, N.Y.

Filed May 3, 1971, Ser. No. 139,416

Int. Cl. E21b 21/04

U.S. Cl. 210-73

5 Claims



A method for treating well drilling fluid to remove substantially all suspended solid particles wherein the drilling fluid is centrifuged to remove particles of sizes down to about 20 microns in diameter followed by adding a flocculating agent to form flocs of particles from about 20 microns to less than 2 microns in diameter, and filtering the flocs from the drilling fluid to provide a liquid substantially free of suspended solid particles for reuse as a drilling fluid.

3,737,038

UP-FLOW SEPARATOR

Theodore R. Westfall, Burbank, Calif., assignor to Sweco, Inc., Los Angeles, Calif.

Continuation-in-part of Ser. No. 42,098, June 1, 1970, abandoned. This application June 3, 1971, Ser. No. 149,609

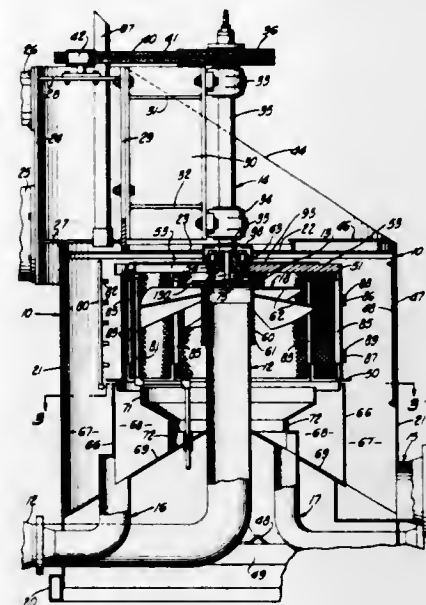
Int. Cl. B01d 21/26

U.S. Cl. 210-78

19 Claims

There are disclosed herein equipment and methods for screening and concentrating waste water overflow from com-

bined sewer systems. Exemplary equipment includes a separator employing a substantially cylindrical rotating screen. Influent is piped upwardly into the equipment and deflected outwardly toward the inner surface of the screen in a manner to achieve a desired flow rate and flow pattern of the influent onto the screen. Means are provided for controlling the flow rate and for suitably directing the influent in a plurality of substantially discrete inclined streams toward the inner surface of the rotating screen. The screen is rotated at a speed to achieve a desired centrifugal force. Effluent passes through the screen



to an outlet and the remaining concentrate passes to an outlet. The screen is in the form of a screen cage having a plurality of removable screen panels for facilitating replacement of damaged screens or changing of screen type or mesh size. Cleaning means is provided for directing a cleaning fluid periodically at the screen. The methods disclosed involve the manner in which the influent, effluent, concentrate and back-splash are handled, and the manner in which the influent is screened to achieve a fluid concentrate which is pumpable to other treatment equipment for ultimate disposal. Additionally, a sequence of influent feed and screen cleaning is described.

3,737,039

METHOD OF FILTERING

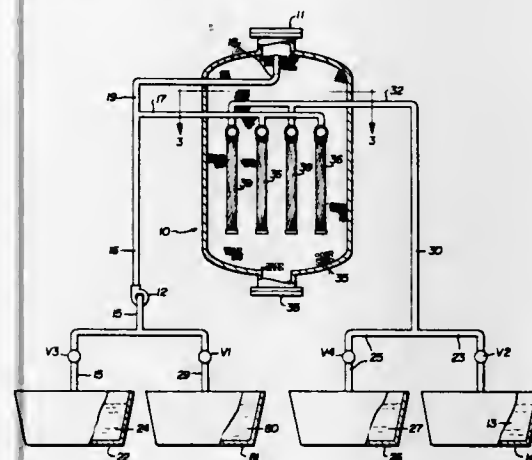
Gene Hirs, Livonia, Mich., assignor to Hydromat Filter Company, Livonia, Mich.

Filed Nov. 30, 1971, Ser. No. 203,250

Int. Cl. B01d 23/24

U.S. Cl. 210-80

6 Claims



This invention provides a method of and apparatus for the deep bed filtration of a liquid containing fine particles (generally on the order of less than 0.005 inches) to obtain an effluent of exceptional clarity. It has been discovered that filtration to this degree of clarity requires a compacted filter

medium bed and that this bed compactness must be preserved during rejuvenation of the bed to avoid the dispersal of previously removed dirt particles throughout the filter medium. In this invention, the rejuvenation of the bed is carried out by the flow of liquid through the bed in the same direction as the direction of filtration, but at a flow rate at least twice the flow rate during filtration, while maintaining the configuration and compactness of the bed during both filtration and rejuvenation.

3,737,040

VESSEL FOR THE REMOVAL OF OIL ON WATER

Sverre Brydoy, Spireaveien 6, 3150 Tolvsrod, and Aage Slet-sjoe, Joh. Wessmanns vei 7b, 3155 Asgardstrand, both of Norway

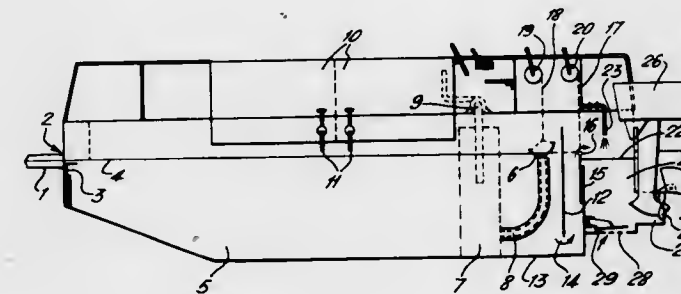
Filed Apr. 27, 1971, Ser. No. 137,888

Claims priority, application Norway, May 4, 1970, 1677/70

Int. Cl. C02b 9/02; E02b 15/04

U.S. Cl. 210-206

8 Claims



The present invention relates to an improved vessel for removing oil from water surfaces, said vessel comprising means for carrying out both a mechanical and a chemical removal of the oil. Thus, in the first part of the vessel there are means for taking in water and oil and for the separation thereof by a skimming device. In the rear part of the vessel which part communicates with said first part over an adjustable overflow means, are arranged means for spraying chemicals onto the overflow from said first part. An outlet wherein a propulsion means for the vessel is placed, is located in the rear part thereof.

3,737,041

FILTER PRESS

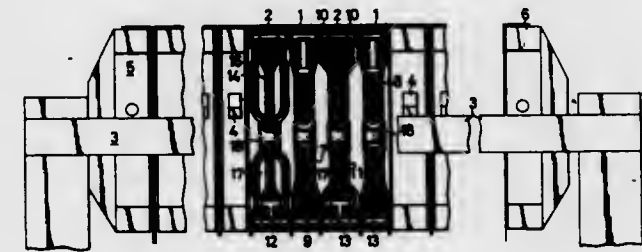
Susumu Kitajima, and Katsutami Shibusaki, both of Osaka, Japan, assignors to Kurita Machinery Manufacturing Company, Limited, Osaka, Japan

Filed Dec. 20, 1971, Ser. No. 209,906

Int. Cl. B01d 25/00

U.S. Cl. 210-228

3 Claims



A pressing fluid chamber to be supplied with a pressure fluid is formed between each stretchable airtight sheet having

a filtering face and each core plate covered with the sheet to squeeze cake in a filtering chamber by inflating the sheet. A filtrate discharge channel in the core plate communicates with an opening in the filtering face of the sheet at the portion where the sheet is prevented from inflation by the adjacent filter plate to permit filtrate to directly flow into the filtrate discharge channel through the opening.

3,737,042

PRODUCTION OF IMPROVED SEMIPERMEABLE POLYBENZIMIDAZOLE MEMBRANES

Abraham A. Boom, Martinsville, N.J., assignor to Celanese Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 30,846, April 22, 1970, Pat. No. 3,699,038. This application Jan. 20, 1972, Ser. No.

219,576

Int. Cl. B01d 13/00

U.S. Cl. 210-321

32 Claims

A member cast in the form of either a hollow filament or a flat film formed of a polybenzimidazole polymer and possessing reverse osmosis properties is subject to an annealing process by contacting the membrane with an organic liquid under conditions found capable of substantially enhancing the properties of the same. These polybenzimidazole membranes find particular utility in reverse osmosis desalination procedures. The annealing step of the present process substantially improves the performance of the membranes in such a separation.

3,737,043

MEMBRANE MODULE

George B. Clark, Waukesha, Wis., assignor to Aqua-Chem, Inc., Midland, Mich.

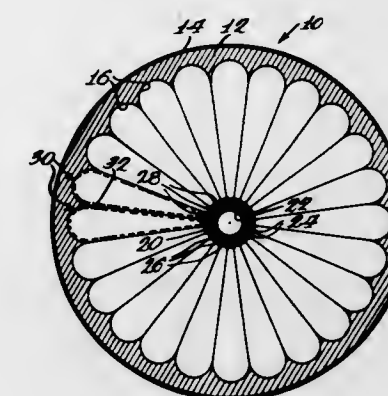
Continuation-in-part of Ser. No. 97,136, Dec. 11, 1970, abandoned, which is a continuation-in-part of Ser. No.

781,892, Dec. 6, 1968, abandoned. This application June 12, 1972, Ser. No. 262,124

Int. Cl. B01d 13/00

U.S. Cl. 210-321

20 Claims



A compact membrane module for use in reverse osmosis processes having a plurality of membrane cell structures located in close adjacency so that when the module is in use, adjacent membrane structures tend to support each other against the high pressures customarily encountered in reverse osmosis processes thereby minimizing the amount of high pressure resistant material required.

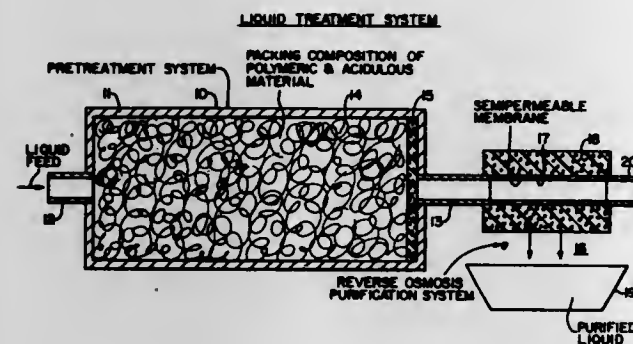
3,737,044

LIQUID TREATMENT SYSTEM FOR HIGH PH WATER
Richard M. Chamberlin, McKeesport, and Regis R. Stana, Murrysville, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Division of Ser. No. 058,788, July 28, 1970, Pat. No. 3,684,094. This application Apr. 6, 1972, Ser. No. 241,811
Int. Cl. B01d 39/04

U.S. Cl. 210—501

11 Claims



A packing composition effective to reduce the pH of alkaline liquids, used as a pretreatment, in association with a reverse osmosis membrane and support in a liquid treatment system, is made of an encapsulating matrix of polymeric material that is essentially water impermeable at a pH between about 4.5 and 8 and which becomes significantly water permeable at a pH above about 9, and an acidulous material which is encapsulated by the matrix at a pH between about 4.5 and 8, and released progressively from the matrix at a pH above about 9.

3,737,045

MEMBRANE FOR USE IN DIALYSIS AND ULTRAFILTRATION AND THE PRODUCTION OF SUCH MEMBER

Kolchi Hashimoto, Tokyo, and Hideko Kishida, Kashiwara, both of Japan, assignors to Ulvac Corporation, Chigasaki-shi, Kanagawa-ken, Japan

Filed July 8, 1970, Ser. No. 53,221
Claims priority, application Japan, Dec. 20, 1969, 44/102118

Int. Cl. B01d 31/00, 13/00

U.S. Cl. 210—490

27 Claims



(Approx. 5600x)

This invention relates to a membrane suitable for use in dialysis processes and ultrafiltration processes to separate, con-

centrate or purify a substance of a molecular weight of 500 to 20,000, heretofore difficult to be treated by the various known types of dialysis membranes or ultrafiltration membranes. The membrane of the invention is characterized by its higher water flow rate and by the anisotropy of its structure made of an ionically cross-linked polymer of a polycation with a polyanion; the structure comprising a continuous and dense microporous top surface layer with an estimated average pore diameter of about 10 to 120 angstroms and a lower, integral microporous reinforcing layer containing micropores of larger pore diameters, said membrane being supported by a porous layer of a polyolefin or polyamide. The membrane may be produced by applying to a porous supporting sheet a thin liquid film of an aqueous-organic solution containing both a polycation and a polyanion together with an inorganic sodium or calcium salt, then treating the film so as to increase the dielectric constant value in its top surface, washing the film in a water bath under controlled conditions and repeating operations of subsequent rinsing and drying the film.

3,737,046

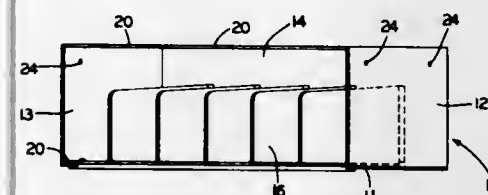
FILING SYSTEM

Monty L. Jeter, 1008 Margate Drive, Akron, Ohio
Filed Sept. 9, 1971, Ser. No. 179,023

Int. Cl. B42I 17/00

U.S. Cl. 211—10

6 Claims



Shelving for open shelf filing of papers, preferably in file folders, has end faces and partitions extending from front to rear at an angle such as 45° to the front.

3,737,047

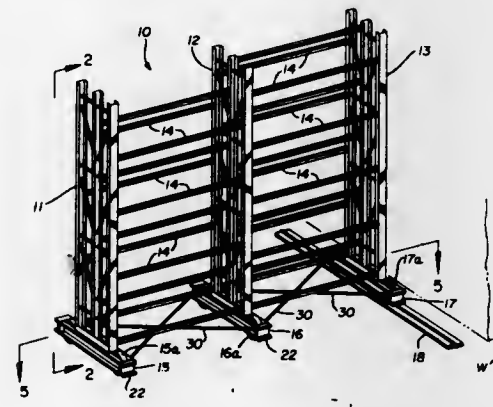
STORAGE SYSTEM FOR SINGLE GUIDE MEANS

John E. Ruth, 171 Belhar Drive, Akron, Ohio
Filed Apr. 25, 1971, Ser. No. 137,308

Int. Cl. A47I 5/00

U.S. Cl. 211—162

1 Claim



This invention relates to a storage system of the type wherein maximum storage efficiency is obtained by utilizing a

plurality of parallel storage units that can shift transversely so as to permit access to any given storage unit while still utilizing the available space to the maximum extent possible.

The improvement consists of eliminating safety hazards normally connected with such equipment by eliminating the outer guide means normally provided and by specially reinforcing the individual storage units to rigidify the same against lateral deflection at the outboard end.

3,737,048

VERSATILE NON-SELF-SUPPORTING ASSEMBLY FOR DISPLAY PURPOSES

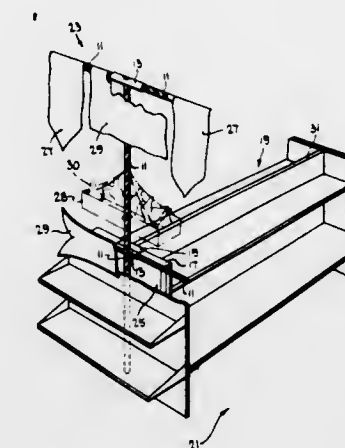
Gerald L. Glroux, Toronto, Ontario, Canada, assignor to Kraftco Corporation, Chicago, Ill.

Filed May 26, 1971, Ser. No. 147,036

Int. Cl. A47I 5/14

U.S. Cl. 211—182

6 Claims



An erectible non-self-supporting versatile assembly for product display and advertisement purposes includes a connector to hold together a plurality of poles and a bracket to support the assembly on a supporting body.

3,737,049

STEP VOLUME CONTROL

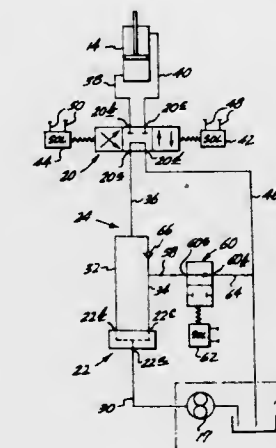
Stanley E. Farmer, Gresham, Oreg., assignor to Cascade Corporation, Portland, Oreg.

Filed Mar. 19, 1971, Ser. No. 126,230

Int. Cl. B66c 23/54

U.S. Cl. 212—35 R

5 Claims



A step volume control affording control over the rate at which fluid under pressure is supplied to a pressure fluid-operated instrumentality. Fluid is supplied under pressure in multiple flow paths, with the flow rate in such paths having a predetermined proportionate relationship. The fluid in such

flow paths is directed into a common inlet port of a main control valve. The control valve is connected to the pressure fluid-operated instrumentality, and with the valve open, fluid flowing into the inlet port is directed to the instrumentality. Selectively operated means is provided for diverting pressure fluid flowing in at least one of said flow paths, whereby such fluid bypasses the main control valve to be recirculated directly back to the source of pressure fluid. The control valve, and selectively operated means, may be remotely electrically controlled.

3,737,050

WIRE MANUFACTURE

Kurt Leenwestein, Duisburg-Neudorf, Germany, assignor to Friedrich Kocks, Dusseldorf, Germany

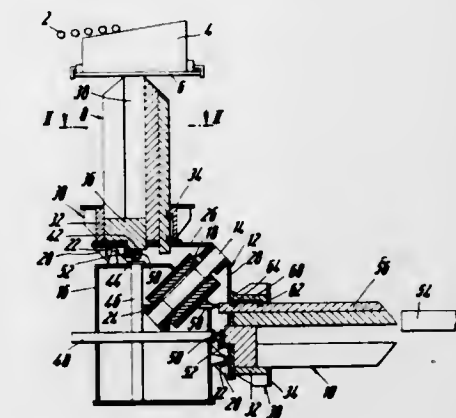
Filed Aug. 19, 1971, Ser. No. 173,075

Claims priority, application Germany, Aug. 19, 1970, P 20 41 179.4

Int. Cl. B66c 1/66

U.S. Cl. 214—1 BD

9 Claims



An apparatus is provided for collecting wire bundles from a rod mill and discharging them in a horizontal direction which apparatus includes a vertically disposed guide receiving rod or wire loops from a path and selectively delivering bundles to one of an even number of mandrels on a common frame rotatable about an inclined axis, the mandrels being rotatable from a first position vertically below the guide and receiving bundles therefrom to a second generally horizontal discharge position, each mandrel having a bundle remover displaceable longitudinally of the mandrel.

3,737,051

APPARATUS FOR ALIGNING EDGES OF STACKED SHEETS IN THE VERTICAL DIRECTION

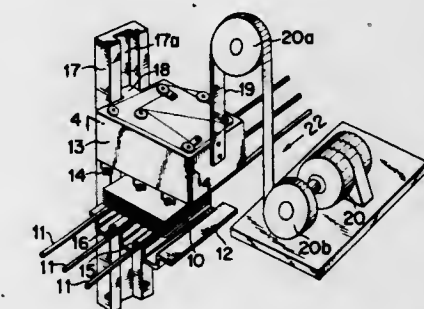
Shigeo Horino, Tokyo, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Jan. 7, 1972, Ser. No. 216,063

Int. Cl. B65g 57/00

U.S. Cl. 214—6 S

16 Claims



In apparatus for aligning edges of stacked sheets in the vertical direction there are provided a supporting member for supporting a stack of sheets, a casing movable toward and away from the supporting member, a rectangular frame contained in the casing, the rectangular frame including four side plates

adapted to face four side surfaces of the stack, means for adjusting inwardly and outwardly at least two adjoining side plates to vary the internal area of the rectangular frame, and means for vibrating at least two adjoining side plates in directions perpendicular thereto for aligning the edges of the stack of sheets in the vertical direction.

3,737,052

CARRIAGE DRIVE FOR LUMBER STACKER

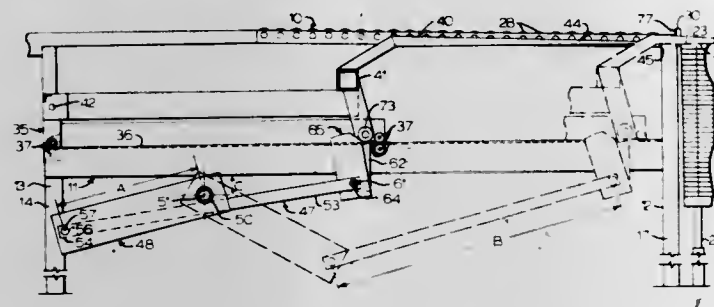
Sidney L. Lunden, Spokane, Wash., assignor to Moore-Iem, Inc., Spokane, Wash.

Filed Jan. 3, 1972, Ser. No. 214,727

Int. Cl. B65g 57/10

U.S. Cl. 214-6 DK

8 Claims



A crank carriage drive for a lumber stacking machine is described for gradually and smoothly accelerating the carriage from a course picking station and gradually and smoothly decelerating the carriage at a course stacking station. The crank drive has a crank arm rotatable about a crank axis and a crank connecting link interconnecting the crank arm and the carriage. One end of the connecting link pivots about a wrist pin axis as the crank is rotated. Maximum pivotal displacement of the connecting link occurs at the beginning and at the end of the forward stroke of the drive. A mechanism is provided that is responsive to the pivotal movement of the connecting link about the wrist pin axis to, (1), raise a course support means at the course pickup station to pick up a course, (2), carry the course to the course stacking station and, (3), lower the course at the stacking station.

3,737,053

LUMBER STACKING APPARATUS

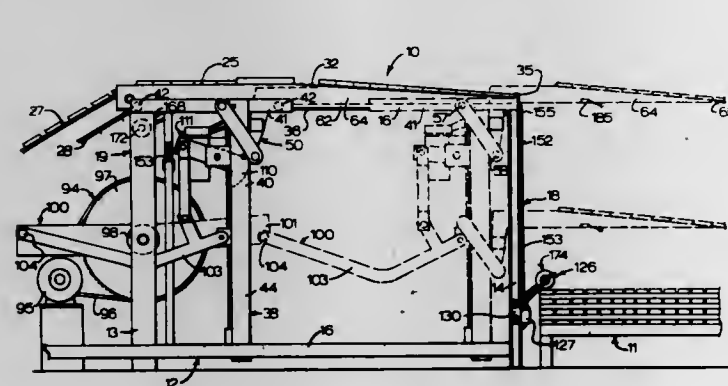
Sidney L. Lunden, Spokane, Wash., assignor to Moore-Iem, Inc., Spokane, Wash.

Filed Jan. 3, 1972, Ser. No. 214,725

Int. Cl. B65g 57/26

U.S. Cl. 214-6 DK

8 Claims



A lumber stacking apparatus is described for successively depositing layers of boards one on top of another to form a stack in which each board in a layer is horizontally spaced to enable the boards to be efficiently dried in a subsequent drying operation. The apparatus has a forked layer support means with projecting arms that receive and successively transport the layers over a stacking station and in front of a stripping means. The arms are lowered over the stack and then pulled back past the stripping means to strip the layer from the arms

and onto the stack. The stripping means has an abutment surface that is inclined to shift the layer sideways as the arms are pulled back to space the boards as they are dropped from the arms.

3,737,054

ROTOR ARM FOR SILO DISCHARGING DEVICES

Hans Gessler, Aalen/Wurttemberg, Germany, assignor to Schwabische Huttenwerke Gesellschaft mit beschränkter Haftung, Wasseraffingen/Wurttemberg, Germany

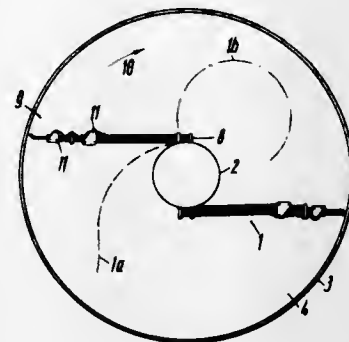
Filed June 8, 1971, Ser. No. 151,112

Claims priority, application Germany, June 12, 1970, P 20 28 901.4; Feb. 4, 1971, P 21 05 134.3

Int. Cl. B65g 65/48

U.S. Cl. 214-17 D

28 Claims



A rotor arm for silo discharging devices which is formed by a leaf spring packet the leaf springs of which are slidably engaging each other and are held together by holding means while a damping device engaging the rotor arm is provided for damping the relaxing movement of the rotor arm in the direction in which the rotor arm rotates during its working operation.

3,737,055

STORABLE ELEVATING PLATFORM

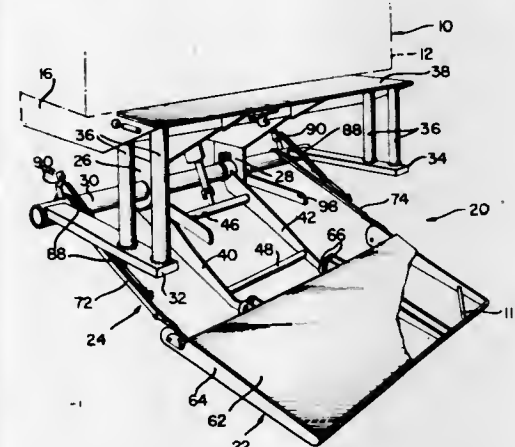
Charles A. Pettit, 20011 Bernist Avenue, Torrance, Calif.

Filed May 4, 1971, Ser. No. 140,150

Int. Cl. B60p 1/44

U.S. Cl. 214-77 P

13 Claims



Storable elevating platform, particularly useful for attachment to trucks and other vehicles to raise and lower loads with respect to truck floor level, which platform can be tilted under the floor of the truck bed for storage when in nonuse and when the truck is traveling. A main support tube is rigidly secured transversely of the truck below the truck floor and forward of the edge thereof. Compression arms are pivoted to the platform and around the main support tube. Tension members having chain links, at least at the ends thereof, wrap around the main support tube and cam lobes on the platform. As the compression arms are raised, the tension members retain the platform substantially level. The platform is pivoted to the compression arms to permit the platform to be folded up and forward under the truck floor when not in use.

3,737,056

PLURAL NUMBER CONTROL SYSTEM FOR AN AUTOMATIC WAREHOUSE

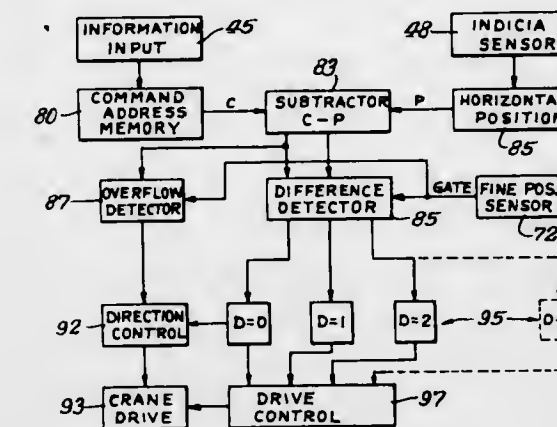
James S. Hathcock, Jr., Mendota, Ill., assignor to Conco Inc., Mendota, Ill.

Continuation of Ser. No. 810,494, March 26, 1969, abandoned. This application Apr. 19, 1971, Ser. No. 135,397

Int. Cl. B65g 1/06

U.S. Cl. 214-16.4 A

5 Claims



Each bin in a warehouse is uniquely identified by a binary coded decimal number which locates its position with relation to the remaining bins. A control circuit stores the address of a selected bin and moves a stacker crane in a forward or reverse direction toward the selected bin by subtracting a sensed address at which the stacker crane is located from the stored address identifying the selected bin. As the absolute value of the subtracted difference approaches zero, the stacker crane speed is slowed, and finally stopped when the subtractor reaches zero. The sensed address also controls fine positioning of the crane and various gating for the control circuit.

3,737,057

MULTI-LEVEL AUTOMATIC STORAGE AND RECOVERY SYSTEM FOR AIRCRAFT

Malcolm A. Neumann, San Diego, and Arnold Hunsberger, Dellzura, both of Calif., assignors to Cubic Corporation, San Diego, Calif.

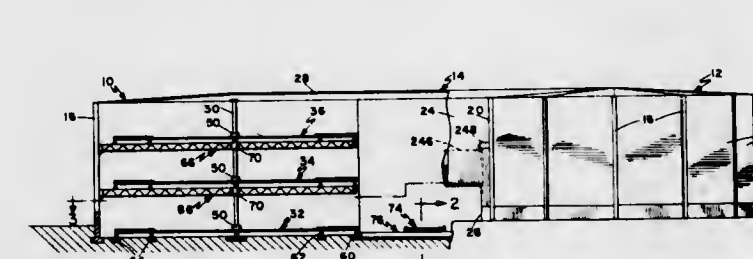
Division of Ser. No. 45,310, June 11, 1970, Pat. No. 3,675,378.

This application June 26, 1972, Ser. No. 266,269

Int. Cl. E04h 6/06

U.S. Cl. 214-16.1 A

31 Claims



A storage facility having a plurality of multi-level, non-rotatable, support frames, and rotatable spider frames with circumferentially spaced aircraft storage stalls peripherally supported on the support frames for communication with an elevator that has a turntable for aligning an aircraft with a selected stall, and individual, aircraft-carrying, wheeled pallets being moved by a power tractor on rails by an automatic control system to and from an external loading dock to and from the selected stalls in a series of sequential steps that are initiated by coded signals identifying each aircraft with each stall.

911 O.G.—5

3,737,058

LOADING RAMP FOR TRUCKS AND TRAILERS

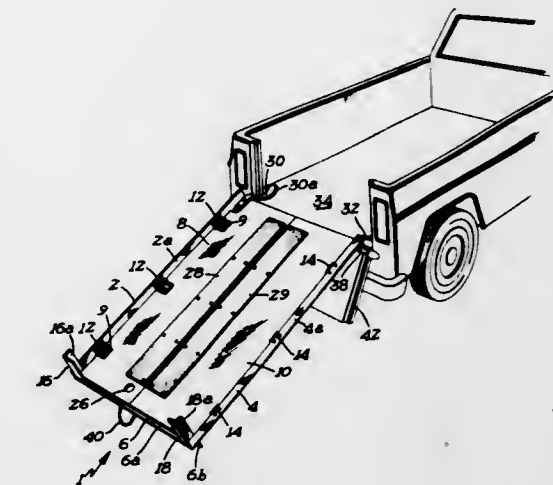
Jerold E. Johnson, Route 1, Box 143, Aitkin, Minn.

Filed Mar. 9, 1972, Ser. No. 233,138

Int. Cl. B65g 67/02

U.S. Cl. 214-85

10 Claims



A loading ramp for vehicles comprised of a generally U-shaped frame assembly open at its forward end which engages the rear edge of a truck bed and having a pair of hinged ramp panels swingable from an inwardly and downwardly folded position of use to an upright position of non-use wherein the panels and the frame beams to which they are hingedly attached straddle a load on a truck bed on which the ramp is stored.

3,737,059

BUCKET ARRANGEMENT

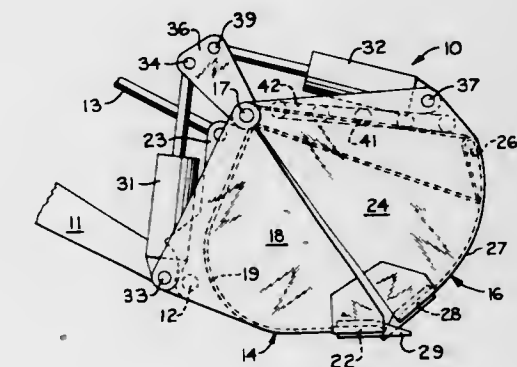
Robert A. Peterson, San Leandro, and Donald H. Stroot, Castro Valley, both of Calif., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Feb. 22, 1971, Ser. No. 117,314

Int. Cl. E02f 3/70

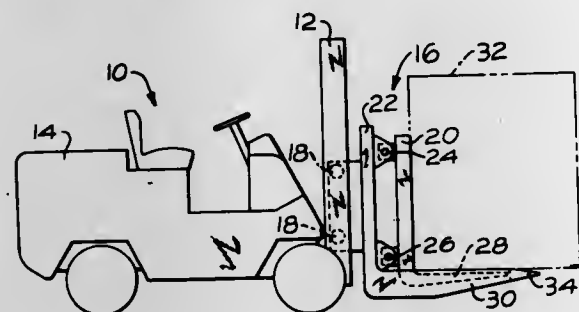
U.S. Cl. 214-145

5 Claims



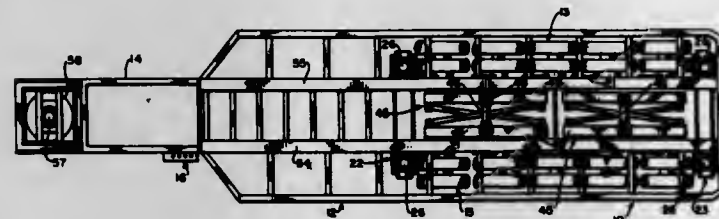
A multi-purpose bucket arrangement comprises a first bucket portion and a second or cover bucket portion pivotally mounted thereon. A pair of hydraulic cylinders are operatively connected to the bucket portions to normally pivot the second bucket portion relative to the first one. The rod ends of the cylinders are pivotally connected to the distal end of a lever mounted on the pivotal connection for the bucket portions.

3,737,060
SELF-LOADING/UNLOADING LIFT TRUCK CARRIAGE
 Walter M. Shaffer, Chesterland, Ohio, assignor to Towmotor Corporation, Cleveland, Ohio
 Filed July 12, 1971, Ser. No. 161,647
 Int. Cl. B60p 1/02
 U.S. Cl. 214-514



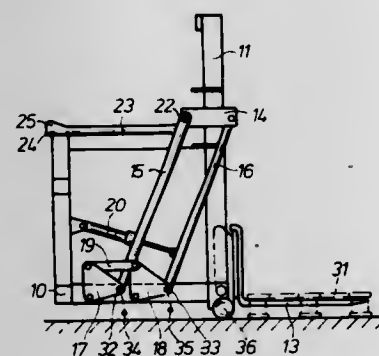
An attachment device for use on fork-lift trucks in the form of an orbital carriage having the capability of drawing a palletless load onto itself, transporting the load to a new location and thence discharging the palletless load from itself, with no damage to the load resulting from excessive vibration or squeezing during the drawing, transporting, and discharging cycle.

3,737,061
STORAGE UNIT AND TRAILER BODY COMBINATION
 Nick P. Glumac, Rural Route 2, Box 386, Chesterton, Ind.
 Filed Oct. 21, 1970, Ser. No. 82,583
 Int. Cl. B60p 1/02, 1/64
 U.S. Cl. 214-512



There is disclosed a unique truck trailer body having liftable features and a removable storage unit for transport thereby.

3,737,062
WHEELED VEHICLE
 Gerhard Schnell, Stuttgart, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
 Filed Oct. 20, 1971, Ser. No. 190,943
 Claims priority, application Germany, Oct. 21, 1970, P 20 51 585.9
 Int. Cl. B66f 9/10
 U.S. Cl. 214-670

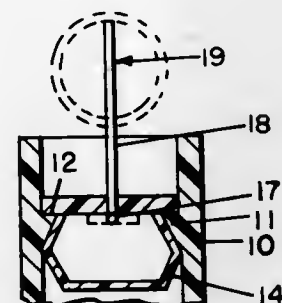


A substantially constant C-shaped chassis can travel in a first direction and has an open side facing transverse thereto.

An upright mast is mounted within the confines of the chassis and can be shiftably displaced in a second direction transverse to the first direction towards and away from the open side. A load-lifting device is provided on the mast, and a displacing arrangement is associated with the mast and with the chassis for displacing the mast with reference to the chassis between the aforementioned positions.

7 Claims

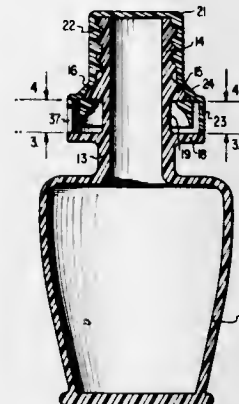
3,737,063
CONTAINER HAVING A SAFETY STOPPER
 Raymond M. Loup, 200 Jameson Avenue, Toronto, Ontario, Canada
 Filed Oct. 12, 1971, Ser. No. 187,944
 Int. Cl. B65d 39/16
 U.S. Cl. 215-9



This invention consists of a glass or plastic container of any desired size and shape having a vertically disposed neck in which is located a peripheral flange that is triangular in cross-section and whose short side is a horizontally disposed ledge on which is placed the horizontally disposed disk of a stopper that cannot be removed from the neck of the aforesaid container without the use of a key, as will hereinafter be described. The hollow stopper which is made of flexible plastic or the like has a basic side configuration of a deformed hexagon.

3 Claims

3,737,064
PILFER-PROOF CLOSURE FOR CONTAINERS
 Chandrakant Somabhai Patel, and Rashmikanth Somabhai Patel, both of 19, Sampatrao Colony, Baroda, India
 Filed May 17, 1971, Ser. No. 144,067
 Int. Cl. B65d 41/20
 U.S. Cl. 215-42

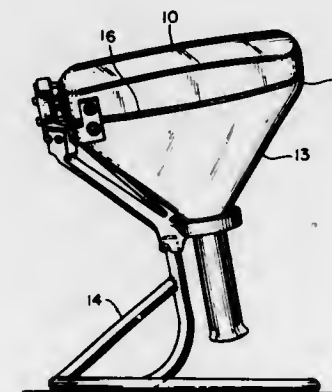


A pilfer-proof closure for use in combination with a container having a threaded neck portion and an annular flange

11 Claims

below the threaded portion, comprising a body having an internally threaded upper portion and a lower skirt portion. A flexible locking member attached to the inside of the body by frangible connecting means and protected by the skirt is adapted to slide over the container flange as the cap is threaded on whereby the locking member snaps into place underneath the flange to lock the closure onto the container. When the closure is unthreaded from the container, the frangible connecting means are broken to completely disconnect the locking member from the inside of the closure. A viewing opening in the lower portion of the body permits visual observation of the locking member when the closure is threaded on the container to determine whether or not the container has been tampered with.

3,737,065
ENVELOPE FOR, AND METHOD OF PROCESSING, A COLOR CATHODE-RAY TUBE
 Kazimir Palac, Carpentersville, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.
 Filed Apr. 28, 1971, Ser. No. 138,073
 Int. Cl. H01j 61/30; H01k 3/22
 U.S. Cl. 220-2.1 A



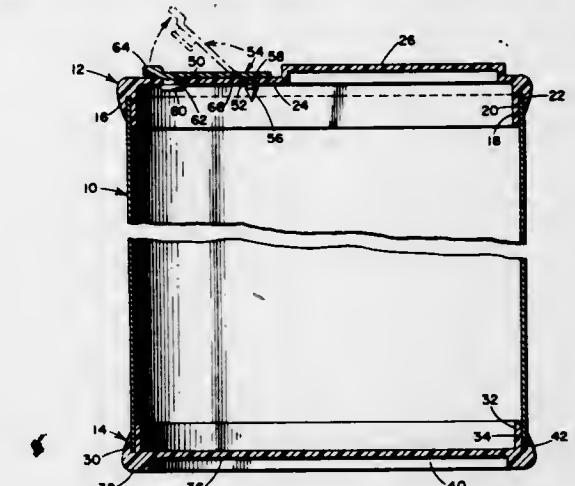
In one step of the screening process, the shadow mask of a color tube is mounted on studs provided in the faceplate section. The faceplate is then introduced into an exposure chamber where it is supported at three points spaced along the sealing land near the locations of the support studs. This establishes the faceplate in a reference mode, free of twisting moments and elastic deformation. When the screening process is completed, the faceplate is superposed over the enlarged end of the funnel section of the tube envelope and supported therefrom at three spaced points similarly disposed along the sealing land of the funnel to engage the faceplate at the same spaced points of support effective in the exposure step. This re-establishes the faceplate in its reference mode. Frit sealing material is disposed between the sealing lands of the envelope sections and the assembly is heated to seal the faceplate and funnel to one another along the entirety of the sealing lands.

3,737,066
CONTAINER CONSTRUCTION
 John B. Ames, Box 670, Marion, Ala.
 Filed Sept. 15, 1971, Ser. No. 180,545
 Int. Cl. B65d 43/16
 U.S. Cl. 220-31 S

A dispensing container comprising a generally sleeve-shaped main body of cardboard or the like, and top and bottom plastic plugs which are interfitted with the opposed ends

6 Claims

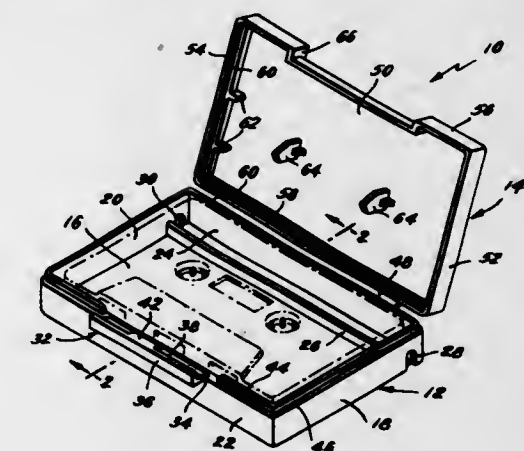
of the container and bonded thereto. The top plastic plug has mounted thereon a dispensing lid formed with a living hinge



for closing a discharge opening formed in the top plug. The top and bottom plugs are constructed and arranged to permit stacking of the containers, one on top of the other.

3,737,067
PLASTIC BOX HAVING INTEGRALLY MOLDED LATCH
 Richard C. J. Falson, Medfield, Mass., assignor to A. J. Krajewski Manufacturing Company, Cranston, R.I.
 Filed Feb. 22, 1971, Ser. No. 117,580
 Int. Cl. B65d 43/10
 U.S. Cl. 220-60 R

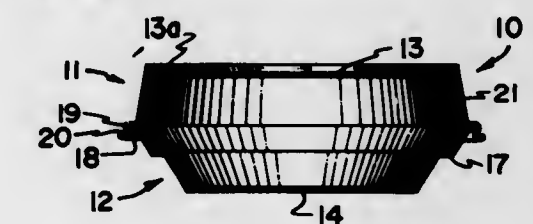
1 Claim



A plastic box including a base and cover molded in a unitary construction and having an integrally molded latch that has a projection formed thereon, the latch being pivotally movable when the base and cover are moved to the closed position thereof to lock the base and cover together.

3,737,068
PIE CONTAINER
 Stanford W. Bird, Salt Lake City, Utah, assignor to Plastronics Corporation, Salt Lake City, Utah
 Filed June 17, 1971, Ser. No. 154,027
 Int. Cl. B65d 43/10
 U.S. Cl. 220-60

4 Claims



A container having a base and a lid which are capable of being releasably coupled at their outer circumferences. The

4 Claims

base and lid are constructed of a lightweight, semi-rigid material. The base is deformable, within limits, in response to the pressure applied thereon but will return to its original shape when the deforming force is removed. Inclined, stepped sides extend from the bottom of the base and form a plateau to accommodate and support a pie tin and to hold the edges of the container extending past the rim of the pie tin away from the pie crust, filling and topping. When pressure is applied to depress opposite sides of the base at the top the base deforms to squeeze against the slanted sides of a pie tin therein, thereby raising the pie tin above the plateau such that a users fingers can be moved under the edge of the pie plate to lift it from the base.

3,737,069

CONTAINER CARRIER WITH INTEGRAL HANDLE LOOP

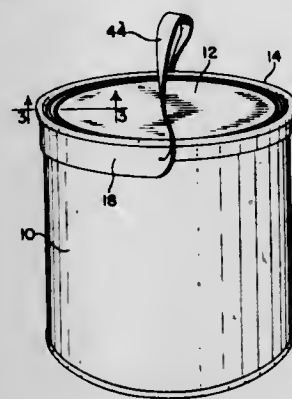
Ronald C. Owen, Harwood Heights, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed July 15, 1970, Ser. No. 54,977

Int. Cl. B65d 25/28

U.S. Cl. 220—94 R

4 Claims



A can or similar container for a variety of contents, including paints, and comprising a sleeve of plastic material with its upper edge portion interlocked with the can end and closure assembly and provided with substantially horizontal semi-cylindrical slit means forming a semi-cylindrical strap portion below the can top and which strap portion may be stretched over the adjacent portion of the sleeve and can top to provide a handle for carrying or otherwise supporting the can.

3,737,070

INCLINED SHELF VENDING MACHINE

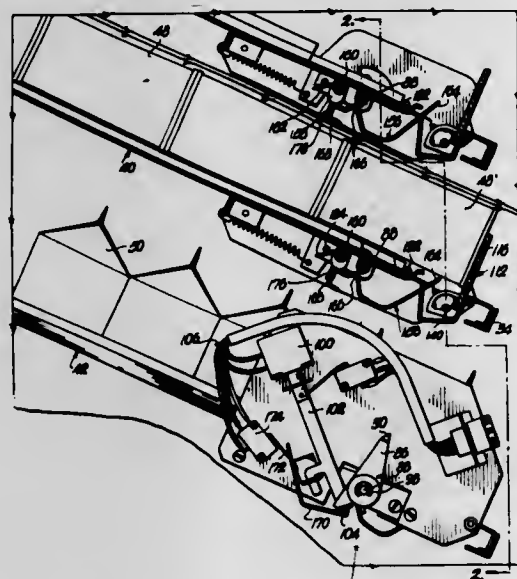
Wilbert O. O'Neal, Independence, Mo., assignor to The Vendo Company, Kansas City, Mo.

Filed May 20, 1971, Ser. No. 145,234

Int. Cl. G07f 11/28

U.S. Cl. 221—6

5 Claims



A slant-shelf type article dispensing or vending machine having a plurality of selectable shelves and adapted to

dispense articles successively from various sections of any selected shelf is provided with improved structure for retaining and releasing articles from the sections of the shelves and for disabling particular shelves when a sold-out condition is sensed relative to any section of such shelf. The article retaining and releasing structure is normally locked against movement to release an article by external forces applied directly to an article-blocking member such as may occur during attempted pilferage, and means are provided for positively shifting the blocking member to an article-releasing position when authorized dispensing of an article is desired. The sold-out structure includes means for sensing the presence of an article in position to be dispensed for each section of each of the shelves and means for successively enabling only those sensing means associated with the particular section of each of the shelves from which an article is next to be dispensed.

3,737,071

PRODUCT DISPENSING APPARATUS

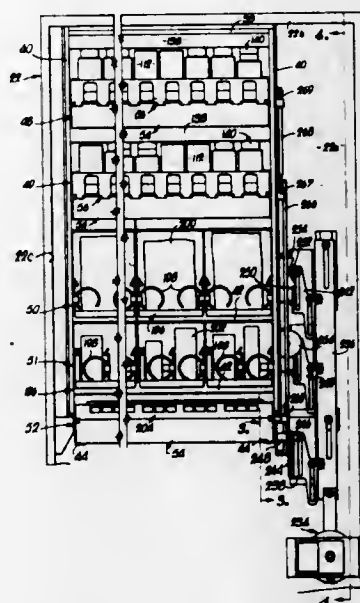
Elmer Bradley Offutt, Independence, Mo., and Edward Babich, Kansas City, Kans., assignors to The Vendo Company, Kansas City, Mo.

Filed Mar. 17, 1972, Ser. No. 235,489

Int. Cl. B65g 59/00

U.S. Cl. 221—129

24 Claims



A general merchandising machine adapted to handle a variety of products has horizontal product dispensing modules provided with removable product trays and a series of selectively operable ejector mechanisms below each tray for forcing a selected, next-to-vend product at an ejecting station above the corresponding mechanism and out of its product row in the tray for gravitation to a vending station. A spring-loaded product pusher for each product row exerts constant pressure on the products in the row to present a new product to the ejecting station after each ejection of the next-to-vend product, and a latch for each pusher is designed to hold the latter away from the ejecting station during loading of the withdrawn tray and to release the pusher as the tray is reinserted into the machine. An auxiliary flipper on certain of the trays assures that the selected product is completely ejected from its tray.

3,737,072

FEEDING DEVICE FOR CYLINDRICAL TUBING

Rollin E. Deltrick, Winston-Salem, N.C., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Nov. 12, 1971, Ser. No. 198,271

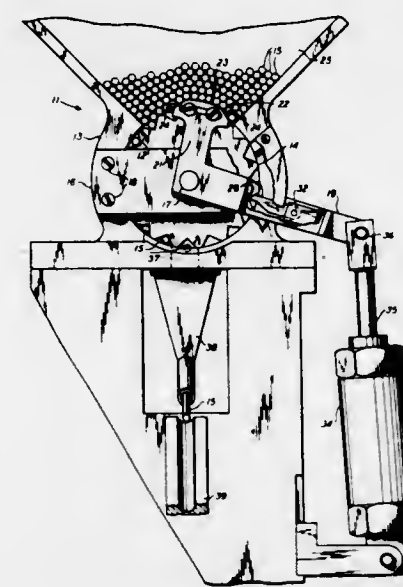
Int. Cl. B65h 3/60

U.S. Cl. 221—203

2 Claims

A device for periodically feeding workpieces such as tubing to a preselected location includes a cylindrical wheel having a

plurality of circumferentially spaced teeth thereon. A cam overlies the wheel and engages the upper periphery of the teeth. As tubing is fed to the wheel from an overlying trough,



the wheel is rotated so that the tubing is received in the exposed spaces between the teeth of the wheel. Simultaneously, the cam is reciprocated to agitate the overlying tubing into the exposed spaces between the teeth of the wheel.

3,737,073

APPARATUS FOR PROPORTIONALLY DOSING A PLURALITY OF LIQUIDS

Rosemarie Lupert, Egli 1040, Abtwil, Switzerland

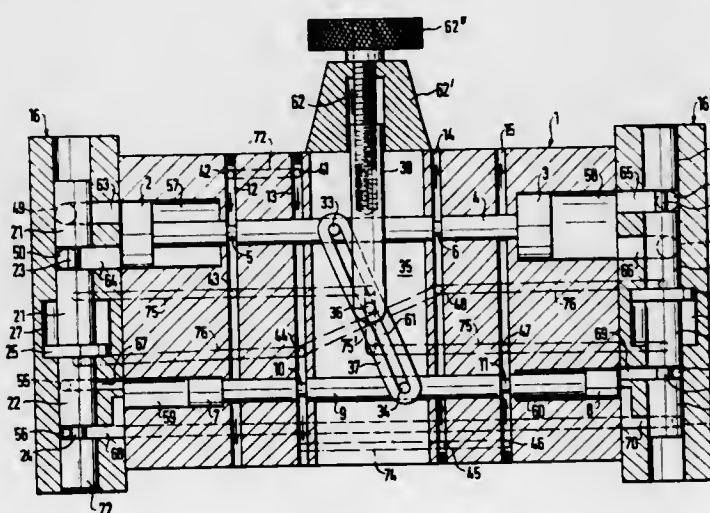
Filed Jan. 31, 1972, Ser. No. 221,908

Claims priority, application Austria, Feb. 5, 1971, A 994/71

Int. Cl. B67d 5/46

U.S. Cl. 222—134

10 Claims



A proportionating dosing device has two pairs of pistons, each pair being mounted on the respective ends of a common piston rod. The piston rods are parallel and are coupled for movement in opposite directions by a two-armed lever whose fulcrum may be shifted to vary the ratio of the arms and thereby of the respective strokes of the piston pairs. The two cylinders receiving the pistons of each pair are connected with a common intake nipple and a common discharge nipple and controlled by pneumatically actuated valves, the pneumatic valve actuating circuits including conduits blocked and opened by the moving piston rods in proper sequence. Because of the wide available ratio of liquid discharge rates, the apparatus is suitable for metering resin compositions and curing agents for the same to an injection molding machine.

3,737,074

APPARATUS FOR FEEDING PARTICULATE MATERIAL

Leonard J. Davies, Kettering, England, assignor to USM Corporation, Flemington, N.J.

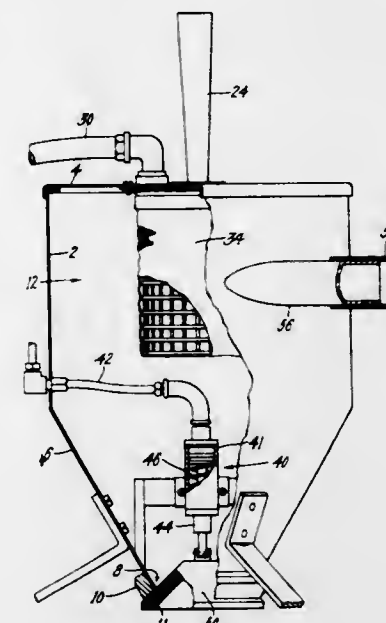
Filed July 8, 1971, Ser. No. 160,588

Claims priority, application Great Britain, July 23, 1970, 35,642/70

Int. Cl. B65g 53/50

U.S. Cl. 222—193

3 Claims



Apparatus including a substantially closed chamber having an inlet connected to a supply of granular material and an outlet for dispensing the material from the chamber, a valve for opening and closing the outlet, and a device for drawing air from the chamber when the valve is closed so a stream of air is drawn through the inlet to feed material to the chamber from the supply.

3,737,075

MULTI-COMPARTMENTAL CONDIMENT SHAKER

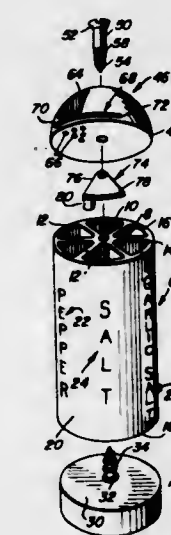
Oscar J. Atchley, P.O. Box 147, Evansville, Ill.

Filed May 26, 1971, Ser. No. 147,129

Int. Cl. A47g 19/24

U.S. Cl. 222—142.9

5 Claims



A multi-compartmental cylinder having open top and bottom ends and complementary integral core means providing selectively usable condiment compartments. An attachable disc-like closure normally spans and closes the bottom ends of the compartments and is removable for replenishing the com-

partments. Cap-type domical cover means is rotatably mounted on and covers the top of the cylinder. This cover means embodies manually regulable dispensing ports controllable by an adjustable shutter-type valve. This cover means can be turned in either direction so that the available discharge ports can be registered with a selected compartment, after which the pivoted shutter can be shifted and set to wholly or partially discharge the selected condiment.

3,737,076

ATMOSPHERIC CLOSED HOT WATER TANK SYSTEM WITH SEPARATE EXPANSION CONTROL

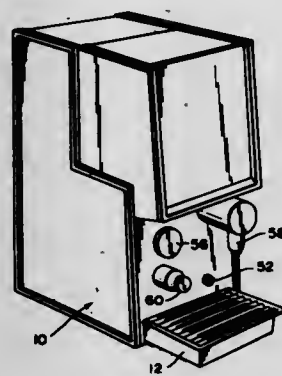
John A. Gardner, Jr., Tewksbury; Merle S. Brown, Cohasset, and William H. Jacobs, Brookline, all of Mass., assignors to Jet Spray Cooler, Inc., Waltham, Mass.

Filed Sept. 13, 1971, Ser. No. 180,031

Int. Cl. B67d 5/62

U.S. Cl. 222-146 H

10 Claims



This invention relates to dispensers which require a source of hot water and more particularly comprises a hot beverage dispenser having a new and improved hot water heating system.

Most commercial hot water sources do not provide water at a high enough temperature so that it may be mixed with other ingredients in a food dispenser and be served directly without supplemental heating. Consequently some form of hot water heater is used in combination with a holding tank in most hot water systems. The systems take a number of different forms; for example, they may employ a closed or open tank, and those systems which use a closed tank may either be pressurized or unpressurized. All of the various systems used heretofore have certain disadvantages which are described below.

3,737,077

MEANS FOR ATTACHING A DISPENSING VALVE TO A PRESSURIZED DISPENSER WITH A LOCK RING

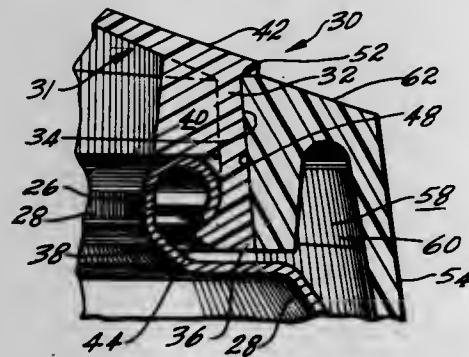
Roger K. Bruce, 26682 Avenida Deseo, Mission Viejo, Calif.; Werner Marhold, 20032 Port Circle, Huntington Beach, Calif., and Cecil F. Adickes, 8128 Calabar Avenue, Playa Del Rey, Calif.

Filed Feb. 10, 1971, Ser. No. 114,217

Int. Cl. B67b 3/00

U.S. Cl. 222-153

10 Claims



A dispensing valve has a skirt with an internal annular flange for receipt over a bead in the dome of a standard pres-

surized dispenser. The external axially extending surface of the skirt is tapered and the top of the skirt is capped by an annular external flange. A lock ring having an internal taper complementing that of the skirt is adapted to be received over the skirt's taper and locked in place by the external flange. The lock ring prevents the skirt from expanding under the pressure of the dispenser while allowing the skirt to be expanded over the bead when attaching the valve to the dome.

3,737,078

TUBE COMPRESSOR

Karl Oskar Birger Thoren, Vadstena, Sweden, assignor to Olaf Thoren Narra Parkgatan, Huskvarna, Sweden

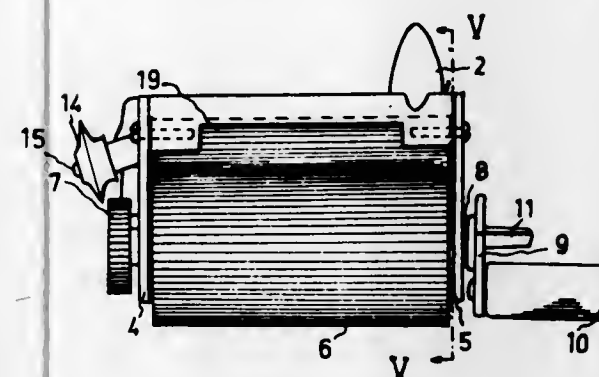
Filed Feb. 28, 1972, Ser. No. 229,717

Claims priority, application Sweden, Mar. 1, 1971, 2551/71

Int. Cl. B65d 35/28

U.S. Cl. 222-192

10 Claims



An apparatus mainly characterized as a compressor for collapsible tubes but also serving as a can opener has pressing members forced together and separated by an arrangement used for forcing a splitter and a feeder of a can opener to and fro each other.

3,737,079

DRYING HANGER ASSEMBLY FOR WOOLEN GARMENTS, AND THE LIKE

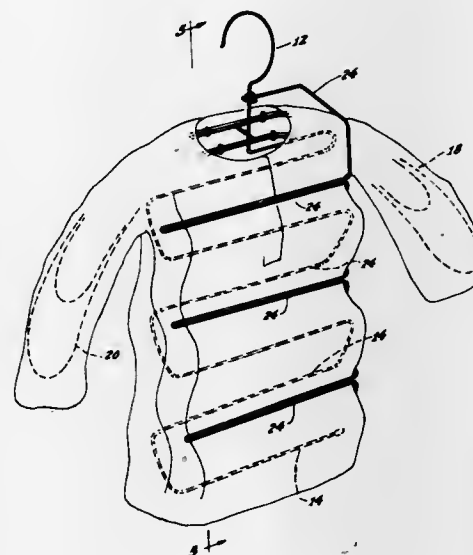
William W. Bliss, 1756 North Fuller, Los Angeles, Calif.

Filed Sept. 10, 1971, Ser. No. 179,438

Int. Cl. A41h 5/00

U.S. Cl. 223-68

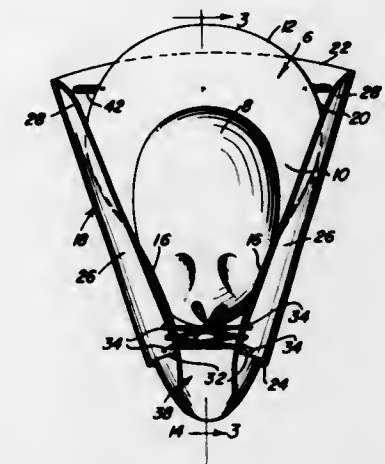
5 Claims



A drying hanger assembly is provided for supporting garments, such as woolen sweaters, and the like, which absorb

relatively large amounts of water when washed, and which are relatively heavy when wet. The assembly of the invention is constructed so that the garment is supported essentially along its entire length so that there is no tendency for the fabric to stretch, as would otherwise be the case, due to the weight of water absorbed into the material. The assembly, in one of its embodiments is a wire-formed two-piece compatible device which includes a first section having essentially a coat hanger configuration and which includes extensible shoulder loops and a hook-shaped support means. The first section of the aforesaid embodiment also includes a serpentine-shaped inner wire-formed member which extends down the interior of the supported garment. The assembly of the aforesaid embodiment also includes a serpentine-shaped second section which fits over the external surface of the supported garment, and which serves to hold the garment in place over the first section so that it is supported essentially continually along its length.

supportively seats the crown-equipped brim. The longitudinal edge portions of the panel are provided with turned-in overhanging flaps in which the curled edge portions are con-



3,737,080

SHORT SLEEVE PRESSER EXPANDER

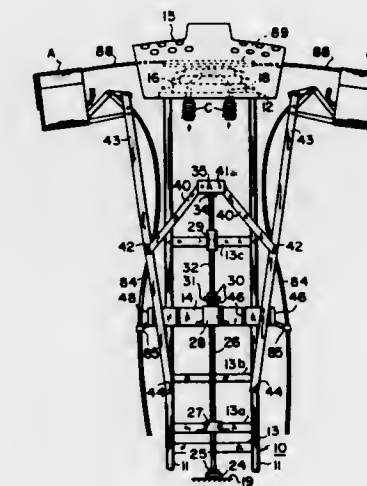
August F. Paris, 1415 McCullough Avenue, Brockway, Pa.

Filed July 7, 1971, Ser. No. 160,273

Int. Cl. A41h 5/00

U.S. Cl. 223-70

20 Claims



An expander presser apparatus for short sleeve shirtlike garments is provided having a pair of telescopic spring-tension-expanded sleeve-pressing assemblies that are retractably mounted to extend from armpit positions of a garment-receiving upright frame of a finishing machine that has a permeable fabric form into which steam and dry air are introduced.

formingly nested, retentively sheathed and shaped. Forward upper corner portions of the flaps are adjustably laced together to retain the hat in a captive but manually removable state.

3,737,082

WATCHBAND

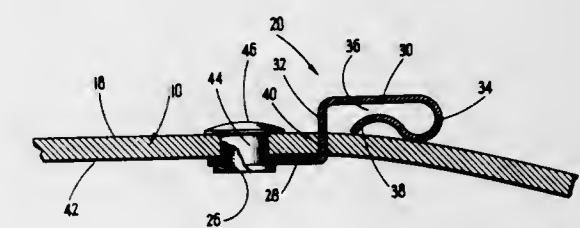
Samuel Millman, 11 Florence Avenue, Revere, Mass.

Filed May 28, 1970, Ser. No. 41,466

Int. Cl. A44c 5/14

U.S. Cl. 224-4 E

2 Claims



A watchband or the like including special clips secured to the band for gripping and retaining the watch on the band. Each of the clips includes, at one end, a resilient reverted loop which receives one of the mounting pins on the watch case. The clips are secured at their other ends to the watchband by offset mounting tabs which pass through slots in the band. The offset tabs are secured to the underside of the band by a rivet which passes both through the band and the offset tab.

3,737,081

HAT SUPPORT

Frank R. James, Comanche, Okla., assignor to Western Hat Corral Co., Comanche, Okla.

Filed Oct. 6, 1971, Ser. No. 187,085

Int. Cl. D06c 15/00

U.S. Cl. 223-84

7 Claims

A holding, storing and shape-maintaining device for a western hat embodying, as usual, a high crown encompassed by a contoured brim having forward and rearward down-bent end portions and longitudinal side portions bordered with forwardly converging inwardly curled edge portions. This device comprises a panel whose truncated triangulate body portion

3,737,083

BOAT CARRIER FOR USE ON RECREATIONAL VEHICLES

Kerry G. Lund, St. Paul, Minn., assignor to Pic-A-Tent-Top Carrier, Inc., St. Paul, Minn.

Filed May 20, 1971, Ser. No. 145,159

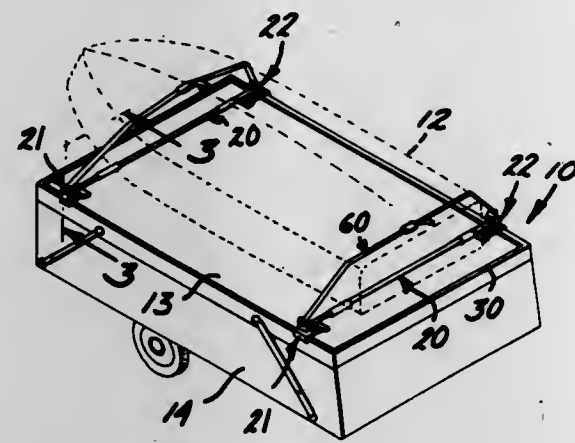
Int. Cl. B60r 9/04

U.S. Cl. 224-42.1 H

5 Claims

A boat carrier for use on the top of tent trailers, campers, and the like having a rotatable and carrier or roller member to facilitate loading of the boat. The roller member is rotatably

supported by two laterally spaced, vertical support members each of which removably engages a base plate screwed to the



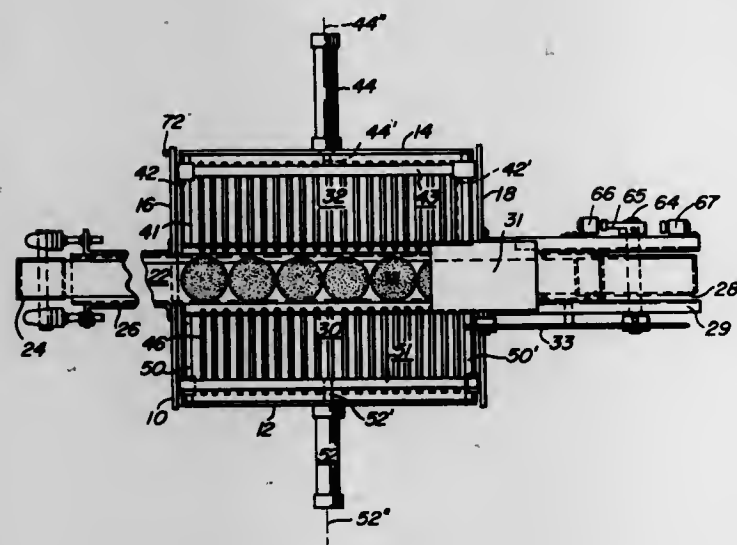
top of the cover. The roller member and vertical support members are readily removed from the cover top when the carrier is not in use.

3,737,084 AUTOMATIC MUFFIN TINNING MACHINE WITH ADJUSTABLE SPLIT

Eugene M. Noel, 42 Kingston Road, Newton Highlands, Mass.
Filed Feb. 7, 1972, Ser. No. 224,067
Int. Cl. B26f 3/02

U.S. Cl. 225-97

5 Claims



An automatic muffin splitting machine of increased productivity having a continuously traveling conveyor belt for 6 muffins to a tining section to be tined and split, said tining section having first and second pluralities of tines operating from respective opposite sides of the conveyor belt, said pluralities of tines traversing the belt in simultaneous reciprocal interdigitating cooperation from the opposite sides thereof and the first plurality of tines being automatically lifted out of the plane of interdigitation with the second plurality of tines to split the muffin as full penetration of the tines into the muffins is reached, the tining operation being intermittent to act on a predetermined group of muffins and being powered and coordinated with the movement of the traveling belt by twin pilot-operated air cylinders for reciprocating the tining bars carrying the first and second pluralities of tines, and said splitting of said tined muffins being coordinated with the tining operation by pilot-operated air cylinders for lifting said first plurality of tines out of said plane of interdigitation with said second plurality of tines; whereby the machine automatically produces muffins tined and split, but not fully separated, for easy hand opening and having the proper split surface for best grilling or toasting.

3,737,085 AUTOMATIC SHUTOFF SYSTEM FOR MAGNETIC TAPE REPRODUCERS AND RECORDERS

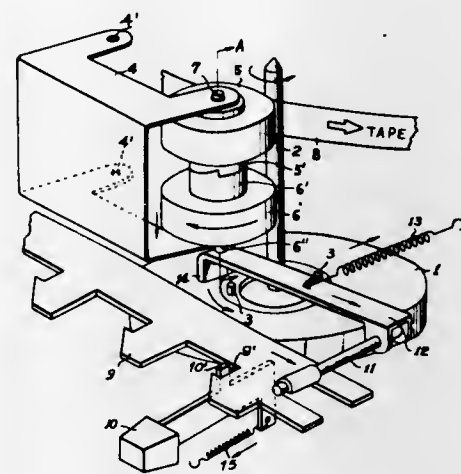
Nobuo Suzuki, No. 26-9, Yokoyama 3-chome, Sagamihara, Japan

Filed Apr. 26, 1972, Ser. No. 247,754

Claims priority, application Japan, Aug. 21, 1971, 46/63882
Int. Cl. B65h 25/00

U.S. Cl. 226-11

4 Claims



A magnetic tape reproducer and recorder with an automatic switch-off system, including a pivotally mounted roller assembly comprising a pressure roller which is axially aligned with a guide roller adapted to be rotatable independently of the pressure roller and effecting the giving of a signal which causes the starting button of the tape device to return to its inoperative starting position when the tape has run off.

3,737,086 FILM RETENTION MEANS FOR FILM CARTRIDGES

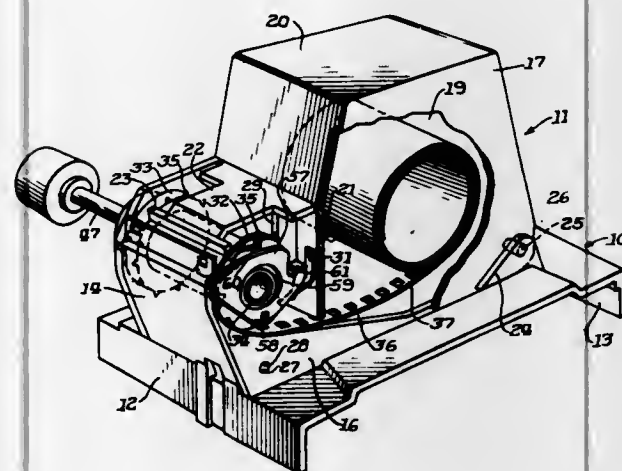
Josef Schmidt, Chicago, Ill., assignor to Bell & Howell Company, Chicago, Ill.

Filed Sept. 23, 1971, Ser. No. 183,125

Int. Cl. B65h 25/00

U.S. Cl. 226-11

2 Claims



A film cartridge for a projector having an end of film sensing means for blocking the film driving means from feeding film into the cartridge while maintaining engagement of the film end with the driving means whereby the driving means can conveniently feed the film out of the cartridge.

3,737,087 DISPENSING APPARATUS FOR ROLLED MATERIALS

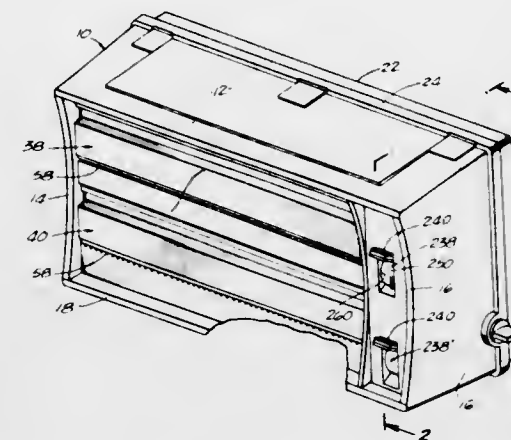
Jack Rooklyn, Northridge, Calif., assignor to Mirra-Cote Co., Inc., El Segundo, Calif.

Filed May 24, 1972, Ser. No. 256,545

Int. Cl. B65h 17/42

U.S. Cl. 226-110

8 Claims



A dual, power driven dispenser for dispensing rolled material such as paper. Two power driven rolls are provided, each being operable by a manual control which also opens one of two dispensing doors for the web or strip of paper which is being dispensed. The web is torn off after the door closes. A single drive motor is provided for operating both the power driven rollers through two separate gear trains. Each gear train is brought into driving engagement with the motor when its respective roller is to be driven. Each manual handle embodies an adjustable key member and a mechanism to make possible manual operation without driving either power driven roller.

3,737,088 WEB PROCESSING APPARATUS

Franz Barta, Vienna, Austria, and Alfred F. Grupp, Glen Ellyn, Ill., assignors to The Meyerco Co., Carol Stream (Wheaton), Ill.

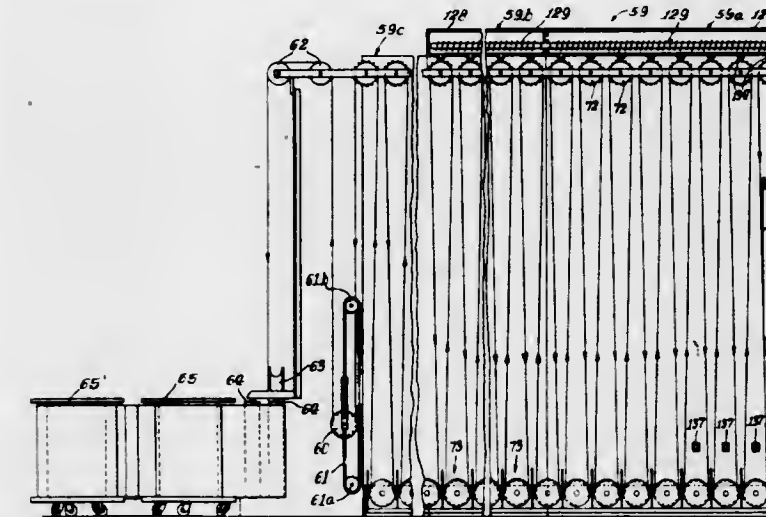
Division of Ser. No. 67,890, Aug. 28, 1970, Pat. No. 3,694,928.

This application June 9, 1972, Ser. No. 261,374

Int. Cl. B65h 17/42

U.S. Cl. 226-119

14 Claims



A web processing apparatus is provided, particularly for drying the printed surface of a continuous web. The web is disposed in festooned relation between upper driving rolls and lower restraining rolls or guides disposed in the depending loops of the festooned web. The restraining rolls or guides have end rim portions which engage and support the web at its marginal edge portions. A plurality of web correction elements, such as toothed annular elements, are provided between the rim portions, and the web is normally held in spaced relation from the web correction elements but is engageable therewith for straightening out collapsed areas or inwardly deflected portions of the web as it passes around the restraining rolls or guides. Preferably, a gaseous medium is passed through an enclosure for the festooned web, and the arrangement permits relatively high flow rates and velocities without disturbing the web.

ments, such as toothed annular elements, are provided between the rim portions, and the web is normally held in spaced relation from the web correction elements but is engageable therewith for straightening out collapsed areas or inwardly deflected portions of the web as it passes around the restraining rolls or guides. Preferably, a gaseous medium is passed through an enclosure for the festooned web, and the arrangement permits relatively high flow rates and velocities without disturbing the web.

3,737,089 PRESS FOR WEB PRINTING HAVING INTERMITTENT PAPER FEEDING MEANS

Fred M. Slavic, 41 West 25th Street, New Rochelle, N.Y.

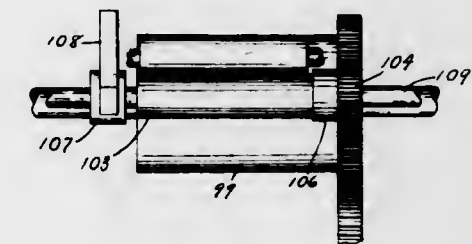
Division of Ser. No. 863,188, Oct. 2, 1969. This application

Nov. 26, 1971, Ser. No. 202,161

Int. Cl. B65h 17/22

U.S. Cl. 226-156

1 Claim



An improved press for intermittent paper web feeding including means for synchronously driving each end of the web through identical and simultaneous motion. Means is provided for improved clutching action, and the maintenance of a variable loop in the web existing between a continuously rotating paper feed supply and the incremental web feeding means.

3,737,090 DRAW ROLL ASSEMBLY FOR BAG MACHINE

Robert J. Wech, Green Bay, Wis., assignor to FMC Corporation, San Jose, Calif.

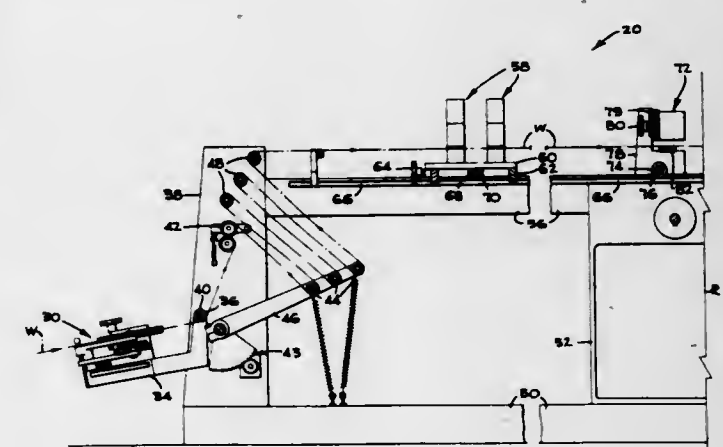
Division of Ser. No. 760,048, Sept. 16, 1968. This application

Sept. 1, 1971, Ser. No. 176,899

Int. Cl. B65h 17/22

U.S. Cl. 226-187

3 Claims



The disclosure concerns a draw roll assembly for feeding a web to the seal bar of a thermoplastic bag making machine to regulate the nip pressure as required by the thickness of the web. To accommodate variations in the number of plies across the web, yet provide equal nip pressure between the draw rolls, one roll can be adjusted to operate in a non-parallel relation with the other roll. The draw roll assembly is disclosed in conjunction with a side weld bag making machine.

A roll of plastic web is mounted on an unwind stand and traverses a folding board constraining the web to fold along its longitudinal median or along a line spaced from and parallel to the longitudinal median in the event it is desired to produce wicketed bags having a lip with a pair of holes in which is inserted a U-shape wire called a wicket. Downstream of the folding board a gusseter is provided to produce a fold which permits greater expansion at the bottom of the bag. The folded and gusseted web is driven by the draw roll assembly of the present invention and is fed thereby to a reciprocating transversely disposed seal and cutter bar which divides the web, at longitudinally spaced intervals, to produce individual bags. The bags are then transported to a table which is provided with devices for arranging the bags into a stack.

3,737,091

WEB PROCESSING APPARATUS

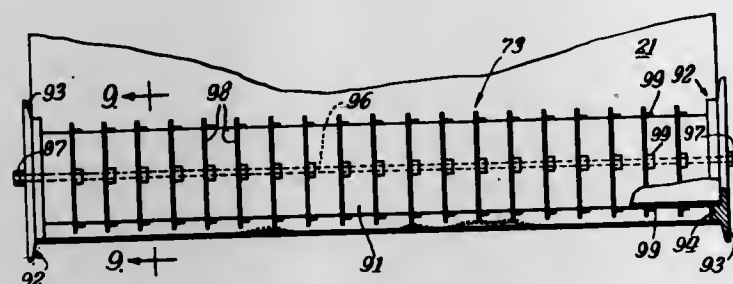
Franz Barta, Vienna, Austria, and Alfred F. Grupp, Glen Ellyn, Ill., assignors to The Meyercord Co., Carol Stream (Wheaton), Ill.

Division of Ser. No. 67,890, Aug. 28, 1970, Pat. No. 3,694,928. This application June 9, 1972, Ser. No. 261,382

Int. Cl. B65h 17/20

U.S. Cl. 226-193

7 Claims



A web processing apparatus is provided, particularly for drying the printed surface of a continuous web. The web is disposed in festooned relation between upper driving rolls and lower restraining rolls or guides disposed in the depending loops of the festooned web. The restraining rolls or guides have end rim portions which engage and support the web at its marginal edge portions. A plurality of web correction elements, such as toothed annular elements, are provided between the rim portions, and the web is normally held in spaced relation from the web correction elements but is engageable therewith for straightening out collapsed areas or inwardly deflected portions of the web as it passes around the restraining rolls or guides. Preferably, a gaseous medium is passed through an enclosure for the festooned web, and the arrangement permits relatively high flow rates and velocities without disturbing the web.

3,737,092

PACKAGING CONTAINER HAVING A CONTAINER BODY OF THERMOPLASTIC MATERIAL AND A METAL FOIL LINING INSERTED INTO THE CONTAINER BODY

Anders Ruben Rausing, Blentarp, Sweden, assignor to Sobrefina SA, Fribourg, Switzerland

Filed Mar. 17, 1971, Ser. No. 125,350

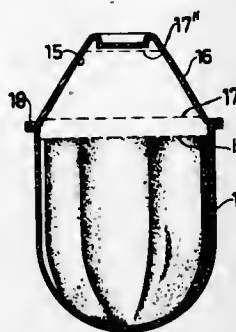
Int. Cl. B65d 25/14

U.S. Cl. 229-14 B

2 Claims

A substantially impermeable packaging container having a container body of a thermoplastic material with an outwardly extending flange about the top opening thereof, said container

body having a metal foil lining extending upwardly to the edge of the top opening and a lid member of thermoplastic material with an inner metal foil lining, said lining stopping short of the



marginal edge of the lid member, said flange and the marginal edge of the lid being sealed together to close the packaging container.

3,737,093

MULTI WALL CONTAINER AND PACKAGE

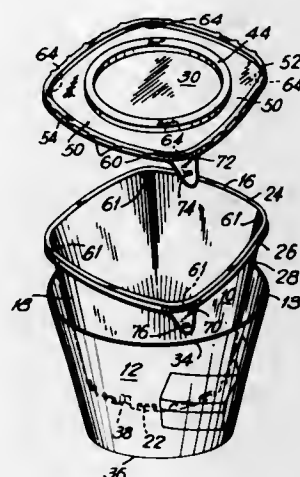
Stephen W. Amberg, Saint James, and Rodney E. Ludder, Glen Head, both of N.Y., assignors to Owens-Illinois, Inc., Toledo, Ohio

Continuation of Ser. No. 747,183, July 24, 1968, abandoned. This application July 13, 1971, Ser. No. 162,222

Int. Cl. B65d 62, 64

U.S. Cl. 206-14 R

14 Claims



The specification describes a multi-walled package of a nestable configuration that has an inner shell of thermoformed plastic material and an outer shell of paper cardboard material secured thereto and adapted to be printed thereon. The relationship of said shells being that the inner shell has a formed rim portion and a base portion each adapted to be self-sustaining or rigid, with a relatively thin flexible intermediary wall portion, and the outer shell is secured to the wall portion of the inner shell in a manner to provide structural rigidity to the wall portion and in turn the entire container. A closure having snap-in engagement with the container rim, at a number of positions is also provided.

3,737,094

COUNTER DISPLAY CONTAINER

Bob Beaver, and Edward T. Turner, Jr., both of Terre Haute, Ind., assignors to The Weston Paper and Manufacturing Co., Terre Haute, Ind.

Filed Feb. 7, 1972, Ser. No. 224,128

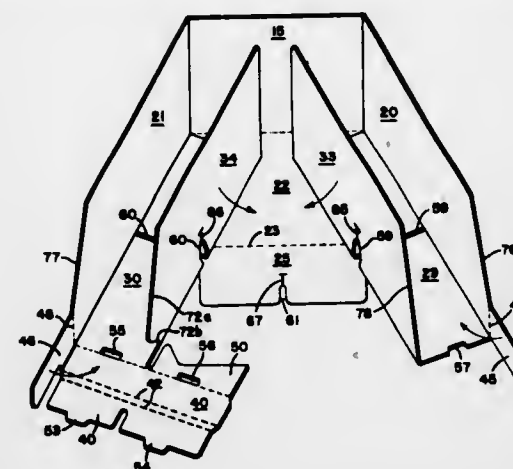
Int. Cl. B65d 5/22

U.S. Cl. 229-34 R

18 Claims

A container and a blank therefor have integral lateral and

longitudinal dividing walls and means for firmly interlocking



the various portions thereof and forming an attractive display device.

3,737,095

RECLOSABLE CONTAINER

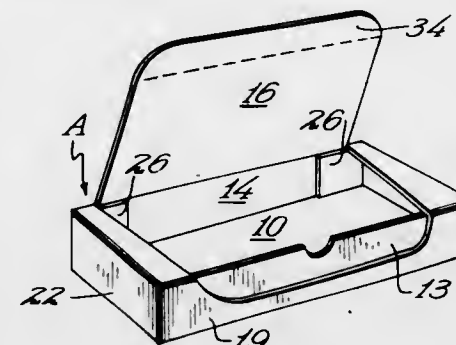
Richard E. Derauf, Madison, Wis., assignor to Hoerner Waldorf Corporation, Ramsey County, Minn.

Filed Apr. 1, 1971, Ser. No. 130,226

Int. Cl. B65d 5/54

U.S. Cl. 229-51 TC

1 Claim



A container is provided which may be erected from a flat blank and which requires a single area of adhesive to seal. This area is between the outer surface of an inner wall and the inner surface of an overlapping wall. Weakened lines of separation are provided in the overlapping wall and continue across the top panel, providing a potential opening. The container may be reclosed by tucking the area torn from the overlapping wall inwardly of the inner wall.

3,737,096

BLOOD PROCESSING CONTROL APPARATUS

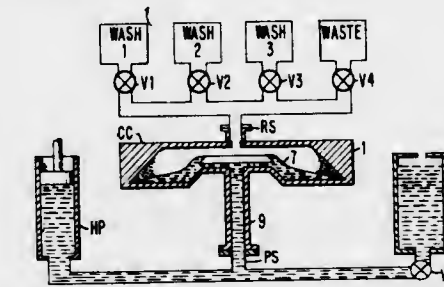
Alan L. Jones, Endwell; George T. Judson, Whitney Point; Robert M. Kellogg, Endwell, and Victor R. Kruger, Apalachin, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 23, 1971, Ser. No. 211,194

Int. Cl. B04b 11/00

U.S. Cl. 233-19 A

11 Claims



Apparatus for processing blood, and particularly for washing blood cells, including a centrifuge head in which is ar-

ranged a flexible blood container connected by a rotating seal to tubing which permits the entrance and exit of wash liquid and supernatant. The flow of liquid in the tubing is controlled by valve arrangements which are operable to permit the entrance of wash liquid and removal of supernatant liquid. The flexible container fits over a flexible membrane also arranged inside the centrifuge head about a solid central core. The volume defined by this membrane and the core communicates via a passage in the core with a fluid reservoir by means of a control pump which allows fluid to enter and exit from the volume defined by the membrane. During operation the unwashed blood may be entered into the container or blood bag before or after the bag is placed in the centrifuge. The centrifuge is spun until cells have settled against the outside wall at which time the valve arrangements and the control pump are activated such that fluid is pumped into the centrifuge under the volume defined by the membrane thereby forcing a supernatant to flow out to a collect container. The centrifuge is then stopped and the wash solution enters the blood container through another valve arrangement, thereby allowing the removal of fluid from the volume inside the flexible membrane. Removal of the wash liquid is accomplished by the same process of removal as the removal of supernatant previously described. Provisions are made for electrical control of all the operations including an agitate operation in which the centrifuge is spun in alternate directions for only a few revolutions or goes through alternate accelerate-decelerate cycles while rotating in the same direction to thereby agitate the material in the blood bag or flexible container during the time that a wash solution is entering. The circuit arrangements are such that a high degree of flexibility in the programming of the various operations can be obtained.

3,737,097

MACHINE FOR PUNCHING AND PRINTING DOCUMENT CARDS

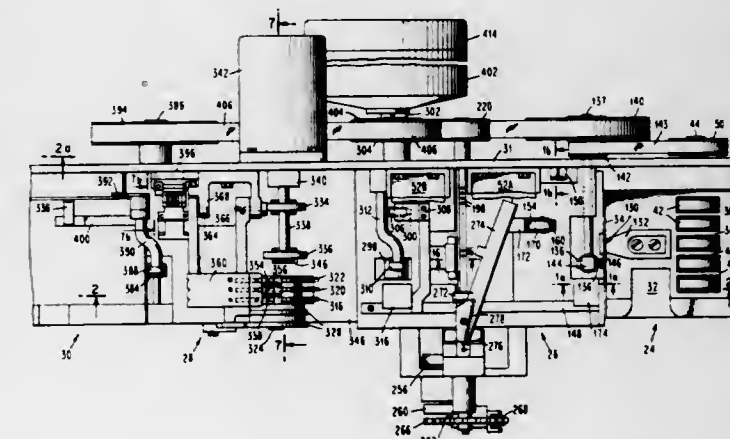
Theodore B. Barna; Roger F. Dimmick; Merlin J. Ricklefs; Walter S. Schaffer, and Gordon W. Westphal, all of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 27, 1972, Ser. No. 238,028

Int. Cl. G06k 1/02

U.S. Cl. 234-114

6 Claims



A document card punching and printing machine having a document card hopper, a punch station, a print station and a stacker for receiving the punched and printed cards. An electrically controlled pneumatic actuator moves pick rolls upwardly through the bottom of the hopper for moving the cards one at a time out of the hopper toward the punch station. The punch station includes card incrementing rolls; and a pair of pneumatic actuators, similar to the first actuator, control pressure rolls for causing the card to increment through the punch station and then to move out of the punch station. The

punching mechanism includes a pair of electrically controlled pneumatic actuators for moving interposers in the punching mechanism into operative positions for punching. Each of the pneumatic actuators may be readily removed from the machine for easy replacement. The print station includes a plurality of print hammers cooperating with rotating print wheels disposed therebelow, and the print hammers are mounted on a swingable carriage so that the hammers and carriage may be readily lifted up for clearing any card jams in the print station.

3,737,098

TEMPERATURE-PRESSURE TRANSDUCER

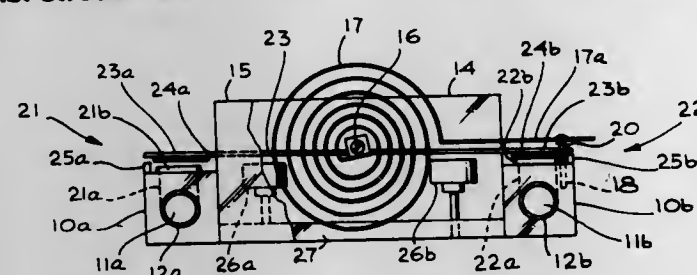
Gene W. Osheroff, Las Vegas, Nev., assignor to Fluidtech Corporation, Inglewood, Calif.

Filed Dec. 7, 1971, Ser. No. 205,503

Int. Cl. G05d 23/275; G05b 11/48

U.S. Cl. 236-87

8 Claims



In the present invention, a pair of outlet channels are coupled directly to a relatively low pressure source and through a pair of thermostatically-controlled valves are also coupled to a relatively high pressure source. Only one or the other of the valves is open at any one time. Accordingly, when the transducer is in a relatively cool environment, one outlet channel will have the high pressure in it and the other outlet channel will have the low pressure in it. On the other hand, when the transducer environment is relatively warm, the pressures in the two outlet channels are reversed. The valves governing the pressures in the outlet channels are opened and closed in response to the motion of a coiled bi-metallic strip and, consequently, are opened and closed in response to the ambient temperature conditions.

3,737,099

ELECTROSTATIC SPRAY COATING APPARATUS

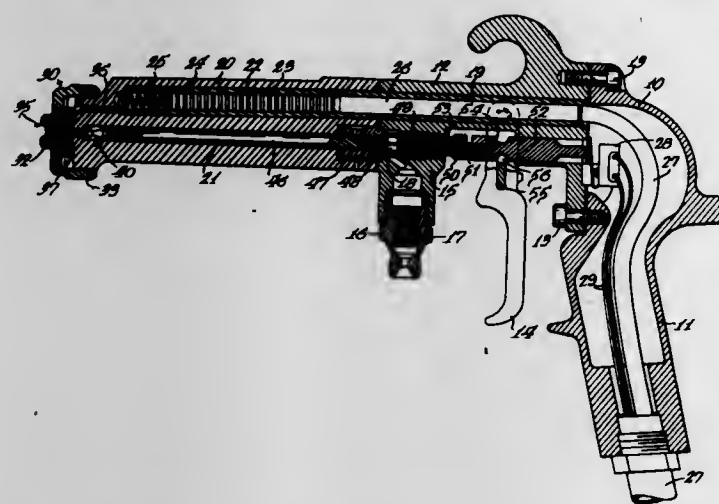
Patrick D. Shaffer, Prospect Heights, Ill., assignor to Binks Manufacturing Company, Franklin Park, Ill.

Filed Oct. 29, 1971, Ser. No. 193,960

Int. Cl. B05b 5/00

U.S. Cl. 239-15

8 Claims



Electrostatic spray coating apparatus including means for mechanically atomizing coating materials and means for electrostatically charging and depositing the atomized material

onto articles, characterized by the features, individually and collectively, of improved means including an improved charging electrode for the efficient and effective charging of the material, and enhanced overall construction for greater service life, more reliable and safe operation, and economy.

3,737,100

INTERNALLY COOLED UNIT INJECTOR

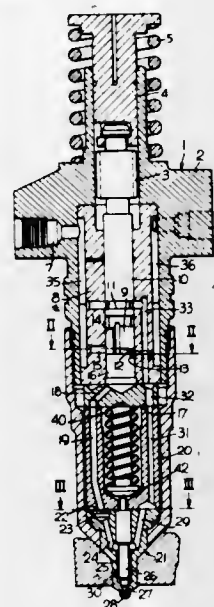
Alexander Dreisin, Olympia Fields, Ill., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Nov. 18, 1971, Ser. No. 199,922

Int. Cl. F02m 39/00

U.S. Cl. 239-89

10 Claims



A unit fuel injector providing cooling of the nozzle by the fuel, with a valve arrangement in the return passage to intermittently stop circulation of the fuel and a check valve in the fuel delivery passage to prevent blow-back of combustion gases during the engine power stroke.

3,737,101

POWER ROTATED DEVICE FOR DISPERSING FLUIDS INTO A GASEOUS ENVIRONMENT

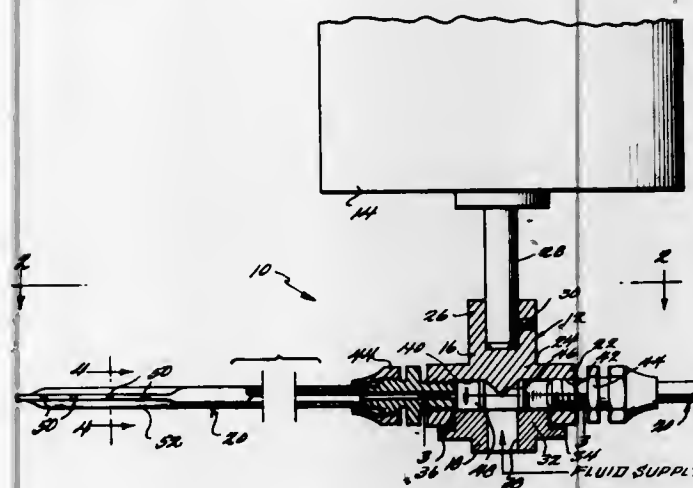
William H. Johnson, Raleigh, N.C., assignor to Patent & Development of N.C., Inc., Raleigh, N.C.

Filed Sept. 17, 1971, Ser. No. 181,527

Int. Cl. B05b 3/00

U.S. Cl. 239-225

13 Claims



A device for dispersing fluids into a gaseous environment which includes a hollow body mounted for rotational movement about an axis of rotation by a motor or the like, the hollow body having a plurality of discharge orifices spaced cir-

cumferentially about the axis shaped to disperse fluid under pressure communicated interiorly therewith outwardly thereof in a pattern which diverges outwardly with respect to a line of symmetry, the line of symmetry associated with each orifice being related to a line tangential to the axis of rotation intersecting the associated orifice by an angle of less than 46° measured in any direction therefrom whereby dispersion of a source of fluid communicated with the inlet of the hollow body is distributed through the orifice into the surrounding gaseous medium under the action of both the pressure energy and kinetic energy developed during the operation of the device.

3,737,102

CORROSION RESISTANT ROCKET NOZZLE

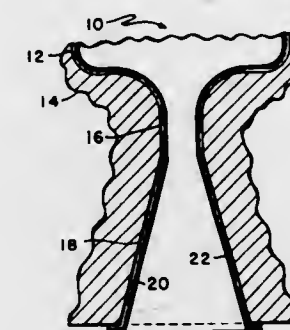
Richard S. Garard, and William J. Mertens, both of Richmond, Ind., assignors to Avco Corporation, Richmond, Ind.

Filed Sept. 21, 1970, Ser. No. 73,738

Int. Cl. B64d 33/04

U.S. Cl. 239-265.15

1 Claim



A corrosion resistant rocket nozzle for small rocket motors is disclosed. The rocket nozzle has a layer of hard anodize coating on the nozzle surface to reduce the effect of erosion during rocket burning. An ablative layer is placed over the anodize coating to produce a layer of cool gases alongside the nozzle walls during burning.

3,737,103

DIGITAL LIQUID VECTOR CONTROL SYSTEM

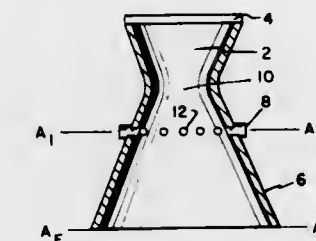
Glen W. Howell, Los Angeles, and Robert G. Gilroy, Torrance, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Aug. 28, 1969, Ser. No. 853,802

Int. Cl. B63h 25/46

U.S. Cl. 239-265.23

4 Claims



To vary the thrust vector of a rocket engine, simple digitally controlled, injectant powered liquid injection valves are spaced equally around the periphery of a rocket engine nozzle. Vector angle and magnitude information is provided from the guidance system to a controller which converts this information into electrical signals which energize the appropriate injectant valve pilot valves to provide the desired thrust vector angle and side force magnitude.

3,737,104

DEVICE FOR AUTOMATICALLY DISCHARGING AN EFFECTIVE SUBSTANCE INTO A NORMALLY CLOSED ROOM

Helmut Schneider, Mainz/Rhine, Germany, assignor to Werner & Mertz GmbH, Main/Rhein, Germany

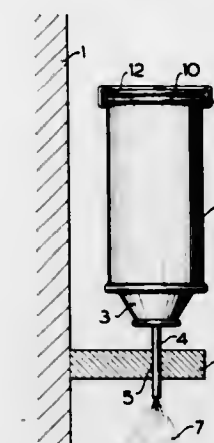
Filed Nov. 3, 1971, Ser. No. 195,201

Claims priority, application Germany, Nov. 4, 1970, P 20 54 219.2; Apr. 28, 1971, P 21 20 738.5; June 8, 1971, P 21 28 372.7

Int. Cl. B05b 15/00

U.S. Cl. 239-274

20 Claims



In automatically discharging an effective substance, such as a deodorizing agent, from an aerosol container into a normally closed room, such as a bathroom, closet and the like, the aerosol container is pivotally mounted in a rigid holder secured to the door of the room so that the container provides a flywheel mass which discharges the effective substance when the door is displaced from its normally closed position. Preferably, a tilting valve forms the discharge member from the container, the container can be supported by the holder in the upright or inverted position. In effecting a slow release of the effective substance, it can be sprayed into a porous sponge-like member secured in the holder from which it slowly evaporates. Further, for signalling that the container is empty, a whistle device can be arranged at its outlet opening for providing a whistle tone when the container is empty or a whistle tone can be provided at each discharge from the container so that the tone is no longer emitted when the container becomes empty.

3,737,105

DOUBLE SPRAY NOZZLE

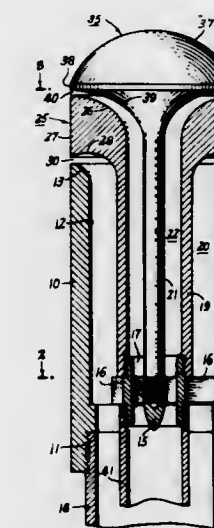
Orlan M. Arnold, Grosse Pointe Park, Mich., and Michael F. Horn, Stamford, Conn., assignors to Peabody Engineering Corporation, New York, N.Y.

Filed Sept. 13, 1971, Ser. No. 179,944

Int. Cl. B05b 1/14, 1/26

U.S. Cl. 239-423

4 Claims



A nozzle for producing a pair of axially spaced radial sprays comprising a pair of concentric pipes, each having a deflector

disc with its under surface shaped to deflect a cylindrical jet of liquid from an axial to a radial direction and to discharge the same as a radial spray.

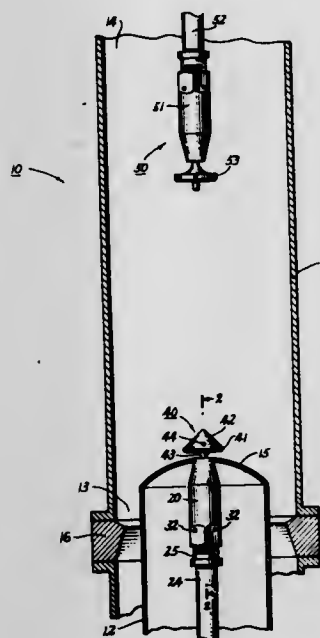
3,737,106 360° SPRAY NOZZLE

Orlan M. Arnold, Grosse Pointe Park, Mich., and Michael F. Horn, Stamford, Conn., assignors to Peabody Engineering Corporation, New York, N.Y.

Filed Aug. 19, 1971, Ser. No. 173,174
Int. Cl. B05b 1/26

U.S. Cl. 239—518

5 Claims



Apparatus for producing a 360° radial spray comprising an axial nozzle adapted to eject a liquid jet and a deflector extending transversely of the axis of the nozzle and having an annular channel concentric with the axis with a radial section in the form of a curve adapted to deflect the liquid from axial to radial direction and to discharge the liquid in the form of a spray around its entire periphery.

3,737,107 VERTICALLY ADJUSTABLE SHOWER HEAD

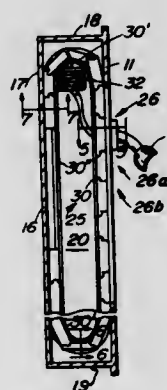
Roy L. Wright, 3572 W. Lyndale Avenue, Chicago, Ill.

Filed July 8, 1971, Ser. No. 160,821

Int. Cl. A47k 3/22

U.S. Cl. 239—588

3 Claims



A device allowing for the vertical adjustment of a shower head to a plurality of elevations to accommodate substantially

all heights of individuals, including children, and having a housing covered by a face plate with an elongated opening for movement of the shower head therealong, there being an open flexible shower-slide loop curved back on itself within the housing slidably mounted on a track mounted on the cover plate for closing and sealing the opening thereon, the shower-slide carrying a mounting block having a conventional shower head mounted on its outside face and connected to a flexible hose coiled within the housing, said hose being combined with a helical spring which constantly urges the hose to a tightly coiled position to allow for extension without kinking thereof, the hose being connected to a suitable water supply source outside of the housing.

3,737,108 SPRAY NOZZLE

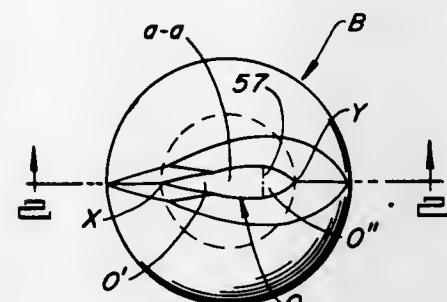
William C. Stumphauer, Sheffield Lake, Ohio; Edwin F. Hogstrom, Manchester, Mo.; Eric T. Nord, Oberlin, Ohio; Richard E. Schneider, Elyria, Ohio, and Alvin A. Rood, Westlake, Ohio, assignors to Nordson Corporation, Amherst, Ohio

Division of Ser. No. 13,598, Feb. 24, 1970, Pat. No. 3,697,313.
This application June 8, 1972, Ser. No. 261,027

Int. Cl. B44d 1/08; B05b 1/04

U.S. Cl. 239—598

10 Claims



An airless spray nozzle particularly adapted for coating the interior cylindrical surface of objects such as metal cans for food, beverages and other substances which need protection against injurious reaction with or pollution from contact with the material of the can. The nozzle has an orifice that produces a spray having an asymmetrical fan-shaped pattern so that the flow can be matched to the internal surface configuration of a can or similar cylindrical object to apply a uniform coating thereto.

3,737,109 DOUBLE-ACTING AXIAL THRUST AND RADIAL BEARINGS FOR GRINDING APPARATUS

Johan Gunnar Inge Johansson, Taby, Sweden, assignor to Diffrator Aktiebolag, Stockholm, Sweden

Filed Nov. 23, 1970, Ser. No. 91,638

Claims priority, application Sweden, Oct. 26, 1970, 14436/70

Int. Cl. B02c 25/00

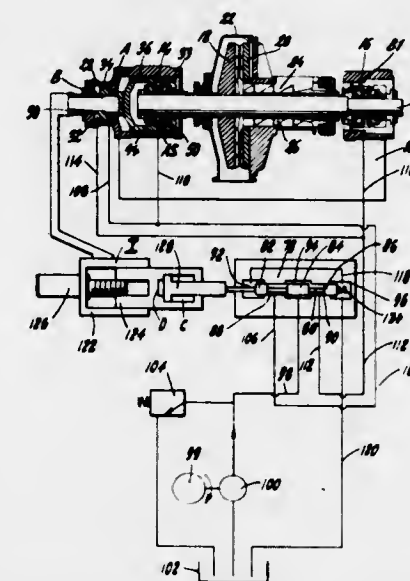
U.S. Cl. 241—37

4 Claims

A combined axial and radial thrust bearing device for a rotary shaft composed of two components, each of which comprises an annular ring fixed to the shaft and an annular ring supported free of the shaft both of which rings engage each other through bearing means. Between the two opposing free annular rings is provided a member which is adapted to exert internal pressure on the annular rings in an axial direction to minimize play between the two components. The member is

adapted to be actuated by a pressure fluid in such a manner that the internal pressure exerted on the annular rings is

members are mounted on a suitable spindle and at least the last pair of cutters, taken in the direction of rotation of the bowl, are arranged for movement in opposite directions with respect to the axis of said spindle. Particularly a push rod



reduced in response to an increase in pressure in an axial direction exerted on the shaft externally of the bearing.

3,737,110 PUMP

Georg Neidl, Im Bisch 664, Schaan, Liechtenstein

Division of Ser. No. 822,342, Feb. 18, 1969, Pat. No.

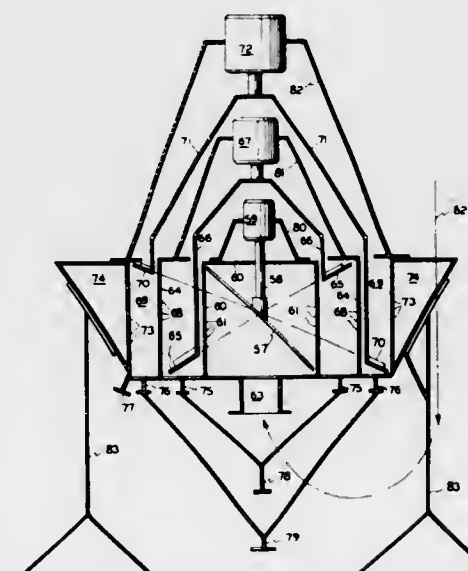
3,640,474, which is a division of Ser. No. 452,502, May 3, 1965, Pat. No. 3,502,274. This application Sept. 11, 1970, Ser.

No. 71,351

Int. Cl. B02c 13/13

U.S. Cl. 241—43

2 Claims



A combined pumping and filtering mechanism for viscous liquids containing solids comprises a central cylindrical chamber surrounded by one or more concentric annular chambers, each of which contains a rotatable impeller mounted at an angle with respect to a radial plane.

3,737,111 MEAT CUTTER

Hans Neuner, D-3562 Wallau, Lahn, Von der Hardt, Germany

Filed May 10, 1971, Ser. No. 141,673

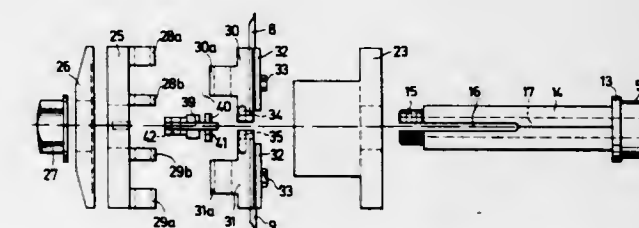
Claims priority, application Germany, May 12, 1970, P 20 23 066.4

Int. Cl. B02c 18/10

U.S. Cl. 241—282.2

5 Claims

A meat cutter having an annular rotating bowl with cutter members arranged adjacent one side of said bowl. Said cutter



coaxial with the spindle, and operable by a cam from a point externally thereof, acts through a linkage adjacent the base of said cutters for effecting the angular positioning of the cutters with respect to the spindle axis.

3,737,112

YARN FEEDING AND STORAGE DEVICE FOR TEXTILE PRODUCING MACHINE

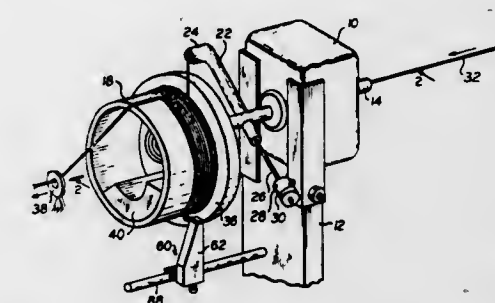
Edward M. Tellerman; Richard Paul Kashden, both of East Rockaway, N.Y.; Edward W. Schussel, King of Prussia, Pa., and Robert J. Vossen, Malverne, N.Y., assignors to Wesco Industries Corporation, Plainview, N.Y.

Filed Apr. 23, 1971, Ser. No. 136,939

Int. Cl. B65h 51/20

U.S. Cl. 242—47.01

24 Claims



There is disclosed a device for feeding yarn from a supply thereof to a textile producing machine. A storage drum is provided about which there orbits yarn winding means whereby the yarn is wound onto the drum tangentially for subsequent axial withdrawal on its way to the textile producing machine with a minimum of tension. A feeler biased against the drum detects the presence of a predetermined minimum quantity of yarn wound onto the drum after which it controls, through time delay means, additional winding for a predetermined time period. There are disclosed a number of different forms of winding means including the use of a rotatably mounted disk and rotatably mounted annular member, each of which carries the storage drum which is prevented from having significant rotation.

3,737,113

DEVICE FOR AUTOMATICALLY TAKING UP A MOTION PICTURE FILM

Shinichi Yabe, and Mitsuru Katsumata, both of Ashigara-Machi, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Nov. 16, 1971, Ser. No. 199,161

Claims priority, application Japan, Nov. 16, 1970, 45/100913

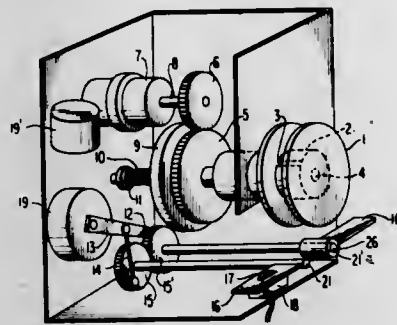
Int. Cl. G03b 1/56; B65h 17/02

U.S. Cl. 242—67.1

6 Claims

A device for automatically taking up a strip of film or other material has a film feeding outlet constructed at the end of a movable guide mounted on the respective shafts of two engaged gears. A third shaft is provided for mounting a reel having a slit on a core for winding the film opposite to the outlet.

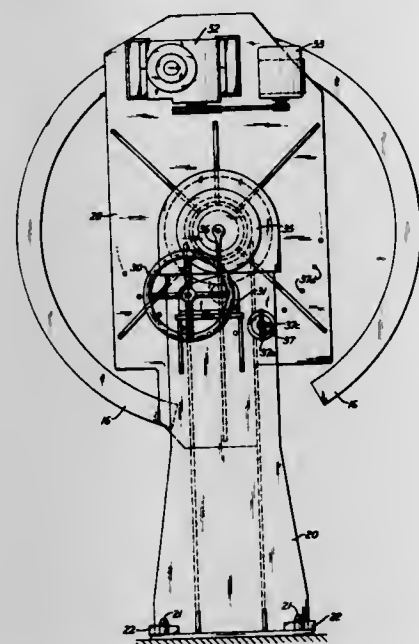
An inner cam mechanism is positioned for holding the third shaft in such a manner that the outlet is disposed opposite the slit. An outer cam mechanism is provided for rotating the reel after the end of the film passes through the outlet to enter the



slit and in addition holds the outlet in a half open state. The outer cam mechanism further fully opens the movable guide when the reel rotates so that the end of the film is fixed to the core, thereby permitting the film to be automatically taken up.

3,737,114 ROLL CHANGING DEVICE FOR A STRIP ACCUMULATOR

Robert Alfred Somerhalder, Pittsburgh, Pa., assignor to Wean United, Inc., Pittsburgh, Pa.
Filed Nov. 11, 1971, Ser. No. 197,778
Int. Cl. B21c 47/24; B65h 19/30
U.S. Cl. 242—79



The disclosure of this invention relates to a device for removing and replacing the rolls of a rotary strip accumulator. The device comprises a roll supporting arm cantileverly mounted to a frame which arm is adapted to be positioned to protrude into the center of the accumulator and be adjusted both radially and angularly so that a roll to be replaced can be attached to the arm and removed by moving the frame away from the accumulator.

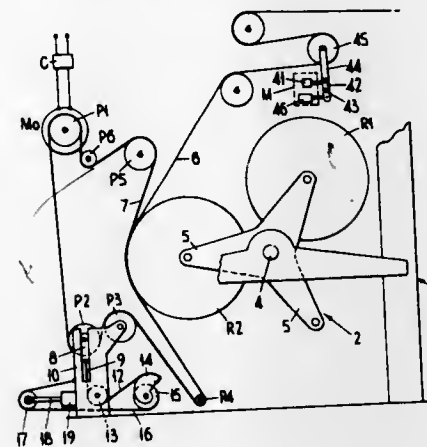
3,737,115 WEB-TRANSITIONING APPARATUS

Noel John Baker, London, England, assignor to Wilton-James Limited, Wembley, England
Filed May 10, 1971, Ser. No. 143,696
Claims priority, application Great Britain, May 8, 1970, 22,299/70

Int. Cl. B65h 23/08
U.S. Cl. 242—75.1

Apparatus for automatically tensioning a web of material being drawn from a reel, utilizing a belt engaging the side of

the reel, the belt being in the form of a continuous loop contacting the reel surface and being driven in use of the apparatus to reduce the relative speed between the contacting surfaces of the belt and reel which might result in damage to the reel material, the belt being associated also with compen-



sating means for maintaining a substantially constant tension throughout the life of the reel despite the gradual reduction in reel diameter.

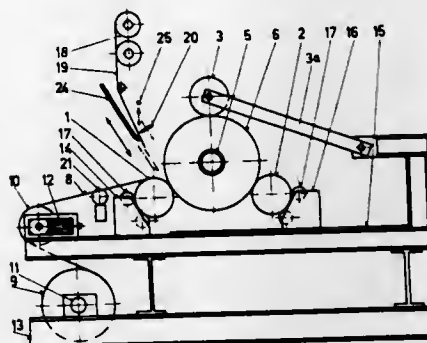
3,737,116 MACHINE FOR WINDING HIGH-VOLTAGE ELECTRICAL BUSHINGS

Guido Rossi, Unterengstringen, and Markus Keiser, Reitnau, both of Switzerland, assignors to Micafil A.G., Zurich, Switzerland
Filed Sept. 2, 1971, Ser. No. 177,371

Claims priority, application Germany, Sept. 7, 1970, P 20 44 263.1

Int. Cl. B65h 39/16
U.S. Cl. 242—56.1

10 Claims



A machine for manufacturing high-voltage electrical bushings of the condenser type comprises a system of rolls supporting a rotatably driven conductor tube which serves as the core on which a paper web pulled from a supply roll is wound to form the body of the bushing, the roll system being displaceable to accommodate the change in diameter of the bushing as it is progressively enlarged. Rolls of aluminum foil arranged in longitudinally spaced, overlapped relation supply edge-overlapped webs of selectable overall width which are inserted into the paper being wound, at the required different diameters within the bushing body, to form corresponding radially spaced cylindrical capacitive control shields. Rotary knives are also arranged to operate along each edge of the paper web to slit the web as it is drawn off the supply roll and these knives are shifted laterally of the web and independently of each other at a speed coordinated to the winding speed of the bushing body so as to develop a desired conical contour at each end of the completed bushing body when the excess edge material cut off by the knives is removed.

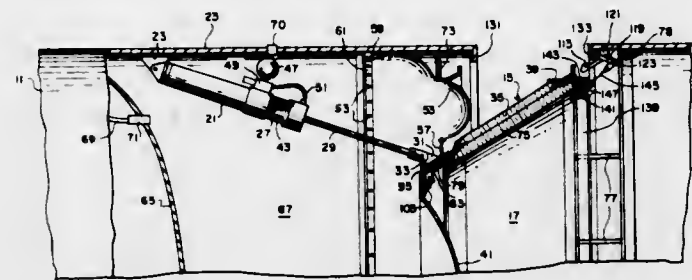
3,737,117 DOCKING STRUCTURE FOR SPACECRAFT

Robert R. Belew, Huntsville, Ala., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed July 6, 1971, Ser. No. 159,966
Int. Cl. B64g 1/00

U.S. Cl. 244—1 SD

10 Claims



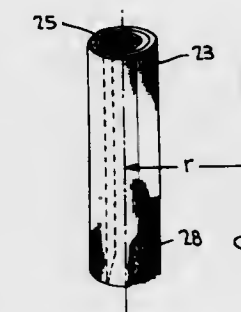
A docking structure for a pair of spacecraft comprising a conical receptacle on the docking end of a first spacecraft that receives a mating conical projection on the docking end of the second spacecraft. The conical receptacle of the first spacecraft constitutes an exterior portion of a sealed gas-tight compartment. Pressurization of the sealed compartment causes the conical receptacle to extend toward the incoming conical projection of the second spacecraft and when the mating conical portions are latched together, the docking energy is absorbed by the compressed gas in the sealed compartment. Rebound forces are countered by a plurality of actuator cylinders supporting the conical receptacle.

3,737,118 NUTATION DAMPER

Jack Evans, Baltimore, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Jan. 18, 1971, Ser. No. 107,376

Int. Cl. B64g 1/20
U.S. Cl. 244—1 SA

9 Claims



A nutation damper for use on a spinning body is disclosed wherein the damper is positioned parallel to the spin axis of the body and radially displaced therefrom. The damper is partially filled with a fluid and contains a porous media to impede the flow of the fluid induced by nutation.

3,737,119 DEVICE FOR SONIC BOOM REDUCTION AND IMPROVING AIRCRAFT PERFORMANCE

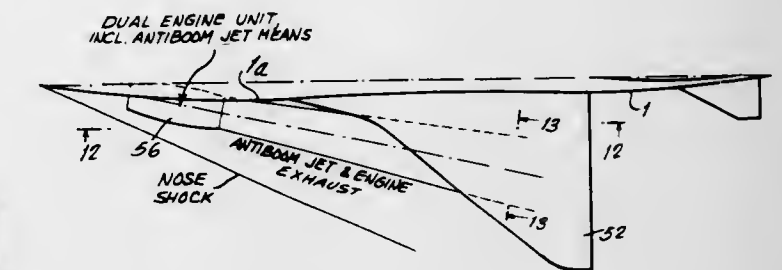
Sin-I Cheng, Princeton, N.J., assignor to Research Corporation, New York, N.Y.
Filed June 15, 1970, Ser. No. 46,293

Int. Cl. B64c 21/00

50 Claims

Method and means for improving the performance of, and particularly for reducing the sonic boom produced by a supersonic aircraft, comprising the production of a jet stream of ap-

proximately equal pressure but higher Mach number than the ambient supersonic flow, which stream is directed below the wing leading edge to intercept and interact with the wing shock wave. The interaction weakens the wing shock and decreases its propagation velocity, so that the wing shock, which normally reinforces the leading nose shock at the ground, will be shifted aftward spatially and in time in the boom signature, and will be delayed in its arrival with respect to the leading nose shock at any fixed position on the ground. By thus altering the signature, both the peak overpressure and the positive impulse of the boom may be substantially reduced without affecting the lift in support of the aircraft. Indeed,



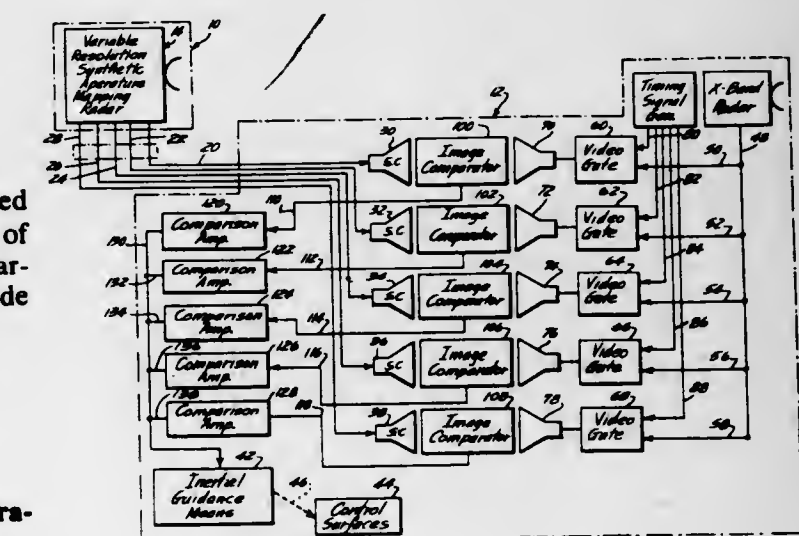
proper use of the stream will increase the lift on the aircraft, permitting some decrease in the angle of attack in maintaining level flight, which further weakens the wing shock to add to the altering of the boom signature. Also, the increase in lift, occurring largely on the aft part of the wing, results in reduction in drag, aftward shift of the center of pressure, and increase in the aerodynamic efficiency factor or lift-to-drag ratio, so that the jet stream can be used to improve various aspects of aircraft performance. Supersonic aircraft equipped with the anti-boom means, and a particular feasible means for producing the anti-boom jet using existing technology are described, along with particular alternatives for the manner of incorporating the means on existing supersonic transports.

3,737,120 RADAR MAP COMPARISON GUIDANCE SYSTEM

Elberson D. Green, Santa Ana, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Dec. 7, 1967, Ser. No. 690,707
Int. Cl. F42b 15/02; G01s 9/02
U.S. Cl. 244—3.17

6 Claims



A map matching vehicle guidance system wherein a launching vehicle having variable resolution, synthetic aperture mapping radar makes a series of maps of graduated

resolution all from a substantial distance from the target, deposits the maps in the launched or guided vehicle which carries conventional, non-processing mapping radar, and wherein the guided vehicle carries map comparing means for sequentially comparing the graduated resolution maps with instantaneous maps from its own radar to provide error signals to correct an otherwise inertial guidance system in directing the guided vehicle to its target.

3,737,121

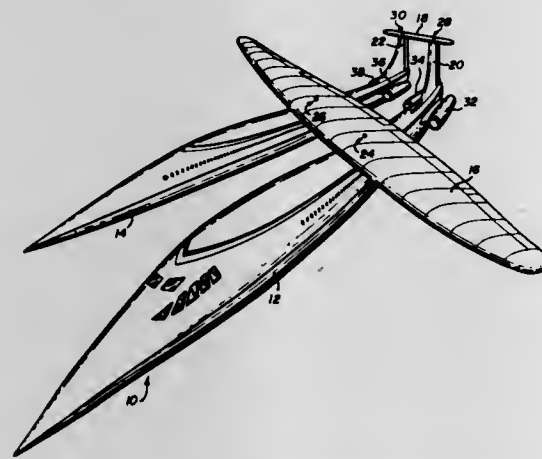
DUAL-FUSELAGE AIRCRAFT HAVING YAWABLE WING AND HORIZONTAL STABILIZER

Robert T. Jones, Los Altos Hills, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Dec. 9, 1971, Ser. No. 206,279
Int. Cl. B64c 1/02, 3/38

U.S. Cl. 244-13

16 Claims



An aircraft including a pair of fuselages disposed in parallel and coupled together by a main wing and a horizontal stabilizer which are pivotally attached to the fuselages. The pivotal attachment allows the airfoils to be yawed relative to the fuselages for high speed flight while at the same time spreading the weight and volume distribution of the aircraft along the direction of flight. The main wing is upwardly curved at the ends to compensate for any roll tendency caused by its yawed positioning.

3,737,122

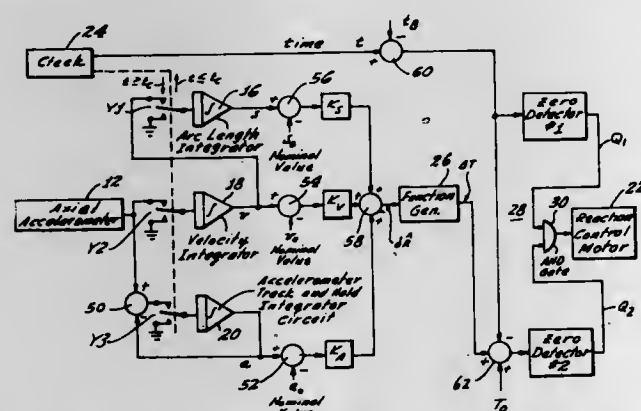
TACTICAL MISSILE RANGE CONTROL SYSTEM

Edwin G. Solov, and Bernard F. Papa, both of Wayne, N.J., assignors to Singer-General Precision, Inc., Little Falls, N.J.

Filed May 7, 1971, Ser. No. 141,318
Int. Cl. F41g 7/00; F42b 15/02

U.S. Cl. 244-3.21

6 Claims



A range control system is provided for a missile or projectile which utilizing its inflight prediction of the impact range error, provides means for correcting for this error. The system is carried in the vehicle, and it includes a comparator system which compares outputs from a vehicle-mounted accelerometer system with predetermined values. Any differences are fed to

a function generator which produces a control signal. The control signal from the function generator operates a reaction control motor which, in turn, compensates for any variations of the vehicle from its course; so that the predetermined range of the vehicle is maintained.

3,737,123

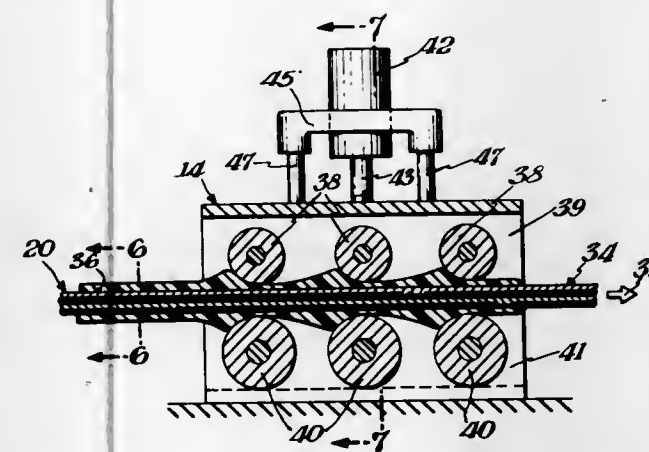
ENERGY ABSORBER FOR AIRCRAFT ARRESTING DEVICE

Umberto A. Carnevale, New Castle, Del., assignor to All American Industries, Inc., Wilmington, Del.

Filed Sept. 16, 1971, Ser. No. 181,026
Int. Cl. B64f 1/02

U.S. Cl. 244-110 A

10 Claims



The energy absorption for an aircraft arresting device is accomplished by perpendicularly deforming a strong, thick and wear-resistant elastomeric coating on the linear payout element. This deformation is accomplished by pressing antifriction elements, such as rollers, into the elastomeric coating, which restores to its original shape upon release from the pressure. The core of the payout element is strong rope or woven nylon tape and it is stored and payed out from a low inertia system, such as a faking box or circular track storage device. A tension control system controls the amount of deforming pressure to maintain the arresting force substantially constant throughout an arrestment or in any other desirable program.

3,737,124

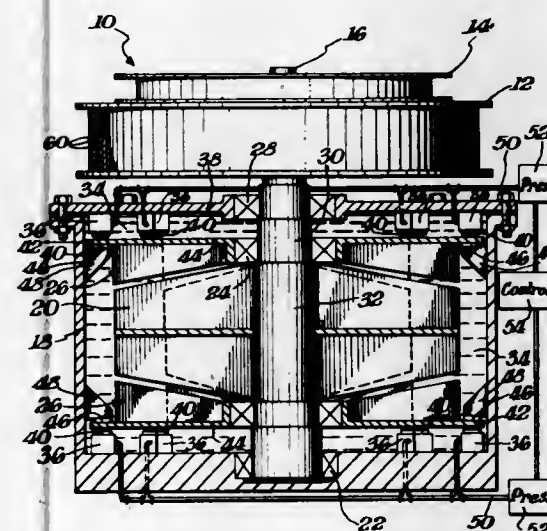
VARIABLE ENERGY ABSORBER FOR AIRCRAFT ARRESTING SYSTEM

William R. Schlegel, Colonial Woods, Del., assignor to All American Industries, Inc., Wilmington, Del.

Filed Mar. 16, 1972, Ser. No. 235,349
Int. Cl. B64f 1/02

U.S. Cl. 244-110 A

10 Claims



The vaned flow reactor elements of an energy absorber for an aircraft arresting system are rotatably mounted coaxially

on both sides of the vaned rotor to allow relative slippage in response to the flow reaction between them as the rotor is rotated by the input drive. The input drive is applied through a nylon tape or any other suitable payout element. Brakes within the casing retard the flow reactors and control their slippage to vary the force of the flow reaction between the flow reactors and rotor and thus vary the energy absorbed from the input drive. The more the reactor is retarded, the greater is the reaction force on the rotor and energy absorbed thereby. The brakes within the casing are disposed in heat exchange relation with the fluid to cool them and also to simplify the structure of the device.

3,737,125

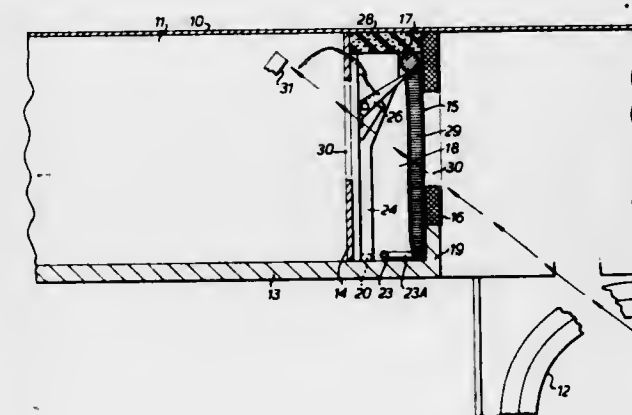
FUEL CONTAINMENT

Rodney Clifford Farmer, Bristol, England, assignor to British Aircraft Corporation Limited, London, England

Filed Nov. 5, 1970, Ser. No. 87,279
Int. Cl. B64d 37/32

U.S. Cl. 244-135 B

14 Claims



An aircraft having an internal liquid fuel tank mounted in a wing thereof, with a wall of the tank facing a jet engine mounted on the wing, is provided with means for containing fuel leaking through a puncture in that wall of the tank caused by a broken compressor blade or other part flung out of the rotary portion of the engine. A containment chamber is formed by an outer wall spaced from the vulnerable wall of the tank, and an inflatable bag is mounted in the chamber in a deflated condition for storage. The deflated bag is rolled around a drum and its outer edge is permanently secured along the lower edge of the outer wall. A leak detector in the chamber senses a fuel leak and responds thereto by automatically triggering a control valve to release pressurized gas into the gas bag to inflate it.

As the bag inflates, the drum is rolled across the inner face of the outer wall and is retained by locking means so that the erected bag extends across and overlies any puncture in the area of the outer wall covered by the bag, such as may have been caused by a flying blade.

3,737,126

EJECTION SEAT ESCAPE SYSTEM

James Martin, Southland Manor, Southland Road, Uxbridge, England

Filed Mar. 23, 1971, Ser. No. 127,125

Claims priority, application Great Britain, Apr. 15, 1970, 18,039/70

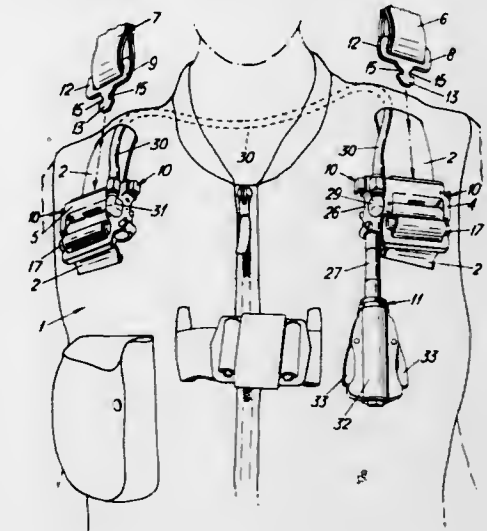
Int. Cl. B64d 17/30

U.S. Cl. 244-151 B

1 Claim

The invention concerns release mechanisms and parachute harnesses having such mechanisms, the purpose of the inven-

tion being to permit donning of a harness by a person before entering an aircraft or like vehicle and to permit release of the parachute therefrom rapidly in certain emergency conditions, the mechanism comprising a release mechanism comprising a first coupling part; a second coupling part; clamping means adapted to receive and releasably retain said second coupling



3,737,127

GUTTER BRACKET

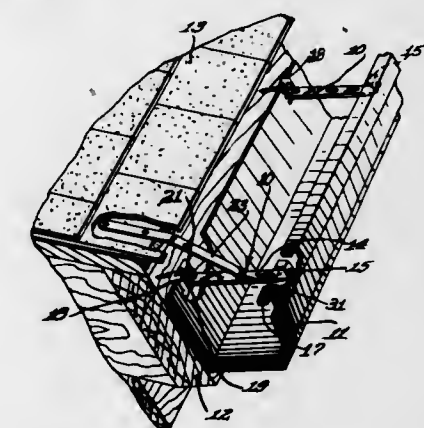
John E. Maloney, Jr., Addison, and Richard F. Zaccagni, Lombard, both of Ill., assignors to ZMC, Inc., Addison, Ill.

Filed Oct. 15, 1970, Ser. No. 80,928

Int. Cl. E04d 13/06

U.S. Cl. 248-48.2

11 Claims



A gutter hanger bracket comprising a bracket body which engages with the opposite sides of an eaves trough, and has a strap quickly manually connectable therewith by means of a T-head on the strap fitting in an eye slot with which it is assembled and locked by a simple inserting and turning motion. Special reinforcement enhances use of low cost non-rusting metal such as aluminum. Installation is assisted by an efficient trough-gripping structure.

3,737,128

CABLE SUPPORT CLIP

Jerome T. Schuplin, Parma Heights, Ohio, assignor to Fastway Fasteners Inc., Lorain, Ohio

Filed Oct. 20, 1971, Ser. No. 190,726

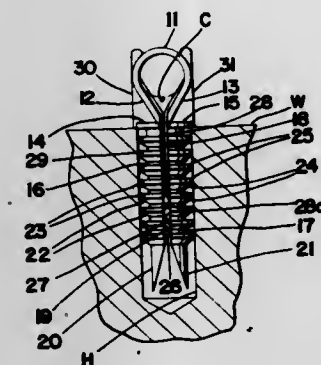
Int. Cl. F16b 15/02

U.S. Cl. 248-71

10 Claims

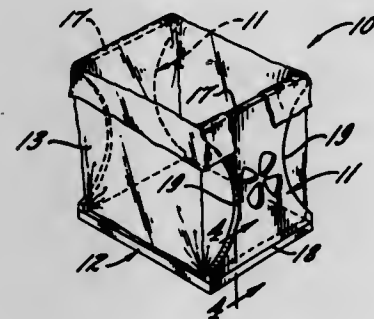
A cable support clip is provided, which is especially adapted for securement in a blind hole in concrete, wood or other solid

material. It is provided with flexible fins or like means which facilitate entry of the shank portions of the clip in the hole, and resist removal of the clip from the hole; has novel means for interlocking the shank portions together to prevent axial



movement thereof relatively to each other, and is provided with means for avoiding distortion of or damage to the head of the clip or to the cable during insertion of the clip in the blind hole.

3,737,129
STAND FOR SUPPORTING BAGS AND THE LIKE
John A. Foster, Rockford, Ill., assignor to J. L. Clark Manufacturing Co., Rockford, Ill.
Filed Dec. 10, 1971, Ser. No. 206,751
Int. Cl. B65b 67/00
U.S. Cl. 248-97 9 Claims

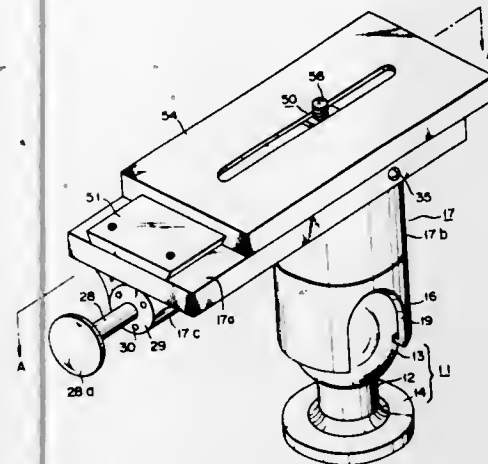


A U-shaped stand for supporting a flexible garbage bag and having side panels formed with keys which releasably interlock with keyways in a base to hold the stand rigidly assembled while permitting easy disassembly of the stand.

3,737,130
HYDRAULICALLY OPERATED TRIPOD HEAD
Yukinobu Shiraishi, Tokyo, Japan, assignor to Slick Tripod Co., Ltd., Saitama-ken, Japan
Filed Oct. 7, 1970, Ser. No. 78,895
Claims priority, application Japan, June 25, 1970, 45/73958; June 25, 1970, 45/73959
Int. Cl. F16m 11/04
U.S. Cl. 248-181 7 Claims

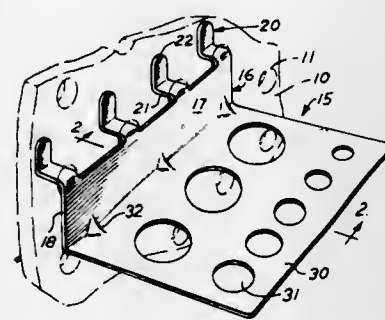
A tripod head comprises a head body and a hydraulic mechanism with a plurality of interconnected cylinders which

normally fixes the head body to the support and, when operated, permits the same to be turned to any desired position with respect to the support. The tripod head is further



provided on the head body with a fixing attachment for mounting a camera or the like in any desired lengthwise position on the head body.

3,737,131
ARTICLE SUPPORT CONSTRUCTION
Charles O. Larson, Sterling, Ill., assignor to Chas. O. Larson Co., Sterling, Ill.
Filed June 6, 1968, Ser. No. 735,069
Int. Cl. A47g 23/02
U.S. Cl. 248-223 3 Claims

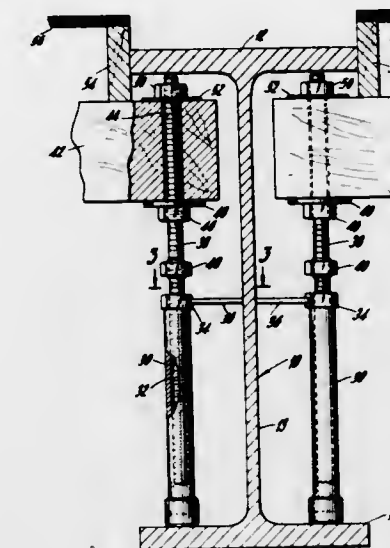


The article support construction is for use on a pegboard and comprises a base, a plurality of mounting prongs on the upper edge of the base each including a rearwardly-extending first finger and an upwardly-extending second finger on the rear end of the first finger and disposed normal thereto, a plate integral with the lower edge of the base and directed normal to the base and having an opening therein, the first and second fingers co-operating to mount the plate on the pegboard, whereby the opening can receive the shank of a headed tool with the head thereof being supported on the plate.

3,737,132
ADJUSTABLE SLAB FORM SUPPORT FOR BRIDGE DECKING OR THE LIKE
Irving Roth, Elmont, N.Y., assignor to Slattery Associates, Inc., Maspeth, N.Y.
Filed Nov. 10, 1971, Ser. No. 199,072
Int. Cl. E04g 17/18
U.S. Cl. 248-228 5 Claims

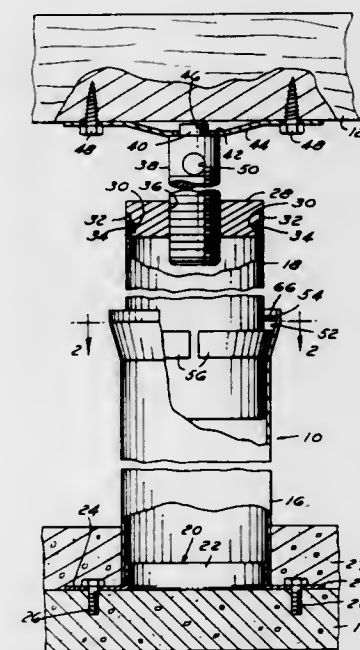
A tubular member having an internal thread is mounted on the lower flange of an I-beam. The lower end of a threaded rod

is positioned within the tubular member while the upper end of the threaded rod passes through a joist and is secured thereto for supporting the forms in which concrete is to be



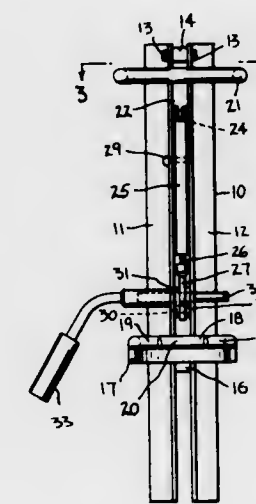
nessed to his back. The breathing apparatus can be restored to the holder by reversing the removal procedure and moving the upper clamping member back into locking engagement with the upper part of the breathing apparatus. Adjustable features are provided for varying the spacing between the upper and lower members, changing the position of the upper member at its limits of pivotal movement and maintaining a spring-loaded clamping force on the upper member.

3,737,134
TELESCOPING SUPPORT COLUMN
Alvin N. Foon, Southfield, Mich., assignor to AFCO Manufacturing Corp., Holly, Mich.
Filed June 18, 1971, Ser. No. 154,282
Int. Cl. E04g 25/04
U.S. Cl. 248-354 R 2 Claims



poured. An adjusting nut and a lock nut are mounted on the threaded rod so that the height of the joist may be varied with respect to the flanges of the I-beam.

3,737,133
QUICK-RELEASE ARTICLE HOLDER
Allan J. Boecker, Orange, Calif., assignor to Akron Brass Company, Wooster, Ohio
Filed Nov. 16, 1970, Ser. No. 89,855
Int. Cl. A62c 39/00
U.S. Cl. 248-313 9 Claims



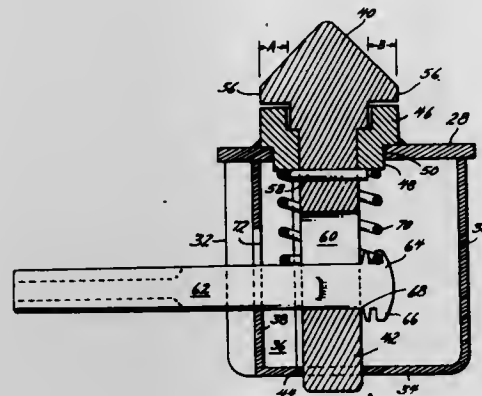
A support column having an upper inner sleeve and a lower outer sleeve arranged in telescopic fashion for vertically supporting a floor support beam from a footing spaced therebelow. A plurality of arcuate wedges are circumferentially arranged between an upwardly flared-out portion of the outer sleeve and the outer surface of the inner sleeve. The initially collapsed column is extended between the footing and the beam so that a beam support member on the upper end of the inner sleeve engages the beam, and a floor support member on the lower end of the outer sleeve engages the footing. With the column so arranged, a vertical adjustment screw is actuated to produce a telescopic retraction force on the two sleeves which causes the wedges to become wedged between the two sleeves with serrated edges on the inner surfaces of the wedges biting into the inner sleeve to transfer the axial load from the inner sleeve to the outer sleeve and thereby support the beam. The screw may then be further adjusted to level the beam as required.

A quick-release article holder adapted for mounting on a vertical surface and having a bifurcated lower support member and a spaced upper clamping member which is pivotally mounted for rotative movement into or out of engagement with the upper portion of the article to be held. The holder is particularly adapted for use in retaining cylindrical breathing apparatus which is mounted on the wall of a fire station or on a panel of a mobile fire apparatus and serves to retain and support the breathing apparatus when it is not in use or while it is being harnessed to the back of the user. A lever-operated linkage serves to pivot the upper retaining member out of clamping engagement with the apparatus so that the entire breathing apparatus can be moved horizontally away from the holder by the action of the user walking away from the holder after the breathing apparatus has been har-

3,737,135
LOCKING DEVICE
William A. Bertolini, Kinnelon, N.J., assignor to Bertolini Engineering Co., Inc., Kinnelon, N.J.
Filed Sept. 20, 1971, Ser. No. 181,921
Int. Cl. B65j 1/22
U.S. Cl. 248-361 R 9 Claims

A 90° rotatable lock member is disclosed for releasably locking a container to the bolster of a chassis. The lock

member shank has upper and lower bearing supports and is provided with an offset captive, but removable, handle. The



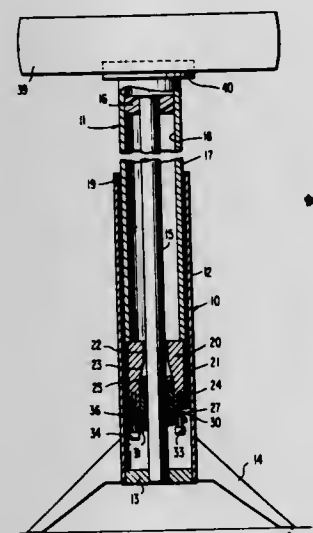
handle has open and closed positions and is spring-biased into niches defining each of said positions for the handle.

3,737,136 ADJUSTABLE HEIGHT SUPPORT

Gordon R. Snurr, 520 W. 6th Street, Waynesboro, Pa.
Filed Mar. 29, 1972, Ser. No. 239,035
Int. Cl. E04g 25/08

U.S. Cl. 248-412

11 Claims



An adjustable height support for furniture and the like features a ball wedge positive lock between the two relatively linearly movable units of the support structure. A retarder or drag device between the relatively movable units is activated in the locking engagement preliminary to the positive engagement of the ball wedge lock. Height adjustment is infinite so as to increments of adjustment and locking is substantially instantaneous.

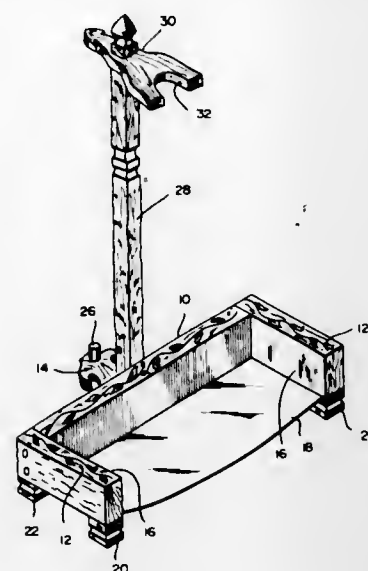
3,737,137 STAND FOR SUPPORTING GUITAR

Elizabeth R. Sheehan, Saint Petersburg, Fla., assignor to The Raymond Lee Organization, Inc., New York, N.Y.
Filed July 28, 1971, Ser. No. 166,700
Int. Cl. A47b 97/04

U.S. Cl. 248-441

A stand for detachably supporting an acoustic guitar in not quite vertical position comprising a base having an opening

with a sling therein and an upwardly and inclinedly extending bar connected by means at its bottom end to the periphery of



the base, the top end having a bifurcated member extending forwardly over the base at right angles to the bar.

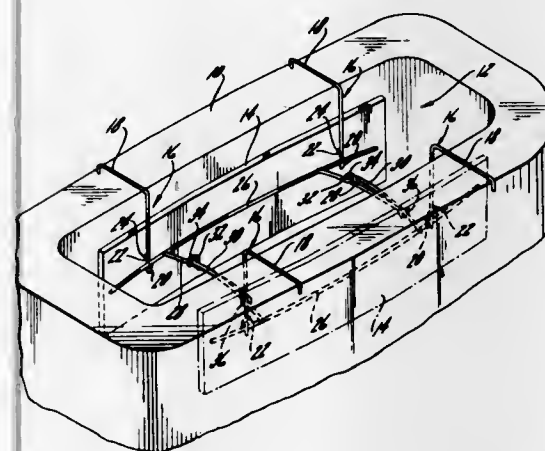
3,737,138 APPARATUS FOR LOCKING HOT TOPS

Daniel P. Grogan, Cleveland, Ohio, assignor to Fosco International Limited, Birmingham, England

Filed Sept. 13, 1971, Ser. No. 179,693
Int. Cl. B22d 7/10

U.S. Cl. 249-197

7 Claims



A hot top for a generally rectangular ingot mold comprising at least a pair of side boards, hanger clips for suspending the side boards adjacent the upper portion of opposite sides of the ingot mold, and locking means adapted to forcibly hold the side boards to the sides of the mold. The locking means include generally horizontal elongated members having generally perpendicularly disposed locking arms attached thereto, and adapted to interlock with one another in a manner which applies forces that hold the side boards firmly to the sides of the mold.

3,737,139 ANNULAR BLOWOUT PREVENTER

John D. Watts, Houston, Tex., assignor to Hydril Company, Houston, Tex.

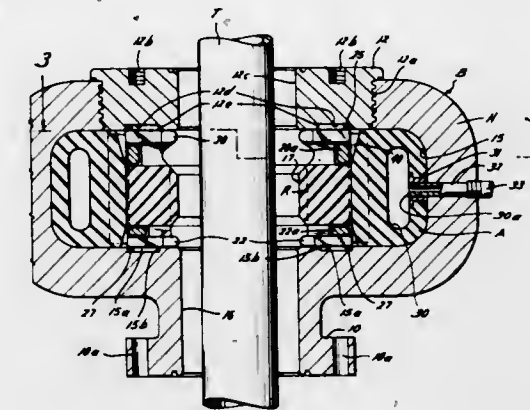
Filed June 28, 1971, Ser. No. 157,466
Int. Cl. E21b 33/06; F16k 7/07

U.S. Cl. 251-1

3 Claims

An annular blowout preventer having a resilient sealing ring with an inner bore through which well tools and the like may pass when the sealing ring is in the open position and which is compressible to smaller diameters for packing off around a

drill string or the like, or even to fully close the bore, wherein the sealing ring is molded or is otherwise connected with confining upper and lower wedge members, and is actuated by an



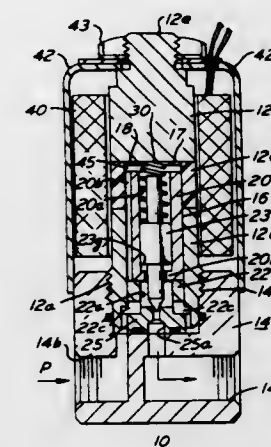
3,737,141 NORMALLY CLOSED SOLENOID OPERATED VALVE

Kenneth W. Zeuner, Newtown, Pa., assignor to Control Concepts Inc., Richboro, Pa.

Filed Apr. 13, 1972, Ser. No. 243,633
Int. Cl. F16k 31/06

U.S. Cl. 251-129

9 Claims



inflatable bag preferably having rigid confining strips which bridge the longitudinal distance from the upper to the lower wedges, whereby the sealing ring is substantially fully confined except at the sealing area of its inner bore.

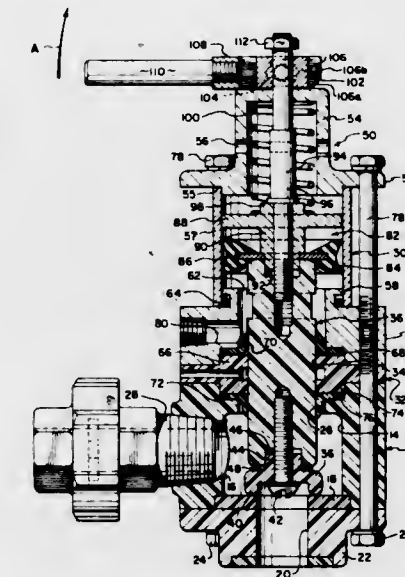
3,737,140 DUAL CONTROLLED VALVE ASSEMBLY

Alex Toth, Lincolnwood, Ill., assignor to Ellis Corporation, Chicago, Ill.

Filed Sept. 7, 1971, Ser. No. 177,962
Int. Cl. F16k 31/143

U.S. Cl. 251-14

7 Claims



A dual controlled valve assembly comprising a body defining a valve chamber having a valve seat therein. An actuating chamber is provided adjacent the valve chamber, and detachable wall means defining port means therein separates the valve body and the actuating chamber. The valve member is carried in said chamber movable to open and close against the valve seat, and an elongated valve stem supporting the valve extends through the port means into the actuating chamber. Piston means is connected to the stem and mounted for movement in the actuating chamber between opposite ends for opening and closing the valve. Inlet means is provided for introducing pressurized fluid into at least one end of said actuating chamber for acting on the piston to move the stem in one direction. Biasing means urges the stem in an opposite direction, and manual operator means externally of the actuating chamber is provided for axially moving the stem against the force of the biasing means thereon between a first stable position exerting no force in opposition to said biasing means and a second stable position opposing said biasing means to maintain the valve member in a fixed position in relation to the valve seat.

A normally closed solenoid operated poppet valve having an armature with a section which engages and pulls the poppet out of an orifice to control fluid flow. A pole piece surface forms a first air gap with the armature and a second air gap with the poppet when the valve is in its normally closed state. The second air gap is substantially greater in magnitude than the first air gap. Upon application of electromagnetic flux lines there is an attractive force between the armature and the pole piece attracting the armature and pulling the poppet to a partially open position. Thereafter, the attractive force between the poppet and pole piece attracts the poppet away from the orifice to the valve open state.

3,737,142 ROTARY VALVE OPERATOR

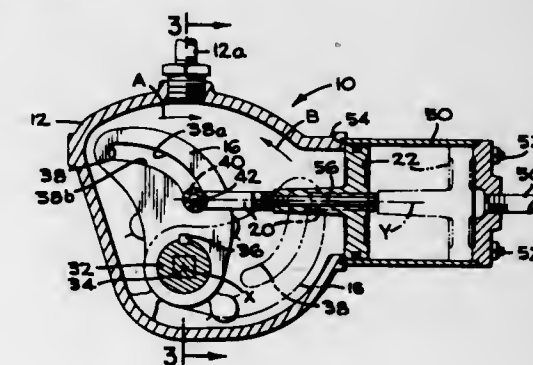
Howard G. Boswell, 2317 Persa, Houston, Tex., and Charles C. Partridge, 7937 Turquoise, Houston, Tex.

Continuation-in-part of Ser. No. 835,603, June 23, 1969, abandoned. This application July 8, 1971, Ser. No. 160,696
Claims priority, application Germany, Jan. 20, 1971, P 21 02 441.9

Int. Cl. F16k 31/16

U.S. Cl. 251-58

13 Claims



An operator for opening and closing a butterfly or other rotary valve. The operator is powered by a fluid cylinder with a reciprocating piston that is connected to a lever secured to the valve's stem, which lever converts the piston's rectilinear movement into rotary motion to rotate the valve's flow control element between its open and closed positions. The lever has an arcuate slot in the configuration of an involute curve in order that the piston's force always is applied at a right angle to the slot's surfaces, thereby precluding side loads and other undesired lateral forces on the piston, lever, and valve stem

from arising. The operator includes a housing in which the remaining components are enclosed, and which serves as a means for mounting the operator on the body of a valve, a bearing for the lever's shaft, a guide for a pin and clevis interconnecting the piston and the lever, a mount for the power cylinder, and a pressure vessel forming one end of the cylinder. The operator is structured so that cylinders of various sizes can be quickly and interchangeably connected to it, thereby facilitating use of one size of operator with a wide range of line pressure and valve sizes.

3,737,143

PNEUMATICALLY OPERATED TIMER

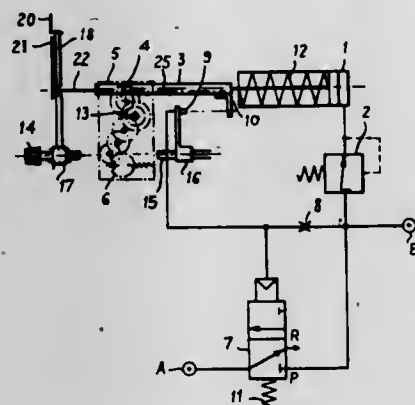
Karl Hodler, Buttikon A.G., Switzerland, assignor to H. Kuhnke Elektrotechnik GmbH, Brunshalde, Switzerland
Filed Jan. 17, 1972, Ser. No. 218,263

Claims priority, application Germany, Jan. 20, 1971, P 2102 441.9

Int. Cl. F16k 31/12

U.S. Cl. 251-28

10 Claims



A timer for use in delaying the actuation of a pneumatically operated valve in which a pneumatic signal first causes a rack to be moved and teeth on the rack to drive a rotatable speed governor, whereby the speed of movement of the rack, which carries a valve operating member, is controlled to control the time taken for the member to reach a position in which the valve is operated to transmit the signal. Means is provided for restoring the rack to an initial position upon cessation of the pneumatic signal.

3,737,144

BUTTERFLY VALVE

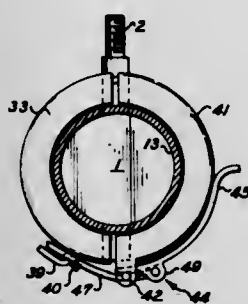
Leon L. Duncan, Washington, Mo., assignor to Zero Manufacturing Company, Washington, Mo.
Filed Feb. 9, 1972, Ser. No. 224,770

Int. Cl. F16k 1/22

U.S. Cl. 251-307

9 Claims

U.S. Cl. 254-108



A butterfly valve has a turntable disc within a resilient, tubular seat member, the latter forming part of a conduit. The entire unit can be quickly disassembled for cleaning by detaching a segmented clamp which normally connects the tubular member with circular couplers at each side of the seat member. The couplers have grooves to receive raised ribs on

each side of the tubular seat so that a tight seal can be formed. The clamp compresses the resilient tubular seat to insure a seal for the disc when the latter is turned to close the valve.

3,737,145

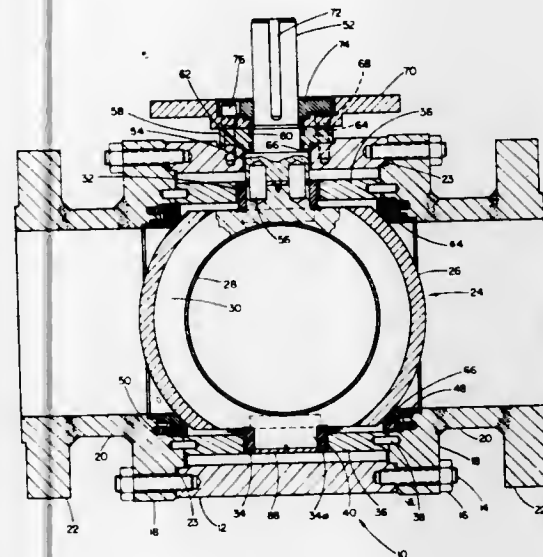
FABRICATED VALVE BALL

Kenneth G. Heller, Redwood City; Harold T. Ray, Oakland, and Douglas A. Martens, Concord, all of Calif., assignors to Walworth Company, Bala Cynwyd, Pa.
Filed Aug. 2, 1971, Ser. No. 168,079

Int. Cl. F16k 5/02

U.S. Cl. 251-309

4 Claims



A fabricated valve ball comprising a pair of hemispherical shell members and an inner, rigid annular reinforcing beam, with the circular edges of the shell members disposed around it and spaced axially from each other. A thick weldment deposited around the reinforcing beam unifies it with the circular edges. The shell members are truncated at diametrically opposite sides by annular cuts extending axially into the beam, whereby diametrically opposed portions thereof protrude as trunnion cores. Cylindrical caps are welded to the trunnion cores to function as trunnions which are integral with the annular beam.

3,737,146

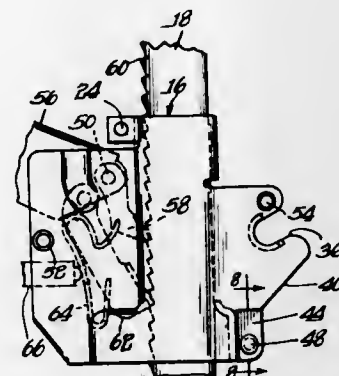
JACK AND METHOD OF MAKING THE SAME

Robert H. Potter, Benton Harbor, and Bernard F. Ladewski, St. Joseph, both of Mich., assignors to Auto Specialties Manufacturing Company, St. Joseph, Mich.
Filed Feb. 4, 1971, Ser. No. 112,554

Int. Cl. B66f 1/04

U.S. Cl. 259-146

4 Claims



A vehicle jack has a housing with opposed walls and pins extending between the walls and with one of the pins supporting a jack handle socket and a lifting pawl. The housing is in two

halves and is assembled by inserting the pins through one housing half, then deforming the material around each pin hole to hold the pins rigidly in place, then assembling the jack operating mechanism and related parts with the housing half, and then assembling the other housing half with the pins and upsetting the ends of the pins at said other housing half. The method is applicable as well to other assemblies wherein cross pins are used to hold opposed members together.

3,737,147

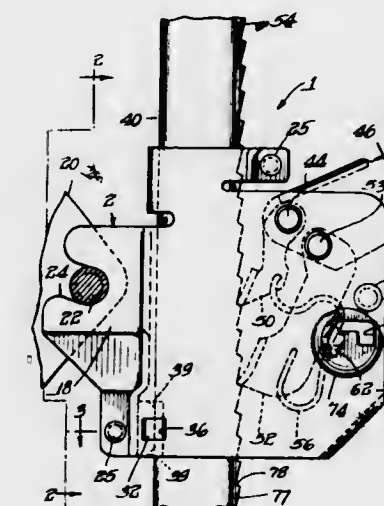
VEHICLE JACK

George H. Morgan, South Bend, Ind., and R. Harlan Nehrig, Stevensville, Mich., assignors to Auto Specialties Manufacturing Company, St. Joseph, Mich.
Filed Feb. 4, 1971, Ser. No. 112,555

Int. Cl. B66f 1/04

U.S. Cl. 254-108

12 Claims



A vehicle jack has a housing slidable on a tubular column. A plastic guide in the housing is retained therein by tabs that project through the housing sides forming a bearing that slides on the column. The housing has a pawl mechanism, the operation of which is determined by the operative condition of the pawl spring so that the housing may be selectively raised or lowered on the column. A direction-setting lever, which determines the operative condition of the pawl spring, is pivoted to the housing and has a concave seat that substantially prevents lateral movement of the spring during the operation of the pawl mechanism and also is of such size as to cause the lever to roll under the spring action and thereby prevent localized stress on the spring.

3,737,148

METHOD OF AND MIXER BLOCK FOR FEEDING A STREAM OF VISCOUS MATERIAL

Henry A. Phillips, 1340 New Brunswick Avenue, Piscataway, and Reynold E. Minnich, 1309 Washington Valley Road, Martinsville, both of N.J.
Filed Nov. 3, 1971, Ser. No. 195,213

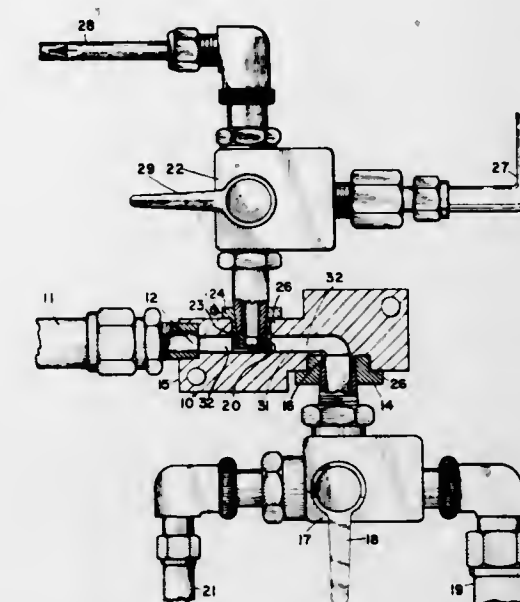
Int. Cl. B01f 15/02

U.S. Cl. 259-4

9 Claims

A method of and mixer block for feeding a stream of viscous material into a mixer employing not rotating parts is disclosed. The mixer block has a cavity therein terminating in an outlet which feeds the mixer. A first inlet is provided into the cavity at a point displaced from the outlet end for introduction

of a first viscous material while a second inlet is provided between the first inlet and the outlet to introduce the second



viscous material into the interior of the flow of the first viscous material thereby presenting a coaxial stream of viscous material to the said mixer.

3,737,149

METHOD AND APPARATUS FOR MIXING BITUMINOUS MIXTURES

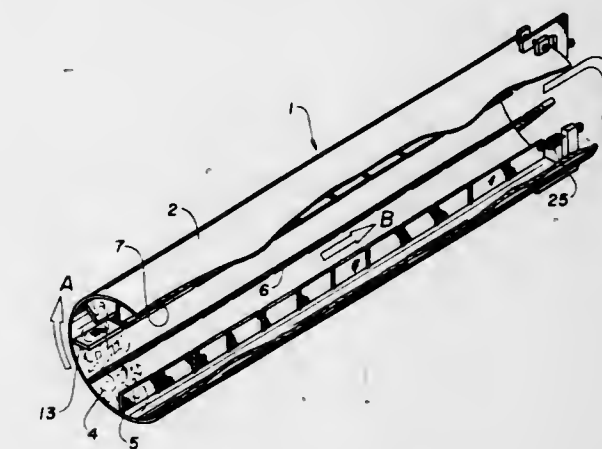
Emile Muntzer, and Paul Muntzer, both of Strasbourg, France, assignors to WIBAU, Westdeutsche Industrie- und Strassenbau-Maschinen-Gesellschaft m.b.H., Wibastrasse, Germany
Filed Nov. 23, 1971, Ser. No. 201,494

Claims priority, application France, Dec. 2, 1970, 7043989

Int. Cl. B01f 9/04

U.S. Cl. 259-146

19 Claims



Granular mineral components and bituminous binder components are mixed in a rotating drum by means of longitudinally extending chains which rotate along with the drum and which repeatedly lift the materials to be mixed and drop these materials again downstream of the preceding lifting point and which chains on their returning leg in each revolution provide a self cleaning action by contacting the inner surface of the drum. The apparatus for performing this method comprises a plurality of chains extending longitudinally within the drum and connected thereto by means which permit an adjustment of the slack in the chains. Preferably, the links of the chains are plates which are hinged to each other and which are adjustable in their angular position relative to a radial plane of the drum.

3,737,150 SCREW EXTRUDER

Naoji Otake, No. 11-17, 7-chome, Shibamata, Katsushika-ku, Tokyo, Japan.

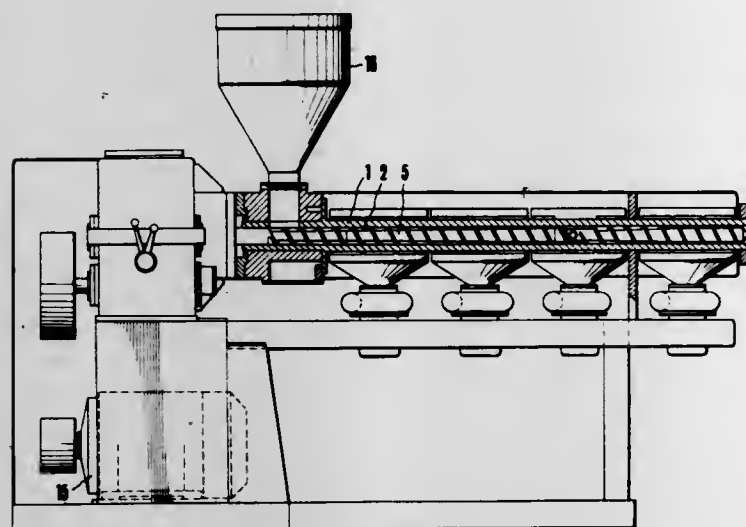
Filed Jan. 11, 1972, Ser. No. 216,932

Claims priority, application Japan, Feb. 4, 1971, 46/4005

Int. Cl. B01f 7/08

U.S. Cl. 259—191

4 Claims



In a screw extruder of the type including a cylinder and a rotary screw contained in the cylinder and adapted to extrude molten material, a notch is provided for the helical vane of the screw, a vent tube is provided to extend through the wall of the cylinder at a portion corresponding to the notch, the inner end of the vent tube is terminated closely adjacent to the peripheral surface of the shaft of the screw and a second notch is formed on the inner end of the vent tube in the direction of extrusion of the molten material.

3,737,151 INJECTION PRESS

Gerard Schaeffer, Ambilly, France; Jean Trub, GD-Lancy, GE; Jean Bouvet, Carouge, GE, and Andre Kohler, Delemont, all of Switzerland, assignors to Battelle Memorial Institute, Carouge/Genere, Switzerland

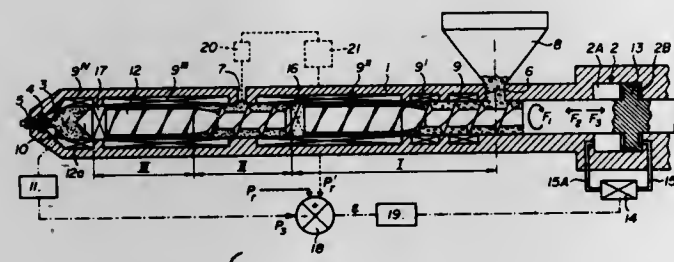
Filed Feb. 24, 1972, Ser. No. 228,970

Claims priority, application Switzerland, Mar. 5, 1971, 3208/71

Int. Cl. B01f 7/08

U.S. Cl. 259—191

3 Claims



In an injection press for thermoplastic material of the type having a heated cylinder containing a feed screw rotatably and axially movably mounted in the cylinder for mixing, pressurizing and feeding the thermoplastic material from a feed hopper to a mould at the opposite end of the feed screw, a restriction at the cylinder end adjacent the mould, the end of the feed screw adjacent the restriction having a shape complementary to the restricted end of the cylinder, the improvement com-

prising a back pressure adjusting device arranged between a first longitudinal zone of the feed screw for introduction and plasticization of the thermoplastic material and a second zone for degassing the thermoplastic material by means of a degassing opening, and a device for adjusting the axial movement of the feed screw during the plasticization and compression of the thermoplastic material as a function of the pressure in the cylinder zone between its restricted end and the end of the feed screw.

3,737,152 COOLING OF HOT FLUID DUCTS

John Dennis Wilson, Bristol, England, assignor to Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

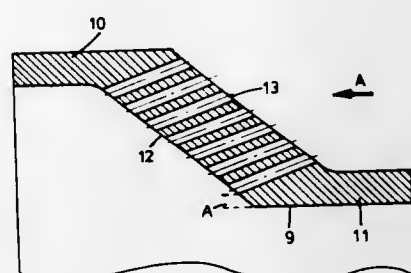
Filed Jan. 17, 1972, Ser. No. 218,286

Claims priority, application Great Britain, Jan. 25, 1971, 3,053/71

Int. Cl. F27d 9/00

U.S. Cl. 60—39.66

5 Claims



A cooling ring for a gas turbine engine flame tube connects upstream and downstream wall sections, and includes a conical intermediate portion drilled with a large number of holes having diameters of the order of 0.010 ins. to 0.020 ins. through which cooling air passes to produce a cooling film over the hot surface of the flame tube.

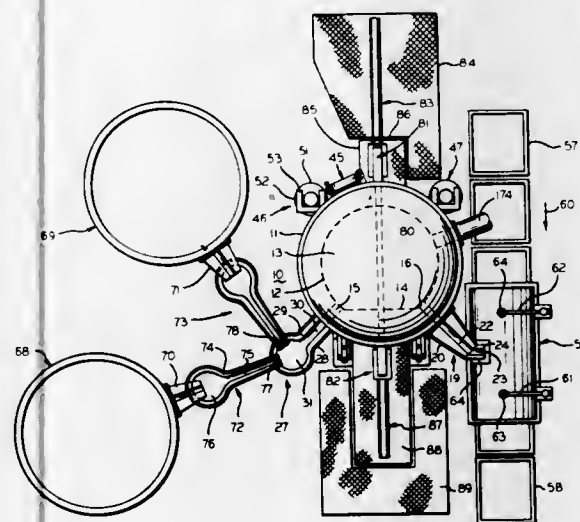
**3,737,153
MOLTEN METAL HOLDING FURNACE SYSTEM**
Theodore J. Steffora, Allison Park, and Eberhard G. Schempp, Pittsburgh, both of Pa., assignors to Lectromelt Corporation, Pittsburgh, Pa.

Filed Oct. 1, 1971, Ser. No. 185,663

Int. Cl. C21c 7/00

U.S. Cl. 266—39

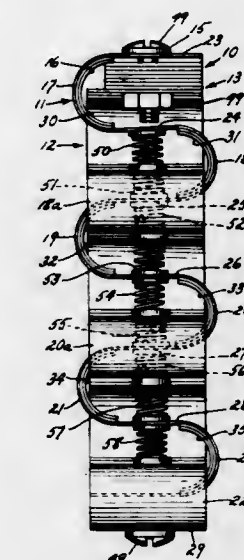
10 Claims



A furnace vessel comprises a vertically oriented refractory lined cylindrical metal shell and a cover. The interior bottom of the vessel is dished and there are circumferentially spaced orifices through the wall of the vessel at the edge of the dish. A furnace vessel comprises a vertically oriented refractory lined cylindrical metal shell and a cover. The interior bottom of the vessel is dished and there are circumferentially spaced orifices through the wall of the vessel at the edge of the dish.

channeled molten metal receiving spout connects with one of the orifices and a pouring spout connects with the other. A riser on the receiving spout permits pouring metal into the vessel even when it is tilted for discharging metal from the pouring spout. The tilting axis of the vessel is on a side thereof, and, if extrapolated, the axis will pass through the tip of the pouring spout in which case the tip will not ascend or descend appreciably when the vessel is tilted. The vessel is adapted for holding, reducing, alloying, degassing, vacuum treatment and introducing additives to molten metal during the interval between melting and utilization of the metal. The argon-oxygen stainless steel refining process can also be carried out in the vessel. Continuous casting machinery is also furnished with molten metal from the vessel. The temperature of the metal in the furnace is maintained by heat radiated from an electrically resistive graphite rod which extends across the interior of the furnace above the metal level.

differing from any of the components of said elongated elements. Said C-shaped segments are provided with additional



3,737,154

SHOCK ATTENUATING DEVICE

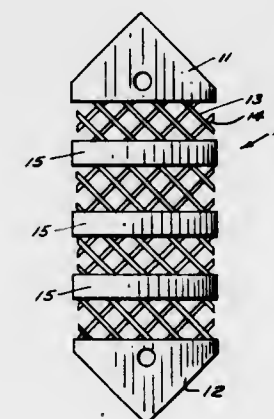
Kenneth W. Johnson, 4113 Lakeshore Drive, Route 1, Jamestown, Ohio

Filed July 12, 1971, Ser. No. 161,619

Int. Cl. F16f 1/40

U.S. Cl. 267—153

5 Claims



A shock attenuating device having an elastomeric member which is disposed within an opening formed between interconnected linkage members and is compressed by the linkage members upon relative movement therebetween. If desired, the device may also include friction damping means and/or viscous damping means.

3,737,155

COMBINATION VIBRATION ISOLATOR AND SHOCK ABSORBER

Jac H. Karlan, 5992 Netherland Avenue, Riverdale, N.Y.

Filed June 21, 1971, Ser. No. 154,747

Int. Cl. F16f 7/00

U.S. Cl. 267—136

9 Claims

A combination vibration isolator and shock absorber including a plurality of elongated resilient elements, each of said elements including a plurality of planar segments interconnected by a plurality of C-shaped segments, said plurality of resilient elements being coaxially mutually engaged to provide linear stiffness, each of said resilient elements having first and second aligned free ends, said ends being interconnected by end pieces, each of which have a natural vibrating frequency

structure to alter their natural vibration frequency, as compared with the planar segments.

3,737,156

V-TYPE TORSION BAR TILLAGE TINES

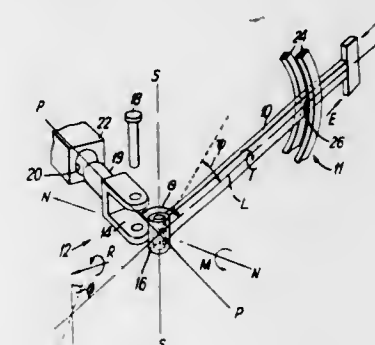
Walter H. Ward, Vereeniging, Transvaal, Republic of South Africa, assignor to South African Farm Implement Manufacturers Limited, Vereeniging, Transvaal, Republic of South Africa

Filed Oct. 8, 1971, Ser. No. 187,664

Int. Cl. F16f 1/16

U.S. Cl. 267—154

29 Claims



The invention provides a spring assembly and an energy absorbing linkage wherein end constraints on an elongated resilient member are effective to place the elongated member in torsion, such torsion permitting large deflections of the spring or linkage while maintaining a relatively low stress level in the resilient member. The spring assembly can be conveniently made in the form of an energy linkage unit, such a unit being suitable for building planar or lattice spring structure, or for use in an installation as a means of alternatively storing and releasing energy.

3,737,157

CLAMPING DEVICE

Josef Kiwalle, Peoria, Ill., assignor to Production Technology Inc., Peoria, Ill.

Filed Apr. 21, 1971, Ser. No. 136,129

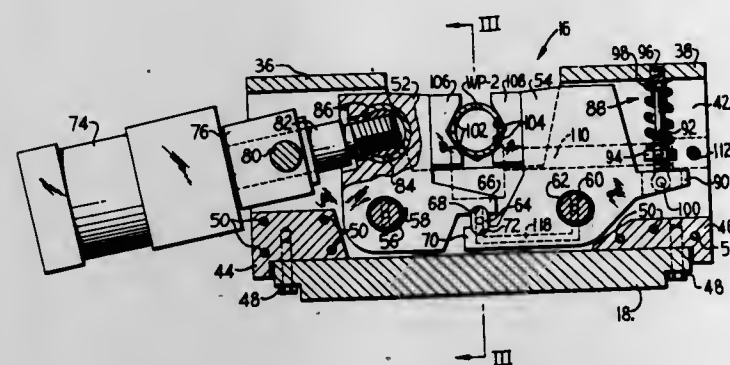
Int. Cl. B25b 1/04, 1/18

U.S. Cl. 269—31

2 Claims

A clamping device holds a workpiece against rotary motion while a welding operation is performed on the workpiece. The clamping force is exerted on the workpiece by a pair of op-

posed pivotally supported clamping arms activated by a single fluid cylinder which has the piston rod of the cylinder attached



to one of the clamping arms. the other clamping arm is moved by a drive connection between the two arms.

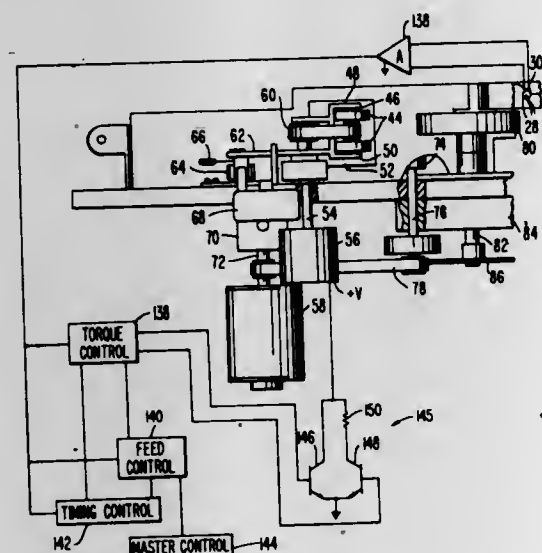
3,737,158

CONTROLLED TORQUE DOCUMENT FEED SYSTEM
Jack Beery, Farmington, and Donald C. Russell, Plymouth, both of Mich., assignors to Burroughs Corporation, Detroit, Mich.

Filed Sept. 17, 1971, Ser. No. 181,525
Int. Cl. B65h 3/06, 5/06

U.S. Cl. 271-10

10 Claims



There is disclosed herein a portion of a document transport system including a document storage hopper, a document feeding unit, a document separator and a control system for varying the feeding of a document. A document is removed from the hopper by a motor driven feed member and placed or moved into a document guideway. To initially remove the document from the hopper, a high torque output from the motor is desired and when the document is being moved along a document guideway a lower torque is required.

3,737,159

APPARATUS FOR PREVENTING SUCCESSIVE JAMMING OF COPY SHEETS IN COPYING APPARATUS
Takaji Washio, and Tatsuo Aizawa, both of Osaka, Japan, assignors to Mita Industrial Company Limited, Osaka, Japan

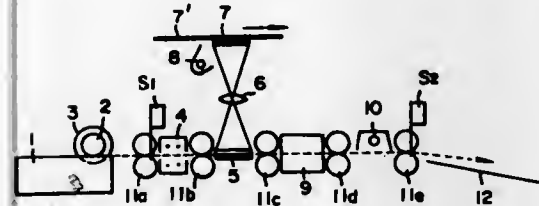
Filed June 1, 1971, Ser. No. 148,804
Int. Cl. B65h 7/02

U.S. Cl. 271-57

10 Claims

Apparatus for preventing successive jamming of copy sheets in copying apparatus including a detecting machine generating a first signal in response to delivery of a copy sheet at the initial nip of a forwarding mechanism of the copying apparatus

by a copy sheet feeding mechanism, another detecting mechanism generating a second signal in response to the arrival of a copy sheet at a discharge nip of the forwarding mechanism, and a control switch mechanism responsive to the first and second signals to inhibit operation of the copy sheet feeding mechanism when in a first state responsive to the first signal and to enable operation of the copy sheet feeding



mechanism in response to the second signal such that the copy sheet feeding mechanism is inhibited when a copy sheet is in a forwarding passage of the copying apparatus to prevent successive jamming of the copy sheets. The control switch mechanism is essentially a bistable circuit switching states in response to the first and second signals and various control mechanism are disclosed utilizing relays, semi-conductor devices, gas tubes and combinations thereof.

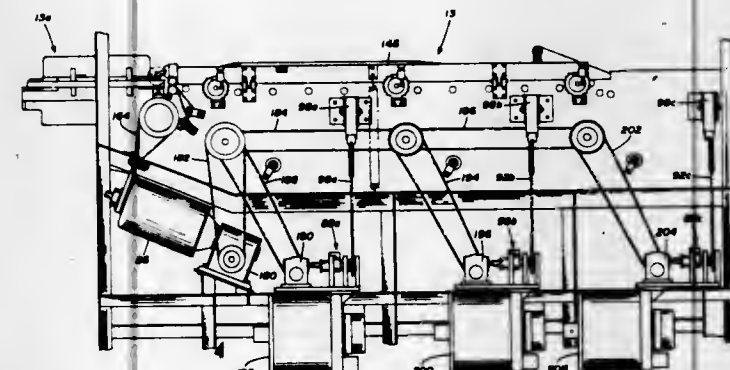
3,737,160

DOCUMENT STACKER SYSTEM
William C. Monday, Garland, Tex., assignor to Recognition Equipment, Incorporated, Irving, Tex.

Filed July 2, 1971, Ser. No. 159,216
Int. Cl. B65h 29/60

U.S. Cl. 271-64

16 Claims



The specification discloses a document stacker system which may accommodate various sizes of documents which flow at a variable frequency. The stacker system includes a rest station which includes a set of fingers upstanding in the path of travel of incoming documents in order to arrest the movement of the documents. Springs urge the documents downward to engage the fingers. Cams are disposed between the fingers to periodically raise the end of the document arrested by the fingers above the fingers. A pair of resilient rollers are synchronized with the cams to contact the top and bottom surfaces of the document raised by the cams. A transport then receives the document from the pair of rollers for delivery to various stacker receptacles. Each stacker receptacle includes a paddle which is movable vertically within the receptacle for supporting a document stack. A motor is operable to drive the paddle to a desired level within a receptacle in accordance with the sensed height of the document stack within the receptacle. A one-way clutch prevents downward movement of the paddle unless positive drive is provided from the motor, such that the operation of the paddle is substantially independent of the weight of the documents thereupon.

ERRATUM

For Class 272-56.5 see:
Patent No. 3,736,847

3,737,161

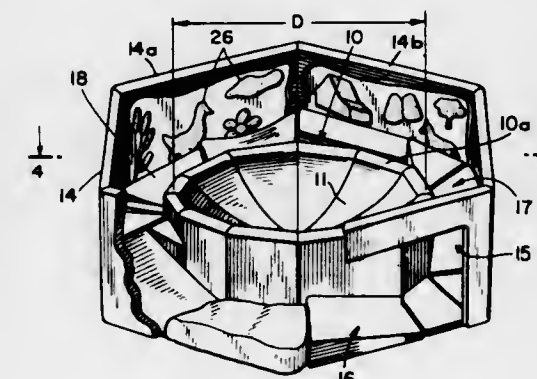
ENVIRONMENTAL PLAYGROUND FOR HANDICAPPED CHILDREN

Marvin A. Taylor, and Janet Louise Taylor, both of 4920 Dixie Drive, San Diego, Calif.

Filed Aug. 9, 1972, Ser. No. 279,209
Int. Cl. A63b 71/00

U.S. Cl. 272-60

5 Claims



A central bowl of soft resilient material defining a concave tumbling area is surrounded by an outer wall to define an annular passageway between the exterior of the bowl and the inside wall surfaces of the surrounding outer wall. The annular passageway includes various three dimensional members of soft resilient materials similar to pillows of varying shapes. These members define an obstacle course for children circling around the central bowl. The inner surfaces of the surrounding wall may include textured designs in relief to provide tactual and visual stimulation. The central bowl serves as a "social center" for the children at play.

3,737,162

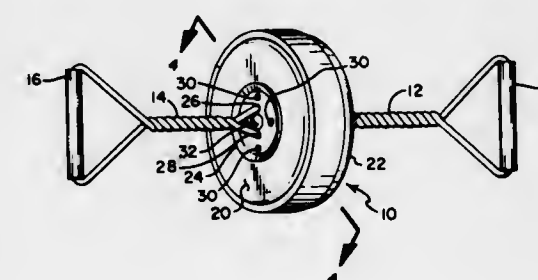
EXERCISE DEVICE

Lee Wood, Box 218, Savage, Minn.

Filed Dec. 6, 1971, Ser. No. 205,008
Int. Cl. A63b 21/00, 23/00

U.S. Cl. 272-68

6 Claims



An Exercise Device for exercising various portions of the body is described, the Exercise Device including a cyclically spinning member, the member caused to spin in opposite directions of rotation by means of the axially induced twisting of spaced cords, the reversing directions of spinning being caused by the user applying pressure outwardly on the cords, and alternately releasing the pressure. Apparatus is illustrated for varying the tension that is required on the wound cords in order to cause the reversing rotation. An arrangement for compression and relaxation exercise is also described.

3,737,163

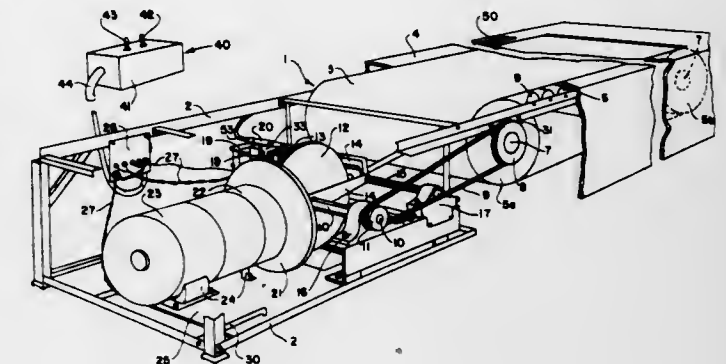
TREADMILL EXERCISING MACHINE

Dale A. Sumrall, 3219 Dearborn Street, Shreveport, La.
Filed Aug. 17, 1970, Ser. No. 64,371

Int. Cl. A63b 23/06

U.S. Cl. 272-69

2 Claims



An exercising machine designed to provide maximum flexibility and safety in walking or running activity, which includes an endless belt mounted on a frame, the belt being driven by a novel drive system which may be controlled by the user as he exercises. The drive system is basically composed of a drive wheel-friction wheel combination interrelated in such a manner as to provide speed control over an essentially infinite range of selected speeds with smooth speed transition. The drive wheel and friction wheel cause movement of the endless belt when they are in contact with one another. They may be disengaged only when the belt is being driven at the minimum speed of the range of selected speeds. A series of pressure switches protects against disengagement of the drive wheel and friction wheel when the belt is at the maximum speed.

3,737,164

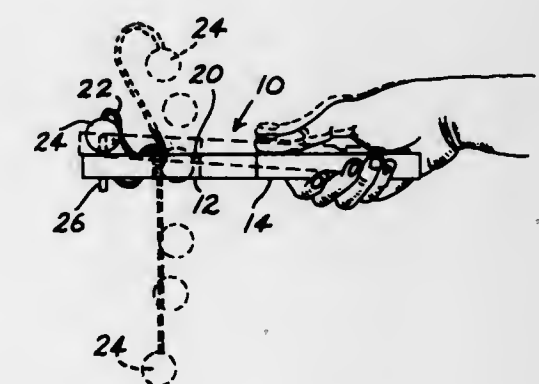
TETHER BALL PADDLE HAVING LAUNCHING STATIONS ON EACH FACE

Jay W. De Yoe, Jr., 1444 Rogue River Highway, Gold Hill, Oreg.

Filed Apr. 19, 1972, Ser. No. 245,405
Int. Cl. A63b 71/04

U.S. Cl. 273-98

4 Claims



A tether ball toy is provided consisting of a board having a target hole through it, and equipped with a handle. A ball is tethered at a point within the target hole and a single holder is provided on each side of the board for defining a launching site. By tethering the ball to a point within the target hole, and duplicating the launching arrangement, the ball is made playable from either side of the board. The target hole is preferably placed between the launching site and the handle.

3,737,165

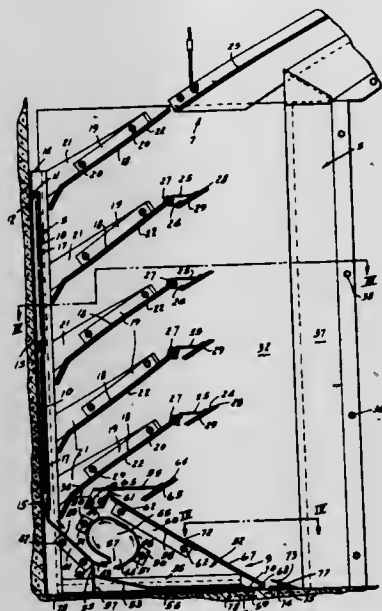
SHOOTING RANGE BULLET TRAP STRUCTURE

Gledrius Pencyla, Oak Park, Ill., assignor to Kory Industries, Inc., Chicago, Ill.

Filed Aug. 31, 1970, Ser. No. 68,180
Int. Cl. F41j 1/20

U.S. Cl. 273-102.4

28 Claims



Freedom from exposed partition edges is attained by means of concealed cantilever supporting bracket arm structure on one or more vertical bars behind and in supporting relation to downwardly and rearwardly oblique deflector plates located forwardly from back plate means with which a downward bullet chute is provided to a spent bullet chamber defined behind upwardly and rearwardly sloping bottom plates. A bullet deenergizing device within the upper rear portion of the spent bullet chamber receives bullets deflected into a downward opening from which the spent bullets drop into the chamber. Great flexibility for multi-section installations is afforded, with unusually ample tolerance allowances for dimensional variations in the available space for the installation, and assured assembly stability.

3,737,166

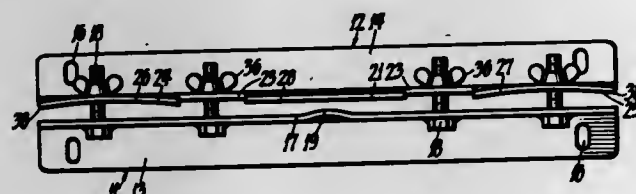
TARGET HOLDER RIGIDLY SECURING SMALL ARMS TARGET AND TRANSDUCER MOUNTED THEREON

Lindsay Charles Knight, 426 Tarakan Avenue, Wales, Australia

Division of Ser. No. 795,639, Jan. 31, 1969, Pat. No. 3,682,478. This application Mar. 5, 1971, Ser. No. 121,499
Int. Cl. F41j 5/04

U.S. Cl. 273-102.2 S

11 Claims



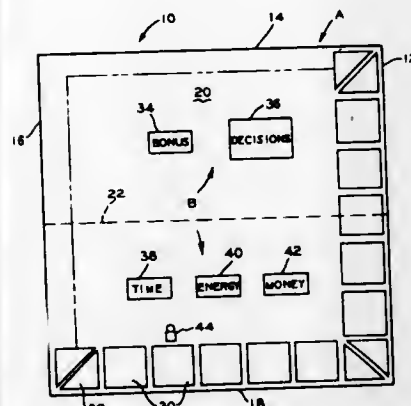
A target holder and transducer for rigidly holding a small arms target and registering the number of projections accurately hitting the target. The holder comprises elongated front and rear members having projections extending therefrom to secure and deform the target mounted therebetween in such a manner that the shock waves of a projectile hitting the target can be sensed by the transducer which is mounted on the target holder. The transducer includes an adjusting screw to vary the force necessary to close its contacts and signal a hit.

3,737,167

DECISION MAKING BOARD GAME APPARATUSKaren A. Kelley, 8215 Fernhill Avenue, Parma, Ohio
Filed Feb. 22, 1971, Ser. No. 117,317
Int. Cl. A63f 3/00

U.S. Cl. 273-134 C

1 Claim



A decision making game wherein each participant is supplied with a plurality of equal value time, energy and money cards which must be spent or earned according to plays printed on a plurality of indicia bearing spaces disposed on a game board which the participants traverse during the game. Selected of the indicia bearing spaces require the participants to select a card from a plurality of decision cards having indicia thereon which generally provide for the expenditure or receipt of some of the time, money and energy cards. Equal value bonus cards are awarded when the participants draw selected of the decision cards or land on selected of the indicia bearing spaces while traversing the game board. The winner of the game is determined by a participant collecting a specified number of bonus cards without a corresponding required expenditure of all his time, money or energy cards.

3,737,168

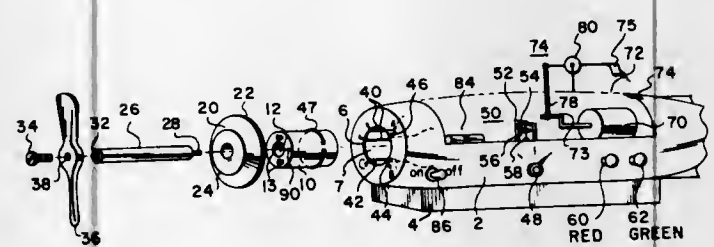
ELECTRICAL GAME APPARATUS

Berl Driskill, 3110 Palmdale Circle, Dallas, Tex.

Filed Apr. 10, 1972, Ser. No. 242,683
Int. Cl. A63f 9/08

U.S. Cl. 273-156

12 Claims



Game apparatus includes a body having an opening and a bore extending from the opening to the interior of the body, a cylinder piece slidably insertable in the bore and rotatable therein, and an electrical circuit which includes first and second conductors disposed on the side wall of the bore, a third conductor disposed on the side wall of the cylinder piece, an electrically actuatable indicator, first and second switches disposed on the end wall of the bore, and an option switch having first and second positions. Removal of the cylinder piece by sliding it from the bore after it has been rotated to any position within a certain range of positions causes the third conductor to simultaneously contact the first and second conductors and thereby actuate the indicator. Removal of the cylinder piece after it has been rotated to any position within a second range of positions results in the third conductor contacting only the first conductor so that the in-

indicator is not actuated. After removal of the cylinder piece, the first and second switches may be manually operated. Operation of the first switch when the option switch is in the first position causes actuation of the indicator whereas operation of the second switch when the option switch is in the first position disables the indicator. When the option switch is in the second position, operation of the first switch disables the indicator and operation of the second switch actuates the indicator.

3,737,169

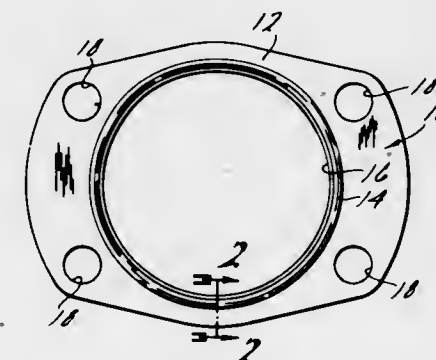
GASKET MATERIAL AND METHOD OF MAKING SAME

David P. Glynn, Framingham, Mass., assignor to Federal-Mogul Corporation, Southfield, Mich.

Continuation of Ser. No. 868,381, Oct. 22, 1969, abandoned.
This application May 13, 1971, Ser. No. 143,197
Int. Cl. F16j 15/32; B32b 19/00, 27/40

U.S. Cl. 277-235 B

6 Claims



A gasket material comprising a base material of substantially uniform thickness and deformability cut in a desired configuration and having an elastomeric deformable bead deposited on at least one face surface of the base material in a desired pattern and projecting outwardly of the plane of the base material.

3,737,170

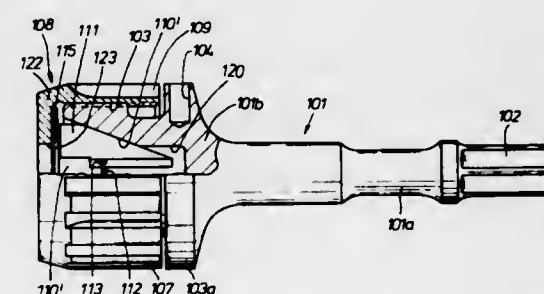
CHUCK FOR HAMMER DRILLS OR THE LIKEKarl Wanner, Echterdingen; Manfred Bleicher; Horst Sigg, both of Stuttgart, and Max Burklin, Waldenbuch, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Nov. 9, 1970, Ser. No. 88,011

Claims priority, application Germany, Nov. 14, 1969, P 19 57 289.5

Int. Cl. B23b 31/04

U.S. Cl. 279-60

7 Claims



A self-centering drill chuck for use in hammer drills or like impact- and torque-transmitting machines. The shank of the boring or drilling tool is received between and is clamped by three jaws which are slidably guided in the pull-on nut or in the adapter of the chuck. A dish spring is inserted between the jaws and the adapter or nut to undergo deformation when

3,737,171

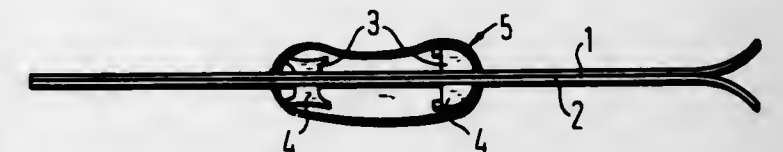
PROTECTIVE ENCLOSURES FOR SKI BINDINGS

Herrmann Becker, 10 Miesingstrasse, 8166 Neuhaus near Schliersee, Germany

Filed Mar. 12, 1971, Ser. No. 123,676
Int. Cl. A63c 11/02

U.S. Cl. 280-11.37 K

4 Claims



Where skis are transported in a fully exposed manner, e.g., on automotive vehicles, the bindings of the skis will be normally exposed to spray water droplets containing certain amounts of the salt used to cause snow and ice to melt on the roads. Therefore, there exists a risk of the ski bindings being subject to corrosion, such corrosion being apt to impair proper operation of the bindings which are intended to serve the purpose of safety devices. Moreover, it has been uncomfortable for skiers to carry unprotected skis on their shoulders, since snow is particularly apt to cling to the bindings, such snow being apt to melt while the skis are being carried, the resulting water draining from the skis and the bindings tending to wet the clothes of the skier. In order to remedy this condition, it is proposed, according to the invention, to enclose the portions of the skis which include the bindings in a tube-like enclosure which is preferably made of a suitable water-impermeable material. According to the invention, such an enclosure is preferably provided, at both-ends, with sealing means which are adapted to snugly engage the respective portions of the skis in order to counteract any tendency of the enclosure to move out of position.

3,737,172

ARTICULATED AND STEERABLE SNOW SLED

Clement Clement, 1833 rue Guilmot, Trois-Rivieres, Quebec, Canada

Filed Oct. 26, 1971, Ser. No. 192,505

Int. Cl. B62b 13/02

U.S. Cl. 280-22

15 Claims



A snow sled composed of several flat boards pivotally connected to each other. A manually steering mechanism, as-

sociated with a cable system, is provided for steering the sled and giving to it the desired arcuate form when negotiating curves. A braking system provides the braking of the sled.

3,737,173

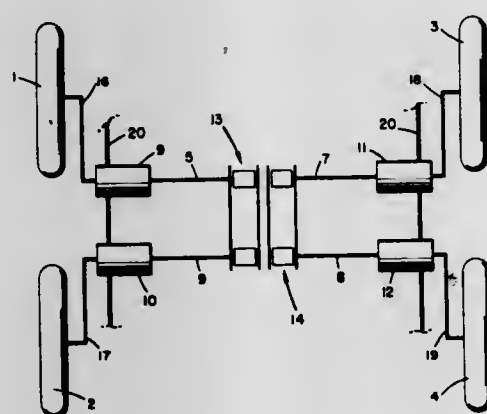
TORSION BAR SUSPENSION SYSTEM

Lucien Albert Boissier, 36 rue Saint-Exupery, and Jean Joseph Barge, 89 rue Claude Bochart, both of Roanne, France
Filed Oct. 6, 1971, Ser. No. 187,004

Claims priority, application France, Oct. 6, 1970, 7036037
Int. Cl. B60g 19/02

U.S. Cl. 280—104.5 R

3 Claims



A torsion bar suspension system for vehicles, especially those used for transporting delicate cargo or cargo over rough surfaces. The four independently suspended wheels are mounted on lever arms and torsion bars. The two torsion bars on each side are connected to a deformable parallelogram so that upward movement of one wheel will exert a downward force on the other.

3,737,174

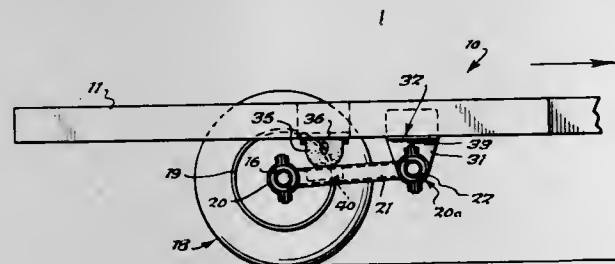
FULL AXLE COMPRESSION RUBBER SPRING SUSPENSION FOR VEHICLES

Albert F. Hickman, 8009 North State Road, Eden, N.Y.
Filed Apr. 13, 1971, Ser. No. 133,565

Int. Cl. B60g 11/22

U.S. Cl. 280—124 B

6 Claims



A full or through axle supported by rubber tired wheels has each end connected through a bearing to one end of a link extending lengthwise of the line of travel. The opposite end of each link is connected through another bearing to the frame and a suitable resilient spring support means is operatively interposed between the axle and frame. Each such bearing is constructed, as by inclusion of a flexible rubber bushing, to permit oscillation of its connected parts about its center. Drive and brake torque reactions, as well as axial movement of the axle laterally of the frame, are controlled by a torque arm projecting rigidly from the center of the axle and connected to the frame by a flexible joint or bearing which flexes to permit vertical movement of either or both axle ends relative to the frame or to the other axle end.

3,737,175

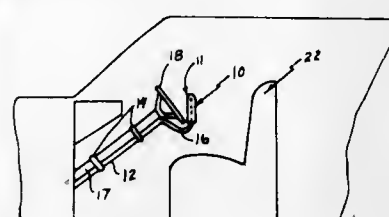
SAFETY APPARATUS FOR AUTOMOBILES

Edward H. Sahagian, 67 Chester St., Arlington, Mass.
Filed June 18, 1971, Ser. No. 154,472

Int. Cl. B60r 21/02

U.S. Cl. 280—150 B

4 Claims



Safety apparatus for autos has a yieldable, protective member forward of an automobile seat and which a passenger seated thereon will strike when thrown forward, as in a collision or sudden stop. Mechanism attaches said bar, when it is in front of the driver, to the steering post of an auto, or when it is on front of a back seat passenger it is attached to an upstanding emergency support fixed to the auto frame.

3,737,176

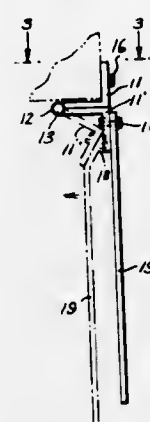
DUST FLAP FOR TRAILERS AND TRUCKS

Richard D. Cobb, 940 Second Avenue South, Glasgow, Mont.
Filed Nov. 4, 1971, Ser. No. 195,595

Int. Cl. B62d 25/16

U.S. Cl. 280—154.5 R

1 Claim



A flap for depending behind the wheels of a trailer or truck. The device is used in pairs and consists of a pair of hinged and spring loaded members, one of which is secured to the flap and prevents the flap from being torn from its mount when the rear wheels of the vehicle tend to climb a bumper when the vehicle is backed up.

3,737,177

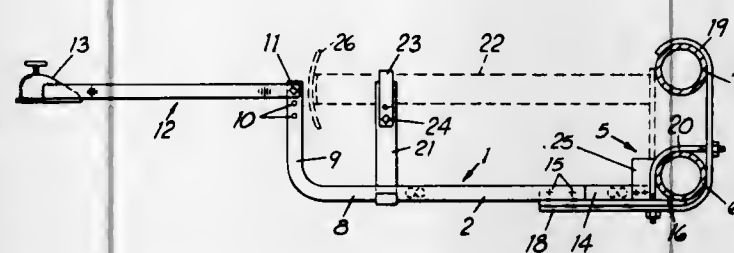
FRONT TOW HITCH FOR SMALL CARS

Martin Gal, 1206 Burcham Drive, East Lansing, Mich.
Filed Aug. 26, 1971, Ser. No. 175,272

Int. Cl. B60d 1/00

U.S. Cl. 280—495

2 Claims



A frame consisting of laterally spaced side members with upturned front ends and connected by cross members has up-

turned rear hanger straps arranged to pass under and behind a lower torsion bar of the front wheel suspension of a small car. The upper ends of the hanger bars curve forwardly to engage over the top of the upper torsion bar of the suspension. L-shaped bolts pass through the hanger bars above and below the torsion bar to clamp the hanger bars to the bottom of the side members and secure the frame to the torsion bar. Thrust plates secured to the side member engage the front of the torsion bar. A towing hitch is pivotally connected to the upper ends of the L-shaped side members.

3,737,178

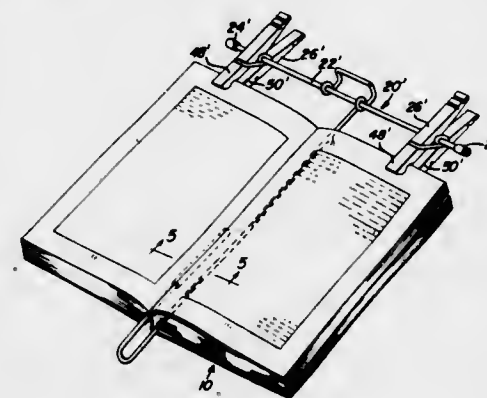
BOOK PAGE HOLDER

Donald F. Tjernlund, and Derrick M. Tjernlund, both of Box 58-A, R.D. No. 1, New Galilee, Pa.
Filed Sept. 20, 1971, Ser. No. 181,860

Int. Cl. B42d 9/00

U.S. Cl. 281—42

8 Claims



An elongated rigid support member generally cylindrical in cross-sectional shape and having a pair of clothespin-type clamps mounted thereon with the support member slidingly and rotatably received through the coiled portions of the butterfly springs of the clamps. The jaw ends of the clamps project outwardly from the same side of the support member and are to perform the function of clampingly engaging the pages of an open book to and in position overlying the front and back covers of the book. In addition, one form of the invention involves an elongated book binding brace projecting outwardly of the same side of the elongated support member from which the jaw ends of the clamps project and underlies the outer surface of the bookbinding in a manner bowing the latter in the area of the open pages of the book thereby rendering the inner marginal edge portions of the open pages more easily readable.

3,737,179

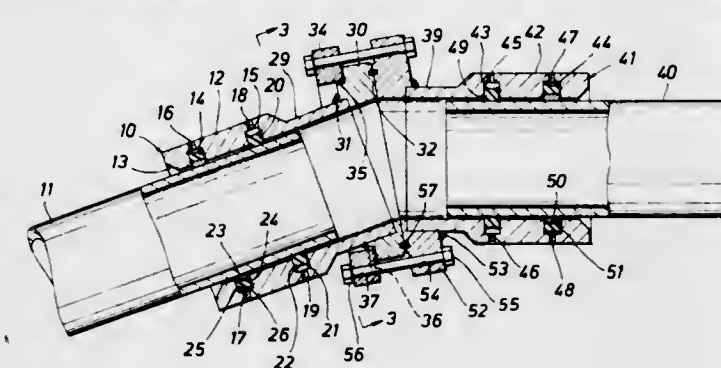
SUBMARINE CONNECTION FOR MISALIGNED PIPES

William E. White, Jr., Houston, Tex., assignor to Hydrotech Services Inc., Houston, Tex.
Filed Jan. 20, 1972, Ser. No. 219,413

Int. Cl. F16l 17/00

U.S. Cl. 285—96

3 Claims



Apparatus for connecting together two pipes which are misaligned and which may be in a hostile environment, as for ex-

ample, underwater. A pair of housings, each of which is arranged for slidable mounting over the adjacent pipe ends to be coupled, are each provided with a fluid actuable, annular, radially movable resilient seal and gripping means arranged to engage the surface of the pipes. Adjacent ends of the housings carry bias flanges arranged for mating contact through a plurality of relative connector angular positions.

3,737,180

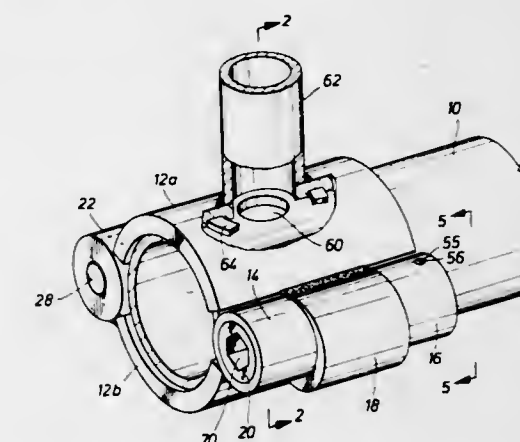
PIPE CLAMP

Thomas J. Hayes, Jr., and David L. Gruller, both of Houston, Tex., assignors to Kurier Corporation, Houston, Tex.
Filed Mar. 22, 1971, Ser. No. 126,843

Int. Cl. F16l 5/02

U.S. Cl. 285—197

8 Claims



A tubular-shaped body is split longitudinally into two sections for positioning on opposite sides of a pipeline. A hinge is located on each side of the body for connecting the two sections along each side of the split for pivotal movement around axes that are parallel and that are parallel to the longitudinal axis of the pipeline. One of the hinges has a removable hinge pin to allow the two sections to be moved apart for placement around the pipeline. The other hinge has a hinge pin with an eccentric portion that will cause the two sections to clamp the pipeline between them when the pin is rotated.

3,737,181

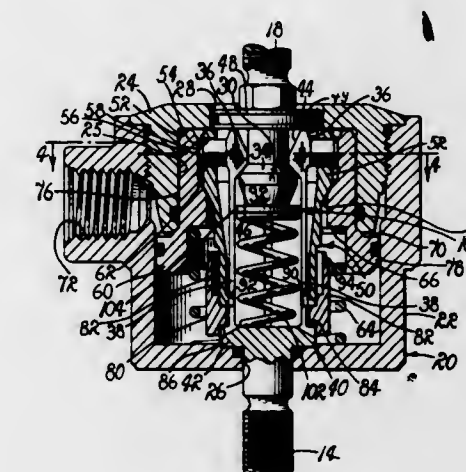
DISCONNECT UNIT

George M. Low, Acting Administrator of the National Aeronautics and Space Administration with respect to an invention of; Paul Alexander, Jr., Los Angeles, and Allan R. McDougal, La Crescenta, both of Calif.
Filed Feb. 24, 1971, Ser. No. 118,269

Int. Cl. F16l 37/18

U.S. Cl. 285—316

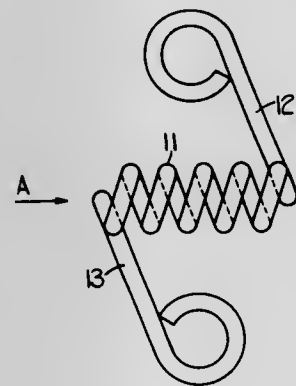
5 Claims



A squib-actuated disconnect characterized by an expandable collet axially extended from a first tension member for

receiving in locking engagement a protuberance axially extended from a second tension member, and a gas-driven retainer of an annular configuration for releasably supporting the collet in locking engagement with the protuberance and adapted to be displaced in an axial direction in response to a firing of an associated squib for thus accommodating a disengagement of the protuberance and the collet.

3,737,182
ANCHORAGE DEVICES
John William Sharpe, Sutton Coldfield, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed June 28, 1971, Ser. No. 157,530
Claims priority, application Great Britain, July 23, 1970, 35,696/70
Int. Cl. F16b 7/04
U.S. Cl. 287-86 1 Claim

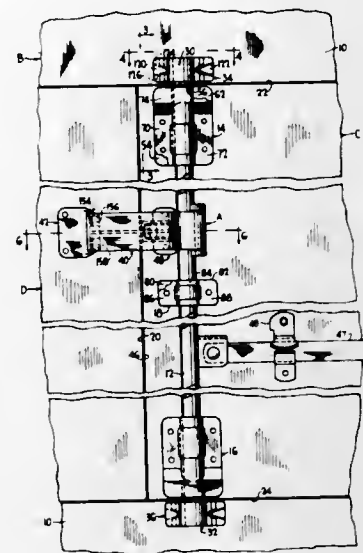


An anchorage device particularly but not exclusively for attaching a window panel to a flexible drive rack is formed from resilient material, for example wire and includes a helically wound portion within which a helically ribbed drive member is received. At opposite ends of the helically wound portion are a pair of outwardly extending limbs which are integral with the helically wound portion and which in use are bolted to the components in question to secure the flexible drive member to the component.

3,737,183
DOOR LOCK
John V. Pastva, Jr., Parma Heights, Ohio, assignor to The Eastern Company, Cleveland, Ohio
Continuation-in-part of Ser. No. 19,867, March 16, 1970, Pat. No. 3,695,661. This application May 20, 1971, Ser. No. 145,279
Int. Cl. E05c 7/04
U.S. Cl. 292-7 2 Claims

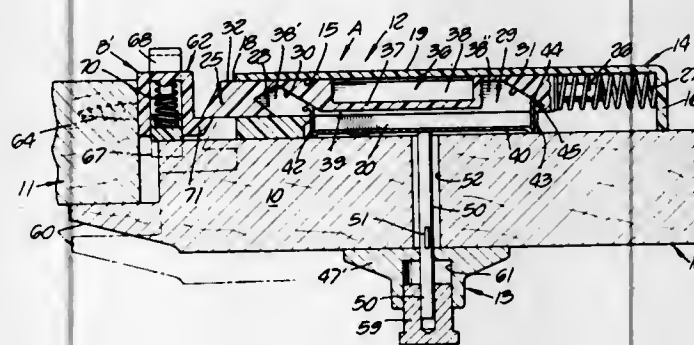
A cam-type door lock including latch members on opposite ends of an oscillatable rod attachable to a pivoted door adjacent to the non-pivoted side and engageable with keeper members attachable to the door frame adjacent to opposite side edges of the door to secure the door in closed position and a third lock point intermediate the opposite side edges including a strap or latch member secured to the shaft intermediate its ends engageable with a third keeper member on the adjacent door or door frame to pull the two together and towards closed position. The first mentioned latching members overlie the end of the rod or shaft to which they are attached, are symmetrical about the axis of the rod or shaft and each has oppositely projecting forked cam portions adapted to straddle two spaced post portions of the cooperating keeper members. The post portions of the keeper members have tapered side surfaces engageable by the forked cam portions during latching to assure alignment of the door with the frame and to prevent lateral shifting or distorting of the frame in the plane of the door after latching. One post portion of each of

the first mentioned keeper members has projecting flange portions with concave surfaces engageable by the forked cam



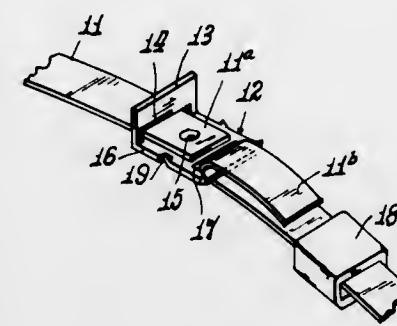
portions of the associated latch member to retain the door in a closed position.

3,737,184
PUSH BUTTON LATCH MECHANISM
Dorian J. Swartz, Yorba Linda, Calif., assignor to Hyer Hardware Mfg. Co., Anaheim, Calif.
Filed June 16, 1971, Ser. No. 153,673
Int. Cl. E05c 1/14
U.S. Cl. 292-170 17 Claims



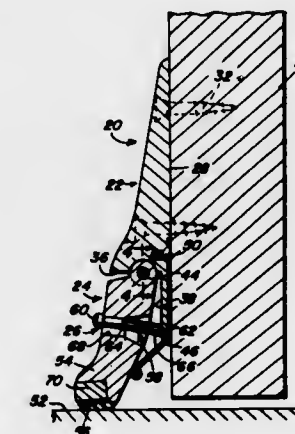
A latch mechanism of the push button type in which a separate associated casing contains a reciprocally mounted bolt normally spring urged to an extended latching position, and to a non-latching position by a pressure plate having its opposite ends engaged with separate cam ramps spaced apart axially of the bolt, the casing having longitudinally extending slotted side flanges permitting adjustable positioning of the casing on one surface of a door. An associated push button assembly is mounted on the opposite surface of the door and includes a mounting bracket either in the form of an escutcheon plate or alternatively a pull knob, a push button being centrally positioned in either case and guided together with a connected push rod having an end operatively bearing against the pressure plate. When a pull knob is used, the bolt is preferably operably associated with a conventional keeper, while in those arrangements where a push button only is utilized, the keeper is provided with a spring urged pusher which engages with the back surface of the closed door, whereby to automatically urge the door to a slightly ajar position, when the bolt is released.

3,737,185
SECURITY SEAL
Sumner C. Reed, 335 Cottage Hill, Elmhurst, Ill.
Filed Oct. 6, 1971, Ser. No. 186,904
Int. Cl. B65d 55/06
U.S. Cl. 292-308 9 Claims



A security seal embodying a hard core attached to a tape end and having a slot therein to receive the other tape end, wherein the assembly is enclosed in a deformable sleeve.

3,737,186
DOOR STOP
Jimmie A. Chezem, P.O. Box 2232, Sarasota, Fla.
Filed Aug. 19, 1971, Ser. No. 173,310
Int. Cl. E05c 17/12
U.S. Cl. 292-338 7 Claims

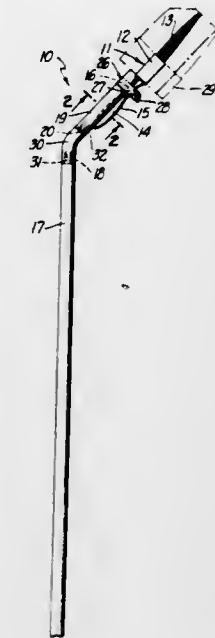


A door mounted stop which includes a pivotally mounted depending leg swingable downward into frictional engagement with the floor as to prevent an inward swinging of a door at any point along the path of movement of the door. A releasable lock is provided for retaining the door stop in the movement retarding position against the biasing force of spring means which, upon a release of the lock, will return the door stop to a retracted position.

3,737,187
ANGULARLY CONTROLLED EXTENSION FOR HOUSE PAINTER'S BRUSH
Harry T. Pryor, 9434 Cedar Avenue, Bloomington, Calif.
Continuation of Ser. No. 889,561, Dec. 31, 1969, abandoned.
This application June 25, 1971, Ser. No. 156,958
Int. Cl. A47f 13/06
U.S. Cl. 294-19 R 4 Claims

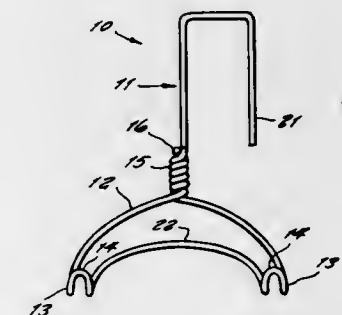
A light weight extension rod terminating in an angularly adjustable mount for the handle of a conventional house painter's brush to facilitate high overhead house painting with the

ter's brush to facilitate high overhead house painting with the



brush held optionally at any of a variety of angular attitudes with respect to said rod.

3,737,188
TRIPLE BUCKET HOOK
Paul H. Myers, 231 W. Main, Verona, Ohio
Filed Sept. 14, 1971, Ser. No. 180,410
Int. Cl. B44d 3/14
U.S. Cl. 294-27 R 1 Claim

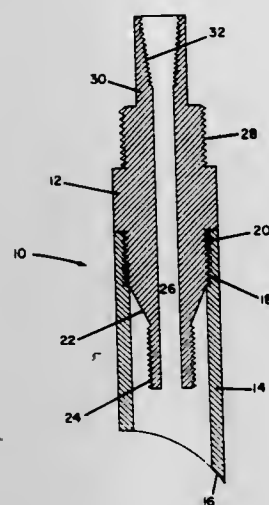


An improved hook for supporting a paint bucket suspended from a ladder or scaffold, the hook having means to prevent the suspended paint bucket from spinning while being used during a painting operation, the device consisting of a stiff wire frame which at its upper end is bent to form a configured hook member for fitting stationarily to a ladder or scaffold, and the lower end being arched with hook members at each end for fixed attachment of a paint bucket.

3,737,189
REVERSIBLE TIE-BACK TOOL
Embree L. Darby, Lafayette, La., assignor to Cities Service Oil Company, Tulsa, Okla.
Filed Dec. 23, 1971, Ser. No. 211,448
Int. Cl. E21b 31/02
U.S. Cl. 294-86.34 3 Claims

Disclosed herein is a reversible tie-back tool which may be built to run on a reclamation tubing string in order to provide a means to tie back into a tubing string that has been backed off within a liner. The reversible tie-back tool insures screw-

ing back into the fish or lost tubing string without damaging either the exposed box or pin of the plugged tubing string or of housing segments which in the collapsed state interest within the main housing, and in the expanded state define a bay section enclosing the open side of the chamber and laterally expanding the volume thereof.



the reversible tie-back tool allowing a pressure tightening of the fish and reclamation tubing string from the surface.

3,737,190 CAMPER UNIT

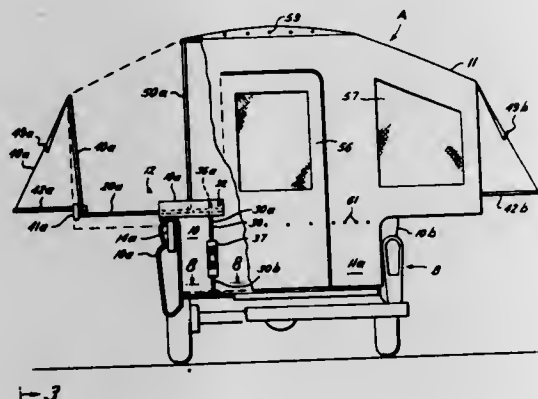
Robert W. Smith, 2041 Carolina Avenue, Port Arthur, Tex.; William H. Smith, 303 Hill Terrace Drive, and Roy E. Neel, 704 22nd Street, both of Nederland, Tex.

Filed June 25, 1971, Ser. No. 156,860

Int. Cl. B60p 3/34

U.S. Cl. 296—23 A

17 Claims



A camper unit is sufficiently light and compact that it may be easily carried on a vehicle such as a pick up truck, and may be erected on the ground or in the pick up truck itself.

3,737,191 EXTENSIBLE CAMPING TRAILER

John S. Fackre, 1936 Linden St., Ridgewood, N.Y.

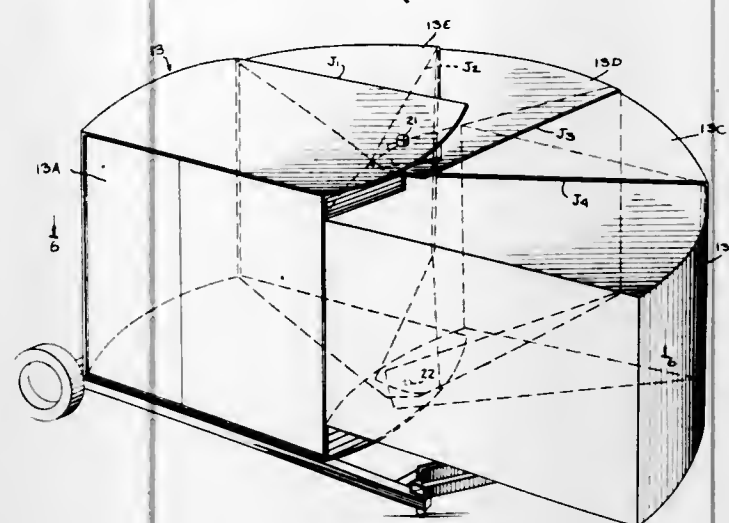
Filed Oct. 6, 1971, Ser. No. 186,862

Int. Cl. B60p 3/34

U.S. Cl. 296—27

6 Claims

A longitudinally and laterally extensible camping trailer formed by a collapsible body supported on a chassis whose rear end is mounted on a set of wheels, the front end thereof being hitchable to a vehicle. The body includes a box-like main housing affixed to the chassis and a similarly shaped sub-housing of slightly smaller volume receivable within the main housing and pivoted thereto, whereby when the sub-housing is rotated 180° about its pivot, the main and sub-housings together form a longitudinally elongated chamber having an open side. Also pivoted to the main housing are a plurality of



3,737,192 HINGED MOUNTING FOR TILT CAB

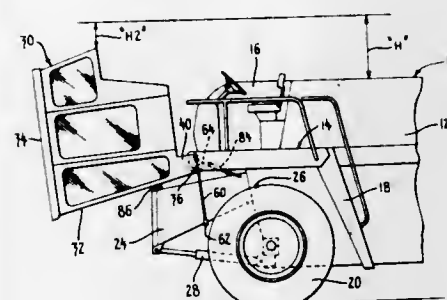
Walter Hirsch, Don Mills, Ontario, Canada, assignor to Massey-Ferguson Industries Limited, Toronto, Ontario, Canada

Filed Oct. 12, 1971, Ser. No. 188,067

Int. Cl. B62d 33/06

U.S. Cl. 296—28 C

6 Claims



A tilt cab is mounted at one end of a vehicle for downward tilting movement around a pivot axis and subsequent support on a lift member associated with the vehicle. A load damping and energy storing device is connected between the cab and the frame of the vehicle in such a manner as to be activated by upward movement of the lift member conjointly with the downward swinging of the tilt cab, to first dampen the movement of the tilt cab downwardly while simultaneously being loaded and thereafter exerting a hold-down force on said tilt cab to maintain secure shake-proof support of the cab on the lift member.

3,737,193 WINDSHIELD EJECTOR FOR VEHICLES

Robert H. Cain, 510 Garner Road, Milford, Mich.

Filed Oct. 22, 1971, Ser. No. 191,684

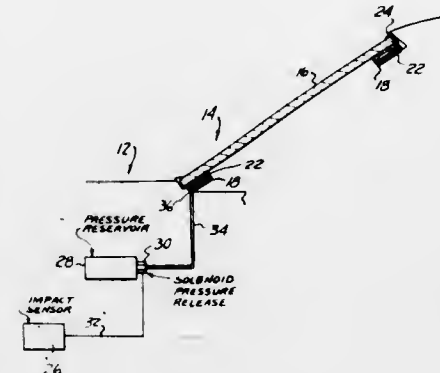
Int. Cl. B60j 1/02

U.S. Cl. 296—84 K

2 Claims

A windshield mounting assembly for vehicles which includes a continuous outwardly opening channel at the windshield opening peripherally supporting and holding a

windshield. A high pressure expansion tube is nested in the channel and connected to a pressure fluid reservoir, controllable by a preset impact sensor to expand and eject the windshield.



trolled by a preset impact sensor to expand and eject the windshield.

3,737,194

LIFTING AND CLAMPING DEVICE FOR RIGID RIDING ROOFS OF AUTOMOBILES

Alfons Lutz, Krailling, and Georg Kandler, Germering, both of Germany, assignors to Webasto-Werk W. Baier KG, Stockdorf b. Munich, Germany

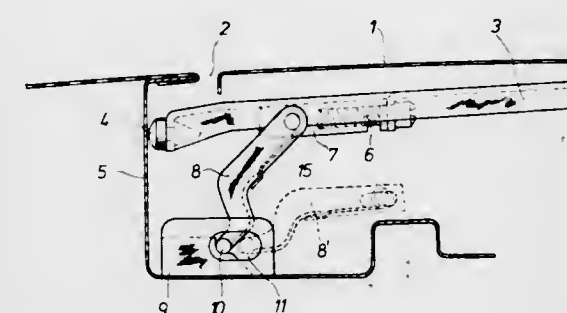
Filed Jan. 29, 1971, Ser. No. 111,050

Claims priority, application Germany, Mar. 11, 1970, P 20 11 421.0

Int. Cl. B60j 7/10

U.S. Cl. 296—137 E

9 Claims



A lifting and clamping device for rigid sliding roofs of vehicles wherein, in a slidable roof panel two brake rods are provided which are movable transversely to the direction of the sliding movement of the panel and where with aid of the two levers the rear end of the panel can be raised and lowered when the panel can in the closed position. The levers are articulated with one end to one of said brake rods, the other end of the levers co-operating with fixed support means for said raising and lowering of the panel. Each lever has a finger extending in the direction of the panel-closing movement, co-operating with a cutout in said support means; and may be fitted with a spring biasing it toward the brake rods.

3,737,195

SEAT SUSPENSION APPARATUS

Herman Wendell Black, 138 North Meridian St., Blackfoot, and Richard R. Wright, 1335 Azalea Drive, Idaho Falls, both of Idaho

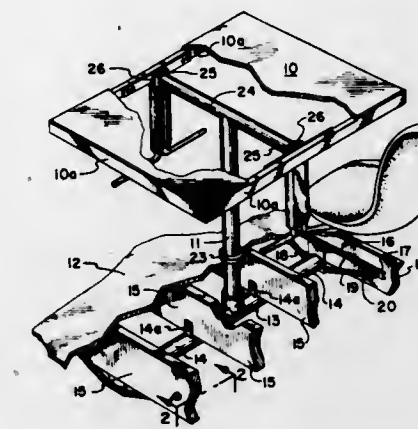
Filed Apr. 8, 1971, Ser. No. 132,320

Int. Cl. A47b 39/00, 91/08

U.S. Cl. 297—142

17 Claims

A seat suspension apparatus for hanging seats from beneath a table top. A cable serves as a support, pivot structure and



guide for the cable. An adjustment bolt can be provided to move the supporting arm up with respect to the cable, and to thereby change the elevation of the seat supported by the arm.

3,737,196 ANIMAL TOY

Mary Elizabeth Bodor, 32135 Bingham Road, Birmingham, Mich.

Filed July 1, 1971, Ser. No. 158,909

Int. Cl. A63g 9/10; A63h 3/02

U.S. Cl. 297—181

1 Claim



An animal toy comprising a supporting frame in a form of a stool adapted to support a young child mounted astride the stool, the stool having a body member with legs depending therefrom and a neck member projecting upwardly from one end of the body member, and a removable covering of flexible material for the stool having a simulated animal configuration. The covering includes a filled head portion, a neck portion depending from the head portion and enveloping the neck member, a body portion extending from the neck portion and enveloping the body member of the stool, and a plurality of sleeves depending from the body portion, each receiving one of the legs of the stool. Coverings have different animal configurations can be interchangeably mounted on the same supporting frame.

3,737,197

SEAT BELT ANCHOR MECHANISM FOR ADJUSTABLE SEAT

Garth O. Hall, and Donald J. Zach, both of Milwaukee, Wis., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed Dec. 29, 1971, Ser. No. 213,572

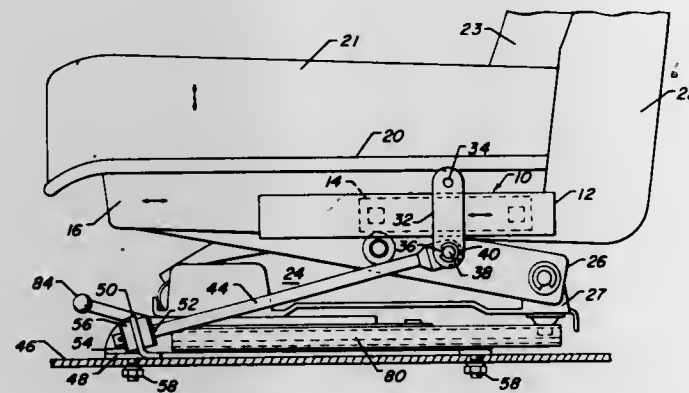
Int. Cl. A62b 35/00; B60r 21/00

U.S. Cl. 297—385

8 Claims

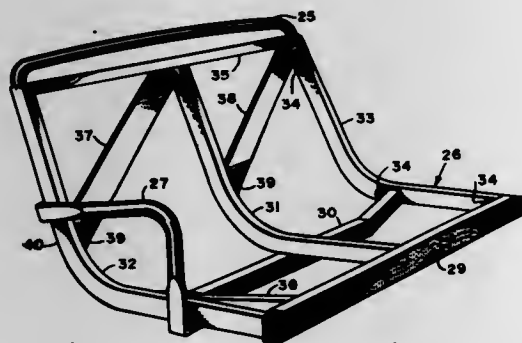
Seat belt anchor mechanism for vertically movable suspension seat having fore and aft adjustment feature provides an anchor point for a lap belt which is spaced from the floor and

movable relative to the floor. The anchor point is on a guide member carried by a slide on the upper movable seat frame and is movable vertically with the seat suspension but remains stationary when the movable seat frame is adjusted fore and aft. The guide member and anchor point are carried at the end



of a pivot link attached at its forward end to the floor of the vehicle. Thus, a tether belt connecting the guide member to the floor can be kept taut when the suspension is at the upper end of its ride zone, irrespective of the position of the seat in a fore and aft direction.

3,737,198
RAPID TRANSIT SEATING
Chester J. Barecki, and Alexander A. Karp, both of Grand Rapids, Mich., assignors to American Seating Company, Grand Rapids, Mich.
Filed June 28, 1971, Ser. No. 157,345
Int. Cl. B60n 1/00; A47c 7/00, 7/14
U.S. Cl. 297-450 8 Claims

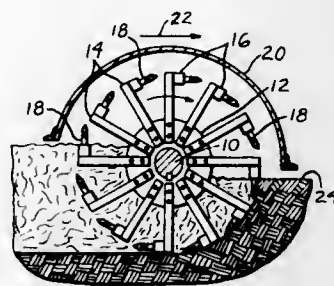


A cantilever seat frame is provided with parallel wall, aisle and intermediate rails curved at an intermediate area to provide vertically inclined back portions and forwardly extending horizontal seat portions, the wall rail being apertured to receive wall fastening elements, the rails being connected at top and bottom portions by cross members, diagonal braces connecting the rails, and seat and back cushions carried by said seat and back rail portions.

3,737,199
EARTHWORKING TOOL
Earle W. Stephenson, Latrobe, Pa., assignor to Kennametal Inc., Latrobe, Pa.
Filed June 28, 1971, Ser. No. 157,550
Int. Cl. E21c 13/00
U.S. Cl. 299-89 1 Claim

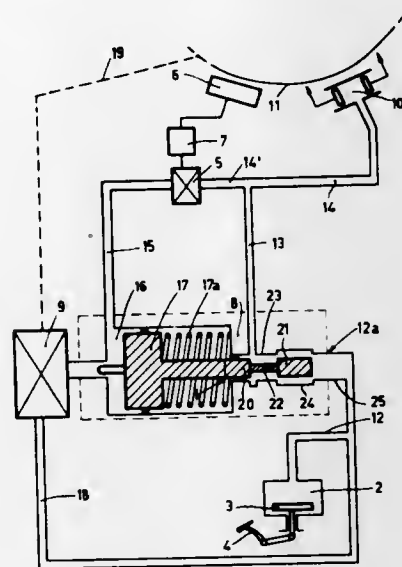
The specification discloses an earthworking tool, in which the tool has a pointed forward end with a hard insert therein,

while rearwardly of the pointed end, the tool has laterally ex-



tending inclined shoulders, each provided with a hard wear-resistant element mounted thereon.

3,737,200
ANTI-LOCK VEHICLE BRAKE SYSTEMS
Derek Robert Skoyles, East Grinstead, England, assignor to U.S. Philips Corporation, New York, N.Y.
Filed June 11, 1971, Ser. No. 152,150
Claims priority, application Great Britain, June 26, 1970, 31,132/70
Int. Cl. B60t 8/06
U.S. Cl. 303-21 F 4 Claims

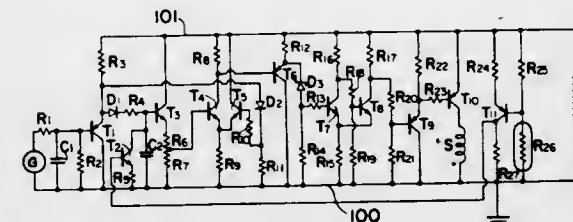


An anti-lock brake system having a brakefeed line which supplies fluid to the brakes. An elongated restrictor element is disposed in the brakefeed line to limit the volume of fluid being supplied to the brakes. The restrictor element is influenced by a piston which is urged into the restrictive position by fluid in a reservoir. The fluid is pumped into the reservoir, and hence acts upon the piston, when an anti-lock valve is actuated. The piston is spring-loaded towards a non-restricting position. The restrictor element has two constrictive sections which cooperate with constrictive wall sections to limit fluid flow.

3,737,201
METHOD AND APPARATUS FOR GENERATING A CONTROL SIGNAL FOR USE IN A VEHICLE BRAKE SYSTEM
Toshiaki Okamoto; Kazutaka Kuwana, both of Kariya, Aichi Pref., and Takefumi Sato, Osaka, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya and Sharp Corporation, Osaka, Japan
Filed June 24, 1970, Ser. No. 49,480
Int. Cl. B60t 8/08
U.S. Cl. 303-21 A 13 Claims

A method and apparatus for generating and using pseudo vehicle speed signals for use with an anti-skid brake control system. A signal responsive to the rotational speed of a vehicle

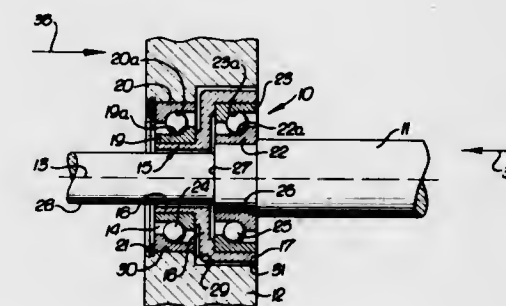
wheel is generated and used for producing a pseudo vehicle speed signal. A memory is used to store the pseudo vehicle-speed signal and the memory is discharged at a rate dependent upon the applied brake pressure of the brakes of the system.



The value stored in the memory is compared with the wheel-rotational speed to control the anti-skid brake control system.

The improvement comprises the provision of a memory and control means adapted for increasing the reduction rate of a memorized vehicle speed voltage with increase of applied brake pressure and conversely for decreasing said voltage reduction rate with decrease of applied brake pressure.

3,737,202
REDUNDANT BEARING
Joseph G. Rosales, Gardena, Calif., assignor to Donald M. Ackley, Hermosa Beach, Calif.
Filed July 19, 1971, Ser. No. 163,811
Int. Cl. F16c 33/00
U.S. Cl. 308-183 6 Claims



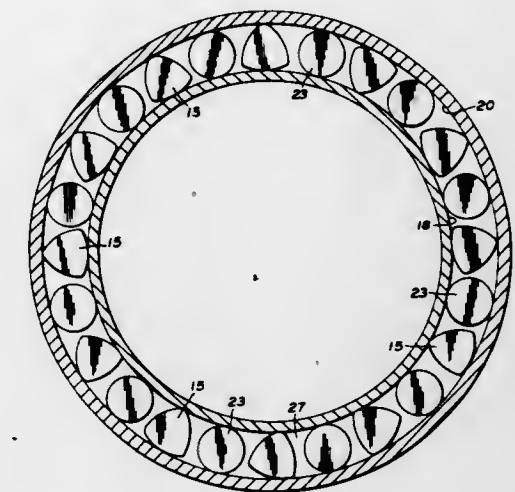
A bearing assembly combinable with inner and outer coaxially relatively rotatable members annularly spaced apart comprises:

- a. a ring in said space and spaced from said members to be rotatable relative thereto about said axis,
- b. first inner and outer annular races respectively on the outer member and the ring and first rolling bearings engaging said first races, and second inner and outer annular races respectively on the inner member and the ring and second rolling bearings engaging said second races, and the races and bearings characterized in that loading is transmitted between said members via said races and bearings and
- c. there being structure transmitting force acting to pre-load said races and bearings in an axial direction.

3,737,203
BEARINGS
Beverly G. Hawk, 715 W. High St., New Philadelphia, Ohio
Filed May 26, 1971, Ser. No. 147,032
Int. Cl. F16c 33/00
U.S. Cl. 308-200 1 Claim

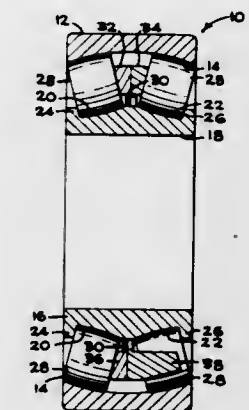
Bearings are disclosed which are not round and which can

replace flat circular bearings, spherical bearings and tapered



bearings in a race.

3,737,204
EXTENDED LIFE BEARING
Edward A. Burkhardt, Indianapolis, Ind., assignor to FMC Corporation, San Jose, Calif.
Filed Nov. 30, 1971, Ser. No. 203,149
Int. Cl. F16c 33/30
U.S. Cl. 308-241 12 Claims

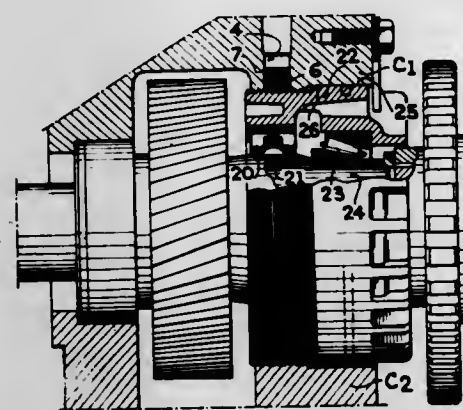


An extended life roller bearing having an outer race and rollers made of through-hardening steel such as AISI 52100, and an inner race of a carburizing grade of steel that is vacuum remelted, carburized, heated into the austenitizing range and quenched to convert austenite into martensite. The inner race is then subjected to a deep freeze treatment. The inner race is then tempered to produce a one to two point Rockwell Scale C hardness differential from the rollers. After the races are finished, they are subjected to a further stress-relieving process to remove surface stresses during which a black oxide coating is applied to the inner race to protect its roller engaging surface during initial mating and operation of the bearing.

3,737,205
SEALING DEVICE FOR A SCREWTHREADED CONNECTION AND APPLICATIONS THEREOF
Jean Maurice, St-Germain de La Grange, and Andre Mouttet, Bois D'Arcy, both of France, assignors to Automobiles Peugeot, Paris and Regie Nationale Des Usines Renault, Billancourt, France
Filed July 1, 1971, Ser. No. 158,864
Claims priority, application France, July 30, 1970, 7028139
Int. Cl. F16c 33/76
U.S. Cl. 308-207 A 4 Claims

Sealing device affording a fluidtight seal between an outer member having an inner screwthread and an inner member having an outer screwthread in engagement with the inner

screwthread. The device consists of a plug disposed in a radial aperture in the outer member and compressed directly against



the outer screwthread by plug-compressing means fixed in the aperture.

3,737,206

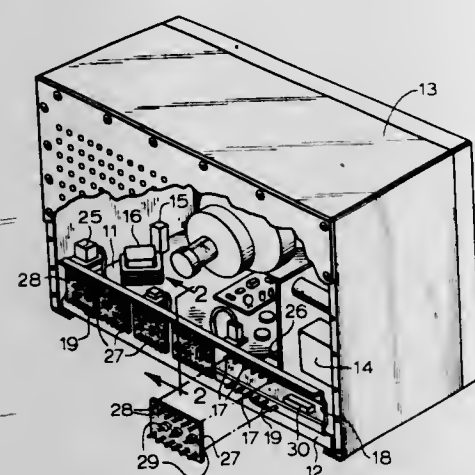
HINGING MECHANISM FOR A HINGED CHASSIS ARRANGEMENT

Richard L. Pierce, Addison, and Herbert E. Stafford, Oak Park, both of Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed Mar. 10, 1972, Ser. No. 233,520
Int. Cl. A47b 81/06

U.S. Cl. 312-7 TV

2 Claims



A hinging mechanism for a hinged chassis arrangement which is especially adaptable to automated or semi-automated manufacturing and testing techniques. The hinging mechanism removably couples a sub-chassis to a principal chassis, allowing the sub-chassis to be moved between positions substantially coplanar and substantially perpendicular to the principal chassis. A hinge slot disposed along the fold between the planar surface of the principal chassis and its support flange receives a hinge flange on the sub-chassis to form the hinging mechanism. The principal chassis has inwardly extending preformed tabs on its planar surface and its support flange while the hinge flange has a locking aperture. Whenever one of the tabs engages the locking aperture, the sub-chassis cannot be removed.

3,737,207

ASH TRAY ASSEMBLY

Edwin F. Clemett, Jr., Detroit, Mich., assignor to McCord Corporation, Detroit, Mich.

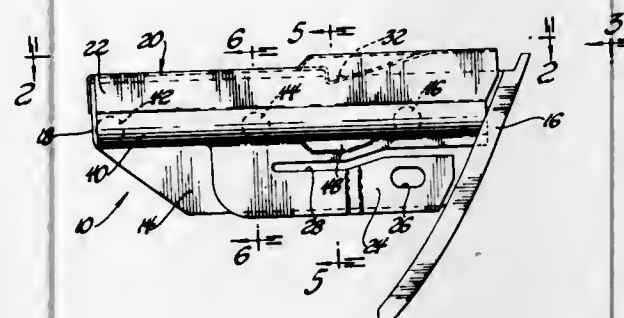
Filed Nov. 19, 1971, Ser. No. 200,493
Int. Cl. A47b 67/02; A47i 5/08

U.S. Cl. 312-246

15 Claims

An ash tray assembly of the type suitable for use in automotive vehicles including an integral plastic tray for receiving refuse and a metal support casing supporting the receptacle

for movement between open and closed positions. A protrusion extends downwardly from the metal support and into the tray to coact with the rear wall of the tray to provide a stop means which limits opening movement of the tray. Projections extend from the sides of the tray and coact with grooves in the sidewalls of the metal support means for guiding movement of the tray between the open and closed positions. The rearmost projections on each side of the tray are disposed over a discontinuity or enlargement in the grooves when the tray is in the open position whereby the tray may be pivoted about a pair of



more forward projections to move the rearmost projection downwardly into the enlargement thereby rendering ineffective the stop means by moving the rear wall out of interfering engagement with the downwardly extending protrusion to allow the tray to be removed from the support means. The enlargements in the grooves have slanted walls whereby the protrusions are forced into a wedged engagement with the sidewalls as the sidewalls flex outwardly thereby biasing the rearmost projections upwardly into the path of normal movement along the grooves.

3,737,208

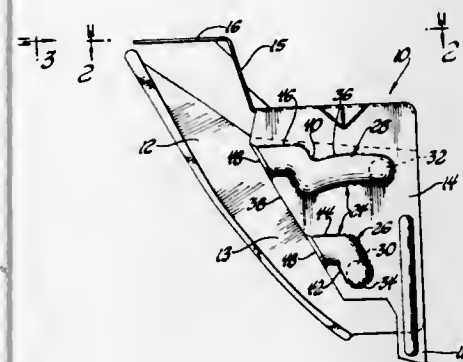
ASH TRAY ASSEMBLY

John H. Haring, Easton, Pa., assignor to McCord Corporation, Detroit, Mich.

Filed Nov. 19, 1971, Ser. No. 200,314
Int. Cl. A47b 67/02; A47i 5/08

U.S. Cl. 312-246

13 Claims



An ash tray assembly of the type utilized in automotive vehicles including an integral one-piece plastic receptacle and a metal support adapted for attachment to the vehicle structure. The receptacle has opposite sides and the support has sides disposed adjacent the sides of the receptacle. A pair of projections extend from the opposite sides of the receptacle and are guided along grooves in the sides of the support. The lower groove on each side has a pocket and the upper groove an arcuate portion struck about the pocket for facilitating rotary movement of the receptacle between open and closed positions. The upper groove on each side has a transversely extending portion extending upwardly from the arcuate portion and the lower groove on each side has a parallel portion extending generally parallel to the transverse portion from the pocket. Additionally, the grooves include removal portions extending parallel to one another and laterally away from the parallel and transverse portions respectively to the extremity or edge of the sides of the support plate for facilitating removal of the receptacle.

3,737,209

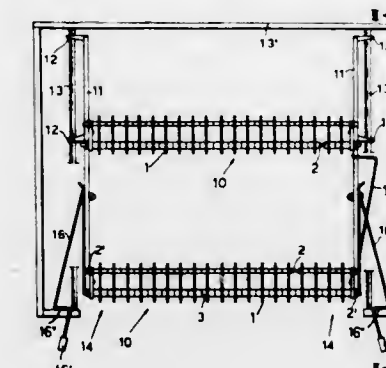
TRAY FOR STORING AND DRYING DISHES AND KITCHEN UTENSILS

Nathan Manor, 69 Zahal Street, Zahalia, Israel

Filed Jan. 20, 1972, Ser. No. 219,487
Int. Cl. A47b 51/00

U.S. Cl. 312-247

6 Claims



An assembly of superposed trays, for storing and drying dishes, is slidably supported on rails and vertically retractable into and out of an encasement. A means for moving the assembly includes springy manipulator members fixed to the assembly. The manipulator members include a latch element normally engageable with the encasement to retain the assembly within the encasement.

3,737,210

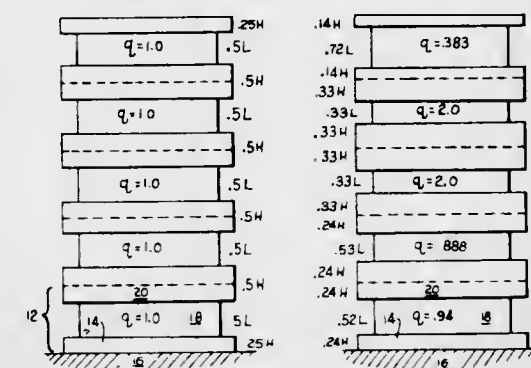
MULTILAYER FILTER BASED ON SUBSTITUTION OF HERPIN EQUIVALENT LAYERS IN AN ANTIREFLECTION COATING FORMULA

James D. Howe, Fairport, N.Y., assignor to Bausch Lomb Incorporated, Rochester, N.Y.

Filed Mar. 31, 1972, Ser. No. 239,895
Int. Cl. G02b 5/28

U.S. Cl. 350-166

2 Claims



A filter comprises a plurality of thin films of alternating materials arranged in a periodic pattern wherein various symmetrical periods define a stopband and have equivalent indices and thicknesses in the passbands determined by adjusting the ratio q of layer thicknesses within the period, the equivalent indices being chosen to correspond to a known antireflecting coating in the passband, while holding the sum σ of the effective layer thicknesses constant for each period.

3,737,211

FERROELECTRIC-TYPE OPTICAL FILTER

John T. Cutchen; Gene H. Haertling; James O. Harris, Jr., and Carroll B. McCampbell, all of Albuquerque, N. Mex., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Dec. 1, 1971, Ser. No. 203,727

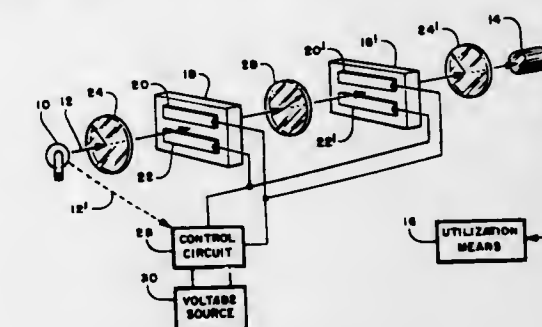
Int. Cl. G02i 1/28, 1/36

U.S. Cl. 350-160 R

4 Claims

A variable density optical filter or window which includes an electrically variable, optically birefringent ferroelectric-

type ceramic plate and means for controlling the birefringence of the plate in response to variations in ambient light to vary



the optical transmittance of the ceramic plate with a rapid response time and potentially high contrast ratio.

3,737,212

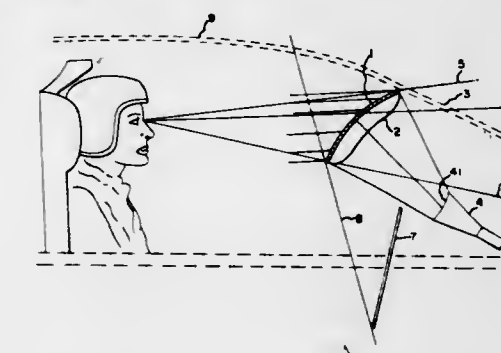
DIFFRACTION OPTICS HEAD UP DISPLAY

Arvid L. Antonson, Vestal; John E. Bigelow; Charles R. Stein, both of Schenectady, and James W. Van Horn, Vestal, all of N.Y., assignors to General Electric Company, New York, N.Y.

Filed Dec. 14, 1970, Ser. No. 97,891
Int. Cl. G02b 27/14

U.S. Cl. 350-174

15 Claims



A head up display for combining a direct view as for example that of an aircraft pilot with superimposed light from another source by use of diffraction optics as a combining and collimating element. A specific implementation of an optical combining element and a secondary projector is also disclosed.

3,737,213

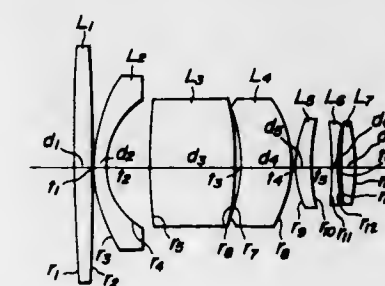
WIDE ANGLE CAMERA LENS SYSTEM OF RETROFOCUS TYPE

Nobuo Yamashita, Suwa, Tama City, Tokyo, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

Filed Feb. 2, 1972, Ser. No. 222,765
Int. Cl. G02b 9/64

U.S. Cl. 350-214

5 Claims



A wide angle camera lens system of retrofocus type comprising a forward lens system having a negative refractive power and consisting of first and second lens elements and a master lens system having positive refractive power and consisting of third and fourth lens elements and a backward lens

system having positive refractive power and consisting fifth, sixth and seventh lens elements and giving negative refractive power to an air lens formed between the third and fourth lens elements in the master lens system.

3,737,214

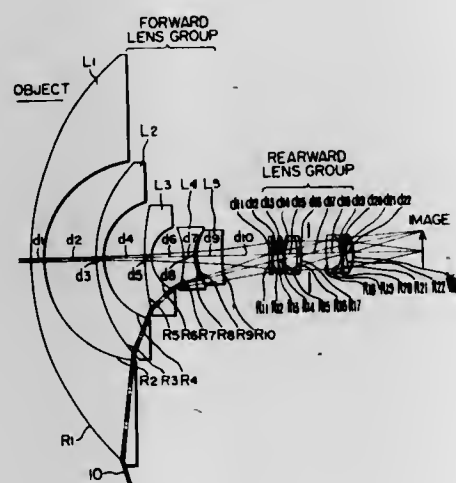
WIDE ANGLE FISHEYE LENS

Yoshiyuki Shimizu, Kanagawa-ken, Kawasaki, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan
Filed Sept. 29, 1971, Ser. No. 184,782
Claims priority, application Japan, Sept. 30, 1970, 45/85420

Int. Cl. G02b 9/64, 13/06

U.S. Cl. 350—214

3 Claims



A fisheye lens whose angle of field is as wide as 220° and whose forward lens group comprises three negative meniscus lenses with their convex surfaces facing the object, a biconcave lens and a positive lens disposed adjacent the biconcave lens, all these lenses being arranged in the named order in the direction away from the object so as to satisfy predetermined conditions.

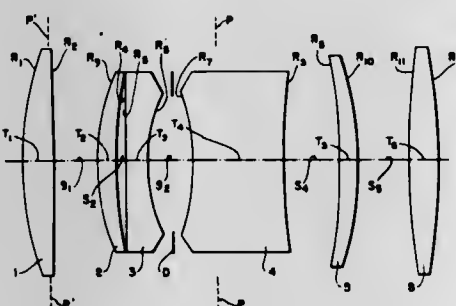
3,737,215

SIX ELEMENT UNIT MAGNIFICATION LENS

Donald De Jager, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Apr. 6, 1972, Ser. No. 241,572
Int. Cl. G02b 9/62

U.S. Cl. 350—215

4 Claims



An asymmetrical lens of a modified Gauss type adapted for printing at unit magnification, comprising six air-spaced elements surrounding an aperture stop, with front and rear positive biconvex elements, front and rear positive meniscus elements concave toward the aperture stop and front and rear negative elements.

3,737,216

TRIPLE MIRROR FOR EYE MAKE-UP-CURVED

Meigo Noda, 3665 Shinyashida-cho, Kohoku-ku, Yokohama, Japan

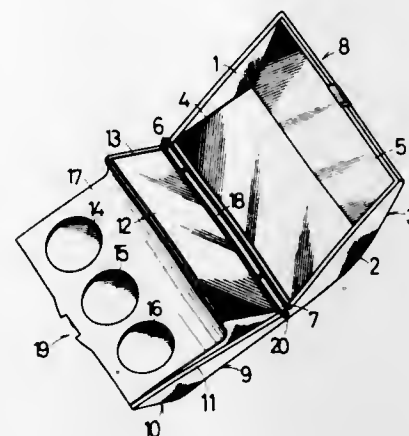
Filed Dec. 16, 1971, Ser. No. 208,964

Claims priority, application Japan, Oct. 1, 1971, 46/90744

Int. Cl. G02b 5/08

U.S. Cl. 350—306

1 Claim



A triple mirror for eye make-up wherein a cover, to the inside of the roof of which two plane mirrors are attached inclined to each other, is joined with a triple mirror body having a plane mirror on the surface of its inclined portion and holes on its horizontal portion, in such a way that said cover can be freely folded and unfolded, and which is so constructed that, when said cover is unfolded, said plane mirror of said triple mirror body and said two triple mirrors of said cover form a triple mirror having a specified angle.

3,737,217

VISUAL EXAMINATION APPARATUS

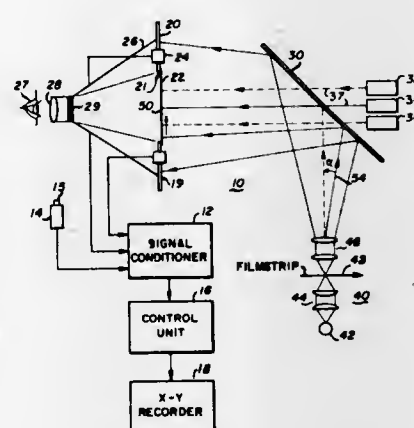
Richard F. Haines, Palo Alto; James W. Fitzgerald, Atascadero, and Salvadore A. Rositano, San Jose, all of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed July 6, 1971, Ser. No. 159,857

Int. Cl. A61b 3/02, 3/06, 5/00

U.S. Cl. 351—23

5 Claims



An automated visual examination apparatus for measuring visual sensitivity and mapping blind spot location including a projection system for displaying to a patient a series of visual stimuli, a response switch enabling him to indicate his reaction to the stimuli, and a recording system responsive to both the visual stimuli per se and the patient's responses, the recording system thereby providing a correlated permanent record of both stimuli and response from which a substantive and readily apparent visual evaluation can be made.

3,737,218

MOTION PICTURE FILM PRESSURE PLATE ASSEMBLY

Gerald H. Cook, Lynnfield, and Rogers B. Downey, Lexington, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

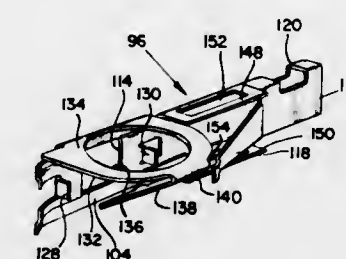
Division of Ser. No. 838,822, July 3, 1969, Pat. No. 3,627,407.

This application Mar. 15, 1971, Ser. No. 124,501

Int. Cl. G03b 23/02

U.S. Cl. 352—78 R

13 Claims



An assembly formed of an integral piece of sheet metal comprising an elongated pressure plate, a leaf-type spring, structure for mounting a light reflecting element in operative relationship to an aperture provided in the pressure plate and structure for reflecting extraneous light rays in a direction away from the light reflecting element. This assembly is particularly well suited for incorporation into a unique low cost motion picture film handling cassette adapted to be first mounted in a camera to facilitate exposure operations and then in a processor-projector unit to facilitate film processing and projection operations.

3,737,219

FILM EDITING DEVICE

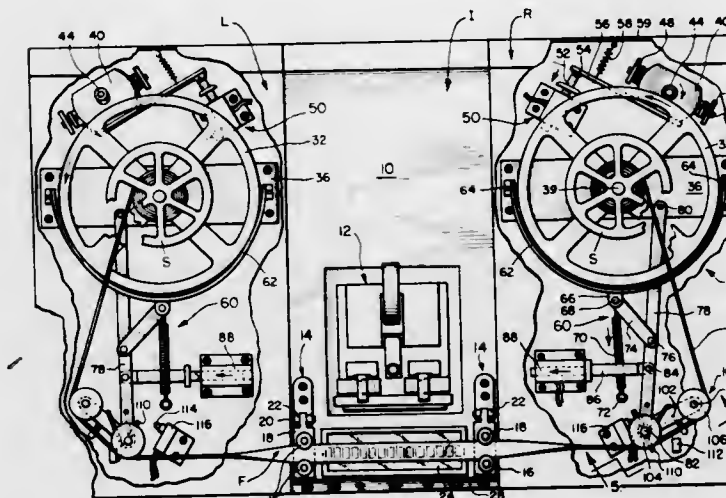
Leif G. Jorgensen, 211 South Main St., Lombard, Ill.

Filed May 17, 1971, Ser. No. 143,761

Int. Cl. G03b 21/00, 29/00

U.S. Cl. 352—129

12 Claims



A device for editing motion picture film which includes a film inspection station having means for viewing, cutting, and splicing film; and a pair of film transporting stations having means for winding the film, means for driving the winding means, braking means, and clutch means for controlling the driving and braking means to prevent accidental breaking of film and also to eliminate excess slack between the winding means.

3,737,220

SLOT-LOAD PROJECTOR

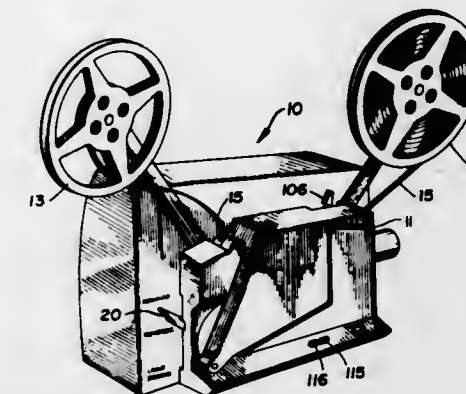
Roy E. Hickey, Honeoye Falls; Robert N. McFadden, Fairport, both of N.Y., and Irwin Delin, deceased, late of Fairfield, Conn., assignors to Graflex, Inc., Pittsford, N.Y.

Filed May 24, 1971, Ser. No. 146,225

Int. Cl. G03b 1/56

U.S. Cl. 352—159

62 Claims



A slot-load projector forms the front loop between the feed sprocket and the gate by means of a mechanical device operated by a main control lever. The projector also provides forward, reverse and rewind operation with the filmstrip in place in the slot without any manual movement of the filmstrip, and the projector includes a complete electro-mechanical system for front and rear loop formation and operation in all modes.

3,737,221

ROTATIONAL DRIVE MECHANISM

Frank A. Roselli, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

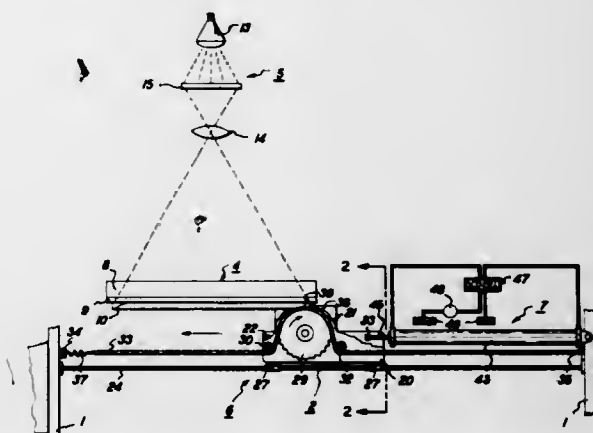
Continuation of Ser. No. 820,756, May 1, 1969, abandoned.

This application July 26, 1971, Ser. No. 166,287

Int. Cl. G03g 15/00

U.S. Cl. 355—3

3 Claims



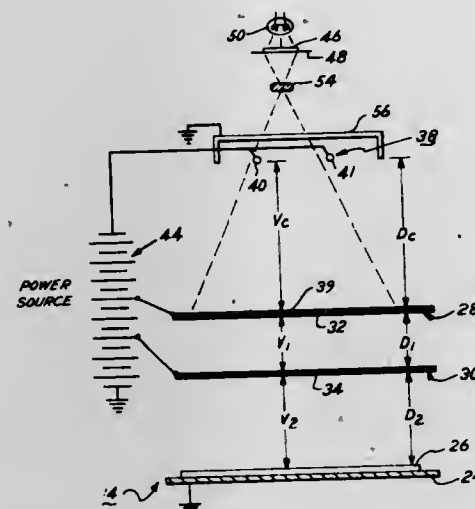
A photoelectrophoretic imaging system is disclosed wherein complementary images are formed from a photosensitive ink placed between a flat transparent conductive plate and a conductive roller coated with a dielectric material. The flat plate is transparent and a light image is projected to the ink through it. The plate and roller are coupled to a voltage source to establish an electric field between them as required by the photoelectrophoretic process; therefore the complementary images are formed as the roller is moved over the surface of the plate. The roller is propelled past the plate by a hydraulic cylinder having its piston rod coupled to the roller and it is made to rotate at an angular velocity directly related to its linear velocity by a link chain anchored at two ends and looped over a mating sprocket coupled to the roller.

3,737,222 COPYING MACHINE

Lloyd A. Briggs, 1420 Sheridan Road, Wilmette, Ill.; Dave R. Kazen, Niles, Ill., and Val R. Viers, Colorado Springs, Colo., assignors to said Briggs, by said Viers
Filed Nov. 19, 1971, Ser. No. 200,360
Int. Cl. G03g 15/00

U.S. Cl. 355-3

12 Claims



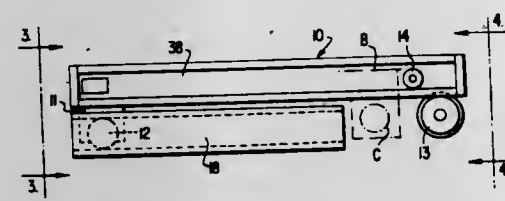
An improved electrostatic copying machine which utilizes a novel, biased double screen arrangement to form latent electrostatic image on a dielectric receiving layer, such as paper or the like, is disclosed. The double screen arrangement includes a first wire mesh screen having a photoconductive coating thereon and a second wire mesh screen having either a photoconductive coating or an insulator coating thereon. These screens are positioned, one above the other, between a conventional corona device and the receiving layer, with the first screen being positioned adjacent to the corona device and the second screen being positioned adjacent to the receiving layer. The first screen is biased with respect to the receiving layer by projecting an optical image of the original to be copied onto the first screen while simultaneously raising the corona device to a corona discharge potential. The latent electrostatic image thus formed on the receiving layer is then made visible by suitable developing techniques known to the art.

**3,737,223
PLATEN DRIVING DEVICE IN AN
ELECTROPHOTOGRAPHIC COPYING MACHINE**
Kazunobu Yamamoto, Tokyo, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Dec. 2, 1971, Ser. No. 204,067
Claims priority, application Japan, Dec. 14, 1970, 45/123929
Int. Cl. G03b 27/48, 27/50

U.S. Cl. 355-8

1 Claim



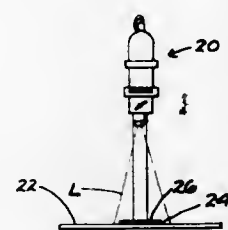
Apparatus for driving a platen in an electrophotographic copying machine including a platen, a drive roller in friction contact with the bottom of the platen, a platen support means, power means for rotating the drive roller to move the platen in a predetermined direction in the horizontal plane, and depressing means for depressing the platen onto the drive roller to thereby prevent vertical movement of the platen during movement of the platen in the predetermined direction.

3,737,224 APPARATUS FOR CALCULATING EXPOSURE TIMES AND SUBTRACTIVE COLOR FILTRATION IN DARK ROOM PHOTOGRAPHY

J. Glenn Culler, Ann Arbor, Mich., assignor to KMS Industries, Inc., Ann Arbor, Mich.
Filed July 30, 1971, Ser. No. 167,766
Int. Cl. G03b 27/32; G06c 3/00

U.S. Cl. 355-32

13 Claims



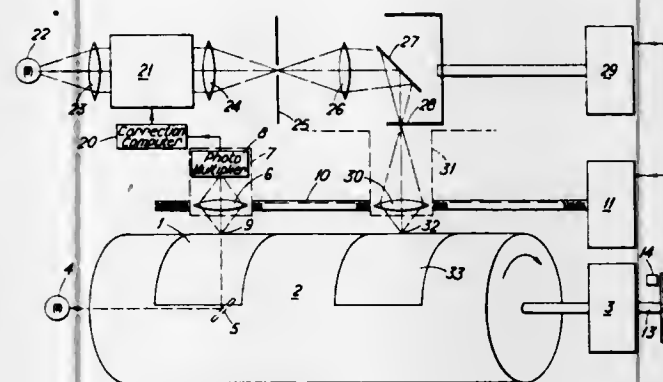
Apparatus for determining proper exposure times and subtractive color filtration in making color prints from color negative films comprises a calculator and a data converter. Color print paper is test exposed to light passing through the negative, a diffusion filter, and red, green, and blue double wedge shaped filters of graduated density in the calculator. When the paper is developed the faintest sharply defined cyan, magenta, and yellow image indicates the correct exposure time for its respective primary color and the correct exposure time for printing is that indicated by said cyan image.

The data converter has three rotatable discs, each with an index for one primary color settable relative to an adjacent exposure duration scale at the test print value. This causes another index on each disc to set at a correlated subtractive color filter density value on another scale. After the discs are moved together to eliminate neutral density, the filter pack combination is read from the subtractive indices.

**3,737,225
HALF-TONE IMAGE REPRODUCTION**
John E. Aughton, London, England, assignor to Crosfield Electronics Limited, London, England
Filed Dec. 27, 1971, Ser. No. 212,434
Int. Cl. G03f 5/02

U.S. Cl. 355-48

5 Claims



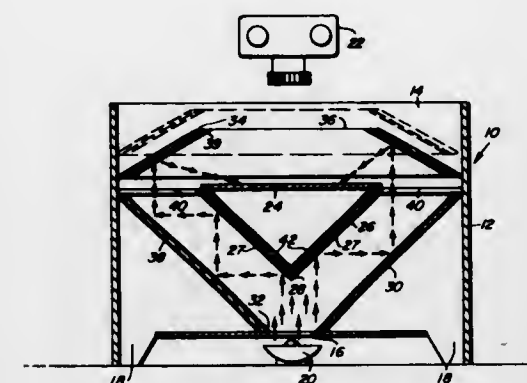
In image reproduction apparatus employing a scanning light spot to expose a light-sensitive sheet, a half-tone image is produced by moving a light-transmitting half-tone screen element through the light path between the light source and the light-sensitive sheet at a point in the light path conjugate with the light spot on the sheet. In this way an image of the moving screen element, which may be a rotating loop of film, is formed at the light-sensitive surface.

3,737,226 LIGHT DIFFUSION ASSEMBLY FOR CLOSE-UP PHOTOGRAPHY

Lawton F. Shank, R. R. No. 2, Howe, Ind.
Filed Oct. 22, 1971, Ser. No. 191,908
Int. Cl. G03b 27/54

U.S. Cl. 355-67

12 Claims

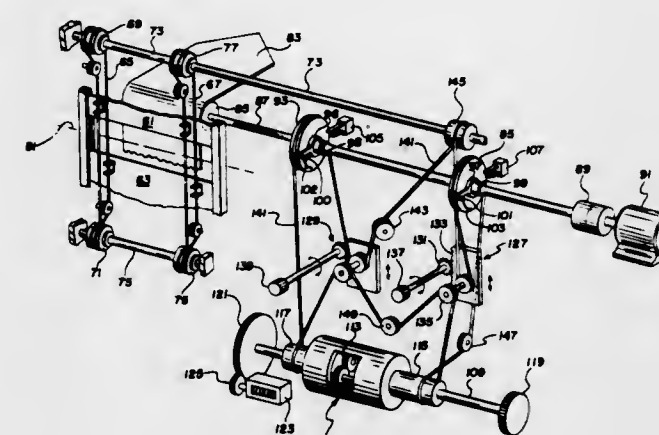


A light diffusion assembly for close-up photography, said assembly comprising a generally cubical housing with a light-receiving opening in one side and a camera lens opening in the opposite side, a plurality of pyramid-like reflectors aligned with each other and with the light-receiving opening to reflect and diffuse the light from the source onto a photographic subject supported within the housing remote from the light-receiving opening in order to eliminate undesirable shadows and reflections.

**3,737,227
PRINT BORDER CONTROL APPARATUS**
James E. Harter, and Norman J. Rosenburgh, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Sept. 20, 1971, Ser. No. 181,686
Int. Cl. G03b 27/58

U.S. Cl. 355-74

9 Claims

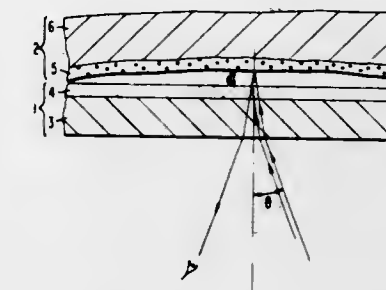


Photographic printing apparatus for making varying size prints with adjustable border settings, the various print sizes corresponding to different magnifications. The apparatus utilizes a two stage print paper advance mechanism continually referenced to horizontal and vertical optical center lines, whereby the sequential exposures of varying size including their respective borders are contiguous. The two stage advance also permits simplified marking of the print paper for subsequent cutting operations.

**3,737,228
CONTACT PRINTER FOR PHOTOGRAPHIC MATERIAL**
Hitoshi Urabe; Kimitoshi Nagao; Masao Takano, and Shigeru Watanabe, all of Ashigara-Kamigun, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Apr. 26, 1972, Ser. No. 247,672
Claims priority, application Japan, Apr. 26, 1971, 46/27353
Int. Cl. G03b 27/02

U.S. Cl. 355-78

5 Claims

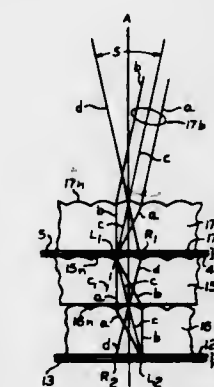


A vacuum contact printer for photographic material wherein the degree of contact between an original document and a photosensitive material can be determined even during operation of a vacuum pump by examining an interference fringe of a coherent light.

**3,737,229
RELIEF PHOTOGRAPH CONVERSION PRINTING
APPARATUS**
Harry S. Jones, Monmouth Beach, N.J., assignor to Chrom-Tronics, Inc., New York, N.Y.
Filed June 27, 1967, Ser. No. 649,312
Int. Cl. G03b 27/02

U.S. Cl. 355-78

4 Claims



Photographic printing method and apparatus for converting abnormal, reversed or pseudoscopic three-dimensional photographic images to normal images concurrently with the printing thereof in desired size relation through interposition use of multielement lens overlays to effect selective optical inversion of component image elements and exposure of photosensitive film to such inverted relief data images.

**3,737,230
WEB TRANSPORT SYSTEMS FOR COPYING MACHINES**
Henricus J. M. van Meijel, and Gerardus J. H. van Beek, both of Venlo, Netherlands, assignors to Océ-van der Grinten N.V., Venlo, Netherlands
Filed Nov. 30, 1971, Ser. No. 203,334
Claims priority, application Netherlands, Dec. 7, 1970, 7017831

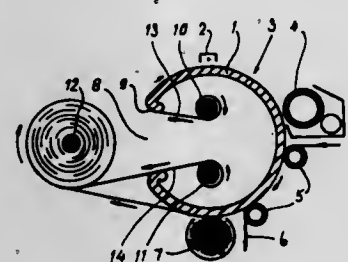
Int. Cl. F03b 27/10; G03g 15/00

U.S. Cl. 355-111

11 Claims

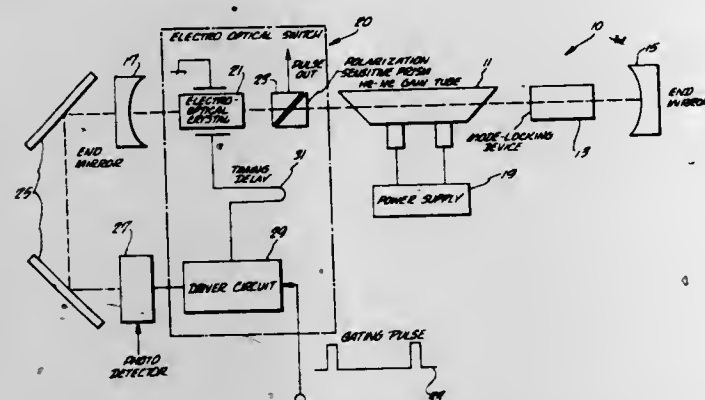
A copying apparatus having a processing zone in which images are formed on a continuous light-sensitive web and then transferred from it to copy material is provided with two such webs which extend and are moved simultaneously

between holding means, e.g., one or two rotary winding spools or other web storage devices, and take-up means such as one or two rotary spools, and with displaceable means which engage leads of said webs so as to guide one of them through the processing zone and thence to the take-up means or the holding means while the other web is being moved directly to the latter and which, upon being displaced to a second working position with reversal of the direction of movement of the webs, will guide the other web through the processing zone and thence to the holding means or the take-up means while



passing the one web directly back to the latter. The displaceable guide means may be constituted by a hollow structure, such as a slotted cylindrical drum or a series of rollers in an angular arrangement, which has a lateral opening for the web leads, is rotatable through an angle of at most 360°, has rotary spool means mounted therewithin, and has the processing zone disposed about its outer periphery. In apparatus having a rectilinear or slightly curved processing zone, the guide means may comprise a set of rollers displaceable between working positions at opposite ends of such zone.

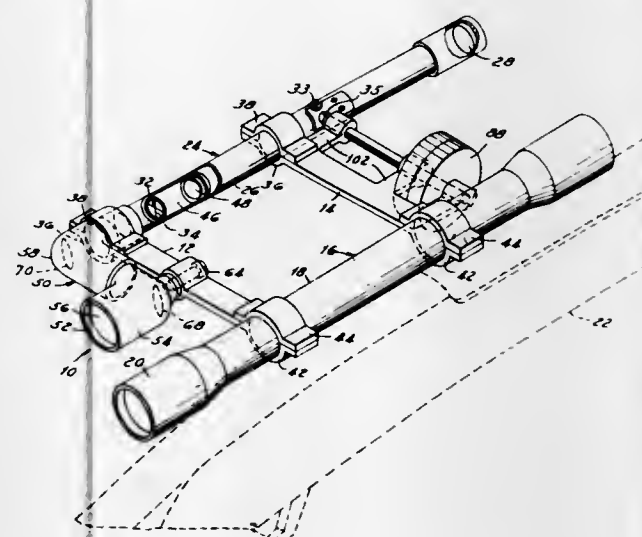
3,737,231
HIGH PULSE RATE HIGH RESOLUTION OPTICAL RADAR SYSTEM
George M. Low, Deputy Administrator of the National Aeronautics and Space Administration with respect to an invention of; Willis C. Goss, Altadena; Richard H. Burns, and Ko-Chuan Chi, both of Pasadena, all of Calif.
Filed Nov. 13, 1970, Ser. No. 89,210
Int. Cl. G01c 3/08
U.S. Cl. 356-5



A radar transmitting system is disclosed for transmitting an optical pulse to a target comprising an optical cavity containing a laser incorporating a mode-locking means to build up an optical pulse. An optical switch is also provided within the cavity to convert the polarization of the optical pulse generated within the cavity. The optical switch comprises an electro-optical crystal driven by a time delayed driver circuit which is triggered by a coincident signal made from an optical pulse signal and a gating pulse signal. Upon being energized, the electro-optical crystal functions to convert the polarization of the optical pulse as it passes through the crystal. This converted optical pulse then strikes a polarization sensitive prism and is deflected out of the cavity toward the pending target in the form of a pulse containing most of the optical energy generated by the laser in the pulse build-up period. After striking the target, the reflected energy is picked up by a

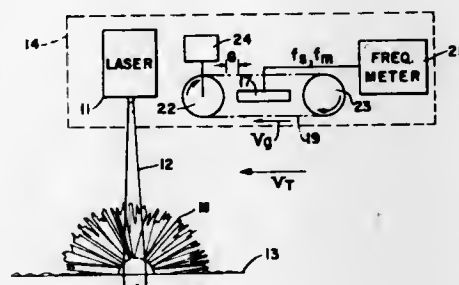
transceiver with the total travel time of the pulse being recorded. This travel time is a measure of the distance from the transceiver to the target.

3,737,232
FIREARM TELESCOPIC RANGE FINDER
Raymond E. Milburn, Jr., Route No. 1, Box 128, Round Lake, Ill.
Filed Oct. 15, 1970, Ser. No. 80,840
Int. Cl. G01c 3/14
U.S. Cl. 356-18



A range finder device with a range telescope mounted parallel to and laterally spaced from a conventional gun sight telescope adapted to be mounted on a rifle. The range telescope has an optical and mechanical mechanism for sweeping its line of sight in a generally horizontal plane so that it crosses the line of sight of the gun telescope. A manually rotatable wheel with graduations thereon drives the mechanism for sweeping the line of sight of the range telescope. The graduations are spaced on the wheel in proportion to the included angle formed by the crossing of the lines of sight to provide an indication of the distance between a target at the point of crossing and the rifle on which the range finder device is mounted.

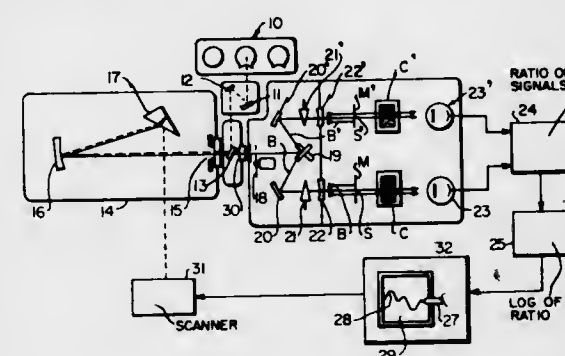
3,737,233
VECTOR VELOCIMETER
Donald Z. Blau, City Island, and Jesse C. Kaufman, Yorktown Heights, both of N.Y., assignors to The Singer Company, New York, N.Y.
Filed Feb. 22, 1971, Ser. No. 117,349
Int. Cl. G01p 3/36
U.S. Cl. 356-28



A velocimeter having: a source of coherent radiation directed to irradiate a surface from which the relative velocity is to be measured; a receiver for the resulting reflection of coherent radiation from said surface, the receiver including a receiving aperture and a photodetector responsive to the reflected radiation passing through the aperture; a drive to translate the aperture, and; circuitry to indicate the frequencies of the signals generated by the photodetector when the aperture is stationary in relation to the photodetector and

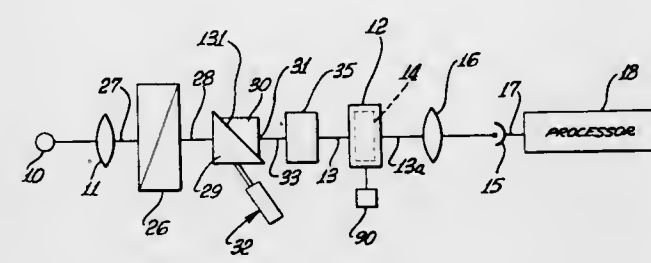
when the aperture is translated in relation to said photodetector. The velocimeter determines the magnitude and the direction of the velocity vector it measures. A navigation velocimeter, using the described velocimeter, is disclosed for use in an aircraft to determine the direction and magnitude of the velocity vector of the aircraft with respect to the ground. The aperture hereinabove mentioned is preferably a plurality of slits, alternately transparent and opaque, such as in a transmission type optical diffraction grating.

3,737,234
SPECTROPHOTOMETER FOR MEASUREMENT OF DERIVATIVE SPECTRA
Kazuo Shibata, Tokyo, and Takashi Kurita, Kyoto, both of Japan, assignors to Shimadzu Selsakusho Ltd., Kyoto, Japan
Continuation-in-part of Ser. No. 571,458, Aug. 10, 1966, abandoned. This application Dec. 17, 1970, Ser. No. 99,140
Int. Cl. G01j 3/42
U.S. Cl. 356-88



A spectrophotometer for measurement of the derivative spectra of substances, comprising a monochromatic light source having a spectral bandwidth, a beam divider for dividing the light from the light source into two beams, masks separate from and positioned optically downstream from the beam divider for partially masking the beams so that the unmasked portion of each of the beams has a nominal wavelength different by a predetermined value from that of the unmasked portion of the other beam, a sample container so arranged as to receive the unmasked portions of the light beams and a detector to measure the intensities of light beams transmitted through the sample cells.

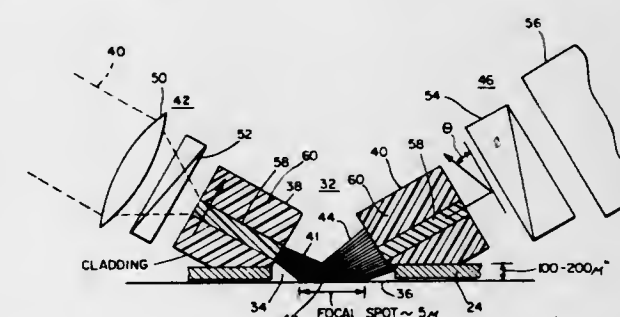
3,737,235
POLARIZATION INTERFEROMETER WITH BEAM POLARIZING COMPENSATOR
Roland C. Hawes, Monrovia, Calif., assignor to Cary Instruments, Monrovia, Calif.
Filed Feb. 10, 1972, Ser. No. 225,238
Int. Cl. G01n 21/40
U.S. Cl. 356-114



Dichroism measurement apparatus includes interferometer means for processing linearly polarized source radiation to provide a beam characterized, for each wavelength, by ellipticity that alternates between left and right circular polarization and between which the beam polarization becomes linear in one direction as the ellipticity alternates from left to right circular polarization, and linear in the orthogonal direction as the ellipticity alternates from right to left circular polarization,

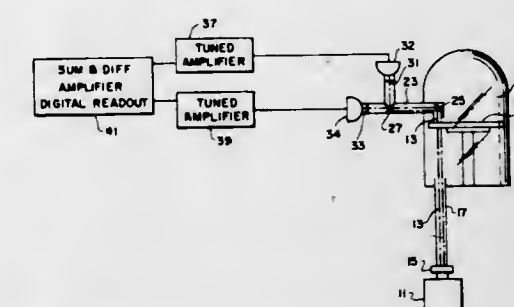
the characteristic frequency ν_0 of such alternation varying as a function of the wavelength. The interferometer means comprises relatively fixed and movable prisms, both having axes at 45° to the linear polarization direction, and actuating means for effecting such relative movement of said prisms to control the frequencies ν_0 .

3,737,236
MAGNETOOPTIC READOUT SYSTEM UTILIZING OPTICAL WAVEGUIDE FIBERS
Nicholas F. Borrelli, Elmira, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Jan. 3, 1972, Ser. No. 214,898
Int. Cl. G01n 21/40
U.S. Cl. 356-118



Optical waveguide fibers are utilized in a magneto-optic readout system for magnetic disk file applications to maintain high resolution capabilities of plane polarized light beams. In one type of system, a first waveguide fiber transmits the light beam from a source to a magnetized storage medium and a second waveguide fiber transmits the reflected light beam from the magnetized storage medium to a combination analyzer-detector. The waveguide fibers may be of the self-focusing type with the point of focus being maintained at the magnetized medium. In another type of system, a single waveguide fiber is utilized to transmit the light beam from the source and back to the analyzer-detector. The end of the waveguide fiber adjacent the magnetized medium is coated with a magnetic film having a low coercive field. The light beam is reflected from the film which lies within the flux lines generated by the magnetized medium and undergoes a polarization reversal.

3,737,237
MONITORING DEPOSITION OF FILMS
James L. Zurasky, Hunstville, Ala., assignor to The United States of America as represented by the Secretary of the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Nov. 18, 1971, Ser. No. 200,085
Int. Cl. G01b 11/00
U.S. Cl. 356-161



A system using dual wavelength characteristics of light passing through a film being deposited to generate an output signal that changes rapidly at the point when the deposition process should stop or change. Photodetectors are used to sense the light intensity changes at the two wavelengths and the monitored signal represents the ratio of their sums and difference signal strengths.

3,737,238

DEVICES FOR CENTERING SPECTACLE LENSES

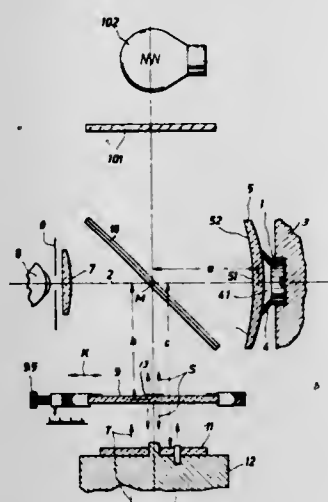
Josef Rudolf Reiner, Rodenkirchen, and Gunther Paul Theodore Schramm, Neuss, both of Germany, assignors to Firma Wernicke & Co., K.G., Düsseldorf-Eller, Germany

Filed Nov. 19, 1971, Ser. No. 200,542

Claims priority, application Germany, Nov. 28, 1970, P 20 58 651.0

Int. Cl. G01b 11/26

U.S. Cl. 356—172



This invention is concerned with devices for centering spectacle lenses, in which the lens is located on a support or mount by means of a rubber cap or the like, so that by copying a template or pattern in a grinding machine the lens is given its desired peripheral shape, the de-centering of the lens vis-a-vis the central rotation point of the template or the mount is transmitted onto a reference plate with a graded scale at the edge and a center cross or other index mark.

3,737,239

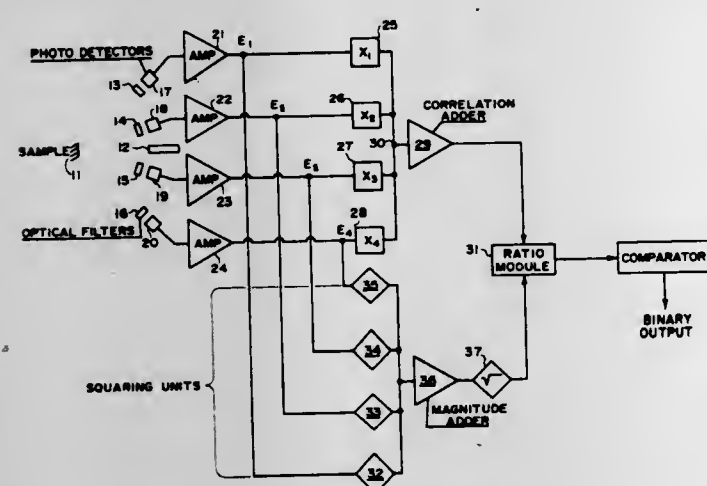
MACHINE COLOR RECOGNITION

Jim Mills Adams, West Caldwell, and William Charles Grimmell, Lake Hiawatha, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed July 16, 1971, Ser. No. 163,306

Int. Cl. G01j 3/46

U.S. Cl. 356—177



Automatic cross-correlation specimen monitoring apparatus and method for identifying spectral reflectance characteristics of a specimen relative to a standard comprising: sensing reflectance values of the specimen at each of two or more overlapping bandwidths covering the spectrum, generating electrical output signals indicative of the reflectance values, modifying the signals with standard reference values one for each of the bandwidths, relating the modified and unmodified signals to generate a cross-correlation coefficient between the specimen reflectance values and

the standard reference values, and comparing the cross-correlation coefficient with a preset value representative of a minimum deviation from the standard to quantitatively determine the similarity in spectral reflectance between the specimen and the standard.

3,737,240

EXPOSURE INDICATOR IN A PHOTOGRAPHIC CAMERA

Karl Wagner, Ottobrunn, Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

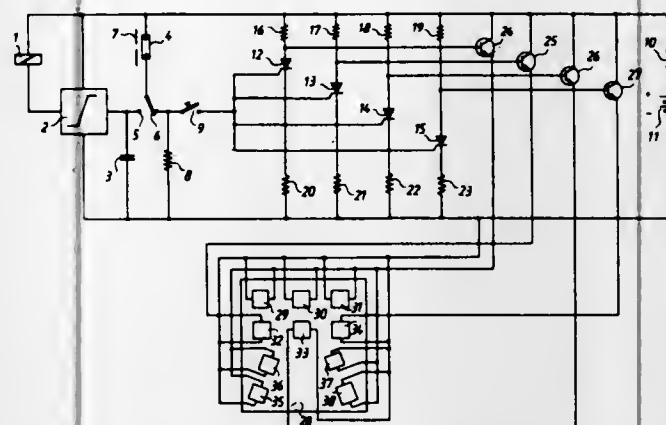
Filed Dec. 23, 1971, Ser. No. 211,209

Claims priority, application Germany, Dec. 24, 1970, P 20 63 704.1

Int. Cl. G01j 1/42

U.S. Cl. 356—227

12 Claims



A photoelectric element furnishes a signal corresponding to the light available for an exposure. The photoelectric element is connected to a plurality of threshold stages. A plurality of indicator elements which glow when energized are arranged in space and connected to the threshold stages in such a manner that glowing indicator elements form a figure signifying the particular exposure time range.

3,737,241

CONTAINER

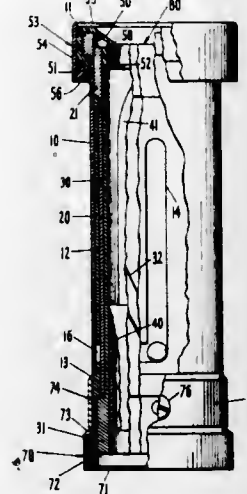
William J. J. Gordon; Carleton S. Marden, and Charles R. Sperry, all of Cambridge, Mass., assignors to William J. J. Gordon, Cambridge, Mass.; Lawrence E. Fenn, Bridgeport, Conn.; Cavas M. Gobhal and George M. Prince, Cambridge, Mass.

Continuation-in-part of Ser. Nos. 715,103, March 21, 1968, and Ser. No. 555,395, June 6, 1966, and a continuation of Ser. No. 8,290, Feb. 3, 1970, abandoned. This application Feb. 9, 1972, Ser. No. 224,994

Int. Cl. A45d 40/06

U.S. Cl. 401—59

11 Claims



A lipstick container comprising a tubular casing, an elevator positioned and longitudinally movable in the casing, means for

3,737,244

SOIL COMPACTOR

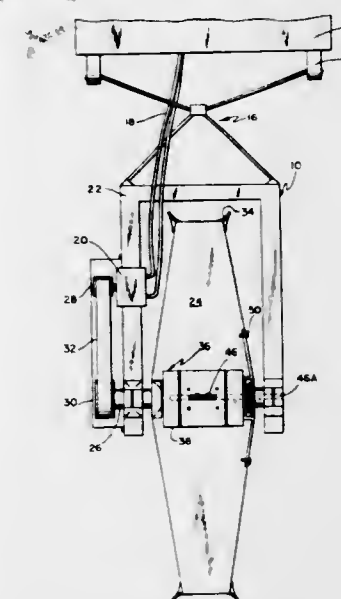
Robert Glen Wilson, 706 Aho-Carson Road, Woodland, Wash.

Filed July 28, 1971, Ser. No. 166,900

Int. Cl. E01c 19/28

U.S. Cl. 404—117

7 Claims



longitudinally moving the elevator in the casing, an iris at one end of the tubular casing comprising an annularly folded, flexible and stretchable, thin-walled tube with the flexible, thin-walled tube secured at one end to the casing. Rotatable retaining means secure the other end of the thin-walled tube within the casing and are adapted on rotation to cause the iris to open and close. Means operatively interengage the means for moving the elevator and the retaining means for sequentially actuating the iris and the longitudinally moving means.

3,737,242

TUBE WRITING PEN

Manfred Hesebeck, Korachstr. 5, 205 Bergendorf, and Holger Suring, Marienhöhe 145, 2085 Quickborn, both of Germany

Filed July 15, 1971, Ser. No. 162,900

Claims priority, application Germany, July 17, 1970, P 20 35 526.4

Int. Cl. B43k 5/04, 5/14, 1/10

U.S. Cl. 401—157

14 Claims



A stylographic or tube writing pen wherein the wall of the ink reservoir consists, at least in part, of a thin and flexible material which is capable of yielding to changes in pressure and serving to adapt the available capacity of the ink reservoir to the volume of ink contained therein. The construction eliminates the necessity of an equalization chamber normally incorporated in such pens, connecting the interior of the reservoir to ambient atmosphere, and the possibility of ink drying therein which leads to pen clogging.

3,737,243

SOIL AND PAVEMENT COMPACTING MACHINE

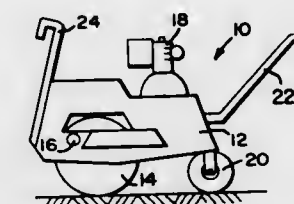
Seymour Dresner, Morristown, N.J., assignor to Ingersoll-Rand Company, New York, N.Y.

Filed Sept. 7, 1971, Ser. No. 177,996

Int. Cl. E01c 19/26

U.S. Cl. 404—122

2 Claims



The machine has a frame to which a compacting drum is rotatably mounted and has a pneumatic-tired wheel pivotally journaled to the frame. The wheel is independently powered by a hydraulic motor to provide machine traction, and is steerable by means of an extending handle coupled thereto.

3,737,245

DRILL BIT FOR POLE BORING MACHINE

Milton H. Mater, 1415 Brook Lane, Corvallis, Oreg.

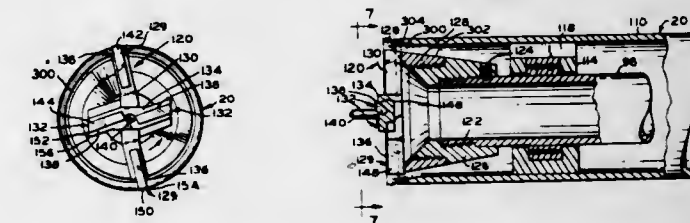
Division of Ser. No. 843,043, July 18, 1969, Pat. No.

3,598,393, which is a division of Ser. No. 672,064, Oct. 2, 1967, Pat. No. 3,502,124. This application Apr. 8, 1971, Ser. No. 132,538

Int. Cl. B23b 41/02, 51/06

U.S. Cl. 408—225

10 Claims



A pair of aligned drills each includes a drill tube carrying a drill bit including a forward pilot pin, forward cutters of a smaller diameter and rearward cutters of a larger diameter. The drill tube is rotated and drills an axial hole in a pole slightly larger than a guide tube, which extends to a point just behind the rearward cutters and journals the drill tube. Pressurized air fed into the guide tube through a rotary coupling travels through a venturi passage at the forward end of the guide tube and carries chips from the drill bit back through the drill tube. The guide tube is rotated slowly to dislodge chips and facilitate movement of the guide tube into the bore being formed. A carriage slidable on tubular ways and guides slidable on the ways support the guide tube and is moved forwardly slowly by a cable drive to feed the drill and is returned rapidly by the cable drive. The drills are moved forwardly from opposite ends of the pole to be drilled until one drill reaches the end of its feed stroke and then this drill is retracted while the

other drill completes its stroke. A slidable interlock prevents the drills from coming together and reverses the motion of the carriage of one of the drills when the drills closely approach each other. Opposed clamps having generally V-shaped jaws on the ends of tongs grip and center the pole relative to the drills. The rotary coupling forms pressure-tight seals both with the drill tube and the guide tube. Spiders in the guide tube mount ball bearings journaling the drill tube and permit flow of air along the space between the drill tube and the guide tube.

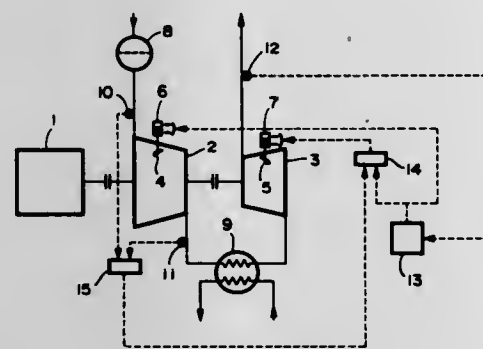
3,737,246

CONTROL METHOD OF COMPRESSORS TO BE OPERATED AT CONSTANT SPEED

Takeshi Shirato, and Toshiyuki Ogishi, both of Tamano, Okayama, Japan, assignors to Mitsui Shipbuilding and Engineering Co., Ltd., Tokyo, Japan
Filed July 30, 1971, Ser. No. 167,672
Int. Cl. F01d 1/00

U.S. Cl. 415-1

2 Claims



In a compressor system comprising a low pressure compressor, an intermediate cooler and a high pressure compressor, wherein the compressors are operated at a constant speed, and the pressure distribution ratio is controlled to bring it to an optimum value, by employing a variable blade type compressor for said high pressure compressor and varying the setting angle of the stationary blades of said high pressure compressor according to the delivery pressure of its own, and thereby securing a safety operation and a wide operational range when said compressors are used in off-design.

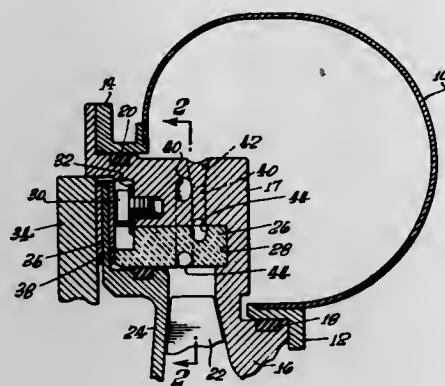
3,737,247

COMPOSITE NOZZLE

William A. Horning, Los Angeles, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.
Filed Apr. 12, 1971, Ser. No. 133,002
Int. Cl. F01d 1/08

U.S. Cl. 415-195

14 Claims

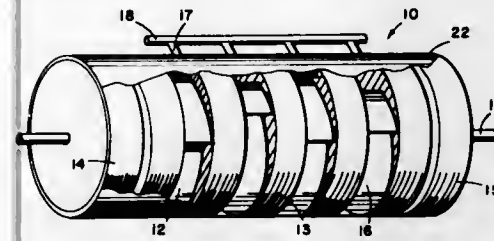


A composite turbine nozzle is provided with an erosion-resistant inner surface.

3,737,248
ROTARY ENGINE
Erich E. Abraham, 3400 20th Avenue, S.W., Largo, Fla.
Filed Nov. 15, 1971, Ser. No. 198,739
Int. Cl. F04d 29/40; F01d 1/10

U.S. Cl. 415-198

4 Claims



A rotary steam engine apparatus is provided having rotors mounted on a shaft and enclosed in a housing with input and output steam ports for driving the rotors. Each rotor has at least one chamber having a generally arcuate teardrop cross section shape adapted for opening and closing the input and output ports in a predetermined cycle.

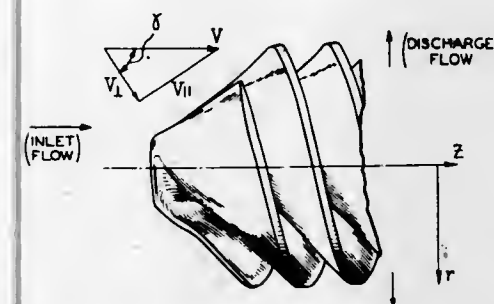
3,737,249

HIGH FLOW PUMP IMPELLER FOR LOW NET POSITIVE SUCTION HEAD AND METHOD OF DESIGNING SAME

Paul Cooper, Cleveland Heights, Ohio, assignor to TRW Inc., Cleveland, Ohio
Filed Aug. 26, 1970, Ser. No. 67,131
Int. Cl. F04d 3/02

U.S. Cl. 416-179

2 Claims



A centrifugal or axial-flow impeller has its blade elements inclined at a predetermined sweep angle γ from the perpendicular to the direction of the approaching fluid being pumped. The sweep angle γ is quite large, being in the inlet region of the impeller typically 45° or more.

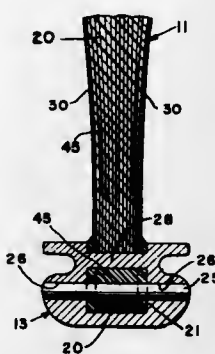
3,737,250

FIBER BLADE ATTACHMENT

Walter Pilpel, West Hartford; Spencer P. Torell, New Britain, and Charles E. Spaeth, Manchester, all of Conn., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed June 16, 1971, Ser. No. 153,720
Int. Cl. F01d 5/30

U.S. Cl. 416-219

4 Claims



A fiber composite compressor blade having spanwise fiber elements cast within an appropriate composite material

wherein at the root end of the blade the fiber elements are looped over transverse pins extending across a hollow root fitting. The root fitting is generally formed to dovetail into peripheral slots extending across a compressor disc. The exterior of each blade is enclosed by layers of crossply fiber cloth and the cavity within the root fitting is filled with an appropriate potting compound to respectively provide strength and rigidity to the blade.

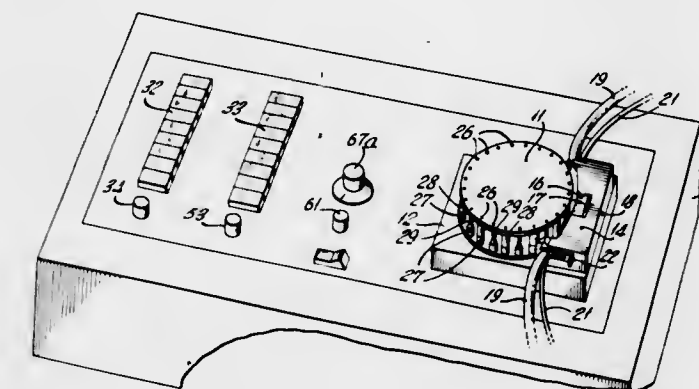
3,737,251

PERISTALTIC PUMP

Richard M. Berman, Dresher, Pa.; Bernard Schwartz, Springfield, and Lyman W. Bethke, Trenton, both of N.J., assignors to Alphamedics Mfg. Corp., Levittown, Pa.
Filed Feb. 8, 1971, Ser. No. 113,388
Int. Cl. F04b 49/00

U.S. Cl. 417-12

11 Claims



A peristaltic or roller pump is disclosed in which a pair of compressible tubes of unequal inside diameter are held between pumping shoes and a rotor. The rotor has a plurality of pins equally spaced along the periphery thereof. Each of the pins carries one roller thereon for occluding the larger tube. Alternate pins carrying a second roller for occluding the smaller tube.

A stepping motor is employed to drive the rotor in angular increments so that a precision volume can be dispensed. The stepping motor is driven by pulses which initially have a greater interval therebetween than would occur during the normal operation thereof. In this way, the rotor can be driven with a small torque stepping motor.

The ends of the tubes are rigidly held adjacent to the associated pumping shoes so that the pump will operate symmetrically with the rotor being driven in either a pick up or delivery mode.

3,737,252

METHOD OF AND APPARATUS FOR CONTROLLING THE OPERATION OF GAS COMPRESSION APPARATUS

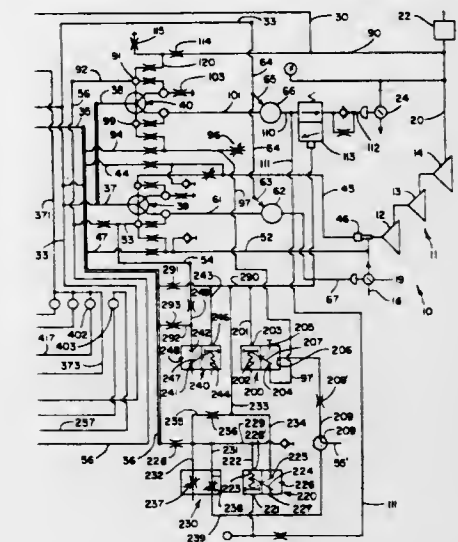
Karol Pilarczyk, Loudonville, and Hans Pennink, Scotia, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.
Filed Feb. 23, 1971, Ser. No. 117,895
Int. Cl. F04b 49/02; F04d 27/00

U.S. Cl. 417-53

6 Claims

A control system for regulating operation of gas compression apparatus operable on base mode. The discharge pressure of the gas from the compression plant is sensed and a signal related thereto is compared to a predetermined signal to produce a resultant control signal, operable to modulate a dump valve which governs the venting of excess discharge gas to the atmosphere. When the magnitude of the resultant control signal reaches a predetermined value, a second control signal is transmitted to cause the dump valve to assume a fully

open position. The second control signal also causes a valve regulating flow of gas to the inlet of the compressor to assume



a fully closed position. The compressor is thereby in an idle state.

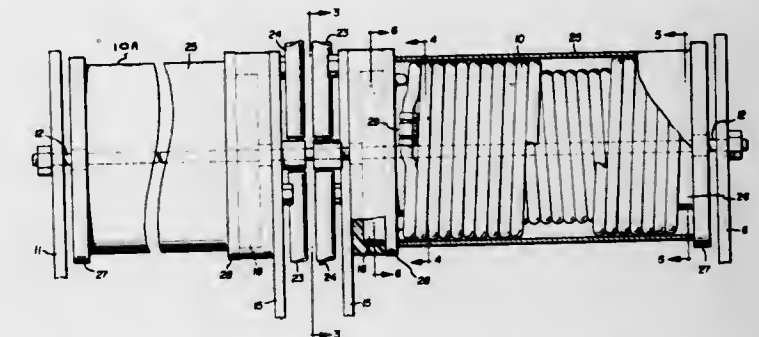
3,737,253

INERTIA PUMP FOR LIQUIDS

James B. Foote, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Feb. 4, 1971, Ser. No. 112,572
Int. Cl. F04f 7/00

U.S. Cl. 417-241

2 Claims



An inertia pump including an accelerator-tube, forming a helical fluid path, which is either a metal coil or a glass-ceramic material, mounted for rotation about the long axis of the coil, means for reciprocating the coil about the axis, a piping system for supplying fluid to the coil, and for discharging fluid from the coil. A valve assembly inserted into the piping system includes a pair of inlet and outlet check valves for converting a reciprocating flow into a unidirectional flow. A fluid is entrapped within the helical coil which, due to its inertia, generates a pressure when the accelerator-tube is oscillated. This alternating pressure is converted to one direction flow and is utilized to pump fluid through the piping system external to the accelerator-tube. The preferred device has a double set of accelerator-tubes on a common shaft.

The denser the entrapped fluid, the higher the pump pressure.

The accelerator-tube is made from a glass ceramic in one embodiment.

3,737,254

REGENERATIVE RAPID STROKE RECIPROCATING HYDRAULIC PRESSURE CONVERTER

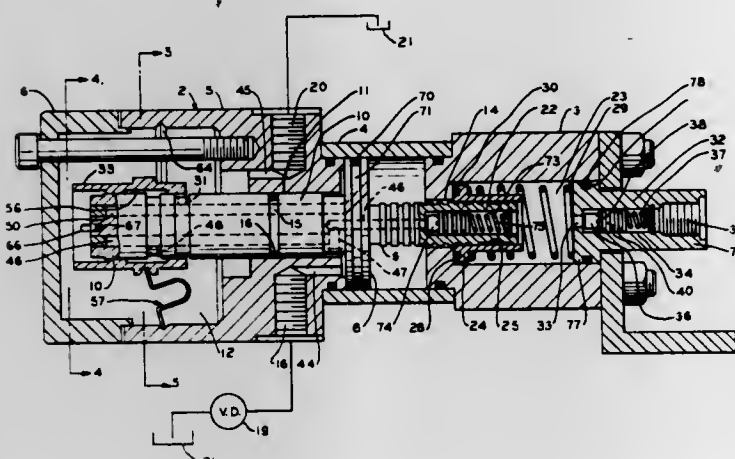
Eugene E. Swatty, Euclid, Ohio, assignor to Fluid Controls, Inc., Mentor, Ohio
Filed Feb. 22, 1972, Ser. No. 227,780
Int. Cl. F04b 17/00; F01d 35/00; F01d 31/02

U.S. Cl. 417-403

11 Claims

A hydraulic converter in which a differential piston is reciprocable in a cylinder by pressure fluid admitted continu-

ously thereinto through a cylinder inlet at one side of the piston. Valve and duct means, including a valve sleeve, connect the cylinder at the other side of the piston alternately to said inlet side and to a sump, depending upon the reciprocated position of the piston and of the sleeve. Specialized snap acting over-center springs floatingly support the valving sleeve for substantially frictionless reciprocation in opposite directions past a center position to final valving positions,



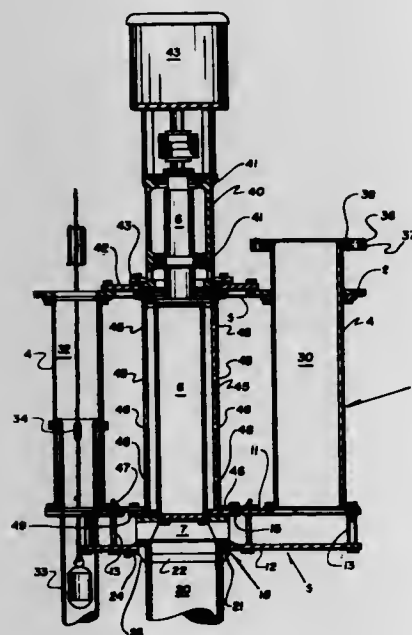
respectively, and are operable to drive the sleeve with a snap action, in the direction toward the final valving position to which the sleeve was being driven by the piston as the sleeve passed over center position. A lost motion connection between the piston and the sleeve drives the sleeve to and slightly beyond the center position of the sleeve in opposite directions upon movement of the piston in opposite directions past determined positions, respectively.

3,737,255 VERTICAL SUMP PUMP

George B. Emery, 575 Highland Avenue, Salem, Ohio
Filed Jan. 17, 1972, Ser. No. 218,348
Int. Cl. F04b 17/00

U.S. Cl. 417-424

10 Claims



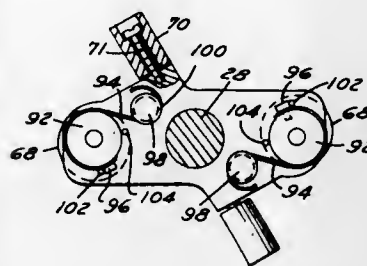
Vertical sump pump for deep pits having a pumping chamber and impeller positioned below the desired upper liquid level and an extension conduit extending down from the pumping chamber and terminating below the lower liquid level.

3,737,256 PERISTALTIC PUMP CONSTRUCTION

James H. De Vries, Ann Arbor, Mich., assignor to Sarns, Inc.,
Ann Arbor, Mich.
Filed July 16, 1971, Ser. No. 163,240
Int. Cl. F04b 43/12

U.S. Cl. 417-477

7 Claims



A peristaltic pump assembly which utilizes a housing with a circular inner wall to back up a peristaltic tube, and a rotor for progressively squeezing a tube right against that wall. A unique pressure device is utilized on eccentrically mounted pressure rollers in the form of a spring which biases the rollers outwardly against the pump tube with a predetermined resilient pressure. A similar resilient system is utilized for closing the top of the pump which entraps the ingress and egress tubes under resilient pressure.

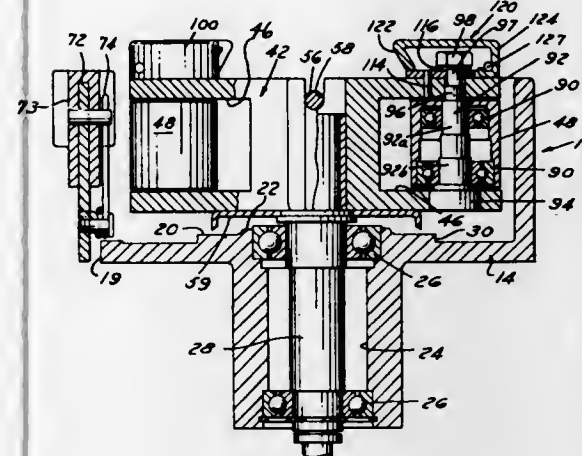
3,737,257 ROLLER CONTROL FOR A PERISTALTIC PUMP CONSTRUCTION

James H. DeVries, Ann Arbor, Mich., assignor to Sarns, Inc.,
Ann Arbor, Mich.

Filed Dec. 2, 1971, Ser. No. 204,123
Int. Cl. F04b 43/08, 43/12, 45/06

U.S. Cl. 417-477

7 Claims



A peristaltic pump assembly utilizing a housing with a circular inner wall and a rotor having outer rollers for progressively squeezing a tube lying against the wall with a provision for radial adjustment of the rollers including an eccentrically mounted bearing shaft and a two-part lock cap on the shaft having a portion to lock the cap movable to an unlock position wherein it can control the rotative position of the lock cap.

3,737,258 FUEL INJECTION PUMP WITH TIMING PORT

Ziedonis I. Krauja, East Peoria, and Kenton C. Opperman,
Morton, both of Ill., assignors to Caterpillar Tractor Co.,
Peoria, Ill.

Filed June 7, 1971, Ser. No. 150,645
Int. Cl. F04b 39/10

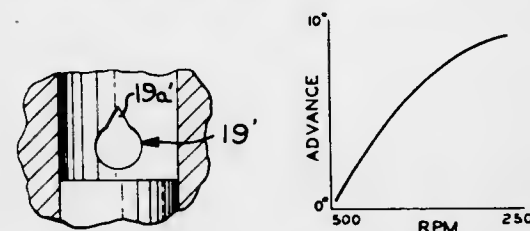
U.S. Cl. 417-499

4 Claims

A fuel injection pump for an internal combustion engine having an inlet port shaped to effectively advance the pump timing with increased engine speed. The shape of the inlet port

is designed to meter escape of fuel from the pump whereby early injection pressure caused by rapid operation of the pump

uniform length of flow passage leading to all parts of the core circumference is obtained by a combination of branch and different direction flow passages between the delivery from the extruder screw and the annular outlet of the die.



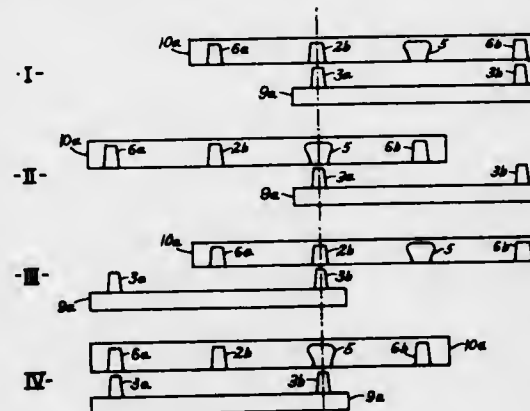
at high speeds is controlled to give the desired timing advance curve.

3,737,259 APPARATUS FOR MAKING COMPOSITE PLASTIC ARTICLES

Emery I. Valyi, 5200 Sycamore Avenue, Riverdale, N.Y.
Filed Dec. 23, 1971, Ser. No. 211,289
Int. Cl. B29d 29/03

U.S. Cl. 425-112

12 Claims



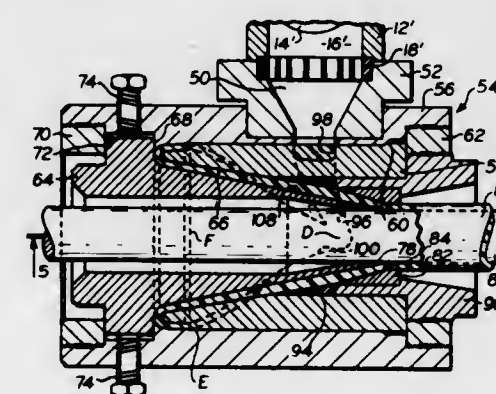
Apparatus for making pressure molded composite parisons and blown articles therefrom wherein preformed sleeves are placed mechanically over the blow cores used for molding the parisons.

3,737,260 COUNTER FLOW GENKA HEAD

David Arnold Kaye, 10932-104th Avenue N., Largo, Fla.
Filed Nov. 12, 1970, Ser. No. 88,632
Int. Cl. B29f 3/10

U.S. Cl. 425-113

10 Claims



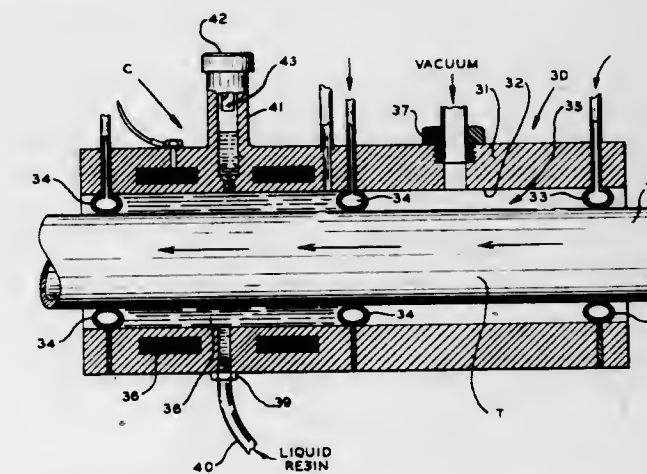
This extruder for extruding plastic coverings over cores, or for extruding a mass of plastic having an annular cross-section and hollow interior, has passages to the extruder die correlated so that the plastic material around the entire circumference of the core travels for substantially the same length of flow path in reaching the outlet of the die. This avoids difference in pressure at different locations around the core and produces a uniform thickness of the extruded covering. The

3,737,261 RESIN IMPREGNATING SYSTEM

Ethridge E. Hardesty, Pine Valley, Calif., assignor to Goldsworthy Engineering, Inc.
Filed Feb. 16, 1971, Ser. No. 115,514
Int. Cl. B29f 3/10

U.S. Cl. 425-113

11 Claims



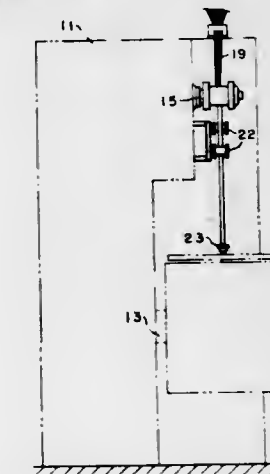
A resin impregnating system in the form of an open-ended tubular housing or canister is provided with a pair of flexible rubber seals at the transverse open ends to accommodate the reinforcing material forming part of a reinforced plastic member passing through the housing. The housing is provided with a suitable resin matrix material which is capable of impregnating the reinforced plastic member passing through the housing. The reinforced plastic member is typically formed of a textile strand material which is capable of receiving the resin matrix. Transducers capable of being operated by sonic energy are located in the housing for forcing the resin into the textile strand material. Another embodiment of the invention discloses a canister divided into two compartments where the first compartment is maintained under vacuum conditions for removing any entrained air in the textile strand material. The member passes immediately from the first compartment into the second compartment which is maintained under pressure for forcing the resin matrix into the voids left by the removed air in the textile strand material.

3,737,262 EXTRUSION APPARATUS

Norman E. Klein, Inman, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.
Filed Apr. 12, 1971, Ser. No. 133,218
Int. Cl. B29c 27/30; B29f 1/10

U.S. Cl. 425-113

5 Claims



Apparatus for extruding a unitary strip with a plurality of spaced cords including an extruder screw, a die operatively as-

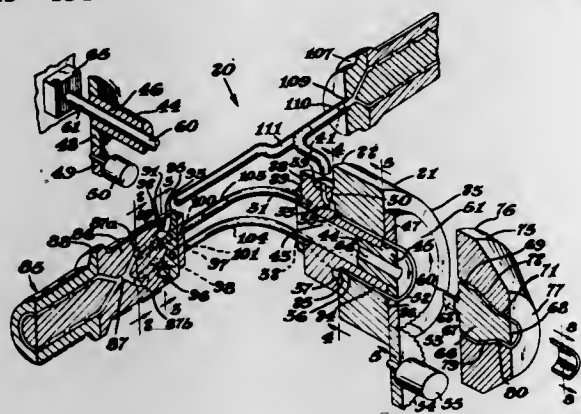
sociated with the screw, the die including cord guiding means, strip sizing means comprising movable members, means for adjusting the position of the members with respect to each other to change the dimensions of the opening through the strip sizing means, and the cord guiding means and the strip sizing means defining a cavity for the flow of plastic material around spaced cords advancing through the die to deliver therefrom a unitary strip.

3,737,263 APPARATUS FOR THE FORMATION OF COMPOSITE PLASTIC BODIES

Walter J. Schrenk, Bay City; Kenneth J. Cleereman, Midland; Douglas S. Chisholm, Midland, and Turner Alfrey, Jr., Midland, all of Mich., assignors to The Dow Chemical Company, Midland, Mich.
Division of Ser. No. 987, Jan. 6, 1970, which is a continuation-in-part of Ser. No. 636,480, May 5, 1967, abandoned. This application Oct. 18, 1971, Ser. No. 190,084
Int. Cl. B29f 3/00, 3/12

U.S. Cl. 425—131

6 Claims



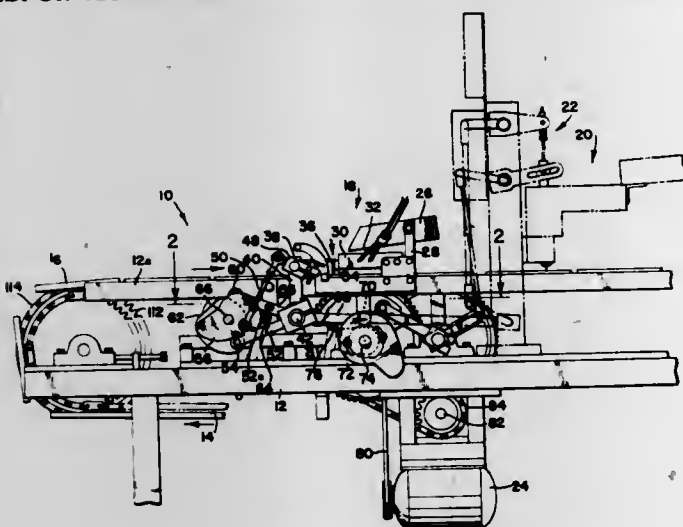
Apparatus is described for making articles of plastic materials; for example, plastic bottles, from a composite of synthetic thermoplastics. Two or more such resinous materials, which have distinct polymeric and physical characteristics, are combined in a way such that they are present in the article in separate phases and in a manner adapted to take full advantage of the resulting combination of properties.

3,737,264 APPARATUS FOR MAKING AND MARKING ELONGATED PLASTIC ARTICLES

Norman H. Nye, Cuyahoga Falls, and Arthur T. Medkeff, Akron, both of Ohio, assignors to Nicholas Creme and Cosma Creme, Tyler, Tex.
Filed June 7, 1971, Ser. No. 150,350
Int. Cl. B29f 3/12

U.S. Cl. 425—134

12 Claims



A machine for molding elongated plastic articles with contrasting markings along the length of the article. The machine

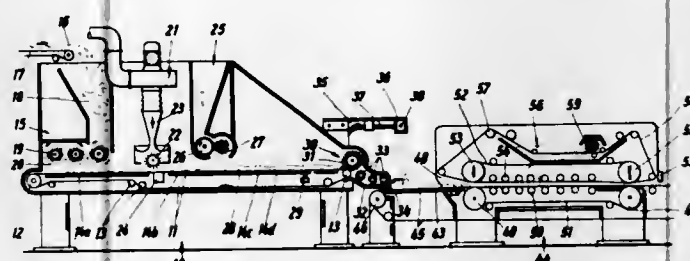
includes an endless conveyor carrying a series of open topped molds having elongated mold cavities, apparatus for applying dots of a first plastic material at spaced intervals in each mold cavity, and apparatus for filling each mold cavity with a second plastic material. The apparatus for applying the first material includes a wire mounted on a rocker arm and controlled by suitable cams to dip alternately into a tank containing the first plastic material and into the mold cavity to deposit the drop of material in the cavity. The cams are controlled in synchronization with the conveyor movement and include a cam for holding the wires in an inoperative position during the interval after one mold cavity has moved past the wires and before the next mold cavity reaches the wires.

3,737,265 APPARATUS FOR CONTINUOUS FORMING OF GYPSUM BODIES, IN PARTICULAR PLATES

Karl Schafer, Karlsruhe-Durlach, and Artur Hohne, Karlsruhe/Baden, both of Germany, assignors to Ferma Entwicklungswerk für rationelle Fertigbaumethoden und Maschinenanlagen GmbH & Co. K.G., Ettlingen/Baden, Germany
Filed Jan. 28, 1972, Ser. No. 221,606
Claims priority, application Germany, Jan. 28, 1971, P 21 03 931.6
Int. Cl. B29c 3/06; B29d 7/14

U.S. Cl. 425—140

20 Claims



An arrangement for the continuous production of form bodies, in particular of plates of gypsum and additional material, as well as voluminous filtering fibers by applying of the dry material onto an endless moving form face and moistening of the material with a quantity of water only slightly above the quantity necessary for setting which comprises at least two storage silos storing and discharging dry material. A conveying device having discharge openings as well as mixing-, moisture-, pressing- and drying stations. The conveying device includes at least one preliminary form band consisting of a dense member and passing on a horizontal and straight extending plane said material discharge station. The preliminary form band is connected with at least one device continuously measuring the weight of a material strand and terminating in the conveying direction in a mixing device of a combined mixing and moistening station, in which station being connectable a form band comprises an air passing sieve-like formed textile. The form band extends through all the stations forming the material strand to form bodies up to at least a separating station disposed in front of a drying station on a straight-line plane. The form band is connectable with a conveyor device having passing individual frames running upright through the drying station.

3,737,266 MOLD FOR PREPARING A SHAPED ARTICLE MADE OF FOAMED THERMOPLASTIC RESIN

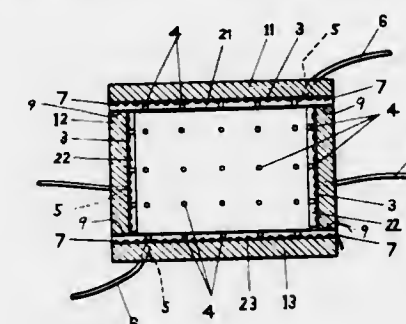
Ken Yamamoto, Sashima-gun, Ibaragi-ken, Japan, assignor to Sekisui Kaseihin Kogyo Kabushiki Kaisha, Nara-shi, Japan
Filed Jan. 11, 1971, Ser. No. 105,278
Claims priority, application Japan, Jan. 21, 1970, 45/5850
Int. Cl. B29c 1/14

U.S. Cl. 425—141

8 Claims

A novel non-metallic double-walled mold for the molding of foamable thermoplastic resin by dielectric heating is provided.

The mold is constructed by a special method to provide a thin uniform inner wall spaced apart from the outer wall, but supported by the outer wall to prevent deformation by the force



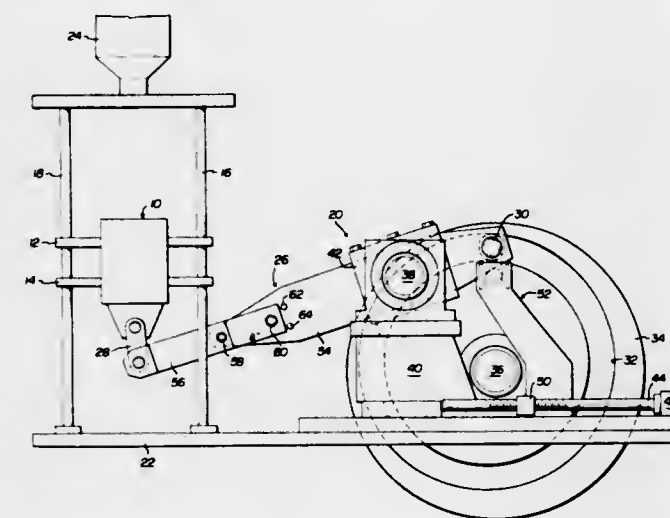
exerted by the foamable resin during expansion. Using the mold, smooth-surfaced foamed articles which conform to the contours of the mold are produced.

3,737,267 SAFETY DEVICE FOR BLOW MOLDING MACHINE

Robert F. Kontz, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Jan. 7, 1972, Ser. No. 216,214
Int. Cl. B29h 5/24

U.S. Cl. 425—154

5 Claims



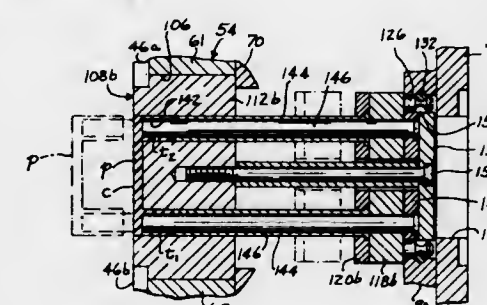
In the event of an obstruction which prevents the full stroke of a mechanically driven reciprocating mold in a blow molding machine, a pair of shear pins in the drive arm fail in a controlled sequence to completely disconnect the drive mechanism from the molds, thereby preventing damage to more costly elements.

3,737,268 MOLDING APPARATUS

Francis E. Ryder, Barrington, Ill., assignor to Value Engineered Components, Inc., Streamwood, Ill.
Filed June 9, 1971, Ser. No. 151,237
Int. Cl. B29f 1/14

U.S. Cl. 425—192

13 Claims



Molding apparatus comprises companion mold members with mold cavity insert assemblies removably mounted

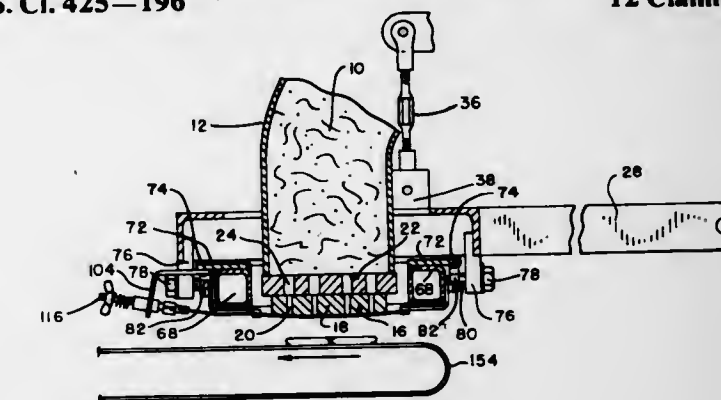
thereon. The insert assemblies comprise blocks which form the mold cavity portions and which are separated by divider bars, the latter having transverse runners communicating the mold sprue with the cavity portions of the block. The insert assemblies on one of the mold members have ejector mechanisms which can be readily coupled to the ejector drive of the apparatus. The ejector drive may also include an ejector pin that ejects the molded runner portion in the divider bar. The ejector mechanism for the inserts may be tubular or solid pins, or rotatable members for unscrewing threaded molded parts from the mold.

3,737,269 CUTTING APPARATUS FOR EXTRUDED MATERIAL

Francis J. Grady, Reading, Pa., assignor to Unex Machine & Tool Co., Inc., Reading, Pa.
Filed Aug. 23, 1971, Ser. No. 173,972
Int. Cl. B29c 17/16; B29f 3/04

U.S. Cl. 425—196

12 Claims



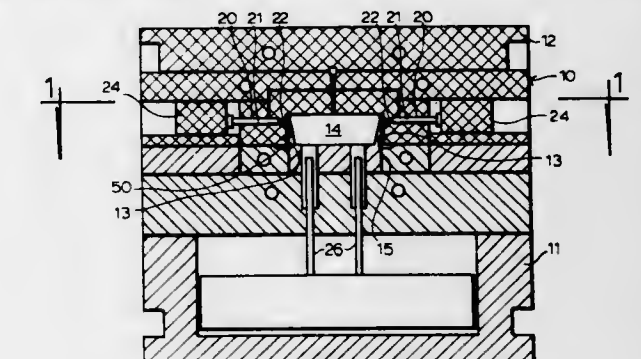
A machine for extruding an extrudable material, such as a food product dough, through a plurality of dies having die openings of a desired configuration and for slicing off the extruded material by means of a plurality of reciprocating cutting blades, one for each die, the blades being adapted to move across and in contact with the lower faces of the dies in a cutting stroke. To ensure severing of the extruded material at high speeds and without distortion of the configuration thereof, the lower face of each die is convex in a transverse direction, the blade consists of a thin, flexible strip having a sharp cutting edge, and the blade is mounted in such a manner that it is held under tension, the mounting means including means for adjusting the position of the blade relative to the lower face of its associated die to maintain it in contact with such die face during the cutting stroke. A typical field of use of the machine is in the production of pretzels from pretzel dough.

3,737,270 CLUSTERED MOLDS FOR INJECTION MOLDING TWO OR MORE PARTS IN PIVOTAL ASSEMBLED CONDITION IN A FRAME

Theodore E. Fiddler, 1268 Suffield Drive, Birmingham, Mich.
Filed Sept. 27, 1971, Ser. No. 183,757
Int. Cl. B29f 1/00

U.S. Cl. 425—242

7 Claims



Molding apparatus comprises companion mold members with mold cavity insert assemblies removably mounted side one another for injection molding a plurality of parts at

the same time in assembled rotational relationship wherein an outer cavity forms a first part and an inner cavity forms a second part. Channels lead between the cavities. Retractable plugs lie in the channels and across the outer cavity so that the first part is molded around the plugs which form bearing apertures. Each plug has an internal bore communicating with the inner cavity. When the second part is molded, the bore in the plug molds shafts on the second part with the shafts lying in the apertures of the first part as each plug molds both the shaft and the bearing aperture. This directly rotationally mounts the first and second parts in assembled condition due to the clustered cavities.

3,737,271

MOLDING APPARATUS HAVING A TUNNEL GATED MOVABLE MOLD MEMBER

George J. Novak, Riverside, Ill., assignor to Western Electric Company, Incorporated, New York, N.Y.

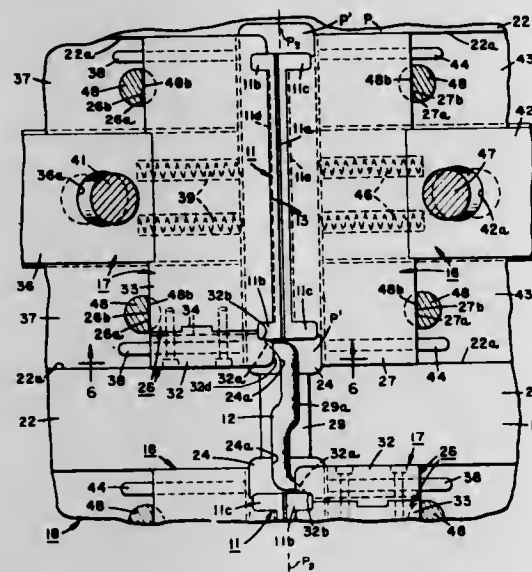
Continuation of Ser. No. 830,617, June 5, 1969, abandoned.

This application Oct. 18, 1971, Ser. No. 190,295

Int. Cl. B29c 7/00; B29f 1/14

U.S. Cl. 425—247

3 Claims



In apparatus particularly suited for molding an article of relatively small thickness, a tunnel gate in a movable mold member extends parallel to a parting line of the apparatus so as to define a relatively sharp gate material shearing edge. When the mold member is in a closed molding position the tunnel gate opens into a mold cavity substantially at the parting line of the apparatus and is aligned with a runner channel so that molding material can be introduced into the mold cavity. As the molding apparatus is opened after the molding of an article, the mold member is automatically moved out of engagement with the article in a direction substantially parallel to the parting line of the apparatus, such that the shearing edge severs gate material in the tunnel gate from the article and such that the gate material is withdrawn from the tunnel gate as an integral part of molding material formed in the runner channel.

3,737,272

IMPROVED INJECTION MOLD APPARATUS FOR THE PRODUCTION OF SUBSTANTIALLY CUP-SHAPED AND SLEEVE-SHAPED THERMOPLASTIC CONTAINERS

Bruno Segmuller, Burgacker, Switzerland, assignor to Segmuller AG, Stein am Rhine, Switzerland

Filed Sept. 18, 1970, Ser. No. 74,249

Claims priority, application Switzerland, July 15, 1966, 10320/66

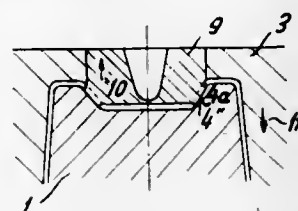
Int. Cl. B29f 1/06

U.S. Cl. 425—248

6 Claims

A method for the production of substantially cup-shaped or sleeve-shaped containers from thermoplastic material by injection molding with at least one mold unit incorporating a

male mold portion and a female mold portion, comprising the steps of providing at least one movable locking element at the mold unit for locking both of said mold portions when the mold unit is closed, and positively controlling such locking element in a manner that during at least the initial phase of the highest occurring injection pressure the aforesaid locking element interlocks both of said mold portions and in a sub-



sequent phase unlocks said mold portions. The invention also contemplates an improved injection mold unit or assembly which comprises a female mold portion and a cooperating male mold portion. Locking means are provided for locking both of said mold portions when the mold assembly is closed, such locking means and at least one of the said mold portions being relatively movable.

3,737,273

NECK FORMING PLUG WITH EMBEDDED DIAMOND PARTICLES

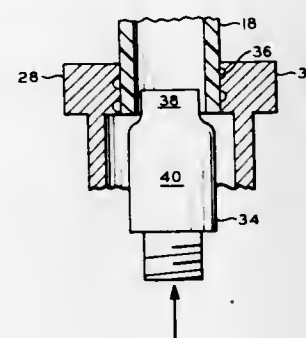
Robert J. Conner, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jan. 7, 1971, Ser. No. 104,562

Int. Cl. B29d 23/03

U.S. Cl. 425—326

8 Claims



In the forming of a hollow object from a temperature conditioned thermoplastic parison, the parison is clamped at one end by a neck forming means, and a plug with diamond particles embedded in the surface thereof is inserted into this end of the parison to force the thermoplastic to conform to the shape of the neck forming means.

3,737,274

APPARATUS FOR FINISHING RESINOUS SURFACE COVERINGS

Robert E. Coffin, Wayne, and Anthony N. Placente, Lawrenceville, both of N.J., assignors to Congoleum Industries Inc., Kearny, N.J.

Division of Ser. No. 24,519, April 1, 1970. This application Oct. 29, 1971, Ser. No. 193,704

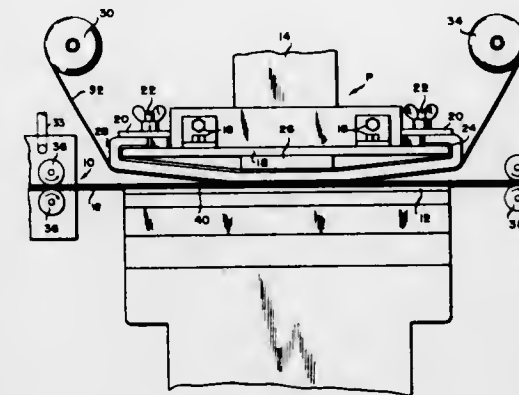
Int. Cl. B29c 3/04, 15/00

U.S. Cl. 425—364

14 Claims

A method and apparatus for finishing resinous sheet material wherein the sheet material is passed through a pressure nip having an upper hard, very smooth, resiliently backed finish-

ing surface and a lower support surface, the outer surface of female die after molding. The rubber sheet advantageously the sheet material being maintained between about 100° F and forms part of a conveyor belt. The use of a female die which is



300° F while moving through the nip, and cooling the sheet material after it has passed through the nip.

3,737,275

BLOW NEEDLE AND VALVE

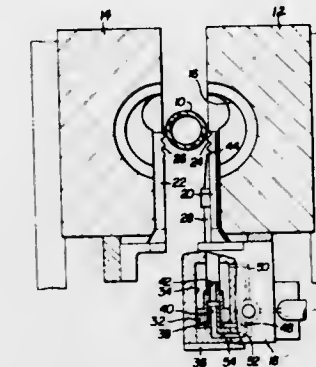
Robert F. Kontz, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Jan. 17, 1972, Ser. No. 218,437

Int. Cl. B29d 23/03

U.S. Cl. 425—387 B

7 Claims



One mold half of a blow molding machine carries a slidably mounted hollow blow needle which is driven by air pressure to penetrate the extruded plastic tube after the molds have closed, following which blowing air is supplied through the needle bore to inflate the tube to the shape of the mold cavity. After blowing, the blowing air is exhausted from the blown shape and the blow needle is withdrawn. The valve which controls the supply of needle-positioning and tube blowing pressure is also carried by the mold half, to minimize the time lag and pressure drop.

3,737,276

MOLDING OF POWDERED OR GRANULAR MATERIAL

Vincent G. Hill, Hope, Kingston, Jamaica, and William R. Harding, State College, Pa., assignors to The Carborundum Company, Niagara Falls, N.Y.

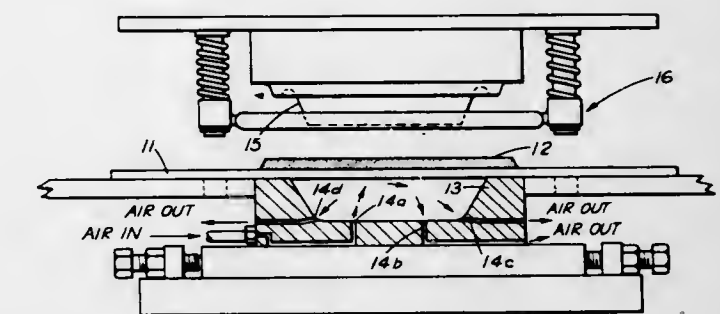
Division of Ser. No. 28,845, April 15, 1970. This application Sept. 17, 1971, Ser. No. 181,569

Int. Cl. B29c 3/04

U.S. Cl. 425—388

5 Claims

Shaped articles (e.g., ceramic dishes) are molded from a moldable raw mix with a press which utilizes a separable rubber sheet within the female die. The rubber sheet (1) supports the mix to be molded; (2) distributes pressure uniformly during molding; and (3) releases the molded part from the



itself rubber, in addition to the rubber sheet, aids in pressure distribution during molding.

3,737,277

MOLD STRUCTURE FOR MOLDING SKIRTED CLOSURES HAVING INTEGRAL LUGS ON THE INSIDE SURFACE THEREOF

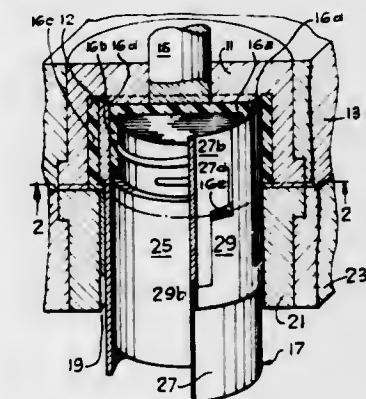
Gerhardt E. Uhlig, 5875 North Yermo, Apt. E-4, Toledo, Ohio

Filed July 19, 1971, Ser. No. 163,798

Int. Cl. B29c 1/00; B29d 1/00; B29f 1/14; B29g 1/00

U.S. Cl. 425—438

16 Claims



A mold structure for forming skirted closure caps having lock lugs thereon, said structure featuring principally a pair of axially reciprocable telescoping members, the inner serving as a principal molding core, said members being capable of telescoped relationship by reason of recessed peripheral regions on the one and intermeshing fingers on the other, said fingers and recesses cooperating to leave voids definitive of said lugs, said members being disengageable through a combination of axial and rotary movement to free said lug from said void.

3,737,278

MOULD CLOSING MEANS

Friedrich Putzler, Meinerzhagen/Westphalia, Germany, assignor to Battenfeld Maschinenfabriken G.m.b.H., Meinerzhagen, Germany

Filed Jan. 13, 1972, Ser. No. 217,564

Claims priority, application Germany, Feb. 25, 1971, P 21 09 598.7

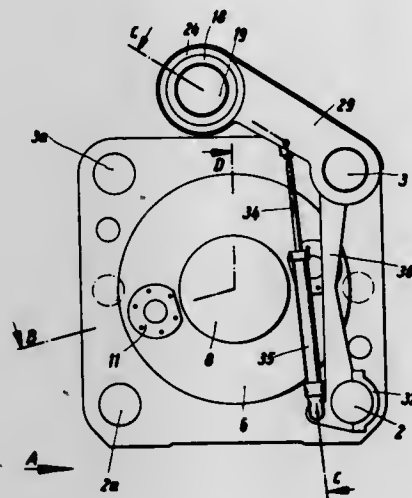
Int. Cl. B29f 1/06

U.S. Cl. 425—450

5 Claims

A mould closing means, in particular for die-casting and injection moulding machines for metals and synthetic materials, having a fixed mould support plate received on pillars, a fixed end plate and a mould support plate, which can be moved between the latter from the open into the closed position, by means of at least two piston-cylinder arrangements engaging the fixed mould support plate or the end plate, a pressure element serving to produce the closing pressure being secured to the end plate, and a pressure plate being located thereon which can be swung from the engaged position between the pressure element and movable mould support plate, about a

pillar, into a disengaged position, which is mounted to move axially and which can be infinitely adjusted to various lengths, which is characterized in that the swinging lever supporting the pressure plate is received on the pillar in a pivot bearing



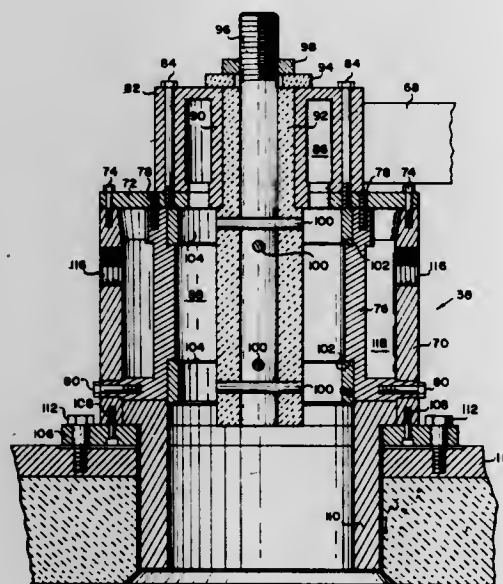
fixed in axial direction, and the pressure plate is received in the swinging lever so as to be axially movable against the action of springs, the travel of the springs being smaller than the stroke of the pressure element.

3,737,279
IMPULSE BURNER SYSTEM AND BURNER THEREFOR
Steele D. Williams, Chattanooga, Tenn., assignor to F. Edward Harrington, Willowdale, Ontario, Canada, and Lloyd F. Anderson, Deerfield, Wis.

Filed Mar. 1, 1972, Ser. No. 230,909
Int. Cl. F23r 1/06

U.S. Cl. 431—158

12 Claims



A burner system comprising a rotary shaft having an eccentric thereon, means for rotating the shaft, a pump rod connected to the eccentric for delivering a pulsating flow of a fuel to a burner where it is mixed with air, electrical ignition means driven by the shaft, a spark gap means associated with the burner for igniting the gaseous mixture, and the burner structure used in the system.

ERRATUM

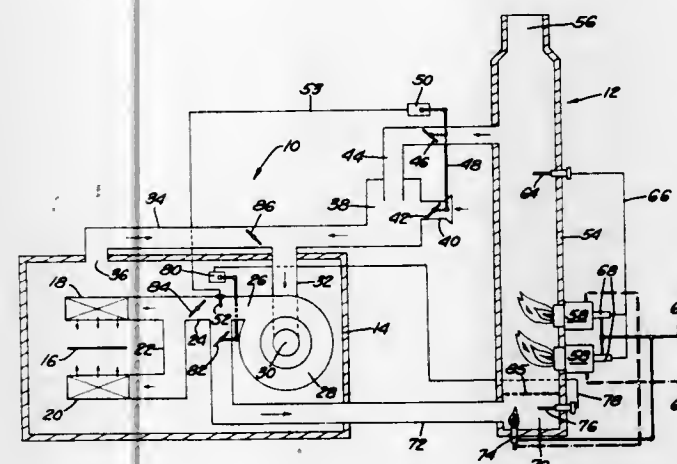
For Class 431—352 see:
Patent No. 3,737,281

3,737,280
EMISSION-CONTROLLED PAINT LINE HEAT SOURCE
Theodore Q. Cromp, Placentia, Calif., assignor to Hunter Engineering Co., Inc., Riverside, Calif.

Filed Apr. 14, 1972, Ser. No. 244,149
Int. Cl. F27b 9/40

U.S. Cl. 432—41

4 Claims



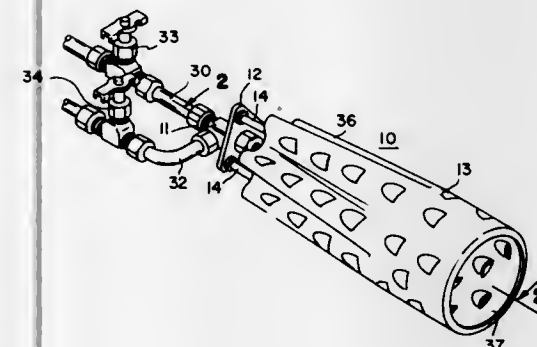
A paint line oven and heat source comprising a stack having fuel-fired burners in the lower portion thereof, and a solvent-burner section at the bottom of the stack. A blower intake duct is connected to the stack above the burners and draws off part of the hot exhaust from the stack. This is mixed with fresh air and circulated through the oven, where it evaporates paint solvent. A portion of the solvent-laden air is bled off to the solvent-burner section, where the solvent vapor is ignited and burns, adding its heat to the heat of the burners. A first temperature sensor in solvent-burner section actuates a valve to increase the amount of oven atmosphere bled off to the solvent-burner section as the temperature rises. A second sensor responds to the temperature in the upper part of the stack to reduce the heat output of the burners as the heat of solvent combustion raises the stack temperature. A third sensor in the blower outlet duct actuates valves to vary the relative proportions of hot flue gas and fresh air, according to the temperature in the oven.

3,737,281
FUEL MIXING SHROUD FOR HEATING TORCHES
Carl R. Guth, 10215 N. 38th St., Phoenix, Ariz.

Filed Sept. 27, 1971, Ser. No. 184,078
Int. Cl. F23d 15/00

U.S. Cl. 431—352

10 Claims



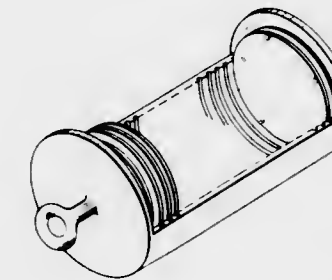
A shroud for a fuel burning torch deformed to form a fluted configuration tapering outwardly from its fuel and air inlets to utilize air aspiration to draw fuel from a nozzle tip and to mix the air with expanding gases or liquids in a highly efficient manner to effect complete combustion.

3,737,282
METHOD FOR REDUCING CRYSTALLOGRAPHIC DEFECTS IN SEMICONDUCTOR STRUCTURES
Eric W. Hearn, Wappingers Falls; Guenter H. Schwuttke, Poughkeepsie; and Erich H. Tekaat, Fishkill, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 1, 1971, Ser. No. 185,652
Int. Cl. F27b 21/00, 17/00

U.S. Cl. 432—6

7 Claims



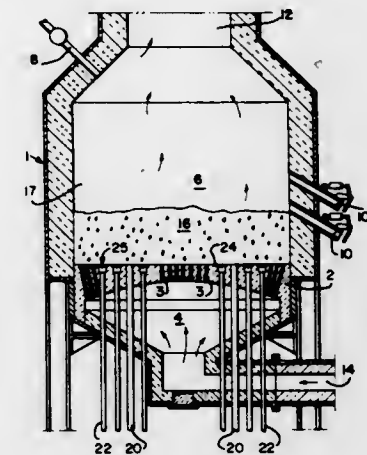
A method for fabricating semiconductor structures, wafer and devices with reduced thermally induced crystallographic defects comprising (a) supporting said wafers in close proximity to one another, (b) heating said wafers to an elevated temperature, (c) maintaining a uniform circumferential heat mass surrounding said wafers, (d) immediately withdrawing said material from the heating zone, and (e) symmetrically cooling said wafers.

3,737,283
FLUIDIZED SOLIDS REACTOR
Frank G. Nikles, Nazareth, Pa., assignor to Fuller Company, Catasauqua, Pa.

Filed Nov. 26, 1971, Ser. No. 202,196
Int. Cl. C22b 1/10; F27b 15/10

U.S. Cl. 432—58

6 Claims



A fluidized solids reactor which is capable of using either a gaseous fuel or a liquid fuel. The reactor employs a fuel system capable of supplying either a gas or a liquid to novel nozzles. The nozzles disperse the fuel throughout the fluidized bed of pulverulent material. Each nozzle includes a pair of concentric tubular members each opening into the fluidized bed. When gas is used as fuel, it is supplied to the outer tube. When oil is used as a fuel, it is supplied to the inner tube. In addition, when liquid fuel is used, air under pressure is supplied to the outer tube for cooling the inner pipe.

CHEMICAL

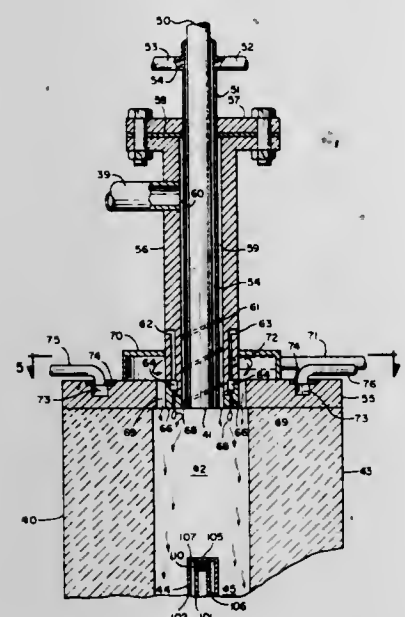
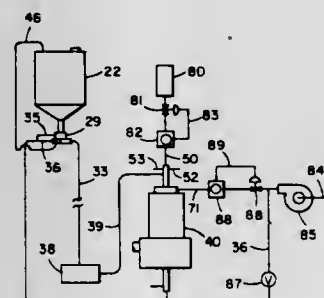
3,737,284 TRIS(HYDROXYMETHYL)PHOSPHINE PHOSPHATES AS FLAME RETARDANTS FOR TEXTILE MATERIALS

Samuel James O'Brien, Dunellen, and Richard Frederick Stockel and William Frank Herbes, Bridgewater Township, Somerset County, N.J., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Continuation-in-part of abandoned application Ser. No. 50,360, June 26, 1970. This application Apr. 23, 1971, Ser. No. 137,037
Int. Cl. D06m 13/12

U.S. Cl. 8—183 4 Claims
Durable flame retardant finishes for textiles comprising aqueous solutions of tris(hydroxymethyl)phosphine, phosphoric acid and a methylolated nitrogenous cellulose reactant.

3,737,285 APPARATUS FOR CRACKING AND RECOVERY OF HYDROCARBONS

Harold N. Hicks, Jr., Huntington, W. Va., assignor to Ashland Oil, Inc., Houston, Tex.
Original application July 31, 1967, Ser. No. 657,342, now Patent No. 3,565,968, dated Feb. 23, 1971. Divided and this application Oct. 26, 1970, Ser. No. 84,204
Int. Cl. C07c 11/24; C10g 9/38
U.S. Cl. 23—277 R 1 Claim

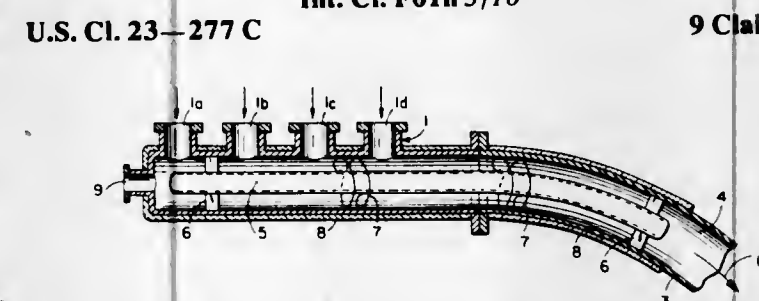


This application discloses apparatus for cracking hydrocarbon feedstocks, in which a solid carbonaceous fuel is burned within a cracking zone to supply the temperature and the heat required for the endothermic cracking reaction. A reactor is also disclosed which has in it an eductor tube that is of reduced cross-sectional area with respect to the cracking chamber for preferentially re-

covering from the interior of the reactor a stream rich in cracked products and lean in combustion products and ash.

3,737,286 DEVICE FOR THE COMBUSTION OF BURNABLE COMPONENTS OF EXHAUST GASES

Siegfried Kofink, Lenzhalde, Germany, assignor to J. Eberspacher, Esslinger, Germany
Filed Apr. 20, 1971, Ser. No. 135,548
Claims priority, application Germany, May 16, 1970, P 20 24 034.0
Int. Cl. F01n 3/10 9 Claims

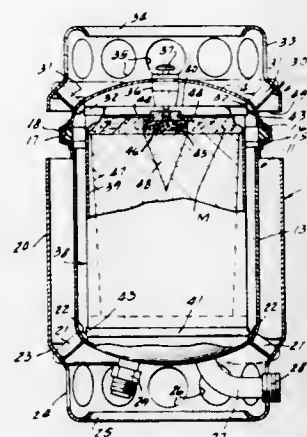


A device for the combustion of the burnable components of exhaust gases includes a conduit or tube for the passage of the exhaust gases and a heat pipe mounted within the conduit preferably at a spaced location from the interior walls in order to permit passage of the exhaust gases around the heat pipe and through the conduit. The device also includes means for directing an air supply into the exhaust conduit in order to aid in the combustion of exhaust gases under certain exhaust gas conditions. The heat pipe comprises a tubular zone closed on all sides and evacuated on the interior. A capillary fabric is arranged adjacent the inside face and the pipe is filled with a quantity of a volatile liquid, for example sodium or potassium. Such a pipe has a property of being capable of transferring heat with about 10 times the conductivity of copper. The practical construction is such that the temperature gradient over the entire length of the heat tube is substantially 0.

3,737,287 HIGH PRESSURE OXYGEN GENERATOR

John P. Churchill, Indianatlantic, and Tommy Lewis Thompson, Melbourne, Fla., assignors to Life Support, Inc., Melbourne, Fla.
Filed May 17, 1971, Ser. No. 143,852
Int. Cl. B01j 7/00 10 Claims

U.S. Cl. 23—281



A heat shielded pressure vessel for replaceable chemical oxygen generator canisters receiving oxygen generated from said canisters for delivery to an outlet hose or the like for feeding a welding or cutting torch. The pressure

JUNE 5, 1973

CHEMICAL

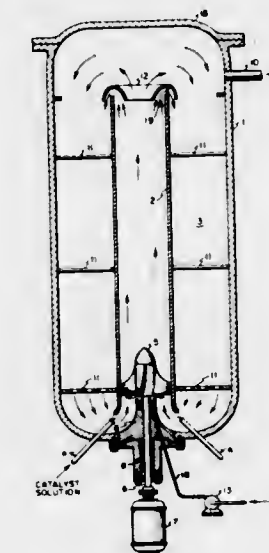
189

vessel has a cap portion and a main body portion easily and quickly sealed together by a V-band coupler hoop. The cap carries a striking pin to explode a percussion cap in the lid of the canister, a relief valve is provided in the pressure vessel and an outlet conduit extends from the bottom of the vessel to a side coupling for easy attachment to a hose.

3,737,288 ANTIFOULING DEFLECTOR IN OLEFIN POLYMERIZATION REACTORS

Jack M. Hochman, Boonton, N.J., assignor to Esso Research and Engineering Company
Filed June 18, 1971, Ser. No. 154,525
Int. Cl. C08f 1/98 6 Claims

U.S. Cl. 23—285

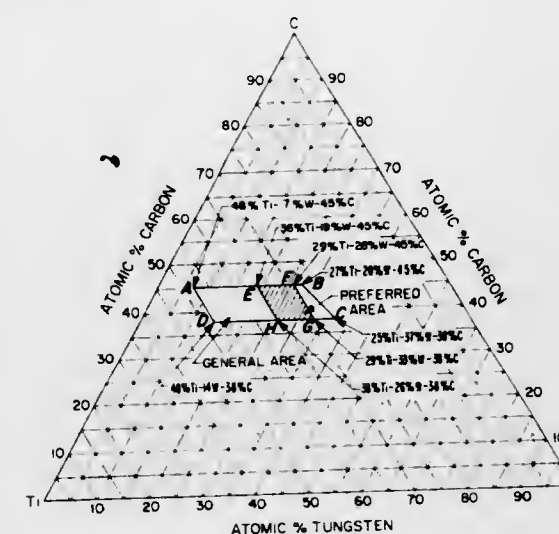


A semicircular flow deflector is mounted at the discharge end of a draft tube-type polymerization reactor thereby directing the flow in a turbulent stream along the outer wall of the draft tube to prevent fouling by the buildup of polymer product on the draft tube.

3,737,289 CARBIDE ALLOY

Erwin Rudy, Beaverton, Oreg., assignor to Aerojet-General Corporation, El Monte, Calif.
Filed July 29, 1970, Ser. No. 59,061
Int. Cl. B22f 3/12 19 Claims

U.S. Cl. 29—182.7



COMPOSITION TRIANGLE SHOWING CLAIMED COMPOSITION AREAS FOR Ti-W-C-BASED ALLOYS

Carbide-metal composites of superior tool qualities are prepared from substoichiometric carbon-deficient mono-

carbide alloys based on titanium, tungsten and carbon, and binders consisting of iron metal group alloys. The improved tool qualities are based in part on the discovery that single-phased monocarbide alloys with substantially larger tungsten concentrations than in the commercially-used, carbon-saturated carbides are possible at substoichiometric compositions (5 to 12 atomic percent carbon deficiency). The microstructure is characterized by fine monocarbide grains embedded in the binder alloy matrix. A beneficial small grain size in substantially carbon-deficient (8 to 12 atomic percent) monocarbide alloys is obtained by in situ precipitation reactions in the larger, premilled carbide grains during fabrication.

3,737,290 SINTERED TITANIUM ALLOY

Fritz Frehn, Krefeld, Germany, assignor to Deutsche Edelstahlwerke Aktiengesellschaft, Krefeld, Germany
No Drawing. Filed Aug. 27, 1971, Ser. No. 175,717
Claims priority, application Germany, Sept. 22, 1970, P 20 46 614.2
Int. Cl. B22f 3/00 3 Claims

U.S. Cl. 29—182.7 3 Claims
The hardness of sintered titanium and sintered titanium alloys is increased without affecting significantly the density thereof by using as the sinter powder a mixture of from 40% to 90% by weight of powdered titanium or titanium alloy and from 10% to 60% by weight of a powdered hard substance consisting of one or more of the carbides of the metals titanium, chromium or vanadium.

3,737,291 PROCESS FOR REFORMING HEAVY HYDROCARBONS

Pierre Lhonore, Douai, Jacques Quibel, Maisons-Laffitte, and Michel Senes, Saint-Nazaire, France, assignors to Societe Chimique de la Grande Paroisse, Azote et Produits Chimiques
No Drawing. Continuation-in-part of application Ser. No. 758,768, Sept. 10, 1968. This application July 23, 1971, Ser. No. 165,699
Claims priority, application France, Sept. 12, 1967, 120,743
Int. Cl. C01b 2/22 13 Claims

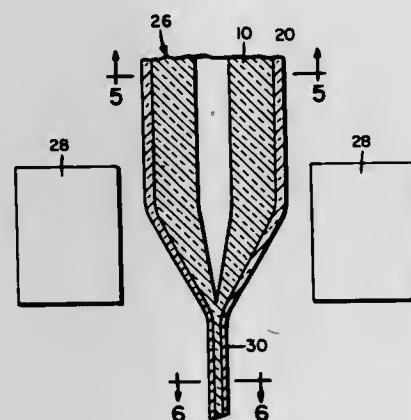
U.S. Cl. 48—214 13 Claims
A process for the catalytic reforming with steam in a fluidized bed of heavy hydrocarbons with a boiling point higher than 220° C., carried out under an effective pressure of 2 to 150 bars, in which the reforming mixture is introduced to the catalyst in the form of catalytic particles, of a solid solution of nickel oxide and refractory oxides, with a grain size which is between 1 mm. and 60μ, at a temperature between 300 and 700° C., the volumetric speed on the fluidized bed is between 5 and 0.1 litre/hour per litre of catalyst, the ratio between steam and carbon in moles being between 0.75 and 3.0 and without regeneration or reoxidation of the catalyst.

3,737,292 METHOD OF FORMING OPTICAL WAVEGUIDE FIBERS

Donald B. Keck, Big Flats, Peter C. Schultz, Painted Post, and Frank Zimar, Hammondsport, N.Y., assignors to Corning Glass Works, Corning, N.Y.
Filed Jan. 3, 1972, Ser. No. 214,841
Int. Cl. C03c 25/06 17 Claims

U.S. Cl. 65—3 17 Claims
A method of forming an optical waveguide by forming a first coating of glass having a predetermined index of refraction on the outside peripheral wall surface of a substantially cylindrical starter rod or member. Thereafter, a second coating of glass is applied to the peripheral outside surface of the first coating, said second coating having a preselected index of refraction less than the index of refraction of the first coating. The starter rod or

member is removed from the assembly following the application of either the first or second coating. The resulting substantially cylindrical hollow assembly is heated and drawn to reduce the cross-sectional area and



to collapse the first and inner coating of glass to form a fiber having a solid cross-sectional area. The collapsed first and inner coating forms the fiber core and the second coating forms the cladding for the fiber.

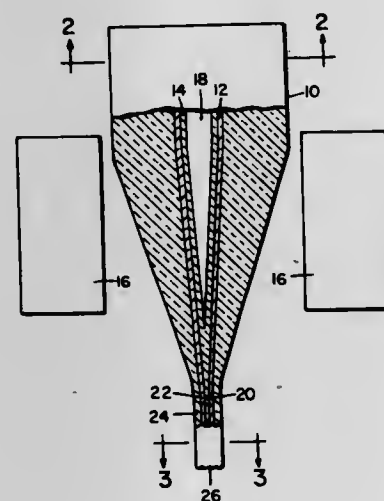
3,737,293 METHOD OF FORMING AN ECONOMIC OPTICAL WAVEGUIDE FIBER

Robert D. Maurer, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Jan. 3, 1972, Ser. No. 214,842

Int. Cl. C03c 25/06

U.S. Cl. 65—3

18 Claims



A method of forming an optical waveguide by first forming a coating of glass on the inside wall of a glass tube, the glass tube and the first coating being of substantially similar material. Thereafter, a second coating of glass is applied to the inside wall of the glass tube over the first coating, said second coating having a pre-selected different index of refraction from that of the first coating. The glass tube and coating combination is thereafter drawn to reduce the cross-sectional area and to collapse the second and inner coating of glass to form a fiber having a solid cross-sectional area. The collapsed inner coating forms the fiber core and the first coating forms the cladding for the fiber while the exterior glass tube provides structural strength for the fiber.

3,737,294 METHOD FOR MAKING MULTI-LAYER LAMINATED BODIES

William H. Dumbaugh, Jr., Painted Post, James E. Flannery and John E. Megles, Corning, and John A. Smith, Big Flats, N.Y., assignors to Corning Glass Works, Corning, N.Y.

No Drawing. Filed Aug. 28, 1970, Ser. No. 68,055

Int. Cl. C03b 5/26; C03c 3/22

U.S. Cl. 65—33

13 Claims

This invention relates to high strength glass, glass-ceramic, or glass and glass-ceramic laminated articles which are produced through a continuous hot-forming process wherein glass batches are melted for the individual laminae and these laminae are essentially simultaneously fused together and shaped into a laminated structure of a desired configuration. Where a glass-ceramic lamina is sought, the initially-formed laminated glass article is subsequently heat treated in a particularly-defined manner to cause the glass to crystallize in situ. The present invention is specifically concerned with viscosity relationships obtained in the melts utilized in forming the individual laminae.

3,737,295 PROCESS FOR PRODUCING A RIBBON-LIKE GLASS

Hideo Mitsuno, Maizuru-shi, Japan, assignor to Nippon Sheet Glass Co., Ltd., Osaka, Japan

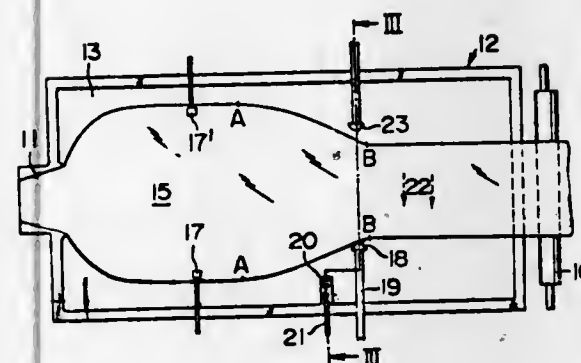
Filed Nov. 20, 1970, Ser. No. 91,325

Claims priority, application Japan, Nov. 24, 1969, 44/94,535

Int. Cl. C03b 18/02

U.S. Cl. 65—99 A

4 Claims



A process for producing a glass ribbon having a thickness smaller than the equilibrium thickness which comprises feeding molten glass onto a molten metal bath, gradually cooling the resulting glass ribbon while advancing it over the molten metal bath, withdrawing the solidified glass ribbon from the molten metal bath, and advancing it through a Lehr. The invention further comprises the steps of applying a pulling force to the ribbon-like layer of molten glass formed on the molten metal bath from outside the molten metal bath thereby to reduced the thickness and width of the glass ribbon layer continuously in a deformable area of the glass ribbon, providing a guide member on the molten metal bath for contacting one side edge of the glass ribbon, and providing a weir in that area of the molten metal bath on which the glass ribbon is not present and which is in proximity to the guide member to obstruct the convection of the molten metal bath in a direction parallel to the advancing direction of the glass ribbon.

3,737,296 SAFETY VALVE SYSTEM FOR GLASSWARE FORMING MACHINE

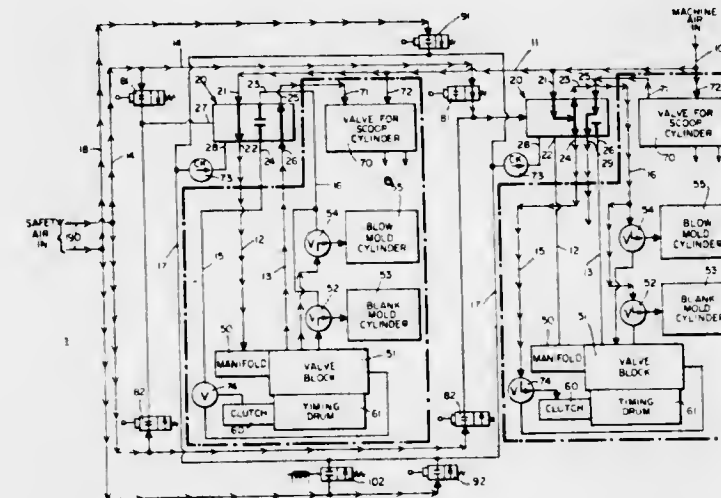
Alphonse W. Faure, Philadelphia, and Harold L. Caldwell, Pleasantville, Pa., assignors to C.S.S. Machine and Tool Company, Inc., Philadelphia, Pa.

Filed Aug. 6, 1971, Ser. No. 169,629

Int. Cl. C03b 9/40

U.S. Cl. 65—159

4 Claims



In multi-section glassware forming machinery, a safety valve system is provided which enables the attendant to shut down any selected one of the sections by manually operating a valve switch at any one of two or more locations without disturbing the continued operation of the other sections. Also, the entire multi-section machine may be shut down from one of two or more locations.

3,737,297 APPARATUS FOR PRESS BENDING GLASS SHEETS

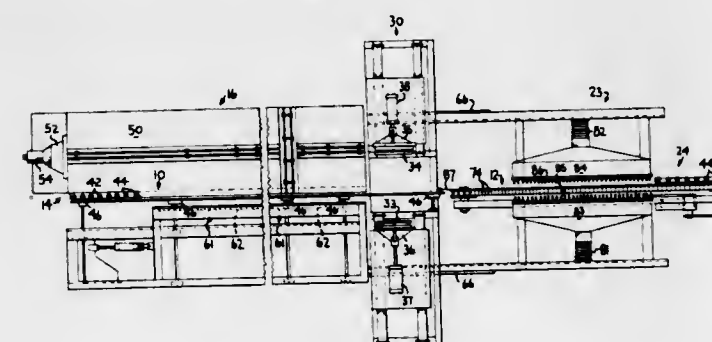
Robert G. Frank, Monroeville, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 157,475, June 28, 1971. This application Feb. 9, 1972, Ser. No. 224,786

Int. Cl. C03b 23/02

U.S. Cl. 65—273

8 Claims



This invention relates to treating glass sheets, and particularly relates to press bending glass sheets by a movable press bending apparatus that engages a glass sheet heated to its deformation temperature and moves with the glass sheet to transfer the sheet while it is being shaped by pressure engagement from a first conveyor to a second

conveyor. Means is provided to tilt the conveyors to provide gaseous support in different oblique planes for different thicknesses of glass sheets processed.

3,737,298 2-FLUORO-3-PHENYL-2-CYCLOBUTENONE AS PLANT AUXIN

Max Jae Fielding, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed June 4, 1971, Ser. No. 150,175

Int. Cl. A01n 21/02

U.S. Cl. 71—77

13 Claims

2-fluoro-3-phenyl-2-cyclobutenone is useful as a plant auxin and in particular increases yield in agricultural plants.

3,737,299 METHOD OF COMBATING NUT SEDGE

Loren W. Hedrich, Overland Park, Kans., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed May 17, 1971, Ser. No. 144,246

Int. Cl. A01n 9/22

U.S. Cl. 71—94

4 Claims

Nut sedge is combated with quaternary 4-phenylpyridinium halides, for example 1-methyl-4-phenylpyridinium chloride which is toxic to nut sedge and a very limited number of crops, particularly when used prior to emergence of the crop and subsequent to the emergence of nut sedge.

3,737,300 DISPERSION STRENGTHENED TITANIUM ALLOYS

Robert Lacock Cairns and John Stanwood Benjamin, Suffern, N.Y., assignors to The International Nickel Company, Inc., New York, N.Y.

Filed July 6, 1971, Ser. No. 159,813

Int. Cl. B22f 9/00

U.S. Cl. 75—5 BC

8 Claims

A wrought composite titaniferous and/or zirconiferous metal powder is provided comprised of a plurality of constituents, the composite powder being advantageously in the heavily cold worked condition and in which particles thereof are characterized metallographically by an internal structure comprised of the starting constituents intimately united together and mutually interdispersed. The process employed in producing the composite metal powder resides in providing a dry charge of attritive elements and a metallic titaniferous and/or zirconiferous powder mass containing at least one nonmetallic constituent inert to said metallic powder, subjecting the charge to high energy agitation milling under conditions inert to titanium and zirconium, preferably above room temperature, in which the charge is maintained kinetically in a highly activated state of relative motion, and continuing the milling under controlled inert conditions to produce wrought composite metal powder in which particles thereof are characterized metallographically by an internal structure in which the metallic and non-metallic constituents are substantially mutually interdispersed.

3,737,301 PROCESS FOR PRODUCING IRON-MOLYBDENUM ALLOY POWDER METAL

Vincent Hao Kwong Chu, Bethlehem, Pa., assignor to Bethlehem Steel Corporation

No Drawing. Filed Dec. 30, 1971, Ser. No. 214,395

Int. Cl. B22f 9/00

U.S. Cl. 75—5 BA

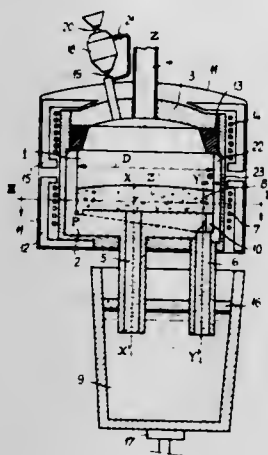
15 Claims

Process for producing iron-molybdenum alloy powder metal from molybdenum trioxide and iron oxide. The

oxides are balled and heat treated in a furnace in the presence of a solid reductant. The oxides are reduced to metallic elements, the molybdenum diffused into the iron and the balls hardened to form pellets. The pellets are crushed and comminuted to a desired size.

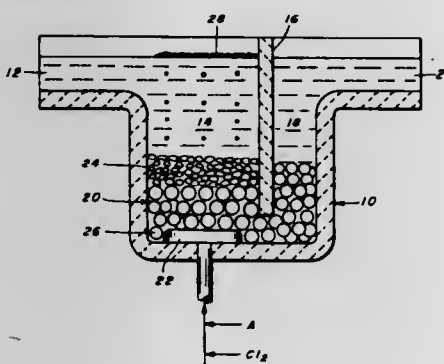
3,737,302 METHOD OF TREATMENT OF LIQUID STEEL UNDER VACUUM

Jacques Pomey, Billancourt, France, assignor to Societe des Aciers Fins de l'Est, Billancourt, France
Filed July 15, 1968, Ser. No. 744,744
Claims priority, application France, July 27, 1967, 115,946
Int. Cl. C21c 5/52; C22d 7/00; H05b 5/12
U.S. Cl. 75—10 9 Claims



A method of de-gasification of steel in fusion poured into a casting ladle in which are immersed the lower extremities of two vertical refractory pipes, the upper parts of which open into the bottom of a vacuum-tight refractory chamber, the one in the proximity of its center and the other into its peripheral portion, a constant vacuum ensuring the rise of the steel bath and its stabilization at a pre-determined height being maintained in said chamber, the steel being heated by induction, a circulation of the liquid steel through the pipes between the ladle and the chamber being effected by means of an inductor winding surrounding the chamber and for a period sufficient for the desired degree of purification under vacuum to be obtained.

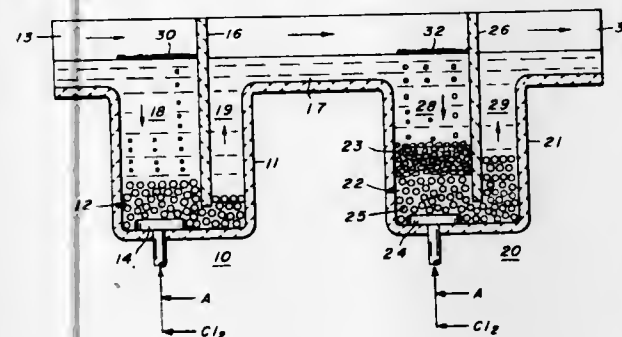
3,737,303
REFINING MOLTEN ALUMINUM WITH
CHLORINE-ACTIVATED BODIES
Lee C. Blayden, New Kensington, Kenneth J. Brondyke, Oakmont, and Robert E. Spear, Murrysville, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.
Filed Dec. 2, 1970, Ser. No. 94,477
Int. Cl. C22b 21/06
U.S. Cl. 75—68 R 10 Claims



The sodium content of molten aluminum along with the oxide and hydrogen gas content, is reduced by an im-

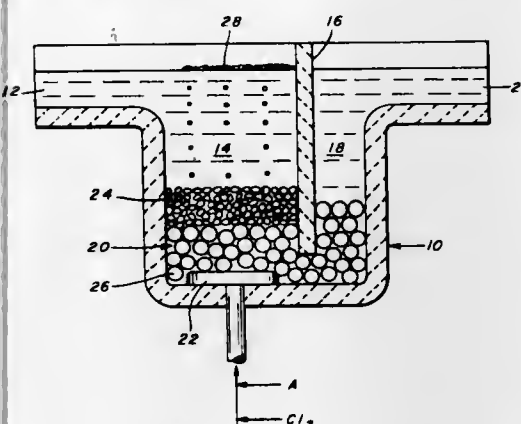
proved process wherein the molten aluminum is passed through a bed of refractory bodies. The refractory bodies have their surfaces activated by chlorine and are reactive to the sodium impurities. The refractory body bed is continuously flushed with a non-reactive gas flux to remove chlorine reaction products formed in the bed. The improvement is capable of chlorine fume-free operation and accordingly is especially useful where pollution control is important.

3,737,304
PROCESS FOR TREATING MOLTEN ALUMINUM
Lee C. Blayden, New Kensington, Kenneth J. Brondyke, Oakmont, and Robert E. Spear, Murrysville, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.
Filed Dec. 2, 1970, Ser. No. 94,313
Int. Cl. C22b 21/06
U.S. Cl. 75—68 R 13 Claims



The sodium, oxide and hydrogen content of molten aluminum is drastically reduced by moving the molten aluminum through two purifying zones. In each zone the molten aluminum is moved through a bed of refractory bodies in contact with fluxing gases. Conditions are carefully maintained to remove impurities while preventing deterioration of the beds. The process can be operated on a pollution free basis and yet achieve extremely low impurity levels.

3,737,305
TREATING MOLTEN ALUMINUM
Lee C. Blayden, New Kensington, Kenneth J. Brondyke, Oakmont, and Robert E. Spear, Murrysville, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.
Filed Dec. 2, 1970, Ser. No. 94,391
Int. Cl. C22b 21/06
U.S. Cl. 75—68 R 14 Claims



This is an improvement in a molten aluminum refining process of the type described in U.S. Pat. 3,039,864 where a non-reactive fluxing gas is passed through molten aluminum as it moves through a bed of refractory bodies to remove from the aluminum hydrogen gas and non-metallic impurities such as oxides. According to the improvement a relatively small stream of a reactive chlorinaceous fluxing gas introduced along with the non-reactive fluxing gas

substantially increases the useful life of the refractory body bed. The process is capable of chlorine fume-free operation.

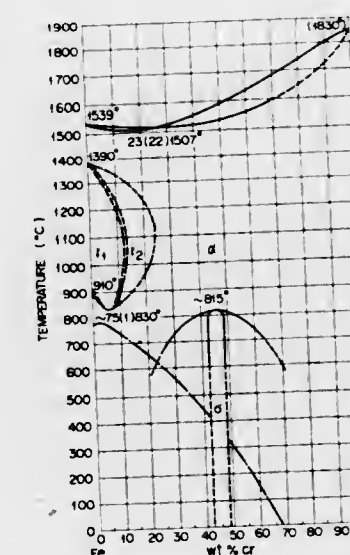
3,737,306
METHOD FOR TREATING TITANIUM SCRAP
Charles J. Byrnes and George L. Vassilaros, Mount Lebanon Township, Allegheny County, Pa., assignors to Crucible Inc., Pittsburgh, Pa.
No Drawing. Filed July 7, 1971, Ser. No. 160,548
Int. Cl. C22b 53/00 3 Claims

U.S. Cl. 75—101 R
Removal of refractory metal inclusions from titanium scrap in particulate form by contacting the titanium scrap with a solvent of potassium hypochlorite, potassium hydroxide and potassium fluoride at an elevated temperature of about 100° C., whereby the refractory metal inclusions are dissolved in the solvent. Conventional practices may be used to detect the presence of the dissolved refractory metal in the solvent.

3,737,307
RECOVERY OF METALLIC NICKEL FROM SOLUTION OF CORRESPONDING SALT
Edward F. Fitzhugh, Jr., Cleveland Heights, Ohio, and Phillip D. Bush and Don C. Seidel, Golden, Colo., assignors to Republic Steel Corporation, Cleveland, Ohio
Filed Dec. 1, 1971, Ser. No. 203,770
Int. Cl. C22b 23/04 29 Claims

U.S. Cl. 75—109
The process disclosed herein comprises the process of cementing or precipitating nickel from a solution containing nickel salts by the addition of iron particles under an overpressure of at least 35 p.s.i.g., preferably at least 60 p.s.i.g., and at a temperature of at least 60° and less than 100° C. The iron particles preferably have a thin coating of copper thereon. The use of overpressure permits a lower temperature to be used in the recovery process, favors more complete cementation of the nickel than without the overpressure, and results in a lower sulfur content in the cemented metal so that the product may be used directly in alloying furnaces without a prior roasting step to reduce the sulfur content.

3,737,308
CHROMIUM-IRON ALLOY
Naofu Iwai, Tokyo, and Takashi Kuse, Yokohama-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed July 26, 1971, Ser. No. 166,218
Claims priority, application Japan, July 22, 1970, 45/63,564
Int. Cl. C22c 37/10, 39/02 1 Claim
U.S. Cl. 75—124



A sealing alloy comprising 15-30% by weight Cr, 0.1-0.9% by weight Ti, 0.15-1.5% by weight Al, 0-0.5%

by weight Mo and balance Fe is provided. The oxide film formed on the surface of this alloy has very low electric resistance and therefore electric contact can be established through the oxide film.

3,737,309
NOVEL PLATINUM-RHODIUM-TUNGSTEN ALLOY
Chain T. Liu and Henry Inouye, Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed Feb. 15, 1972, Ser. No. 226,500
Int. Cl. C22c 5/00 4 Claims
U.S. Cl. 75—172 R



A novel alloy composition comprising 25 to 30 wt. percent rhodium, 6 to 10 wt. percent tungsten with the remainder being platinum.

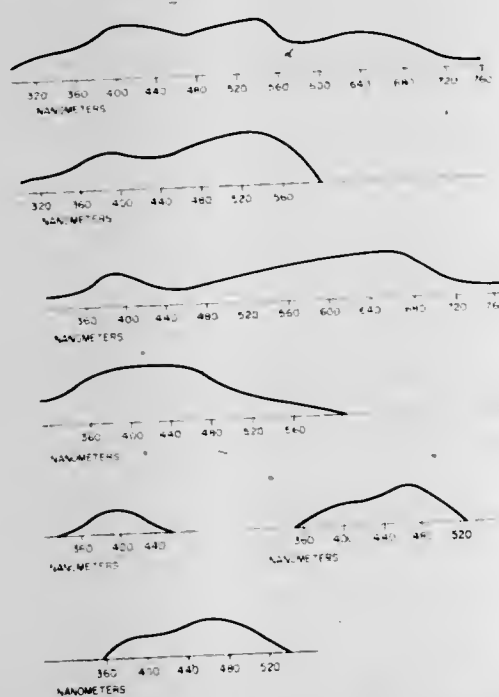
3,737,310
BACKGROUND REDUCTION
Christopher Snelling and William S. Little, Penfield, and Robert H. Townsend, Webster, N.Y., assignors to Xerox Corporation, Rochester, N.Y.
Continuation of abandoned application Ser. No. 863,608, Oct. 3, 1969. This application Dec. 9, 1971, Ser. No. 206,467
Int. Cl. G03g 13/22 7 Claims
U.S. Cl. 96—1 R

By subjecting a photoelectrophoretic imaging suspension to a D.C. corona discharge current prior to image-wise exposure, background degradation can be measurably reduced.

3,737,311
ELECTROSTATIC PARTICLE TRANSFER
IMAGING PROCESS
John B. Wells, Brighton, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Continuation of abandoned application Ser. No. 773,046, Nov. 4, 1968. This application June 4, 1971, Ser. No. 150,211
Int. Cl. G03g 13/14, 13/22 15 Claims
U.S. Cl. 96—1 R

A thin electrically insulating transfer interlayer, which is selectively releasable by area, is sandwiched between a photosensitive layer and a receiver member. The sandwich is exposed to an image pattern of activating electromagnetic radiation for said photosensitive layer while maintaining an electric field across said sandwich. The receiver member is then stripped away to selectively transfer areas of said interlayer in image configuration to said receiver member leaving a complementary image pattern of selective areas of interlayer on said photosensitive layer.

3,737,312
MULTICOLOR PHOTOGRAPHIC FILM ELEMENTS
 COMPRISING A MINIMUM SENSITIVITY SOUND
 TRACK RECORDING SILVER HALIDE EMUL-
 SION LAYER AND PROCESSES FOR THEIR USE
 John L. Baptista and Albert C. Smith, Jr., Rochester,
 N.Y., assignors to Eastman Kodak Company, Roches-
 ter, N.Y.
 Continuation-in-part of abandoned application Ser. No.
 100,614, Dec. 22, 1970. This application Mar. 16, 1972,
 Ser. No. 235,379
 Int. Cl. G03c 1/16, 7/24, 5/50
 U.S. Cl. 96—4 21 Claims



Novel photographic elements are provided having a picture recording area and a sound track recording area comprising a transparent support having coated thereon three picture recording color-forming units which are so disposed and sensitized that each is essentially sensitive to a different primary color region of the visible spectrum, such color-forming units having minimum sensitivity to at least one region of the spectrum bridging adjacently sensitized color-forming units and an auxiliary image or sound track recording silver halide emulsion layer sensitive to such region of minimum sensitivity, said layer not forming an image upon image-forming exposure of the picture recording units, the color-forming units of adjacent spectral sensitivity having a photographic speed of at least 2 times the photographic speed of the auxiliary layer when selectively exposed in the region of minimum sensitivity. Subsequent to image-wise exposure of the picture and sound track recording areas, the element is processed by the novel method of processing which comprises (A) forming a picture record comprising silver and a nondiffusible dye in the picture recording area and an auxiliary image record or sound track record comprising silver in the sound track area and contacting the silver of the auxiliary layer with a ballasted silver bleach inhibitor and (B) removing the bleachable silver images remaining after step (A) and the residual or undeveloped silver halide.

3,737,313
PAPER RADIOGRAPHIC ELEMENT CONTAINING
 SILVER HALIDE GRAINS RHODIUM SALT SEN-
 SITIZED, THIOETHER RIPENED AND POLY-
 VALENT METAL ION STABILIZED
 William J. Rosecrants, Brockport, and Frederick A.
 Pomeroy, Rochester, N.Y., assignors to Eastman Kodak
 Company, Rochester, N.Y.
 No Drawing. Filed June 17, 1971, Ser. No. 154,164
 Int. Cl. G03c 1/92, 5/04
 U.S. Cl. 96—27 R 8 Claims

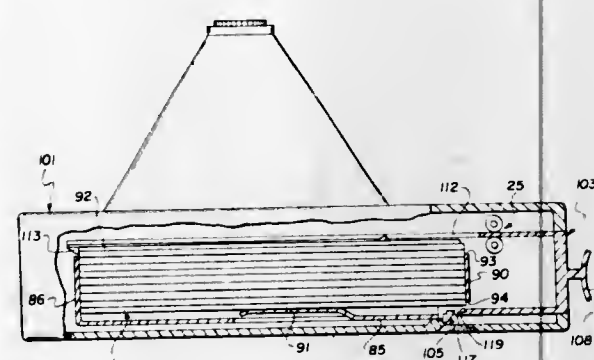
Disclosed are improved radiation-sensitive image re-

cording elements particularly useful in non-destructive testing which elements comprise a support carrying a thioether ripened, polyvalent metal ion stabilized radiation-sensitive silver halide layer of low coating density dispersed in a hydrophilic colloid layer of substantially higher coating density. The silver halide grains are coarse grained and the elements can optionally contain incorporated developer agents and can optionally be combined with integral or non-integral luminescent phosphor-containing intensifying screens. Processes for non-destructive testing and image recording are likewise disclosed.

3,737,314
MANUFACTURE OF PRINTING ELEMENTS BY A
 PHOTORESIST CHEMICAL ETCHING SYSTEM
 Robert L. Ruleff, Kettering, William P. Lee II, Tipp City,
 Jay W. Childress, Dayton, and Donald H. Knapke,
 Troy, Ohio, assignors to The National Cash Register
 Company, Dayton, Ohio
 Continuation of abandoned application Ser. No. 53,151,
 July 8, 1970. This application Feb. 29, 1972, Ser. No.
 230,536
 Int. Cl. G03c 5/00; G03f 7/00
 U.S. Cl. 96—36.3 11 Claims

This process comprises the use of two dissimilar photoresist images. The top photoresist image is superimposed over and extends beyond the bottom photoresist image. The top photoresist image functions as a resist while acid etching a pattern which is larger than required. The top photoresist image is then removed. The bottom photoresist image remains in place and functions as a resist while acid etching the final and well-defined pattern.

3,737,315
FILM CARTRIDGE AND ASSEMBLAGE
 Donald M. Harvey, Webster, N.Y., assignor to Eastman
 Kodak Company, Rochester, N.Y.
 Filed Feb. 1, 1971, Ser. No. 111,466
 Int. Cl. G03c 1/48
 U.S. Cl. 96—76 C 8 Claims



An assemblage and cartridge for photographic film units of the self-processing type. The film units each include a preregistered, integral image-recording unit supported on a rigid frame. The assemblage is defined by a plurality of the film units, preferably with a dark or cover slide, that cooperate to provide a substantially light-tight stack from which the film units can be transported only in the proper direction and order. The uppermost film unit, or the dark slide, is removed first and its frame, preferably after removal of the image-recording unit, then can be reinserted into the stack at the bottom thereof for storage and later disposal with the other frames upon exhaustion of the pack. The cartridge cooperates with the stacked film units to facilitate their handling, to provide further light tightness, and to insure proper transporting of the film units from the back into the stack.

3,737,316
TWO-EQUIVALENT SULFONAMIDO COUPLERS
 Ilmari Fritiof Salminen and Anthony Loria, Rochester,
 N.Y., assignors to Eastman Kodak Company, Roches-
 ter, N.Y.
 No Drawing. Filed Aug. 31, 1971, Ser. No. 176,684
 Int. Cl. G03c 7/00 28 Claims

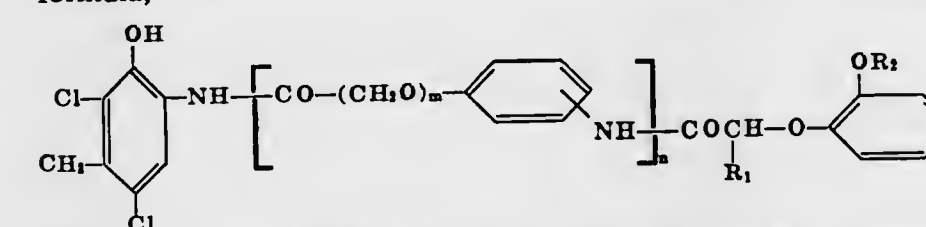
4-sulfonamido-substituted two-equivalent phenol- or α -naphthol-type cyan dye-forming photographic couplers in color developing compositions, in color photographic silver halide emulsion compositions; elements having such emulsion compositions coated thereon, and processes utilizing such elements.

3,737,317
PHOTOGRAPHIC ELEMENTS AND PROCESSES
 Robert D. Nicholas and James D. Clifford, Pittsford, N.Y.,
 assignors to Eastman Kodak Company, Rochester, N.Y.
 No Drawing. Filed Apr. 12, 1971, Ser. No. 133,444
 Int. Cl. G03c 1/48, 1/76, 3/00
 U.S. Cl. 96—74 12 Claims

A silver precipitating layer is coated over or under fine-grain relatively slow speed silver halide emulsion layers, and these layers are coated over a faster image-forming silver halide image-forming emulsion layer. The silver precipitating layer, when coated between the fine-grain, slow speed silver halide emulsion and the faster image-forming silver halide emulsion layer, reduces migration of soluble silver salts out of the fine-grain silver halide into the image-forming emulsion layer. When coated over the fine-grain silver halide emulsion layer, the silver precipitating layer inhibits diffusion of soluble silver salts out of the element during processing, and thereby reduces the rate at which silver deposits are built up on rollers used in equipment which transports the film through photographic processing solutions.

3,737,318
LIGHT-SENSITIVE COLOR PHOTOGRAPHIC
 MATERIAL
 Isaburo Inoue, Teruo Hanzawa, and Takaya Endo, Tokyo,
 Japan, assignors to Konishiroku Photo Industry Co., Ltd.
 No Drawing. Filed May 13, 1971, Ser. No. 143,240
 Claims priority, application Japan, May 14, 1970,
 45/40,491
 Int. Cl. G03c 1/40 11 Claims

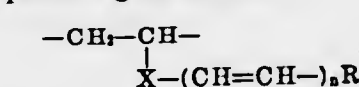
A light-sensitive silver halide color photographic material containing as a coupler a compound of the general formula,



wherein R_1 is a hydrogen atom or a lower alkyl group; R_2 is an aliphatic hydrocarbon residue having 8 to 18 carbon atoms; n is zero or 1; and m is zero or 1.

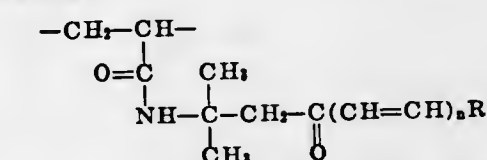
3,737,319
PHOTOGRAPHIC ELEMENTS COMPRISING
 PHOTO-SENSITIVE POLYMERS
 Douglas G. Borden, Rochester, N.Y., assignor to Eastman
 Kodak Company, Rochester, N.Y.
 No Drawing. Filed Mar. 15, 1971, Ser. No. 124,602
 Int. Cl. G03c 1/70 2 Claims

There are disclosed light-sensitive polymers containing recurring groups having the formula

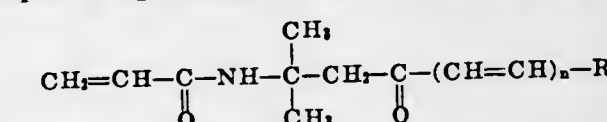


wherein X is a divalent, acyclic organic radical containing at least one ester group or amide group, n is a whole num-

ber from 1 to 3 and R is an unsaturated cyclic group such as an aromatic or heterocyclic radical. The preferred polymers disclosed contain recurring groups having the formula



where R is an unsaturated cyclic group such as an aromatic or heterocyclic group. Two methods of preparing such a polymer are disclosed. According to one method, an aromatic or heterocyclic aldehyde is reacted with a polymer containing diacetone acrylamide units. According to the second method, diacetone acrylamide monomer is first reacted with a heterocyclic or aromatic aldehyde to prepare a light-sensitive monomer having the formula



and the light-sensitive monomer is then homopolymerized or copolymerized with another vinyl monomer. The light-sensitive polymers are useful in photo-mechanical reproduction processes such as for lithographic purposes or as photoresists. The light-sensitive polymers can be spectrally and chemically sensitized. The photopolymerization of the light-sensitive monomers is also disclosed.

3,737,320
PHOTOPOLYMERIZABLE COPYING
 COMPOSITION
 Roland Dietrich, Wiesbaden-Biebrich, Germany, assignor
 to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Ger-
 many
 No Drawing. Filed Dec. 7, 1971, Ser. No. 205,701
 Claims priority, application Germany, Dec. 9, 1970,
 P 20 60 576.9
 Int. Cl. G03c 1/68 11 Claims

This invention relates to a photopolymerizable copying composition comprising at least one binder, at least one polymerizable vinyl or vinylidene compound and, as a photoinitiator, at least one compound of the general formula



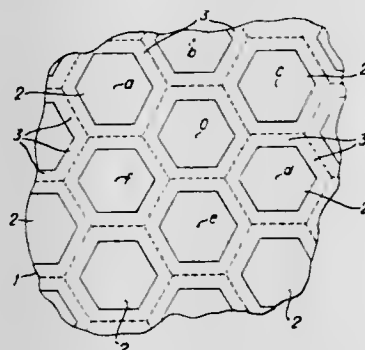
wherein R is selected from the group consisting of an alkyl group

having 1 to 8 carbon atoms or an aryl group having 6 to 10 carbon atoms, and R' is selected from the group consisting of an aryl group having 6 to 10 carbon atoms or an aralkenyl group having 8 to 12 carbon atoms.

3,737,321
SCREENS USED IN PHOTOMECHANICAL
 REPRODUCTION
 Alfred George Torr, The Old Parsonage, Silverstone,
 Northamptonshire, England, and Kevin William
 Canton Webb, Whetstone, England; said Webb assignor
 to said Torr
 Filed Sept. 17, 1971, Ser. No. 181,468
 Claims priority, application Great Britain, Oct. 15, 1970,
 49,115/70; July 7, 1971, 31,913/71
 Int. Cl. G03f 5/00 6 Claims

A screen for photomechanical reproduction comprises a transparent sheet incorporating a refractive surface of

smooth regular wave-form undulations without discontinuities formed with a pattern of cellular areas by intersecting sets of parallel ridges defining between them a plurality of hollows and providing a lenticular effect upon



transmitted light. The cellular areas may be of rectilinear-sided geometric shape e.g. hexagonal. The screen may be prepared by a procedure including a photochemical or a mechanical process.

3,737,322

TREATMENT OF ARABINO GALACTAN

Robert R. Frey, Huntingdon Valley, Pa., assignor to Richardson-Merrell Inc., New York, N.Y.

No Drawing. Filed Mar. 17, 1971, Ser. No. 125,359
Int. Cl. A23g 1/00; A231 1/26

U.S. Cl. 99—23

22 Claims

The tendency of arabinogalactan, a low-calorie sugar substitute for use in foods, to absorb fat and become unmanageable in food processing operations may be controlled by treating the arabinogalactan with saccharides and other edible polyhydroxy compounds.

3,737,323

CONTINUOUS FERMENTATION PROCESS FOR PRODUCING ALCOHOLIC BEVERAGES

Philipp Berdelle-Hilge, Mainz (Rhine), Germany, assignor to Intermag GmbH, Aarau, Switzerland

Continuation-in-part of abandoned application Ser. No. 758,019, Sept. 6, 1968. This application Aug. 23, 1971, Ser. No. 173,932

Int. Cl. C12c 11/14

U.S. Cl. 99—31

14 Claims

Alcoholic beverages are produced by a continuous and accelerated fermentation process. The process involves passing a fermentable liquid by means of a hydraulic pressure of .2 to 10 atmospheres gauge through a layer of a microorganism deposited on a porous zone whereby the liquid is fermented by the microorganism. The fermented liquid then passes through the porous zone, which retains the microorganism, and is recovered to provide an alcoholic beverage.

3,737,324

ENZYME TREATMENT OF GRAPE PULP FOR WINE PRODUCTION

Vasily Ivanovich Zinchenko, ulitsa Dimitrova 16, kv. 79, Kishinev, U.S.S.R.; Ljudmila Sergeevna Salmanova, ulitsa Korolenko 1, korpus 3, kv. 19, Moscow, U.S.S.R.; and Filipp Leontievich Minchuk, ulitsa Aleshina 6/3, kv. 65, Kishinev, U.S.S.R.

Filed Mar. 24, 1970, Ser. No. 22,325

Int. Cl. C12g 1/02

U.S. Cl. 99—35

11 Claims

A method of treatment of a grape pulp in the process for production of wines, cognac and non-alcoholic beverages in which there is added into the pulp a purified cyto-lytic enzyme preparation of a culture of fungus *Trichothecium roseum* having an activity of 2500 units and taken in the amount of 0.0001 to 0.1 percent by weight, and the must is separated from the pulp.

3,737,325

PREPARATION OF WINE AND CHEESE FROM MILK

Emmet R. Engel, Oakland, Calif.

(Casa de San Jose, Box 90 SRA, Palmer, Alaska 99645)
No Drawing. Filed July 15, 1970, Ser. No. 55,284

Int. Cl. C12g 1/00; A23c 19/02

U.S. Cl. 99—35

12 Claims

A milk fermentation process and the products formed thereby which constitute milk-wine cheese and milk wine, the former being a food product and the latter an alcoholic beverage. The milk-wine cheese comprises two components which may be separately collected, one of which is milk-wine top cheese and the other milk-wine bottom cheese or residuum. The process includes the steps of adding a fermentation culture and sugar to a quantity of separated fresh milk to initiate fermentation thereof which is then continued to completion in about 111 days. The process is essentially self-sustaining and produces concurrently in the same tank both milk-wine cheese and milk wine each of which can be aged and cured as it is produced.

3,737,326

BEVERAGE CONTAINING EGG ALBUMEN AND WHEY

Jude A. Basso, Normand A. Lemaire, and Charles V. Fulger, Battle Creek, Mich., assignors to Kellogg Company, Battle Creek, Mich.

No Drawing. Continuation-in-part of application Ser. No. 801,142, Feb. 20, 1969. This application July 23, 1971, Ser. No. 165,720

Int. Cl. A231 1/00; A23c 21/00

U.S. Cl. 99—78

9 Claims

Beverage mix containing sweetener, color, flavor, food acid, and as the source of protein, egg albumen and whey. The whey constitutes from about 20% to about 50% of the protein of the albumen and whey mixture and inhibits the taste and odor of the egg albumen in the final beverage.

3,737,327

BAKERY ADDITIVE AND METHOD

Bromley M. Mayer, Pasadena, and Ralph J. Trickle, Redondo Beach, Calif., assignors to Knudsen Creamery Co. of California, Los Angeles, Calif.

No Drawing. Filed Mar. 17, 1971, Ser. No. 125,341

Int. Cl. A21d 2/26, 2/34

U.S. Cl. 99—91

13 Claims

A bakery additive comprising a mixture of whey proteins with a dried lactose-consuming yeast derived from culturing of the yeast in a cottage cheese whey, cheese whey solids and, optionally, a mixture of edible calcium salts. The weight ratio of the cheese whey solids to the mixture of yeast cells and whey protein may range from 80:20 to 20:80 and the content of calcium salts which may be present is sufficient to improve the strength of a bread dough to which the composition is added and to act as a buffer in keeping the pH within whatever range is desired, such as about 4.8 to about 5.5. The bakery additive is employed in conventional bread doughs at an effective concentration which is sufficient to improve the strength of the bread sidewalls, to increase the bread baked volume, and to improve the texture of the resulting baked product.

3,737,328

APPARATUS AND METHOD FOR PREPARING CONFECTIONERY DROPS

Robert W. Schumann, Brookfield, Wis., assignor to W. R. Grace & Co., New York, N.Y.

Filed Oct. 30, 1970, Ser. No. 85,369

Int. Cl. A23g 1/20, 3/00; B29f 3/01

U.S. Cl. 99—134 R

8 Claims

The invention disclosed is for an apparatus and method for preparing confectionery drops by oscillating wire mem-

bers traverse through a plurality of extruding streams of confectionery material. Drops severed from the extruding streams by the wire members are received on a conveyor belt where the drops cool prior to packaging.

3,737,329

SAUSAGE CASING AND METHOD OF MANUFACTURE

William N. Strelchuk, Bloomfield Hills, Mich., assignor to Hygrade Food Products Corporation, Detroit, Mich.

Filed Sept. 25, 1970, Ser. No. 75,575

Int. Cl. B65b 25/08

U.S. Cl. 99—175

9 Claims



A sausage casing and method of manufacture thereof which begins as a tubular member of sausage casing material which has an end thereof closed by stretching along a convex path and trimmed. Thereafter a pair of cloth tapes are placed on either side of the flattened casing material along marginal longitudinal portions thereof, and tapes being continuous and extending from the sewn end to the open end where a portion of the tape is left loose and then back along the other side of the flattened casing to the sewn end. Thereafter the tape is affixed to the casing material by a stitch wherein portions of the stitching thread extend through the tapes and casing material and portions extend around the marginal edges of the flattened casing material to lock the stitching through the material. The stitching is continued through the loose portion at the open end of the casing. After stitching the casing is inverted to place the cloth tapes on the interior thereof with a loose portion projecting out of the open end of the casing to provide a hanger loop.

3,737,330

PROCESS FOR THE PASTEURIZATION OF EGG WHITES

Willibald F. Kohl, Nanuet, and John C. Sourby, Mount Kisco, N.Y., and Rudolph H. Ellinger, Chagrin Falls, Ohio, assignors to Stauffer Chemical Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 694,797, Jan. 2, 1968. This application June 8, 1970, Ser. No. 44,605

The portion of the term of the patent subsequent to July 14, 1987, has been disclaimed

Int. Cl. A23b 5/00

U.S. Cl. 99—215

8 Claims

A process of pasteurizing egg whites which consists of dissolving within said egg whites a food grade alkali polyphosphate material in an amount ranging between 0.20 and 2.0% weight. The pH of the egg whites is then adjusted to a range of between about 8.0 and 10.0. The

3,737,331

THORIA-YTTRIA-BASED CERAMIC MATERIALS

Richard C. Anderson, Chagrin, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed Mar. 26, 1971, Ser. No. 128,511

Int. Cl. C04b 33/00

U.S. Cl. 106—39 R

5 Claims

High density thoria-based ceramic materials are provided consisting essentially in mole percent as calculated from the batch on the oxide basis of 78-96% ThO₂, 2-20% Y₂O₃ and 0.5-5.0% CaO. These materials may be prepared by pressing the mixed powders and sintering them in a hydrogen atmosphere until about theoretical density is obtained.

3,737,332

CLOSED CELL CLAY FOAM AND PROCESS FOR PREPARING SAME

Paul S. Sennett and James P. Olivier, Macon, Ga., and Sydney Ross, Troy, N.Y., assignors to Freeport Minerals Company, New York, N.Y.

No Drawing. Filed June 25, 1971, Ser. No. 156,997

Int. Cl. C04b 31/20

U.S. Cl. 106—71

12 Claims

A clay foam characterized by a closed cell structure and the ability, in its calcined state, to float in water is described. The gas bubbles of the foam are substantially completely encapsulated by walls formed from clay particles. The foam is prepared by generating a foaming gas in an aqueous dispersion of clay particles to which has been added a minor amount of a fatty amine as a foaming agent. A variety of inorganic filler materials can be incorporated into the foam in order to alter or impart new properties to the foam. The foam can be calcined to further alter its properties. The foam has many uses including use as a refractory brick.

3,737,333

METHOD FOR PROCESSING KAOLIN CLAY

Edgar W. Sawyer, Jr., Edison, N.J., assignor to Engelhard Minerals & Chemicals Corporation, Woodbridge, N.J.

Filed July 21, 1971, Ser. No. 164,829

Int. Cl. C09c 3/02; B03d 3/00

U.S. Cl. 106—288 B

1 Claim

In the wet processing of kaolin clay, the clay crude is initially deflocculated (dispersed) with a synthetic water-soluble salt having an organic polymeric anion. The deflocculated clay then undergoes further processing, including fractionation, floccing with an agent which must include alum, bleaching, filtration, rinsing and re-deflocculation.

3,737,334

VULCANIZED RUBBER COMPRISING A SILICEOUS PIGMENT, A RUBBER AND AN ORGANIC COUPLING AGENT HAVING AN ACTIVE OLEFINIC LINKAGE

Thomas J. Doran, Norton, Melvin P. Wagner, Barberton, and Henry C. Stevens, Akron, Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Original application July 7, 1969, Ser. No. 839,644, now Patent No. 3,664,403. Divided and this application Jan. 14, 1972, Ser. No. 217,973

Int. Cl. C09c 1/28; B60c 5/00; C08d 13/20

U.S. Cl. 106—288 Q

4 Claims

The novel rubber compound and tire tread made therefrom include a silica-filled unsaturated rubber compound and a reactive olefinic coupling agent such as 5-triethoxysilyl norbornene. The coupling agent is a compound which forms a bond or connection between the rubber polymer and the silica.

3,737,335 METHOD FOR PREPARING A SPECIMEN

Sheldon N. Feinberg, 98 Broadway,
Hillsdale, N.J. 07642

No Drawing. Filed July 17, 1970, Ser. No. 55,982
Int. Cl. G02b 21/34

U.S. Cl. 117—72

8 Claims

A process for preparing a specimen to be viewed in a microscope, in which a polyvinyl alcohol (PVA)-fixative-specimen mixture is protected against the deleterious effects of alcohol during the staining procedure. This process may be accomplished by surrounding the PVA-fixative-specimen mixture with a buffer zone. The buffer zone can include any substance or solution that blocks the wetting action of alcohol, for example, water, saline or glycerine to name a few.

3,737,336 AMINOMETHYL-SUBSTITUTED ORGANOPOLY-SILOXANE AS WATER-REPELLENT AND GLOSS-IMPARTING COATING FOR LACQUERED METAL SURFACES

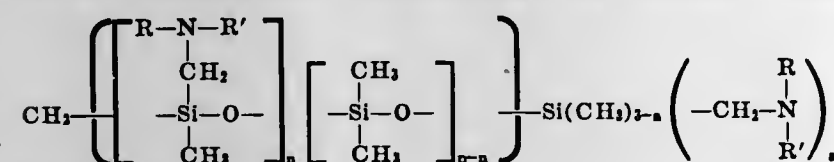
Hans Dietrich Goltz, deceased, late of Cologne-Stammheim, Germany, by Ingrid Goltz, heir, and Walter Noll, Opladen, Karl Schnurrbusch, Leverkusen-Steinbuechel, Klaus Seyfried, Cologne, and Walter Simmler, Odenthal-Globusch, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Original application Mar. 9, 1970, Ser. No. 17,958. Divided and this application Dec. 22, 1971, Ser. No. 210,944

Int. Cl. B32b 15/08; B44d 1/36

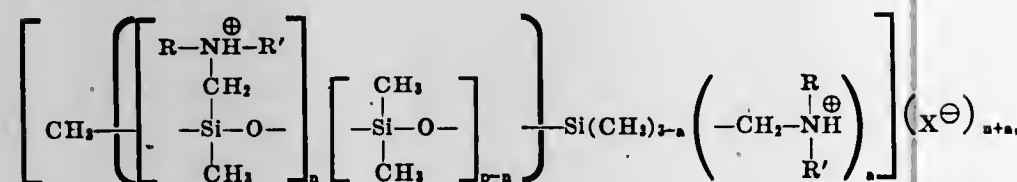
U.S. Cl. 117—75

7 Claims

Excellent hydrophobic properties and pleasant gloss are imparted to solid, especially smooth, surfaces, for example lacquer coatings of the bodies of motor vehicles, by applying thereto, according to the invention, new coating compositions containing as the effective agent an organopolysiloxane which is aminomethyl-substituted on at least two of its siloxane units, corresponding to the formula



or to the formula



in which

p is an integer greater than 25,

a is 0 or 1,

n is an integer greater than $(1-a)$ and smaller than $p/10$,

R and R' , independently of one another, are hydrogen atoms or alkyl or cycloalkyl radicals having less than 9 carbon atoms, and

X is a monovalent acid radical.

3,737,337 PROCESS FOR THE PRODUCTION OF MICROGRANULATES

Hildegard Schnoring, Wuppertal-Elberfeld, Gottfried Pampus and Nikolaus Schon, Leverkusen, and Josef Witte, Cologne-Stammheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Feb. 9, 1971, Ser. No. 114,044

Claims priority, application Germany, Mar. 4, 1970, P 20 10 115.9

Int. Cl. B44d 1/02; B01j 13/02

U.S. Cl. 117—100

14 Claims

A process for the production of solid, free-flowing spherical microgranulates from a polymer matrix con-

taining solid or liquid particles of a core material embedded therein, wherein

(1) a solution of the shell-forming polymer is prepared in a solvent soluble to at most 15% by weight in water at 20° C.,

(2) a solid or liquid core material is dissolved or dispersed in this solution,

(3) the resulting solution or dispersion ("organic phase A") is suspended in an aqueous liquid (aqueous phase B) that is immiscible with the organic solvent,

(4) the organic solvent is allowed to migrate slowly and under control out of the organic phase A so that the dissolved polymer is deposited onto the surface of the particles dispersed in aqueous phase B, and

(5) the solidified particles, i.e. the microgranulate, are separated off.

3,737,338 METHOD FOR CONTROLLING THE FILLING OR WEIGHTING ABSORPTION OF A FIBROUS MATERIAL

Hans Kabelitz, Monchen-Gladbach, Germany, assignor to Gebrüder Sucker, Monchen-Gladbach, Rhineland, Germany

Continuation of abandoned application Ser. No. 758,477, Sept. 9, 1968. This application June 7, 1971, Ser. No. 150,766

Claims priority, application Germany, Sept. 9, 1967, S 111,702

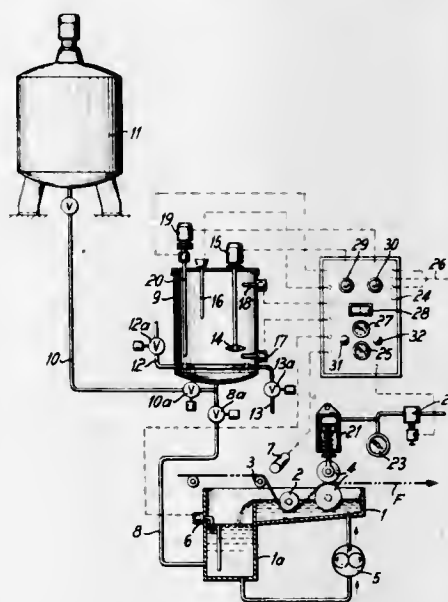
Int. Cl. B05c 11/10

U.S. Cl. 117—102 L

4 Claims

Method of controlling absorption of a filling agent by a fibrous material includes applying a constant excessive concentration of filling agent to the fibrous material; passing the thus-filled fibrous material between a pair of squeeze rollers and simultaneously increasing the bearing pressure of the squeeze rollers to a given optimum value in dependence upon the amount of filling agent absorbed; and, after the optimum bearing pressure is at-

tained, varying the concentration of the filling agent to



thereby regulate the absorbed amount; and apparatus for carrying out the foregoing method.

3,737,339

FABRICATION OF PRINTED CIRCUIT BOARDS

Henry Alsberg, Northbrook, and Ronald A. Frederiksen, Schaumburg, Ill., assignors to The Richardson Company, Melrose Park, Ill.

No Drawing. Continuation-in-part of application Ser. No. 812,900, Apr. 2, 1969. This application Dec. 18, 1970, Ser. No. 99,691

Int. Cl. B44d 1/18

U.S. Cl. 117—212

6 Claims

The invention is directed to a printed circuit board comprising a substrate having a hydrocarbon polymer surface where the hydrocarbon polymer is based upon an elastomeric component of a conjugated diene polymer such as a polybutadiene, and a thermosetting component such as a phenolic, and where a metal coating is directly bonded by additive plating, including electroless deposition, to at least a portion of the hydrocarbon polymer. Such circuit boards are characterized by a superior bond between the metal coating and the hydrocarbon polymer and one preparational method involves metalizing the hydrocarbon polymer either in an uncured or partially cured state, and thereafter completing the cure of the hydrocarbon polymer to produce a bond between the polymer and the metal coating of superior strength.

3,737,341

NOVEL METHOD OF MANUFACTURING PROTECTIVE OXIDE FILMS, AND STRUCTURES EMBODYING SUCH FILMS

Michel Croset and Noel Nouailles, Paris, France, assignors to SESCOSEM-Societe Europeenne des Semiconducteurs et de Microelectronique

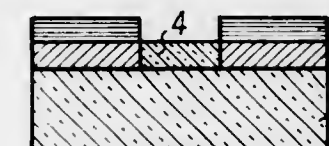
Filed Dec. 29, 1970, Ser. No. 102,382

Claims priority, application France, Jan. 7, 1970, 7000385

Int. Cl. C23f 1/02, 7/02

U.S. Cl. 117—212

4 Claims



The invention relates to a method of depositing a dielectric film of predetermined shape, upon a semiconductor substrate.

3,737,342

METHOD OF MAKING DARK HEATER COATINGS INCLUDING TUNGSTEN

John J. Decker and Donald R. Kerstetter, Emporium, Pa., assignors to GTE Sylvania Incorporated, Seneca Falls, N.Y.

No Drawing. Filed July 15, 1971, Ser. No. 163,050

Int. Cl. B44d 1/14

U.S. Cl. 117—217

2 Claims

Insulating particles of aluminum oxide, zirconium oxide or beryllium oxide are coated with tungsten which in turn is overcoated with platinum to substantially prevent the tungsten from oxidizing and changing color. In addition to platinum, iridium, aluminum oxide or zirconium oxide can be used as the oxidation preventing coating. The tungsten, platinum, or, iridium, aluminum oxide or zirconium oxide are deposited from metallic soaps of the same. A particular example of such a soap is a metal resinate.

3,737,343

TECHNIQUE FOR THE PREPARATION OF ION IMPLANTED TANTALUM-ALUMINUM ALLOY

Harold Basseches and Dieter Gerstenberg, Allentown, and Martin Paul Lepse, Hanover Township, Pa., Alfred Urquhart MacRae, Berkeley Heights, N.J., and Joel Mark Schoen, Whitehall, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

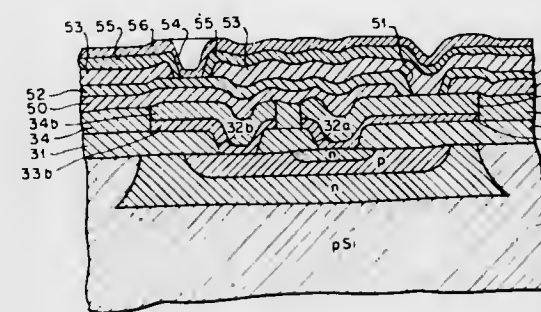
Filed Apr. 19, 1971, Ser. No. 135,178

Int. Cl. B44d 1/50

U.S. Cl. 117—227

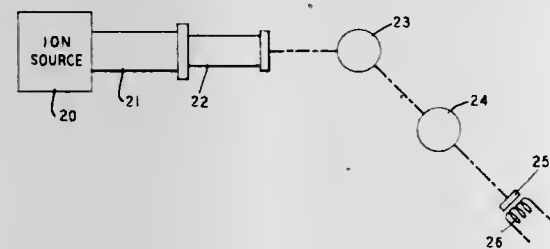
9 Claims

A technique for the preparation of tantalum-aluminum alloy films manifesting resistivities within the range of 10⁻³ to 10⁻² ohm-centimeters which are stable at temperatures of the order of 400° C. involves depositing tantalum-aluminum alloy films by conventional condensation techniques, implanting nitrogen or oxygen ions in the deposited film and annealing the resultant assembly. The films so produced are the first high resistivity films



A semiconductor device with multilayer wiring structure can be formed by the use of a mixed film the main constituents of which are a metal oxide and a silicon oxide are used for both wiring and insulation. A wiring layer in a multilayer wiring structure is formed by a conductive layer converted from a mixed film and is buried in the mixed film. The mixed film is formed by the gaseous phase decomposition of a metal complex and a silicon compound within an oxidizing atmosphere.

to be made available for use in the fabrication of semiconductor devices which are normally subjected to tem-



peratures ranging up to 400° C. during the processing sequence which manifest superior stability characteristics.

3,737,344 PROCESS FOR INCREASING THE ACTIVITY OF POROUS FUEL CELL ELECTRODES

Klaus V. Benda, Kemnat, Horst Binder, Petterweil, Wolfgang Faul, Julich, and Gerd Sandstede, Frankfurt am Main, Germany, assignors to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany
No Drawing. Filed June 3, 1971, Ser. No. 149,767
Claims priority, application Germany, June 4, 1970, P 20 27 482.2

Int. Cl. H01m 13/00
U.S. Cl. 136—120 FC 10 Claims

A process for increasing the activity of porous electrodes which contain tungsten carbide having the composition WC_{1-x} , where $0 \leq x \leq 0.2$, and which are used in connection with the anodic oxidation of carbon monoxide, hydrogen or hydrogen-containing fuels in fuel cells that utilize an acid electrolyte. The process involves placing at least one surface of at least one of the untreated tungsten carbide electrode in an alkaline electrolyte containing a reducing agent. A potential of up to +850 mv., measured with relation to a hydrogen electrode in the same electrolyte is applied to the tungsten carbide electrode. The potential is maintained for a period of up to twenty hours. The invention also includes the activated tungsten carbide electrode.

3,737,345 PROTECTED THERMOELECTRIC ELEMENTS AND METHOD OF PROTECTING SAME

Irwin Kudman, Trenton, and Carl Michael Schmelz, Columbus, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Oct. 24, 1969, Ser. No. 869,342
Int. Cl. H01v 1/18

U.S. Cl. 136—238 6 Claims
A thermoelectric element, comprising a body of lead telluride and/or lead selenide, is provided with a protective coating of a compound of tellurium and/or selenium and one of the rare earth elements, gadolinium, terbium, dysprosium, holmium, erbium, thulium, or ytterbium. The novel method comprises chemically reacting the heated, unprotected thermoelectric element, in an evacuated environment, with one of the aforementioned rare earth elements to form the protective coating as a refractory reaction product.

3,737,346 SEMICONDUCTOR DEVICE FABRICATION USING COMBINATION OF ENERGY BEAMS FOR MASKING AND IMPURITY DOPING

James Godfrey, Allentown, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed July 1, 1971, Ser. No. 158,789

Int. Cl. H01l 7/54
U.S. Cl. 148—1.5 4 Claims

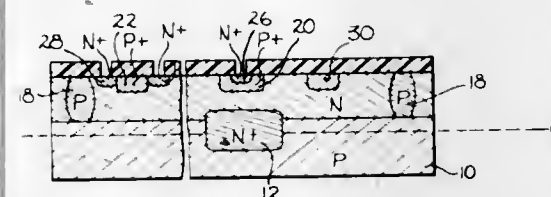
A thin film of a readily volatilizable metal, such as cadmium, is formed on the surface of a semiconductor slice. A programmed electron beam forms a masking pattern by volatilizing portions of the metal film, for example, defining the emitter

windows for a transistor. Without breaking the vacuum ambient an ion implantation introduces the first impurity through the openings in the mask. The electron beam then defines a second mask pattern, enlarging the first openings to define, for example, the base windows, and forming separate new openings, as for diodes and resistors. A second ion implantation puts in a second impurity, again without impairing the original vacuum. These steps are followed by conventional heat treatment for annealing or drive-in of impurities and the device fabrication is completed using conventional metallization techniques and wafer separation.

3,737,347 GRADED IMPURITY PROFILE IN EPITAXIAL FILMS TO IMPROVE INTEGRATED CIRCUIT PERFORMANCE

Graham J. Alcott, Los Gatos, Ian M. Bennett, Palo Alto, and Gerald R. Secrest, Redwood City, Calif., assignors to Fairchild Camera and Instrument Corporation, Mountain View, Calif.

Filed Feb. 26, 1970, Ser. No. 14,407
Int. Cl. C23c 13/00; H01l 7/36, 11/00
U.S. Cl. 148—17.5 6 Claims

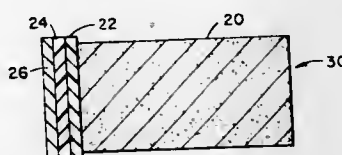


In a monolithic silicon integrated circuit having NPN and substrate PNP transistors therein, a substrate has a layer of intrinsic silicon deposited over its surface prior to and as part of growing an epitaxial region or layer. The intrinsic layer enables a narrow PNP width base and a graded junction to be formed incident to the fabrication of the NPN and PNP.

3,737,348 HEADEND SUSPENSION FOR A CARPET ROLL SOLID PROPELLANT GRAIN

Seiford F. Schultz, and James H. Higgins, both of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Dec. 29, 1970, Ser. No. 102,313

Int. Cl. C06b 19/00
U.S. Cl. 149—2 4 Claims



Disclosed is a means for headend suspension of a carpet roll solid propellant grain used in high acceleration rocket motors. The disclosed means for headend suspension includes a supporting member (e.g. headend plate) having an intermediate reinforcing media through which a bonding agent securely bonds the carpet roll grain to a headend plate which is then attached to the rocket motor case wherein used.

3,737,349 DETONABLE EXPLOSIVE CONTAINING DISSOLVED FLUORESCER

Michael K. Levenson, 2591 Queenston Road, Cleveland Heights, Ohio 44118

No Drawing. Filed Sept. 8, 1971, Ser. No. 178,819
Int. Cl. C06b 19/00 12 Claims

U.S. Cl. 149—2
To indicate the presence of a leaking or exuding explosive composition, a fluorescer is included in the com-

position which fluoresces when excited as by ultraviolet light. A class of fluorescers has been found that is especially suited for use with detonable explosives for this purpose. Such fluorescers are aromatic-based compounds and especially phenylethynyl-substituted aromatic compounds. These fluorescers are chemically inactive with respect to the explosive composition and substantially oxidation-resistant and stable under conditions of storage for the explosive composition over extended periods of time. The fluorescers, however, must be dissolved in order to fluoresce well when excited. The solvent for the fluorescers is also oxidation-resistant and has a sufficiently low vapor pressure at room temperatures to resist appreciable evaporation so as to maintain the solvency of the fluorescers. The explosive composition may be either powder or liquid, but a liquid form is preferred since the explosive then provides its own solvating action on the fluorescer and an additional liquid for this purpose is not needed.

3,737,350 PREPARING EXPLOSIVE COMPOSITION HAVING PRECIPITATED SALT MIX

Charles H. Grant, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation of application Ser. No. 873,119, Oct. 31, 1969. This application Jan. 31, 1972, Ser. No. 222,354

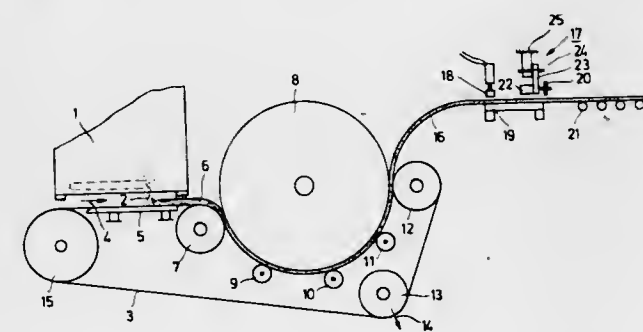
Int. Cl. C06b 19/00
U.S. Cl. 149—17 4 Claims

A castable blasting agent is provided which remains in a solidified form below a predetermined desired stability temperature. The blasting agent is produced by mixing a heated aqueous solution of an inorganic oxidizing salt maintained at a temperature above the desired predetermined temperature, with particulate explosive additives, e.g. inorganic oxidizing salts, fuels, sensitizers and the like, and cooling the mix to solidify the same in shaped or cast form.

3,737,351 METHOD AND APPARATUS FOR THE CONTINUOUS MANUFACTURE OF CHIP BOARD FROM BINDER AND WOOD CHIPS

Hubert Ettel, 3371 Teichhutte, Harz Nr. 24, Germany
Filed Dec. 1, 1970, Ser. No. 93,989

Claims priority, application Germany, July 14, 1970, P 20 34 853.2, P 20 34 867.8, P 20 34 868.9
Int. Cl. B29j 5/00; B32b 21/00; B29d 7/14
U.S. Cl. 156—62.2 10 Claims



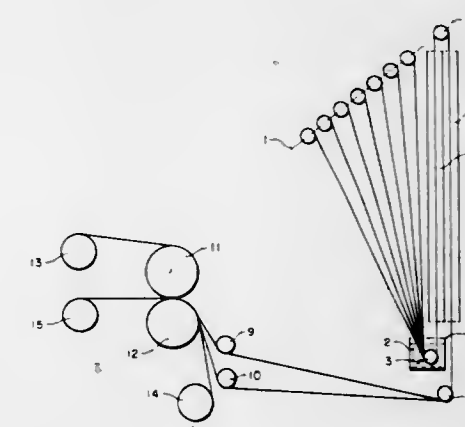
A continuous apparatus for making chip board having a large heated horizontally-disposed drum and an endless metal belt encircling the underside of the drum and spaced from the drum face an accurate predetermined distance which is equivalent to the thickness of the board being produced. The belt is under tension to apply pressure against the mixture of wood chips and binder fed into the space between the belt and the drum. Means is provided spaced from the discharge side of the drum to saw off lengths of board from the continuous web produced, including a clamp to arrest forward motion of the web while the saw is in operation.

3,737,352 REINFORCED PLASTICS MATERIALS

Victor Arthur Avis, Cambridge, and Albert John Matthews, Duxford, England, assignors to Ciba-Geigy AG, Basel, Switzerland

Filed Nov. 25, 1970, Ser. No. 92,786
Claims priority, application Great Britain, Nov. 28, 1969, 58,434/69

Int. Cl. B29h 9/04
U.S. Cl. 156—181 11 Claims



The invention relates to process for producing a resin-impregnated tape from a plurality of tows of fibres which comprises

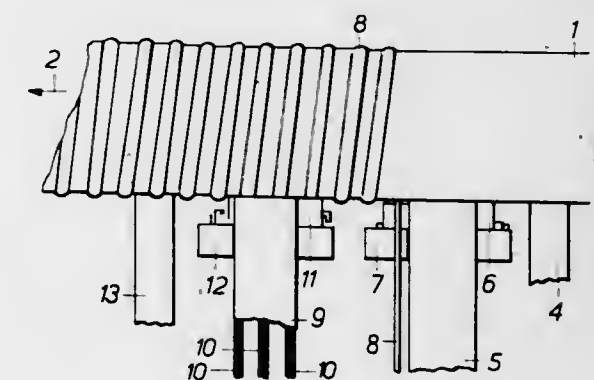
impregnating the said tows with a solution of a first resin in a volatile solvent, shaping each tow into the form of a ribbon of substantially constant width, removing substantially all the solvent from each ribbon, aligning the impregnated ribbons in an abutting edge-to-edge relationship, and contacting the upper and lower surfaces of the aligned ribbons with a second resin under conditions such that the said second resin flows about the ribbons to form a coherent resin-impregnated tape therefrom.

3,737,353 METHOD OF PRODUCING RIBBED TUBES OF REINFORCED SETTING PLASTIC MATERIAL

Agnar Gilbu, Sandefjord, Norway, assignor to Vera Fabrikker A/S, Sandefjord, Norway

Filed Feb. 12, 1971, Ser. No. 114,888
Claims priority, application Norway, Feb. 18, 1970, 586/70

Int. Cl. B65h 81/00
U.S. Cl. 156—190 3 Claims



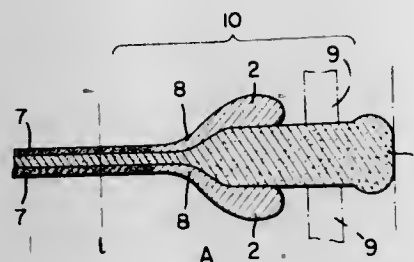
A method of manufacturing externally ribbed tubes and pipes where the ribs are of a resilient material which

may be compressed by the layers subsequently applied to a mandrel.

3,737,354
PRODUCTION OF SYNTHETIC PAPERS
Takeo Hattori, Yokkaichi, Japan, assignor to Mitsubishi Petrochemical Company Limited, Tokyo-to, Japan
Filed Aug. 14, 1970, Ser. No. 63,802
Claims priority, application Japan, Aug. 28, 1969, 44/67,603

Int. Cl. B29c 29/00; B32b 5/14
U.S. Cl. 156—229

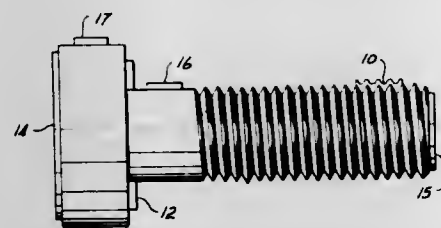
4 Claims



Along the lateral edges of paper-material layers of a thermoplastic resin containing an inorganic filler and prepared to be bonded laminarily on the two surfaces of a base film of a thermoplastic resin to form a laminated structure, respective edge regions not containing any inorganic substances are formed, whereby when the lateral edge parts of the laminated structure are trimmed off after lateral tenting, the edge parts thus cut off contain almost no inorganic substance and, therefore, can be reclaimed and reused as a starting material for the base film.

3,737,355
FASTENER IMPROVEMENT
Michael M. Epstein and Charles W. Cooper, Columbus, Ohio, assignors to Standard Pressed Steel Co., Jenkintown, Pa.
Application Feb. 23, 1966, Ser. No. 524,631, which is a continuation-in-part of application Ser. No. 437,283, Mar. 4, 1965, both now abandoned. Divided and this application Jan. 18, 1971, Ser. No. 107,402
Int. Cl. B32b 15/08, 27/34, 27/38
U.S. Cl. 156—293

10 Claims



Method for providing a metal fastener, such as a threaded nut or bolt, with a locking element made of an engineering plastic such as nylon, by preparing a laminate of said plastic and an uncured adhesive blend of a thermoplastic and thermosetting resin, dimensioning the laminate to the size and shape of the desired locking element, applying the formed laminate to the fastener with the adhesive layer in contact therewith, and applying heat and pressure to adhere the laminate-locking element to the fastener.

3,737,356
APPARATUS FOR CONSOLIDATING AT LEAST THE BEAD PORTION OF A TIRE CARCASS

John F. Askam, Sutton Coldfield, and Charles Goodwin, Alrewas, both of England, assignors to The Dunlop Company Limited, London, England

Continuation of Ser. No. 711,727, March 8, 1968, abandoned.

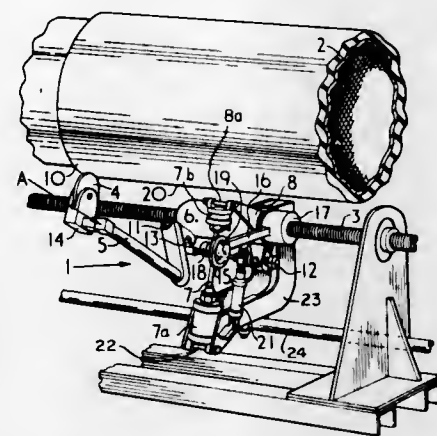
This application Oct. 28, 1970, Ser. No. 84,879

Claims priority, application Great Britain, Mar. 17, 1967, 12,614/67

Int. Cl. B29h 17/12

U.S. Cl. 156—402

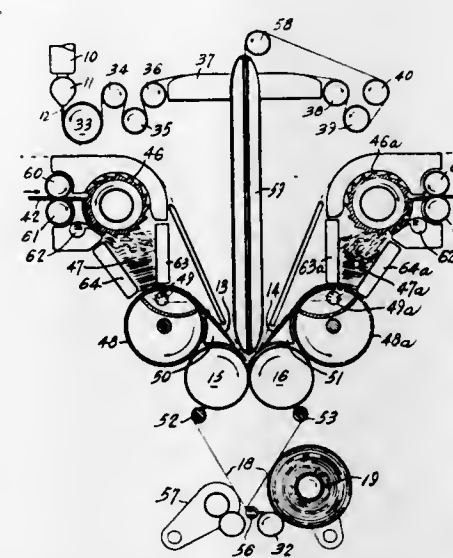
9 Claims



A tire building machine comprising a rotatable tire building drum and a self-aligning freely rotatable spinning disc for consolidating the plies of a tire mounted on the drum around the bead portion of the tire. Means are provided for moving the mounting for the disc towards and away from the bead portion, for applying pressure thereto and for urging the disc in an arc around the bead portion to incline the disc into predetermined angular dispositions relative to the bead portion. The engagement of the disc with the bead limits the degree of arc rotation of the disc and thus defines the disposition of the plane of rotation of the disc with respect to the bead portion. A second spinning disc for consolidating components between the bead portions may also be provided.

3,737,357
APPARATUS FOR FORMING FIBERTAPES
Emilian J. Bobkowicz and Andre Bobkowicz, both of 1435 St. Alexander St., Room 310, Montreal, Quebec, Canada
Original application May 14, 1968, Ser. No. 729,090, now Patent No. 3,567,545. Divided and this application Feb. 22, 1971, Ser. No. 117,716
Claims priority, application Canada, Sept. 26, 1967, 1,047
Int. Cl. B32b 31/18
U.S. Cl. 156—495

19 Claims



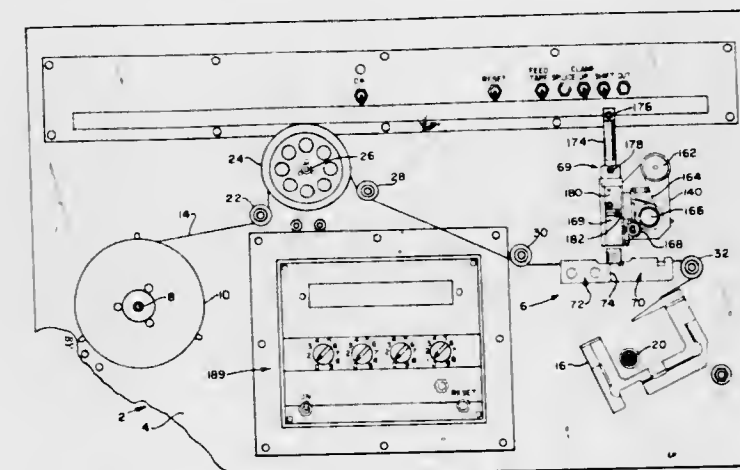
Apparatus for continuous production of fibertapes, with elimination of subsequent separate slitting operations

comprising a pair of rotatable pressure rolls with continuous circumferential grooves on their surface, the rolls being so positioned side by side that each male member of the grooved surface of one roll fits into the corresponding female member of the other roll; and a method for producing fibertapes by introducing staple fibers and a polymeric bonding agent between such rotating grooved pressure rolls.

3,737,358
SPLICER HEAD ASSEMBLY FOR USE IN SPLICING TAPE TO LEADERS
James L. King, Sudbury, Mass., assignor to King Instrument Corporation, Waltham, Mass.
Filed May 27, 1971, Ser. No. 147,376
Int. Cl. B31f 5/06; B65h 19/20

U.S. Cl. 156—502

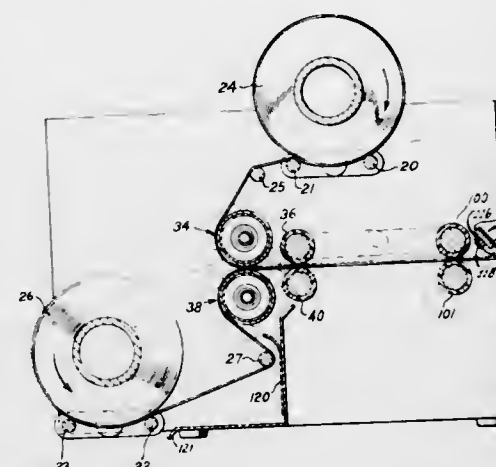
17 Claims



A splicing assembly for cutting and splicing magnetic tape to leaders. The assembly consists of first and second splicing blocks. The first block has two tape-receiving grooves and the second block has one tape-receiving groove. Each groove is adapted to hold a tape in place by suction. The assembly also includes a knife unit operative to sever a tape that extends from one block to the other, and means are provided for moving one block relative to the other so as to selectively align either of the two grooves of the first block with the single groove of the second block. A splicing tape dispenser is used to splice a tape on one block to a tape on the other block.

3,737,359
LAMINATING MACHINE
Maurice D. Levitan, Wilmette, Ill., assignor to Thermal Laminating Corporation, Niles, Ill.
Filed Jan. 25, 1971, Ser. No. 109,100
Int. Cl. B32b 31/10, 31/18, 31/20
U.S. Cl. 156—522

9 Claims

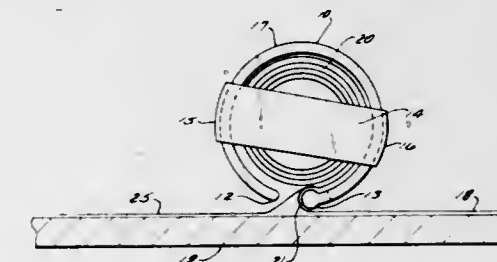


A laminating machine including a pair of cooperating heater roller assemblies and a pair of cooperating pull

rolls, which is characterized by the heater roll assemblies comprising a hollow metal tube rotatably supported in a laminating machine and a heater non-rotatably disposed within the hollow tube, with the hollow tube being supported at the ends in planetary bushings. Tear blade means are provided adjacent the pull rolls for severing the protected document from the film supply means, with the tear blade means including a stripper plate for separating the film from the tear blade. The supply rolls of film are each supported on a pair of cross-rolls in the laminating machine and tensioning brake means are associated with each supply roll to assure maintenance of proper tension of the films, thereby resulting in a smooth wrinkle-free lamination of film to the document to be protected.

3,737,360
APPLICATOR-DISPENSER FOR APPLYING SELF-ADHESIVE MATERIALS
Harvey S. Horn, Bronx, N.Y., assignor to United Merchants and Manufacturers, Inc., New York, N.Y.
Filed Aug. 19, 1971, Ser. No. 173,167
Int. Cl. B32b 31/20
U.S. Cl. 156—577

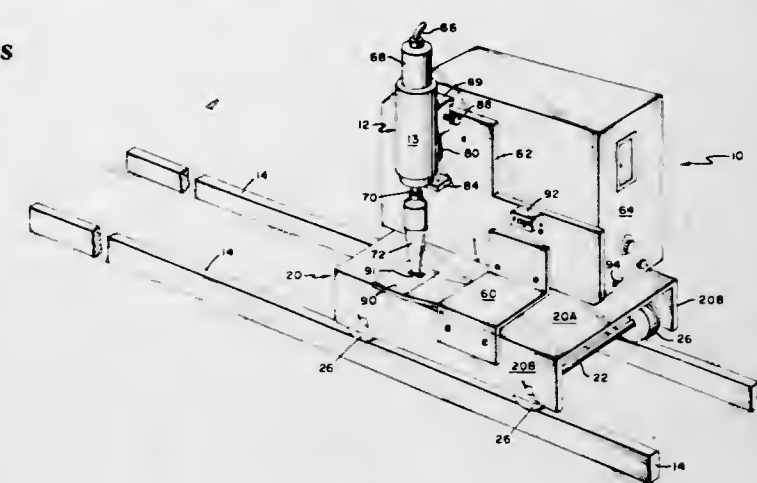
4 Claims



A portable device adapted to be operated by hand and in the nature of a dispenser or applicator for applying self-adhesive materials, especially plastic self-adhesives, to a flat surface from a source of supply wherein the self-adhesive plastic material is characterized by a removable paper backing or the like, which is to be stripped away from the self-adhesive plastic at the time of application of such plastic to the surface to be covered thereby.

3,737,361
APPARATUS FOR EXPOSING SHEET MATERIAL TO ULTRASONIC ENERGY
Edward G. Obeda, Brookfield, Conn., assignor to Branson Instruments, Incorporated, Stamford, Conn.
Filed Dec. 2, 1971, Ser. No. 204,045
Int. Cl. B06b 3/00
U.S. Cl. 156—580

26 Claims



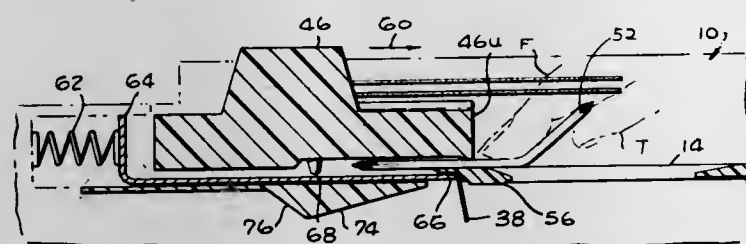
The apparatus disclosed comprises a self-propelled carriage fitted with ultrasonic slitting, welding and/or embossing means and is adapted for translating motion along a set of guide rails. The ultrasonic means include a power

supply and a converter unit with resonating horn opposed by a movable anvil means, the translating motion of the carriage being correlated with the motion of the anvil means. The apparatus is adapted to ultrasonically slit, weld or emboss wide sheet material, for instance slitting sheet material to blanket size, while simultaneously sealing the cut edges as such sheet material is taken from a loom.

3,737,362
PRESSING TOOL FOR FABRICATING WELDED BRANCHED PIPE CONNECTIONS FROM WELDABLE THERMOPLASTIC MATERIALS
Erich Plontke, Riehen, Switzerland, assignor to Rohren-Keller A.G., Basel, Switzerland
Application Oct. 23, 1969, Ser. No. 868,833, now Patent No. 3,576,325, which is a continuation-in-part of abandoned application Ser. No. 628,639, Apr. 5, 1967. Divided and this application June 17, 1971, Ser. No. 154,036
Claims priority, application Switzerland, Apr. 15, 1966, 5,520/66

U.S. Cl. 156—580 3 Claims
A press tool for use in fabricating welded branched pipe connections from weldable thermoplastic materials which includes outer and inner sleeve means spaced to accommodate a branch pipe section and such sleeves having shaped pressure applying end portions, operative to deform the cross sectional welding line of contact into a raised lip or hump to increase the area of welding contact.

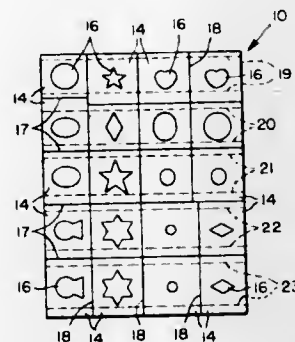
3,737,363
DENTAL FILM STRIPPER
Gunter Schmidt, Marina Del Rey, Calif., assignor to Production, Inc., Los Angeles, Calif.
Continuation-in-part of application Ser. No. 732,186, May 27, 1968, now Patent No. 3,559,554. This application Aug. 15, 1969, Ser. No. 850,477
Int. Cl. B32b 31/16; G03d 3/08
U.S. Cl. 156—584 11 Claims



A stripping device for use with a dental film package that includes a film chip contained within an outer protective covering, to strip the package in daylight and enable insertion of the chip into a film processing machine. The device includes a light-tight housing with a member that engages a tab on the outer covering of the film package, so that the package can be manually pulled along the outside of the housing to peel off the covering from one end of the package while moving that end over a slot in the housing. A slide within the housing then can be moved to draw the contents of the film package out of the covering and through the slot into the housing, so the film chip can fall through an exit and into the developing machine.

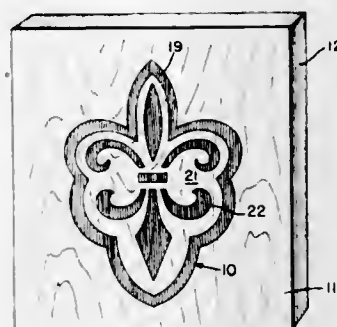
3,737,364
MASKS FOR SLIDE TRANSPARENCIES
William A. Heindl, Jr., 171 Ralmerston Road, Rochester, N.Y. 14618
Filed Sept. 15, 1971, Ser. No. 180,723
Int. Cl. B32b 3/10, 3/16 6 claims
A plurality of foil masks have pressure-sensitive adhesive surfaces releasably secured to a cardboard backing

to hold the masks in intersecting rows and columns on the backing. Each mask has a central opening surrounding a similarly shaped-foil cut-out, which is removed from the opening when the mask is applied to a slide. The backing is cut along spaced pairs of parallel score lines that divide the backing into separate strips extending parallel to the rows of masks. The openings in each row of masks register with a backing strip formed between one



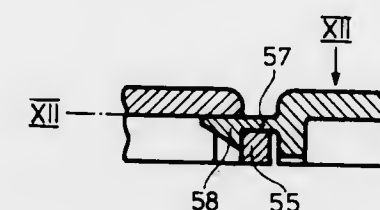
of the pairs of score lines; and the spaces between adjacent rows of masks register with the backing strips located between adjacent pairs of score lines, so that adjacent rows of masks overlap the same backing strip. When a mask is severed from the blank, its backing layer is formed in three separate strips which are peelable selectively from the mask to ease the mounting of the mask on a slide.

3,737,365
METHOD OF MAKING COMPOSITE INLAY DESIGNS AND PRODUCTS
Joe M. Smith, High Point, N.C., assignor of a fractional part interest to Joseph P. Rawley, High Point, N.C.
Continuation of abandoned application Ser. No. 780,333, Dec. 2, 1968. This application Mar. 15, 1971, Ser. No. 124,446
Int. Cl. B29c 17/00; B32b 1/04, 31/00
U.S. Cl. 161—41 9 Claims



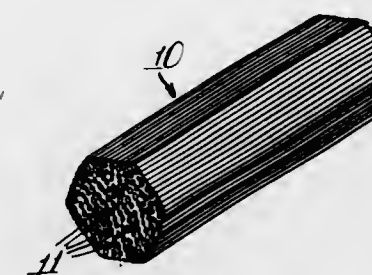
A method of making composite inlaid designs in plane sheet form with individual discrete members and the product formed thereby in which sheets of different materials having a predetermined composite design are cut with selected individual discrete members of the design being selectively removed from a sheet of material of one type and replaced by individual discrete members from a sheet material of another kind to form an inlaid pattern from different materials while subjecting the sheet material and the replaced discrete members to a suction to retain the sheet material and discrete members in situ after which a removable sheet may be applied adhesively to retain the composite design together in sheet form.

3,737,366
SHEET-LIKE ELEMENT MADE OF PLASTICS MATERIAL
Fritz Mader, Oberdorf, Switzerland, assignor to Matom AG., Niederdorf, Basel-Campagne, Switzerland
Filed Oct. 27, 1971, Ser. No. 192,965
Claims priority, application Switzerland, Oct. 27, 1970, 15,901/70
Int. Cl. B32b 3/06, 7/08
U.S. Cl. 161—48 8 Claims



A sheet-like element made of plastics material intended for fitting together with further elements to form a floor covering, said element having a practically square load-bearing surface, wall sections which project substantially vertically from one side of said load-bearing surface, serve as supports for the load-bearing surface and are flush with the periphery of the load-bearing surface, bar sections lying within said wall sections, connecting flaps provided on opposite wall sections, which connecting flaps project outward from the load-bearing surface for joining to an adjacent element, and connecting devices into which the connecting flaps of an adjacent element are intended to engage.

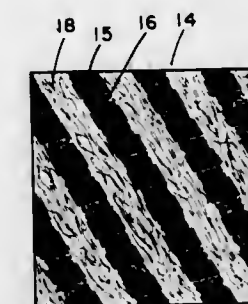
3,737,367
PASSAGE STRUCTURE
John A. Roberts, North Chelmsford, and Peter R. Roberts, Groton, Mass., assignors to Brunswick Corporation, Skokie, Ill.
Original application Nov. 25, 1968, Ser. No. 778,679, now Patent No. 3,506,885, dated Apr. 14, 1970. Divided and this application Jan. 19, 1970, Ser. No. 3,931
Int. Cl. B32b 3/10
U.S. Cl. 161—109 8 Claims



A collimated hole structure is formed by constricting a plurality of tubular elements each provided with a core for supporting the tubular element during the constricting operation. The bundle of elements is constricted to a point where the elements effectively fuse into a substantially monolithic body. The cores are then removed, leaving a plurality of extremely small diameter, generally parallel passages in a solid body. The tubular elements may be arranged in any desired array, and thus the passages may be provided similarly in any desired array. The passages may have high aspect ratios and may be closely juxtaposed. In one illustrative application, the collimated hole structure is provided with dielectric film and utilized as an anode portion of an electrolytic capacitor. In another illustrative application, the collimated hole structure is utilized as a tip for a drilling device.

3,737,368
NONWOVEN WIPING CLOTH
John J. Such, Wrentham, and Arthur R. Olson, Walpole, both of Mass., assignors to The Kendall Company, Boston, Mass.
Filed Dec. 10, 1971, Ser. No. 206,802
Int. Cl. B32b 3/00 3 Claims

U.S. Cl. 161—123 3 Claims



A launderable nonwoven wiring cloth is formed by bonding, with heat and pressure, an intermingled array of cotton fibers, rayon fibers, and thermoplastic binder fibers, in a set of discrete and spaced-apart quadrilateral areas, the bonded areas forming a modulated diagonal line inclined at an angle of between 30° and 60° to a line normal to the machine direction axis of the fabric.

3,737,369
ALKALINE DIGESTION OF A MIXTURE OF COTTON LINTERS AND FIBROUS VEGETABLE MATERIAL AND PRODUCT THEREOF
Eduardo J. Villavicencio, Paramonga, Peru, assignor to Process Evaluation and Development Corporation, New York, N.Y.
No Drawing. Filed Mar. 13, 1972, Ser. No. 234,362
Int. Cl. D21c 5/00 10 Claims

U.S. Cl. 162—95 10 Claims
Alkaline digestion of a mixture of cotton linters, having a fiber length of about 2 to about 5 millimeters, and fibrous vegetable material.

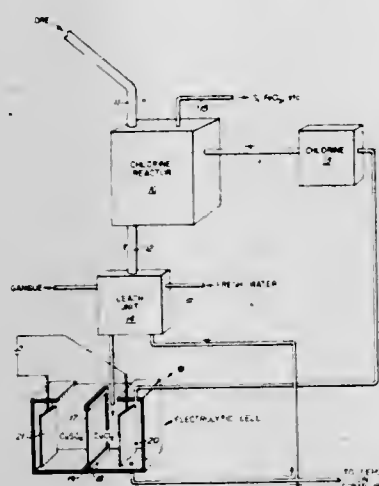
3,737,370
PROCESS FOR MAKING PAPER AND PAPER MADE THEREFROM USING LIQUID CATIONIC STARCH DERIVATIVES
Wadym Jarowenko, Plainfield, and Morton W. Rutenberg, North Plainfield, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 15,199, Feb. 27, 1970, now Patent No. 3,666,751, which is a continuation-in-part of abandoned application Ser. No. 811,649, Mar. 28, 1969. This application Mar. 6, 1972, Ser. No. 232,237
Int. Cl. D21h 3/28 8 Claims

U.S. Cl. 162—175 8 Claims
Novel liquid cationic starch derivatives prepared by reaction of starch with epichlorohydrin-ammonium hydroxide condensates are useful as additives in the manufacture of paper wherein they increase the retention of inorganic pigments by the cellulose pulp and strengthen the resulting paper.

3,737,371
HIGH OPACITY PAPER
Seward M. Bazler, Cincinnati, and William C. Lane, Chillicothe, Ohio, assignors to The Mead Corporation, Dayton, Ohio
No Drawing. Continuation-in-part of application Ser. No. 738,133, June 19, 1968. This application July 29, 1970, Ser. No. 59,327
Int. Cl. D21h 3/66 9 Claims

U.S. Cl. 162—181 B 9 Claims
A titanium dioxide filled paper with an added crystalline colloid for improved light scattering efficiency. The crystalline colloidal material is selected from the class con-

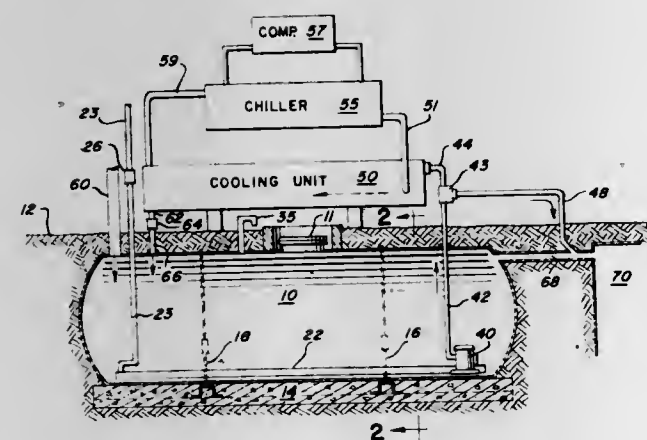
copper sulfate as a catholyte, and copper is plated out at the cathode. The chloride decomposes to chlorine and



is expelled at the anode, from where it can be recovered and recycled.

3,737,382
REFRIGERATED SURGE TANK FOR USE WITH AEROBIC SEWAGE DIGESTION SYSTEM
Richard J. Fletcher, 409 E. Franklin, Apt. 5, and Robert I. Fletcher, 620 Highwood Ave., both of Greencastle, Ind. 46135
Filed Sept. 27, 1971, Ser. No. 183,874
Int. Cl. C02b 1/12; C02c 1/02

U.S. Cl. 210—12 17 Claims



A refrigerated surge tank is used to hold sewage at a reduced temperature and provide an aerobic digestion system with a regulated sewage feed without substantial loss of bio-nutrients or the generation of offensive odors while the sewage is being held. Preferably the surge tank is also provided with means for oxygenating the sewage being held.

3,737,383
PROCESS FOR PRODUCTION OF ENZYME ALKALINE DEXTRANASE
Jinnosuke Abe, Tagata-gun, Tetsuo Watanabe, Yokohama-shi, and Tsutomu Yamaguchi and Sinobu Gocho, Tagata-gun, Japan, assignors to Toyo Jozo Kabushiki Kaisha, Ohito-cho, Tagata-gun, Shizuoka-ken, Japan
Filed Feb. 22, 1971, Ser. No. 117,623
Claims priority, application Japan, Feb. 20, 1970, 45/15,057

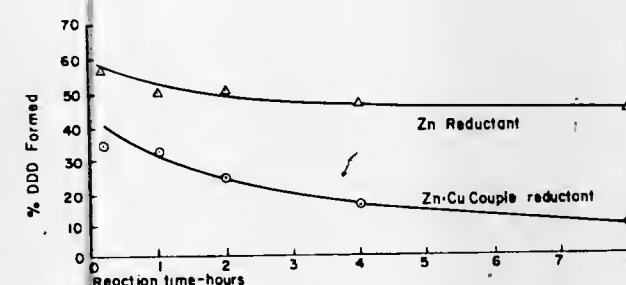
Int. Cl. C12d 13/10 5 Claims
A process for the production of enzyme alkaline dextranase, in which a microorganism of *Brevibacterium fuscum* var. *dextranlyticum* is cultivated in a culture medium

containing a source of assimilable carbon and nitrogen, and the enzyme produced is then separated from the cultured medium. The enzyme alkaline dextranase thus produced is characterized by good stability and activity. A new microorganism is useful in this process, namely, *Brevibacterium fuscum* var. *dextranlyticum* NRRL B-3852 of the Northern Utilization Research and Development Division of the U.S. Department of Agriculture.

3,737,384
DECOMPOSITION OF HALOGENATED ORGANIC COMPOUNDS USING METALLIC COUPLES
Keith H. Sweeny, West Covina, and James R. Fischer, Claremont, both of Calif., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.
Filed Dec. 23, 1970, Ser. No. 100,975
Int. Cl. C02c 5/02

U.S. Cl. 210—59

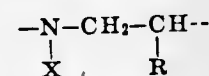
7 Claims



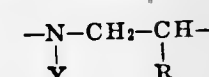
Halogenated organic compounds, especially chlorinated organic pesticides, are decomposed by reaction with metallic couples in a mildly acidic environment.

3,737,385
WASHING, BLEACHING AND CLEANSING AGENTS CONTAINING POLY-(N-ALKYL-DICARBOXYLIC ACID)-ALKYLENEIMINES
Achim Werdehausen, Monheim, Germany, assignor to Henkel & Cie GmbH, Dusseldorf-Holthausen, Germany
No Drawing. Original application Dec. 1, 1969, Ser. No. 881,306. Divided and this application Mar. 20, 1972, Ser. No. 236,158
Claims priority, application Germany, Feb. 21, 1969, P 19 08 728.6; Mar. 27, 1969, P 19 15 652.6
Int. Cl. C11d 7/54

U.S. Cl. 252—102 9 Claims
A washing, bleaching and cleansing agent having a content of from 50% to 99.9%, by weight, of customary components of washing, bleaching and cleansing agents and from 0.1% to 50%, by weight, of salts of poly-(N-alkyldicarboxylic acid)-alkyleneimines having an average molecular weight of from 500 to 500,000 in which at least one-third of the recurring substituted alkyleneimine groups have the following formula

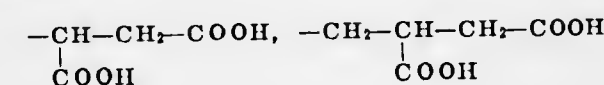


and the remainder of the recurring substituted alkyleneimine groups have the following formula

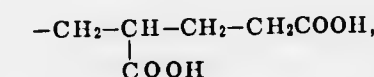


wherein, in both formulas, R represents a member selected

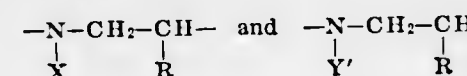
from the group consisting of hydrogen and methyl, X represents



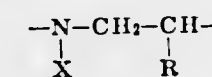
and/or



and Y represents a member selected from the group consisting of hydrogen,



and Y' represents a member selected from the group consisting of hydrogen and



3,737,386
SOLVENT BASED DETERGENT
Richard Geiss, 8875 Lusshof, Offingen (Danube), Germany, and Rolf Quarch, St. Johannstrasse 37, Weissenhorn, Germany
No Drawing. Filed Aug. 4, 1970, Ser. No. 60,924
Int. Cl. C09d 9/04; C11d 7/22, 7/50

U.S. Cl. 252—162 12 Claims
The invention relates to a detergent used particularly in industry on the base of a combination of different organic solvents in admixture with cleaning intensifiers.

3,737,387
DETERGENT COMPOSITION
Walter L. Marple, St. Joseph, Mich., assignor to Whirlpool Corporation
No Drawing. Filed June 15, 1970, Ser. No. 46,278
Int. Cl. C09d 9/04; C11d 7/52; C23g 5/02

U.S. Cl. 252—170 15 Claims
A detergent composition that may be in the form of either a liquid, a powder or a semi-solid and which when added to water forms a washing solution that can be used in removing efficiently complex fats from fabrics made of either natural or synthetic fibers, the detergent composition consisting essentially of an emulsifier that is neither a polyoxyethylene alkylphenol, a polyoxyethylene alkyl alcohol, a polyoxyethylene ester of fatty acid or a polyalkylene oxide block copolymer containing both ethylene oxide and propylene oxide chains, and an organic solvent for the complex fats. The resulting washing solution made by adding the detergent composition to water is a three phase system having an aqueous phase, a dissolved emulsifier phase and a dispersed non-aqueous solvent phase.

3,737,388
AZEOTROPIC COMPOSITION
Jared W. Clark, Charleston, and Charles E. Rectenwald, South Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Application Oct. 30, 1968, Ser. No. 772,046, now Patent No. 3,527,708, which is a continuation-in-part of application Ser. No. 677,738, Oct. 24, 1967, which in turn is a continuation-in-part of application Ser. No. 590,227, Oct. 28, 1966, both now abandoned. Divided and this application Apr. 13, 1970, Ser. No. 32,481

Int. Cl. C09d 9/00; C11d 7/52; C23g 5/02
U.S. Cl. 252—171 2 Claims
This invention relates to azeotropic mixtures of tetrachlorodifluoroethane and normal propanol.

3,737,389
AZEOTROPIC COMPOSITION
Jared W. Clark, Charleston, and Charles E. Rectenwald, South Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Application Oct. 30, 1968, Ser. No. 772,046, now Patent No. 3,527,708, which is a continuation-in-part of application Ser. No. 677,738, Oct. 24, 1967, which in turn is a continuation-in-part of application Ser. No. 590,227, Oct. 28, 1966, both now abandoned. Divided and this application Apr. 13, 1970, Ser. No. 32,482

Int. Cl. C09d 9/00; C11d 7/52; C23g 5/02
U.S. Cl. 252—171 2 Claims
This invention relates to azeotropic mixtures of tetrachlorodifluoroethane and methylpropylketone.

3,737,390
AZEOTROPIC COMPOSITION
Jared W. Clark, Charleston, and Charles E. Rectenwald, South Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Application Oct. 30, 1968, Ser. No. 772,046, now Patent No. 3,527,708, which is a continuation-in-part of application Ser. No. 677,738, Oct. 24, 1967, which in turn is a continuation-in-part of application Ser. No. 590,227, Oct. 28, 1966, both now abandoned. Divided and this application Apr. 13, 1970, Ser. No. 32,483

Int. Cl. C09d 9/00; C11d 7/52; C23g 5/02
U.S. Cl. 252—171 2 Claims
This invention relates to azeotropic mixtures of tetrachlorodifluoroethane and methyl ethyl ketone.

3,737,391
POLYETHERS AND POLYURETHANES
Joseph Feltzin, Wilmington, Del., and Nadji Y. Tehrani, Stamford, Conn., assignors to ICI America Inc.
No Drawing. Original application May 15, 1967, Ser. No. 638,630. Divided and this application Feb. 25, 1971, Ser. No. 119,017
Int. Cl. C08g 22/26

U.S. Cl. 252—182 7 Claims
Polyurethanes having improved properties are prepared by reacting polyoxyalkylene ether diols containing a carboxycyclic or oxacyclic ring and from 2 to 10 oxyalkylene groups, polyoxyalkylene ether polyols containing from 5 to 10 hydroxyl groups and from 15 to 90 oxyalkylene groups, and organic polyisocyanates.

3,737,392
SOLVENT COMPOSITION USEFUL IN ACID GAS REMOVAL FROM GAS MIXTURES
Jamiel Ameen and Seymour A. Furbush, Hopewell, Va., assignors to Allied Chemical Corporation, New York, N.Y.
Original application June 11, 1969, Ser. No. 832,368. Divided and this application Jan. 6, 1971, Ser. No. 104,462
Int. Cl. B01f 1/00

U.S. Cl. 252—364 4 Claims
An improved solvent and process for treating and separating acid gas, particularly hydrogen sulfide from gas mixtures containing the same, such as natural gas mixtures containing hydrogen sulfide, carbon dioxide and methane. The process involves the use of a solvent comprising a mixture of dimethyl ethers of polyethylene glycols of the formula $\text{CH}_3\text{O}(\text{C}_2\text{H}_4\text{O})_x\text{CH}_3$, wherein x is 3-9, to absorb the hydrogen sulfide and part of the carbon dioxide under superatmospheric pressure. The solvent containing dissolved hydrogen sulfide and carbon dioxide is flashed at reduced pressure to remove most of the carbon dioxide and produce a "semilean" solvent. Part of the semilean solvent is recycled to an intermediate part of the absorber; the remaining semilean solvent containing hydrogen sulfide is subjected to an oxygen-containing gas under conditions that result in complete removal of the hydrogen sulfide to produce a "lean" solvent. The

3,737,407 BISPHENOL-A-FUMARATE POLYESTER-CINNAMATE PHOTOPOLYMER

Daniel C. Thomas, Covina, Calif., assignor to Lithoplate, Inc., Covina, Calif.

No Drawing. Continuation of abandoned application Ser. No. 835,764, June 23, 1969. This application June 1, 1971, Ser. No. 149,024

Int. Cl. C08g 17/10, 17/14

U.S. Cl. 260—47 UA 1 Claim
Bisphenol-A-fumarate polyester resin is reacted with a cinnamoylating agent, such as cinnamoyl chloride, to give a photopolymer, useful in lithographic plates.

3,737,408 BAKING ENAMEL VEHICLE COMPRISING THE REACTION PRODUCT OF AN OXAZOLINE WITH PHENOL

Jerry Hoyt Hunsucker, Terre Haute, Ind., assignor to Commercial Solvents Corporation, New York, N.Y.
No Drawing. Original application May 12, 1970, Ser. No. 36,680. Divided and this application Sept. 30, 1971, Ser. No. 185,383

Int. Cl. C08g 9/24, 9/30

U.S. Cl. 260—47 CP 13 Claims
An improved vehicle for the formulation of baking enamels obtained by reacting an oxazoline with phenol.

3,737,409 COPOLYCARBONATE OF BIS-3,5-DIMETHYL-4-HYDROXYPHENYL SULFONE WITH BISPHENOL-A

Daniel W. Fox, Pittsfield, Mass., assignor to General Electric Company

No Drawing. Continuation-in-part of application Ser. No. 7,978, Feb. 2, 1970, which is a continuation of application Ser. No. 622,074, Mar. 10, 1967, both now abandoned. This application Mar. 8, 1971, Ser. No. 122,165

Int. Cl. C08g 17/13

U.S. Cl. 260—49 4 Claims
A copolymer of the reaction product of (1) bis-(3,5-dimethyl-4-hydroxyphenyl) sulfone, (2) 2,2-bis-(4-hydroxyphenyl) propane and (3) a carbonate precursor wherein the reaction mixture of (1) and (2) are initially 40–99 weight percent of (1) and correspondingly 60–1 weight percent of (2). In addition, this invention is directed to a high heat distortion, orientable textile fiber of the copolymer set forth above.

3,737,410 METHOD OF ZINC-MODIFIED RESIN MANUFACTURE BY REACTING NOVOLAKS WITH ZINC DIBENZOATE

Hans J. Mueller, Brookville, Ohio, assignor to The National Cash Register Company, Dayton, Ohio
No Drawing. Filed Aug. 5, 1971, Ser. No. 169,542

Int. Cl. C08g 5/18

U.S. Cl. 260—59 9 Claims
A method (and product therefrom) of manufacturing zinc-modified phenol-formaldehyde novolak resins for use as color-developing materials in pressure-sensitive record sheet material. The method involves the use of zinc dibenzoate and a weak base, for treatment of the chosen novolak in a hot melt reaction.

3,737,411 CURED POLY(ARYLENE SULFIDE) RESINS WITH QUINONES AND THEIR PREPARATION

Lacey E. Scoggins, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed May 19, 1971, Ser. No. 144,987

Int. Cl. C08g 15/00

U.S. Cl. 260—63 R 11 Claims
The processing characteristics of poly(arylene sulfide) resins are improved by incorporating therein a small amount of at least one compound possessing a quinone structure. The aromatic sulfide polymers treated in accord-

ance with the invention retain their thermoplastic nature and can be used in a variety of industrial applications, e.g., as molding compositions.

3,737,412 METHYLOLATED OLEFIN-MALEIMIDE COPOLYMERS AND METHOD FOR PREPARING

Bernard S. Wildt, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Original application Mar. 24, 1969, Ser. No. 809,993. Divided and this application Sept. 7, 1971, Ser. No. 178,510

Int. Cl. C08g 9/24

U.S. Cl. 260—67.5 3 Claims
N-hydroxymethyl- and/or N-halomethyl olefin-maleimide copolymers as new compositions of matter; the process of preparing said N-hydroxymethyl copolymers from olefin-maleimide copolymers and formaldehyde; and the process of preparing said halomethyl copolymers from said hydroxymethyl copolymers and a halogenating agent. The new compositions of matter are useful as resinous substrates in biopolymer synthesis.

3,737,413 THERMOPLASTIC AROMATIC POLYUREAS

Heinrich Krimm, Krefeld-Bockum, Gunther Lenz, Krefeld, and Hermann Schnell, Krefeld-Uerdingen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 24, 1971, Ser. No. 201,977

Claims priority, application Germany, Nov. 27, 1970, P 20 58 503.9

Int. Cl. C08g 22/02

U.S. Cl. 260—77.5 C 2 Claims
The invention relates to new high molecular linear thermoplastic aromatic N-alkyl-substituted polyureas, and to a process for their manufacture by polycondensation.

3,737,414 BIURET-POLYETHYLENIMINE RESINS

Alvin Francis Beale, Jr., Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Mar. 8, 1972, Ser. No. 232,909

Int. Cl. C08g 22/02; A01g 29/00; C05g 3/00

U.S. Cl. 260—77.5 C 11 Claims
Resins of polyethylenimines having a molecular weight of at least 300 and biuret are prepared by heating and reacting them in an inert organic solvent in which the resin is insoluble until 1.4 to 2.0 moles of ammonia per mole of biuret are given off.

3,737,415 POLYMERCAPTAN POLYMERIC SEALANT FORMULATION

Joseph R. Kenton, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

No Drawing. Filed Sept. 17, 1971, Ser. No. 181,597

Int. Cl. C08g 23/00

U.S. Cl. 260—79 7 Claims
A cured sealant composition comprising polymercaptan terminated polymers having at least on the average 2.5 pendent thiol groups per molecule and at least one alkyl monomercaptan.

3,737,416 PROCESS FOR PREPARING AN ALTERNATING COPOLYMER OF AN α -OLEFIN AND BUTADIENE

Kiyoshige Hayashi, Tokyo, and Akihiro Kawasaki and Isao Maruyama, Ichihara-shi, Japan, assignors to Maruzen Petrochemical Co., Ltd., Tokyo, Japan

No Drawing. Filed Mar. 3, 1971, Ser. No. 120,405

Claims priority, application Japan, Mar. 17, 1970, 45/21,994, 45/21,995; July 24, 1970, 45/64,344, 45/64,345; Nov. 6, 1970, 45/97,132, 45/97,133

Int. Cl. C08d 1/14, 3/06, 3/02

U.S. Cl. 260—82.1 13 Claims
Alternating copolymers of an α -olefin butadiene are formed by reaction in the presence of a catalyst compris-

ing an organoaluminum compound having the formula AlR_3 wherein R represents a C_1 – C_{12} hydrocarbon radical selected from the group consisting of alkyl, cycloalkyl, aryl and aralkyl radicals and an organotitanium compound having



structure in the molecule wherein R is as defined above and X is halogen.

3,737,417 PROCESS FOR PREPARING AN ALTERNATING COPOLYMER OF AN α -OLEFIN AND A CONJUGATED DIENE

Kiyoshige Hayashi, Tokyo, and Akihiro Kawasaki and Isao Maruyama, Ichihara-shi, Japan, assignors to Maruzen Petrochemical Co., Ltd., Tokyo, Japan

Filed May 5, 1971, Ser. No. 140,552

Claims priority, application Japan, May 7, 1970, 45/38,253; July 24, 1970, 45/64,344, 45/64,345; Nov. 6, 1970, 45/97,130, 45/97,132, 45/97,133

Int. Cl. C08d 1/12, 3/10, 3/04

U.S. Cl. 260—84.1 19 Claims

Alternating copolymers of an α -olefin and a C_5 – C_{12} conjugated diene are formed by reaction in the presence of a catalyst comprising an organoaluminum compound having the formula AlR_3 wherein R represents a C_1 – C_{12} hydrocarbon radical selected from the group consisting of alkyl, cycloalkyl, aryl and aralkyl radicals and an organotitanium compound having



structure in the molecule wherein R is as defined above and X is halogen.

3,737,418 DIPENTENE/ β -PINENE COPOLYMERS

Erwin Richard Ruckel, Darien, Ronald Frank Phillips, New Milford, and Herbert George Arlt, Jr., Ridgefield, Conn., assignors to Arizona Chemical Company, New York, N.Y.

Continuation-in-part of application Ser. No. 76,348, Sept. 29, 1970. This application July 2, 1971, Ser. No. 159,233

Int. Cl. C08f 15/04

U.S. Cl. 260—88.2 D 3 Claims

A process for the production of a series of β -pinene/dipentene copolymers is given whereby the ratio of the monomers are varied to produce a variety of polyterpene resins having utility as hot-melt coating compositions and pressure-sensitive adhesive compositions.

3,737,419 ALKENE OXIDE POLYMERIZATION

Henry L. Hsieh, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed June 7, 1965, Ser. No. 462,122

Int. Cl. C08f 3/34, 7/12

U.S. Cl. 260—88.3 16 Claims

Epoxide compounds are polymerized with a catalyst comprising (a) an organometallic compound selected from the group consisting of organoaluminum and organozinc compounds and (b) a metal salt of a carboxylic acid. The rubbery high molecular weight polymers pro-

duced have substantial utility in the automobile industry for fabricating articles such as motor mounts, body mounts, suspension system parts, hoses, tubing, and the like.

3,737,420 ANTISTATIC ACRYLONITRILE POLYMERS

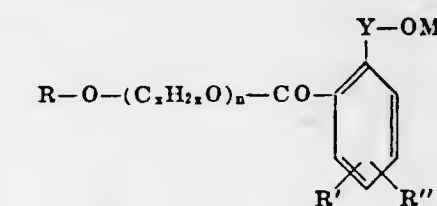
Dieter Brokmeier, Dormagen, Helmut Englehard, Leverkusen, Francis Bentz, Cologne, and Armin Kohler and Gunther Nischk, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Sept. 3, 1971, Ser. No. 177,826
Claims priority, application Germany, Sept. 3, 1970, P 20 43 647.9

Int. Cl. C08f 3/76, 15/22, 45/58

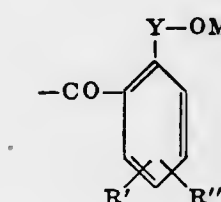
U.S. Cl. 260—85.5 R 17 Claims

The invention relates to acrylonitrile polymer compositions comprising from 1 to 20% by weight, based on total composition, of one or more antistatic compounds having the general formula



in which

R represents a C_1 to C_{30} -alkyl, cycloalkyl, C_3 to C_{30} -alkenyl, aryl, polyaryl, alkylaryl, arylalkyl group and a group having the formula



R' and R'' each represent hydrogen, a C_1 to C_4 alkyl group and halogen, x represents a number from 1 to 4, n represents 0 or a number from 1 to 100, Y represents an SO_2 or CO group, and M represents a hydrogen or alkali metal atom.

3,737,421 PROCESS OF JOINING BY MEANS OF POLYHALOGEN COMPOUNDS

Adel F. Halasa, Bath, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 864,825, Oct. 8, 1969, abandoned, and a continuation-in-part of Ser. No. 575,967, Aug. 30, 1966, abandoned. This application Feb. 2, 1971, Ser. No. 112,026

Int. Cl. C08d 5/04, 3/08, 3/12

U.S. Cl. 260—94.2 M 6 Claims

Molecules of low molecular weight polymers derived at least in part from a diene monomer, are joined to produce branched polymers and copolymers of increased molecular weight. The polymers which are joined are live polymers, i.e., they have one or more "live ends." The joining agents consist of, or comprise, a saturated or unsaturated, straight or branched chain or cyclo-containing aliphatic hydrocarbon which contains one to 50 or more carbon atoms and comprises three or four halogens on a terminal carbon.

3,737,422 L-HISTIDYL-L-PROLINE AMIDE

George Rogelio Flouret, Waukegan, Ill., assignor to Abbott Laboratories, North Chicago, Ill.
No Drawing. Filed Feb. 4, 1970, Ser. No. 8,700
Int. Cl. C07c 103/52; C07g 7/00

U.S. Cl. 260—112.5 1 Claim
A new synthetic route for preparing pyroglutamyl-histidylproline amide in two steps leads to an excellent yield of a highly potent product. The new method uses free histidylproline amide TRH as the starting material and an active ester of pyroglutamic acid as the co-reactant.

3,737,423 PROCESS FOR THE PREPARATION OF A CARBOXYLIC ACID AMIDE

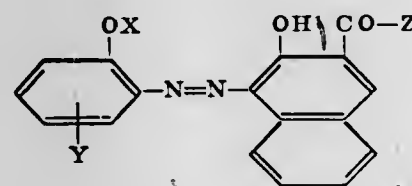
Teruaki Mukaiyama, Masaaki Ueki, Rei Matsueda, and Hiroshi Maruyama, Tokyo, Japan, assignors to Sankyo Company Limited
No Drawing. Filed Nov. 17, 1970, Ser. No. 90,419
Claims priority, application Japan, Nov. 19, 1969, 44/92,685

Int. Cl. C07c 103/52; C07g 7/00
U.S. Cl. 260—112.5 5 Claims
An improved and novel process for the preparation of a carboxylic acid amide which comprises reacting a carboxylic acid with an organic amine or a sulfenic acid with an organic amine or a sulfenic acid amide thereof in the presence of a tertiary phosphine and a disulfide of a mercaptoheterocyclic compound containing a nitrogen-carbon double bond with which the disulfide linkage is conjugated.

3,737,424 PHENYL-AZO-NAPHTHOL COMPOUNDS

James M. Straley and David J. Wallace, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Application Feb. 2, 1968, Ser. No. 707,438, now Patent No. 3,515,506, dated June 2, 1970, which is a continuation-in-part of application Ser. No. 394,063, Sept. 2, 1964. Divided and this application Mar. 23, 1970, Ser. No. 22,062

Int. Cl. C09b 29/20
U.S. Cl. 260—204 7 Claims
Compounds having the formula



wherein X is alkyl; Y is hydrogen, halogen, alkyl, alkoxy, or trifluoromethyl; and Z is alkoxy, amino, alkylamino, morpholino, piperidino or cyclohexylamino, are useful for dyeing polypropylene containing nickel or cobalt.

3,737,425 DERIVATIVES OF LINCOMYCIN

Brian Bannister, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Filed Apr. 6, 1970, Ser. No. 26,110
Int. Cl. C08b 19/00

U.S. Cl. 260—210 R 10 Claims
Alkyl α -thiolincosaminide is reacted with periodate to form alkyl 1-thio- α -D-galactohexodialdo-1,5-pyranoside, which is reacted with cyanide to form alkyl 6-cyano-1-thio- α -D-galactopyranoside. The latter is converted to antibacterially active 8-nor-lincomycins. First the 3,4-O-positions are covered by an ylidene group. This can be done initially by deacetylating alkyl N-acetyl-3,4-O-ylidene- α -thiolincosaminides. The resulting alkyl 3,4-O-ylidene- α -thiolincosaminide is treated successively with periodate and

cyanide. The alkyl 6-cyano-3,4-O-ylidene- α -thiolincosaminide is then tosylated and the resulting 2,7-di-O-tosyl derivatives are reduced with lithium aluminum hydride to form the 6,7-aziridino derivative which on N-acylation and solvolysis, deacylation, and reacylation with the acid moiety of lincomycin or an analog thereof, yields the desired 8-nor-lincomycin or analog thereof. When the solvolysis is effected with methanol or other alkanol, antibacterially active 7-O-alkyl-8-norlincomycins are obtained.

3,737,426 BIODEGRADEABLE SURFACTANTS FROM STARCH-DERIVED GLYCOSIDES

Peter E. Throckmorton, Burnsville, and David Aelony, Minneapolis, Minn., Richard R. Egan, Worthington, Ohio, and Felix Otey, Peoria, Ill., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Sept. 25, 1970, Ser. No. 75,742
Int. Cl. C07c 47/18

U.S. Cl. 260—210 R 2 Claims
Highly biodegradable surface-active products for cleaning and emulsifying agents and the like are obtained by the chemical reaction of starch-derived ethylene and propylene polyol glycosides such as glycol and glycerol glycosides with ethylene and propylene oxides, long-chain epoxyalkanes, and chlorosulfonic acid.

3,737,427 NOVEL PROCESS FOR THE PREPARATION OF α -ALKYL-19-NOR-STERIODS

Albertus Joannes van den Broek, Oss, Netherlands, assignor to Akzona Incorporated, Asheville, N.C.
No Drawing. Filed Mar. 15, 1971, Ser. No. 124,524
Claims priority, application Netherlands, Mar. 24, 1970, 7004241

Int. Cl. C07c 173/00
U.S. Cl. 260—397.3 2 Claims
The present invention relates to a novel method for the preparation of a Δ^4 -3-keto-6 α -alkyl-19-nor-steroid comprising hydrolysing a 3-enolacrylate of the corresponding 6 β -alkylisomer under alkaline conditions.

3,737,428 MANUFACTURE OF UREA AND DERIVATIVES THEREOF

Shigeru Tsutsumi, Hirakata, and Noboru Sonoda, Osaka, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka-shi, and Chiyoda Kako Kensetsu Kabushiki Kaisha, Kanagawa-ken, Japan
No Drawing. Filed Mar. 26, 1970, Ser. No. 23,040
Claims priority, application Japan, Mar. 28, 1969, 44/24,269

Int. Cl. C07c 127/02, 127/16, 127/20
U.S. Cl. 260—239.3 R 12 Claims
In manufacturing urea or a derivative thereof from ammonia or amine, the present process is characterized by reacting ammonia or amine with carbon monoxide in the presence of selenium.

3,737,429 PREPARATION OF 4,5,6,7-TETRAHYDROCYCLOPENTA-1,3-DIOXINONES-(4)

Gerhard Jager, Wuppertal-Vohwinkel, and Richard Wegler, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Oct. 19, 1970, Ser. No. 82,136
Claims priority, application Germany, Nov. 14, 1969, P 19 57 312.7
Int. Cl. C07d 15/00

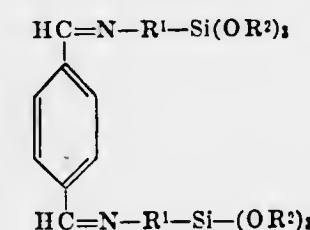
U.S. Cl. 260—240 D 7 Claims
Preparing 4,5,6,7-tetrahydrocyclopenta-1,3-dioxinones-(4), some of which are new, by reacting an adipic acid dihalide having two hydrogen atoms on one α -carbon

atom with an aldehyde or ketone in the presence of a tertiary amine as acid binder. The compounds are useful as intermediates in the preparation of fungicides.

3,737,430 N,N'-BIS[(TRI(SUBSTITUTED))SILYLALKYLENE]-1,4-XYLENE- α,α' -DIIMINE

Lloyd H. Brown, Crystal Lake, Andrew P. Dunlop, Riverside, and Daniel S. P. Eftax, Barrington, Ill., assignors to The Quaker Oats Company, Chicago, Ill.
No Drawing. Original application Mar. 3, 1971, Ser. No. 120,737, now Patent No. 3,681,420, dated Aug. 1, 1972. Divided and this application Apr. 5, 1972, Ser. No. 241,475

Int. Cl. C09b 23/00
U.S. Cl. 260—240 G 3 Claims
A new composition of the formula:



wherein R¹ is an alkylene radical and wherein OR² is a hydrolyzable group and R² is alkyl, aryl, heterocyclic, or substituted derivatives thereof; useful for example in promoting resin to sand and resin to resin bonds.

3,737,431 PREPARATION OF SULFENAMIDES BY CATALYTIC OXIDATION

Robert Henry Campbell, and Raleigh Warren Wise, both of Akron, Ohio, assignors to Monsanto Company, St. Louis, Mo.
Continuation-in-part of Ser. No. 634,096, April 27, 1967, abandoned. This application Feb. 24, 1970, Ser. No. 13,804
Int. Cl. C07d 87/46

U.S. Cl. 260—247.1 17 Claims
Metal phthalocyanines are oxidation catalysts for the preparation of sulfenamides in the reaction of primary or secondary amines with 2-mercaptobenzothiazole, an alkali metal salt of 2-mercaptobenzothiazole, a dithiocarbamate, a dithiocarbamic acid, a thiuram disulfide, or 2,2'-dithiobis(benzothiazole).

3,737,432 BRIDGED ISOCYANURATES

Thomas F. George, Clayton, and Daniel J. Lange, St. Louis, Mo., assignors to The P. D. George Company, St. Louis, Mo.
No Drawing. Original application Jan. 31, 1968, Ser. No. 701,826. Divided and this application June 17, 1971, Ser. No. 154,174

Int. Cl. C07d 55/14
U.S. Cl. 260—248 NS 4 Claims
Bridged isocyanurate (BIC) derivatives and resins, including polyesters, polyester-amides, polyester-imides, polyester-amide-imides, etc., prepared from bridged isocyanurate derivatives, i.e. compounds or polymers containing at least two bridged isocyanurate units preferably derived from hydroxyalkyl, such as hydroxyethyl, isocyanurates and most preferably from tris (2-hydroxyethyl) isocyanurate or its equivalent. Examples of the bridging unit comprise (1) ether groups, (2) acetal groups, (3) carbonate groups, (4) hydrocarbon groups, (5) urethane groups and (6) combinations thereof, etc.

Resins derived from BIC derivatives may also be blended and/or copolymerized with hydantoin polymers to yield hydantoin BIC polymers. The hydantoin polymers employed may be prepared by reacting polyglycines and polyisocyanates, and most preferably diglycines and diisocyanates.

These resins may be cured by using conventional curing agents, curing resins such as melamine-aldehyde, phenol-aldehyde, etc. resins.

These resins may be employed in electrical insulation, particularly as wire enamels, and for other uses,

3,737,433 CERTAIN OXOALKYLDIMETHYLXANTHINES

Werner Mohler, Hofheim, Taunus, and Mario Reiser and Kurt Popendiker, Wiesbaden, Germany, assignors to Chemische Werke Albert Aktiengesellschaft, Wiesbaden, Germany
No Drawing. Continuation of application Ser. No. 762,989, Sept. 26, 1968, which is a continuation-in-part of application Ser. No. 483,803, Aug. 30, 1965. This application Aug. 28, 1969, Ser. No. 854,032

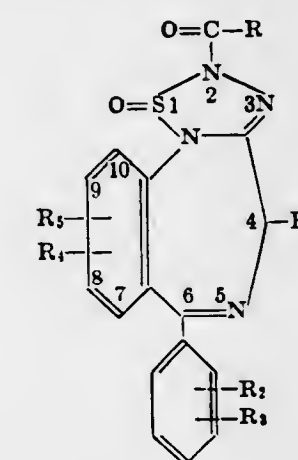
Claims priority, application Germany, Sept. 5, 1964, C 33,811, C 33,812; July 2, 1965, C 36,289; July 10, 1965, C 36,362; July 24, 1965, C 36,493
Int. Cl. C07d 57/40

U.S. Cl. 260—256 20 Claims
[(ω -1)-oxoalkyl]-3,7-dimethylxanthines in which the oxoalkyl has from 4 to 7 carbon atoms and 7-[(ω -1)-oxoalkyl]-1,3-dimethylxanthines in which the oxoalkyl has from 5 to 8 carbon atoms, while the keto group is separated from the xanthine nucleus by at least two carbon atoms. These compounds have a marked vaso-dilatory effect with a low toxicity.

3,737,434 CERTAIN 2-ACYL-2,4-DIHYDRO-6-PHENYL[1,2,3,5]THIAZIAZOLO[5,4-a][1,4]BENZODIAZEPINE-1-OXIDES AND PROCESS

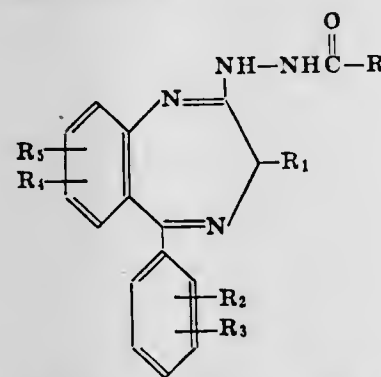
Jackson B. Hester, Jr., Galesburg, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Filed Dec. 3, 1971, Ser. No. 204,679
Int. Cl. C07d 99/10

U.S. Cl. 260—302 F 6 Claims
A 2-acyl-2,4-dihydro-6-phenyl[1,2,3,5]thiaziazo[5,4-a][1,4]benzodiazepine-1-oxide of the Formula II



wherein R is hydrogen or alkyl of 1 to 2 carbon atoms, inclusive; wherein R₁ is hydrogen or alkyl of 1 to 3 carbon atoms, inclusive; and wherein R₂, R₃, R₄, and R₅ are selected from the group consisting of hydrogen, alkyl of 1 to 3 carbon atoms, inclusive, fluoro, chloro, bromo, iodo, nitro, cyano, trifluoromethyl, and alkoxy, alkylthio, alkylsulfonyl, alkylsulfinyl, amino, alkanoylamino in which the carbon moiety is of 1 to 3 carbon atoms and dialkylamino in which alkyl is of 1 to 3 carbon atoms,

inclusive, are prepared by reacting a benzodiazepin-2-yl hydrazide of the Formula I



wherein R, R₁, R₂, R₃, R₄, and R₅ are defined as above with thionyl chloride.

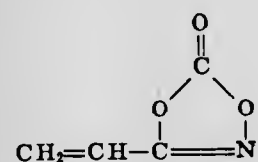
The compounds of Formula II and the pharmacologically acceptable acid addition salts thereof are useful sedatives and tranquilizers for mammals and birds.

3,737,435 CYCLIC NITRILE CARBONATE GROUP-CONTAINING CHLOROFORMATES

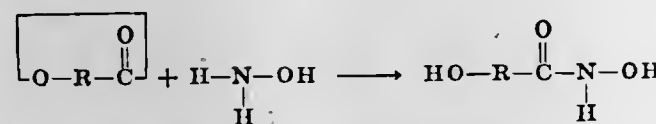
Emmett H. Burk, Jr., Glenwood, Ill., and Donald D. Carlos, Crown Point, Ind., assignors to Atlantic Richfield Company, New York, N.Y.
No Drawing. Application Feb. 10, 1969, Ser. No. 798,186, now Patent No. 3,609,163, dated Sept. 28, 1971, which is a continuation-in-part of application Ser. No. 681,925, Nov. 9, 1967, now Patent No. 3,480,595, which in turn is a continuation-in-part of application Ser. No. 592,285, Nov. 7, 1966. Divided and this application Sept. 2, 1970, Ser. No. 69,125

Int. Cl. C07d 85/06

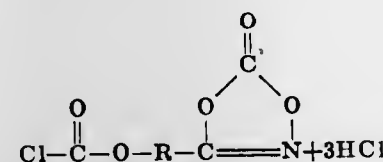
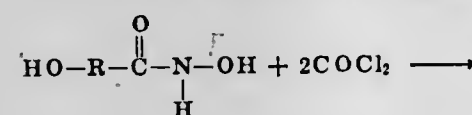
U.S. Cl. 260—307 A 9 Claims
A multi-step process for preparing ethylenically-unsaturated cyclic nitrile carbonate compounds such as ethene nitrile carbonate,



is disclosed. A lactone is first reacted with hydroxylamine to obtain a hydroxyl group-containing monohydroxamic acid:



The hydroxamic acid is then phosgenated to obtain a cyclic nitrile carbonate group-containing chloroformate:



The chloroformate is then contacted with an organic, tertiary amine having a pK value below about 5 to effect decarboxylation and dehydrochlorination of the chloroformate and production of an ethylenically-unsaturated cyclic nitrile carbonate compound such as ethene nitrile carbonate, shown above. Thus, the ethylenically-unsaturated cyclic nitrile carbonate compounds can enter into addition polymerization reactions as well as condensation reactions with labile hydrogen-containing compounds to yield a variety of polymeric materials, such as polyurethanes, which can be employed in coating and molding compositions.

3,737,436 α-TETRAZOLYL - 6-SUBSTITUTED TRYPTAMINE AND α-TETRAZOLYL - 5,6 - DISUBSTITUTED-TRYPTAMINE COMPOUNDS

Edmund C. Kornfeld, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Original application July 5, 1968, Ser. No. 742,490, now Patent No. 3,615,700, dated Oct. 26, 1971. Divided and this application Feb. 12, 1971, Ser. No. 115,094

Int. Cl. C07d 55/56

U.S. Cl. 260—308 D 8 Claims
α-Tetrazolyl-6-substituted-tryptamine and α-tetrazolyl-5,6-disubstituted-tryptamine compounds useful as non-nutritive sweetening agents, and intermediates for the preparation thereof.

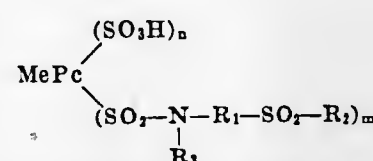
3,737,437 WATER-SOLUBLE METAL PHTHALOCYANINE DYE STUFFS

Hanswilli von Brachel, Offenbach am Main, and Friedrich Aldebert, Frankfurt am Main, Germany, assignors to Cassella Fabwerke Mainkur Aktiengesellschaft, Frankfurt am Main-Fechenheim, Germany
No Drawing. Continuation of application Ser. No. 832,025, June 10, 1969. This application Feb. 29, 1972, Ser. No. 230,470

Claims priority, application Switzerland, Aug. 12, 1968, 12,078/68

Int. Cl. C09b 47/04

U.S. Cl. 260—314.5 1 Claim
Water-soluble metal phthalocyanine dyestuffs of the formula



and the preparation thereof and the use thereof, particularly as reactive dyestuffs for cellulose materials.

**3,737,438
N-[2-FORMYLPROPYLTHIO(2)]-IMIDES**
Ernst Roos, Cologne, Manfred Abele, Porz-Wahn, Roland Nast, Dormagen, and Theo Kempermann and Rudiger Schubart, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Feb. 1, 1971, Ser. No. 111,612
Claims priority, application Germany, Feb. 7, 1970, P 20 05 692.2

Int. Cl. C07d 27/10, 27/18, 27/52

U.S. Cl. 260—326 S 3 Claims
This invention relates to new sulphenamides of 2-formyl propyl-2-sulphenic acid and to their use in the production and processing of mixtures based on a natural or synthetic rubber. The novel compounds are prepared by reacting 2-formyl propyl-2-sulphenic chloride with amines and amides in the presence of an acid binding agent. The retarders can be mixed into the rubber in the usual way.

**3,737,439
2-PYRROLIDINE ACRYLAMIDE**
Carolina Coronelli, Giangualberto Gallo, and Graziella Beretta, Milan, Italy, assignors to Gruppo Lepetit S.p.A., Milan, Italy
No Drawing. Filed Jan. 28, 1971, Ser. No. 110,755
Int. Cl. C07d 27/04

U.S. Cl. 260—326.3 1 Claim
A 1-pyrroline-2-acrylamide, which is suitable for use as an antibiotic (herein referred to as pyrroline A) is produced by cultivation of *Streptomyces eridani* n. Sp. ATCC 21619 and can be isolated from the fermentation medium by extraction. The antibiotic substance is active against various Gram positive and Gram negative bacteria. The dihydro derivative of 1-pyrroline-2-acrylamide is also disclosed.

**3,737,440
POLYGLYCOLIC ACID IN SOLUTIONS**
Edward E. Schmitt, Norwalk, Conn., and William J. Bailey, Hyattsville, Md., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 34,593, May 4, 1970. This application Aug. 12, 1971, Ser. No. 171,320

Int. Cl. C08g 51/34

U.S. Cl. 260—32.8 R 2 Claims
Hexafluoroisopropyl alcohol and hexafluoroacetone sesquihydrate are disclosed as unique solvents for preparing solutions of polyglycolic acid. Such solutions are useful as spinning dopes for wet or dry spinning of polyglycolic acid, for preparing cast films of polyglycolic acid, and for performing a variety of analytical procedures on polyglycolic acid which require the polymer to be in solution.

**3,737,441
PROCESS FOR THE PREPARATION OF METHYL VINYL KETONE AND 2,5-DIHYDROFURAN**
Bernard Charavel, Aubagne, France, assignor to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

Filed Dec. 17, 1968, Ser. No. 784,438

Claims priority, application France, Dec. 20, 1967, 133,052

Int. Cl. C07d 5/08, 45/04

U.S. Cl. 260—346.1 R 4 Claims
The preparation of methyl vinyl ketone and 2,5-dihydrofuran by oxidation of butadiene alone or in combination with butene-1 by first forming a complex of the olefinic compound with the mercuric salt and then heating the complex to an elevated temperature within the range of 90° to 100° C.

**3,737,442
THIO-ETHER DERIVATIVES OF 3,7,11-TRIMETHYLDODECA-2,4-DIENOATES USEFUL IN THE CONTROL OF INSECTS**

John W. Baum, Palo Alto, Calif., assignor to Zoecon Corporation, Palo Alto, Calif.

No Drawing. Continuation-in-part of application Ser. No. 170,387, Aug. 9, 1971. This application Nov. 11, 1971, Ser. No. 197,952

Int. Cl. C08h 3/00, 9/02

U.S. Cl. 260—399 10 Claims
Novel thia compounds of Formula A which includes di-unsaturated acids, esters and derivatives thereof, intermediates thereof, which are useful for the control of insects.

**3,737,443
ω-GUANIDINO ACID AMIDE DERIVATIVES AND MANUFACTURING THE SAME**

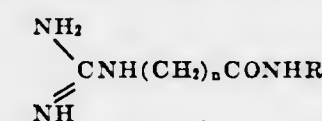
Sadao Hashimoto, Itano-gun, Katsushi Okada and Ryuji Sakakibara, Naruto, and Setsuro Fujii, Tokushima, Japan, assignors to Taiho Pharmaceutical Company Limited, Chiyoda-ku, Tokyo-to, Japan

No Drawing. Filed Apr. 2, 1970, Ser. No. 25,241

Claims priority, application Japan, Apr. 2, 1969, 44/25,805

Int. Cl. C07c 103/30

U.S. Cl. 260—404.5 5 Claims
The present ω-guanidino acid amide derivatives are new compounds having a structural formula of



wherein R is an alkyl of 2 to 18 carbon atoms, a phenyl-alkyl(C₁ to C₄) or a phenyl containing or not containing a substitute of hydroxyl, alkyl(C₁ to C₄) or haloalkyl(C₁ to C₄), and n is an integer of 1 to 10. The above derivatives and onium salts thereof are excellent in pharma-

cological activity, particularly in antagonism to bradykinin and in inhibition on edema, and thus useful as anti-inflammatory agent.

**3,737,444
CONTINUOUS PROCESS FOR THE SEPARATION OF MIXTURES OF FATTY ACIDS OF DIFFERENT MELTING POINTS**

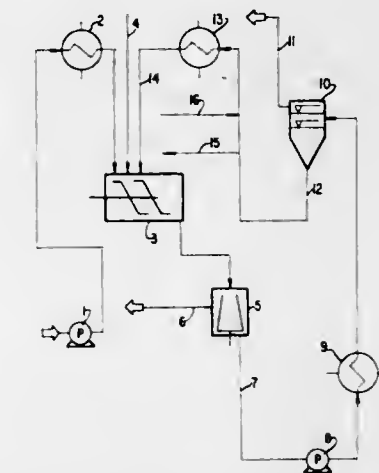
Helmut Hartmann, Langenfeld, Rhineland, and Werner Stein, Erkrath-Unterbach, Germany, assignors to Henkel & Cie G.m.b.H., Dusseldorf-Holthausen, Germany

Filed Dec. 29, 1970, Ser. No. 102,471

Claims priority, application Germany, Dec. 31, 1969, P 19 65 644.1; June 20, 1970, P 20 30 529.7

Int. Cl. C09f 5/10

U.S. Cl. 260—419 16 Claims



The invention relates to an improvement of the known continuous process for the separation of solid and liquid fatty acids, particularly of commercial oleic acid and commercial stearic acid, in which the starting mixture by treating with an aqueous wetting agent solution is converted to a dispersion of liquid fatty acids and solid fatty acid particles, the formed dispersion is separated by centrifuging into two phases of different specific weights, the lighted phase consists substantially of the liquid fatty acids and the heavier phase of a dispersion of the solid fatty acid particles in the aqueous wetting agent solution. After separation of this suspension the wetting agent solution is returned to the process. The improvement consists in withdrawing a part of the recycling wetting agent solution from the cycle and replacing it with fresh wetting agent solution.

**3,737,445
CATALYTIC CARBONYLATION OF AROMATIC NITROSO COMPOUNDS TO PREPARE CORRESPONDING ISOCYANATES**

David Dodman, Kenneth William Pearson, and John Mathers Woolley, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Jan. 6, 1969, Ser. No. 789,348
Claims priority, application Great Britain, Jan. 10, 1968, 1,446/68

Int. Cl. C07c 119/04

U.S. Cl. 260—453 PC 3 Claims

Aromatic isocyanates are manufactured by reacting an aromatic nitro or nitroso compound with carbon monoxide in the presence of a catalyst which is a mixture of at least one noble metal selected from ruthenium, rhodium, palladium, osmium, iridium and platinum, or a compound of such a metal, and a composition comprising two or more heavy metals in the form of their oxides, hydroxides, carbonates, basic carbonates or basic phosphates, or mixtures thereof, the said composition having been prepared by a procedure including as an essential

step either a coprecipitation from solution or a heating together of the heavy metals as their hydroxides or thermally unstable salts.

3,737,446 AMINO-SUBSTITUTED MERCAPTO-COMPOUNDS AND THEIR PREPARATION BY THE REAC- TION OF AMINOTHIOSULFURIC ACIDS AND AZIRIDINES

Raymond L. Cobb, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.
No Drawing. Original application Jan. 13, 1966, Ser. No. 520,377, now Patent No. 3,502,727, dated Mar. 24, 1970. Divided and this application Dec. 19, 1969, Ser. No. 886,756

Int. Cl. C07c 161/00

U.S. Cl. 260—453 R 5 Claims
A method for producing novel polyfunctional amino-substituted mercapto compounds which comprises reacting an aminoalkanethiosulfuric acid with an aziridinyl compound in the presence of a polar solvent which causes the aziridine ring to break and the addition reaction to occur at the terminal amino group site on the aminoalkanethiosulfuric acid molecule. The resulting polyfunctional amino-substituted mercapto acid can then be hydrolyzed to form the corresponding thiol compound, useful as shortstops in radical initiated polymerization system.

3,737,447 CARBYLOXY-METHYLENE-SULFONATES, THEIR PREPARATION AND USE IN SYNTHESIS

Yehuda Mazur, Tel Aviv, Israel, and Michael H. Karger, Stanmore, England, assignors to Yeda Research and Development Co., Ltd., Rehovoth, Israel

No Drawing. Filed Feb. 13, 1970, Ser. No. 11,349

Int. Cl. C07c 143/68 2 Claims
U.S. Cl. 260—456 R
New ether sulfonates of the general formula



in which R_1 and R_2 are each an unsubstituted or substituted alkyl, cycloalkyl, aralkyl, aryl or heteroalkyl radical. The compounds are valuable for carrying out various chemical reactions such as oxyalkylation, splitting of ethers, preparation of amines and the like.

3,737,448 SPIRO[3.3]HEPTANE AMINO ACIDS

Larry J. Loeffler, Bethesda, Md., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Original application Apr. 1, 1970, Ser. No. 24,885, now Patent No. 3,666,790, dated May 30, 1972. Divided and this application June 16, 1971, Ser. No. 153,860

Int. Cl. C07c 121/46 3 Claims
U.S. Cl. 260—464
Novel spiro[3.3]heptane amino acids and their derivatives are disclosed and their method of preparation is described.

3,737,449 PRODUCTION OF HYDROXYBENZONITRILES

Heinz Eilingsfeld, Frankenthal, and Horst Scheuermann, Ludwigshafen, both of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen am Rhineland, Germany

Filed June 18, 1970, Ser. No. 47,579
Claims priority, application Germany, July 2, 1969, P 19 33 525.2

Int. Cl. C07c 121/74, 121/78 5 Claims
U.S. Cl. 260—465 D
Production of chlorine- and/or cyano-substituted hydroxybenzonitriles or their alkali or alkaline earth metal salts by

reacting chlorobenzonitriles with alkali or alkaline earth metal nitrites and optionally converting the salts to the hydroxy compound by acidification. The products are intermediates in the manufacture of dyes and plant protection agents.

3,737,450 INSECT CONTROL AGENTS

Clive A. Henrick and John B. Siddall, Palo Alto, Calif., assignors to Zoecon Corporation, Palo Alto, Calif.

No Drawing. Filed Nov. 22, 1971, Ser. No. 201,165
Int. Cl. C07c 69/74, 61/16, 57/02 8 Claims
U.S. Cl. 260—468 H
Aliphatic hydrocarbon cyclopropyl and bis-cyclopropyl and aliphatic substituted cyclopropyl and bis-cyclopropyl acids and esters and derivatives thereof, intermediates therefor, syntheses thereof, and the control of insects.

3,737,451 CIS-3,4-DIARYL-CYCLOPENTYLIDENE- AND 1-CYCLOPENTENE-1-ACETIC ACIDS AND DERIVATIVES

Faizulla G. Kathawala, West Orange, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Sept. 23, 1970, Ser. No. 74,887

Int. Cl. C07c 65/14, 69/76 37 Claims
U.S. Cl. 260—469
The invention discloses cis-3,4-diphenyl-cyclopentylidene-acetic acids and cis-3,4-diphenyl-1-cyclopentene-1-acetic acids, and amide derivatives thereof, such compounds having pharmacological activity and being useful, for example, as anti-inflammatory agent. The acids may be prepared by hydrolysis, e.g., saponification, of the corresponding esters and the amides may be prepared from the acids by reacting the acid with a thionylhalide and then with the appropriate amine, in a known manner. The esters may be prepared by reaction of the corresponding cis-3,4-diphenyl-cyclopentane-one with a trialkylphosphonoacetate in the presence of a strong base, e.g., sodium hydride.

3,737,452 LOWER ALKYL 5-METHYLHEXO-3,4-DIENOATES AND PREPARATION THEREOF

Hugo Jorge Monteiro, Mountain View, and John B. Siddall, Palo Alto, Calif., assignors to Zoecon Corporation, Palo Alto, Calif.

No Drawing. Filed Jan. 12, 1971, Ser. No. 105,971

Int. Cl. C07c 69/54 11 Claims
U.S. Cl. 260—486 R
Preparation of lower alkyl 5-methylhexa-3,4-dienoates by the reaction of 3-methyl-1-butyne-3-ol and orthoester which is converted into lower alkyl 5-methylhexa-2,4-dienoate, an intermediate for alkyl chrysanthemates.

3,737,453 2-AMINOETHANOL SALT OF DEHYDROABIETIC ACID

Noah J. Halbrook and Ray V. Lawrence, Olustee, Fla., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Original application Nov. 13, 1967, Ser. No. 682,541. Divided and this application Dec. 2, 1970, Ser. No. 94,556

Int. Cl. C07c 91/04 1 Claim
U.S. Cl. 260—501.17
This invention relates to the separation of dehydroabietic acid. More particularly, this invention relates to the separation of dehydroabietic acid from rosin, other rosin acids and rosin materials either present in rosin or formed in the disproportionation of rosin. Still more particularly, this invention relates to a method of separating dehydroabietic acid by forming the 2-aminoethanol salt of dehydroabietic acid and obtaining the pure acid from the amine salt.

3,737,454 RACEMIZATION OF OPTICALLY ACTIVE AMMO- NIUM N-ACETYL- α -AMINOPHENYLACETATE

Ichiro Chibata and Shigeki Yamada, Osaka, and Masao Yamamoto, Kyoto, Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

No Drawing. Filed Aug. 31, 1970, Ser. No. 68,584
Claims priority, application Japan, Sept. 10, 1969, 44/71,752

Int. Cl. C07c 103/12 7 Claims
U.S. Cl. 260—518 R
Optically active ammonium N-acetyl- α -aminophenylacetate is racemized by heating. The heating is preferably conducted at temperatures from about 100° C. to about 180° C.

3,737,455 SUBSTITUTED 1-(LOWERALKYL-SULFINYL)BENZ- YLIDENE)-3-INDENYLOXYACETIC ACID AND ESTERS THEREOF

Tsung-Ying Shen, Westfield, Howard Jones, Holmdel, and Michael W. Fordice, Cranford, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Jan. 21, 1971, Ser. No. 108,631

Int. Cl. C07c 147/14 7 Claims
U.S. Cl. 260—520
New substituted indene acids and non-toxic pharmaceutically acceptable amides, esters and salts derived therefrom. The substituted indene acids disclosed herein have anti-inflammatory, anti-pyretic and analgesic activity. Also included herein are methods of preparing said indene acid compounds, pharmaceutical compositions having said indene acid compounds as an active ingredient and methods of treating inflammation by administering these particular compositions to patients.

3,737,456 NOVEL PROCESS FOR THE PRODUCTION OF 1-CHLORO-3-PHOSPHOLENES

Curtis P. Smith, Cheshire, and Henri Ulrich, North Branford, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed June 1, 1971, Ser. No. 148,996

Int. Cl. C07d 105/02 2 Claims
U.S. Cl. 260—543 P
A conjugated diene, a member of the group consisting of phosphorus trichloride, phosphorus tribromide and phosphorus triiodide and a hydrocarbyl phosphine are reacted at a temperature of from about 20° C. to reflux in the presence of a compound which will inhibit polymerization of the diene reactant; to prepare the corresponding 1-halophospholenes. The products of the process are for the most part novel compounds, useful as intermediates in the preparation of selective solvents and catalysts for the preparation of carbodiimides from isocyanates.

3,737,457 PROCESS FOR MAKING COMPOUNDS CONTAIN- ING THE SULFONYL CYANIDE GROUP

John Michael Cox and Ranajit Ghosh, Bracknell, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed May 15, 1969, Ser. No. 825,042
Claims priority, application Great Britain, June 13, 1968, 28,228/68

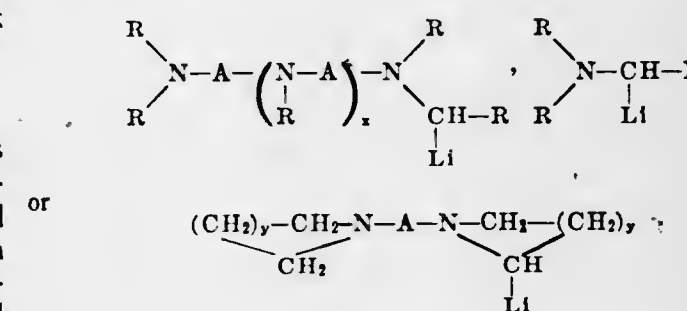
Int. Cl. C07c 161/00 9 Claims
U.S. Cl. 260—545 R
A process for making compounds containing the sulphonyl cyanide group, SO_2CN , which comprises reacting a salt of a sulphonic acid with cyanogen chloride.

3,737,458 PRODUCT OF ALPHA MONOLITHIATED AMINE AND CARBONYL COMPOUNDS

Arthur W. Langer, Jr., Watchung, N.J., assignor to Esso Research and Engineering Company

No Drawing. Continuation-in-part of application Ser. No. 825,384, May 16, 1969, now Patent No. 3,536,679, which is a continuation-in-part of application Ser. No. 589,240, June 24, 1969, now Patent No. 3,451,988, which in turn is a continuation-in-part of applications Ser. No. 266,188, Mar. 19, 1963, and Ser. No. 290,315, June 25, 1963, both now abandoned. This application Aug. 6, 1970, Ser. No. 61,813

Int. Cl. C07c 85/00 9 Claims
U.S. Cl. 260—570 R
A method for forming an amine adduct of a compound that reacts in a "Grignard" manner, said method comprising the step of reacting an alpha mono lithiated amine, said amine being characterized by one of the following structural formulae:



wherein R can be the same or different and is a C_1 - C_{10} alkyl; X is an integer of 0 to 10,000; y is an integer of 0 to 3; and A is a radical which is (1) a cycloaliphatic radical or a cycloaliphatic radical containing C_1 - C_4 alkyl groups, said radicals having ring structures of 4 to 7 members and being attached to the nitrogen atoms at 1,2 or 1,3 positions on said ring; or (2) a radical consisting of 1 to 20 methylenic groups wherein each methylenic group contains 0 to 2 monovalent hydrocarbon radicals of 1 to 6 carbon atoms, with a compound that reacts in a "Grignard" manner under conditions of temperature, concentrations of reactants and pressures sufficient to form said amine adduct.

In addition, this invention relates to a method for preparing an organo-lithium amine complex which comprises admixing a lithiated amine similar to the one described hereinabove with a hydrocarbon group-containing compound having an acidity corresponding to a pKa of not more than 38.

3,737,459 CATALYZED REACTION OF AN ARYLAMINE WITH AN ALKYLAMINE TO FORM AN N- ALKYL SUBSTITUTED ARYLAMINE

Donald M. Fenton, Anaheim, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

No Drawing. Filed Aug. 12, 1970, Ser. No. 63,308

Int. Cl. C07c 87/62 14 Claims
U.S. Cl. 260—577
A primary or secondary aryl or alkylamine is reacted with an alkylamine under liquid phase conditions in the presence of a ruthenium, osmium, rhenium, or technetium-containing catalyst, preferably in complex association with a biphyllid ligand, to produce an aryl or alkyl amine having a nitrogen-bonded alkyl group. A typical process comprises contacting aniline with tributylamine in a liquid reaction medium containing a minor amount of ruthenium trichloride and triphenylphosphine to produce N-butyl aniline and dibutylamine.

3,737,460

PRODUCTION OF SECONDARY ALKYL PRIMARY AMINES

Robert M. Suggitt, Wappingers Falls, N.Y., assignor to Texaco Inc., New York, N.Y.

No Drawing. Filed Nov. 6, 1970, Ser. No. 87,598

Int. Cl. C07c 85/10

U.S. Cl. 260—583 M

13 Claims

Process for producing secondary alkyl primary amines, in particular, secondary alkyl primary amines having from 6 to 25 carbon atoms wherein a C₆-C₂₅ mono-nitroparaffin is reacted with hydrogen in the presence of a stabilized palladium-carbon catalyst where the activity and crush strength of the catalyst is enhanced and the reaction is selective in the conversion of mono-nitroparaffins to secondary alkyl primary amines.

3,737,461

POLYMERIC TERTIARY BUTYL AMINE VULCANIZING AGENTS AND METHOD OF PREPARATION

Kyung S. Shim, Irvington, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.

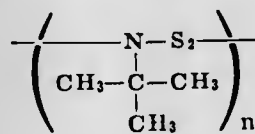
No Drawing. Continuation-in-part of application Ser. No. 839,615, July 7, 1969, which is a continuation-in-part of application Ser. No. 831,722, June 9, 1969, both now abandoned. This application June 16, 1971, Ser. No. 153,833

Int. Cl. C07c 83/00; C08f 27/06

U.S. Cl. 260—583 EE

1 Claim

A poly(tertiary butylamine) sulfide composition useful as a vulcanizing agent for synthetic and natural rubbers, the repeating structural unit of this composition having the following formula:



wherein *n* can range between 3 and 100, and the process of manufacturing the same.

3,737,462

METHOD FOR THE PREPARATION OF 1,2-DIAMINOPROPANE

Zafarullah K. Cheema, Morristown, Robert L. Formaini, Millington, and Harry E. Ulmer, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Aug. 4, 1971, Ser. No. 172,349

Int. Cl. C07c 85/10

U.S. Cl. 260—583 P

11 Claims

1,2-diaminopropane can be prepared from 1,2-methylglyoxime in good yield by hydrogenation in the presence of a hydrogenation catalyst in anhydrous alcoholic medium at low temperatures under strongly basic conditions.

3,737,463

RESOLUTION OF OPTICALLY ACTIVE PROPYLENE GLYCOL AND CERTAIN KETONES

William L. Howard and Joanne D. Burger, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Oct. 29, 1968, Ser. No. 771,666

The portion of the term of the patent subsequent to Jan. 20, 1987, has been disclaimed

Int. Cl. C07c 31/20, 49/30, 49/36

U.S. Cl. 260—587

6 Claims

Optically active propylene glycol and optically active ketones are produced by condensing propylene glycol with a cyclic ketone having an asymmetric center, one of the reactants being optically active, to form a mixture

of diastereoisomers of a cyclic ketal, separating one of the diastereoisomers by fractional crystallization and hydrolyzing the separated diastereoisomer to recover the optically active propylene glycol or ketone.

3,737,464

DEUTERATED PARAFORMALDEHYDE PROCESS

Joseph G. Atkinson, Montreal, Quebec, and David W. Cillis, Ottawa, Ontario, Canada, assignors to Charles E. Frost & Co., Montreal, Quebec, Canada

No Drawing. Filed Feb. 24, 1969, Ser. No. 801,782

Claims priority, application Canada, Mar. 16, 1968, 15,065; Jan. 27, 1969, 41,272

Int. Cl. C07c 47/10

U.S. Cl. 260—615.5

6 Claims

A method for the preparation of deuterated paraformaldehyde which consists in treating methylene halide with deuterium oxide in the presence of a base to afford deuterated methylene halide, treating said deuterated methylene halide with alkali metal acetate to obtain deuterated methylene diacetate and hydrolyzing the said intermediate to the desired product.

3,737,465

BIS-METHYLOL COMPOUNDS

Robert E. Karll, Munster, Ind., and Edmund J. Piasek, Chicago, Ill., assignors to Standard Oil Company, Chicago, Ill.

No Drawing. Continuation-in-part of abandoned application Ser. No. 484,758, Sept. 2, 1965. This application Dec. 16, 1969, Ser. No. 885,653

Int. Cl. C07c 39/16

U.S. Cl. 260—619 A

4 Claims

Novel compounds having two terminal hydroxymethyl-5-alkylbenzyl substituents and having all alkyl-substituents of molecular weight upward from about 400 are obtained by a strong alkali promoted condensation of 4-alkylphenol with formaldehyde. Because of the presence of two hydroxymethyl (methylol) substituted alkylhydroxybenzyl groups, these compounds can be considered as bis-methylols since they are more reactive as diols than polyphenols. These compounds through their methylol substituents react with a compound having at least one HN< group to form novel oil soluble amine products which impart detergent-dispersancy and antioxidant properties to the oil in which they are dissolved. They also react with mono-acids to form simple diesters, with dibasic acids to form high molecular weight polyesters, with ammonia to form high molecular weight amines having secondary amino groups bridging in a chain and even terminal amino methyl groups and with alkylene di- and polyamines to form more complex oil soluble amines which as solutes impart to solvent oil anti-oxidant, detergent-dispersant properties.

3,737,466

PRODUCTION OF CRESOLS

John Alan Sharp and Raymond Ernest Dean, Bradford, and Michael Fielding, Manchester, England, assignors to The Coal Tar Research Association, Gomersal, Cleckheaton, Yorkshire, England

No Drawing. Filed Oct. 20, 1969, Ser. No. 867,913

Int. Cl. C07c 37/16

U.S. Cl. 260—621 R

8 Claims

Cresols are produced from phenol in a two-stage process. In the first stage, a mixture of methanol and phenol is passed over an alumina catalyst at a temperature between 250° and 450°. In the second stage, the reaction product of the first stage is mixed, if necessary, with more phenol and passed over an alumina catalyst at a temperature

between 350° and 500° C. The amount of phenol in the mixture in the second stage is preferably such that the average molecular weight of the mixture is about 108.

3,737,467

PREPARATION OF ALLYLIC TERPENIC ALCOHOLS

William D. Fordham, 149 Kingwood Chase, Leigh-on-Sea, Essex, England, and Hifzur R. Ansari, 36 Wilmot Road, London, England

No Drawing. Filed Apr. 30, 1969, Ser. No. 820,640

Claims priority, application Great Britain, May 17, 1968, 23,646/68

Int. Cl. C07c 33/02, 35/02

U.S. Cl. 260—631.5

15 Claims

C₁₀ allylic terpenic halides are solvolysed in good yield to the corresponding alcohols in a one-step process comprising aqueous solvolysis in the presence of a liquid organic compound, preferably acetone, in which the terpenic halide and water are both separately mixable and using a cuprous halide catalyst. The reaction is preferably conducted at from -20° C. to +30° C. and at a pH 7.5 to 9.0.

3,737,468

HALOGENATED METHANONAPHTHALENE AND DIMETHANOPHENANTHRENE COMPOUNDS

Robert A. Dombro, Chicago, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Aug. 3, 1970, Ser. No. 60,655

Int. Cl. C07c 23/46

U.S. Cl. 260—648 C

6 Claims

Novel compositions of matter comprising polyhalo-substituted ethylenepolyhydroalkanonaphthalenes and polyhalo-substituted ethylenepolyhydrodialkanophenanthrenes as exemplified by 1,2,3,4,9,9-hexachloro-5,6-(1,2-dichloroethylene) - 1,4,4a,5,6,8a - hexahydro - 1,4 - methanonaphthalene or 1,2,3,4,5,6,7,8,11,11,12,12-dodecachloro - 9,10 - (1,2 - dichloroethylene) - 1,4,4a,5,5a,8,8a,9,10,10a - decahydro - 1,4,5,8 - dimethanophenanthrene are useful as additives to polymeric materials whereby desirable physical characteristics of flame retardancy are imparted to these materials.

3,737,469

PROCESS FOR THE PRODUCTION OF BROMOSTYRENE AND ALKYL BROMIDE

Gila Berger, Stephen Daren, Moshe Levy, and David Vofsi, Rehovot, Israel, assignors to Yeda Research and Development Co., Ltd., Rehovot, Israel

No Drawing. Filed Nov. 18, 1971, Ser. No. 200,239

Claims priority, application Israel, Nov. 23, 1970, 35,708

Int. Cl. C07c 25/28

U.S. Cl. 260—650 R

8 Claims

The present invention relates to a novel process for the simultaneous production of bromostyrene and an alkyl bromide, which comprises contacting alpha-bromoethyl bromobenzene or betabromoethyl bromobenzene and an alkanol with a molten alkali metal bromide or with an alkaline earth bromide at a temperature between about 250–500° C. The reactants are advantageously passed through a bed of the molten salt and rapidly quenched after the passage through the reaction zone.

3,737,470

SEPARATION AND RECOVERY OF PERHALOGENATED FLUOROCARBONS

John E. Cottle, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed June 8, 1970, Ser. No. 44,513

Int. Cl. C07c 17/34, 19/08, 21/18

U.S. Cl. 260—653

7 Claims

Perhalogenated fluorocarbons, e.g., perfluorocarbons and/or chlorofluorocarbons, contained in a mixture together with partially halogenated fluorohydrocarbons, e.g., chlorofluorohydrocarbons, are separated and recovered by

3,737,471

PROCESS FOR REMOVING OXYGEN FROM TETRAFLUOROETHYLENE OR TETRAFLUOROETHYLENE-CONTAINING GAS MIXTURES

Heinrich Paucksch, Hannover, Werner Rudolph, Andern, Hannover, and Joachim Massonne, Hannover, Germany, assignors to Kali-Chemie Aktiengesellschaft, Hannover, Germany

No Drawing. Filed Nov. 8, 1971, Ser. No. 196,793

Claims priority, application Germany, Nov. 13, 1970, P 20 55 931.3

Int. Cl. C07c 21/18

U.S. Cl. 260—653.3

4 Claims

In a process for removing oxygen from tetrafluoroethylene or tetrafluoroethylene-containing gas mixtures, the gas or gas mixture is contacted with a contact substance of pyrophoric copper in highly dispersed form which is stabilized on a carrier material. The treatment is effected at a temperature between 50 and 160° C. The contents of oxygen in the initial gas or gas mixture should be below 5% by volume.

3,737,472

PREPARATION OF ALKYL PHENANTHRENES

William S. Green, Columbus, Ohio, and John W. Newman, Ashland, Ky., assignors to Ashland Oil, Inc., Houston, Tex.

No Drawing. Filed May 6, 1971, Ser. No. 140,950

Int. Cl. C07c 15/30

U.S. Cl. 260—668 F

10 Claims

Light cycle oil resulting from the manufacture of petroleum pitch is contacted with a catalyst in the presence of hydrogen gas and fractionated into a cut containing alkyl phenanthrenes.

3,737,473

TWO-STAGE DEHYDROGENATION PROCESS

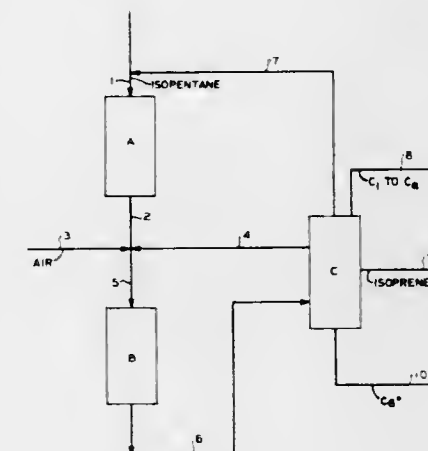
Dennis L. Ripley, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed July 27, 1970, Ser. No. 58,243

Int. Cl. C07c 5/18

U.S. Cl. 260—680 E

7 Claims



A two-stage dehydrogenation process for isopentane containing feedstreams comprising a non-oxidative paraffin dehydrogenation stage followed by an iron phosphate catalyzed olefin oxidative dehydrogenation stage wherein

said process eliminates the necessity of hydrogen separation steps between the non-oxidative and the oxidative stages.

3,737,474 OLEFIN DIMERIZATION WITH NICKEL COMPLEXES

Howard E. Dunn, Mount Vernon, Ind., assignor to Phillips Petroleum Company
No Drawing. Filed Dec. 11, 1969, Ser. No. 884,351
Int. Cl. C07c 3/10

U.S. Cl. 260—683.15 D 9 Claims
An olefin is dimerized by contact with a catalyst formed from an organoaluminum compound and a nickel complex of a polymer such as poly(2-vinylpyridine).

3,737,475 ALPHA-OLEFIN PRODUCTION

Ronald F. Mason, Westwell Ashford, England, assignor to Shell Oil Company
No Drawing. Filed Aug. 17, 1972, Ser. No. 281,590
Int. Cl. C07c 3/10

U.S. Cl. 260—683.15 D 8 Claims
Ethylene is oligomerized to linear, alpha-olefins by reacting ethylene in a C_2-C_4 vic-alkanediol solution in the presence of a catalyst composition produced by contacting in the presence of ethylene (1) a simple divalent nickel salt (2) a boron hydride reducing agent and (3) dicyclohexylphosphinopropionic acid or alkali metal salt thereof.

3,737,476 METHOD OF PREPARATION OF POLYMERS OF PROPYLENE AND/OR BUTYLENES

Jean Claude Bailly, Martigues, France, assignor to Naphtachimie, Paris, France
No Drawing. Filed Sept. 21, 1970, Ser. No. 74,224
Claims priority, application France, Sept. 25, 1969, 6932683

Int. Cl. C07c 3/10 8 Claims
The polymerization of propylene and/or butylenes to produce liquid polymers in high yield and with a high reaction rate in which the monomer or monomers are reacted in the presence of an inert solvent containing in suspension catalytic substances formed of halogenated derivatives of titanium and/or vanadium, organo-aluminum compounds and halogenated derivatives of methane and/or ethane.

3,737,477 PROCESS OF PREPARING ETHYLENE-PROPYLENE COPOLYMER OILS

Richard S. Stearns, Malvern, Irl N. Duling, West Chester, and David S. Gates, Swarthmore, Pa., assignors to Sun Oil Company, Philadelphia, Pa.
No Drawing. Continuation-in-part of application Ser. No. 621,443, Mar. 8, 1967. This application Oct. 5, 1970, Ser. No. 78,190

Int. Cl. C07c 3/10 14 Claims
U.S. Cl. 260—683.15 D
New ethylene-propylene copolymer oils containing 29–71 mole percent ethylene, the rest being at least substantially entirely propylene, said oils being of high viscosity index, low pour point, and high stability, are produced from monoolefin mixtures containing ethylene and propylene employing specified vanadium-aluminum or titanium-aluminum Ziegler-type catalyst systems. Hydrogen under pressure is used with vanadium-aluminum catalyst system to control molecular weight. Oils of lubricating oil viscosity can be produced directly, or after cracking higher molecular weight oil, said cracking usually, but not necessarily, followed by hydrogenating. Dewaxing can be em-

ployed to reduce pour point. Oil fractions have similar desirable lubricating oil properties as the overall copolymer oil.

3,737,478 METHOD FOR MAKING POLYAMIDE ACID SALTS AND PRODUCTS DERIVED THEREFROM

Edith M. Boldebuck, Schenectady, N.Y., assignor to General Electric Company
No Drawing. Filed May 28, 1971, Ser. No. 144,154
Int. Cl. C08g 20/20

U.S. Cl. 260—78 UA 17 Claims
A method is provided for converting a polyimide to the corresponding polyamide acid salt, utilizing a predetermined amount of a strong base. The polyamide acid salt can be converted to the corresponding polyamide acid. The polyamide acids and polyamide acid salts provided by the subject method can be converted to the polyimide state after being applied to various substrates by standard dip-coating and electrocoating techniques. When utilized with a potentiometric titrator, the method of the invention also can be used to determine imide functionality of polyimide.

3,737,479 COMPOSITION OF POLYORGANOSILOXANE AND POLYPHENYLENE OXIDE

William R. Haaf, Voorhesville, N.Y., assignor to General Electric Company
No Drawing. Filed Aug. 19, 1970, Ser. No. 65,285
Int. Cl. C08g 47/10, 43/02; C08f 33/08

U.S. Cl. 260—824 R 27 Claims
There are provided thermoplastic compositions with improved drop-weight impact resistance comprising a polyorganosiloxane and a polyphenylene oxide, optionally containing styrene resins and a minor proportion of a polyolefin.

3,737,480 POLYESTER RESIN COMPOSITION WITH A LONG SHELF LIFE

Eldon E. Stahly, Ellicott City, and Edwin W. Lard, Bowie, Md., assignors to W. R. Grace & Co., New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 782,750, Dec. 10, 1968. This application Nov. 13, 1970, Ser. No. 89,495

Int. Cl. C08f 43/02, 43/00 8 Claims
U.S. Cl. 260—864
Uncured, curable, unsaturated polyester resin compositions consisting essentially of an unsaturated polyester, an ethylenically unsaturated monomer such as styrene or a similar monomer inhibited with about 0.1–1.5 mole percent of 4,6-dinitro-o-cresol or 2,4-dinitroaniline having shelf lives in excess of about 100 days at about 70° C.

3,737,481 IMPROVED PROCESS FOR PREPARING PHOTO-CHEMICALLY HARDENABLE COMPOSITIONS COMPRISING A PHOTSENSITIVE SUBSTANCE AND AN UNSATURATED POLYESTER

Silvio Vargiu, Ugo Nistri, and Beppino Passalenti, Milan, Italy, assignors to Societa Italiana Resine S.p.A., Milan, Italy
No Drawing. Filed June 30, 1971, Ser. No. 165,847
Claims priority, application Italy, July 1, 1970, 26,851/70

Int. Cl. C08f 1/60, 21/02 8 Claims
U.S. Cl. 260—865
There is disclosed a process for preparing an improved photochemically hardenable composition comprising a photosensitive substance and an unsaturated polyester formed by reacting an acrylic or vinyl monomer with the polycondensation product of a polycarboxylic acid and

a polyhydric alcohol, wherein prior to mixing the photosensitive substance with the unsaturated polyester, said polyester is first treated with 0.1 to 1.0 part by weight for every 100 parts by weight of said polyester, of an oxide of an alkaline earth metal, at a temperature of from 40 to 70° C., and for a time range of from 0.2 to 3.0 hours.

3,737,482 VULCANIZABLE BLEND OF A POLYACRYLATE WITH A BUTADIENE POLYMER

Dale E. Kelly and Charles W. Gerdes, Jr., Bartlesville, Okla., assignors to Phillips Petroleum Company
No Drawing. Filed May 17, 1971, Ser. No. 144,286
Int. Cl. C08f 29/12, 29/50, 33/08

U.S. Cl. 260—876 B 6 Claims
A vulcanizable elastomer composition comprising at least one polymerized elastomeric ester of acrylic acid having a weight percent in the range of about 50 to about 95, the ester moiety thereof being an alkyl radical in the range of 1–10 carbon atoms per molecule and another constituent having a weight percent in the range of about 5 to about 50 and being one of a homopolymer of butadiene or a copolymer of butadiene-styrene.

3,737,483 GRAFT COPOLYMERIZATION OF MALEIC ANHYDRIDE AND AN ALPHA OLEFIN ONTO AN ETHYLENE-VINYL ACETATE COPOLYMER

Yujiro Kosaka, Masaru Uemura, Mitsutaka Saito, Yuji Suzuki, and Kunio Takamoto, Yamaguchi-ken, Japan, assignors to Toyo Soda Manufacturing Co., Ltd., Tokyo, Japan
No Drawing. Filed June 11, 1971, Ser. No. 152,367
Claims priority, application Japan, June 26, 1970, 45/55,787; Sept. 9, 1970, 45/79,067
Int. Cl. C08f 15/00

U.S. Cl. 260—878 R 10 Claims
A carboxylated polymer product is produced by polymerizing 1–50 parts by weight of a monomeric mixture of maleic anhydride and an α -olefin in contact with 50–99 parts by weight of an ethylene vinyl acetate copolymer having a vinyl acetate content of at least 3%, using a free radical polymerization initiator.

3,737,484 COPOLYMERS STABILIZED WITH A THIURACIL COMPOUND

Harold V. Wood and Terry D. Brown, Bartlesville, Okla., assignors to Phillips Petroleum Company
No Drawing. Filed May 7, 1971, Ser. No. 141,429
Int. Cl. C08f 19/08, 45/60

U.S. Cl. 260—880 B 10 Claims
Resinous polymers prepared by the copolymerization of vinyl-substituted aromatic compounds and conjugated dienes utilizing an organolithium initiator, which are sometimes referred to as block copolymers, are stabilized against the effects of heat with a thiuracil compound.

3,737,485 TRIPENTAERYTHRITOL TETRAPHOSPHITE

Ingenuin Hechenbleikner, West Cornwall, Conn., assignor to Weston Chemical Co., Inc., Montvale, N.J.
No Drawing. Filed Dec. 30, 1971, Ser. No. 214,372
Int. Cl. C07d 105/04; C08f 45/58

U.S. Cl. 260—927 R 1 Claim
The compound bis-3,9(4-oxymethyl-1-phospha-2,6,7-trioxabicyclo(2,2,2)octane)-2,4,8,10-tetraoxa-3,9-diphospha-spiro(5,5)undecane is prepared. It is useful for stabilizing halogen containing resins, hydrocarbons, polymers, etc.

3,737,486 POLYPHOSPHOROUS BISPHENOL CONDENSATES

Henry G. Schutze and Herschel C. Williams, Baytown, Tex., Norman P. Neurelter, Bethesda, Md., and Delos E. Brown, White Plains, N.Y., assignors to Esso Research and Engineering Company
No Drawing. Division of application Ser. No. 611,785, Nov. 14, 1966, now Patent No. 3,510,507, which is a division of applications Ser. No. 248,876, Jan. 2, 1963, now abandoned, and Ser. No. 596,720, Nov. 16, 1966, application Ser. No. 596,720 being a substitute for application Ser. No. 248,876. Divided and this application Jan. 7, 1970, Ser. No. 1,295

Int. Cl. C07f 9/18; C08g 51/58 6 Claims
U.S. Cl. 260—930
Polyphosphorous condensation products, polyborate condensation products, polycarbonate condensation products and polysilicate condensation products of 4,4'-bisphenols are especially effective stabilizers for polyolefins.

3,737,487 PROCESS FOR PREPARING ARYL ALKYL PHOSPHATES

George M. Nichols, Chicago, Ill., assignor to Stauffer Chemical Company, New York, N.Y.
Continuation-in-part of application Ser. No. 766,898, Oct. 11, 1968. This application Aug. 19, 1970, Ser. No. 65,353

Int. Cl. C07f 9/08, 9/12 12 Claims
U.S. Cl. 260—973
Aryl alkyl phosphates are prepared by admixing an aryl phosphorohalidate with an alcohol, passing the mixture downwardly through a column containing an upwardly flowing stream of vaporized inert solvent, the temperature within the column being at a level conducive to reaction between the aryl phosphorohalidate and the alcohol, and removing a low boiling mixture of alcohol, solvent and hydrogen halide from the top of the column and recovering the desired aryl alkyl phosphate ester from the bottom.

3,737,488 PROCESS FOR PRODUCING MOULDED FOAMS FROM RUBBER LATICES BY USING MICROWAVE HEATING

David Porter, William Shore Campbell, and Edward William Duck, all of Southampton, England, assignors to The International Synthetic Rubber Company, Limited, Hampshire, England

Filed June 30, 1970, Ser. No. 51,371
Claims priority, application Great Britain, July 4, 1969, 33,967/69

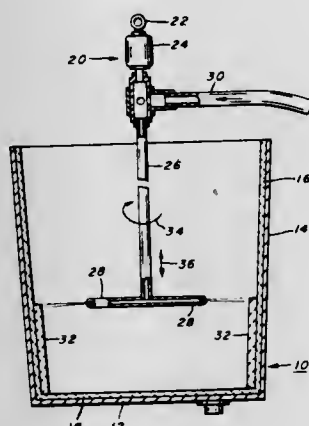
Int. Cl. B29d 27/04; B29b 5/26 22 Claims
U.S. Cl. 264—26
A process for preparing a moulded foam comprises subjecting a foamed curable rubber latex composition containing a delayed action or heat sensitive gelling system in a closed mould to radiation of radio frequency, preferably of a frequency at least 20 mc/sec and in one embodiment of the invention at least 800 mc/sec, of an intensity and for a duration to cause gelling and thereafter curing the gelled foam to a solid foamed article. The invention is very applicable to the preparation of foamed articles from a filled latex of an emulsion polymerized styrene-butadiene rubber.

3,737,489 METHOD OF APPLYING REFRACTORY LINING ON HOT METALLURGICAL LADLES, SOAKING PITS AND FURNACES

Crawford B. Murton, Pittsburgh, Pa., assignor to Air Repair, Inc., Pittsburgh, Pa.
Filed Oct. 1, 1970, Ser. No. 77,059
Int. Cl. C04b 35/14, 35/66; F27d 1/16

U.S. Cl. 264—30 9 Claims
A method for relining metallurgical ladles, soaking pits, and furnaces at temperatures from about 400° to about 3000° F. by propelling a mixture of refractory

materials against a prior-existing lining without prior cooling thereof, the relining thickness being from about 1/4 inch up to 10 inches or more. The refractory mixture consists essentially of, by weight, from about 1/4% to



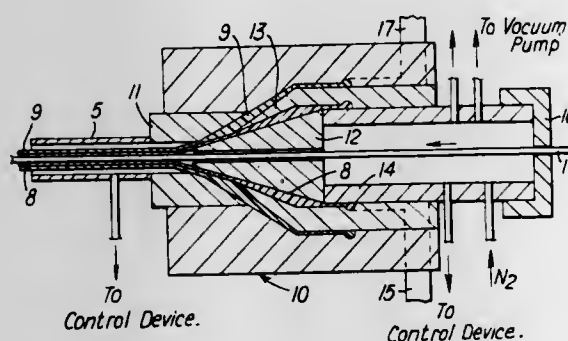
about 4% of an organic binder, from about 40% to 70% of clay, and from about 28% to about 58% quartzite. To facilitate its application, the refractory mixture is mixed with about 4% to 6% water.

3,737,490 MANUFACTURE OF INSULATED ELECTRIC CABLES

Peter Nicholson, Chatham, England, assignor to British Insulated Callender's Cables Limited, London, England
Filed Dec. 9, 1970, Ser. No. 96,463
Claims priority, application Great Britain, Dec. 9, 1969, 60,011/69

The portion of the term of the patent subsequent to Sept. 5, 1989, has been disclaimed
Int. Cl. B29f 3/10; B29h 9/08

U.S. Cl. 264—40 10 Claims



A composite covering comprising at least two layers of different covering materials is extruded on a continuously advancing core by passing the core through the core tube of an extrusion machine which feeds extruded, peripherally continuous layers of the covering materials simultaneously towards the outlet end of the extrusion machine and causing the extruded layers to come into complete and intimate interfacial contact upstream of the outlet end of the extrusion machine. The composite covering so formed is treated, e.g. cured, continuously by passing the covered core through a chamber hermetically sealed to the outlet end of the extrusion machine and containing a fluid medium at super-atmospheric pressure. At the same time, fluid under pressure is injected into the interior of the core tube and is maintained at a pressure less than that of the fluid medium by an amount such that the pressure difference across the extruded composite

covering at the extrusion orifice is sufficient to cause the extruded composite covering to collapse firmly on to the core as it emerges from the extrusion machine.

3,737,491 CATALYSTS

Cornelius Marthinus Stander, Kempton Park, Transvaal, and David Owen Hughes, Boksburg, Transvaal, Republic of South Africa, assignors to African Explosives and Chemical Industries Limited, Johannesburg, Transvaal, Republic of South Africa
No Drawing. Filed Dec. 9, 1970, Ser. No. 96,577
Claims priority, application Republic of South Africa, Dec. 12, 1969, 69/8,640, 69/8,641
Int. Cl. B29h 7/20

U.S. Cl. 264—43 7 Claims
Catalyst supports comprising porous, shaped refractory bodies are made by heating a mixture of constituents of which at least one is selected from the nitrate, oxide or hydroxide of aluminum and the dioxide of titanium and at least one is selected from the nitrates of alkaline earth metals to a first elevated temperature sufficient to produce a binding agent within the mixture, comminuting the resulting material, shaping the material into bodies and heating the shaped bodies at a second elevated temperature for a period of time sufficient to complete the reactions between the constituents to produce bodies of adequate mechanical strength to be self supporting.

3,737,492 METHOD OF PREPARING A POROUS CATALYST-CONTAINING ALKALINE EARTH METAL ALUMINATE OR TITANATE BODY

Cornelius Marthinus Stander, Kempton Park, Transvaal, and David Owen Hughes, Boksburg, Transvaal, Republic of South Africa, assignors to African Explosives and Chemical Industries Limited, Johannesburg, Transvaal, Republic of South Africa
No Drawing. Filed Dec. 9, 1970, Ser. No. 96,579
Claims priority, application Republic of South Africa, Dec. 12, 1969, 69/8,637, 69/8,638, 69/8,639
Int. Cl. B29h 7/20

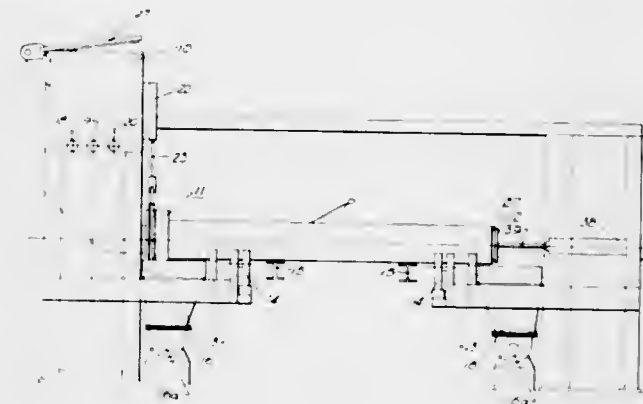
U.S. Cl. 264—43 7 Claims
Process for making supported catalysts as porous, shaped bodies comprising heating a constituent including at least one oxide of a metal or metals or at least one substance from which a metal or the oxide of a metal can be formed with at least one mixture of one or more first compounds and one or more second compounds to a first elevated temperature sufficient to produce a binding agent, comminuting the resulting material, shaping the material into bodies and heating the shaped bodies at a second elevated temperature for a period of time sufficient to complete the reactions between the first and second compounds and produce catalysts as shaped bodies of adequate mechanical strength to be self supporting.

3,737,493 FILLING AN ANNULAR SPACE BETWEEN RADIALLY SPACED COAXIAL TUBES WITH FOAMED CEMENT

Leon Hacker, Springfield, Ill., assignor to Armco Steel Corporation, Middletown, Ohio
Filed Mar. 1, 1971, Ser. No. 122,596
Int. Cl. B28b 23/02, 23/06, 23/08

U.S. Cl. 264—42 5 Claims
A method and an apparatus are disclosed for filling the annular space between radially spaced coaxial tubes constituting a double walled pipe. The pipe may be of extruded plastic and comprises inner and outer coaxial tubes with bracing and spacing means therebetween. The pipe at one of its ends is held against and sealed at its inner and outer end surfaces to a filling head and at its other end is held by a back-up plate engaging the inner one of the tubes, so that the space between the tubes is in communication with atmosphere. Foamed grout is ini-

tially introduced to the annular space, forming a reservoir, by gravity so as not to destroy its foamed character and then is forced under relatively low pressure through the annular space lengthwise of the pipe. Gate valve means are provided at the entrance end to initiate and terminate the flow of grout and overflow receptacles are

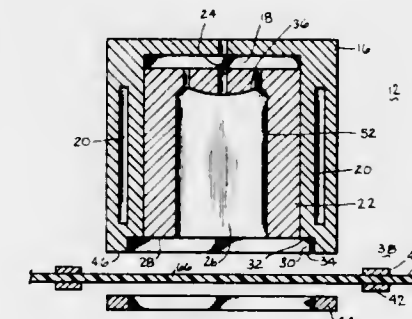


provided at each end of the pipe to collect surplus grout which falls out when the pipe is separated from the filling head and back-up plate. This excess grout is then recirculated to the reservoir. After filling, the pipe is stored in racks for curing of the grout and is then ready for shipment.

3,737,494 FORMING DEEP MOLECULARLY ORIENTED ARTICLES FROM HIGH NITRILE GROUP CONTAINING POLYMERS

William D. Wolf, Simsbury, Conn., assignor to Monsanto Company, St. Louis, Mo.
Filed Feb. 8, 1971, Ser. No. 113,576
Int. Cl. B29c 17/04

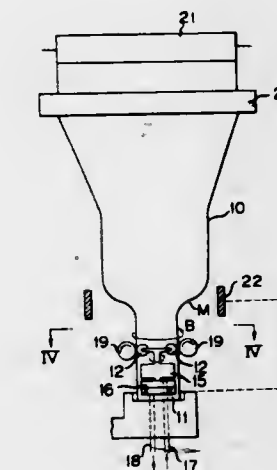
U.S. Cl. 264—89 8 Claims



A method of forming articles having relatively balanced molecular orientation from a special type of thermoplastic sheet composed of at least 60 weight percent of a polymer formed from a nitrile group containing monomer, which includes forcing the thermoplastic by means of a plug in an axial direction at a sheet temperature within the range of from about 311 to 390° F., which temperature is above that at which substantial orientation occurs, in order to partially form the article while minimizing development of axial orientation, holding the thus forced material in contact with a surface at a temperature of from about 250 to 310° F. to reduce the temperature of the material to orientation temperature and then expanding the material outwardly against the walls of a mold cavity to obtain radial orientation and finish form the article.

3,737,495 METHOD FOR MANUFACTURING TUBULAR FILMS OF THERMOPLASTIC RESINS

Hiroshi Nagano; Hideo Tomioka; Akira Yamataka; and Hirohiko Yoshida, all of Nagahama-shi, Shiga-ken, Japan, assignors to Mitsubishi Jushi Kabushiki Kaisha Chiyoda-Ku, Tokyo-To, Japan
Division of Ser. No. 750,036, Aug. 5, 1968, Pat. No. 3,635,634.
This application Sept. 29, 1970, Ser. No. 76,639
Int. Cl. B29d 23/04; B29c 25/00; B29d 7/02
U.S. Cl. 264—95 6 Claims

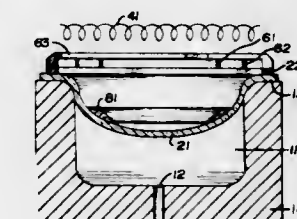


In a method for manufacturing a tubular resinous film wherein a tubular film of a thermoplastic film is extruded from an extrusion nozzle, cooled, heated, expanded and wrapped into a roll, a circumferential twist is intermittently imparted to the tubular resinous film after it is cooled but before it is heated and expanded, or circumferential twists in the opposite directions are imparted alternately, by means of cooperating inner and outer rollers which are revolved in the circumferential direction of the tubular resinous film. Means to cool the extruded tubular resinous film comprises a first stationary cooling cylinder having a diameter slightly smaller than the inner diameter of the tubular resinous film, a second rotary cooling cylinder having a diameter slightly larger than that of the first cooling cylinder and adapted to contact and cool the inner surface of the extruded tubular resinous film, and means to form a layer of cooling gas between the inner surface of the extruded tubular resinous film and the periphery of the first cooling cylinder.

3,737,496 METHOD OF REINFORCING THE WALL OF A THERMO-FORMED ARTICLE

Anson Willard Voorhees, Sr., deceased, late of Pima County, Ariz., by Margaret W. Voorhees, executrix, 4828 E. Grant Road, Tucson, Ariz. 85716
Continuation-in-part of abandoned applications Ser. No. 575,751, Aug. 29, 1966, and Ser. No. 823,895, May 12, 1969. This application Nov. 23, 1970, Ser. No. 92,132
Int. Cl. B29c 17/04, 23/00

U.S. Cl. 264—92 5 Claims

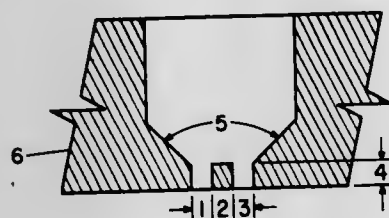


An improvement in the process for drawing a sheet of thermoplastic, synthetic resin to form a shell-like shaped article of a type which will have wall portions excessively

3,737,505 PROCESS FOR MANUFACTURE OF HIGH SHEEN BIFILAMENT YARN AND ELASTIC TEXTILE ARTICLE

Garland Linwood Turner, Chesterfield, Va., Ralph William Schuettler, Fugay Varina, N.C., and George Howard Collingwood, West Warwick, R.I., assignors to Allied Chemical Corporation, New York, N.Y.
Continuation-in-part of applications Ser. No. 733,556 and Ser. No. 733,557, both May 31, 1968. This application May 28, 1971, Ser. No. 148,125

Int. Cl. B28h 21/54
U.S. Cl. 264—177 F 3 Claims

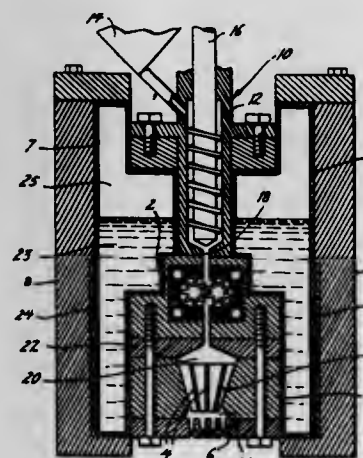


A bifilament yarn comprising two symmetrical lobes fused so that the concave sides intercept at angle θ ranging from 10 to 54°. The yarn has a broad concave area and a narrow edge area of convex shape and preferably a modification ratio of between 1.65 and 3.0. This bifilament yarn, textured and non-textured, semidull and bright, when converted to plain knit hosiery has a luster in the range of 6.6 to 21 ($K/S \times 100$) units. The textured and non-textured plain knit textile articles consisting of the bifilament yarns of this invention after repetitive elongations of 25 percent have 150–300 percent greater work of recovery and equal improvement in resistance to sagging and wrinkling than other cross-sectional configurations. The bifilament yarns are prepared by melt spinning thermoplastic homopolymers having a relative formic acid viscosity of 25 to 90 at a temperature of 250–280° C. through twin orifices separated from each other for a distance of 0.05 to 4.0 mils.

3,737,506 PROCESS AND APPARATUS FOR CONTINUOUS EXTRUSION OF HIGHLY-VISCOUS MELTS

Horst G. Martin, Zug, and Ulrich P. Feer, Nidwalden, Switzerland, assignors to Societe de la Viscose Suisse, Emmenbrucke, Switzerland
Filed Apr. 3, 1970, Ser. No. 25,480

Int. Cl. D01f 7/00
U.S. Cl. 264—176 F 11 Claims



Apparatus and method of continuously extruding filaments of highly-viscous polymer melts are provided using

a truncated cone with surface grooves. The base end of the grooves communicates with a high pressure pump exercising a pressure of 300–1100 atmospheres, and the other end of the grooves communicates with the spinnerette. While flowing through the grooves, the melt temperature increases 5° C. to 60° C. without introducing any external heat.

3,737,507 PROCESS FOR ACRYLIC FIBERS OF IMPROVED PROPERTIES

Keitaro Shimoda and Isamu Obama, Okayama, Japan, assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Nov. 30, 1971, Ser. No. 203,418

Claims priority, application Japan, Jan. 29, 1971, 46/3,443

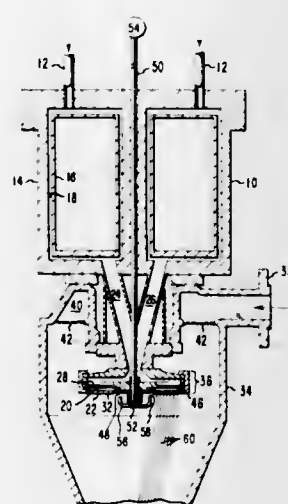
Int. Cl. D01f 7/00
U.S. Cl. 264—182 10 Claims
Acrylic fibers containing streaky inclusions of 2–25% poly(vinyl cyanoethyl ether) of DS value 55–75% and streaky voids are obtained by wet-spinning a solution of the poly(vinyl cyanoethyl ether) and the acrylonitrile in a common solvent, water-washing the wet-gel fiber thus obtained, stretching the wet-gel fiber, and subsequently drying the relaxed fiber. The fiber thus obtained is greatly improved in properties over comparable prior art fibers.

3,737,508 DRY SPINNING APPARATUS AND PROCESS

Jackie A. Weir, Richmond, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Feb. 2, 1972, Ser. No. 222,926

Int. Cl. D01f 7/00
U.S. Cl. 264—204 4 Claims



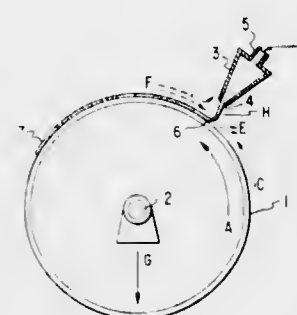
In conventional dry-spinning apparatus and procedure a hot inert gas is introduced to evaporate spinning solvent. In the present invention, a portion of the hot gas is constrained to flow through the filaments as they emerge from the annular spinneret by a gas deflector device located concentrically inside the ring of emerging filaments and by a conduit provided in the center of the spinning head. A vacuum applied to the conduit draws hot gas perpendicularly across the emerging filaments near the exit-face of the spinneret and the deflector device aids in directing the hot gas (now entrained with spinning solvent) to the conduit and in preventing filaments from clogging the conduit. Productivity of the spinning apparatus can be doubled.

3,737,509 FILM CASTING PROCESS

Kingo Kobayashi and Koji Nishizawa, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation-in-part of application Ser. No. 700,836, Jan. 26, 1968. This application Apr. 28, 1970, Ser. No. 32,762

Claims priority, application Japan, Jan. 26, 1967, 42/5,235
Int. Cl. B29d 7/02, 7/22
U.S. Cl. 264—212 2 Claims



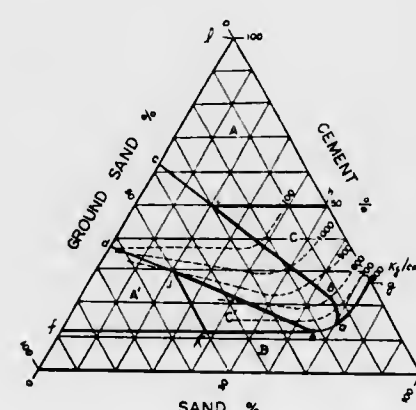
Extruding liquid film forming material onto a moving, curved supporting surface at a position where the curve supporting surface is both upwardly facing and upwardly moving wherein the said material contacts said surface with the angle between a tangent at said supporting surface at said position and horizontal in the direction of support surface travel being between 30° and 60°.

3,737,510 HIGH STRENGTH CONCRETE

Mareaki Takaki, Matsudo, Japan, assignor to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation-in-part of application Ser. No. 740,199, June 26, 1968. This application Mar. 16, 1971, Ser. No. 124,727

Claims priority, application Japan, July 7, 1967, 42/43,352
Int. Cl. B29c 5/04
U.S. Cl. 264—234 8 Claims

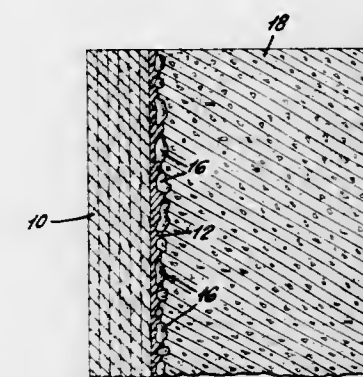


Hollow, cylindrical, concrete products having a compressive strength of at least 600 kg./cm.² are formed from specified mortar mixtures of cement, ground sand having a specific surface of 1000–3000 cm.²/g. and, optionally, a sand having a specific surface area of 45–85 cm.²/g. The mixture is cast with centrifugal force, and the resulting casting is cured with steam under specified conditions.

3,737,511 METHOD OF PRODUCING AN ORNAMENTAL CONCRETE SURFACE

Tony R. Dillon, R.R. 1, Urbana, Ill. 61801
Continuation of abandoned application Ser. No. 880,838, Nov. 28, 1969. This application Jan. 11, 1972, Ser. No. 216,973

Int. Cl. B28b 1/16
U.S. Cl. 264—256 6 Claims



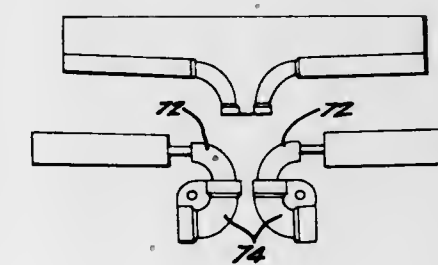
A method of producing an ornamental concrete surface wherein a coating of an air settable, water plasticizable adhesive is applied to the inner surface of a form for containing concrete. Particulate material is placed on the coating and partially embedded in the substance. The substance then is allowed to set so that the particles become bonded thereto. The form is then positioned for containing concrete and concrete is introduced against the inner surface thereof. The concrete is then allowed to set so that the particles become bonded to the concrete and the substance is at least partially plasticized by the water in the concrete. The form is then removed from the concrete surface formed by the inner surface thereof so that the particles are separated from the substance and remain bonded to the concrete, to thereby ornament the concrete surface.

3,737,512 METHOD FOR MOLDING ELBOWS AND THE LIKE

John D. Stalter, Elkhart, Ind., assignor to Nibco, Inc., Elkhart, Ind.

Original application Sept. 5, 1968, Ser. No. 757,536. Divided and this application Apr. 13, 1971, Ser. No. 133,547

Int. Cl. B29c 7/00
U.S. Cl. 264—297 7 Claims



An injection-molding method utilizing a mold structure having a plurality of spaced, adjacent internal mold cavities, with the mold structure formed of a pair of relatively movable members, each of which have concavities comprising half of each such molding cavity, wherein the molding cavities have a curving shape designed for the molding of curved objects, wherein the mold structure members form parting lines along each side of such object which lie in planes spaced from and parallel to the

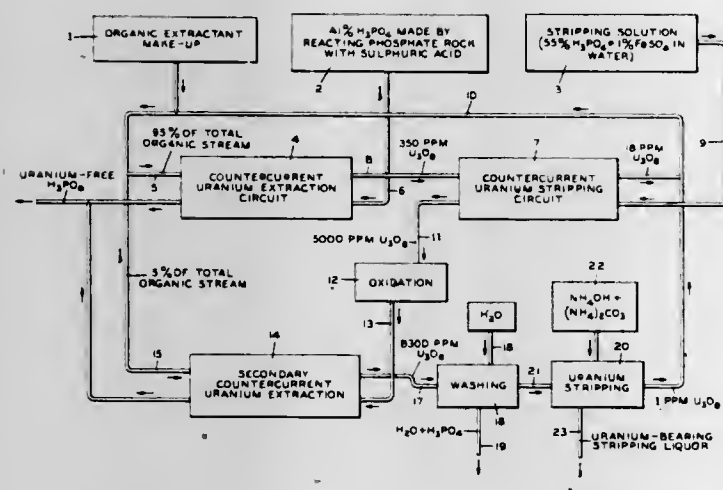
plane in which the longitudinal axis of the molded object lies, and wherein one mold structure member is moved relative to the other when the two members are parted in a manner which wipes the molded objects off a central core structure used to produce tubular objects.

3,737,513 RECOVERY OF URANIUM FROM AN ORGANIC EXTRACTANT BY BACK EXTRACTION WITH H_2PO_4 OR HF

Tadeusz Karol Wiewiorowski, New Orleans, and David James Miller, Gretna, La., assignors to Freeport Minerals Company, New York, N.Y.

Filed July 2, 1970, Ser. No. 51,947

Int. Cl. B01d 11/00; C01g 56/00
U.S. Cl. 423—8 8 Claims



A process for the recovery of uranium values from uranium carrying extractants containing a dialkylphosphoric acid and a trialkylphosphine oxide dissolved in an organic solvent is described. The process involves liquid-liquid extraction of the extractants with an aqueous solution containing divalent iron and a complexing agent which may be either phosphoric acid, hydrofluoric acid or mixtures thereof.

3,737,514 EXTRACTION OF ALUMINA FROM ORES

William R. King, Cupertino, Calif., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.

Filed Oct. 5, 1970, Ser. No. 78,175

Int. Cl. C01f 7/06, 7/34
U.S. Cl. 423—121 8 Claims

Alumina in increased yield is recovered from aluminiferous ores containing titanium and also iron in goethite phase by subjecting the ores to a wet caustic digestion step at temperatures in excess of about 280°C in admixture with a calcium compound added in an amount at least sufficient to convert substantially all of the titanium to a calcium-titanium compound for a time sufficient to accomplish the conversion of goethite to hematite followed by conventional alumina recovery steps.

3,737,515 METHOD FOR REMOVING DELETERIOUS POLLUTANT CONSTITUENTS OF THE EXHAUST GAS OF A COMBUSTION ENGINE

Alberto E. Veloso, Quezon City, Philippines, assignor to Internationale Erfinder- und Patentanstalt, Vaduz, Liechtenstein

Filed Dec. 30, 1970, Ser. No. 102,828

Int. Cl. B01d 53/16
U.S. Cl. 423—212 6 Claims

A process for removing pollutants from the exhaust gas of an internal combustion engine comprising dispersing the gas through an aqueous wash, a particulate absorbent, a sodium carbonate solution and a desiccant. Optionally the gas may be further treated by catalytic oxidation.

3,737,516 CALCIUM-DEFICIENT HYDROXYLAPATITE FOR USE IN COLUMN CHROMATOGRAPHY

Edward L. Jenner, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 5, 1971, Ser. No. 121,504

Int. Cl. C01b 15/16, 25/26
U.S. Cl. 423—308 9 Claims

Disclosed herein is granular calcium-deficient hydroxylapatite having a formula weight ratio of Ca/PO_4 of between about 1.40 to 1.50, useful as a protein adsorption medium in column chromatography. Also disclosed is a one-step process comprising contacting under controlled conditions at least one of calcium chloride, nitrate or acetate with a mixture of secondary and tertiary orthophosphate salts in which the cation is selected from at least one of Na^+ , K^+ , and NH_4^+ .

3,737,517 METHOD FOR REDUCING OXYSULFUR COMPOUNDS

Peter Urban, Northbrook, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Feb. 8, 1971, Ser. No. 113,722

Int. Cl. C01b 17/20, 17/28; C01c 1/20
U.S. Cl. 423—560 23 Claims

Inorganic, water-soluble oxysulfur compounds are reduced by contacting an aqueous solution of the oxysulfur compound and hydrogen with a bimetallic catalyst at reduction conditions. The bimetallic catalyst comprises catalytically effective amounts of a metallic sulfide selected from sulfides of the transition metals from group VI and of a metallic sulfide selected from the sulfides of the transition metals of group VIII combined with a porous carrier material. A specific example of the disclosed invention is a method for reducing an inorganic, water-soluble thiosulfate compound to a sulfide compound by contacting an aqueous solution of the thiosulfate compound and hydrogen, at reduction conditions, with a catalyst comprising a combination of catalytically effective amounts of molybdenum sulfide and of cobalt sulfide with a porous carrier material.

3,737,518 PROCESS FOR PREPARING HYDROGEN PEROXIDE

Giovanni A. Bonetti, Wynnwood, Rudolph Rosenthal, Broomall, Joseph A. Kieras, Lincoln University, and William B. Wise, Glenolden, Pa., assignors to Atlantic Richfield Company, New York, N.Y.

No Drawing. Filed Apr. 8, 1971, Ser. No. 132,575

Int. Cl. C01b 15/02; C07c 29/00
U.S. Cl. 423—587 4 Claims

Hydrogen peroxide is prepared from water and an organic hydroperoxide in the presence of acid at temperatures above about 60°C.

3,737,519 PROCESS OF RECOVERING WATER-FREE HYDROGEN PEROXIDE SOLUTIONS

Gerd Schreyer and Ferdinand Theissen, Grossauheim, Otto Weiberg, Neu-Isenburg, and Wolfgang Weigert, Offenbach am Main, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Filed May 21, 1971, Ser. No. 145,078

Claims priority, application Germany, May 23, 1970, P 20 25 237.3

Int. Cl. C01b 15/02
U.S. Cl. 423—589 14 Claims

Process for preparing water-free hydrogen peroxide solutions from hydrogen peroxide containing working solutions which have been obtained in the preparation of hydrogen peroxide by the anthraquinone process which comprises passing the peroxide containing working solution in co- or countercurrent flow relationship to an organic solvent which is chemically stable and which

is either introduced in the form of a vapor or which is converted into a vapor in situ in a film-forming evaporator whereby the hydrogen peroxide is desorbed into the solvent and thereafter recovering the hydrogen peroxide solutions in the form of a condensate.

3,737,520 SALT-GEL PROCESS FOR THE MANUFACTURE OF FIBROUS ALKALI METAL HEXATITANATES

Howard W. Jacobson, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 6, 1972, Ser. No. 241,715

Int. Cl. C01g 23/00
U.S. Cl. 423—598 8 Claims

A process is provided for the preparation of fibrous alkali metal hexatitanates by homogeneously admixing an aqueous alkali metal hydroxide solution and an aqueous titanium oxychloride solution to form a salt-gel which is then calcined at 850°–1050°C. Paper pulp fibers may be included in forming the salt-gel to facilitate recovery of the calcined fibers.

3,737,521 FORMULATION FOR SUSTAINED RELEASE OF A BIOLOGICAL AGENT

John W. Born, Brecksville, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Filed Dec. 9, 1970, Ser. No. 96,599

Int. Cl. A61k 27/12
U.S. Cl. 424—22 2 Claims

A unique formulation for the sustained release of active agent for medication in animals wherein the active agent is released from a solid solution or dispersion of thermoplastic polymer by diffusion or leaching.

3,737,522 ORAL COMPOSITIONS FOR CALCULUS RETARDATION

Marion D. Francis, Springfield Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed June 30, 1970, Ser. No. 51,356

Int. Cl. A61k 7/16
U.S. Cl. 424—49 2 Claims

Oral compositions, such as toothpaste, mouthwash, and the like, containing certain carbonyldiphosphonates as herein defined which retard dental calculus formation without damaging tooth structure.

3,737,523 ANTIBIOTIC COMPLEX MM4462 AND PROCESS PREPARING SAME

Martin Cole, Dorking, and George Newbolt Rolinson, Newdigate, England, assignors to Beecham Group Limited, Brentford, Middlesex, England

No Drawing. Filed Aug. 25, 1971, Ser. No. 175,010

Claims priority, application Great Britain, Aug. 29, 1970, 41,694/70

Int. Cl. H61k 21/00
U.S. Cl. 424—122 2 Claims

Antibiotic complex MM4462 is prepared by cultivating *Fusarium lateritium* or a suitable mutant strain thereof in a nutrient medium containing sources of carbon, nitrogen and mineral salts at a pH of 5–9 under aerobic conditions until sufficient antibiotic complex has been formed in the medium. This complex exhibits insecticidal activity. The complex is characterized by a melting point of 155°C to 157°C and on elemental analysis has a carbon content of 62.34% and a hydrogen content of 7.23%. The molecular weight by NMR is 365 and $[\alpha]_D^{25} - 39^\circ$ (c. 1.2% in chloroform). Thin layer chromatography of the complex on silica gel plates gives a violet zone when sprayed with concentrated H_2SO_4 . The R_f values in various solvents are given in Table 5 of the specification. When a benzene-methanol thin layer chromatogram was sprayed with $KMnO_4$ in acetone, an orange zone at R_f 0.49 was attained.

3,737,524 MEDICAMENTS DERIVED FROM NUCLEIC ACIDS, PROCESSES FOR THEIR PREPARATION AND THEIR USE

Jean Pierre Ebel, Strasbourg, Louis Eugene Marie Colobert, Collonges au Mont d'Or, and Pierre Louisot, Lyons, France, assignors to Uguine Kuhlmann, Paris, France

No Drawing. Filed Oct. 20, 1970, Ser. No. 82,556

Claims priority, application France, Oct. 21, 1969, 6935974

Int. Cl. A61k 27/00
U.S. Cl. 424—180 9 Claims

Medicaments consisting of or containing chemically modified ribonucleic or deoxyribonucleic acids of human origin. These medicaments may be manufactured by subjecting ribonucleic or deoxyribonucleic acids extracted from tissues of human origin to a chemical reaction under conditions such that the general structure of these acids is not profoundly modified but such that the purine and pyrimidine bases which constitute them undergo modifications. The medicaments are useful for the treatment of a human being having an infection of viral origin.

3,737,525 METHOD FOR CAUSING HEPATITIS IN ANIMALS

Dietrich Keppler, Rainer Lesch, Werner Reutter, and Karl Decker, Freiburg, Germany, assignors to Carl Roth oHG, Karlsruhe, Germany

No Drawing. Filed Sept. 29, 1969, Ser. No. 861,988

Int. Cl. A61k 27/00
U.S. Cl. 424—180 2 Claims

The administration of D-galactosamine-HCl is found to cause hepatitis in animals. The use thereof in this manner makes it possible to test the therapeutic possibilities of various drugs against human virus hepatitis as well as to research pathogenesis and metabolic changes.

3,737,526 ANTIBIOTIC TREATMENT OF FISH DISEASES

Fred K. White, Glen Ellyn, Ill., assignor to Mulwhiteson Development Company, Glen Ellyn, Ill.

No Drawing. Continuation-in-part of abandoned application Ser. No. 879,557, Nov. 24, 1969. This application May 4, 1971, Ser. No. 140,237

Int. Cl. A61k 27/00
U.S. Cl. 424—181 2 Claims

This invention relates to the use of erythromycin in the treatment of susceptible externally manifested bacterial infections of fish and, more particularly, to the use of a water-soluble salt of erythromycin as an additive to the water environment of fish, either as a prophylaxis to prevent or as a positive agent to cure such infections and to reduce shock and stress.

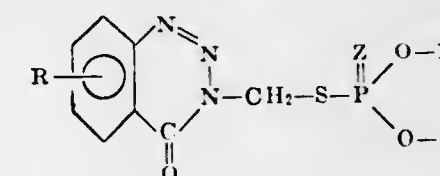
3,737,527 SUBSTITUTED S-((4-OXO-1,2,3-BENZOTRIAZIN-3(4H)-YL)METHYL) PHOSPHOROTHIOATES AND PHOSPHORODITHIOATES FOR CONTROLLING ARTHROPODS

Raymond H. Riegerink, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application Apr. 1, 1969, Ser. No. 812,288, now Patent No. 3,622,578. Divided and this application Mar. 2, 1971, Ser. No. 120,330

Int. Cl. A01n 9/36
U.S. Cl. 424—200 11 Claims

Alkylthio-, alkylsulfinyl- and alkylsulfonyl-substituted S-((4-oxo-1,2,3-benzotriazin-3(4H)-yl)methyl)phosphorothioates and phosphorodithioates of the formula

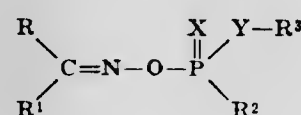


and methods employing and compositions comprising these substituted phosphorothioates and substituted phosphorodithioates for controlling parasites, especially arthropod pests such as insects and arachnids. In the above and succeeding formulae in the present specification and claims, Z represents oxygen or sulfur; R represents lower-alkylthio, loweralkylsulfanyl or loweralkylsulfonyl; and each R' independently represents loweralkyl.

3,737,528
CERTAIN OXIMINO PHOSPHORUS CONTAINING COMPOUNDS USED AS INSECTICIDES AND ACARICIDES

Arnold D. Gutman, Berkeley, Calif., assignor to Stauffer Chemical Company, New York, N.Y.
No Drawing. Original application Apr. 6, 1970, Ser. No. 26,150, now Patent No. 3,631,170. Divided and this application Jan. 11, 1971, Ser. No. 105,602

Int. Cl. A01n 9/36
U.S. Cl. 424-203 2 Claims
Compounds having the formula:



in which X is oxygen or sulfur; Y is oxygen or sulfur; R is alkyl; R¹ is alkyl; R² is alkyl or alkoxy and R³ is a heterocyclic group, and their use as insecticides and acaricides are disclosed.

3,737,529
CYCLIC O,O - (2,2 - DIMETHYLTRIMETHYLENE) PHOSPHOROCHLORIDOTHIOATE AS AN AGRICULTURAL PESTICIDE

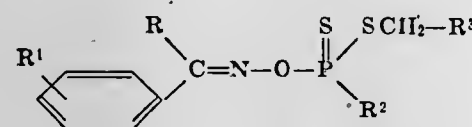
Frank Albert Wagner, Jr., Pennington, N.J., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Nov. 11, 1971, Ser. No. 197,918

Int. Cl. A01n 9/36
U.S. Cl. 424-209 4 Claims
This invention relates to novel methods and insecticidal compositions for controlling a wide variety of insect pests. More particularly, the invention involves the use of cyclic O,O-(2,2-dimethyltrimethylene) phosphorochloridothioate as a contact, systemic or fumigant insecticidal agent.

3,737,530
CERTAIN OXIMINOPHOSPHONODITHIOATES AS INSECTICIDES AND ACARICIDES

Arnold D. Gutman, Berkeley, Calif., assignor to Stauffer Chemical Company, New York, N.Y.
No Drawing. Original application Apr. 6, 1970, Ser. No. 26,151, now Patent No. 3,709,959, dated Jan. 9, 1973. Divided and this application June 12, 1972, Ser. No. 261,877

Int. Cl. A01n 9/36
U.S. Cl. 424-210 10 Claims
Compounds having the formula

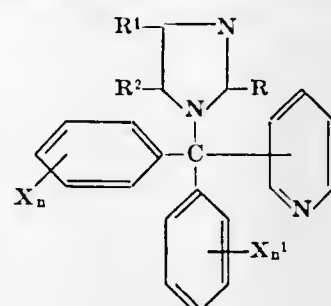


in which R is alkyl; R¹ is hydrogen, nitro, or halogen, R² is alkyl; and R³ is (1) hydrogen, (2) lower alkylthio, (3) cyano, (4) alkyl, and (5) ethynyl and their use as insecticides and acaricides.

3,737,531
N - DIARYL-PYRIDYL-METHYL-IMIDAZOLES, SALTS THEREOF AS ANTIFUNGAL AGENTS

Wilfried Draber, Karlheinz Buchel, and Manfred Plempel, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Original application July 3, 1969, Ser. No. 839,089, now Patent No. 3,629,273, dated Dec. 21, 1971. Divided and this application Feb. 25, 1971, Ser. No. 118,993

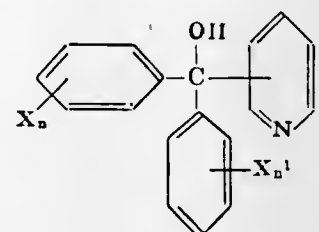
Int. Cl. A61k 27/00
U.S. Cl. 424-263 34 Claims
N-diaryl-pyridyl-methyl-imidazoles of the formula:



wherein

R, R¹ and R² are each hydrogen, straight or branched chain lower alkyl or straight or branched chain lower alkenyl,
X is straight or branched chain alkyl of 1 to 12 carbon atoms, straight or branched chain alkenyl of 1 to 12 carbon atoms or an electronegative moiety, and
n and n¹ are each integers from 0 to 2,

or pharmaceutically acceptable non-toxic salts thereof are produced by reacting diaryl-pyridyl carbinols of the formula:

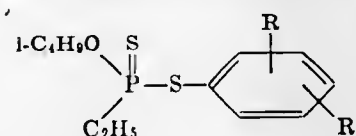


wherein X, n and n¹ are as above defined, in an inert organic solvent with a reagent suitable for chlorination of tertiary alcohols and reacting the diaryl-pyridyl-methyl chloride thus produced with an acid-binding agent and imidazole or lower alkyl imidazole. The salts are obtained by reaction of the compounds with the corresponding acid. These compounds are useful as antimycotics and should generally be administered in the range of about 20 to 100 mg./kg.

3,737,532
INSECTICIDAL ISOBUTOXY ETHYLPHOSPHONODITHIOATE ESTERS

Mervin E. Brokke, Richmond, Julius J. Menn, Saratoga, and Stephen C. Dorman, Los Gatos, Calif., assignors to Stauffer Chemical Company, New York, N.Y.
No Drawing. Original application May 14, 1968, Ser. No. 728,902, now Patent No. 3,642,958, dated Feb. 15, 1972. Divided and this application Dec. 3, 1970, Ser. No. 94,998

Int. Cl. A01n 9/36
U.S. Cl. 424-222 2 Claims
Isobutoxy ethylphosphonodithioates of the formula



wherein R is hydrogen or methyl and R¹ is hydrogen or chlorine. The compounds are useful as insecticides. Representative compounds are isobutoxy-S-phenyl ethylphosphonodithioate, isobutoxy-S-(4-chlorophenyl) ethyl-

phosphonodithioate, isobutoxy-S-(2-methyl-5-chlorophenyl)ethyl phosphonodithioate, and isobutoxy-S-(p-tolyl)-ethyl-phosphonodithioate.

3,737,533
COMPOSITIONS AND METHODS OF COMBATING INSECTS USING 1' - VARIABLE - 1',1'-DIHALO-HALOBENZENEAZOMETHANES

Malcolm W. Moon and Victor L. Rizzo, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Apr. 28, 1971, Ser. No. 138,300
Int. Cl. A01n 9/20

U.S. Cl. 424-226 27 Claims
Some new 1'-variable-1,1'-dihalo-halobenzeneazomethanes have been synthesized and found to be active against arthropod pests, particularly insects and mites. The 1',1'-halogens may be bromine, chlorine, or fluorine, independently. The benzene ring has two and, variably, up to five substituents; for example, halogen atoms (at least one), alkyl groups, alkoxy groups, and halo-alkyl groups. The 1'-variable group may have as many as 12 carbon atoms. Methods for use in controlling arthropod pests are described. Representative formulations for use as anti-arthropodal agents are also described.

3,737,534
COCCIDIOSTATIC AND GROWTH PROMOTING COMPOSITIONS

Hans Thommen, 29 Dahlienstrasse, Therwil, Switzerland, and Harald Weiser, 5 Dornhaglweg, Arlesheim, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 612,089, Jan. 27, 1967. This application Dec. 11, 1969, Ser. No. 884,332

Int. Cl. A01n 9/16, 9/22
U.S. Cl. 424-229 3 Claims
Composition containing (a) a therapeutically active sulfonamide and (b) a pyrimidine and the use of such composition as a coccidiostat and/or as a growth promoting agent.

3,737,535
METHOD OF FATTENING BEEF CATTLE

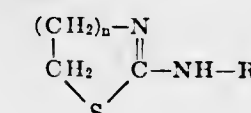
John R. Brethour, Experiment Station, Hays, Kans. 67601
No Drawing. Filed Feb. 11, 1971, Ser. No. 114,694

Int. Cl. A61k 27/00
U.S. Cl. 424-243 11 Claims
A method of fattening cattle utilizes a halogenated corticosteroid to increase marbling and improve the eating quality of the meat without increasing general carcass fatness. An acute dosage of 9α-fluoro-16α-methylprednisolone is administered to an animal after the animal has been placed on full feed and sufficiently in advance of slaughter to assure adequate time for intramuscular adipose tissue development.

3,737,536
ANAESTHETIC COMPOSITIONS FOR AND USE IN ANIMALS

Gerhard Sagner, Wuppertal-Vohwinkel, and Otto Behner, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Original application Sept. 6, 1970, Ser. No. 812,904, now Patent No. 3,651,053. Divided and this application June 15, 1971, Ser. No. 153,415

Claims priority, application Germany, Apr. 27, 1968, P 17 67 335.7
Int. Cl. A61k 27/00
U.S. Cl. 424-246 9 Claims
Anaesthetic veterinary compositions comprising a compound of the formula:



wherein

R is phenyl, mono or di-substituted by lower alkyl, lower alkoxy, lower alkylthio or halogeno and n has a value of 1 or 2

or a physiologically compatible acid additional salt thereof and a physiologically acceptable non-toxic, inert diluent or carrier therefor, and the method of utilizing these compounds in effecting anaesthesia are provided. A typical embodiment is an anaesthetic veterinary composition utilizing 2-(2,6-dimethylphenylamino)-5,6-dihydro-4H-1,3-thiazine hydrochloride.

3,737,537
SYNERGISTIC MIXTURE OF DRUGS

Jack Hayden, 91 Dewent Drive, Maidenhead, England, and William Stewart Ogden, The Tithing, Copthall Lane, Chalfont St. Peter, England

No Drawing. Continuation-in-part of abandoned application Ser. No. 745,969, July 19, 1968. This application June 8, 1971, Ser. No. 151,144

Claims priority, application Great Britain, July 25, 1967, 34,124/67

Int. Cl. A61k 27/00
U.S. Cl. 424-247 8 Claims
Synergistic mixtures of 3-methylpent-1-yn-3-ol carbamate and promethazine in a ratio by weight of carbamate to promethazine of between 4:1 and 16:1 are useful as hypnotics.

3,737,538
ANTITUSSIVE COMPOSITIONS AND METHOD WITH ISONIPECOTIC ACID DERIVATIVES

Hans Herbert Kuhn and Rolf Denss, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Original application Dec. 30, 1968, Ser. No. 788,068, now Patent No. 3,586,678. Divided and this application Oct. 23, 1970, Ser. No. 83,625

Int. Cl. A61k 27/00
U.S. Cl. 424-248 6 Claims
1-phenylalkyl-isonipecotic acid amides substituted in 4-position by allyl or propenyl as well as the pharmaceutically acceptable acid addition salts thereof are antitussive agents. Pharmaceutical compositions containing these compounds and methods for producing an antitussive effect in mammals comprising administering such compounds are provided. An illustrative embodiment is 1-(3-phenylpropyl)-4-allyl-isonipecotic acid morpholide.

3,737,539
SUBSTITUTED BENZOFURANOLS IN ANALGETIC AND ANTI-SPASMODIC COMPOSITIONS

Knut A. Jaeggi, General Guisan Strasse 44, Basel, Switzerland, and Ulrich Renner, Talweg 31, Riehen, near Basel, Switzerland

No Drawing. Original application Sept. 2, 1969, Ser. No. 854,745, now Patent No. 3,634,421, dated Jan. 11, 1972. Divided and this application Jan. 28, 1971, Ser. No. 110,643

Claims priority, application Switzerland, July 16, 1969, 10,832/69

Int. Cl. A61k 27/00
U.S. Cl. 424-248 7 Claims
The compounds are of the class of N-substituted 2-(p-alkoxybenzyl)-5-chloro-3-(2-aminoethyl)-2,3-dihydro-3-benzofuranols and the pharmaceutically acceptable acid addition salts thereof and have analgesic, antitussive and musculotrop-spasmodic activities; they are, together with pharmaceutical carrier substances, active ingredients of pharmaceutical compositions; methods of alleviating pain in a mammal and of treating spastic conditions in a mammal are provided; an illustrative embodiment is 2-(p-ethoxybenzyl)-5-chloro-3-[2-(diethylamino)-ethyl]-2,3-dihydro-3-benzofuranol.

3,737,540

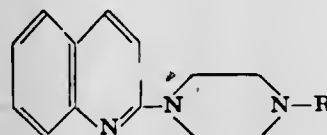
COMPOSITION FOR SUPPRESSING THE TREMOR OF PARKINSON'S SYNDROME

Rodolfo Rodriguez, Mexico City, Mexico, assignor to Miles Laboratories, Inc., Elkhart, Ind.

No Drawing. Filed Feb. 14, 1972, Ser. No. 226,237

U.S. Cl. 424—250 Int. Cl. A61k 27/00 6 Claims

The tremor of Parkinson's syndrome in mammals is suppressed by the administration of a composition comprising (1) a compound of the formula



in which R is either H or CH₃, and nontoxic pharmacologically acceptable acid addition salts thereof, and (2) L-3,4-dihydroxyphenylalanine.

3,737,541

METHODS FOR THE TREATMENT OF PARKINSONISM

Hans Rudolf Corrodi, Askim, and Kjell Gunnar Fuxe, Sollentuna, Sweden, assignors to Science Union et Cie, Societe Francaise de Recherche Medicale, Soresues, France

No Drawing. Filed Oct. 20, 1971, Ser. No. 191,125

Claims priority, application Sweden, Apr. 14, 1971, 4,803/71

U.S. Cl. 424—251 Int. Cl. A61k 27/00 5 Claims

Pharmaceutical compositions containing 1-(2-pyrimidyl) 4-(3,4-methylenedioxybenzyl) piperazine or a therapeutically acceptable salt thereof and a method for treating of parkinsonism by using the same, are described.

3,737,542

LOWERING EXCESSIVE SERUM LIPID CONCENTRATIONS AND PREPARATIONS CONTAINING FLUORO-PYRIDINE DERIVATIVES

Lars Anders Fritz Carlsson, Forfattarvagen 27, Bromma, Sweden; Åke John Erik Helgstrand, Baverstigen 32, Enborna, Sweden; and Berndt Olof Harald Sjöberg, Kummelvagen 24; and Nils Erik Stjernstrom, Tappgatan 9, both of Sodertälje, Sweden

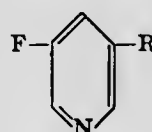
No Drawing. Continuation-in-part of application Ser. No. 689,751, Nov. 15, 1967, now Patent No. 3,637,714.

This application Aug. 20, 1971, Ser. No. 173,678

Claims priority, application Sweden, Nov. 16, 1966, 15,717/66

U.S. Cl. 424—263 Int. Cl. A01n 9/22; A61k 15/12 15 Claims

A method of lowering excessive lipid and free fatty acid concentration in serum of animals, including man, comprises administering a composition containing as the active ingredient a therapeutically effective dose of at least one compound selected from the group consisting of pyridine derivatives of the general formula



and therapeutically acceptable salts thereof. The active ingredients exhibit vasodilating properties. Pharmaceutical preparations containing the pyridine derivatives as active ingredients are also disclosed.

3,737,543

ECTOPARASITICIDALLY ACTIVE 2-ARYLAMINO-1-ALKYL LACTAMS

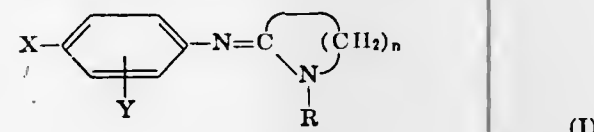
Edgar Enders, Cologne, and Wilhelm Stendel, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 19, 1970, Ser. No. 81,983

Claims priority, application Germany, Nov. 3, 1969, P 19 55,072.2

U.S. Cl. 424—267 Int. Cl. A01n 9/00 8 Claims

Compositions and methods of using certain 2-arylimino-1-alkyl lactams of the formula



in which

one of X and Y is halogen and the other is halogen or lower alkyl,

R is alkyl or alkenyl with up to 6 carbon atoms, and n is 4 or 5, which possess strong parasiticidal properties, especially animal acarid ectoparasiticidal properties.

3,737,544

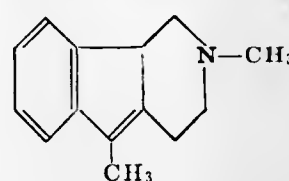
COMPOSITIONS AND METHODS UTILIZING 2,5-DIMETHYL-1,3,4,9b-TETRAHYDRO-2H-INDENO[1,2-c]PYRIDINE

Ernst Jucker, Ettingen, Anton Ebnother, Arlesheim, and Jean-Michel Bastian, Birsfelden, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

No Drawing. Original application May 13, 1969, Ser. No. 824,274, now Patent No. 3,574,686. Divided and this application Dec. 9, 1970, Ser. No. 96,642

U.S. Cl. 424—263 Int. Cl. A61n 27/00 5 Claims

The invention concerns 2,5 - dimethyl - 1,3,4,9b - tetrahydro-2H-indeno[1,2c]pyridine of the formula:



and acid addition salts thereof. Processes for the production of the above compounds are also described.

The compounds are useful sedative-neuroleptics.

3,737,545

α-AMINO BENZYL PENICILLINS

Charles Riffkin, Edison, Carl B. Rifino, Lakewood, and Gilman N. Cyr, Piscataway, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.

No Drawing. Original application June 6, 1969, Ser. No. 831,225. Divided and this application Feb. 22, 1972, Ser. No. 228,324

U.S. Cl. 424—271 Int. Cl. A61k 21/00 8 Claims

Ampicillin trihydrate having a particle size range from about 5 microns to about 50 microns may be used to

3,737,549

METHOD OF TREATING DEPRESSION

Nicholas Peter Plotnikoff, Village of Lake Bluff, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

No Drawing. Filed Mar. 20, 1972, Ser. No. 236,180

U.S. Cl. 424—274 Int. Cl. A61k 27/00 1 Claim

An improved method of treating depression using thyrotropin releasing agent or L-pyroglyutamyl-L-histidyl-L-prolinamide as the anti-depressant agent.

3,737,550

A METHOD FOR TREATING INFLUENZA VIRAL INFECTIONS

Mary A. Nook; Harold E. Renis, both of Kalamazoo, and Gerald E. Underwood, Galesburg, all of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Continuation of Ser. No. 884,316, Dec. 11, 1969, abandoned, which is a continuation-in-part of Ser. No. 653,040, July 13, 1967, abandoned. This application Oct. 28, 1971, Ser. No. 193,566

U.S. Cl. 424—279 Int. Cl. A61k 27/00 5 Claims

Pharmaceutical preparations supplying a non-toxic anti-influenza effective amount of a member selected from the group consisting of elenolide, elenolic acid, alkali metal salts of elenolic acid, alkaline earth metal salts of elenolic acid, iron elenolate, zinc elenolate, lower alkyl esters of elenolic acid, lower alkyl acetals of elenolic acid and lower alkyl acetal esters of elenolic acid are used intranasally for treating influenza in a mammal. The above active ingredients are used locally or topically for the treatment of influenza in an infected mammal.

3,737,551

WETTABLE AND DISPERSIBLE POWDERS

Kenneth S. Karsten, Westport, and Charles Edward Bradley, Jr., Weston, Conn., assignors to R. T. Vanderbilt Company, Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 717,368, Mar. 29, 1968, which is a continuation-in-part of application 628,277, Apr. 4, 1967. This application Aug. 20, 1969, Ser. No. 851,738

U.S. Cl. 424—286 Int. Cl. A01n 9/12, 9/20, 9/22 6 Claims

A wettable and dispersible powder of a water-insoluble solid is produced by admixing a moist cake of the solid with a dispersing agent and a wetting agent to produce a pumpable slurry of finely divided solid in water, and thereafter drying the slurry. The dried product, when added to water, rapidly forms dispersion of finely divided particles which can be stored with greatly reduced tendency toward settling and, if settling occurs after extended storage, can be redispersed easily with agitation. When drying is effected by spray drying there is obtained a free-flowing product composed of generally spherical agglomerates of the finely divided solid. The invention is of particular utility for providing very high assay wettable biocide powders which can be applied as a spray.

3,737,552

METHOD OF TREATING GONORRHEA

Harry W. Gordon, Bronx, and Paul B. Wasserstein, Flushing, N.Y., assignors to Julius Schmid, Inc., New York, N.Y.

No Drawing. Filed July 22, 1971, Ser. No. 165,330

U.S. Cl. 424—313 Int. Cl. H61k 27/00 9 Claims

A method of treating gonorrhea is described which comprises administering to a human either locally or orally an effective amount of a salt of dioctyl sulfosuccinate.

form suspensions which are stable, non-irritating, longer-acting, and may be administered in more highly concentrated form.

3,737,546

USE OF IPRONIDAZOLE IN COMBATING SWINE DYSENTERY

Robert Earl Messersmith, Trenton, and Raffaele Amici Roncalli, Glen Ridge, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Sept. 15, 1972, Ser. No. 289,398

U.S. Cl. 424—273 Int. Cl. A61k 27/00 6 Claims

The use of ipronidazole and its water-soluble pharmaceutically acceptable acid addition salts in the oral and the parenteral treatment and prevention of swine dysentery is described.

3,737,547

ANTIPARASITIC COMPOSITION CONTAINING NITROIMIDAZOLE DERIVATIVES USEFUL IN THE TREATMENT OF POULTRY

John A. Carlson, Nassau, N.Y., Dale R. Hoff, Basking Ridge, N.J., and Clarence S. Rooney, Beaconsfield, Quebec, Canada, assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Application Sept. 5, 1960, Ser. No. 855,765, which is a continuation-in-part of abandoned application Ser. No. 550,932, May 18, 1966, which in turn is a continuation-in-part of abandoned application Ser. No. 470,239, July 7, 1965. Divided and this application Nov. 12, 1971, Ser. No. 198,417

U.S. Cl. 424—273 Int. Cl. A61k 27/00 6 Claims

Antiparasitic compositions containing as the active ingredient, 1 - substituted - 5-nitroimidazol-2-yl-alkyl carbamates and acid addition salts thereof are provided. The compounds are prepared from 1-substituted - 5 - nitroimidazoles having at the 2-position of the imidazole ring an hydroxyalkyl, mercaptoalkyl, alkylsulfonyloxyalkyl, alkylarylsulfonyloxyalkyl, haloalkyl, halocarbonylalkyl or halothiocarbonyloxyalkyl radical. The compositions are useful against enterohepatitis and PPLO infections, and are primarily valuable against diseases of the domestic fowl. Poultry feed compositions containing the active compounds are also provided.

3,737,548

N-SUBSTITUTED IMIDAZOLES AND THEIR SALTS AS ANTIFUNGAL AGENTS

Wilfried Draber, Karl Heinz Buchel, and Manfred Plempel, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Original application Nov. 12, 1969, Ser. No. 876,033, now Patent No. 3,647,816. Divided and this application July 9, 1971, Ser. No. 161,270

Claims priority, application Germany, Nov. 29, 1968, P 18 11 654.6

U.S. Cl. 424—273 Int. Cl. A61k 27/00 22 Claims

Certain N-substituted imidazoles and their salts having fungistatic properties are provided represented by 9-(4-fluorophenyl)-9-imidazolyl-thioxanthene. Typical fungi are Trichophyton species, Microsporon species, Candida species and Penicillium species. The compounds are also active against pathogenic protozoa, viruses and bacteria.

ELECTRICAL

3,737,553

VACUUM ELECTRIC FURNACE

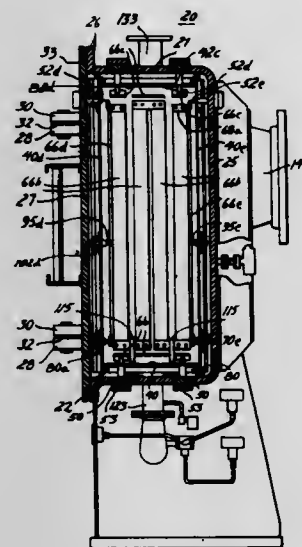
Benjamin A. Kreider, Richboro; William R. Jones, Chalfont; William J. Metalsky, Warminster, and Thomson B. Gibb, Warrington, all of Pa., assignors to Abar Corporation, Feasterville, Pa.

Filed Dec. 9, 1971, Ser. No. 206,383

Int. Cl. H05b 3/10

U.S. Cl. 13—25

12 Claims



An electric furnace is disclosed for operation at vacuum with or without inert gas with an external water cooled enclosure having an access door and within which enclosure large areas low mass quick heating resistance elements are provided for the back and front, sides, top and bottom with independent control of the heating elements, programmed if desired, the heating units being shielded to minimize heat loss outside the enclosure by low mass shielding elements including a baffle in one wall which permits rapid gas exit for fast pump down to obtain a fast cycle time while limiting external thermal radiation losses from the shielded area.

3,737,554

ELECTRIC SMELTING FURNACE OF CLOSED-TYPE HAVING DUST REMOVING MEANS FIXED TO EXHAUST GAS VENT PIPES THEREOF

Kotchi Horibe; Tsunenobu Yosida; Tokuji Machida; Shoji Kaneko, and Tomoyuki Sato, all of Arai-shi, Niigata-ken, Japan, assignors to Tanabe Kakoki Co., Ltd., Niigata-ken, Japan

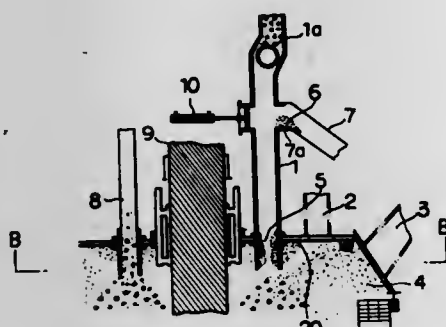
Filed Apr. 11, 1972, Ser. No. 242,976

Claims priority, application Japan, Apr. 14, 1971, 46/23566

Int. Cl. H05b

U.S. Cl. 13—33

4 Claims



A closed-type electric furnace to be used for extremely high temperature smelting of a ferroalloy such as metallic silicon or

70 percent ferrosilicon. The furnace has at least two dual service pipes, each of which functions as a raw material charging chute and concurrently as an exhaust gas vent pipe with the aid of its branch pipe, and a plural number of single raw material charging chutes through the furnace lid, whereby each dual service pipe has an automatic dust removing machine at the forked position thereof.

3,737,555

ELECTRICAL MUSICAL INSTRUMENT PHASE SHIFT VIBRATO SYSTEM

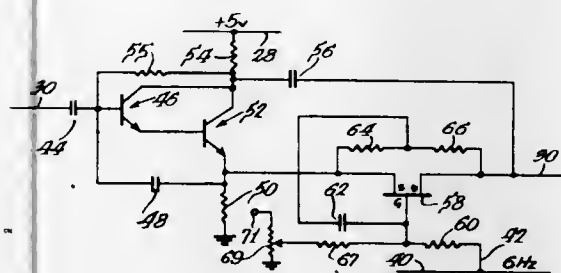
Robert G. Mathias, Brookfield, Ill., assignor to Hammond Corporation, Deerfield, Ill.

Filed July 3, 1972, Ser. No. 268,696

Int. Cl. G10h 1/02, 1/04

U.S. Cl. 84—1.25

3 Claims



A vibrato or similar system for musical instruments which has successive phase shift stages in which the degree of phase shift is variable depending upon an input variable modulating voltage at a vibrato frequency. Each of the phase shift stages makes use of a field effect transistor as a variable resistance element and includes a circuit feature which solves the problem of intermodulation distortion normally encountered in such circuits.

3,737,556

CABLE TERMINATION APPARATUS WITH RIGID STRESS RELIEF ASSEMBLY AND CONDUCTIVE SEAL

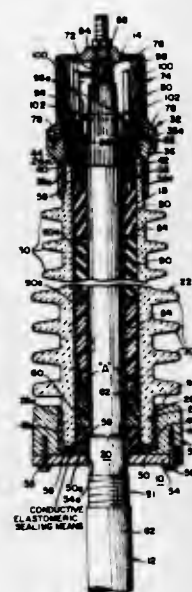
Francis V. Cunningham, Western Springs, Ill., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill.

Filed Jan. 21, 1972, Ser. No. 219,800

Int. Cl. H02g 15/22

U.S. Cl. 174—19

22 Claims



A termination or splice apparatus for use with insulated power cable comprising a rigid housing having an elongated

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ELECTRICAL

237

bore for receiving a terminal end portion of the cable, and a conducting elastomeric sealing means at one end of the bore. An integral stress relief assembly includes a preformed cone of rigid conducting material and an insulating section, and is seated in the bore adjacent said sealing means and extends toward the opposite end for a distance substantially less than the total length of the bore. The remaining portion of the bore is filled with dielectric insulating fluid and a load-bearing insulation system that exerts compression through said stress cone and insulating section against said sealing means to provide continuously sealing engagement at said one end of the bore around the cable through a wide range of temperature variations.

3,737,557

ELECTRIC CABLES WITH ETHYLENE-PROPYLENE INSULATION

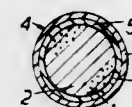
Stefan Verne, London, and Thomas Geoffrey Heggs, Welwyn, both of England, assignors to British Insulated Callender & Cables, Limited, London, England

Division of Ser. No. 70,987, Sept. 10, 1970. This application June 27, 1972, Ser. No. 266,726

Int. Cl. H01b 7/28

U.S. Cl. 174—23 R

8 Claims



An electric cable comprises at least one insulated conductor enclosed in a sheath of a polymeric composition which comprises a polymerized propylene sequence and a propylene/ethylene copolymer sequence, has a melt index (230°C; 2.16 kgms) of 0.01 to 0.5, preferably 0.025 to 0.25 and an ethylene content in the range 10–30 percent by weight, preferably at least 15 percent by weight. The conductor can be insulated with the same polymeric composition as is used for the sheath. The cable may also include a dielectric screen material which is the polymeric composition containing 20–40 percent by weight of carbon black.

3,737,558

EXPANSION ACCOMMODATING CONNECTOR FOR TUBULAR BUS BARS

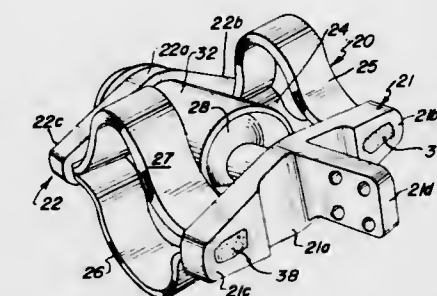
James J. Seaquist, Birmingham, Ala., assignor to Anderson Electric Corporation, Leeds, Ala.

Filed Mar. 13, 1972, Ser. No. 234,258

Int. Cl. H02g 15/08

U.S. Cl. 174—86

10 Claims



A first fitting has a guide member receivable in an end portion of a tubular bus bar securable in a second fitting. Each fitting is provided with a pair of opposed flanges or connecting strap anchoring portions disposed radially outwardly of an installed tubular bus bar. The fittings are electrically interconnected by two pairs of flexible laminated connecting straps. Between the end portions, the straps of each pair are double-reversely curved oppositely to each other, and each strap of each pair is edgewise aligned with a corresponding strap of the

other pair on an opposite side of an installed tubular bus bar. The first fitting may be provided either with a flat platform portion for bolting a flat bus bar thereto, or with a cylindrically recessed portion for welding a tubular bus bar thereto. The second fitting may be a single piece weldable to a tubular bus bar extending therethrough for engagement with the guide member on the first fitting, or it may be two pieces between which a tubular bus bar may be securely clamped.

3,737,559

INSULATING COVER FOR ELECTRICAL CONNECTORS

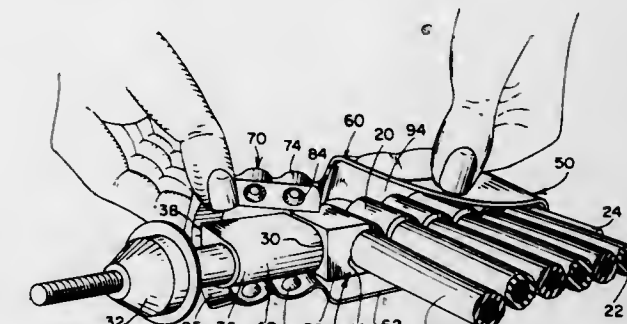
James Joseph Cooper, Jr., St. Louis, Mo., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed July 3, 1972, Ser. No. 268,730

Int. Cl. H01r 13/44, 13/48

U.S. Cl. 174—138 F

3 Claims



A formed electrically insulating cover which covers all exposed electrical surfaces of a connector. The insulating cover is formed or molded to conform generally to the outer contours of the connector being covered. A skirt depends from the main body of the cover to enclose an open area providing exit space for conductors extending from the connector, the skirt having sufficient length to cover exposed or stripped portions of the conductors. Inherent snap-fastening members are provided in the skirt to fit about one end of the connector and lock the cover thereto.

3,737,560

CLAMP-TOP TYPE INSULATOR

Toshimitsu Takatori; Katsuro Shinoda, and Yasuyuki Tsuboi, all of Nagoya, Japan, assignors to NGK Insulators, Ltd., Nagoya City, Japan

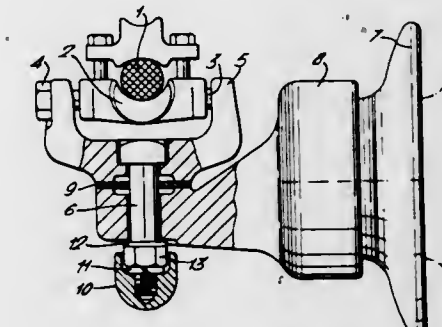
Filed Mar. 27, 1972, Ser. No. 238,482

Claims priority, application Japan, Sept. 17, 1971, 46/84092

Int. Cl. H01b 17/16

U.S. Cl. 174—158 R

7 Claims



A clamp-top type insulator comprising an insulating body, a bracket cap secured at the free end of the insulating body, a clamp support mounted on the bracket cap by a hinge bolt in a manner rotatable horizontally, and a clamp for holding a line conductor mounted onto the clamp support by means of a

projection and a fastening bolt in a manner rotatable vertically. The clamp-top type insulator according to the present invention saves fatigue of the line conductor and mitigates implication of an excessive irregular bending stress to the insulator.

3,737,561

SIGNAL PROCESSING ARRANGEMENT FOR A COLOR TELEVISION CAMERA CIRCUIT

Dirk Boer, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

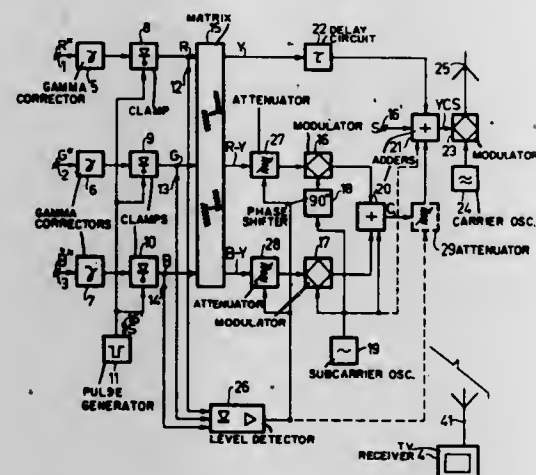
Filed June 14, 1971, Ser. No. 152,522

Claims priority, application Netherlands, June 27, 1970, 7009523

Int. Cl. H04n 9/48, 9/53

U.S. Cl. 178—5.4 R

8 Claims



A signal handling arrangement for a color television camera circuit for avoiding discolorations in dark areas upon the display of a scene. Three gamma-corrected color signals R, G and B are applied to a minimum threshold level detection circuit, so that when they jointly exceed this level a control signal is provided to a color information attenuator which is formed in an adjustable manner.

3,737,562

TELEVISION DRIVE CONTROL CIRCUIT

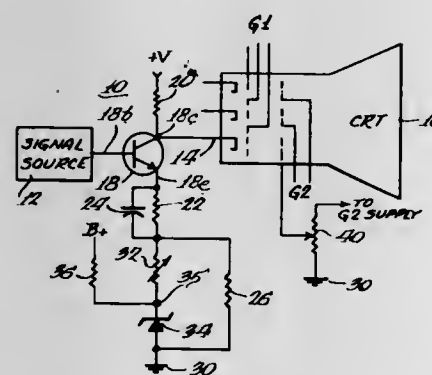
Lester Tucker Matzek, Lombard, Ill., assignor to Warwick Electronics Inc., Chicago, Ill.

Filed Mar. 18, 1971, Ser. No. 125,565

Int. Cl. H04n 9/18, 9/48

U.S. Cl. 178—5.4 R

22 Claims



A drive control for a television CRT includes a reference circuit which establishes a constant black level drive current regardless of the adjustment of a variable resistor which controls the gain of a drive stage. A set-up switch when actuated establishes the same constant black level drive current so that the grid bias of the CRT can be adjusted to set a black level on the CRT screen. When used in a color television receiver, the reference circuit may include a single adjustable control for

varying the relative red/blue drive. An automatic color temperature control activated by the color killer interconnects the red and green color drive channels to the reference circuit to change the screen color temperature without changing the black level.

3,737,563

COLOR TELEVISION RECEIVER

Peter Ketelaar, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

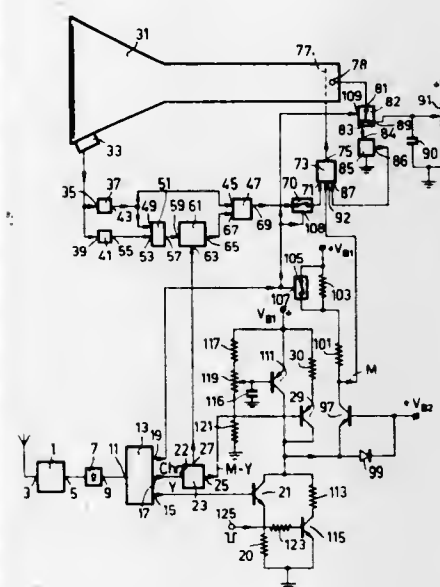
Filed July 14, 1971, Ser. No. 162,393

Claims priority, application Netherlands, July 28, 1970, 7011112

Int. Cl. H04n 9/16

U.S. Cl. 178—5.4 R

4 Claims



A color television receiver including a display tube of the indexing type in which an increased contrast in case of monochrome display is obtained by changing the amplification of a luminance signal channel and optionally by reduction of the background luminance with the aid of a color killing circuit.

3,737,564

CONTROL CIRCUIT FOR VARYING AND FOR COLOR AND BLACK-AND-WHITE GRADATIONS IN COLOR AND MONOCHROME TELEVISION

Anne Hendrik Bruinsma, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 17, 1971, Ser. No. 125,136

Claims priority, application Netherlands, Mar. 25, 1970, 7004340; Jan. 26, 1971, 7100973

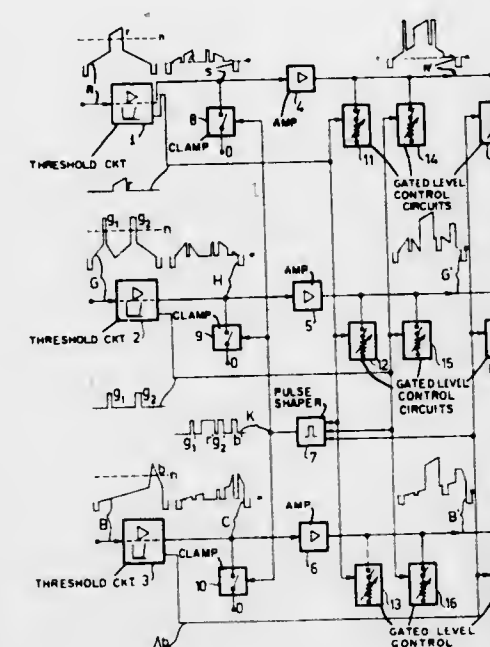
Int. Cl. H04n 9/12

U.S. Cl. 178—5.4 R

10 Claims

A control circuit for varying colors and for colors and black-and-white gradations in color and monochrome television, particularly for color television in which in a reproduction of the picked-up scene having certain colored parts or regions, differently colored regions may be adjusted optionally. When a chrominance signal exceeds a threshold level, clamping pulses are derived from each of the three channels. The clamping pulses of each channel are applied to all three video channels for black level introduction. Subsequently, a plurality of gated level control circuits follow in each video channel which circuits are divided into groups of three, in these chan-

nels. Each group of gated level control circuits divided in the three channels is activated in cooperation with the clamping



pulses which are derived from one or more video channels so as to introduce optionally color information.

3,737,565

SIGNAL DETECTOR FOR A SIGNAL-SEEKING TUNING SYSTEM

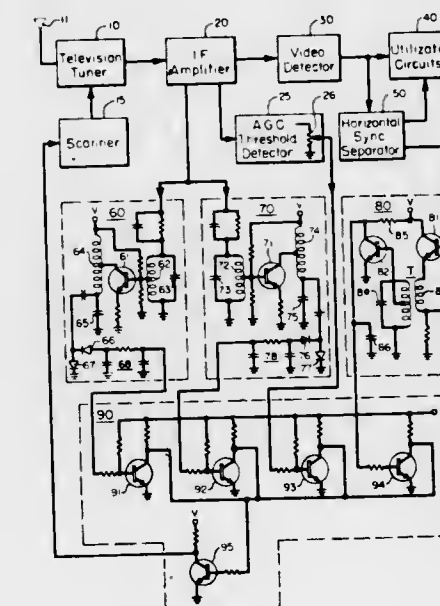
John Y. Ma, Glenview, and Fredrick Zlotnick, Addison, both of Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed Nov. 9, 1970, Ser. No. 87,664

Int. Cl. H04n 5/50

U.S. Cl. 178—5.8

2 Claims



A signal detector for a signal-seeking television tuner system which renders the system unresponsive to image signals by detecting the audio subcarrier, video subcarrier, and horizontal sync signals and applying them to a coincidence gate to provide a recognition signal only in response to the reception of a proper RF television signal. Detection of a fourth signal parameter, magnitude, enables the system to reject proper RF television signals too weak for satisfactory viewing.

3,737,566

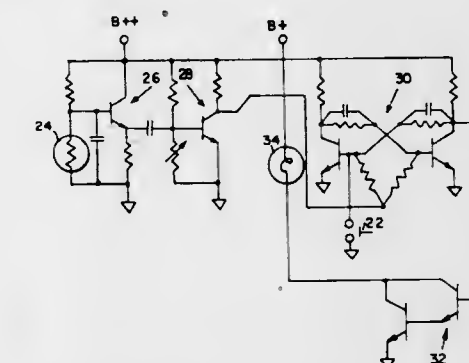
TELEVISION CODER AND DECODER

Ralph H. Baer, Manchester, and William T. Rusch, Hollis, both of N.H., assignors to Sanders Associates, Inc., Nashua, N.H. Continuation-in-part of Ser. No. 852,349, Aug. 22, 1969, abandoned, which is a division of Ser. No. 697,798, Jan. 15, 1968, abandoned. This application Dec. 8, 1970, Ser. No. 96,033

Int. Cl. H04n 5/44

U.S. Cl. 178—5.8 R

8 Claims



Apparatus is herein disclosed for use in conjunction with television receivers for presenting coded messages displayed on a television screen and for decoding same by the selection of a particular displayed coded symbol. The coder comprises means for flashing symbols on the television screen an odd or even number of times. The decoder comprises a multivibrator responsive to said coded symbol.

3,737,567

STEREOSCOPIC APPARATUS HAVING LIQUID CRYSTAL FILTER VIEWER

Shunsei Kratoml, No. 456, Maegawa, Kanagawa-ken, Odawara-shi, Japan

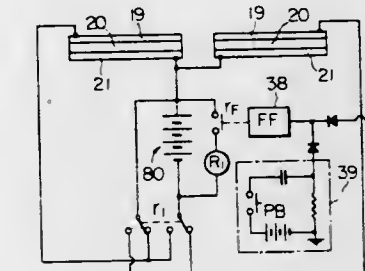
Filed Feb. 28, 1972, Ser. No. 229,966

Claims priority, application Japan, Oct. 25, 1971, 46/83947; Nov. 17, 1971, 46/91528; Nov. 24, 1971, 46/93706; Jan. 11, 1972, 47/4957

Int. Cl. G03b 35/16, 35/24; H04n 9/58

U.S. Cl. 178—6.5

38 Claims



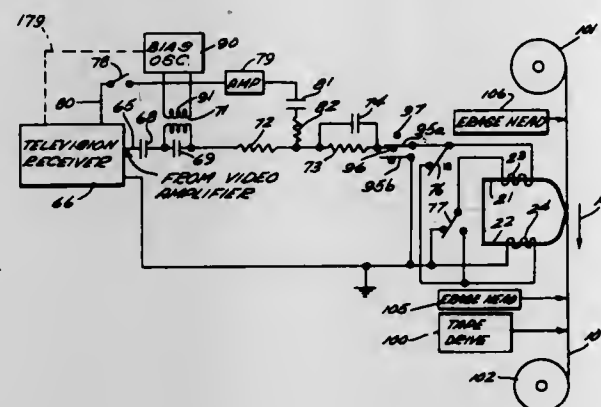
A stereoscopic apparatus comprises at least one viewing device having a pair of liquid crystal filters (worn by an observer), the transparency of the liquid crystal filters being dependent on the intensity of an electric field applied thereto; at least one viewer controller; and a stereopair reproducing means, such as a motion picture projector and screen, a television receiver, a videotape player, or the like, having a synchronizing signal generator to generate signals to be transmitted to said viewer controller operating said viewer in such manner that a pair of liquid crystal filters, covering the right and the left eyes respectively, alternately exchange transparency and translucency in synchronism with each other, the alternation of right-eyed pictures and left-eyed pictures of stereopairs being displayed by the stereopair reproducing means.

3,737,568

VIDEO RECORDING SYSTEM

Marvin Camras, Glencoe, Ill., assignor to IIT Research Institute, Chicago, Ill.
 Division of Ser. No. 344,075, Feb. 11, 1964. This application
 Dec. 13, 1971, Ser. No. 207,439
 Int. Cl. G11b 5/20, 5/44; H04n 5/78
 U.S. Cl. 178—6.6 A

3 Claims



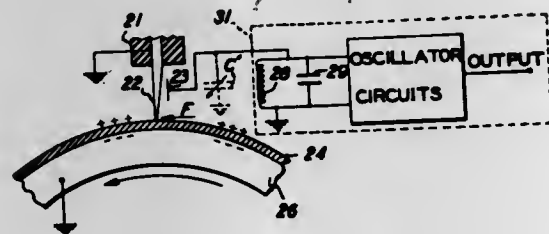
In the disclosed embodiments the video signal is recorded on successive longitudinal tracks with high frequency bias. The sound may be recorded transversely on adjacent tracks or may be recorded with the video as pulse modulation in the horizontal blanking intervals. The video bias frequency is selected so as to avoid beat notes with the video signal. The horizontal and vertical sync signals may be amplified separately from the composite video and then added thereto so as to record sync signals of increased amplitude. The picture signal from a television receiver may be recorded without further amplification.

3,737,569

TRANSMISSION DEVICE

Christopher Snelling, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
 Division of Ser. No. 802,370, Feb. 26, 1969, Pat. No. 3,638,110. This application June 9, 1971, Ser. No. 151,405
 Int. Cl. H04n 1/04
 U.S. Cl. 178—7.1

4 Claims



A transducer applying the Johnsen-Rahbek effect wherein the frictional force between two electrodes separated by electrostatically chargeable material is augmented by an increase in potential applied to the electrodes. The transducer measures or reads out the potential or charge patterns on the electrostatically chargeable material which may be a semiconductor, dielectric or other charge carrying surface and converts the force variations into electrical signals.

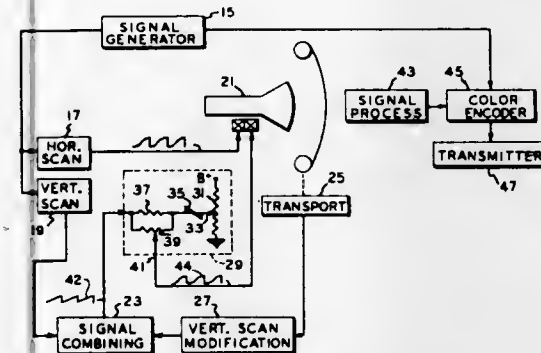
3,737,570

LINEARITY CORRECTION APPARATUS IN A FLYING SPOT SCANNER SYSTEM

Robert Roy Eckenbrecht, East Bethany, N.Y., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.
 Filed Sept. 21, 1971, Ser. No. 182,381
 Int. Cl. H04n 5/36

U.S. Cl. 178—7.2

6 Claims



In a flying spot scanner system having a transport means for continuously advancing a film of film frames through a film scanning zone and a light detector responsive to a light source vertically scanning the curved face plate of a cathode ray tube, linearity apparatus for altering the vertical scanning of the light source in a manner to effect linear scanning of a film frame.

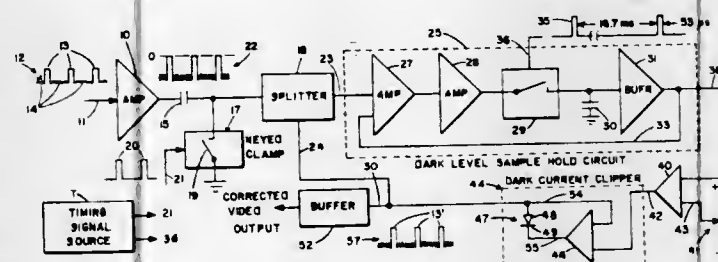
3,737,571

AUTOMATIC DARK CURRENT CONTROL

Rolf Gaebler, Redwood City, and Armand Gamera, Cupertino, both of Calif., assignors to GTE Sylvania Incorporated, Mountain View, Calif.
 Filed May 12, 1971, Ser. No. 142,482
 Int. Cl. H04n 5/16

U.S. Cl. 178—7.2

2 Claims



An automatic dark current control for a television (TV) camera or the like comprises the combination of a dark current level sample-and-hold circuit and a unique low level clipper in parallel with the video output line from the camera vidicon. An electronic switch in the sample-and-hold circuit is closed once during each field for the duration of one horizontal line sweep of the vidicon electron beam behind the mask on the photosensitive vidicon surface to charge a capacitor to a level corresponding to the dark current present during that line interval. A signal proportional to the charge on the capacitor is applied to a dark current level adjusting circuit which measures the difference in actual dark current over a predetermined value during the one field. The difference or control signal is applied to a clipper circuit comprising a high gain differential amplifier and a diode switch connected across the input and output of the differential amplifier as well as the video output line. The clipper operates effectively on millivolt differences between control and video signals to automatically limit the dark current in the output signal to the preset level.

3,737,572

SERIES-CONNECTED POWER SUPPLY AND DEFLECTION CIRCUITS UTILIZING A SINGLE SHUNT REGULATOR

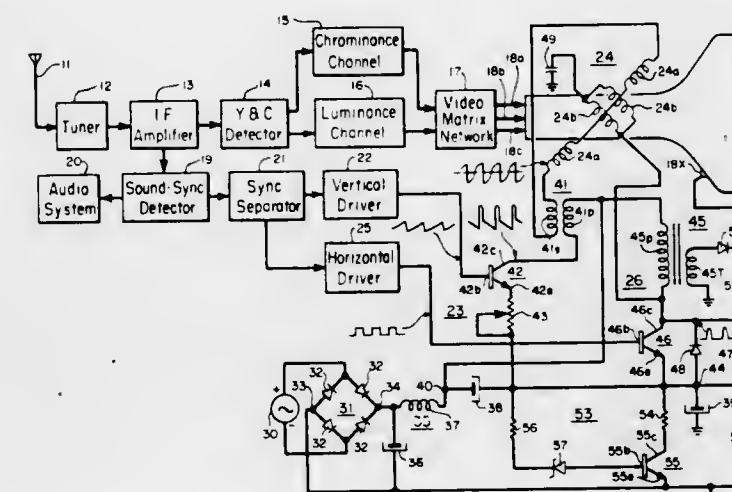
Kenneth Frizane, Elmwood Park, and William A. Trzyna, Chicago, both of Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed July 23, 1971, Ser. No. 165,549

Int. Cl. H04n 5/44

U.S. Cl. 178—7.3 R

3 Claims



A voltage regulating arrangement in a television receiver for simultaneously regulating the low-voltage power supply and the horizontal deflection system with a single regulator circuit. The regulating arrangement utilizes the horizontal output transformer primary winding as a brightness-dependent variable impedance which, together with the low-voltage (24-volt) power supply load, forms a voltage dividing network between the high-voltage (B+) power supply and ground. A single shunt regulator is coupled across the low-voltage power supply load to insure that a constant potential is maintained at the junction of the variable impedance and the 24-volt load. The 24-volt load and its associated shunt regulator further combine to provide load regulation of the horizontal deflection system by presenting an impedance which varies in a directly proportional manner with impedance variations of the horizontal output transformer primary winding to maintain a relatively constant voltage thereacross.

3,737,573

ULTRASONIC VISUALIZATION BY PULSED BRAGG DIFFRACTION

Lawrence W. Kessler, Glenview, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Aug. 30, 1971, Ser. No. 175,954

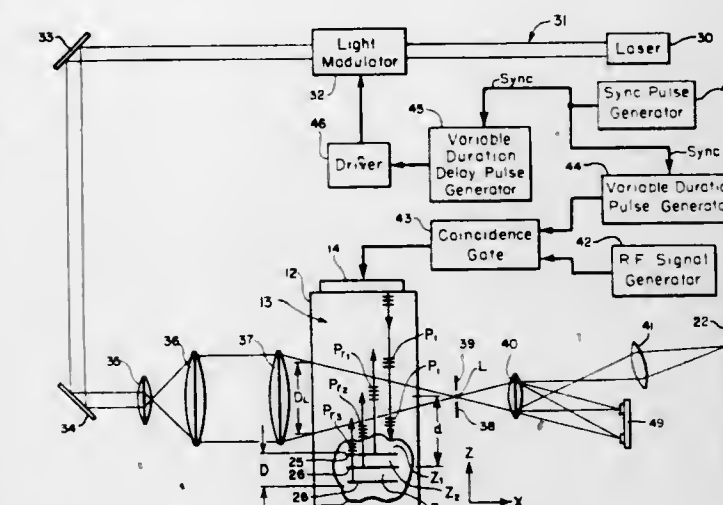
Int. Cl. G01n 23/20, 29/00; G01b 17/00

U.S. Cl. 178—7.5 D

40 Claims

An improvement in reflection mode Bragg display systems of the type wherein an acoustic beam is incident on an object which by reflection spatially modulates this sound field with its image information, a laser light beam interacts with such modulated sound field to undergo Bragg diffraction, thereby reproducing the image information in the diffracted light, and an optical system receiving such diffracted light images various desired cross sections of the object with a discrimination limited by the overall depth of focus of the optical imaging system. Control means are incorporated for delivering both the acoustic beam and the light beam in synchronized bursts of controlled duration to allow any of a plurality of cross-section within the acoustic depth of focus to be visualized, and spurious acoustic images eliminated, with a discrimination depth dependent on the duration of the acoustic burst. The

light burst is delayed with respect to the initiation of the sound burst, and its duration limited, so as together to insure proper



coincidence of the light with the sound energy reflected from the particular object plane selected for imaging.

3,737,574

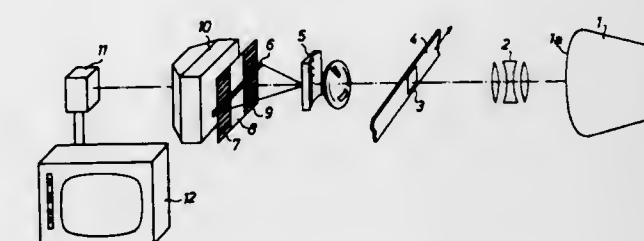
SYSTEM FOR REPRODUCING COLOR IMAGES

Richard Wick, Munich; Friedrich Bestenreiner, Grunwald; Reinhold Deml, and Josef Helmberger, both of Munich, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
 Filed July 14, 1971, Ser. No. 162,341
 Claims priority, application Germany, July 18, 1970, P 20 35 821.8

Int. Cl. H04n 9/02

U.S. Cl. 178—5.2 R

22 Claims



Frames on a color motion picture film are scanned point-by-point along scanning lines for reproduction on a color television receiver. The modulated light beam resulting from the scan is expanded optically to extend across three filter strips of red, green, and blue, respectively. At least two of the filter strips have grating lines running perpendicular to the direction of the scanning lines, the distance between grating lines on the first filter strip differing from the distance between grating lines on the second filter strip. A single photoelectric transducer means receive the signals from all filter strips. The output of the photoelectric transducer is converted into a standard television signal for reproduction on a television receiver.

3,737,575 FACSIMILE SCANNING APPARATUS

Takuji Kominami, Ota-ku, Tokyo, Japan, assignor to Matsushita Graphic Communication Systems, Inc., Tokyo, Japan

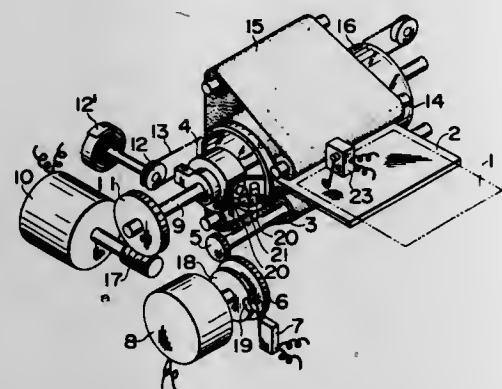
Filed Dec. 14, 1971, Ser. No. 207,865

Claims priority, application Japan, Dec. 16, 1970, 45/13845; Dec. 24, 1970, 45/130356; June 15, 1971, 46/51298

Int. Cl. H04n 1/08

U.S. Cl. 178—7.6

6 Claims



In a facsimile system, a scanning is provided in which an original or a recording paper fed in a flat form is wound around the outer periphery of a transparent cylinder by the rotation of an endless belt so that the original or the recording paper is scanned from inside the transparent cylinder by means of a scanning slider.

3,737,576 ON-PREMISE PAYSTATION ADAPTER

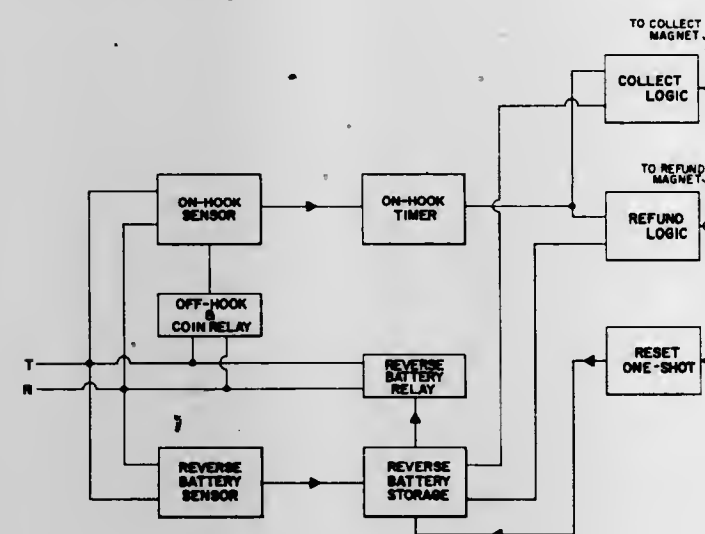
Lucian W. Spencer, Dallas, Tex., assignor to Superior Continental Corporation, Hickory, N.C.

Filed Feb. 18, 1970, Ser. No. 12,236

Int. Cl. H04m 17/02

U.S. Cl. 179—6.3 R

16 Claims



The herein-disclosed On-Premise Paystation Adapter consists of three basic circuits: a three-tone audio frequency receiver; an adapter circuit to sense the telephone line condition; and an appropriate ac power supply to provide certain needed dc voltages. One basic feature of the instant adapter is that it is housed along with the telephone paystation itself, and the basic circuitry for the paystation conversion is at the location of the pay phone; thereby eliminating costly central office control equipment. The adapter portion of the On-Premise Paystation Adapter combines a pay telephone with two means, namely, a means for seizing a talking path from that paystation to a remote central office upon rendering the paystation to an "off-hook" condition; and, a means electrically

connected to the last-mentioned means, also responsive to an "off-hook" condition that electrically bridges the seized talking path with a means to prevent dial pulses from being transmitted to the central office over the talking path until a predetermined number of coins have been deposited.

3,737,577 COMMUNICATION SYSTEMS FOR RECEIVING AND CHECKING REPEATEDLY TRANSMITTED MULTI-DIGITAL TELEGRAMS

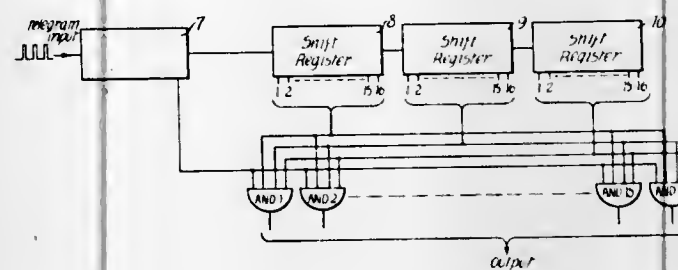
Michael Sambrook Birkin, Derby, England, assignor to British Railways Board, London, England

Filed Oct. 22, 1971, Ser. No. 191,701

Int. Cl. H04l 1/08

U.S. Cl. 178—23 A

5 Claims



In a communication system in which information is conveyed as a repeatedly transmitted digital telegram, telegram checking equipment is provided at a receiving station. The checking equipment comprises a plurality of serially connected shift registers each having a number of stages with respective outputs corresponding to the number of information bits of the track telegram so that the information content of one telegram transmission in one shift register is checked against the information content of a sequentially transmitted telegram in another shift register. Logic circuitry is provided to ensure that if the information contents of sequentially transmitted telegrams do not check correctly a telegram is not allowed to pass beyond the checking equipment.

3,737,578 PHASE SYNCHRONIZING CIRCUIT

Yoshio Matsuo, c/o Nippon Electric Co., Ltd., 7-15, Shiba Gochome, Minato-ku, Tokyo, Japan

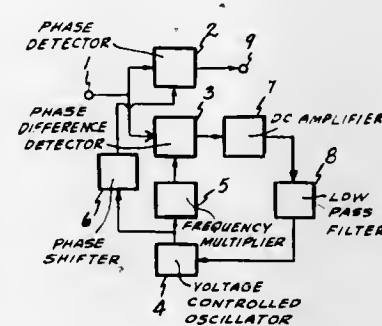
Filed June 12, 1969, Ser. No. 832,711

Claims priority, application Japan, June 29, 1968, 43/45467; Nov. 19, 1968, 43/84390

Int. Cl. H04l 27/18

U.S. Cl. 178—67

7 Claims



A phase synchronizing circuit comprises a voltage-controlled oscillator and a frequency multiplier for multiplying the output frequency of the oscillator by a factor corresponding to the number of phases in the input signal. A phase-difference detector receives both the input signal and the multiplied frequency output and produces a d.c. signal representing the number of phases in the input signal.

3,737,579 BODY TISSUE ELECTRODE AND DEVICE FOR SCREWING THE ELECTRODE INTO BODY TISSUE

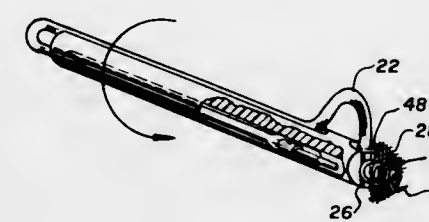
Lee R. Bolduc, Minneapolis, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Apr. 19, 1971, Ser. No. 135,277

Int. Cl. A61n 1/04

U.S. Cl. 128—418

10 Claims



A body implantable electrode comprising a flexible insulated conductor having a proximal end adapted for connection to a power supply and a distal end portion comprising an uninsulated, conductive, rigid helix adapted for attachment to body tissue. Means located and engageable at substantially the distal end portion are provided for facilitating the screwing of the helix into body tissue. The device also has means for holding the conductor and for preventing the transmission of torque to the proximal end of the conductor when the helix is being screwed into body tissue.

3,737,580 SPEAKER AUTHENTICATION UTILIZING A PLURALITY OF WORDS AS A SPEECH SAMPLE INPUT

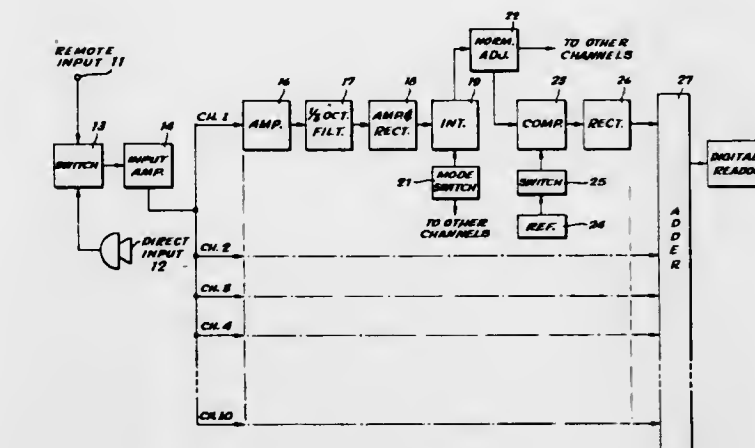
Fausto Poza, Cupertino, Calif., assignor to Stanford Research Institute, Menlo Park, Calif.

Filed Jan. 18, 1971, Ser. No. 107,156

Int. Cl. G10l 1/02

U.S. Cl. 179—1 SB

8 Claims



A method and system for talker authentication in which a trial speech sample from a person who may be legitimate or who may be an imposter is compared to a standard speech sample of the legitimate person. The trial speech sample forms the input to a plurality of band pass filters. The outputs of each of the filters are integrated over the duration of the speech sample and the integrated signals are normalized. These normalized signals are compared to normalized signals of a standard speech sample to generate a plurality of difference signals. The magnitudes of the difference signals are added together to generate an authenticity signal, the magnitude of which corresponds to the correspondence between the trial speech sample and the standard speech sample.

3,737,581 STEREOPHONIC BROADCASTING RECEIVING SYSTEM WITH ACOUSTIC MATRIXING

Sunobu Horigome, Shinagawa-ku, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

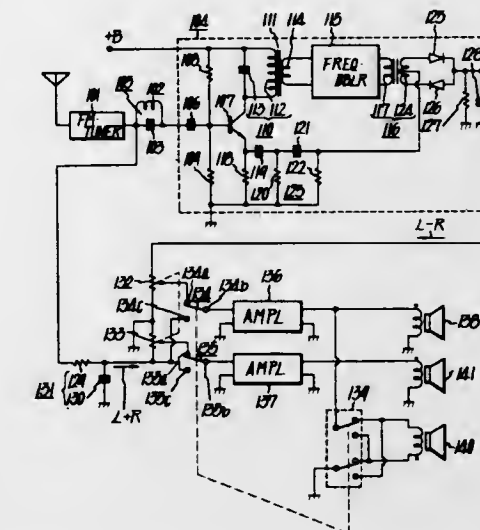
Filed Oct. 16, 1970, Ser. No. 81,438

Claims priority, application Japan, Oct. 16, 1969, 44/82796

Int. Cl. H04h 5/00

U.S. Cl. 179—15 BT

4 Claims



A stereophonic sound reproducing system which finds particular application in an FM radio broadcasting receiver. The FM signal is demodulated and there is detracted therefrom a sum signal of the right and left stereo channels and a difference signal of the difference between the right and left stereo channels. The sum signal and a phase reversed sum signal are applied respectively to first and third loudspeakers. The difference signal is applied to a second loudspeaker which is positioned between the first and third speakers. By this arrangement stereophonic sound is produced without requiring a matrix circuit in the radio receiver. Furthermore, a stereophonic effect is perceived by the listener, and which effect is not particular dependent on the relative location of the speakers and the listener, nor on the acoustical properties of the room in which the sound is being reproduced.

3,737,582 FLAT MAGNETIC HEADS

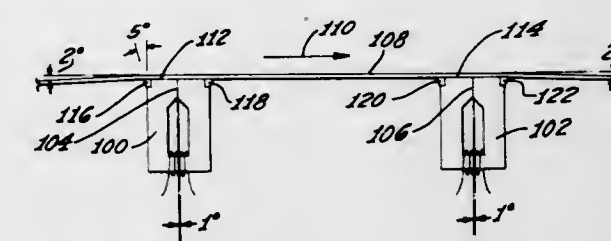
Dean L. DeMoss, Camarillo, Calif., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 2, 1968, Ser. No. 726,058

Int. Cl. G11b 5/24

U.S. Cl. 179—100.2 C

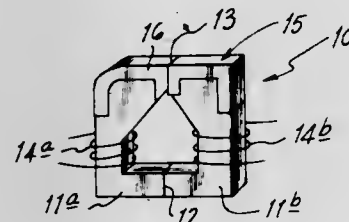
6 Claims



This invention is directed to a magnetic transducing head for use with a moving magnetic recording medium. Specifically, the invention is directed to a physical construction for the magnetic transducing head for providing an improved contact between the magnetic medium and the magnetic transducing head wherein the magnetic transducing head includes a sharp leading edge constructed of wear-resistant material and wherein the leading edge forms an included angle of 90° or greater between the magnetic medium and the leading edge so that as the magnetic medium passes over the sharp leading edge, the leading edge removes air from the surface of the magnetic medium.

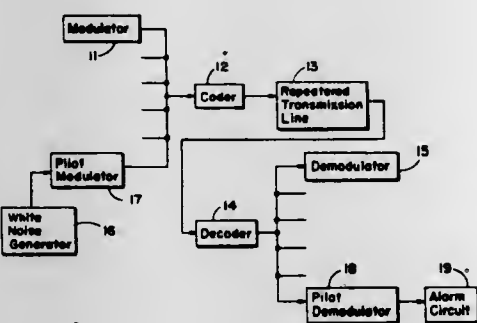
magnetic medium, which removal of air produces a pressure differential in a direction to urge the magnetic medium into contact with the face of the magnetic transducing head. Generally, the invention may also provide for a flat face for the magnetic transducing head so as to maintain the close contact between the magnetic medium and the face of the magnetic transducing head.

3,737,583
MAGNETIC HEAD WITH WEAR-RESISTANT SURFACE, AND METHODS OF PRODUCING THE SAME
Noriyuki Tsuchiya, and Katsutoshi Amari, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan
Continuation-in-part of Ser. No. 58,594, July 27, 1970. This application Mar. 16, 1971, Ser. No. 124,758
Claims priority, application Japan, Oct. 5, 1970, 45/87352
Int. Cl. G11b 5/40; C23c 3/02
U.S. Cl. 179—100.2 C 5 Claims



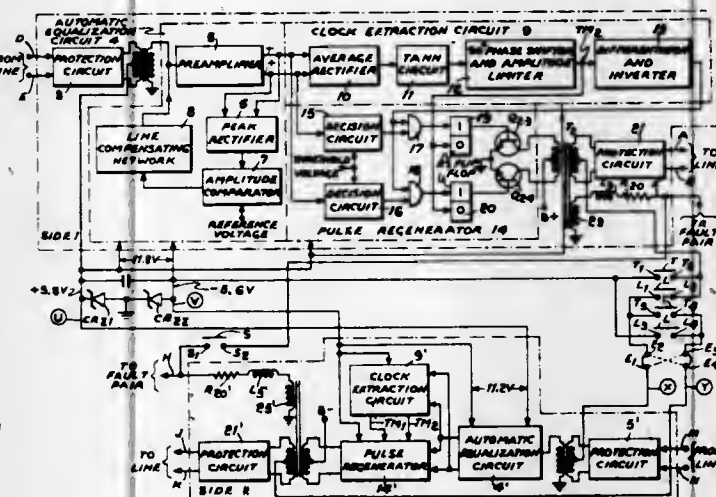
A magnetic head core element, for example, of ferrite, is provided, at least at a surface thereof subject to wear, with an electrodeposited magnetic metal layer containing a dispersed powder that is harder than the metal. The powder-containing metal layer is electrodeposited by immersing the core, preferably after deoxidizing the surface thereof to receive the layer, in an electrolyte containing a salt of the magnetic metal and a dispersion of the relatively hard powder, and passing a current between the core, acting as a cathode, and an anode also immersed in the electrolyte.

3,737,584
MALFUNCTION MONITORING EQUIPMENT FOR A TIME DIVISION MULTIPLEXED TRANSMISSION SYSTEM
Haruo Kaneko, and Kaoru Yano, both of Tokyo, Japan, assignors to Nippon Electric Company Limited, Tokyo, Japan
Filed Dec. 9, 1970, Ser. No. 96,555
Claims priority, application Japan, Dec. 16, 1969, 44/101482
Int. Cl. H04b 3/46
U.S. Cl. 179—15 BP 5 Claims



A malfunction monitoring system for the analog circuit of a time division multiplexed pulse code modulation system uses a noise signal as the pilot signal.

3,737,585
REGENERATIVE PCM LINE REPEATER
Suhas Ghosh, Raleigh, N.C., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.
Filed June 16, 1971, Ser. No. 153,546
Int. Cl. H04b 3/36
U.S. Cl. 179—15 AD 22 Claims

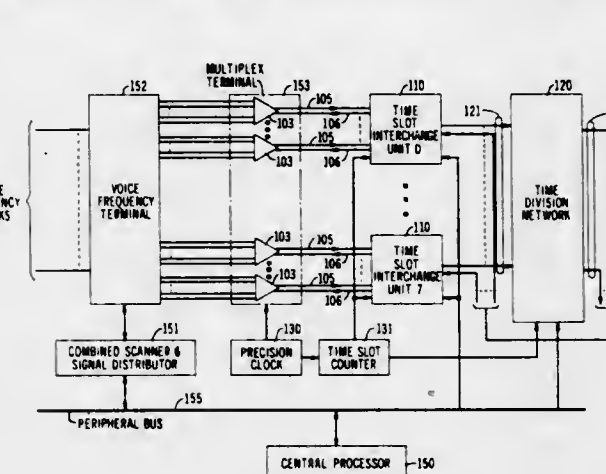


The line repeater operating on bipolar PCM signals includes substantially identical circuits for both directions of communication to provide line equalization, clock extraction, and pulse regeneration and retiming. A differential input, differential output operational amplifier has a line compensating network in a feedback path thereof. A peak detector coupled to both outputs of the operational amplifier and an amplitude comparator coupled to the output of the peak detector and a reference voltage produces a control signal to control the line compensating network and thereby compensate for line distortion of the received PCM signals and provide constant amplitude received PCM signals on both outputs of the operational amplifier. The clock extractor includes an average full wave rectifier coupled to both outputs of the operational amplifier, a tank circuit coupled to the output of the average rectifier and a 90° phase shifter and amplitude limiter to produce first square wave timing pulses predeterminedly related to the bit rate and the zero crossings of the received PCM signals. The first timing signal has its negative going transistions differentiated and inverted to produce second timing pulses. The pulse regenerator includes a threshold voltage and two decision circuits coupled thereto and to the outputs of the operational amplifier, a different decision circuit being provided for each polarity of the received PCM signal. A different AND gate is coupled to the output of each of the decision circuits and are enabled by the second timing pulses. A different RS flip flop is coupled to the output of each of the AND gates and are reset by the positive going transistions of the second timing pulses. The output of the two RS flip flops are combined to provide regenerated bipolar PCM signals for transmission to the next line repeater. A direct current voltage coupled over the transmission line and a zener diode arrangement provides +V and -V power supply voltages at the repeater. A voltage of ±V volts is used in the operation amplifier of both directions of communication, a voltage of +V volts is used in the remainder of the circuits of one direction of communication and a voltage of -V volts is used in the remainder of the circuits of the other direction of communication.

3,737,586
TIME DIVISION SWITCHING SYSTEM
Glover Douglas Johnson, Naperville, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Oct. 1, 1971, Ser. No. 185,749
Int. Cl. H04j 3/00
U.S. Cl. 179—15 AQ 6 Claims

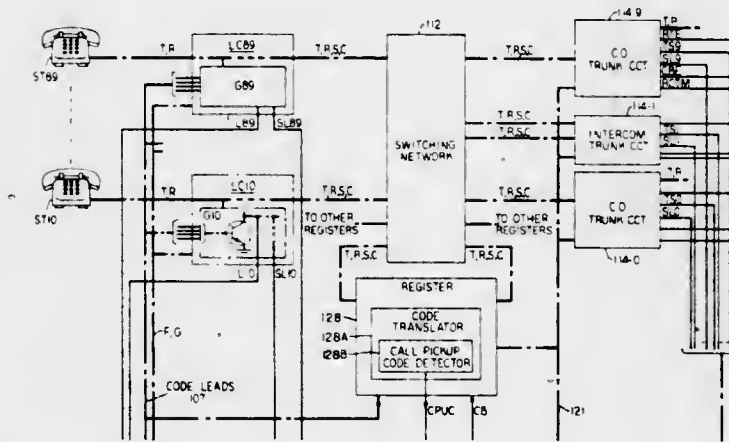
A toll telephone switching system for switching PCM data among time division multiplex lines is disclosed. The system

comprises a time-shared space division network and interface circuits which buffer incoming PCM data and distribute the incoming data from a group of multiplex lines over a group of



input ports of the network. The interface circuits also buffer outgoing PCM data at the output side of the network and distribute the data from a group of output ports of the network over a group of output multiplex lines.

3,737,587
TELEPHONE SWITCHING SYSTEM HAVING CALL PICKUP SERVICE
Roderic Romero, Boulder, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Oct. 15, 1971, Ser. No. 189,564
Int. Cl. H04m 3/42
U.S. Cl. 179—18 B 17 Claims

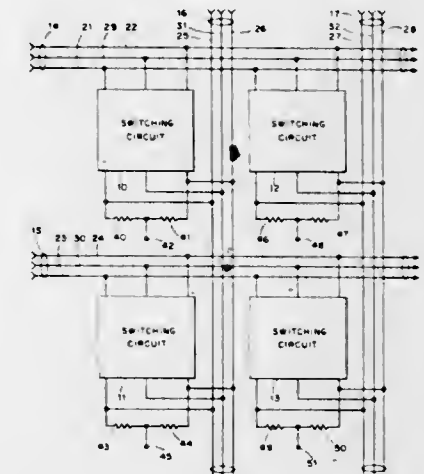


A wired logic electronically controlled switching system is disclosed having subscriber stations divided into a plurality of groups together with facilities whereby any subscriber may dial a predetermined code to answer an incoming call directed to another station in the same group.

3,737,588
HIGH SPEED SEMICONDUCTOR SWITCHING CIRCUIT
A. Frederick Susi, Dedham, Mass., assignor to GTE Sylvania Incorporated, New York, N.Y.
Filed Oct. 12, 1971, Ser. No. 188,165
Int. Cl. H04q 3/50
U.S. Cl. 179—18 GF 6 Claims

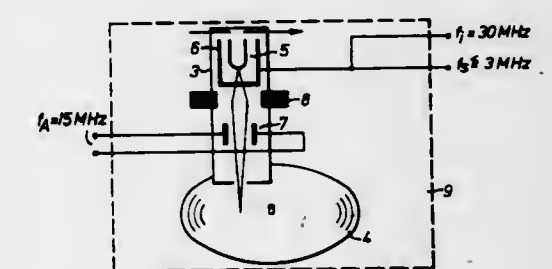
Crosspoint switching array, each crosspoint switching circuit including silicon controlled switches for connecting signal lines of one group of transmission lines to signal lines of another group. Each switching circuit includes a transistor triggering arrangement connected between control lines of the two groups. Coincident pulses on the control lines cause current to flow in the triggering arrangement thereby switching the silicon controlled switches ON and providing signal paths between the two groups of lines. A leakage resistance is con-

nected between the cathode of each silicon controlled switch and a source of biasing potential so that when the silicon con-



trolled switches are turned OFF, stored charges are rapidly dissipated through the relatively low impedance paths provided by the leakage resistances.

3,737,589
RECORDING MECHANICALLY REPRODUCIBLE HIGH FREQUENCY SIGNALS ON RECORDING CARRIERS
Horst Redlich, and Hans-Joachim Klemp, both of Berlin, Germany, assignors to Teldec Telefunken-Decca Schallplatten G.m.b.H., Hamburg, Germany
Filed Aug. 2, 1971, Ser. No. 168,073
Claims priority, application Germany, Aug. 1, 1970, P 20 38 453.6
Int. Cl. G11b 11/06; H04n 5/86
U.S. Cl. 179—100.3 A 10 Claims

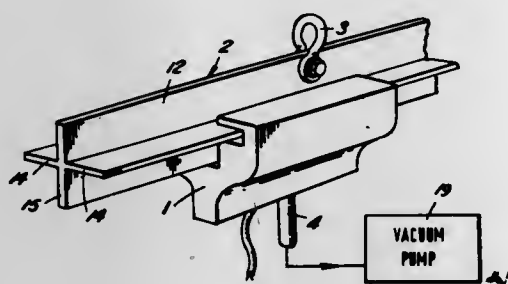


A method of recording mechanically reproducible high frequency signals on a record disc by applying to a carrier disc a beam which will result in the removal of material from the disc, causing the beam to describe a spiral path on the disc, deflecting the beam, alternately transverse to the path at a rate which is a multiple of the signal being recorded and simultaneously modulating the beam intensity with such signal and with a signal whose frequency is twice that of the beam deflection rate.

3,737,590
ELECTRICAL POWER PICK-UP FOR VEHICLES
James Stewart Johnston, Bognor Regis, England, assignor to Rosemont Engineering Company Limited, Bognor Regis, Sussex, England
Filed Apr. 8, 1971, Ser. No. 132,525
Int. Cl. B60l 5/08
U.S. Cl. 191—45 R 15 Claims

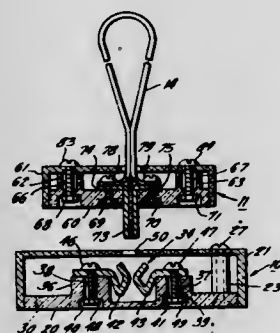
An electrical power pick-up for vehicles, particularly high speed vehicles comprises a pick-up body shaped partially to embrace a conductor rail without direct contact with the rail. An air stream through the gap between the rail and pick-up keeps the two apart. The air stream may be effected by vacuum suction, in which case ionizing means, such as a radio-active source or a source of radio frequency power are used to

assist ionization in the gap. Alternatively, the air stream is a hot gas stream, e.g. from a jet engine, the hot gases facilitating



ionization of the gap. In all three arrangements the applied potential between the rail and pick-up body produces an electrical discharge through the gap.

3,737,591
TRAP SWITCH WITH ELONGATED MOUNTING WIRE FOR COMPLETING CONTINUITY CIRCUIT
 Philip J. Parlato, Kings Park, N.Y., assignor to Alarm Products International, Inc., Long Island City, N.Y.
 Filed Oct. 27, 1971, Ser. No. 192,917
 Int. Cl. H01h 3/02, 13/70
 U.S. Cl. 200—61.93 10 Claims

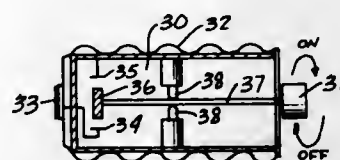


A trap switch for a burglar alarm system consists of a base member adapted to be mounted on a fixed body and a movable member adapted to be connected to a movable member by an elongated flexible wire. The base member has a pair of fixed contacts biased toward one another with an access slot in the base member housing disposed in a region between the fixed contacts. The movable member has an extending insulation stab portion carrying insulated conductive surfaces on its opposite sides. The extending stab can be pressed between the fixed contacts of the base member and each contact engages one of the conducting stab surfaces. An extending wire is mechanically connected at its ends to the conductive surfaces. A continuity circuit is connected in series with the fixed contacts, and can be either normally open or normally closed depending on whether the elongated wire is conductively connected between the conductive surfaces.

3,737,592
IMPROVED REPLACEABLE ELECTRIC SWITCH
 Jorge Lay, Santurce, P.R., assignor to The Raymond Lee Organization, Inc., New York, N.Y.
 Filed Oct. 27, 1971, Ser. No. 192,912
 Int. Cl. H01r 33/28
 U.S. Cl. 200—51.14 3 Claims

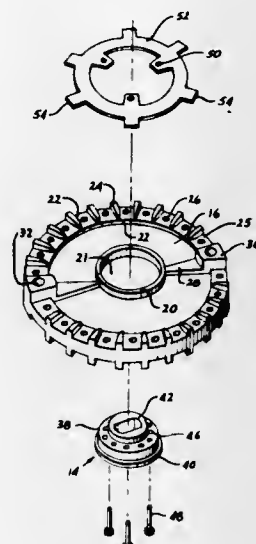
An improved electrical switch, in which the switch element is removable from the switch housing and replaceable by a similar switch element, with the external electrical conductors being permanently connected to the said switch housing. The switch element, including the operator, may be fastened to the

switch housing by means of an external screw thread on the switch element body, which mates with the female thread



form in the recess in the switch body, to make electrical contact with the external conductors.

3,737,593
ROTARY WAFER SWITCH WITH FLANGED ROTOR
 Burch A. Williamson, Dayton, Ohio, assignor to Ledex Inc., Dayton, Ohio
 Filed Sept. 13, 1971, Ser. No. 179,690
 Int. Cl. H01h 19/58
 U.S. Cl. 200—11 D 7 Claims

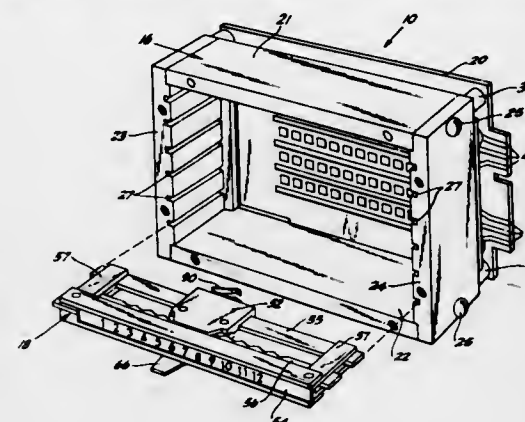


A rotary electrical switch comprises a stator supporting conventional stator contacts and having a central aperture to receive a rotor supporting at least one rotor blade of conventional design. The stator has an annular rib encircling said rotor and projecting axially from only one of its faces to axially locate said rotor blade. The rotor has a collar overlapping the opposite face of said stator and having a thickness substantially equal to the axial projection of said rib. Said collar and said rotor blade cooperate to clasp the central portion of said stator therebetween, and said collar adapted to support one or more additional rotor blades.

3,737,594
SLIDE SELECTOR SWITCH WITH MULTIPLE INDEPENDENTLY REMOVABLE SLIDE ASSEMBLY MODULES
 Carl William Rosmanth, Des Plaines, Ill., assignor to Beckman Instruments, Inc., Fullerton, Calif.
 Filed Mar. 15, 1972, Ser. No. 234,812
 Int. Cl. H01h 15/00; H02b 1/10
 U.S. Cl. 200—16 R 12 Claims

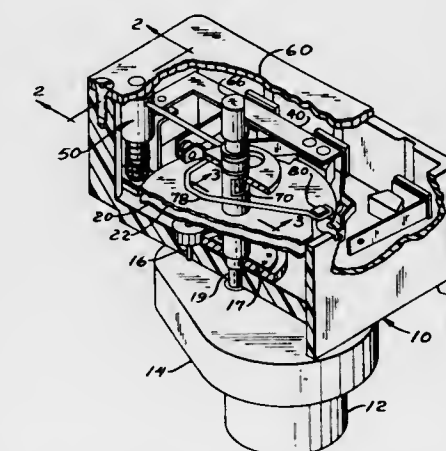
A slide selector switch including a plurality of independently removable slide assembly modules mounted within a housing, with each module having electrical contacts adapted to engage an etched printed circuit board at the rear of the housing. Each module includes a non-signal carrying slide supporting bar and at least one slide which supports the electrical contacts and is adapted for positive detenting to multiple switch positions along the bar. Each module is otherwise provided with a targeting arrangement which produces a highly visible display of an indicia associated with the selected switch position. The slide selector switch enables a high number of

positive circuit selections to be made from a small panel area. Furthermore the slide assembly modules are readily removable from the switch housing for replacement, and such



removal does not disturb the circuitry of the circuit board or wiring attached thereto, since the modules have no signal carrying member other than the electrical contacts.

3,737,595
PUSH TO START TIMER
 Harold T. Simmons, and Richard E. Pervorse, both of Elizabethtown, Ky., assignors to McGraw-Edison Company, Elgin, Ill.
 Filed Dec. 27, 1971, Ser. No. 212,139
 Int. Cl. H01h 3/02, 43/00
 U.S. Cl. 200—33 R 3 Claims

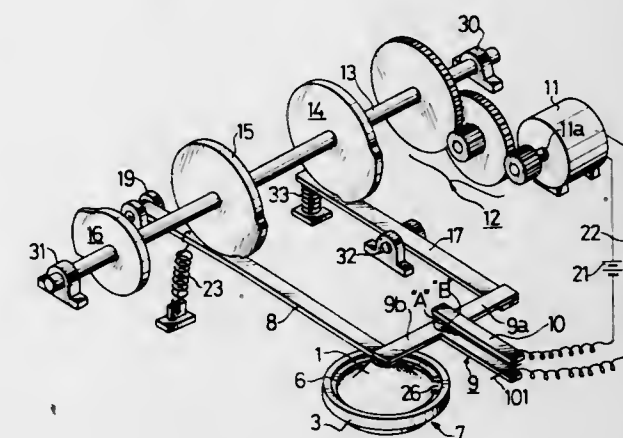


A timer having switches actuated by motor powered cam or other means and having a shaft and a control knob therefor that can be rotated manually to set the timer and further having a timer start switch, the control knob being secured to a plunger that is rotatably keyed to the shaft but axially movable relative thereto, and linkage operative from the plunger to actuate the timer start switch only upon axial displacement of the plunger.

3,737,596
CAM OPERATED RETARDED TIMER SWITCH ASSEMBLY WITH DASHPOT TYPE AIR TIMER UNIT
 Eisuke Yokoyama, Musashino-shi, Tokyo, Japan, assignor to Kawaguchi Seimitsu Kabushiki Kaisha, Minami-tsura, Japan
 Filed Dec. 13, 1971, Ser. No. 207,391
 Claims priority, application Japan, Dec. 12, 1970, 45/123586
 Int. Cl. H01h 7/03, 43/00 3 Claims

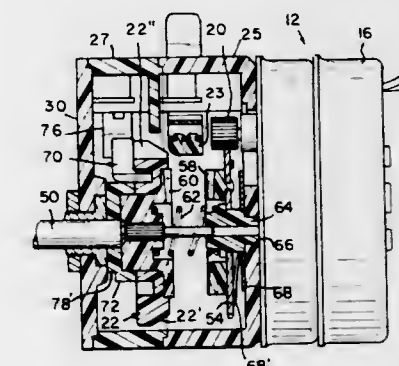
This invention relates to a combined, pneumatic, mechanical and electrical control timer mechanism including an air timer unit which comprises a resilient diaphragm having its

outer periphery fixedly attached to said casing a compression spring mounted in the interior of said casing so as to urge resiliently said diaphragm in its inflating direction, an opening bored through said casing for establishing fluid communication between the interior space of said casing, the ambient atmosphere, and a pervious member covering said opening for limiting fluid passage through said opening, and a check valve means provided on said casing for checking invasion of ambient atmosphere from outside into the interior of said casing,



yet, allowing the reverse air flow. The mechanism comprises further a cam shaft which carries a first, a second and a third cam. The third cam is an operation instructing member for control of a separate machine or instrument, such as the medicament sprayer. The first and second cams control a normally closed contact pair which is inserted in the circuit in the circuit for an electric motor geared to said cam shaft. The second cam is arranged to reset the air timer unit. The first cam acts upon the contact pair to open only after the second cam has completed the reset operation for the air timer unit.

3,737,597
CAM OPERATED TIMER SWITCH ASSEMBLY WITH MANUALLY ADJUSTABLE CAM AND CLUTCH MECHANISM
 Lewis E. Jones, and Richard W. Wilkinson, both of Indianapolis, Ind., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind.
 Filed Oct. 20, 1971, Ser. No. 190,738
 Int. Cl. H01h 7/08, 43/10
 U.S. Cl. 200—38 BA 12 Claims



Manual axial and rotational indexing of a cam carrying shaft engages a clutch means so as to apply power driven rotation to a cam means carried by the shaft, and causes engagement of a means to retain the clutch in engagement.

3,737,598

TIMING SWITCH MECHANISM WITH MANUAL ADJUSTABLE CAM

Tetsuo Kudoh, Kitakatsushika-gun, and Hideo Koide, Urawa-shi, both of Japan, assignors to Rythm Watch Company, Limited, Tokyo, Japan

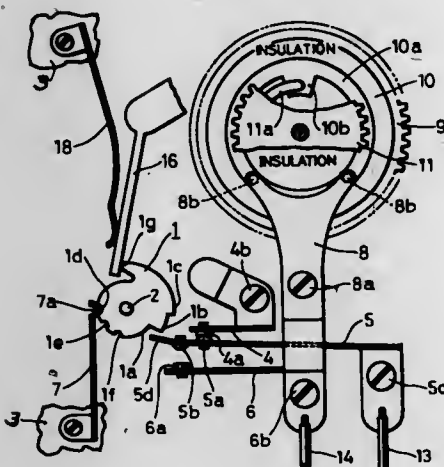
Filed Feb. 29, 1972, Ser. No. 230,345

Claims priority, application Japan, Mar. 4, 1971, 46/13292; Dec. 16, 1971, 46/117953

Int. Cl. H01h 43/10, 7/08

U.S. Cl. 200—38 R

8 Claims



The mechanism is arranged in a clock driven either by a main spring or a battery, and comprises a manually rotatable switch cam, of insulating material, having three stepped portions of progressively increasing height on its periphery and three pits or dents in its periphery, each related to one of the stepped portions. The timing switch includes two relatively fixed contact springs and a third intermediate and movable contact spring, each of the relatively fixed springs having a contact thereon engagable with a respective contact on the intermediate spring. A spring engagable in the notches releasably retains the switch cam in a selected operated position. A flexible contact arm connected to one of the two relatively fixed contacts engages an annular contact on an unlocking wheel, and a projecting contact finger is secured to an hour wheel of the clock. The annular contact has a radially inwardly projecting extension which is engagable by the contact finger on the hour wheel. The intermediate contact is normally engaged with that fixed contact which is not connected to the contact arm engaging the annular or ring contact. In another embodiment the intermediate contact and one of the fixed contacts are extended for cooperation with another cam forming part of a mechanism whereby a transistor radio, when turned on, may be automatically turned off by the clock after a preset time interval.

3,737,599

ACCELERATION SWITCH WITH MAGNETIC PERMEABLE METAL SLEEVE FOR SHUNTING MAGNETIC FIELD

Bernard R. Zuvela, Fountain Valley, Calif., assignor to Gulton Industries, Inc., Metuchen, N.J.

Filed Oct. 26, 1971, Ser. No. 192,219

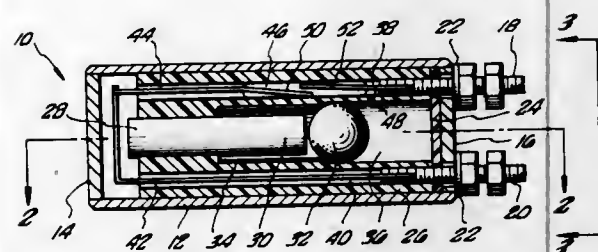
Int. Cl. H01h 35/14

U.S. Cl. 200—61.45 R

6 Claims

An acceleration switch utilizes a permanent magnet with a pole enclosing a magnetically permeable shield and a magnetically permeable ball. The field of the magnet is normally shunted by the shield and ball to weaken the magnetic field existing at a magnetic reed switch. In response to the acceleration, the ball leaves the sleeve and diminishes the shunting effect of the sleeve, so that the field at the reed switch increases

and actuates the switch. Directional sensitivity of the acceleration switch is provided by the shape of the cavity within which



the ball moves. A winding may be provided about the reed switch for testing switch operation or selectively inhibiting the actuation of the switch.

3,737,600

TAPE RECORDER CONTROL WITH SHAFT ROTATION SENSING MECHANISM FOR ACTUATING SWITCH

Ghislanus Matheus Anthonius Maria Aldenhoven, Emmasinsel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

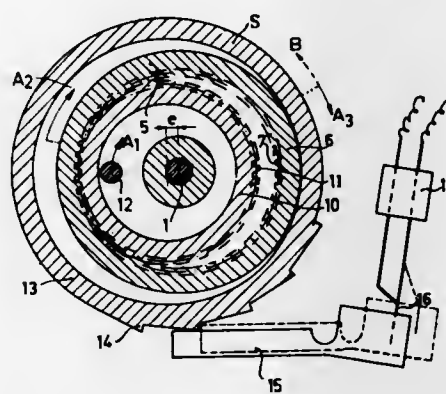
Filed Sept. 27, 1971, Ser. No. 183,773

Claims priority, application Netherlands, Oct. 1, 1970, 7014411

Int. Cl. H01h 3/16

U.S. Cl. 200—61.39

6 Claims



A mechanism for initiating a switching function in an apparatus for recording and/or playing back magnetic recordings on and/or from a recording tape has a continuously rotating first component and a rotatably mounted disc, co-axially arranged with respect to the first component, which rotates only during tape transport. The disc has an internally rotating rim portion. A cam wheel is interposed between the disc and the first component and is eccentrically arranged. The cam wheel has an annular hub portion which is provided with external teeth which are locally held in engagement with the internal teeth of the rim portion by means of an axially projecting pin provided on the first component part. The cam wheel rotates in one direction during tape transport performing an eccentric movement, and rotates in the opposite direction when the tape is in the stationary condition, thus operating a switch for switching off or changing over the tape drive.

3,737,601

SNAP ACTION SLIDE SWITCH

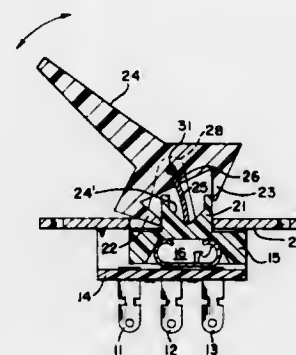
Ronald H. Arthur, Fort Lauderdale; Melvin F. Eickhorst, Hollywood; Earl A. Hansen, and Albert M. Pichitino, both of Fort Lauderdale, all of Fla., assignors to UID Electronics Corp., Hollywood, Fla.

Filed Feb. 24, 1972, Ser. No. 228,889

Int. Cl. H01h 15/18

U.S. Cl. 200—76

6 Claims



A slide switch includes a sliding contact carrier formed with a central recess for accommodating one end of an overcentering spring element. In one form of the invention, this recess faces away from the contacts and the other end of the spring element is seated in a recess formed in the underside of a rocker arm. In another aspect of the invention, the spring recess faces the fixed contacts and the other end of the spring element is seated in the terminal board containing the fixed contacts.

3,737,602

CONTROL VALVE

Richard C. Bueler, Des Peres, Mo., assignor to Wagner Electric Corporation, Newark, N.J.

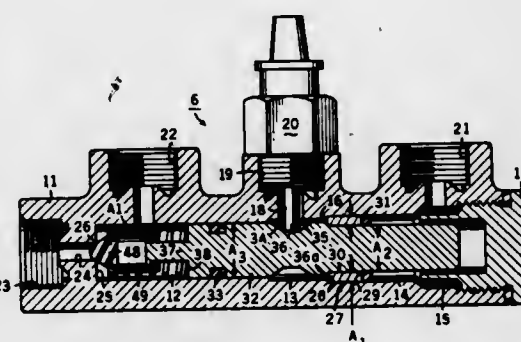
Division of Ser. No. 22,903, March 26, 1970, Pat. No.

3,700,286. This application Apr. 25, 1972, Ser. No. 247,310

Int. Cl. H01h 35/38; F16k 31/383

U.S. Cl. 200—82 D

8 Claims



A control valve for use in a dual or split braking system which has a proportioning valve therein generally operable to proportion the fluid pressure in one of the systems. The control valve is provided with a shuttle or warning piston movable from a normally centered position to opposed translated positions in response to a predetermined differential between the separate supplied fluid pressures in said systems acting thereon. A by-pass passage is provided in the control valve connected in by-pass relation with the proportioning valve, and a valve member is normally urged toward a position closing said by-pass passage. A lost motion connection is defined between the shuttle piston and valve member wherein said valve member is moved to a position opening the by-pass passage permitting the flow of one of the supplied fluid pressures therethrough in by-pass relation with the proportioning valve to obviate the proportioning function thereof upon the

movement of the shuttle piston to one of its translated positions. It is also contemplated that the control valve can include the proportioning valve.

3,737,603

PRESSURE RESPONSIVE PISTON ACTUATED SWITCH AND VALVE MEANS

George R. Kish, Owosso, and Kenneth B. Swanson, Bannister, both of Mich., assignors to Midland-Ross Corporation, Cleveland, Ohio

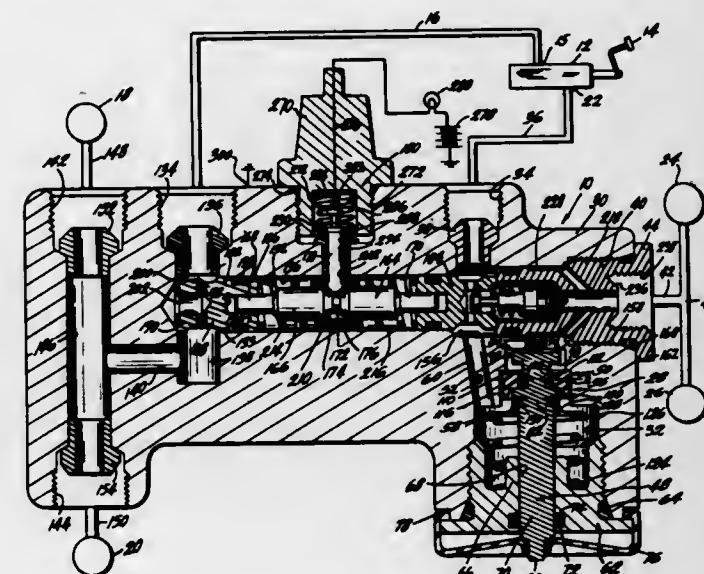
Division of Ser. No. 47,718, June 19, 1970, Pat. No. 3,674,954.

This application July 19, 1971, Ser. No. 164,134

Int. Cl. H01b 35/38; B60t 17/22

U.S. Cl. 200—82 D

10 Claims



A pressure responsive mechanism for use in dual hydraulic brake systems of automotive vehicles wherein the front and rear brakes of the vehicle are provided with independent hydraulic brake systems actuated by a dual master cylinder, the pressure responsive mechanism being interposed between the dual master cylinder and the front and rear brake actuators and incorporating means actuatable when a predetermined pressure differential occurs between the front and rear brake systems to effect a signal and being automatically reset when the pressure differential falls below a predetermined value. The pressure responsive mechanism includes switch actuator means and a pair of pressure responsive members disposed on opposite sides of and normally spaced from said actuator means, but movable into contact with said actuator means upon normal brake operation, and moving said actuator means if brake failure should occur.

3,737,604

SINGLE SWITCH WITH MULTIPLE TRANSVERSE ACTUATORS

Bernhard Dietrich, Eichenau, and Erich Huber, Munich, both of Germany, assignors to Schaltbau Gesellschaft mbH, Munich, Germany

Filed Nov. 3, 1971, Ser. No. 195,251

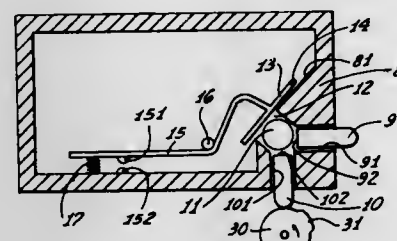
Int. Cl. H01h 3/00

U.S. Cl. 200—153 LB

19 Claims

Apparatus for operating an electrical switch including an actuator disposed for displacement in a particular direction from a first position with displacement to continue towards a second position, the switch having different switching states in the two positions of the actuator, actuator means operating in and along a plurality of different directions having angle smaller than 180° relative to the particular direction. Displacement transmission means including at least one transmission element and being operated by the actuator means for engagement with and displacement of the actuator, for the actuator to move in the particular direction as the actuator

means is displaced in one of the different directions of the plurality. Means for limiting the displacement of the transmission



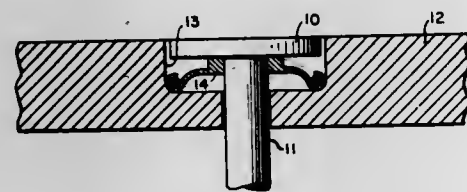
element along one or more linear paths, the number of paths not exceeding the number of different directions of the plurality.

3,737,605 SWITCH SEAL

Albert E. Tobey, Fullerton, and Alvis W. Wood, Mission Viejo, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Apr. 8, 1971, Ser. No. 132,469
Int. Cl. H01h 9/02

U.S. Cl. 200—168 G

8 Claims



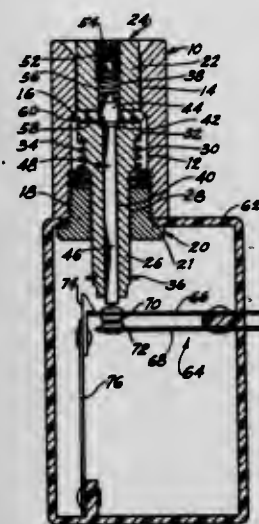
This invention is a switch seal for push button type electrical switches to prohibit water from leaking into entry panels and damaging electronic functions.

3,737,606 MANUAL RESET DEVICE WITH INDICATING MEANS

Ellhard J. Becker, St. Louis, Mo., assignor to Emerson Electric Co., St. Louis, Mo.
Filed Dec. 7, 1971, Ser. No. 205,488
Int. Cl. H01h 9/20

U.S. Cl. 200—169 PB

6 Claims



An indicating reset device for moving a safety cutoff switch or valve from its tripped or cutoff position toward which it is biased to an operative set position, the device having a slidably mounted plunger biased in one direction to an indicating position and operative when pushed oppositely to a non-indicating position to move a safety switch or valve to its set position, the device further including means for latching the plunger in its

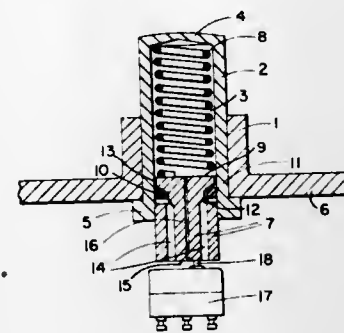
non-indicating position, the latching means being released by the biasing force of the safety switch or valve when an unsafe operating condition causes it to be tripped, and the plunger member having a conspicuously colored end portion which is retracted from view when in a non-indicating position and exposed when released to an indicating position.

3,737,607 SWITCH ACTUATING MECHANISM

Anthony Newton Lawson, London, England, assignor to International Standard Electric Corporation, New York, N.Y.
Filed Feb. 1, 1972, Ser. No. 222,487
Int. Cl. H01h 3/12

U.S. Cl. 200—172 A

4 Claims



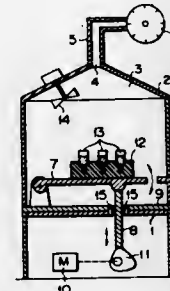
A pushbutton switch for holding a microswitch in its open position for a period of time less than a preselected duration. A plunger is slidably mounted within a cylindrical pushbutton and is urged out of said pushbutton by a helical spring. Vent holes and bleed paths are formed in said plunger and combine with an O-ring positioned between the plunger and the interior of the pushbutton to provide pneumatic damping to retard the movement of the plunger out of the pushbutton.

3,737,608 METHOD AND APPARATUS FOR STERILIZING THE INTERIOR OF A VESSEL CONTAINING A FLUID WITH SOME VOID SPACE ALLOWED THEREIN

Tsuguki Nagao, and Toshihiko Toishi, both of Tokyo, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed May 28, 1971, Ser. No. 148,098
Claims priority, application Japan, May 30, 1970, 45/46017
Int. Cl. H05b 9/06; A61l 3/00

U.S. Cl. 219—10.55

2 Claims



A method for thermally sterilizing the interior of a vessel containing a fluid with some void space allowed therein comprises moving the vessel so as to cause the fluid contained therein to flow over its entire inner walls and irradiating microwave energy to the vessel while it is moved.

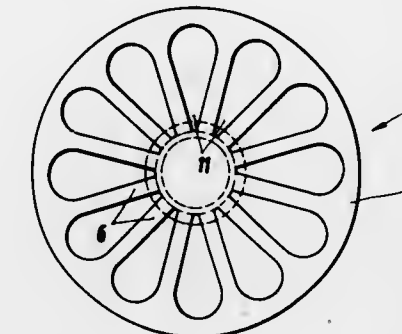
3,737,609 PROCESS FOR HEATING STAMPED METAL DISCS

Franz Josef Overkott, Gevelsberg, Germany, assignor to Firma Paul Ferd. Peddinghaus, Gevelsberg, Germany
Filed Aug. 24, 1971, Ser. No. 174,435
Claims priority, application Germany, Feb. 16, 1971, P 21 07 355.2

Int. Cl. H05b 5/06

U.S. Cl. 219—10.41

12 Claims



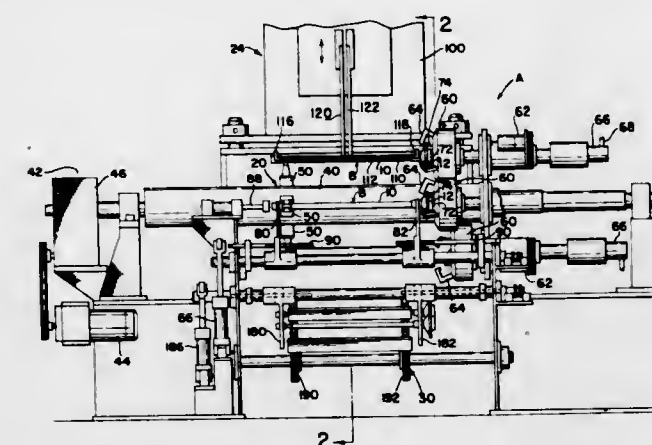
A process for heating stamped metal discs or other plates, or rings, having radially extending tongues, prior to the forming of the stamped blanks into spring retainer members and the like, the process comprising electrically connecting together the tongues of a stamped blank at or near their free ends, and then heating the stamped blank to a predetermined desired temperature by electrical induction heating. The process may be carried out with the stamped blank supported in a press which is used to deform and quench the blank subsequent to it being heated to the predetermined temperature. The press accommodates a contact ring for electrically connecting the tongues under pressure and means for rotating the stamped blank during the induction heating of the blank.

3,737,610 APPARATUS FOR INDUCTIVELY HEATING AND QUENCH HARDENING AN ELONGATED WORKPIECE

Robert G. Armstrong, Chardon, Ohio, assignor to Park-Ohio Industries, Inc., Cleveland, Ohio
Division of Ser. No. 16,710, March 5, 1970, Pat. No. 3,622,995. This application Feb. 23, 1972, Ser. No. 228,522
Int. Cl. H05b 5/00

U.S. Cl. 219—10.67

2 Claims



A device for inductively heating and quench hardening an elongated workpiece including a heating station having single-turn inductor extending the length of the workpiece for heating the total workpiece simultaneously and as it is rotated; a quenching station having an elongated quench body for quenching the total workpiece simultaneously and as it is rotated; a movable member at the quenching station for bending the workpiece from one side while the workpiece is being rotated whereby the various portions of the workpiece are alternately flexed between compression and tension; and, means

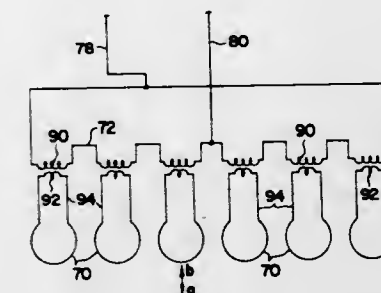
for gradually retracting the member from the workpiece so that the amplitude of flexing is decreased until this amplitude is zero. In this manner, the workpiece is straightened as it is quench hardened.

3,737,611 METHOD AND CIRCUIT FOR INTERCONNECTING A PLURALITY OF INDUCTORS AT THE OUTPUT TRANSFORMER SECONDARY

William H. Killian, Cuyahoga, Ohio, assignor to Park-Ohio Industries, Inc., Cleveland, Ohio
Filed Feb. 28, 1972, Ser. No. 229,894
Int. Cl. H05b 5/06

U.S. Cl. 219—10.75

3 Claims



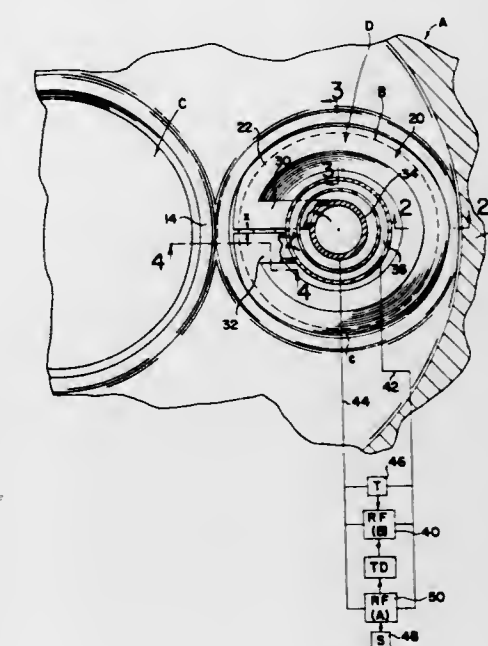
A method and circuit for interconnecting a plurality of inductors relative to each other in order to reduce the reflected impedance at the secondary portion of an output transformer. The method comprises separating the inductors into separate groups with each group having the same number of inductors therein; electrically interconnecting the inductors of each group in series; and, electrically interconnecting the groups in parallel to each other for electrical interconnection to the output transformer secondary.

3,737,612 APPARATUS FOR INDUCTIVELY HEATING VALVE SEATS

George D. Pfaffmann, Farmington, and Michael R. Hammond, Detroit, both of Mich., assignors to Park-Ohio Industries, Inc., Cleveland, Ohio
Filed June 9, 1971, Ser. No. 151,494
Int. Cl. H05b 5/04

U.S. Cl. 219—10.79

3 Claims



An induction heating device for inductively heating the first of a pair of closely positioned conical valve seats in an internal combustion engine block which device comprises an inductor

having a generally circular shape matching the first valve seat, means for positioning the inductor adjacent the valve seat and spaced only slightly therefrom, a radio frequency power source having a frequency of over 250 Kc, means including two spaced leads for connecting the power source to the inductor, means for starting the power source, and means for stopping the power source after a preselected time whereby the valve seat is hardened by quenching from conduction to the engine block itself.

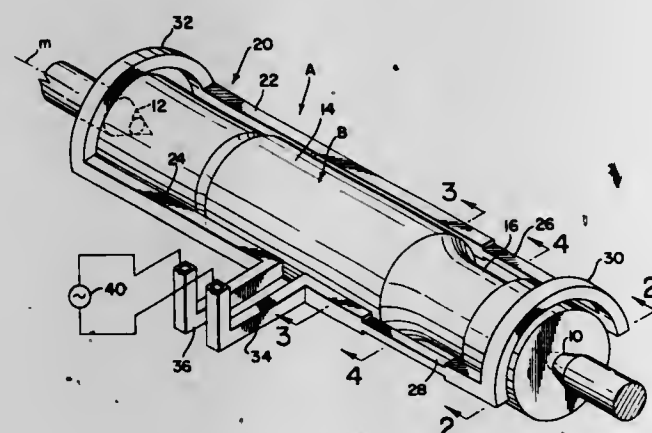
3,737,613

INDUCTOR FOR HEATING AN ELONGATED WORKPIECE HAVING DIFFERENT CROSS-SECTIONS
Jack W. Gillock, Parma, Ohio, assignor to Park-Ohio Industries, Inc., Cleveland, Ohio
Continuation of Ser. No. 37,254, May 14, 1970, abandoned.
This application Sept. 29, 1971, Ser. No. 184,931

Int. Cl. H05b 9/02

U.S. Cl. 219-10.79

1 Claim



An inductor for inductively heating an elongated workpiece having a length, central axis, a first cylindrical portion with a radius r and a second cylindrical portion with a radius r' , wherein the cylindrical portions are generally concentric with the axis and r and r' are substantially different. This inductor includes first and second generally parallel conductors extending substantially the complete length of the workpiece, cross-over conductors connecting the parallel conductors at their respective ends and the parallel conductors each have a first section adjacent the first cylindrical portion of the workpiece and a second section adjacent the second cylindrical portion of the workpiece with the effective widths of these sections being different to effect uniform heating of the workpiece.

3,737,614

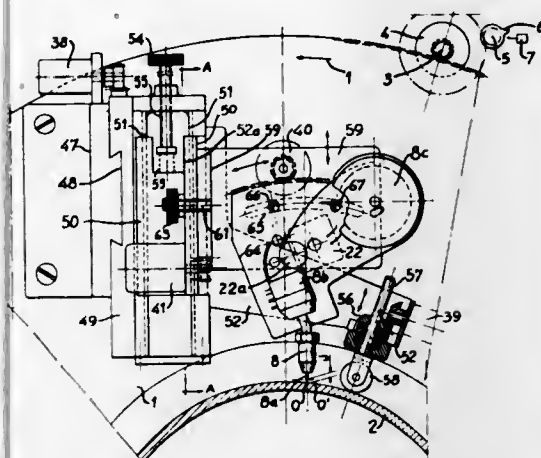
AUTOMATIC ARC WELDING MACHINES
Serge Paulange, 12, Route de Verton, Nantes 44, France
Filed Oct. 6, 1971, Ser. No. 186,960
Claims priority, application France, May 21, 1971, 7120033
Int. Cl. B23k 9/12

U.S. Cl. 219-60 A

14 Claims

Device for performing completely automatic welding operations using fusible or infusible electrode, in accordance with a program directly governed by the path of the electrode, by emission of electric signals corresponding to equal elementary portions of path, such signals being collected by at least one step-by-step motor actuating the programmer. The device is characterized by the fact that the programmer includes means of controlling and adjusting all the welding parameters listed below: welding current strength, current pulsations, wire advance, wire advance pulsations, starting and stopping the unwinding of the wire, the rate of movement of the electrode, variations in such rate, arc fading, the minimum flow of protective gas, adjustment of the position of a torch perpendicularly to the welding wire and parallel to the surfaces to be welded, adjustment of the distance of the torch from the sur-

faces to be welded, slope of the torch in a plane passing through the welding wire, and slope of the torch in a plane perpendicular to the welding wire. The programmer turns



step-by-step under the impulse of the electric signals emitted by the means of moving the torch, so that the angular speed of the programmer is directly proportional to the path travelled by the torch.

3,737,615

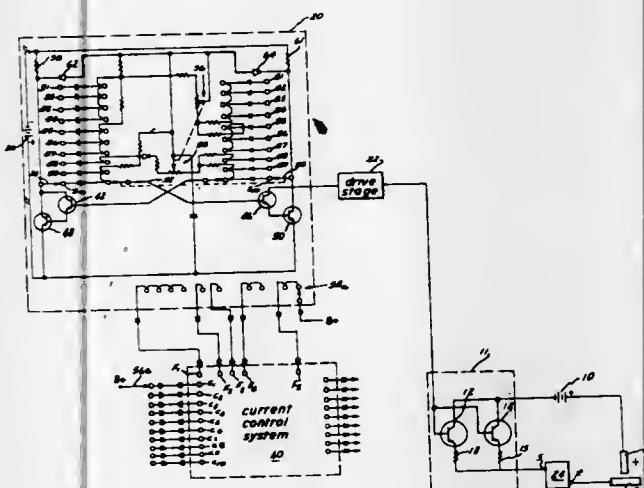
CURRENT AND FREQUENCY CONTROL SYSTEM FOR ELECTRICAL DISCHARGE MACHINING APPARATUS
Oliver A. Bell, Jr., Mooresville, N.C., assignor to Elox Inc., Davidson, N.C.

Filed Sept. 13, 1971, Ser. No. 179,664

Int. Cl. B23p 1/08

U.S. Cl. 219-69 C

14 Claims



An electrical discharge machining circuit of independently variable machining pulse frequency and current magnitude as set by machining pulse on-time. A current control system is employed to limit current to the gap to a safe level in accordance with each preselected frequency and current magnitude combination. Included to accomplish the control function are a plurality of gating means connected in a logic system and employing the resistor-transistor configuration.

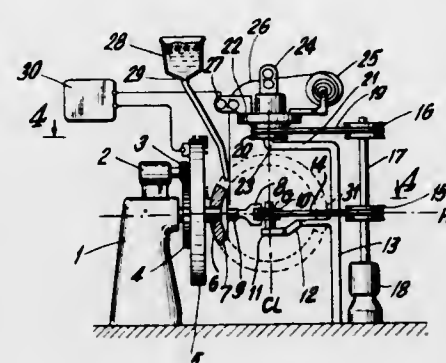
3,737,616
APPARATUS FOR MANUFACTURING SPHERICAL METALLIC VESSELS OR HEMISPHERICAL VESSEL HEADS

Akira Ujiie, Kobe-shi, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 22,772, March 26, 1970, abandoned. This application Apr. 2, 1971, Ser. No. 130,765
Claims priority, application Japan, Mar. 28, 1969, 44/21340

Int. Cl. B23k 9/04

U.S. Cl. 219-76

4 Claims



A spherical container or a hemispherical head for a pressure vessel, is formed integrally of deposited weld metal. A first turntable is rotatable about a substantially horizontal axis which constitutes one diameter of the sphere, and a second turntable is rotatable about a substantially vertical axis which constitutes another diameter of the sphere perpendicular to the first diameter. A small spherical metallic segment constitutes a starting piece, and has a wall thickness equal to that of the vessel to be formed, the segment forming the base of a solid central angle of the sphere. The segment has a tapered step extending completely around its peripheral edge and having a maximum height equal to the thickness of a layer of weld metal to be deposited and a minimum height equal to zero, thus forming an abrupt step. The segment is mounted on the first turntable for symmetrical rotation about the first diameter of the sphere. The second turntable supports an electroslag welding apparatus for revolution about the mentioned vertical axis, and a channel-shape copper block is also mounted for revolution about the vertical axis and is arranged to embrace the periphery of the segment, this block forming a backing bar for the deposited weld metal and flux. The weld metal is progressively deposited along the peripheral edge of the segment in the form of a continuous strip comprised of superposed convolutions whose width is substantially equal to the wall thickness of the vessel to be formed and whose thickness is substantially equal to that of the step. The rate of rotation of the segment is coordinated with the rate of deposition of weld metal, and the rate of revolution of the welding apparatus and of the backing bar is coordinated with the progressive change in diameter of the vessel being formed by the deposited weld metal.

3,737,617

EXPOSURE CONTROL APPARATUS FOR AN ELECTRON MICROSCOPE

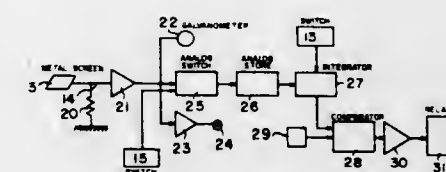
Helenio Llop, Cretell, and Pierre Lefort, Fontenay-sous-Bois, both of France, assignors to Societe D'Optique, Precision Electronique Et Mecanique-Sopelem, Paris, France
Filed May 10, 1971, Ser. No. 141,798
Int. Cl. H01j 37/26

U.S. Cl. 250-49.5 E

3 Claims

Apparatus for indicating and/or controlling the exposure time of photographic material exposed to the electron beam of an electron microscope includes an electron impermeable, insulated conductive screen which may be positioned to intercept a part at least of the electron beam. The current flowing to the screen may be measured to indicate required exposure

time. Alternatively the voltage across a resistor in the current path may be stored and integrated to yield a signal for indicat-



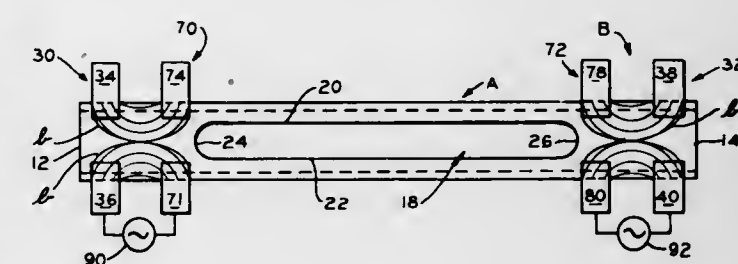
3,737,618

METHOD AND APPARATUS FOR RESISTANCE HEATING SLOTTED TUBES

Joseph E. Arnosky, Broadview Heights, Ohio, assignor to Park-Ohio Industries Inc., Cleveland, Ohio
Filed Sept. 7, 1971, Ser. No. 177,932
Int. Cl. C21d 9/62

U.S. Cl. 219-156

11 Claims



A method and apparatus for resistance heating an elongated tube having a slot-like area therein extending generally longitudinally over a portion of the length, which tube is to be subsequently formed at the slot area following heating. The tube is clamped between first and second pairs of contacts spaced immediately adjacent each end thereof. Third and fourth pairs of contacts are then clamped over the tube adjacent each end of the slot-like area and between the first and second pairs of contacts. An electrical current is then caused to flow through the tube between the first and third and the second and fourth pairs of contacts to effect heating of the tube ends. The third and fourth pairs of contacts are then removed from contact with the tube and an electrical current is caused to flow through the tube between the first and second pairs of contacts to effect desired heating over the entire length of tube.

3,737,619

WORKPIECE EXPANSION COMPENSATOR FOR RESISTANCE HEATING APPARATUS

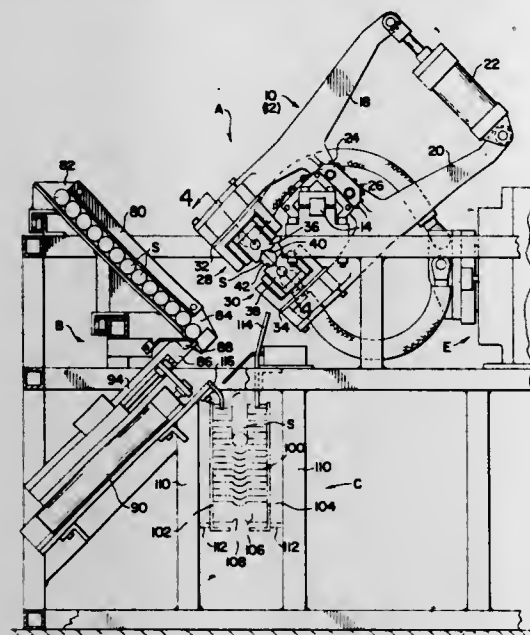
Joseph E. Arnosky, Broadview Heights, and Ronald A. Meer-mans, Strongsville, both of Ohio, assignors to Park-Ohio Industries, Inc., Cleveland, Ohio
Filed Sept. 20, 1971, Ser. No. 181,666
Int. Cl. C21d 9/62

U.S. Cl. 219-156

8 Claims

An improvement which permits automatic compensation for longitudinal workpiece expansion in a resistance heating apparatus of the type wherein a workpiece is transversely gripped between two pairs of spaced apart resistance heating contacts during heating. The improvement comprises mounting one of the pairs of contacts in a manner to be transversely movable relative to the other pair of contacts in a direction generally axial to the workpiece as it expands longitudinally

during heating. Force means are provided for the movable pair of contacts for selectively axially moving the contacts to



the initial position following heating of a workpiece in preparation for heating another workpiece.

3,737,620

BODY HEATING SYSTEM

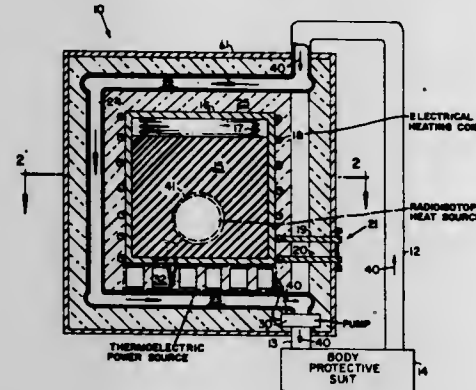
Douglas G. Harvey, Amherst, N.H., assignor to Sanders Nuclear Corp., Nashua, N.H.

Filed July 1, 1969, Ser. No. 838,216

Int. Cl. B63c 11/28; H05b 1/00; F24h 7/04

U.S. Cl. 219-211

4 Claims



A lightweight, compact, portable, personal body heating system utilizes an inner casing containing a material having a high heat of fusion. A heater is operatively associated with the inner casing for charging the material. A closed recirculating conduit means lies about the inner casing to permit recirculating liquid flow about the casing so that a heat transfer liquid is heated by the heat of fusion of the material. The conduit comprises an inlet tube and an outlet tube permitting passage of the fluid to a body protective device through the outlet tube and recirculation through the inlet tube.

3,737,621

WATER-IMMERSIBLE ELECTRICAL HEATING DEVICE

Samuel M. Elkins, 1870 Pacific Avenue, San Francisco, Calif.

Filed Nov. 9, 1971, Ser. No. 196,904

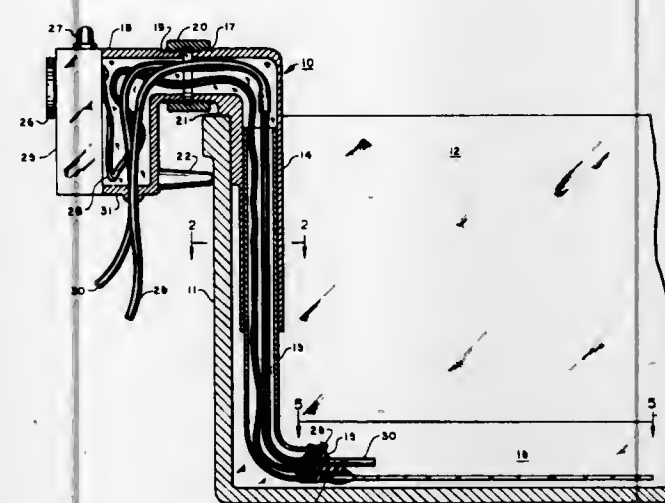
Int. Cl. H05b 1/00

U.S. Cl. 219-318

8 Claims

An immersible electrical heating device for use in aquariums or other water-containing vessels, said device comprising a planar heating unit which is resiliently coupled to the lower end of a hollow support column carrying electrical leads to the heater unit along with water and/or air conduits which open to the water. The heating unit, which is flexible in character,

comprises a semi-conductive core layer made up of a fabric impregnated with a conductive resin, said layer carrying spaced bus elements arranged for connection to electrical leads and being bonded between electrically non-conductive face panels. The heating unit may, if desired, be enclosed



within a perforate protective cage. The support column is adapted to hang from a wall of the vessel and thereby position the attached heating unit, which projects from the column at any desired angle, either along the bottom of the vessel or at some other appropriate location.

3,737,622

TEMPERATURE-REGULATING APPARATUS

Knud Julius Hallgreen, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

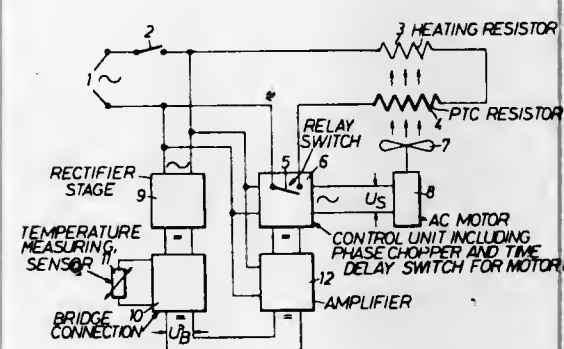
Filed June 2, 1971, Ser. No. 149,187

Claims priority, application Germany, June 18, 1970, P 20 29 867.3

Int. Cl. H05b 1/02; F24h 3/04

U.S. Cl. 219-364

6 Claims



Electrical heating apparatus having temperature controllable regulating means. The apparatus includes, in series, heating and PTC resistors and a temperature responsive switch. An electric motor driven variable speed blower is arranged to blow cooling air over the heating and PTC resistors. A temperature sensor and bridge apparatus cooperates to produce a voltage signal which is proportional to the deviation of the temperature from a predetermined temperature. Upon a drop in temperature the proportional voltage signal is produced and, upon being amplified, the series switch is closed to admit current to the resistors and the blower motor is driven at a speed proportional to the voltage signal. The degree or extent to which the PTC resistor is cooled by the blower determines the resistance it presents in the circuit such that increased cooling of the PTC resistors results in a greater heat output by the heating resistor, and vice versa.

3,737,623

GROUNDING PROBE EJECTOR

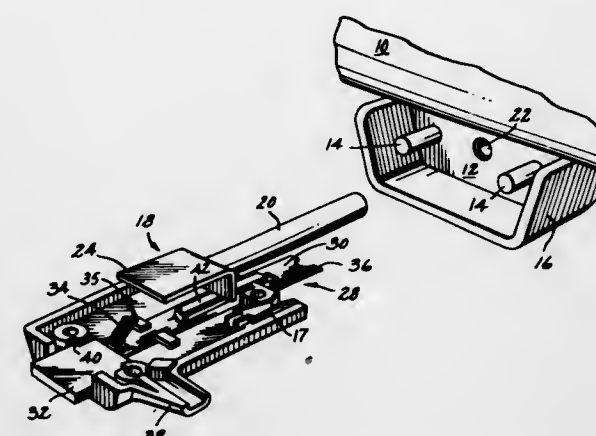
Glacinto Vallone, Brockport, N.Y., assignor to General Electric Company, Bridgeport, Conn.

Filed Oct. 14, 1971, Ser. No. 189,132

Int. Cl. F27d 11/02

U.S. Cl. 219-441

8 Claims



A detachable grounded probe control for an electric device, such as a skillet, the control being provided with an ejector movable against the skillet to disconnect and eject. The probe control has a fixed ground member and the ejector has an electrically conducting portion contacting the skillet the conducting portion being constantly biased against the ground member so the skillet is grounded through the ejector at all times.

3,737,624

ELECTRIC GRILL WITH A THIN-FILM HEATING ELEMENT

Stanley D. Eilenberger, Middletown, Conn., assignor to Progressive Products Corporation, Kensington, Conn.

Filed Sept. 16, 1970, Ser. No. 72,600

Int. Cl. H05b 3/06

U.S. Cl. 219-525

4 Claims



A metallic thin film resistance heating element comprises an electrically and thermally insulating substratum, a thin film resistor deposited in a plurality of sprayed layers superposed upon the substratum in the form of parallel, uniform strips, interconnectors for adjacent strips, electrode terminals at the ends of the resistor, and preferably an inert, abrasion-resistant coating covering the resistor upon the outer surface of the assembled heating element. A method of constructing such a heating element includes providing a thermally insulating substratum, depositing thereon by spraying in a plurality of layers a thin film resistor in a pattern of parallel uniform strips, providing series interconnectors for the strips and take-off terminals, and preferably applying an abrasion resistant coating covering the resistor upon the outer surface of the heating element.

3,737,625

INFRARED RADIATION SOURCE

James R. Martin, Wellesley, Mass., assignor to Block Engineering Inc., Cambridge, Mass.

Filed July 6, 1971, Ser. No. 159,686

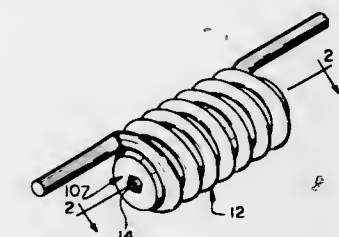
Int. Cl. H05b 3/10

U.S. Cl. 219-553

4 Claims

An infrared radiation source comprising a nickel-chromium alloy wire having an oxidized surface and being helically

coiled around a stainless steel threaded core which functions as a heat ballast. The source is manufactured by wrapping the wire around the core in a threaded groove to form a helical coil with separated turns; unscrewing the core from the coil;



forming an oxide coating on the wire by holding the coil in an oxidizing environment and heating the coil by passing electric current through the wire; and, while forming an oxide coating on the wire, screwing the core onto the coil until all the turns thereof are engaged around the core.

3,737,626

ELECTRICAL FILTERED AIR HEATER

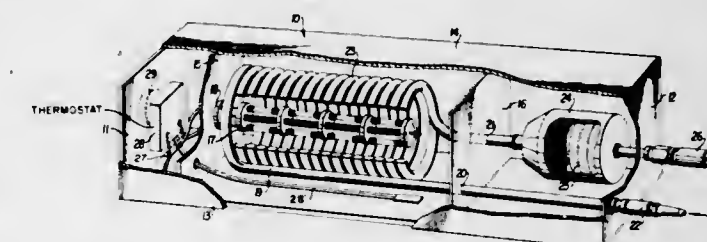
Oliver Thurston Davis, Route 1, Box 33, and Norman R. Jones, Route No. 1, both of Dunlap, Tenn.

Filed Feb. 8, 1972, Ser. No. 224,481

Int. Cl. H05b 3/00; F24h 3/06; F28f 19/00

U.S. Cl. 219-360

1 Claim



An electrical heater to produce clean and dry compressed air comprising a housing in which an electrical heating means is centrally mounted and is surrounded by a coiled tubing to which compressed air is admitted at one end and exited therefrom at the other end, thence passed through a filter and led therefrom to a point of use. The filter serves to remove moisture from the compressed air and has replaceable elements which can easily be changed. A temperature responsive sensing element is provided adjacent the coiled tubing to control the degree of energization of the heating unit and thus the temperature of the compressed air.

3,737,627

ELECTRIC TEST TUBE HEATER

Roland B. Willard; William J. Walsh, and John I. Larson, all of Dubuque, Iowa, assignors to Sybron Corporation, Rochester, N.Y.

Filed Nov. 9, 1971, Ser. No. 196,905

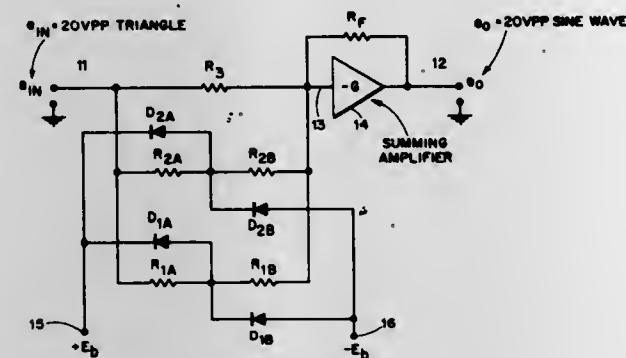
Int. Cl. H05b 3/00

U.S. Cl. 219-521

3 Claims

An electric test tube heater has a self-supporting, free-standing electric resistance heating coil of low mass attached to and electrically insulated from a support member adjustably mounted for vertical movement on an upright stand. The coil is wound about a vertical axis and has an internal diameter larger than the outside diameter of the test tube to be heated. A clamp is also fixed to the support member and is axially aligned with the coil for holding the test tube so as to locate the lower portion thereof within the coil. A channel-shaped reflective heat shield open at the top and bottom to allow insertion of the test tube into the heater and having a vertical slot at the front to permit visual inspection of the test

3,737,642
FUNCTION GENERATING USING PIECEWISE LINEAR APPROXIMATION
 William C. Kulas, Hanover, Mass., assignor to Krohn-Hite Corporation, Cambridge, Mass.
 Filed Aug. 9, 1971, Ser. No. 169,946
 Int. Cl. G06g 7/28
 U.S. Cl. 235—197



Resistor-diode circuitry approximates converting linear function to a sinusoidal function by piecewise linear segments through progressive clamping with increasing breakpoint level while using a single potential source for each polarity provided by an emitter follower that is arranged to compensate for the diode voltage drop.

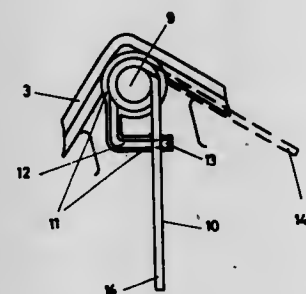
ERRATUM

For Class 235—194 see:
 Patent No. 3,737,686

ERRATUM

For Class 240—2.18 see:
 Patent No. 3,737,687

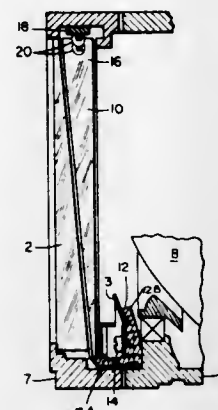
3,737,643
MULTIFLASH DEVICE, PARTICULARLY FLASHCUBE, WITH MECHANICAL STRIKING MECHANISM
 Josef Lukas, and Dietmar Illig, both of Augsburg, Germany, assignors to Patent-Treuhand-Gesellschaft für elektrische Glühlampen mbH, Munich, Germany
 Filed July 6, 1971, Ser. No. 159,613
 Claims priority, application Germany, Aug. 5, 1970, P 20 38 948.4
 Int. Cl. F21k 5/02; G03b 15/04
 U.S. Cl. 240—1.3



The flashcube has a base plate, each corner of which is formed with a projecting stud. A coil spring has several turns wrapped around the stud, one end of the coil spring being bent into a hook-shaped upstanding projection, keeping the second end of the coil spring tensioned so that when the camera's release stud lifts the second end over the hook-shaped projection, the release of tension will cause the freed end to snap against the igniter tube of a flashlamp; the location of the

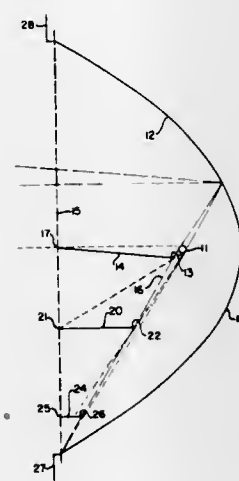
springs and the studs being out of the way and not interfering with placement of standard reflectors.

3,737,644
ARRANGEMENT FOR ILLUMINATING NON-PLANAR SURFACES
 Stanley Nocek, Livingston; Albert J. Marko, Colts Neck, and Leslie D. Zenack, Bloomfield, all of N.J., assignors to The Bendix Corporation, Teterboro, N.J.
 Filed Dec. 16, 1971, Ser. No. 208,790
 Int. Cl. G01d 11/28
 U.S. Cl. 240—2.1



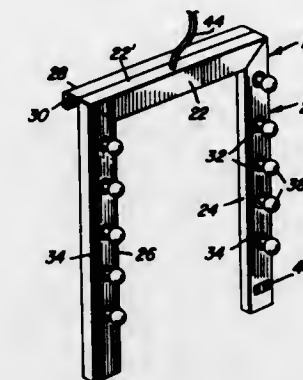
An arrangement including a planar optical wedge illuminated by a light source and transferring light energy to a prism which directs the light energy to a non-planar surface disposed behind the wedge and prism.

3,737,645
SHARP CUT OFF LIGHT BEACON
 Wayne A. Kearsley, Chelmsford, Mass., assignor to Flash Technology Corporation of America, Nashua, N.H.
 Filed May 15, 1972, Ser. No. 254,770
 Int. Cl. F21v 11/02
 U.S. Cl. 240—3



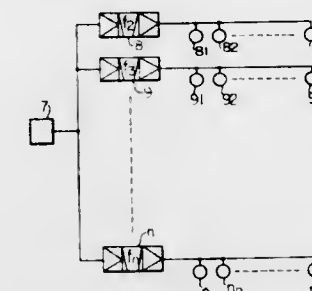
A light beacon structure including a reflector with a light source and a series of light stops mounted within the reflector. The reflector is a distorted cylindrical paraboloid type such that with its central axis horizontal, each point on the reflector projects a wedge of light with the bottom of the wedge approximately horizontal. The optical stops are positioned to cut off direct radiation from the source below the central axis of the reflector.

3,737,646
REMOVABLE PERIPHERAL LIGHT ASSEMBLY FOR BATHROOM MIRROR
 Joseph M. Burrows, 3122 Lodwick Drive N.W., Warren, Ohio
 Filed Oct. 15, 1971, Ser. No. 189,717
 Int. Cl. F21v 33/00
 U.S. Cl. 240—4.2



An inverted U-shaped frame including an upper bight portion from whose opposite ends a pair of generally parallel legs depend. Longitudinally spaced portions of the legs are provided with illumination sources for casting light outwardly of one side of the U-shaped member and the latter includes structure for supporting the U-shaped member with its other side substantially flush against a bathroom mirror or the like. Further, an extension cord is provided and electrically connected to the various illumination sources whereby the latter may be electrically connected to a suitable source of electrical potential.

3,737,647
ELECTRONIC LUMINOUS DEVICE
 Yoshiyuki Gomi, Tokyo, Japan, assignor to Kabushiki Kaisha Chiyoda, Tokyo, Japan
 Filed Sept. 1, 1971, Ser. No. 176,994
 Claims priority, application Japan, June 25, 1971, 46/45707; Apr. 16, 1971, 46/23895
 Int. Cl. F21v 33/00
 U.S. Cl. 240—6.4

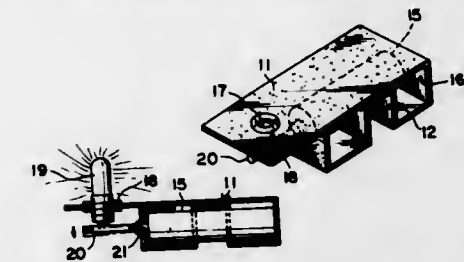


An electronic luminous device for use with costumes and personal ornaments, in which one or more light emission diodes are turned to ON continuously or turned to ON and OFF periodically for light emission to increase ornamental effect.

3,737,648
PACKAGING AND MOUNTING HOLDERS FOR ILLUMINATED GIFT PACKAGES, GREETING CARDS AND THE LIKE
 Charles Franc, P.O. Box 36R, Wading River, N.Y.
 Filed Nov. 11, 1971, Ser. No. 197,711
 Int. Cl. F21l 15/00
 U.S. Cl. 240—10.6 R

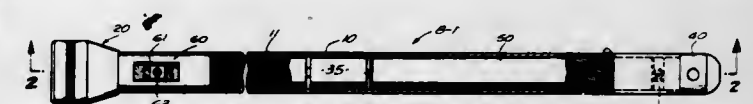
Packaging and mounting holders for the lamp and battery of an illuminated gift package, greeting card or ornament. In one

embodiment, the holder is constructed from an elongated, planar, strip of nonconductive material having conductive foil affixed to one side and adhesive means to the other. The strip is creased or scored at selected points along its length, to allow bending of the strip, and has a plurality of circular apertures at selected positions for holding the battery and light bulb. Annular conductive members or rings are disposed in the apertures to insure proper electrical contact of the metallic strip



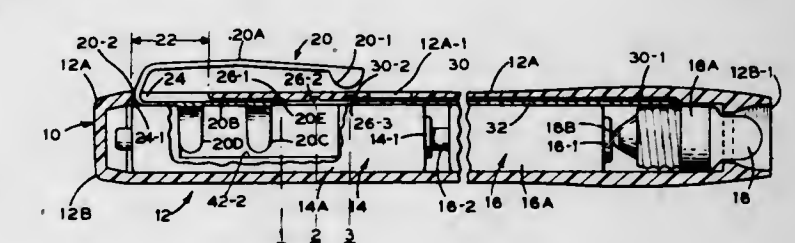
and the battery and lamp. The battery is disposed with its longitudinal axis perpendicular to the lamp base, and a cylindrical conductive rod is slidably disposed over the positive terminal of the battery to engage the base and illuminate the lamp. Other embodiments include combined rectangular and tubular-shaped holders and packages, constructed of either metal-coated cardboard or pure metal for storing and mounting the battery and lamp.

3,737,649
BATON-FLASHLIGHT
 Norman C. Nelson, Chino, and Frank S. Patti, Covina, both of Calif., assignors to Kel-Lite Industries, Inc., Covina, Calif.
 Filed July 27, 1972, Ser. No. 275,801
 Int. Cl. F21l 7/00
 U.S. Cl. 240—6.42



A combination baton-flashlight including an elongated metal housing or barrel whose length is at least ten times its diameter, a number of batteries disposed in the housing forming a battery train, and an elongated metallic spacer block in one end of the housing, the spacer block and battery train being coupled in series to form a circuit through which current flows to an associated bulb means.

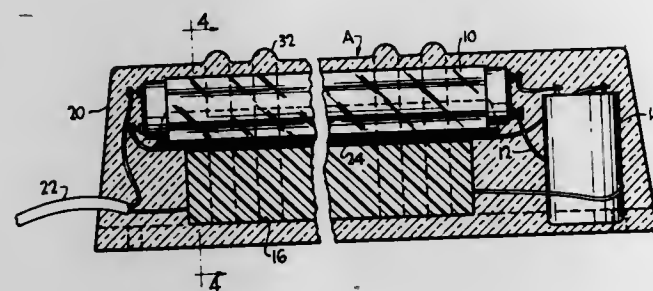
3,737,650
DISPOSABLE FLASHLIGHT
 Gordon E. Kaye, Garrison, N.Y., and Henry Rogers Mallory, Greenwich, Conn., assignors to P. R. Mallory & Co., Inc., Indianapolis, Ind.
 Filed July 18, 1972, Ser. No. 272,959
 Int. Cl. F21l 15/00
 U.S. Cl. 240—10.66



A flashlight comprising a hollow shell housing, for two cells and a lamp, with the housing initially of two parts, each part serving as a collecting tray for components during manufacture, so the two shells when closed, with the components in

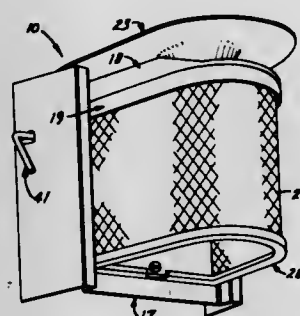
place, constitute the finished flashlight; and a mounting clip on the flashlight is movable to a selected one of three available positions, to serve as a switch to put the flashlight in "off," "intermittent" or "full on" operation.

3,737,651
NAVIGATION LIGHT
Harry Norman Shute, 2047 Reeveston, Richmond, Ind.
Filed June 7, 1971, Ser. No. 150,691
Int. Cl. B63b 45/04
U.S. Cl. 240—7.5 2 Claims



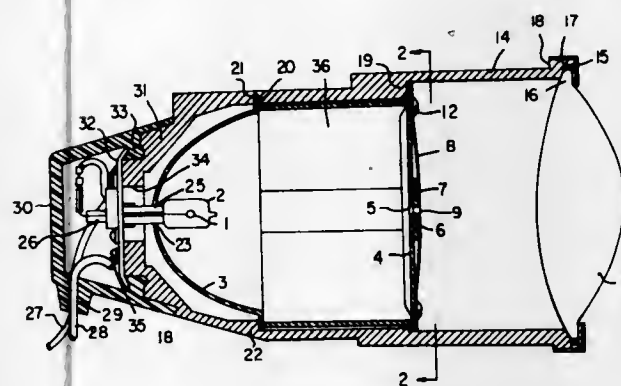
Waterproof navigation light comprising a fluorescent lighting unit embedded in a clear or colored transparent or translucent plastic.

3,737,652
GAS LIGHT WITH BUILT-IN MIXING CHAMBER
Stanley M. Loveless, Oshtemo, Kalamazoo County, Mich., assignor to General Gas Light Company, Kalamazoo, Mich.
Filed July 23, 1971, Ser. No. 165,453
Int. Cl. F21s 13/02; F23d 15/00
U.S. Cl. 240—11 16 Claims



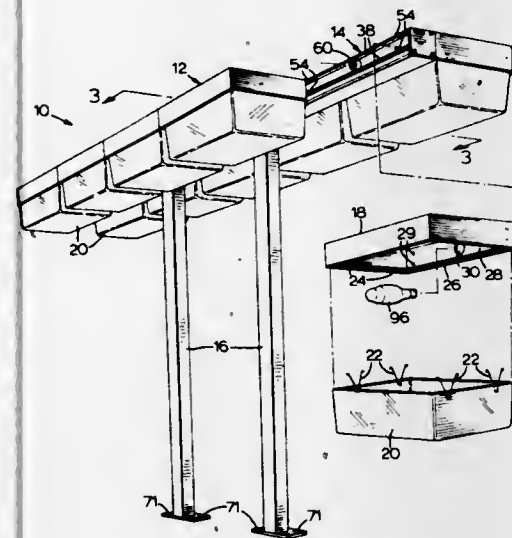
A gas lamp of simplified construction for mounting on a support, such as a wall or the like, by means of a mounting plate. A burner assembly comprises an upstanding reflector plate, a lower venturi plate and an upper venturi plate all joined together, the venturi plates extending substantially horizontally from the reflector plate and together defining a venturi passage. A depending burner nose communicates with the output end of the venturi passage and depends from the lower venturi plate in spaced relation to the reflector for carrying a gas mantle. The upper venturi plate carries a substantially horizontal heat deflector. A metal mesh light diffuser surrounds the burner nose and mantle and extends from the reflector plate. A diffuser holder underlies and supports the light diffuser. Means are provided for removably joining the light diffuser holder and the burner assembly to the mounting plate. A manually actuatable gas valve is carried by the mounting plate behind the reflector and is provided with a nozzle which communicates through a notch in the reflector with the input end of the venturi for supplying gas to the burner nose.

3,737,653
AUTOMOTIVE HEADLIGHT
Orrick Howard Biggs, Beverly; Horace H. Homer, Arlington; Frederick A. Lougheridge, Manchester, and Arnold Westlund, Jr., Gloucester, all of Mass., assignors to Sylvania Electric Products Inc., Danvers, Mass.
Continuation of Ser. No. 787,481, Dec. 27, 1968, abandoned.
This application Feb. 14, 1972, Ser. No. 226,349
Int. Cl. F21v 13/04
U.S. Cl. 240—41.3 4 Claims



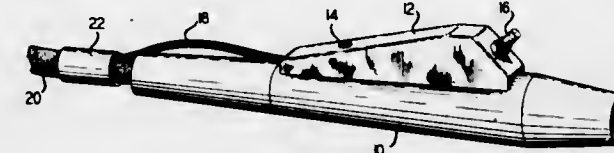
An automotive headlight or the like having a beam controlled by an opaque plate having therein an aperture is provided with a plate having a diffusing surface spaced forwardly somewhat from the opaque plate to reduce or remove the blue color which appears without the plate. The diffuse surface also smooths out the beam at its edges.

3,737,654
MODULAR LUMINAIRE
William L. Hawley, Rexdale, Ontario, Canada, assignor to Powerlite Devices Limited, Toronto, Ontario, Canada
Filed Feb. 8, 1972, Ser. No. 224,516
Int. Cl. F21v 21/00
U.S. Cl. 240—52 R 15 Claims



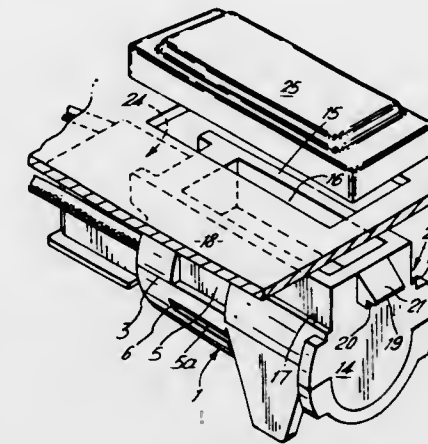
A modular luminaire assembly consisting of a longitudinal beam member, preferably generally U-shaped, and a plurality of lamp housings of a predetermined modular length mounted on and projecting outwardly from at least one side of the beam member. Lamp mounting means is located in each of the lamp housings and the beam has a length which is substantially equal to a whole number multiple of the modular length of the luminaire. Preferably the U-shaped beam member is in the form of an extrusion having a plurality of longitudinally extending mounting slots formed therein to provide a means for supporting the lamp housing and a means for mounting the beam on a suitable support.

3,737,655
LIGHT PEN
Frederick Lawrence Blendinger, Warren, and Donald Frank Littlefield, Morristown, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., by said Frederick L. Blendinger and Western Electric Company Incorporated, New York, N.Y., by said Donald F. Littlefield
Filed Mar. 8, 1971, Ser. No. 121,803
Int. Cl. F21v 33/00
U.S. Cl. 240—2 S 4 Claims



An improved light pen including an actuator switch which is affixed to the body of the light pen at an acute angle to its longitudinal axis.

3,737,656
TWO PART HOUSING FOR AN ELECTRICAL LAMP ASSEMBLY
Roberto Plana, Barcelona, Spain, assignor to AMP Incorporated, Harrisburg, Pa.
Filed Sept. 20, 1971, Ser. No. 182,032
Claims priority, application Spain, Oct. 27, 1970, 162742
Int. Cl. F21v 17/00, 21/00
U.S. Cl. 240—151 4 Claims



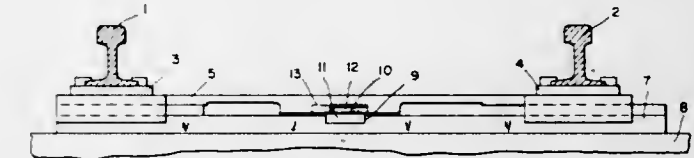
One part of a two part electric lamp housing has an aperture in a longitudinally extending side wall of the one housing part, and also has a wall bounding the aperture, the wall having projections, one of which is resilient, for mounting the housing in an aperture of a mounting panel and also for frictionally receiving a lens over the housing aperture.

3,737,657
GUIDE ELEMENT FOR PIVOTING RAILS
Ruthard Dohse, Essen-Bredeney, and Frank Klaus, Berlin, both of Germany, assignors to Elketra-Thermit GmbH, Berlin, Germany
Filed Jan. 13, 1972, Ser. No. 217,554
Int. Cl. E01b 7/14, 9/00
U.S. Cl. 246—392 3 Claims

There is disclosed a guide element for setting or adjusting operations and for maintaining the end position of pivotal rails, particularly in the frog and deflecting areas, in wide-curve switch points.

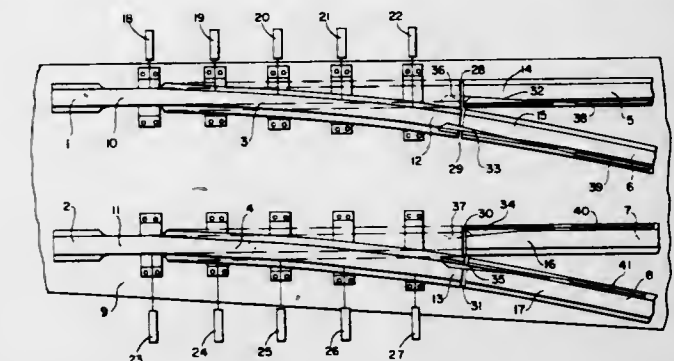
The pivotal rails rest, by means of one of the known elastic rail attachments, on a tie-like slide carriage which is displaceable transversely to the direction of the track and which, in turn, is held in position in the vertical direction by a bracket or supporting plate, being secured to a base plate, by means of a

sliding guide, and guided in the horizontal direction. One displacing element consisting of two oppositely rotatable slide rings is so mounted between the bracket or supporting plate and the slide carriage that the lower slide ring slidably engages in the guide way or path of the bracket or supporting plate



positioned parallel to the direction of the track. The upper slide ring slidably engages in the guide way or path of the slide carriage being positioned diagonally to the direction of the track and the lower slide ring is preferably connected with a pneumatically, or hydraulically, or electrically-actuated thrust setting element.

3,737,658
DEFLECTING DEVICE WITH GAPS LOCKED IN A WEDGE-TYPE MANNER
Ruthard Dohse, Berlin; Curt Edeling, Essen-Rellinghausen, and Josef Eisenmann, Munich, all of Germany, assignors to Elketra-Thermit GmbH, Berlin, Germany
Filed Aug. 25, 1971, Ser. No. 174,658
Claims priority, application Germany, Aug. 26, 1970, P 20 42 233.7
Int. Cl. E01b 7/08
U.S. Cl. 246—448 10 Claims



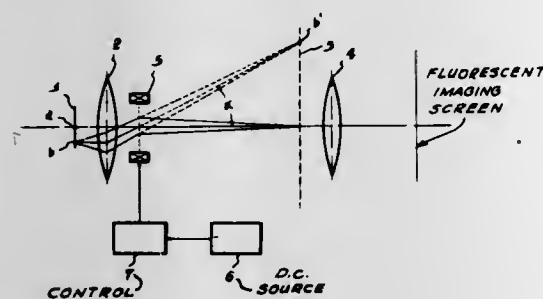
This invention relates to a deflecting device for switches which can be negotiated at high speeds free from vibrations and shocks in the branch rail comprising tongue means, wedge means for closing the gaps between said tongue means and connecting rails, and means for moving said wedge means into and out of the closed position.

ERRATUM
For Class 250—49.5 E sec:
Patent No. 3,737,617

3,737,659
FIELD OF VIEW ADJUSTING DEVICE
Takashi Yanaka, Hino-shi, Tokyo, and Kohei Shiota, Akishima-shi, Tokyo, both of Japan, assignors to Nihon Denshi Kabushiki, Tokyo, Japan
Continuation of Ser. No. 199,702, Nov. 17, 1971, abandoned.
This application Nov. 17, 1971, Ser. No. 199,702
Claims priority, application Japan, Apr. 8, 1969, 44/27401
Int. Cl. H01j 37/26; G01n 23/00
U.S. Cl. 250—49.5 A 6 Claims

Field of view adjusting device for use in electron microscopes or the like having a mechanical sample adjusting

means and electron deflecting means disposed in or at the rear of an objective lens, coarse adjustment being carried out by



the mechanical moving means and fine adjustment by the electron deflecting means.

3,737,660

APPARATUS FOR TAKING TOMOGRAMS OF PARABOLICALLY CURVED OBJECTS

Shoichi Ando, Shibuya-ku, Tokyo-to, and Shinji Yoshioka, Ichikawa-shi, both of Japan, assignors to Hida Denki Kogyo Kabushiki Kaisha, a/k/a Hida Electronic Apparatus Industrial Co., Ltd., Tokyo, Japan, a part interest

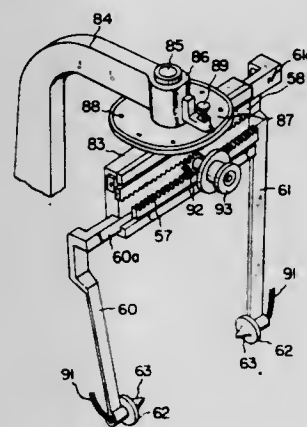
Filed Oct. 7, 1970, Ser. No. 78,666

Claims priority, application Japan, Feb. 19, 1970, 45/16790; Dec. 12, 1969, 44/118085; Dec. 1, 1969, 44/114226; Oct. 9, 1969, 44/80982

Int. Cl. G03b 41/16

U.S. Cl. 250—50

6 Claims



For taking tomograms of parabolically curved objects such as the dentition, jawbones and other bony structures of the head and dento-facial region, there are provided an X-ray tube and a radiographic film holder at both ends of a turnable arm. This arm is furnished with a plurality of shafts alternately serving as a pivot therefore, in such a manner that the X-ray tube supported at one end of the arm turns round a parabolically curved object at an unvarying distance therefrom, while radiating X-rays which traverse the object to impinge upon the radiographic film carried by the aforesaid holder turning in coordination with the turn of the arm. There are also disclosed herein a device for holding the head of a patient, a device for minute adjustment of ear-rods and the like for use in positioning the head, and a device for modification of the image density of X-rays traversing the head in readily penetrable directions.

3,737,661

PORTABLE X-RAY RADIATION SHIELDING DEVICE

Robert L. Applegate, 13649 17th Avenue S.W., Seattle, Wash.

Filed Mar. 3, 1971, Ser. No. 120,591

Int. Cl. G03b 41/16

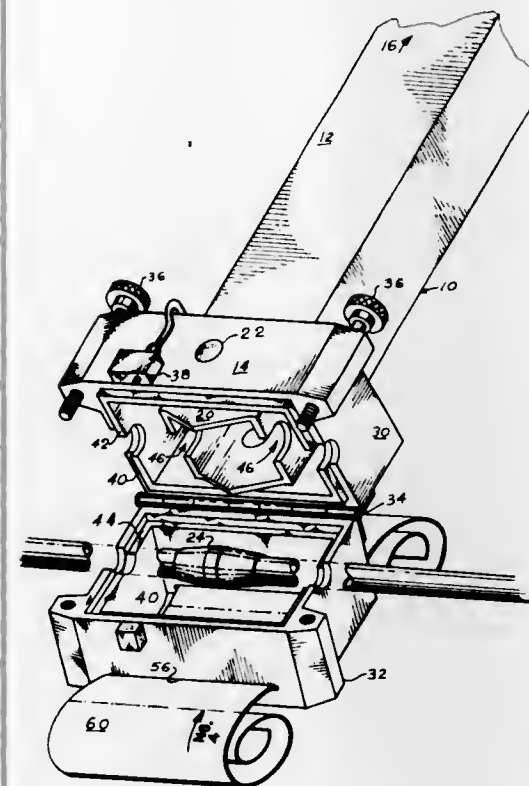
U.S. Cl. 250—65 R

9 Claims

A shielded x-ray adapting device for a portable x-ray apparatus comprising a collimator and a thereon rotationally and pivotally mounted container.

The container has an upper part and hingedly attached edge overlapping bottom part which in a closed condition with one

another provide two opposed apertures conforming with the periphery of an object so that a portion of the object to be x-rayed can be completely enclosed. The bottom part has opposed slots for feeding x-ray film underneath the enclosed por-



tion of the object. In addition, a definite closure switch and safety warning means is incorporated for insuring the complete enclosure of the portion of the object during the x-ray radiation operation.

3,737,662

HEAT-SENSITIVE COPYING DEVICE

Shinichi Yabe, and Tomi Okada, both of Ashigara-Kamigun, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

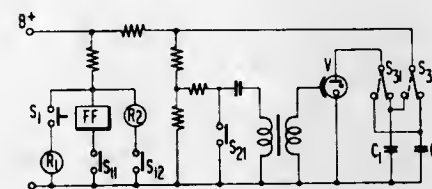
Filed July 8, 1971, Ser. No. 160,666

Claims priority, application Japan, July 8, 1970, 45/68280

Int. Cl. G01n 23/04; H01j 37/22; H05b 41/14

U.S. Cl. 250—65 T

1 Claim



Disclosed herein is an improved heat sensitive copying device operable to provide rapid, very short duration, light flashes from a flash lamp providing the heat necessary for accomplishing the copying operation. The rapid succession of flashes is enabled by the use of two condensers alternately coupled to the flash lamp and a charging circuit through a switching circuit. While a charged condenser is being discharged to light the lamp, the other condenser is being charged. When the condenser coupled to the lamp has discharged the switch means can reverse the condenser connections to couple the just charged condenser to the lamp.

3,737,663

RADIATION PATH TERMINATION HOUSING

George F. Quittner, 1780 Cumberland Road, Cleveland, Ohio

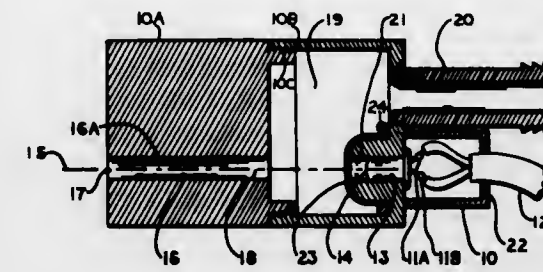
Continuation-in-part of Ser. No. 68,330, Aug. 31, 1970,

abandoned. This application Mar. 15, 1972, Ser. No. 234,981

Int. Cl. G01n 21/26

U.S. Cl. 250—83.3 H

17 Claims



Disclosure of a housing for both the transmitting and receiving transducers of opto-electronic systems. Clean compressed air is released in a passage between the transducer and the bulk of the light path at sufficient axial velocity to keep the transducer's radiation transmissive surface clean. A filter may be used between the transducer and the pneumatic entrance orifice, whose transmissive surface is also protected by the same axial air velocity, but which can easily be replaced if, in long term use, it accumulates condensates and other vestigial contamination of the supplied, filtered air. The housing also serves to make the transducer more robust.

3,737,664

BURNER MONITOR APPARATUS

Jerk Gunnar Oldenburg, Genarp, and Allan Yngve Teodor Rosenberg, Malmo, both of Sweden, assignors to Kockums Mekaniska Verkstads AB, Malmo, Sweden

Continuation of Ser. No. 818,293, April 22, 1969, abandoned.

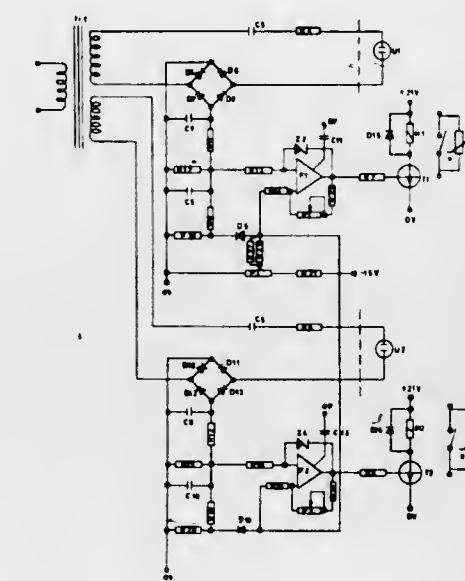
This application Jan. 25, 1971, Ser. No. 109,616

Claims priority, application Switzerland, Apr. 29, 1968, 5777/68

Int. Cl. H01j 39/12

U.S. Cl. 250—214 R

5 Claims



In a burner monitor apparatus comprising light intensity responsive means and comparator means, the light intensity responsive means are coupled to said comparator means for actuating the reference voltage of all said comparator means, whereby all the comparator means are responsive to all the light intensity responsive means.

3,737,665

METHOD AND APPARATUS FOR AUTOMATICALLY DETECTING DEFECTS AND IRREGULARITIES IN GLASS SHEET

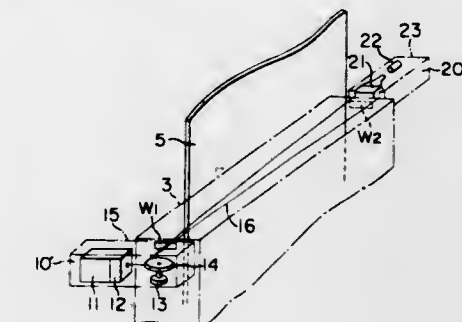
Yasuyuki Nagae, Sakai-shi, Osaka, Japan, assignor to Central Glass Company, Limited, Yamaguchi-ken, Japan

Filed Oct. 20, 1971, Ser. No. 191,030

Int. Cl. G01h 21/32

U.S. Cl. 250—219 DF

22 Claims



Method for automatically detecting defects and irregularities contained in or on the surface of glass sheet. The method includes scanning laser beams on the glass sheet and with a laser detector, detecting the presence of defects by measuring the decrease of light input reaching the laser detector as a result of dispersion of the laser beam by the defects. Apparatus for carrying out method.

3,737,666

COUNTER FOR A STREAM OF OVERLAPPED ARTICLES

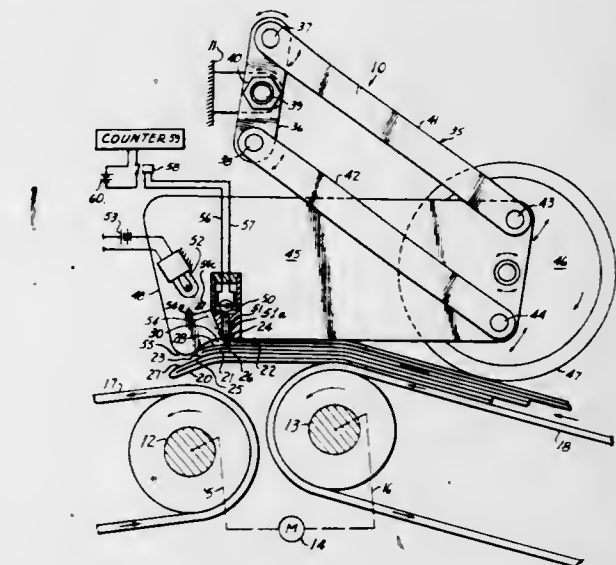
Lyle V. Dutro, 1660 Carriage House Road, Pasadena, Calif.

Filed Apr. 15, 1971, Ser. No. 134,302

Int. Cl. G06m 7/00; B65g 43/00

U.S. Cl. 250—223 R

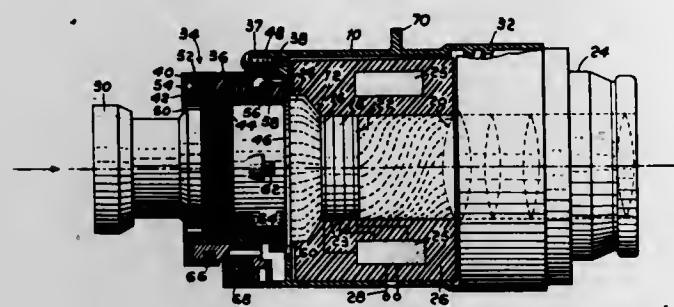
11 Claims



A mechanism for counting the number of articles in a stream of overlapped articles which move past a datum point. Each article has a leading edge that presents a step as it passes the datum point and, except for the first article, there is an adjacent surface of an adjacent article just upstream from it. A base carries drive means for driving the stream past the datum point. A sensor is mounted at the datum point which is responsive to the change in a physical condition, such as light intensity, fluid pressure, or the like. A change of condition is derived by observing with the sensor the said physical condition in the region between the step and its adjacent surface, and impeding the said observation, such as by blocking off the sensor from said region. The device includes a deflector surface to flex the article and thereby open such region for each step. In one embodiment, a parallelogram movement is mounted to the base with a mobile portion adapted to move toward and

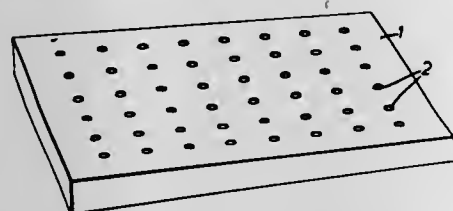
away from the base. A wheel is mounted to the mobile portion and is adapted to roll along the stream of articles so as to establish the elevation of the mobile portion relative to the said articles. The sensor is carried by the mobile portion at the datum point, and the number of articles is counted as a function of the number of steps (i.e., of the leading edges of the approaching articles) which pass the datum point. A counter is actuated by the sensor to count the number of steps.

3,737,667
ELECTRO-OPTICAL VIEWING DEVICE
Burton A. Babb, 6618 Briarhaven Drive, Dallas, Tex.; Edward L. Byer, 909 West Wildwood, Fort Wayne, Ind.; George S. Giffin, 2840 Tidelst Drive, Salem, Va., and Robert E. Rife, 4530 Austin Drive, Fort Wayne, Ind.
Filed Aug. 18, 1971, Ser. No. 172,662
Int. Cl. G02b 21/20, 23/00; H01j 5/02
U.S. Cl. 250-213 R 10 Claims



An image intensifier tube and power supply elements are rigidly mounted and axially disposed within a housing to form an integral unit. The image intensifier includes a photocathode at one end, emitting electrons in response to light radiation, an intermediate electron multiplier, and a display screen at the other end displaying an image in response to electron impingement thereon. A detachable adjustable focus objective lens mounted at one end of the housing directs light from a source onto the photocathode and a detachable adjustable viewing lens mounted at the other end of the housing provides a view of the image on the display screen. The structure for mounting the objective lens is pre-collimated with the housing and image intensifier to permit interchangeability of lenses. A focus adjustment is provided between two selective positions of the objective lens. Critical collimation requirements can be readily obtained to facilitate use of a binocular arrangement. The mounting structure may also include an adjustable collimating means to provide axial alignment between the objective lens, image intensifier and viewing lens assembly.

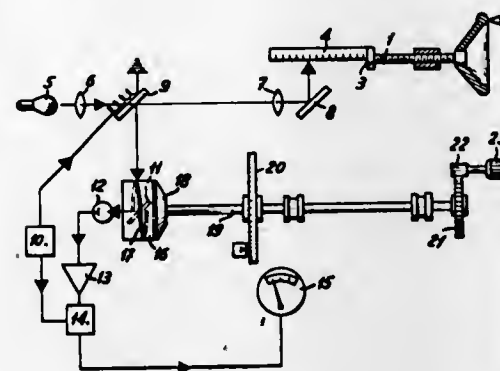
3,737,668
KEYBOARD
Alfred Brian Edwin Ellis, and Geoffrey Vernon Bunton, both of Chelmsford, England, assignors to The Marconi Company Limited, London, England
Filed July 23, 1971, Ser. No. 165,092
Claims priority, application Great Britain, July 30, 1970, 36,971/70
Int. Cl. G06m 7/00; G08c 1/00; H01j 39/12
U.S. Cl. 250-220 R 9 Claims



The invention provides a control system for supplying instructions to a computer or the like. An opaque panel has

several transparent areas. A number of conductors are provided, which pass under each of the opaque areas in turn, and at each of these areas there are photo-sensitive elements associated with a unique selection of the number of conductors. When the light passing through a transparent area varies the response of the photo-sensitive elements is such that signals are provided on the unique selection of conductors associated with that area.

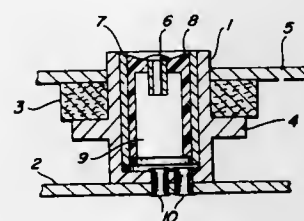
3,737,669
HIGH PRECISION READING DEVICE OF THE GRADUATION OF A PRECISION RULER
Peter Holmes, Geneva, Switzerland, assignor to Societe Genevoise D'Instruments De Physique, Geneva, Switzerland
Division of Ser. No. 640,212, May 22, 1967, Pat. No. 3,590,260. This application Sept. 15, 1970, Ser. No. 72,493
Claims priority, application Switzerland, Aug. 25, 1966, 12343/66
Int. Cl. G01b 11/04; G01d 5/34
U.S. Cl. 250-231 R 3 Claims



A device for reading the graduations of rulers with high precision, including a photoelectric microscope having an optical sighting device, in which the measuring field on either side of a fixed centered position is periodically scanned and a photoelectric cell receives rays from the scanned surface of the ruler and delivers a train of optical pulses. In the focal plane of the ruler and on the optical path of the microscope, a cylindrical diaphragm is disposed which has a helical slot movable between plural positions corresponding to portions of the measuring field centered on different scale markings of the ruler so as to give a non-recurrent reading or optical signal indicative of a portion of an interval between two scale markings on the ruler.

ERRATUM
For Class 250-83.4 UV see:
Patent No. 3,737,685

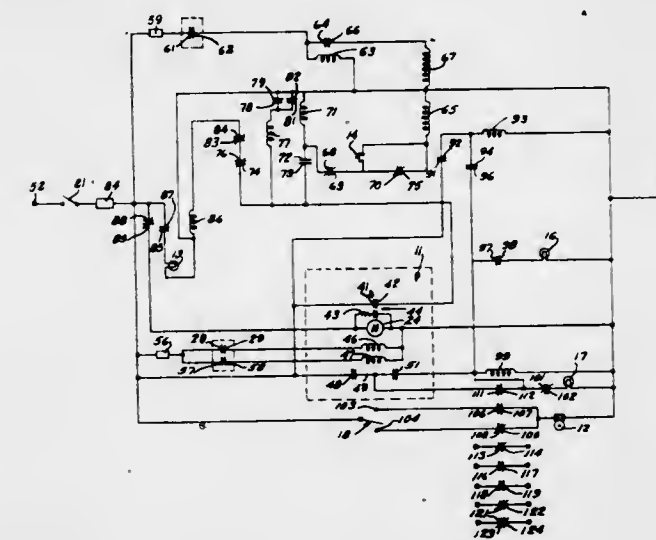
3,737,670
TOUCH SENSITIVE ELECTRONIC SWITCH
Willis A. Larson, Albuquerque, N. Mex., assignor to Magic Dot, Inc., Minneapolis, Minn.
Continuation of Ser. No. 865,760, Oct. 13, 1969, abandoned.
This application July 9, 1971, Ser. No. 161,948
Int. Cl. H01h 3/12
U.S. Cl. 307-116 14 Claims



In order to provide sensitive, touch responsive electronic switching, a pair of electrodes disposed in a unique configura-

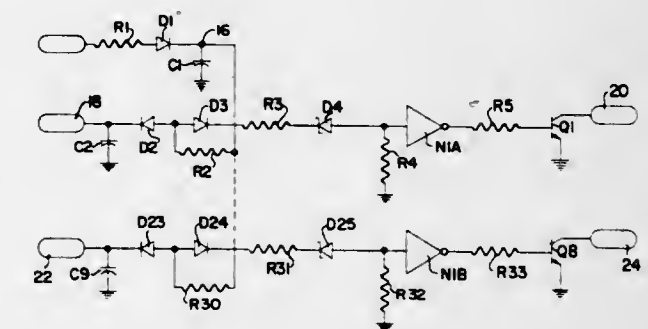
tion are coupled to a high gain amplifier such that relatively high resistance bridging across the electrodes will result in a positive switching condition at the output terminals of the high gain amplifier. In a first preferred embodiment of the invention, the pair of electrodes comprises a first centrally disposed electrode encompassed by a second, circular electrode disposed concentrically to, but longitudinally offset from the first electrode. Thus, the pair of electrodes substantially conform to the contour of an operator's finger which sets up a relatively high resistance path between the two electrodes when both are touched. The finite galvanic skin resistance is sensed and differentiated from the substantially infinite resistance normally existing between the two electrodes by high current gain amplification to provide a sharp change in current flow through a load connected to the output terminals of the high gain amplifier. The sharply differentiated state of the output terminals of the high gain amplifier may be utilized to control switching functions in any manner desired in subsequent stages. For use in environments in which the atmosphere may be contaminated or which may require the use of gloves by the switch operators, a membrane which has, on its underneath side, a conductive coating, is disposed over the pair of electrodes to perform the bridging function when the membrane is pressed against the electrodes.

3,737,671
DEMAND CONTROLLER
Bernard T. Davis, Evergreen Park, Ill., assignor to Raymond C. Wells and Ralph E. Wells, Power Lake, Wis., part interest to each
Filed May 18, 1972, Ser. No. 254,455
Int. Cl. H02h 3/42
U.S. Cl. 307-126 9 Claims



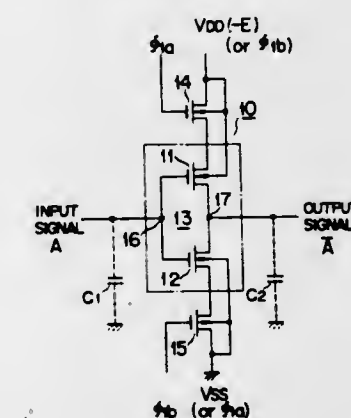
A demand controller which allows the application of power to be units to be selectively disconnected so as to assure that the power demand does not exceed preset limits. Since electrical power companies bill on a basis such that additional charges are made for maximum demand rates occurring during monitored intervals, substantial savings in power bills can be made by limiting the maximum demand. The present invention monitors the actual demand and compares it with the theoretical ideal maximum demand and disconnects loads when the actual demand exceeds the theoretical ideal demand over a standard time period. Provisions are made for synchronizing the demand controller with the time interval utilized by the power company to assure accurate control of the billing rates.

3,737,672
LOW-LEVEL LOGIC PROTECTION INTERFACE
Frank W. Hill, Moline, and Garland E. Fieser, East Moline, both of Ill., assignors to Gulf & Western Industries, Inc., New York, N.Y.
Filed June 4, 1971, Ser. No. 150,016
Int. Cl. H02h 7/20; H03k 5/08, 17/74
U.S. Cl. 307-202 4 Claims



A low-level logic protection interface deriving operating potential from alternating-current line voltage is provided for coupling low-voltage, direct-current, detector signals of the order of zero to 12 volts, for example, to solid state control circuits. The interface serves to provide at least 12 volts noise immunity in such control circuits and to protect the control circuits against damage by the accidental connection of the alternating-current line as well as to protect against momentary high voltage transients. An inverter integrated circuit and an output transistor are provided with a back-biased diode and a zener diode interposed in the input to the inverter integrated circuit. Consequently, with a high positive input from the alternating-current line circuit, the output transistor cannot be turned on. With high positive input the diode is back-biased and with negative input the voltage applied to the zener diode is too low to cause the zener diode to conduct.

3,737,673
LOGIC CIRCUIT USING COMPLEMENTARY TYPE INSULATED GATE FIELD EFFECT TRANSISTORS
Yasoji Suzuki, Kawasaki, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Apr. 22, 1971, Ser. No. 136,536
Claims priority, application Japan, Apr. 27, 1970, 45/35654; Mar. 3, 1971, 46/10785
Int. Cl. H03k 19/08, 19/40
U.S. Cl. 307-205 12 Claims



A logic circuit using complementary type IGFET's which comprises an inverter formed of complementary IGFET's and two switching IGFET's for controlling said inverter upon receipt of clock pulses, one of said switching IGFET's being an N channel type and connected to an N channel IGFET of the inverter and the other being a P channel type and connected to a P channel IGFET of the inverter.

3,737,674

MAJORITY LOGIC SYSTEM

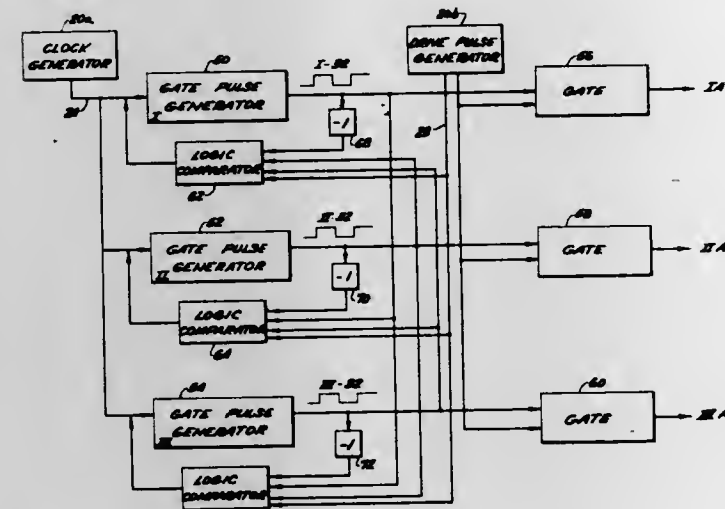
Luther C. Butler, Jr., Garden Grove, Calif., assignor to Lorain Products Corp., Lorain, Ohio

Filed Feb. 5, 1970, Ser. No. 8,875

Int. Cl. G06f 11/08; H03k 19/42

U.S. Cl. 307-204

21 Claims



Each of three redundant multiphase signal generating circuits provides a six phase square wave modulated driving pulse train that is adapted for driving the gates of a number of inverters of a standby power supply system. For each of the six phases of each channel, a simultaneous majority logic is employed to enforce agreement among like phase square waves of the several channels. Each channel operates independently of each other channel but monitors the outputs of the other channels. When and only when an individual channel finds itself in disagreement with two other channels, then such individual channel forces itself into agreement with the others. Thus three redundant six-phase signals are retained if the trigger input to one channel is lost. Even with total loss of one channel, the remaining two will continue normal operation.

3,737,675

LATCHED GATING CIRCUIT

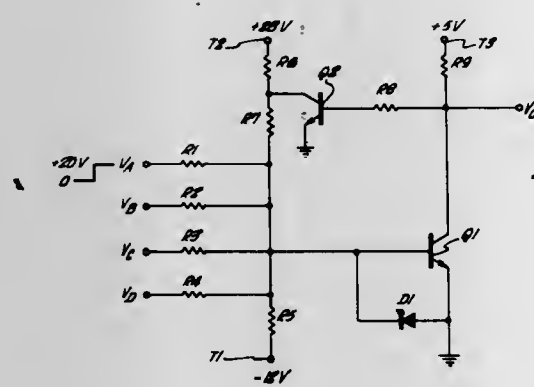
Robert Bruce Campbell, Los Angeles, Calif., assignor to Lear Siegler Inc., Santa Monica, Calif.

Filed Dec. 15, 1971, Ser. No. 208,346

Int. Cl. H03k 17/30, 3/295, 19/42

U.S. Cl. 307-211

11 Claims



A latched gating circuit that is characterized by remaining in an "enabled" state until removal of all inputs initially required to switch the circuit to the "enabled" state, is disclosed. The circuit includes a gating transistor which is rendered conductive in response to the application of input signals to preselected ones of the input terminals of the gating circuit. A latching transistor is connected in a feedback arrangement between the gating transistor and the input terminals to maintain the gating transistor conductive until all of the input signals are removed.

3,737,676

LOW PHASE NOISE DIGITAL FREQUENCY DIVIDER

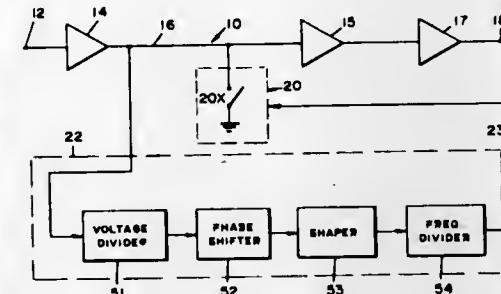
James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and George F. Lutes, Jr., South Gate, Calif.

Filed Nov. 18, 1971, Ser. No. 199,957

Int. Cl. H03k 21/00

U.S. Cl. 307-220

5 Claims



A low phase noise frequency divider is disclosed comprising a gating arrangement which supplies selected portions of an input reference signal to be divided to a tuned circuit without any phase noise due to the gating action. The arrangement which in one embodiment consists of a FET is connected to the tuned circuit input to short out the input except when the input reference signal amplitude crosses ground level in a positive direction and a gate enabling signal is present at the gate electrode of the FET. The gate-enabling signal alone does not decouple the tuned circuit input from ground, therefore phase noise, due to the leading and trailing edges of each gate-enabling signal, is substantially eliminated.

3,737,677

MULTIPLEXER NEUTER DETECTOR

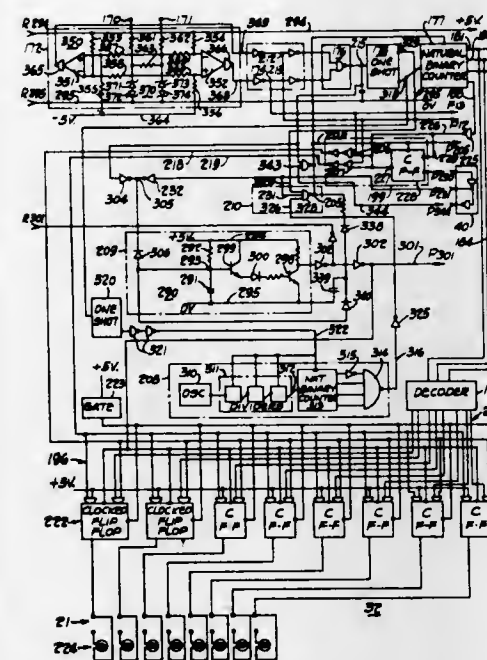
Werner P. E. Huebner, Toronto, Ontario, and Robert G. Long, Scarborough, Ontario, both of Canada, assignors to D.D.T. Communications, Inc., Lewiston, N.Y.

Filed June 30, 1971, Ser. No. 158,333

Int. Cl. H03k 5/153

U.S. Cl. 307-234

14 Claims



A multiplexer receiver system neuter detector is disclosed for use in a multiplexer having a transmitter system and a receiver system. Transmission means between the transmitter and receiver systems transmits time multiplexed signals in a message pulse train. The multiplexed signals are provided in a first train of pulses and a complementary second train of pulses on first and second lines. The receiver system has collector means to collect the pulses from the two lines into a recon-

stituted pulse train containing one bit for each unit of time and there is a neuter period of the absence of pulses between message pulse trains in this reconstituted pulse train. The neuter detector includes an integrator with a means to charge a capacitor and a means to discharge the capacitor. The capacitor is charged intermittently between pulses in the message train and is discharged intermittently during the pulses in the message train. Accordingly, in the reconstituted pulse train when there are no pulses, the capacitor charges to a voltage level causing conduction of a transistor amplifier means to have a change in the output thereof signifying the existence of the neuter period.

3,737,678

LIMITERS FOR NOISE REDUCTION SYSTEMS

Ray Milton Dolby, and David Peter Robinson, both of London, England, assignors to Dolby Laboratories Inc., New York, N.Y.

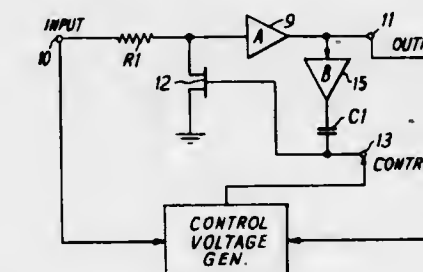
Filed Jan. 19, 1971, Ser. No. 107,624

Claims priority, application Great Britain, Jan. 23, 1970, 3,351/70

Int. Cl. H03k 17/56

U.S. Cl. 307-237

4 Claims



Limiters are known utilizing a shunt FET rendered conductive by a smoothed control signal to attenuate a signal. In this invention distortion is reduced by effecting positive feedback of half of the FET output voltage via a control signal smoothing capacitor or by putting the FET across a balanced line on the output side of a phase splitter. Furthermore, by using two or more shunt FETs having different thresholds, better control of the attenuation characteristics over the whole dynamic range is possible.

3,737,679

RADAR MODULATOR

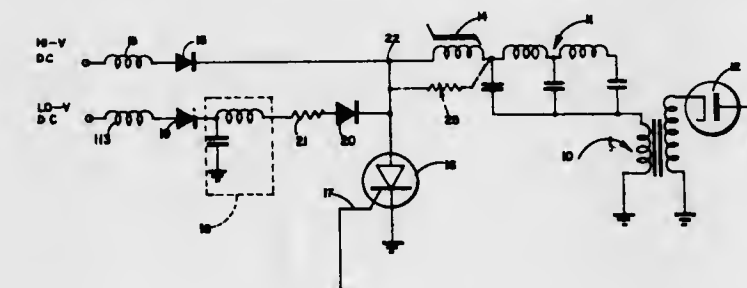
George P. Cooper, Corona Del Mar, Calif., assignor to North American Rockwell Corporation, El Segundo, Calif.

Filed Feb. 4, 1972, Ser. No. 223,651

Int. Cl. H03k 17/72, 1/00

U.S. Cl. 307-252 J

10 Claims



In a silicon-controlled-rectifier type switched or triggered pulse modulator, means for effecting an energy level reduction for a given "current-time" product associated with soaking the silicon-controlled rectifier which switches the main pulse-forming network. An auxiliary pulse-forming network is diode-coupled to an auxiliary charging choke and diode coupled to the input of a main delay reactor, the network response time being matched to the delay time of the delay reactor of the pulse modulator.

3,737,680

GATE CIRCUIT

Kozo Uchida, c/o Iwasaki Tsushinki Kabushiki Kaisha, 710 Kugayama 2-chome, Suginami-ku, Tokyo, Japan

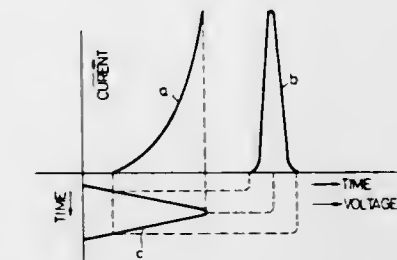
Continuation of Ser. No. 752,209, Aug. 13, 1968, abandoned.

This application June 24, 1971, Ser. No. 156,496

Int. Cl. H03k 17/00

U.S. Cl. 307-257

16 Claims



An improved gate circuit for sampling the amplitude of high frequency signals. The circuit is provided with a shunt element and/or a diode for conducting the gate pulses so as to apply the gate pulses to the connecting point between diodes of a series circuit connected between an output terminal and the high frequency signal, thereby preventing the distortion of the waveform originated by the reflection of the measuring signal. Also disclosed is an improved circuit wherein a capacitor having a value of at least 300 pf is coupled from a point of the series circuit to ground, thereby preventing a leakage signal from appearing at the output terminal. These combined improvements yield better high frequency characteristics for the gate circuit.

3,737,681

CIRCUIT FOR GENERATING PULSES

Dieter Roethermel, 7313 Reichenbach, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

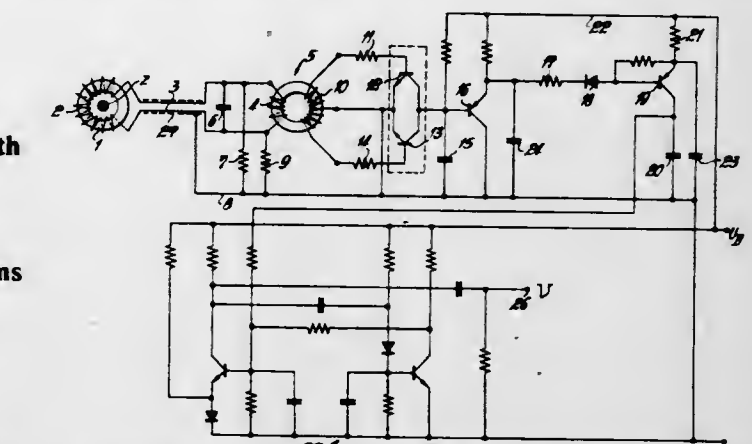
Filed Sept. 29, 1970, Ser. No. 76,360

Claims priority, application Germany, Oct. 18, 1969, P 19 52 604.6

Int. Cl. H03k 17/56

U.S. Cl. 307-246

0 Claims



A winding inductively coupled to the spark plug wire is connected to the primary of a transformer, the center tap secondary of which is connected to transistor amplifiers, the output of which latter is connected to the input of a monostable multivibrator.

3,737,682

TRIGGERED FLIP-FLOP

Adel Abdel Aziz Ahmed, Annandale, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 10, 1972, Ser. No. 225,045

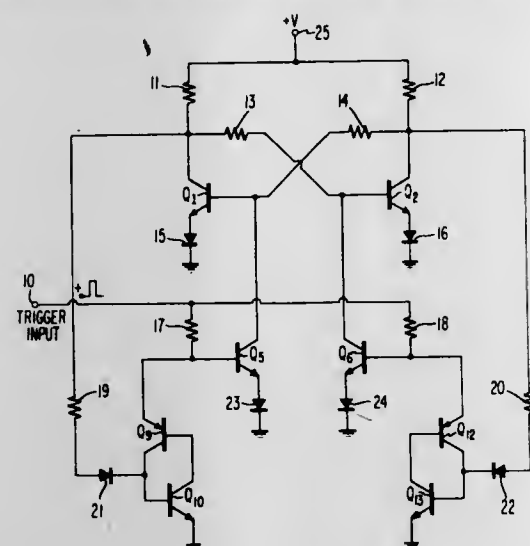
Int. Cl. H03k 3/286

U.S. Cl. 307-291

14 Claims

A bistable multivibrator (flip-flop) including gating means for applying trigger signals to the flip-flop to effect the trigger-

ing thereof without the use of steering capacitors. The gating



means includes complementary semiconductor devices which achieve a memory type function.

3,737,683 BUCKET BRIDGE DELAY LINE WITH ERROR COMPENSATION

Frederik Leonard Johan Sangster, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

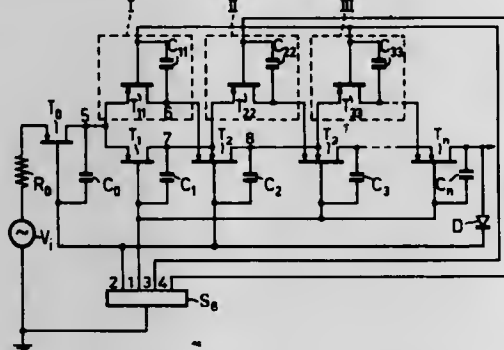
Continuation of Ser. No. 88,672, Nov. 12, 1970, abandoned.
This application Mar. 13, 1972, Ser. No. 234,365

Claims priority, application Netherlands, Sept. 25, 1970, 7014137

Int. Cl. H03k 17/26

U.S. Cl. 307—293

4 Claims



A capacitive delay device comprising a sequence of capacitances, in which information is transferred by charge transfer. The device is provided with at least one auxiliary store which has been connected between a first and a second capacitance, whilst after a charge transfer between the capacitances a residual charge transfer takes place between the first capacitance and the auxiliary store, after which the charge stored in the auxiliary store and in the second capacitance is transferred to a capacitance succeeding the second capacitance.

3,737,684 SYSTEM FOR COMPENSATING FOR DRIFT IN SEMICONDUCTOR TRANSDUCERS

Hiroshi Kuno, Okazaki-shi; Kenji Suzuki, Hekkal-gun, Aichi, and Mineo Ishikawa, Kariya-shi, all of Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho and Toyota Koki Kabushiki Kaisha, Nagoya, Japan

Filed Sept. 29, 1971, Ser. No. 184,804

Claims priority, application Japan, Sept. 30, 1970, 45/86134

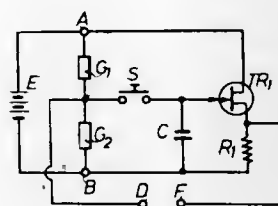
Int. Cl. H01v

U.S. Cl. 307—308

8 Claims

A drift compensating system includes a detecting circuit having at least one semiconductor element to generate an out-

put in proportion to a physical quantity to be applied thereto, a first terminal for providing the output, a switching element, a memory circuit connected to the first terminal through the switching element for memorizing the output upon closure of the switching element, and a second terminal connected to the



memory circuit. Upon closure of the switching element the output is applied to the memory circuit to render the first and second terminals to be at the same potential to thereby cancel any drift. Upon a subsequent opening of the switching element, a potential difference appears between the terminals in accordance with any change of the output.

3,737,685 APPARATUS AND METHOD FOR CONTROLLING AN ELECTRICAL POWER CIRCUIT

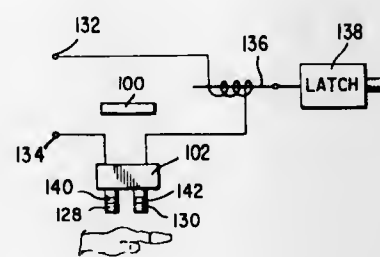
William L. Sharp, Jr., 117 Center St., Clinton, N.J.

Filed Aug. 11, 1971, Ser. No. 170,811

Int. Cl. G06m 7/00

U.S. Cl. 250—83.3 UV

7 Claims



Apparatus is herein described for controlling an electrical power circuit in response to the electronic detection of a photo reflective substance on a predetermined portion of the human body. More specifically, a guide device is provided for positioning a portion of the human body in a predetermined location for the application of a photo reflective substance to a predetermined portion thereof. A source of radiation is provided and photo sensitive, electrical circuitry is positioned with respect to the last mentioned portion of the human body so that the photo sensitive circuitry becomes conductive upon sensing the reflection of radiation from the photo reflective substance. The dispensing apparatus for applying the photo reflective substance and the mechanical guiding means for positioning the portion of the human body with respect to the photo sensitive circuitry are arranged so that the portion of the human body concerned is relatively positioned in the same location, with respect to the dispensing apparatus, as it is with respect to the photo reflective sensing apparatus. In this manner, the photo sensitive circuitry is actuated only when radiation is reflected from the predetermined portion of the human body.

In one feature of the invention, the source of radiation includes ultraviolet rays having a wave length in the range of 3,000 to 4,000 angstroms.

In another feature of the invention, monochromatic filtering is provided whereby the photo sensitive circuitry is only actuated in response to the sensing of a particular color of photo reflective substance.

3,737,686 SHIELDED BALANCED MICROWAVE ANALOG MULTIPLIER

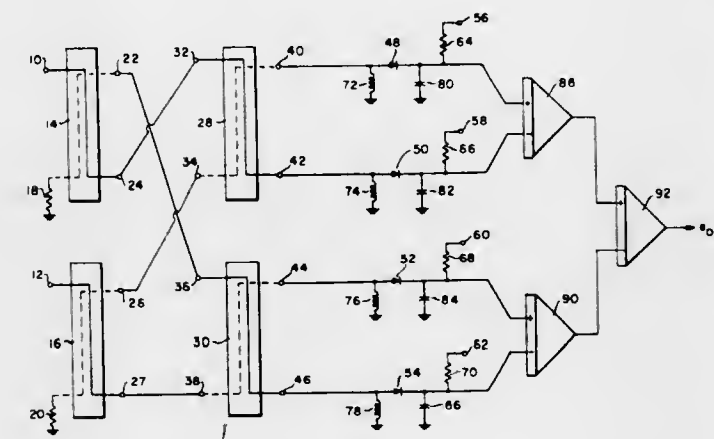
James E. Swanekamp, Beltsville, and John H. Malloy, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed June 23, 1972, Ser. No. 265,933

Int. Cl. G06g 7/16, 7/22

U.S. Cl. 235—194

5 Claims



A passive, four quadrant, balanced analogue multiplier for use in the microwave and RF region, including four backward-wave, 3 db quadrature couplers. The couplers are interconnected whereby four output signals are supplied to four respective diodes of the multiplier from the two input signals to be multiplied for parallel signal processing.

3,737,687 ILLUMINATION DEVICE

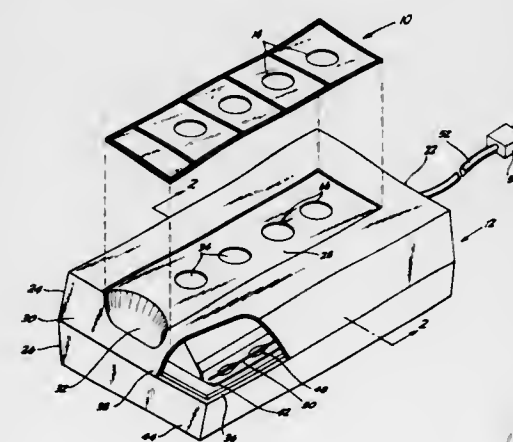
Curtis E. Miller, Fullerton, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed May 15, 1972, Ser. No. 253,523

Int. Cl. F211 1/00

U.S. Cl. 240—2.18

7 Claims



A darkfield type illumination device for performing slide agglutination tests or the like. The device comprises a casing having an opening therein. A transparent slide having a reaction area thereon is mounted on the casing with the reaction area positioned over the opening. A nonreflective surface is provided in the casing below the opening. Illumination from the light source is transmitted in two paths extending from opposite sides of and below said opening upwardly at an angle to the opening. Such angle is between about 30° and 35° to provide the maximum benefit of particle illumination of material in the reaction area of the slide and darkfield effect of the device. Preferably the two paths of illumination pass through only corresponding one-half sections of the reaction area of the slide to provide enhanced illumination of the particles.

ERRATUM

For Class 307—130 see:
Patent No. 3,737,761

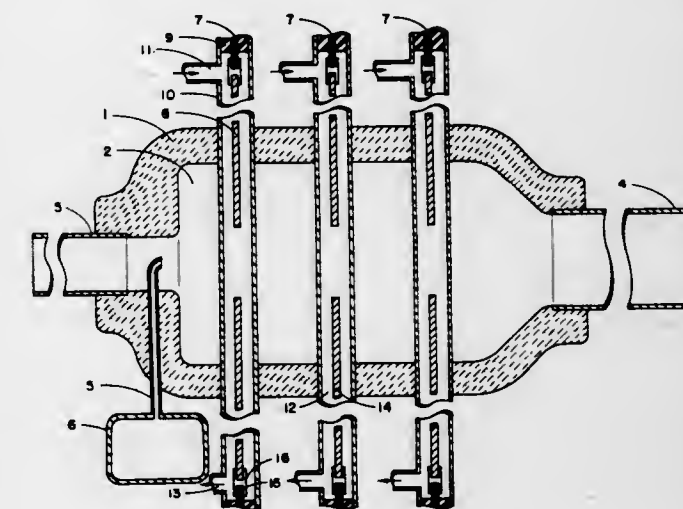
3,737,688
CHANGING CAPACITY ELECTRIC GENERATOR
Louis Richard O'Hare, 2700 Indiana, N.E., Albuquerque, N. Mex.

Filed June 14, 1971, Ser. No. 153,465

Int. Cl. H02n

U.S. Cl. 310—2

3 Claims



In the changing capacity electric generator, the electrostatic capacitance existing between oppositely charged condenser elements in a ceramic resonant combustion chamber is periodically increased when combustion takes place producing ionized gases and periodically decreased when evacuating gas currents remove the ionized gases. The changing capacitance so produced causes a current flow when this changing capacitance is placed in series electric circuitry with a high voltage transformer and a charged fixed condenser enabling electric work to be done from the secondary of the transformer.

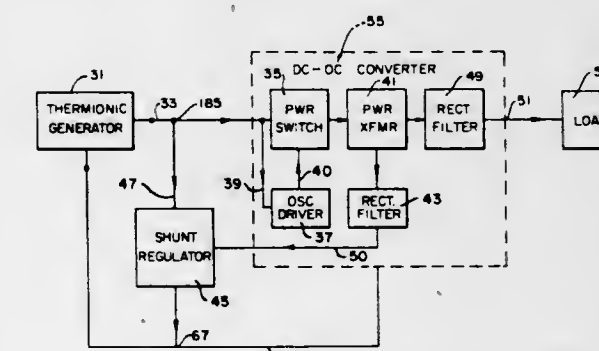
3,737,689
POWER CONDITIONER
Donald L. Schuerholz, 5117 Herring Run Drive, Baltimore, Md.

Filed Aug. 20, 1965, Ser. No. 481,431

Int. Cl. G21d 7/00

U.S. Cl. 310—3 R

7 Claims



A power conditioner and radioisotope heated thermionic generator, having a self-starting dc-dc converter, and a dependable, electronic shunt regulator for shunting excess power at the beginning of the generator lifetime and zero power at the end of the generator lifetime, and for maintaining a steady, dependable output for a load even if the load current changes from a predetermined level.

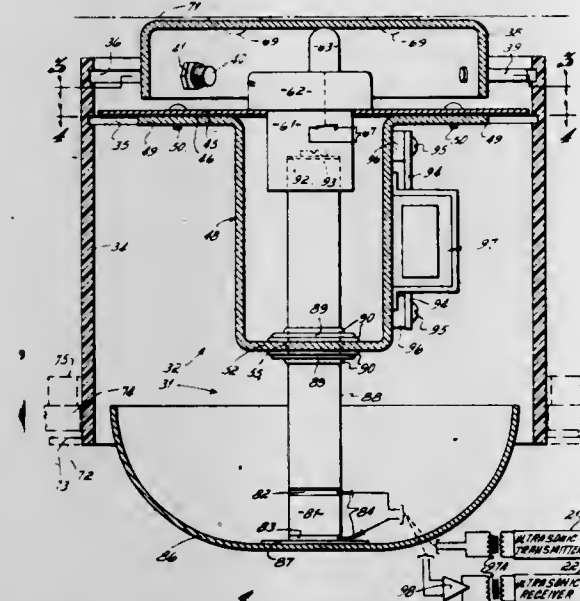
3,737,690 ULTRASONIC TRANSDUCER FOR INTRUDER ALARM SYSTEM

John Antonio, Fairfield, Conn., assignor to The Mosler Safe Company, Hamilton, Ohio

Filed Feb. 28, 1972, Ser. No. 229,995
Int. Cl. H04r 17/00

U.S. Cl. 310-8.2

15 Claims



An ultrasonic/electrical transducer for operation at a given frequency in an ultrasonic intruder alarm system is provided with a shallow self-supporting dish-shaped radiator mounted at the center of its concave surface to one face of a piezoelectric ceramic crystal. The opposite face of the crystal is secured to one end of a tuning stub which extends one-half wavelength from the center of the radiator and is connected at its midpoint to a base through an acoustic isolator. The stub is tuned by addition of trimming washes to its free end. The crystal is of the expansion/compression type having its piezoelectric axis parallel to that of the tuning stub and perpendicular to the surface of the radiator. The base is made of two parts joined by means which are the structurally weakest point of the assembly so that, if the transducer is tampered with, this point will move tripping a tamper switch to signal the alarm.

3,737,691 PIEZOELECTRIC DISTRIBUTOR

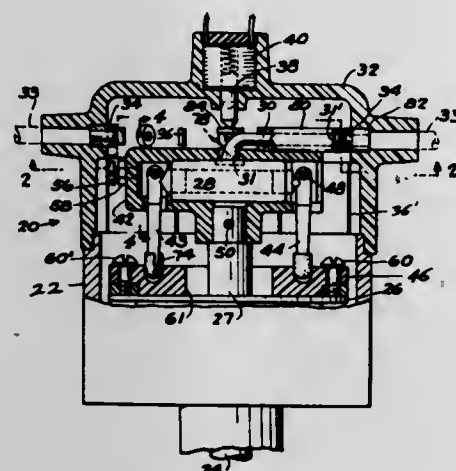
Lawrence E. Hoover, Detroit, Mich., assignor to Anthony Tramastozzi, Detroit and Constantine Papas, Southfield, Mich., part interest to each

Division of Ser. No. 839,445, July 7, 1969, Pat. No. 3,622,717.
This application Nov. 1, 1971, Ser. No. 194,590

Int. Cl. H04r 17/00

U.S. Cl. 310-8.7

10 Claims



A piezoelectric generator and distributor unit for a spark ignition internal combustion engine in which a piezoelectric ele-

ment is mounted in a body carried by a rotor shaft for rotation therewith. Two lever arms are pivoted on the body and engage opposed ends of the element. A plate with a cam track is fixed with respect to the rotor and engages the lower ends of the levers so that rotation of the rotor and body causes the levers alternately to compress and release the element which develops a charge at a high potential in response to being stressed by the levers. A central rotor terminal and terminals in a distributor cap provide a conductive path for transmitting charges from the unit. These terminals are surrounded by heat and electrically insulating tubes which extend beyond the ends of the terminals to provide a shield which eliminates the corona and premature arcing problems of high voltage switching in this type of distributor.

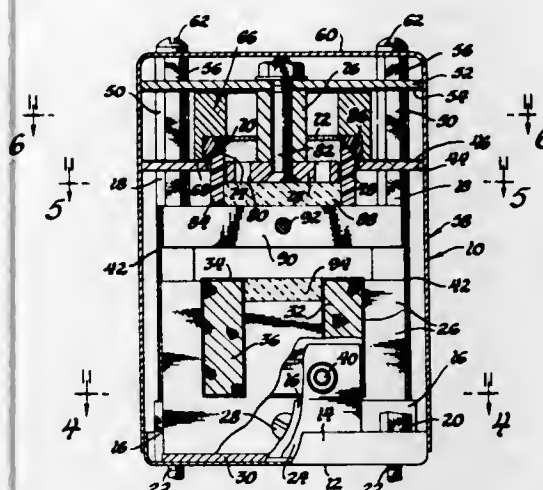
3,737,692 HORIZONTALLY OMNIDIRECTIONAL ELECTROMAGNETIC SENSOR

Ralph A. Rahn, Cudahy, Wis., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 7, 1972, Ser. No. 216,073
Int. Cl. H02k 35/00

U.S. Cl. 310-15

9 Claims



An omnidirectional sensor which converts planar movement of a seismic mass into an electrical impulse by electromagnetic induction. The seismic mass is a hollow cylinder having the lower edge thereof slidable on a horizontal planar apertured surface of a support. A stop member extends through the mass and aperture and limits movement of the mass along the surface under an acceleration pulse of predetermined amplitude and time.

3,737,693 OUTER-ROTOR TYPE D.C. MOTORS

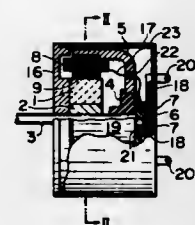
Matsuo Mishima, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Dec. 28, 1971, Ser. No. 213,077
Claims priority, application Japan, Dec. 30, 1970, 45/122347; Dec. 30, 1970, 45/122348; Dec. 30, 1970, 45/122349

Int. Cl. H02k 7/00

U.S. Cl. 310-67

8 Claims



An outer-rotor type D.C. motor wherein the rotor comprises a cylindrical yoke, a plurality of magnetic poles which

are each magnetically coupled at one end with the inner wall of the yoke and provided at the other end with a pole piece and a bridge magnetically coupling said pole piece with the adjacent one; and armature coils wound about bobbins detachably fitted to said magnetic poles.

3,737,694

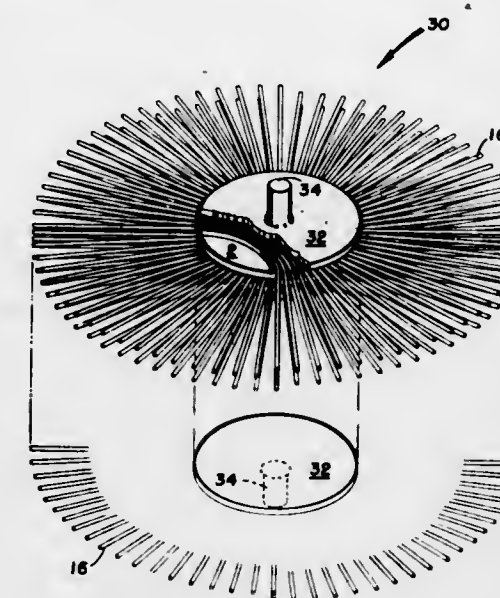
FANNED CIRCULAR FILAMENT ROTOR

David W. Rabenhorst, Silver Spring, Md., assignor to The Johns Hopkins University, Baltimore, Md.

Filed June 21, 1972, Ser. No. 264,930
Int. Cl. H02k 7/00; F16h 33/02

U.S. Cl. 310-74

18 Claims



The invention is in inertial energy storage device wherein a central hub holds a multiplicity of anisotropic filaments, the filaments extending from the hub in fixed relation thereto and in parallel planes perpendicular to an axis of rotation taken through the hub. The majority of the filaments in each of the parallel planes are disposed in fixed, arcuately fanned positions, the radius of curvature of the filaments being dependent on the location of said filaments within the hub. A particular feature of the present invention is that each parallel plane of filaments is disposed at angles to adjacent planes of filaments to reduce aerodynamic drag and increase the dynamic stability of the structure.

3,737,695

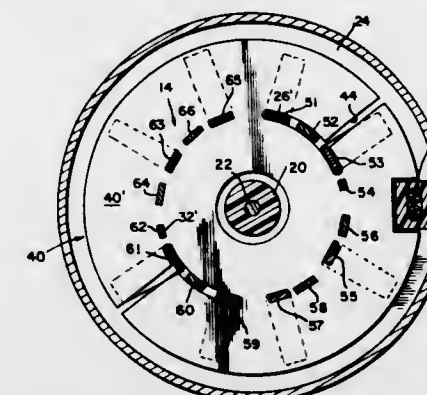
SHADED POLE SYNCHROUS MOTOR

Bill G. Kilmer, Indianapolis, Ind., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.

Filed Sept. 23, 1971, Ser. No. 183,211
Int. Cl. H02k 19/14

U.S. Cl. 310-162

5 Claims



Shading means are disposed against each end plate of a stator field structure, the shading means covering substantially the field plate's entire surface and providing a magnetic path completely around a predetermined number of poles of each

end plate, the predetermined number of poles being less than the number of poles in each plate.

3,737,696

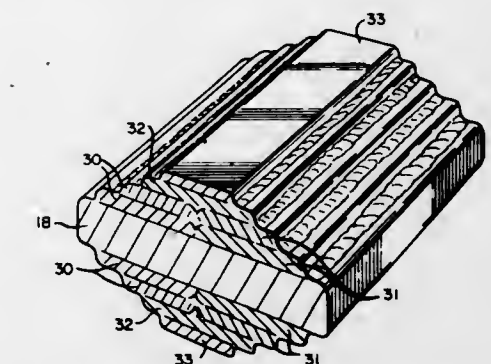
HIGH SPEED HOMOPOLAR INDUCTOR GENERATOR WITH STRAIGHT WINDING CONSTRUCTION

Elke Richter, Erie, and George E. Brissey, Harborside, both of Pa., assignors to General Electric Company, Wilmington, Del.

Filed Sept. 16, 1971, Ser. No. 181,001
Int. Cl. H02k 19/20

U.S. Cl. 310-168

6 Claims



A high speed homopolar generator is described capable of operating efficiently at rotational speeds of 90,000 rpm and above. The generator includes a smooth cylindrical rotor with axially in-line magnetic north and south poles at opposite ends of the rotor. The AC windings in the individual stator stacks are offset by 180 electrical degrees as they pass between stacks to insure that the induced voltage in the active portions of each winding are of the proper polarity. The cylindrical rotor construction minimizes windage losses and includes a straight bar of magnetic material with the circumferential interpolar space filled with a non-magnetic material. The non-magnetic material is bonded to the magnetic bar so that the resulting magnetic-non-magnetic composite rotor is strong enough to withstand the mechanical stresses to which it is subjected at speeds in excess of 90,000 rpm. Layers of the non-magnetic material are deposited on the bar of magnetic material by a plasma-arc hot wire welding process and the assembly is then machined into the desired cylindrical shape to minimize windage. In this fashion, the geometry of the rotor is optimized, the maximum amount of axial magnetic section is obtained with the simplest rotor geometry, the requisite physical strength is obtained, while at the same time, reducing or minimizing windage at the very high velocities obtained in the machine.

3,737,697

COMMUTATOR MOTOR

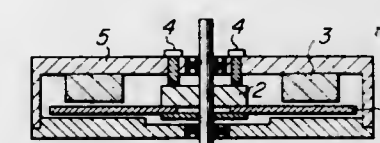
Teruaki Kitamori, Hirakata, and Naoki Takeda, Osaka, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 12,021, Feb. 17, 1970, abandoned.
This application Sept. 30, 1971, Ser. No. 185,371

Int. Cl. H02k 3/76

U.S. Cl. 310-207

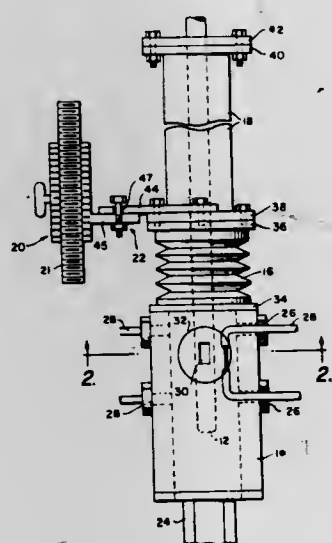
1 Claim



An axial gap type commutator motor including a disk-like armature winding formed by laminating a plurality of armature elements each having spiral coils consisting of a flat strip conductor formed by means of a printed-circuit technique or

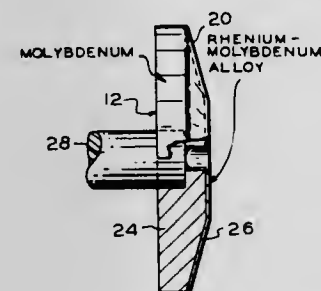
punching which are provided on the fore and rear surfaces of a doughnut-like thin insulating film, with insulating sheets being interposed therebetween, said armature being connected with a plate-like commutator.

3,737,698
X-RAY TARGET CHANGER USING A TRANSLATING ANODE
Forrest L. Carter, 6404-81st St., Bethesda, Md.
Filed Nov. 24, 1971, Ser. No. 201,698
Int. Cl. H01j 35/24
U.S. Cl. 313-60 5 Claims



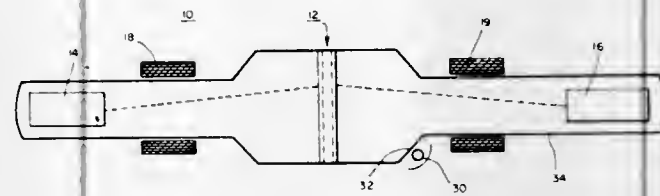
Means for moving in two orthogonal directions the target anode of an X-ray tube within the tube body comprising bellows inserted between the tube body section and a glass-insulator section, the anode being fixed to the sealing flange of the insulator section. Longitudinal translation means are attached to the flange by which the insulator section is mounted to the bellows. Operation of the translation means moves the anode and insulator section relative to the tube since the bellows can contract or expand.

3,737,699
X-RAY TUBE HAVING ANODE TARGET LAYER OF MOLYBDENUM RHENIUM ALLOY
Robert N. Gager, Elmhurst, Ill., assignor to Picker Corporation, Cleveland, Ohio
Filed May 18, 1972, Ser. No. 254,502
Int. Cl. H01j 35/10
U.S. Cl. 313-60 10 Claims



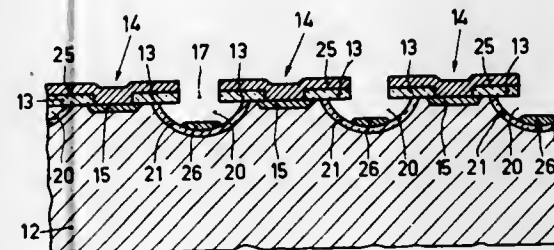
An x-ray tube is described which includes a rotary anode having a target layer of molybdenum rhenium alloy provided on a base member of molybdenum. As a result of the improved target layer, the x-ray tube has a greatly increased useful life due to a lower reduction in x-ray radiation after multiple exposures at high thermal loading of the target.

3,737,700
CATHODE RAY STORAGE TUBE HAVING TARGET WITH PHOTOCHROMIC MEMORY DEVICE
David Ronald Steinberg, 814 Pebblebrook Drive, Raleigh, N.C.
Filed July 30, 1971, Ser. No. 167,606
Int. Cl. H01j 29/18, 31/62
U.S. Cl. 313-65 R 14 Claims



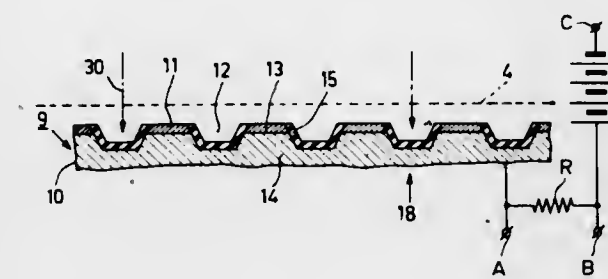
A non-viewing storage cathode ray tube having write, read and erase functions utilizes a target comprising photochromic material. One side of the target is covered with a phosphor layer which emits ultraviolet light upon irradiation by a writing and/or a reading electron beam. The other side of the photochromic target is covered by a layer of radiation sensitive material. The material may comprise a phosphor which emits red light upon irradiation by a reading or erasing electron beam. In the alternative, the radiation sensitive material may comprise a photoconductive layer sensing the transmission of light through the photochromic glass.

3,737,701
CAMERA TUBE HAVING A SEMICONDUCTOR TARGET WITH PN MOSAIC REGIONS COVERED BY A CONTINUOUS PERFORATED CONDUCTIVE LAYER
Arthur Marie Eugene Hoeberechts, and Else Kool, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed May 6, 1971, Ser. No. 140,734
Claims priority, application Netherlands, May 16, 1970, 7007171
Int. Cl. H01j 31/38, 31/58
U.S. Cl. 313-66 12 Claims



A camera tube employing a radiation-sensitive target positioned to be scanned by an electron beam. The target comprises a wafer of semiconductor material having a substrate of semi-conductor material of one conductivity type, e.g. n-type silicon. A plurality of islands separated by grooves project from the substrate on the side scanned by the electron beam. These islands are of opposite conductivity type and form with the substrate rectifying junctions. On the exposed surface of each island is a metal layer which is separated from the semiconductor material of the island by an insulating layer having an aperture therein.

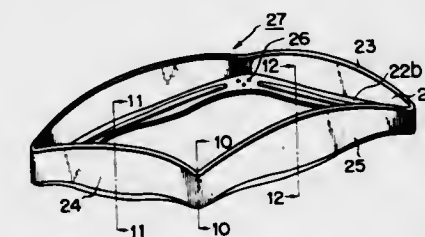
3,737,702
CAMERA TUBE TARGET WITH PROJECTING P-TYPE REGIONS SEPARATED BY GROOVES COVERED WITH SILICON OXIDE LAYER APPROXIMATELY ONE-SEVENTH GROOVE DEPTH
Else Kool, and Arthur Marie Eugene Hoeberechts, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Apr. 24, 1970, Ser. No. 31,516
Claims priority, application Netherlands, May 6, 1969, 6906939
Int. Cl. H01j 29/45, 31/38, 31/28
U.S. Cl. 313-66 9 Claims



The invention relates to a tube for picking up images and in particular to a radiation-sensitive target plate present therein of a semiconductor material and to the manufacture of such a target plate. The semiconductor plate comprises a substrate on which a mosaic of regions is present, which are separated from each other by grooves, and which each form a rectifying junction with the substrate.

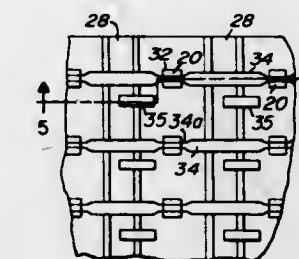
An insulating material in the form of a thin insulating layer is present in the grooves and covers the surface of the substrate in the grooves and the edges of the rectifying junction. Such a layer is preferably obtained by oxidation, for example, by means of a silicon nitride layer as a masking layer.

3,737,703
SHADOW MASK FRAME CONSTRUCTION
Asahide Tsuneta, Kawasaki, and Shinichi Sawagata, Tokyo, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed July 27, 1971, Ser. No. 166,556
Claims priority, application Japan, July 31, 1970, 45/75817; July 31, 1970, 45/75818
Int. Cl. H01j 29/06, 29/08, 29/02
U.S. Cl. 313-85 S 8 Claims



In a shadow mark for use in a colour television receiving tube of the type comprising a rectangular mask plate, and a rectangular frame member including a rectangular side wall adapted to support the mask plate and a reinforcing flange, the angle between the side wall and the reinforcing flange is made larger than 90° at the corners of the rectangular frame member and to gradually increase toward the longitudinal centres of the shorter sides and the longer sides of the rectangular frame member.

3,737,704
SCANNABLE LIGHT EMITTING DIODE ARRAY AND METHOD
Lawrence A. Grenon, Phoenix, and Michael G. Coleman, Tempe, both of Ariz., assignors to Motorola Inc., Franklin Park, Ill.
Filed Oct. 27, 1971, Ser. No. 194,609
Int. Cl. H01l 15/00
U.S. Cl. 313-108 D 6 Claims



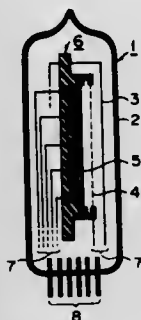
There is disclosed a monolithic light display comprising a matrix of light emitting diodes in an integral structure which is scannable to produce an alpha numeric character display. Groups of the light emitting diodes are electrically isolated from other groups of diodes by a supporting carrier and an isolation channel with the cathode of the diodes connected in a series of groups by address or row lines and anodes connected in an orthogonal plurality of groups by bit or column lines. A conductive bus in the isolation channel forms the connection for either the row or column lines. A strobing format logic address system is provided for lighting the individual diodes to emission for producing an alpha numeric character.

There is also disclosed a method of manufacturing the foregoing which comprises placing an epitaxial layer of a first conductivity type semiconductor material upon a substrate of semiconductor material having an intrinsic or semi insulating conductivity. Then channels are etched through the epitaxial layer to the semi insulating semiconductor substrate, thereby forming the epitaxial material into a plurality of parallel ribs or ridges. After coating the entire surface of the channels and the ridges with a dielectric layer, a conductive material is deposited over the substrate to fill the channels with the conductive material which may be either a metal or polycrystalline silicon doped to have sufficient conductivity. The surface of the substrate is then lapped to remove the conductive material and the dielectric material from the ridges to expose the first semiconductor material, and following diffusion of a dopant to convert the first semiconductor material to a second conductivity type material thereby forming a PN junction in each of the ridges in spaced locations therealong, suitable metallization is placed on the substrate to connect the first conductivity material to the conductive material in the channels to form column lines and metallization is placed on top a dielectric layer to connect the other conductivity material in a plurality of row lines.

3,737,705
LUMINESCENT ALPHANUMERIC INDICATING TUBE HAVING PLURAL FLUORESCENT LAYERS
Mitsuo Takeda, Meguro-ku, Tokyo; Hiroshi Miyano, Kawasaki-shi, and Hideyuki Nagaoka, Shinagawa-ku, Tokyo, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Dec. 14, 1971, Ser. No. 207,733
Claims priority, application Japan, Dec. 17, 1970, 45/112476; Dec. 30, 1970, 45/133895
Int. Cl. H01j 1/66, 1/68
U.S. Cl. 313-108 R 3 Claims

A luminescent alphanumeric indicating tube comprising an array of fluorescent segments formed on one surface of an insulating substrate, each segment including a carbon layer coated on the surface of the substrate and a first fluorescent layer interposed between the carbon layer and a second

fluorescent layer, the first layer consisting fluorescent particles whose diameter is nearly equal to or smaller than that of the particles constituting the carbon layer and the second



layer consisting of fluorescent particles whose diameter is larger than that of the particles constituting the first fluorescent layer.

3,737,706

NUMERICAL DISPLAY DEVICE HAVING FILAMENTARY LIGHT SOURCES

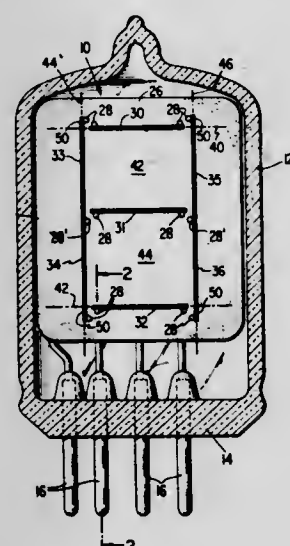
Norman Lee Lindburg, Berkeley Heights; Richard Arthur Bonnette, New Providence, and Thomas Edward Deegan, Winding Way, Belle Mead, all of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Apr. 29, 1969, Ser. No. 820,185

Int. Cl. H01j 61/66; H01k 7/04

U.S. Cl. 313-109.5

6 Claims



A display device is provided of the type comprising a plurality of electrical resistance filamentary light sources so arrayed that when various combinations of the sources are selectively energized, various luminous symbols are produced. The filaments lie in a common plane and do not cross one another, and are disposed to form a substantially closed figure having corners. End portions of several of the filaments extend beyond the corners of the figure, and remain non-luminous when central portions of these filaments are luminous.

3,737,707

INDICATOR TUBE UTILIZING A BARRIER ELECTRODE AROUND EACH OF THE INDICATOR UNITS TO WHICH ONE OF TWO VOLTAGES MAY BE APPLIED

Yuzuru Yanagisawa, Fuzisawa-shi, Kanagawa-ken, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Sept. 15, 1971, Ser. No. 180,727

Claims priority, application Japan, Sept. 18, 1970, 45/81750

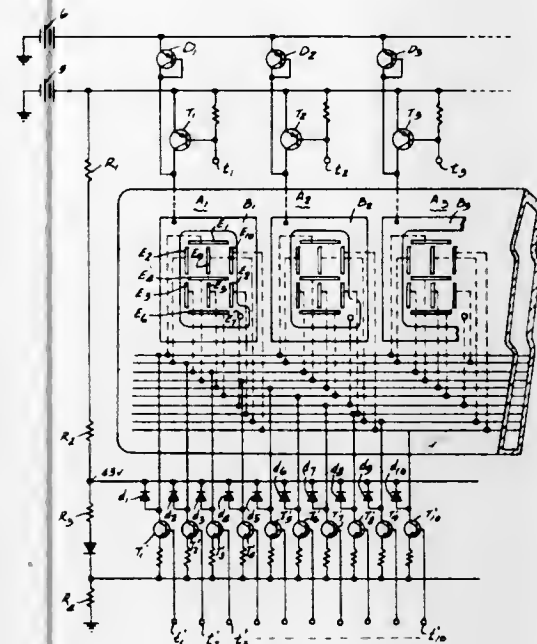
Int. Cl. H01j 61/66; H01k 7/04

U.S. Cl. 313-109.5

7 Claims

A flat type multi-figure numeric or alpha numeric display device employing a cold cathode gas discharge with a barrier

anode associated with each figure. Each figure of the device is composed of segmented electrodes located in a co-planar arrangement. Segments are selectively energized by the driver



logic to display required figures, in combination with an electrode in the same plane which selectively may function as either an anode or as an ion barrier.

3,737,708

SERIES GAP SPARK PLUG

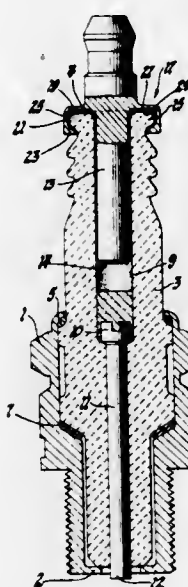
Thomas L. Vaillancour, Fenton, and Wayne W. Sanders, Flint, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed June 28, 1972, Ser. No. 267,090

Int. Cl. H01t 13/02

U.S. Cl. 313-120

4 Claims



A series gap spark plug having an auxiliary spark gap within the insulator centerbore between the end of the terminal screw and the end of the center electrode, the plug being formed to permit pressure relief from and temperature control of the auxiliary spark gap by providing a loose fit of the terminal screw within the centerbore, the terminal screw having a cap-like member secured over the top rib on the outer surface of the insulator, the space between the insulator centerbore wall and the terminal screw being vented to atmosphere.

3,737,709

GAS DISCHARGE TUBE COMPRISING MERCURY VAPOR AND PROVIDED WITH A GETTER

Johannes Hornman; Johannes Van Esdonk, and Jan Visser, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

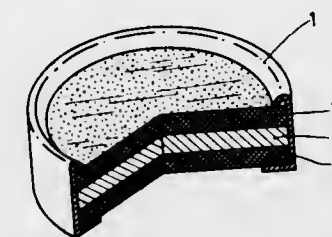
Filed Nov. 2, 1971, Ser. No. 194,989

Claims priority, application Netherlands, Nov. 14, 1970, 7016726

Int. Cl. H01j 19/70

U.S. Cl. 313-174

3 Claims



A getter for a gas discharge tube having mercury vapor in which the getter which is active at room temperature is separated from the mercury-containing atmosphere by porous sintered bodies.

3,737,710

HIGH PRESSURE ELECTRIC DISCHARGE DEVICE WITH GETTER OF BARIUM PEROXIDE AND COPPER

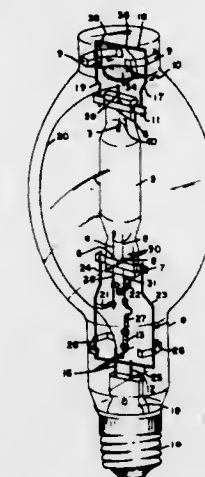
John F. Waymouth; William M. Keefe, and W. Calvin Gungl, all of Danvers, Mass., assignors to GTE Sylvania Incorporated, Danvers, Mass.

Filed July 13, 1972, Ser. No. 271,401

Int. Cl. H01j 61/24

U.S. Cl. 313-174

13 Claims



Barium peroxide and copper are disposed within a high pressure electric discharge device to getter hydrogen entrapped therein and reduce the concentration of liberated oxygen. In one embodiment, powdered barium peroxide is held in a nickel cup; a layer of copper filings is disposed above and separated from the barium peroxide by a pad of fibrous aluminum silicate material; and the cup is capped with a disc of porous stainless steel. The getter is disposed in the device at a location where it will be subjected to ambient operating temperatures between about 150° and 360° C.

3,737,711

ELECTRON TUBE HAVING AN IMPROVED FILAMENTARY CATHODE AND SUPPORT THEREFOR AND METHOD OF MAKING SAME

James P. Polese, Menlo Park, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Nov. 21, 1968, Ser. No. 777,747

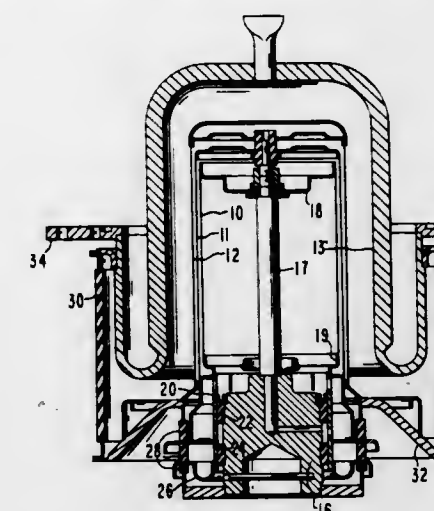
Int. Cl. H01j 1/18, 1/90, 9/18

U.S. Cl. 313-277

16 Claims

An electron tube is disclosed comprising an evacuated envelope enclosing at least three cylindrical electrodes including

a directly heated cathode, a grid and an anode. Cathode support means are disclosed comprising a generally cylindrical, metallic stem, a hollow, metallic support cylinder electrically



3,737,712

SPARKGAP ASSEMBLY HAVING A SEMI-CONDUCTIVE COATING ADJACENT THE ELECTRODES THEREOF

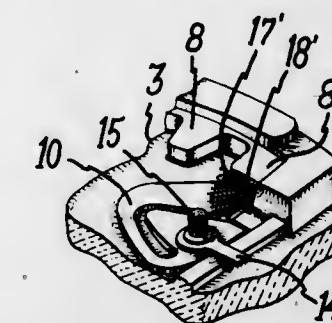
Theodore W. Hall, Pittsfield, Mass., assignor to General Electric Company, Pittsfield, Mass.

Filed Nov. 17, 1971, Ser. No. 199,709

Int. Cl. H01j 7/44; H02h 7/24

U.S. Cl. 313-325

6 Claims



A surge voltage arrester sparkgap assembly having a plurality of horn gap electrodes is provided with a coating of high resistance, electrically conductive material mounted adjacent the outermost ends of the electrodes. The coating of conductive material is effective to form high resistance electrical circuits between the respective ends of the electrodes and any electrically conductive metal particles that may be eroded from the electrodes and splattered onto the internal insulating surfaces of the sparkgap assembly. These high resistance electrically conductive circuits prevent the formation of a corona discharge between the electrodes and any such conductive particles.

3,737,713

HIGH VOLTAGE SUPPLY FOR DEPRESSED COLLECTOR TRAVELING WAVE

Joseph Kallish, New Milford, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Jan. 17, 1972, Ser. No. 218,165

Int. Cl. H01g 25/34

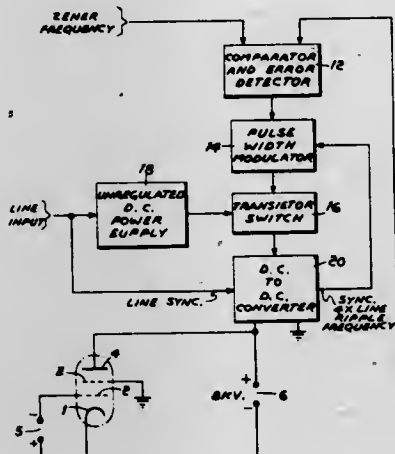
U.S. Cl. 315-3.5

2 Claims

This invention relates to a regulated power supply for a depressed collector traveling wave tube (TWT). Instead of requiring a high voltage regulated power supply across the cathode and helix of the TWT, a variable switching power

supply generates the depressed collector voltage and is placed in series with the TWT collector to cathode power supply. The

The storage target comprises a signal plate and a storage layer disposed thereon, the storage layer comprising an electrically insulating material and being adapted to exhibit elec-



variable supply compensates for variations in the output of the collector to cathode supply to provide the regulated high voltage across the helix and cathode of the TWT.

3,737,714 DARK COATED HEATER FOR VACUUM TUBE CATHODE

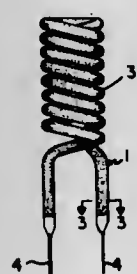
James Theodosopoulos, Ipswich, Mass., and Stanley MacKay, Exeter, N.H., assignors to Sylvania Electric Products Inc., Danvers, Mass.

Division of Ser. No. 419,440, Dec. 18, 1964, Pat. No. 3,450,565. This application Jan. 8, 1969, Ser. No. 810,058

Int. Cl. H01J 1/20, 19/14

U.S. Cl. 313-337

3 Claims



A tungsten heater has a first coating of an insulating oxide covering its entire body and extending onto its legs and a second coating of elemental tungsten, reduced in situ, covering substantially all the first coating except for a short span on the legs.

3,737,715 BISTABLE STORAGE DEVICE AND METHOD OF OPERATION UTILIZING A STORAGE TARGET EXHIBITING ELECTRICAL BREAKDOWN

Robert Steven Silver, Kendall Park, N.J., assignor to RCA Corporation, New York, N.Y.

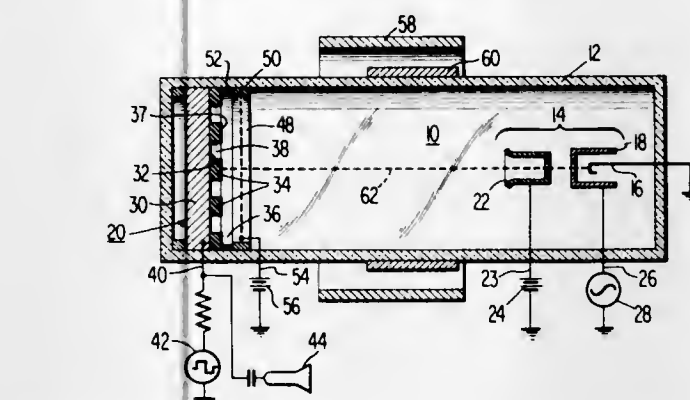
Filed Feb. 2, 1970, Ser. No. 7,833

Int. Cl. H01J 29/41

U.S. Cl. 315-12

6 Claims

An information-handling device including: a storage target; electron gun means for producing on the storage target an electrostatic charge pattern embodying the desired information; suitable connection means for applying to and extracting from the storage target electrical signals; and a collector electrode.



trical breakdown at a certain potential between the first and second cross-over potentials of the insulating material. A novel method of operating the device is also disclosed.

3,737,716 COLOR PURITY ADJUSTMENT UTILIZING A COIL ATTACHED TO THE FACEPLATE

Jan Gerritsen, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

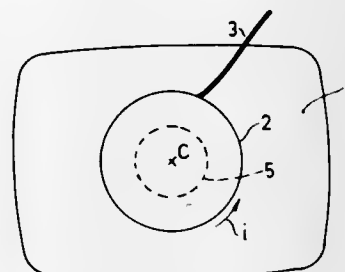
Filed Mar. 24, 1971, Ser. No. 127,614

Claims priority, application Netherlands, Apr. 10, 1970, 7005144

Int. Cl. H01J 29/50

U.S. Cl. 315-13 C

13 Claims



A method of adjusting the colour purity in colour picture display tubes the screen of which is provided with phosphor dots of luminescent material which are impinged upon by electron beams so that they luminesce in different colours. At least one of the electron beams is put into operation, while the picture to be displayed is without picture content and a coil or an annular magnet through which a direct current flows is placed in front of the screen of the tube. The purity adjusting members, that is to say, the purity magnets and/or purity coils and the securing means of the deflection unit are adjusted in such a manner that a ball of the colour corresponding to the said electron beams is placed in a fixed position within the coil. The coil may alternatively serve for degaussing metal parts of the picture tube.

3,737,717 HIGH INTENSITY LAMP CONTAINING THERMAL SHORTING FUSE

Michael G. Arendash, Wickliffe, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed Mar. 13, 1972, Ser. No. 234,036

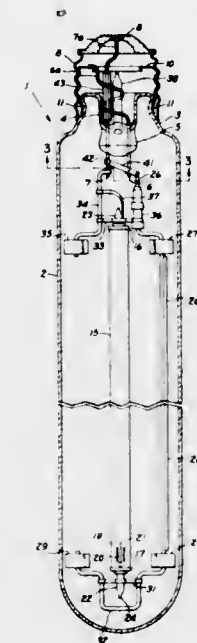
Int. Cl. H01J 17/36

U.S. Cl. 315-75

6 Claims

A high intensity lamp comprising an arc tube containing metal vapor such as sodium and mercury mounted within an evacuated outer jacket. A self-shorting arcing fuse is provided to forestall a destructive power arc should there occur a leak of air into the jacket or should the arc tube fail resulting in a low pressure of gas in the jacket. The fuse comprises a ther-

mally deformable bimetal strip located to define the closest spatial approach between opposite current conductors within



the jacket. A spot of brazing metal on the bimetal assists in welding the parts together at closure.

3,737,718 IGNITION NOISE SUPPRESSION CENTER ELECTRODE ASSEMBLY FOR SPARK PLUGS

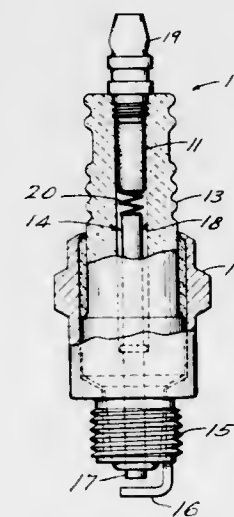
Paul E. Rempes, Jr., Royal Oak, Mich., and Le Roy H. Houghton, Toledo, Ohio, assignors to Champion Spark Plug Company, Toledo, Ohio

Filed Aug. 20, 1971, Ser. No. 173,409

Int. Cl. H01t 13/20

U.S. Cl. 315-58

10 Claims



An improved resistance element for suppressing random radio frequency radiation from the high voltage ignition circuit of an internal combustion engine. The resistance element is produced by sintering an extruded or compressed rod consisting essentially of copper oxides plus a heat destructible binder and from 0 to 10 percent of an inert plasticizer. The resulting element consists essentially of a combination of cupric oxide (CuO) and cuprous oxide (Cu₂O). Optional contact terminals may be formed on the element by applying a metallic coating to opposed ends of the capsule. The suppression element may be placed in the center electrode assembly of a spark plug electrically in series between a high voltage terminal and an electrode tip or at any suitable location in the high voltage ignition circuit for the internal combustion engine.

3,737,719 LIGHTING SYSTEM WITH AUXILIARY LAMP CONTROL CIRCUIT AND PROTECTIVE MEANS THEREFOR

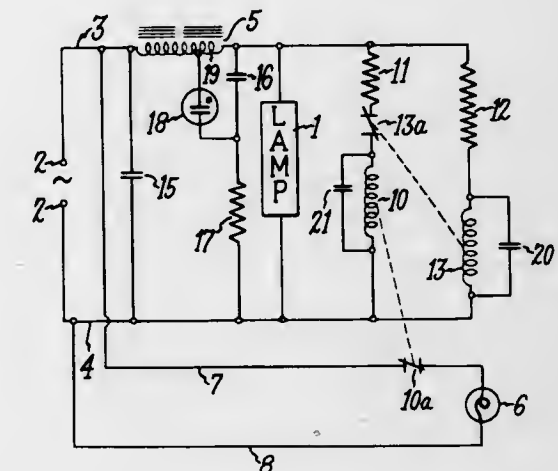
Clair A. Nodurft, East Flat Rock, N.C., assignor to General Electric Company, Pittsfield, Mass.

Filed Aug. 2, 1971, Ser. No. 167,977

Int. Cl. H05b 39/10

U.S. Cl. 315-91

3 Claims



Electrical ballast circuit for operating a gaseous discharge lamp is combined with an incandescent lamp circuit having relay control means for automatically turning the incandescent lamp on when the discharge lamp goes off. The arrangement provides for the auxiliary incandescent lamp to remain on until the discharge lamp is re-started and reaches substantially normal illumination level, after which the incandescent lamp is automatically turned off. The control circuit is particularly adapted for use with gaseous discharge lamps requiring high voltage pulses for ignition and incorporates capacitors for protecting the relay control means from such high voltage pulses.

3,737,720 LIGHTING SYSTEM WITH AUXILIARY LAMP CONTROL CIRCUIT

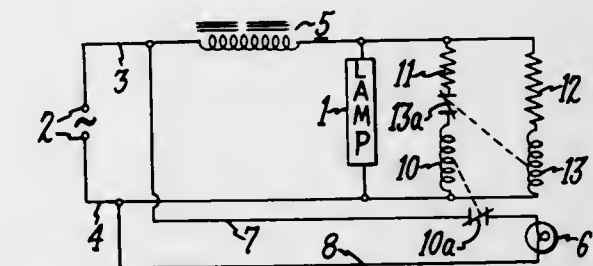
Candler A. Willis, Jr., Zirconia, N.C., assignor to General Electric Company, Pittsfield, Mass.

Filed Aug. 2, 1971, Ser. No. 167,978

Int. Cl. H05b 39/10

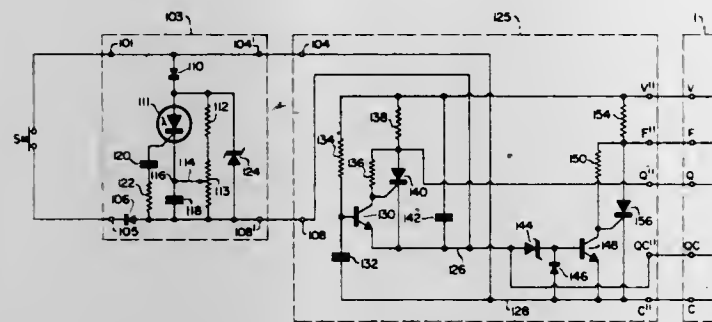
U.S. Cl. 315-91

4 Claims



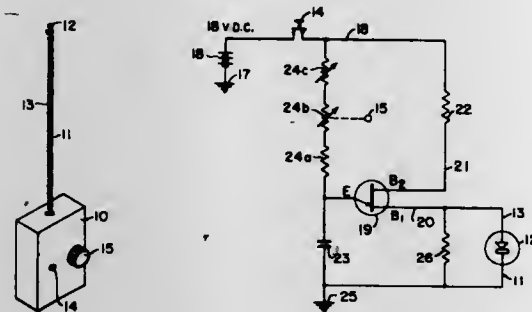
Electrical ballast circuit for operating gaseous discharge lamp is combined with an incandescent lamp circuit having relay control means for automatically turning the incandescent lamp on when the discharge lamp goes off. The arrangement provides for the auxiliary incandescent lamp to remain on until the discharge lamp is re-started and reaches substantially normal illumination level, after which the incandescent lamp is automatically turned off.

3,737,721
COMPUTER FLASH WITH REMOTE SENSOR AND TWO-WIRE CONTROL OF FLASH FIRING AND QUENCH
 Francis T. Ogawa, Fort Washington, Pa., assignor to Honeywell Inc., Minneapolis, Minn.
 Filed Jan. 22, 1971, Ser. No. 108,878
 Int. Cl. H05b 37/02, 39/04
 U.S. Cl. 315-151 38 Claims



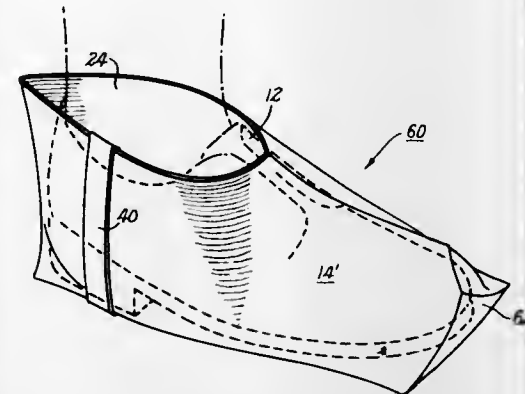
A light control system includes a switching means, a light sensing means, a signal conditioning means and a light producing means inter-connected with the light sensing means connected to the signal conditioning means by only two wires. The switching means is selectively operable for generating a flash signal to effect the apparent production of a source light from the light producing means for the illumination of a scene. Gating means activates the normally insensitive light sensing means to respond to light from the scene when a flash signal is generated. A signal to effect the apparent termination of the source light is generated by the light sensing means when sufficient light is received from the scene. Dynamic anticipation means provide a time varying compensation corresponding to the light intensity-time variation characteristic of flash-type light producing means.

3,737,722
METHOD AND APPARATUS FOR FORMING SPATIAL LIGHT PATTERNS
 Meyer J. Scharlack, 1968 Yosemite, Berkeley, Calif.
 Filed May 7, 1971, Ser. No. 141,675
 Int. Cl. H05b 37/02 5 Claims



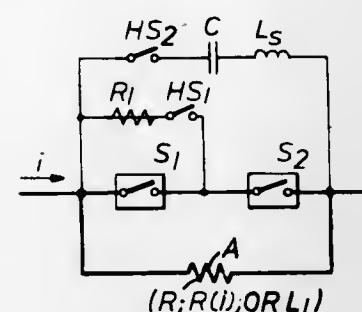
Spatial light patterns, such as one or several stationary or moving dots or lines are formed in a darkened environment by repeatedly moving a pulsing light emitter which is intensely bright, yet yields little or no illumination to surrounding objects; such as a light-emitting diode or neon light, through a fixed or random path. The light emitter is periodically connected to a source of electric potential by an electronic oscillator, which energizes the light emitter and lights it during parts of the periods between successive energizations. Preferably the frequency of the light pulses and the duration of these pulses can be varied, either manually or in response to an externally controlled electrical signal generated by sound, heat, mechanical motion, pressure, light or other means.

3,737,723
DISPOSABLE SHOE COVERING
 Steven Kanor, White Plains, N.Y., assignor to Lorton Laboratories, Ltd., New York, N.Y.
 Filed Feb. 4, 1972, Ser. No. 223,561
 Int. Cl. H05f 3/00; A43b 1/10
 U.S. Cl. 317-2 B 8 Claims



A disposable protective shoe covering for entirely enclosing the shoe of a wearer is provided wherein a single flat sheet of flexible heat shrinkable material is centerfolded to form a pair of complementary halves having a straight bottom edge adjacent the centerfold and a top edge, defined by the adjacent edges of the sheet halves opposite the fold, which is opened to provide access into the shoe covering. The side edges of the sheet halves, between the top and bottom edges, respectively define the front and back edges of the shoe covering and are heat sealed together (i) at the back edge along an inclined line extending outwardly and rearwardly with respect to the bottom edge, (ii) at the front edge along a first inclined line extending upwardly and rearwardly with respect to the bottom edge and along a second inclined line, defining the instep of the shoe covering, extending from the first line upwardly and rearwardly to the top edge at a greater inclination than the first line, and (iii) adjacent the bottom edge, at the front and rear portions thereof, along lines extending upwardly and outwardly from the bottom edge to their points of interconnection with the first line and the back edge respectively.

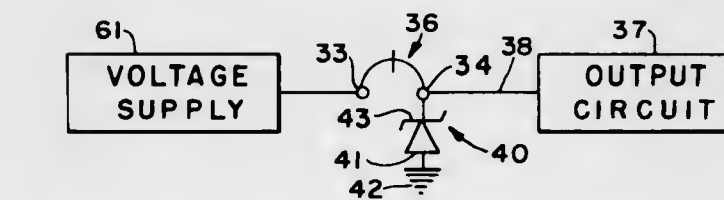
3,737,724
CURRENT LIMITING INTERRUPTION OF CURRENTS AT HIGH VOLTAGES
 Jurgen Salge, Salzgtter-Osterlinde, and Hagen Hartel, Braunschweig, both of Germany, assignors to Dieter Kind, Braunschweig, Germany
 Filed Aug. 5, 1971, Ser. No. 169,362
 Claims priority, application Germany, Aug. 6, 1970, P 20 39 065.2
 Int. Cl. H02h 7/22 12 Claims



An improved circuit for the current limiting interruption of alternating or direct currents in a power main at high voltages of the type wherein an energy absorbing circuit and a capacitor are each connected in parallel with a circuit path including a commutation or interrupter switch so that upon opening of the switch the current flowing therein will be commutated into

the parallelly connected circuits wherein the current will be reduced to a residual value which is switched off by a subsequently connected circuit breaker. A further commutating switch is connected in series with the first mentioned commutation switch and an ohmic resistance connected in parallel therewith so that the total series resistance of the ohmic resistance and the arc resistance of the first mentioned commutation switch will be sufficient to cause the commutation of the main current into the energy absorbing and capacitor circuits.

3,737,725
CIRCUIT OVERVOLTAGE PROTECTOR
 Thomas S. Donnelly, Wickliffe, Ohio, assignor to Aviation Corporation, Cleveland, Ohio
 Filed Nov. 8, 1971, Ser. No. 196,270
 Int. Cl. H02h 3/20 11 Claims

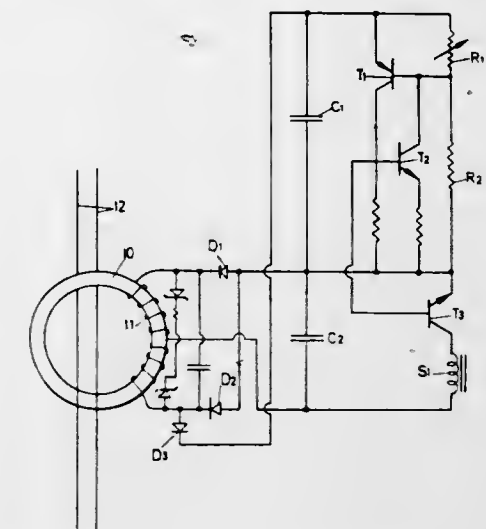


The combination of a voltage sensitive device, for example, a zener diode, in circuit with a current sensitive device, for example, a circuit breaker or a fuse, arranged so that an overvoltage condition causes the voltage sensitive device to actuate the current sensitive device. In one embodiment, the zener diode is connected to a source of reference potential and the output terminal of a circuit breaker. When the voltage at the output terminal of the circuit breaker exceeds the breakdown voltage of the zener diode, the impedance effectively approaches zero and the current flow through the diode to ground causes the circuit breaker to interrupt the circuit between a voltage source and an output circuit. In a modification of this embodiment, a warning lamp is provided across the circuit breaker so that when the breaker has been actuated, the lamp is illuminated. In still another embodiment, a conventional cylindrical fuse in a series circuit with a voltage source and an output circuit is provided with a zener diode having its cathode connected to the output terminal of the fuse and its anode connected to the ground provided, for example, by a conductive member about the envelope of the fuse. When the voltage at the output terminal of the fuse exceeds a minimal level, the diode conducts to cause the fuse to open the circuit between the voltage source and the output circuit.

3,737,726
EARTH LEAKAGE DETECTOR FOR OPERATING CIRCUIT INTERRUPTING MEANS
 Edward Tarchaiski, Johannesburg, Transvaal, Republic of South Africa, assignor to Heinemann Electric South Africa Limited, Johannesburg, Republic of South Africa
 Filed Mar. 28, 1972, Ser. No. 238,801
 Int. Cl. H02h 1/02 6 Claims

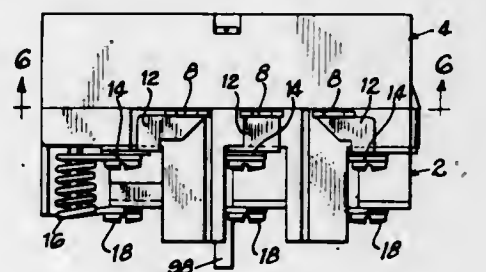
A device for detecting the occurrence of an earth leak fault in a circuit the live and neutral conductors of which constitute first and second primary windings of a core-balance transformer or toroid. On the occurrence of an earth leak fault, a voltage is induced into a secondary winding on the toroid. The secondary voltage is rectified and the rectified voltage charges first and second capacitors. The second capacitor is charged to a lower voltage than the first capacitor. When the first capacitor is fully charged a first switching device is energized. This, in turn, causes a second switching device to be energized al-

lowing the second capacitor to discharge into and operate a circuit breaker or the like. By using two capacitors in the



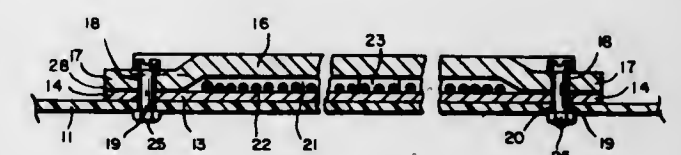
manner described above the toroid is operated in a more efficient manner than has hitherto been possible.

3,737,727
THERMAL OVERLOAD DEVICE
 Louis Mouis, Aurora, Ill., assignor to Furnas Electric Company, Batavia, Ill.
 Filed July 17, 1972, Ser. No. 272,132
 Int. Cl. H02h 5/04 7 Claims



A polyphase circuit device using solder pot structures each controlling an independently operating actuating lever acting on an associating lever arm carried on rotatable shaft. A lever rotatable with the shaft operates a contact actuator to open a control circuit when a thermal overload occurs in any one conductor of the circuit being protected. A reset actuator is provided to permit reset when the overload has been removed.

3,737,728
MOUNTING STRUCTURE FOR HEAT-GENERATING DEVICES
 James E. D. Austin, Southbridge, Mass., assignor to Data General Corporation, Southboro, Mass.
 Filed Dec. 17, 1971, Ser. No. 209,316
 Int. Cl. H05k 7/20 5 Claims



A structure for mounting a large number of closely spaced heat-generating devices of a relatively fragile nature, such as magnetic core memories for use in computer apparatus. The devices are affixed to a flexible heat conducting sheet having a

pair of tabs projecting from opposite edges thereof. A relatively rigid metallic cover having corresponding tabs is attached to the heat conducting sheet at the tabs. The tabs on the cover are formed so as to project downwardly from the general plane of the cover so that when they are attached to the tabs of the heat conducting sheet a space is provided between the cover and the sheet in which the devices are positioned. A plurality of resilient members are placed at various points within such space and air is caused to flow in a non-turbulent fashion past the overall structure and, particularly, through the space between the cover and heat conducting sheet. Such a structure using a material having high heat conductivity provides for uniformity of heat distribution in the core assembly and good heat dissipation therefrom.

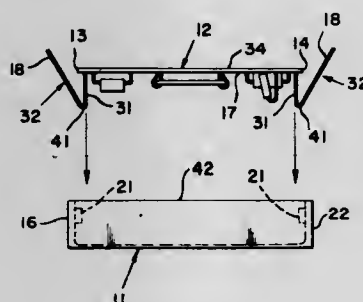
3,737,729 ELECTRONIC PACKAGE AND METHOD OF CONSTRUCTION

Durand B. Carney, Concord, Calif., assignor to Zeltex, Inc., Concord, Calif.

Filed June 14, 1971, Ser. No. 152,874
Int. Cl. H05k 5/00

U.S. Cl. 317-101 PH

5 Claims



An electronic package including a case, circuit board, and elongated electric leads extending from the interior side of said circuit board to the outside of the case and having a snap action interfit with the case automatically locking the parts in attached position upon assembly. The exterior side of the circuit board is coated to provide the exterior side of the package.

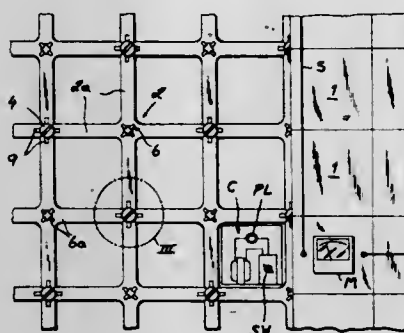
3,737,730 LATTICE ASSEMBLY, E.G. FOR MOSAIC TILES, ELECTRIC CIRCUIT ELEMENTS AND DISPLAY SYSTEMS

Helmut Maue, Am Rosenhugel 1-3, 5604, Neviges, Germany
Filed Dec. 8, 1971, Ser. No. 205,983
Claims priority, application Germany, Dec. 10, 1970, P 20 60 777.6

Int. Cl. H02b 1/04

U.S. Cl. 317-101 R

15 Claims



A lattice is formed from a plurality of cell-forming elements connected by bolts to anchors. Each element has at least two connecting portions which each have at least one face abuttable with a similar face of another element and are each formed with a hole that snugly receives one of at least two projections

formed on one surface of an anchor. The fastener is a bolt which passes between two two portions and overhangs them so that when screwed down it clamps the two portions to the anchor. A plurality of similar elements are similarly bolted to the other end of the anchor which is elongated and acts as a spacer in order to form a two-level lattice. Tiles, which may carry a schematic drawing of the circuitry they cover, or which may carry circuit elements, are fitted over each cell of the lattice.

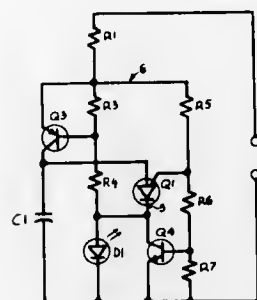
3,737,731 FLASHING CIRCUIT

Abraham Zeewy, 2328 Canterbury Road, University Heights, Ohio

Filed Apr. 5, 1971, Ser. No. 131,291
Int. Cl. H03k 3/281; H05b 41/34

U.S. Cl. 331-111

11 Claims



A flashing circuit in which a capacitor is charged through a path whose conductivity varies with the applied voltage across the path. The path includes a transistor whose input current is a function of the applied voltage when the capacitor charges to a predetermined potential; a programmable unijunction transistor breaks down to discharge current from the capacitor through a light-emitting diode. The breakdown of the unijunction transistor applies a change in bias to the base of the transistor in the charging path so as to minimize the charging current and also effects the cutoff of a second transistor in the discharging path and which is in parallel with the light-emitting diode to cause all capacitor current to flow through the light-emitting diode.

3,737,732 TIME DELAY RELAY

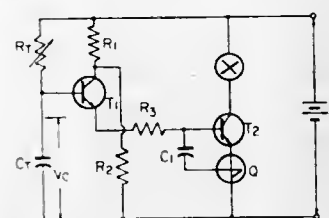
Hideo Suemasa, Neyagawa; Kazuyoshi Honda, Kadoma; Kenichi Yoda, Moriguchi, and Toru Hanahara, Hirakata, all of Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan

Filed Aug. 30, 1971, Ser. No. 176,144
Claims priority, application Japan, Sept. 1, 1970, 45/76800; Mar. 30, 1971, 46/18962

Int. Cl. H01h 47/18

U.S. Cl. 317-141 S

4 Claims



A time delay relay of the type in which a semiconductor switching element is made conductive after a predetermined time by a RC time constant circuit so as to actuate a relay connected in series with the semiconductor switching element with respect to a power source. The RC time constant circuit is connected to the semiconductor switching element through a transistor element and, among leakage current of the

semiconductor switching element, the current flowing through resistor of the RC time constant circuit is restrained to be low utilizing amplifying action of the transistor element, thereby enabling a delaying action for a long time period.

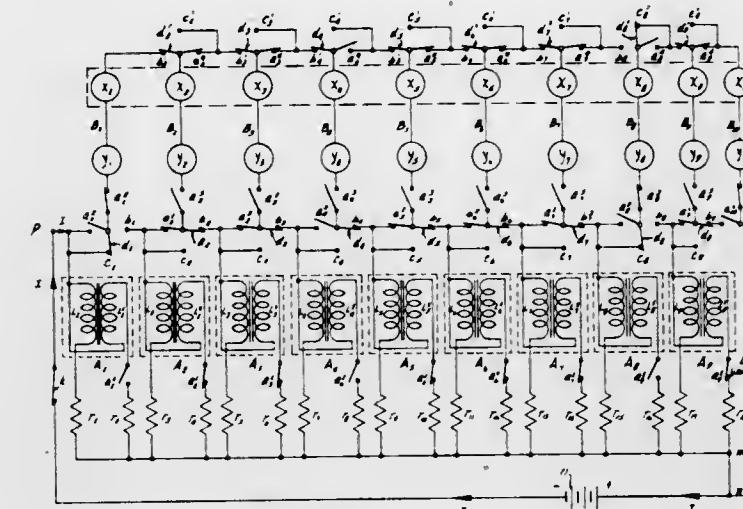
3,737,733 SEQUENTIAL SWITCH ARRANGEMENTS FOR OPERATING ELECTRICALLY CONTROLLED LOCKS

Min-Shung Lin, 28 Park Road 3/F, Taipei, Taiwan
Filed Apr. 20, 1971, Ser. No. 135,570

Int. Cl. E05b 49/00

U.S. Cl. 317-134

9 Claims



A sequential switch is composed of a plurality of ganged multi-contact switch pairs connected in series, a current path being established to operate a lock when a switch of each pair is set to the correct contact. In a second embodiment, a variable digit sequential switch, the ganged pairs are connected so that a switch of an even number of pairs must be set to the correct contact to close the current path.

3,737,734 COPYING MACHINE

Kitamaro Nakamura, Toyohashi, and Yasuhiko Doi, Toyokawa, both of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

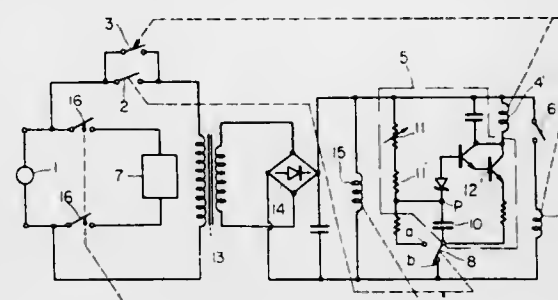
Continuation of Ser. No. 865,837, Oct. 13, 1969, abandoned. This application Aug. 20, 1971, Ser. No. 173,619

Claims priority, application Japan, Oct. 25, 1968, 43/93731

Int. Cl. H01h 47/18

U.S. Cl. 317-141 S

6 Claims



A copying machine having a power switch, an operating switch, a relay with a contact acting as a holding switch in parallel with the power switch, and a timer. The relay is actuated in response to the closing of the operating switch following the actuation of the power switch, so as to hold the power switch. The timer is actuated upon opening of the power switch, so as to de-energize the relay only after a certain predetermined time delay. Whereby, copying operation of an original being copied is completed even if the power switch is opened by mistake in the midst of the copying operation.

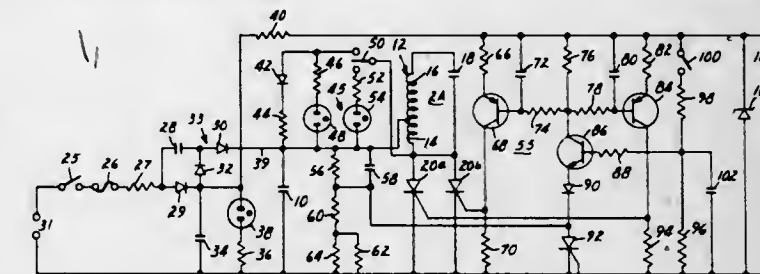
3,737,735 AUTOTRANSFORMER ASSISTED RESONATED ENERGY TRANSFER CIRCUIT

Dominic A. Benassi, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 4, 1972, Ser. No. 223,510
Int. Cl. H03k 17/56

U.S. Cl. 317-148.5 B

9 Claims



An improved electrical circuit for producing a damped oscillatory magnetic field having an autotransformer as the inductive component of a parallel inductance-capacitance resonant circuit. An SCR is provided for controllably connecting the resonant circuit to a power source. Reverse voltages in the autotransformer commutate the SCR to cause dissipation of energy in a damped oscillation in the resonant circuit. The damped oscillatory magnetic field is useful in systems for detecting magnetic objects.

3,737,736 ELECTROMAGNET-CONTROLLING SYSTEM

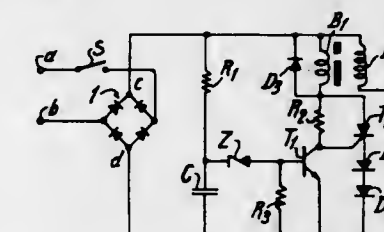
Harald Stampfli, Petit-Saconnex, Geneva, Switzerland, assignor to Lucifor S. A., Carouge-Geneva, Switzerland

Filed Apr. 4, 1972, Ser. No. 240,354
Claims priority, application Switzerland, Apr. 23, 1971, 5909/71; Germany, June 4, 1971, P 21 28 651.1

Int. Cl. H01h 47/04

U.S. Cl. 317-154

5 Claims



An arrangement for feeding the power winding of an electromagnet with rectified A.C. by means of a thyristor or triac. The latter is inserted in parallel with a transistor the conducting condition of which is provided by a condenser fed by the rectified A.C. and discharging into the base of the transistor which latter acts then on the electrode controlling the thyristor, to allow the latter to return into its non-conductive condition at the end of an alternation. A maintenance or holding current is provided either through an auxiliary electromagnet winding or through a chopped current feeding the power winding and produced by a pulse generator.

3,737,737 SEMICONDUCTOR DIODE FOR AN INJECTION LASER

Walter Heywang, Neukeferloh; Guenter Winstel, Ottobrunn, and Karl-Heinz Zschauer, Munich, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Oct. 6, 1971, Ser. No. 187,029
Claims priority, application Germany, Oct. 9, 1970, P 20 49 684.8

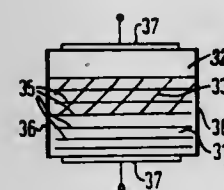
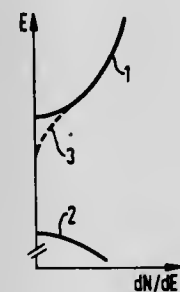
Int. Cl. H05b 33/00

U.S. Cl. 317-234 R

5 Claims

A semiconductor diode for an injection laser characterized by a pn junction which has a lower threshold value for the

diode current and/or which diode is capable of continuous operation at room temperature or above. The radiation producing range or zone of the pn junction has a variation in the concentration of doping with the variation being spatial and periodic. Variations have a maximum concentration of doping in a range of about 10^{18} through 10^{20} parts per cubic centimeter, a ratio of maximum concentration to minimum concentration of at least 2:1, and a distance between maximum concentrations, in the order of between 10 and 500 atomic distances in the lattice of the crystal. The variations in the concentration of the doping provides one or more interference bands in the forbidden band located between the conduction band and the valence band. An interference band is adjacent the edge of either the valence or the conduction band and the doping substance is selected in such a way that the



transition probability for transit between the conduction band or valence band and the adjacent interference band is essentially larger than for inter-band recombination. To produce the semiconductor material for the diode, the doping material concentration is varied during the growth of the crystal. For example, if the crystal is grown from a gas phase by an epitaxial deposition, the concentration of doping material in the gas phase is varied with respect to the desired periodicity and with respect to the speed and time for the growth of the crystal. If the crystal is formed by epitaxial deposition of the material from the liquid phase, the variation in doping is caused by variations in the cooling speed with respect to the speed of the growth of the crystal. The periodic doping can be varied also by selection of the rate of cooling by selection of speed of rotation and by excentricity of the crystal pulled from a melt or by growing the crystal with a spiraling growth.

3,737,738 CONTINUOUS STRIP PROCESSING OF SEMICONDUCTOR DEVICES AND NOVEL BRIDGE CONSTRUCTION

Paul W. Koenig, Clyde, N.Y., assignor to General Electric Company, Syracuse, N.Y.

Filed Sept. 22, 1970, Ser. No. 74,291

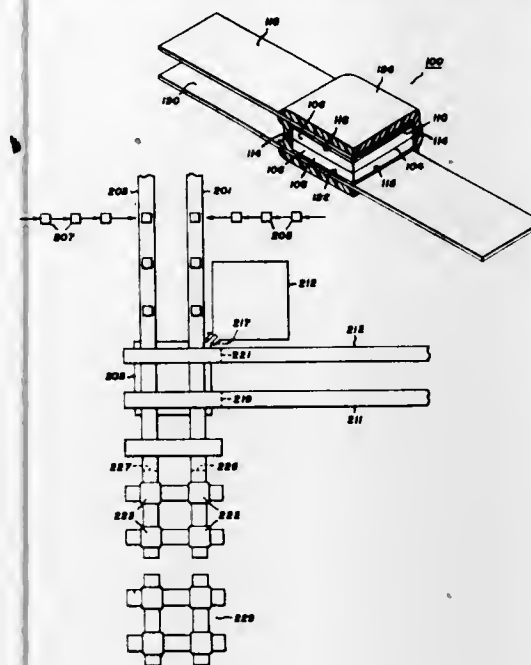
Int. Cl. H011 5/00

U.S. Cl. 317—234 R

3 Claims

Two continuous lead strips are advanced longitudinally to receive a semiconductor element therebetween. The semiconductor element is attached to the strips, the semiconductor element is encapsulated, and the strips are segmented to form a semiconductor device. The strips may be fed in side by side

or transverse relation. To form a bridge two strips are fed in side by side relation while two more strips are fed in transverse



relation to the first two and in side by side relation to each other.

3,737,739 SINGLE CRYSTAL REGIONS IN DIELECTRIC SUBSTRATE

A. Eugene Blakeslee, Mount Kisco; Thomas F. Gukelberger, Jr., Hopewell Junction, and Vincent J. Lyons, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

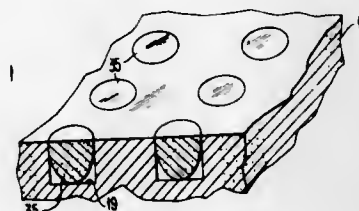
Division of Ser. No. 697,770, Jan. 15, 1968. This application

Feb. 22, 1971, Ser. No. 117,474

Int. Cl. H011 5/00

U.S. Cl. 317—235 R

4 Claims



A structure having single crystal islands in a dielectric substrate is described. The substrate has recesses formed in its surface to receive the single crystal bodies therein. By applying a temperature gradient across each of the bodies throughout the entire heating cycle, nucleation occurs only at a bottom point on each of the bodies when a vapor containing the material to be nucleated is passed over the bodies with the material of the bodies being molten. The single crystalline material can be, for example, silicon or germanium and the dielectric material can be, for example, a silicon dioxide glass or a mixed oxide ceramic.

3,737,740 SOLID-STATE MAGNETO ELECTRICAL TRANSDUCER

Tadashi Yamada, Suita; Akio Yamashita, Ikeda; Masaru Tanaka, Toyonaka; Takehiro Tsuzaki, Osaka, and Takashi Fujita, Toyonaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma-shi, Osaka, Japan

Continuation of Ser. No. 748,991, July 31, 1968, abandoned.

This application Nov. 8, 1971, Ser. No. 196,821

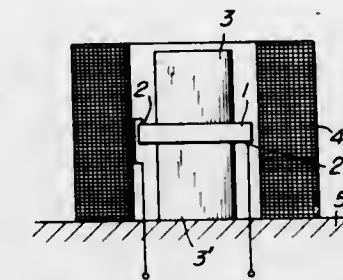
Int. Cl. H011 1/00, 15/00

U.S. Cl. 317—235 R

3 Claims

A solid-state mechano-electrical transducer having means which is subject to a mechanical displacement when a mag-

netic force is applied and a solid-state element which converts rier by preventing the interaction of contact metal and the shallow diffused semiconductor regions; and produces a thin



the mechanical displacement into a variation in electrical quantity.

3,737,741 SEMICONDUCTOR DEVICES UTILIZING GEOMETRICALLY CONTROLLABLE CURRENT FILAMENTS

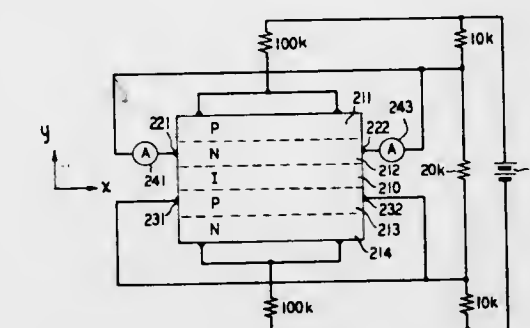
Dirk Jan Bartelink, Morris Township, Morris County, and George Persky, North Plainfield, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 22, 1971, Ser. No. 201,093

Int. Cl. H011 1/10

U.S. Cl. 317—235 R

10 Claims



A PNPN (or PNP) semiconductor structure, with a pair of terminals on each of the intermediate N and P zones, is forward biased with respect to the outer P and N zones. Thereby, a current filament is formed whose lateral position can be controlled by control of the voltages across each of the pairs of terminals, as well as by an external magnetic field. Such current filaments can be utilized in a variety of semiconductor devices including magnetic field detectors, optical cameras, binary encoders and other logic devices.

3,737,742 MONOLITHIC BI-POLAR SEMICONDUCTOR DEVICE EMPLOYING CERMET FOR BOTH SCHOTTKY BARRIER AND OHMIC CONTACT

David R. Breuer, Malibu, and James L. Bule, Panorama City, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.

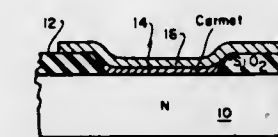
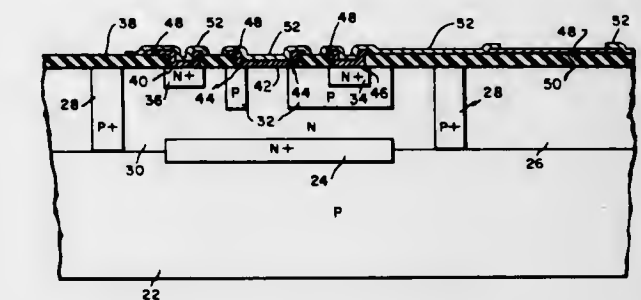
Filed Sept. 30, 1971, Ser. No. 185,137

Int. Cl. 317 235 AC; H011 1/00, 15/00

U.S. Cl. 317—235 R

16 Claims

A layer of cermet material, deposited in a single processing step, connects the base and collector regions of a bipolar transistor to form a Schottky barrier diode therebetween; makes ohmic contact to highly doped shallow diffused regions such as the emitter and collector contact areas; provides a bar-



film resistor of low parasitic capacitance for connection to the transistor.

3,737,743 HIGH POWER MICROWAVE FIELD EFFECT TRANSISTOR

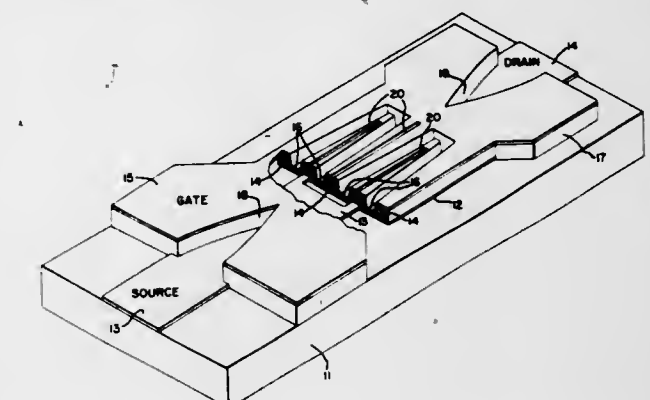
Herbert Goronkin, Syracuse, and John W. Lunden, Camillus, both of N.Y., assignors to General Electric Company, Syracuse, N.Y.

Filed Dec. 23, 1971, Ser. No. 211,503

Int. Cl. H011 5/00

U.S. Cl. 317—235 R

17 Claims



The present invention relates to field transistors having source and drain electrodes in ohmic contact with a semiconductor body, and having an intervening gate electrode of the Schottky barrier type. The present device is designed for high power and high frequency applications. These capabilities are achieved by use of a meandering channel of appreciable width, to which an efficient path for power transmission is provided at both low and high frequencies. The path entails the use of an additional conductive layer superimposed over the source and drain metallizations and not only providing a low resistance d.c. path to the gate, but also forming an efficient low phase dispersion transmission line into the active region of the device.

3,737,744 BODY DETECTING INDUSTRIAL SAFETY SYSTEM

Harry R. Bader, Jr., East Aurora, N.Y., assignor to Bader Development Corp., Cheektowaga, N.Y.

Filed Dec. 30, 1971, Ser. No. 214,333

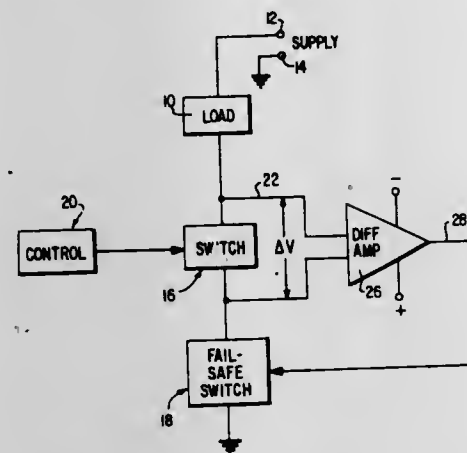
Int. Cl. H02h 7/00

U.S. Cl. 317—33 R

7 Claims

An industrial safety system includes an improved fail-safe system in which a TRIAC switch is connected in series with a relay switch and with a load circuit to complete the circuit from a source through the load. A gating circuit for the

TRIAC normally provides a closed switch effect so that a normal voltage drop appears across the TRIAC. An amplifier detects this voltage drop and keeps the relay closed but when the voltage drop disappears indicating a short fault in the TRIAC, the relay opens. If an open fault occurs in the TRIAC, the load circuit is not completed. The gating circuit for the TRIAC is one in which the presence of a human body, or a part of the human body, at or near to an industrial machine such as a press causes the TRIAC to be non-conductive and the load circuit is the power control for the machine. The gating circuit



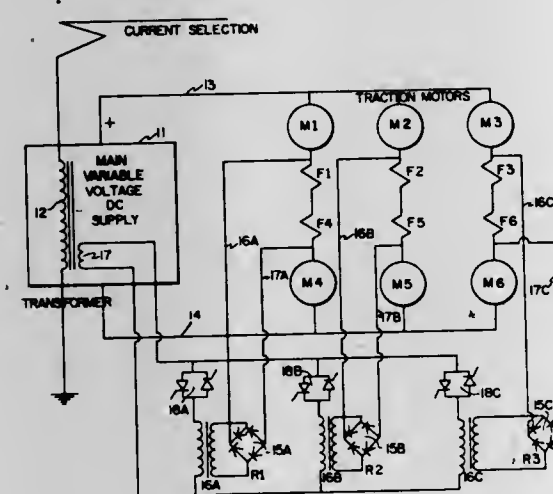
is driven by an oscillator and features a pair of parallel LC tuned circuits one of which has a fixed frequency response and the other of which includes an antenna as the capacitive element so as to have a variable frequency response dependent upon the prohibited presence of the human body. The frequency response of the fixed circuit is lower than that of the variable circuit when the latter is unaffected by a human body and both are resonant at frequencies lower than the oscillator frequency. The TRIAC is gated open when the outputs of the two circuits decrease to a predetermined threshold.

3,737,745 WHEEL SLIP CONTROL SYSTEM

Rene J. Chevanceon, Erie, and Russell M. Smith, North East, both of Pa., assignors to General Electric Company, Erie, Pa.
Filed Dec. 16, 1971, Ser. No. 208,670
Int. Cl. B61c 15/12

U.S. Cl. 318-52

12 Claims



A wheel slip control system for electric traction motor drives using series type direct current traction motors having the field and armature windings connected in series electrical circuit relationship and generally employed in connection with electrically driven vehicles such as electric locomotives and the like. The wheel slip control system comprises a wheel slippage detector in the form of a measuring bridge, tachometer or the like for detecting slippage of any one of a number of series type direct current traction motors employed in driving the vehicle and deriving an output indication of any slippage.

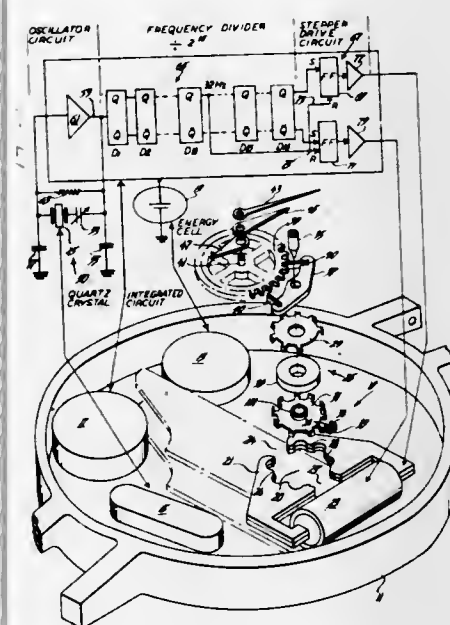
An auxiliary source of direct current is connectable to the series connected field-armature circuit of the respective series type traction motors in parallel with and in addition to the normal direct current excitation connections to the traction motor. The polarity of connection of the auxiliary direct current source is such that the armature current of the traction motor is reduced upon the auxiliary direct current excitation being supplied with a consequent reduction in the tractive effort of the traction motor. The connection preferably is in aiding relation across the field winding of the traction motor in which event the auxiliary current is added to and aids the normal excitation current. The value of the auxiliary current is adjusted to maintain total field current of the series type motor at the same or higher value than it was prior to slippage. As a consequence the back EMF of the motor is increased due to the slippage thereby reducing the armature current and the tractive effort of the motor to correct the slippage. A wheel slip control circuit also is provided which is responsive to the wheel slippage detector and controls the connection of the auxiliary source of direct current to the field-armature circuit of the series type traction motor for achieving the desired reduction in tractive effort upon detection of a slippage condition.

3,737,746 QUARTZ CRYSTAL CONTROLLED STEPPER MOTOR

Edward F. Cielaszyk, Robert S. Lundin, and Frank W. Stellwagen, Mesa, Ariz., assignors to General Time Corporation, Thomaston, Conn.
Filed Apr. 19, 1972, Ser. No. 245,592
Int. Cl. H02k 33/16

U.S. Cl. 318-130

6 Claims



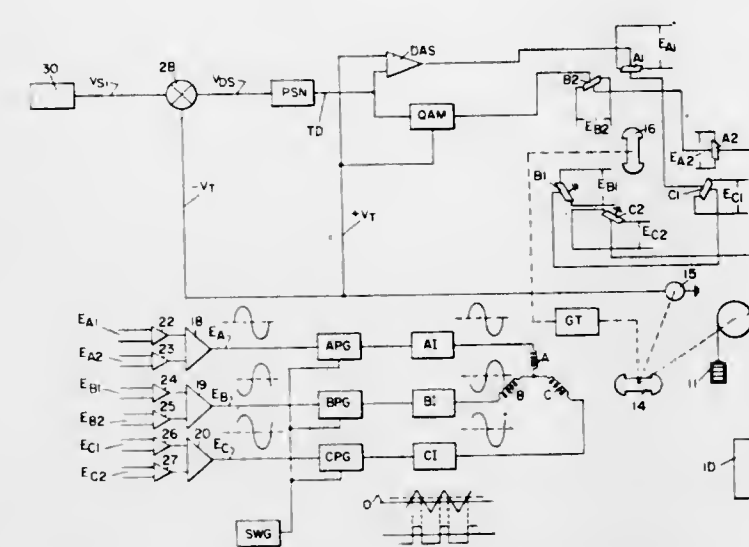
A battery powered self-starting stepper motor driven by pulses of alternating polarity derived from a quartz crystal oscillator via a divider circuit. The output of the quartz crystal oscillator is connected to a divider circuit which divides the high frequency output of the oscillator down to 1 Hz. The complementary outputs of the last divider stage are coupled to a pair of bistable circuits and the output of an intermediate divider stage is connected to the reset terminals of the bistable circuits to limit the pulse width or duty cycle of the pulses generated by each bistable circuit. The respective outputs of the bistable circuits are coupled to the energizing winding of the stator core of the stepper motor via a drive circuit such that the pulses from one of the bistable circuits are passed through the winding in a first direction and the pulses from the other bistable are passed through the winding in the opposite direction.

3,737,747 SERVOMECHANISM INCLUDING A POLYPHASE ALTERNATING CURRENT SYNCHRONOUS MOTOR

Otto Albert Krauer, Tuckahoe, N.Y., assignors to Otis Elevator Company, New York, N.Y.
Filed May 10, 1971, Ser. No. 141,683
Int. Cl. H02p 5/28

U.S. Cl. 318-178

12 Claims



A servomechanism including a polyphase alternating current synchronous motor and a variable frequency, variable magnitude voltage generating means, said generating means comprising transducing apparatus responsive to the position of the rotor of said motor as well as to a desired speed signal and an actual speed signal to generate signals signifying those components of the voltages to be applied to the stator phase windings of said motor to balance, one, the counter electromotive force which would be produced across each phase winding at no load at the speed at which the rotor is then rotating and the resistance voltage drop produced across each phase winding by the current then flowing therein, and, two, the leakage and the synchronous reactance voltage drop produced across each phase winding by the current then flowing therein and at the speed at which the rotor is then rotating. These transducing apparatus signals for each phase, after being summed vectorially, caused signal translating apparatus of the voltage generating means to apply voltages to their respective stator phase windings to operate said motor according to said desired speed signal.

3,737,748 MOTOR SPEED CONTROL CIRCUIT WITH UNIJUNCTION TRANSISTOR LINE VOLTAGE COMPENSATION

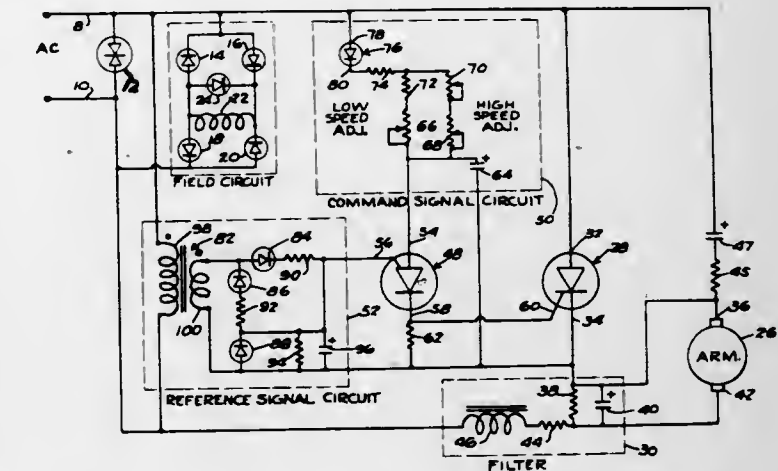
Phillip J. Teders, Ann Arbor, Mich., assignor to Sarns, Inc., Ann Arbor, Mich.
Filed Nov. 3, 1971, Ser. No. 195,404
Int. Cl. H02p 5/16

U.S. Cl. 318-331

29 Claims

An adjustable speed control circuit for a DC motor which automatically compensates for variations in both motor load and the voltage level of an AC source which supplies power for driving the motor. A command signal circuit and a reference signal circuit develop command and reference signals respectively which are applied to a solid state switch. The solid state switch operates in response to a certain differential between the command signal and the reference signal to cause current to be conducted from the AC source to the motor during the positive half-cycle of the AC voltage. The reference signal is a function of the AC line voltage and the command signal, a function of the AC line voltage, the motor armature voltage and the setting of an adjustable speed selector resistor in the command signal circuit. When the adjustable speed selector resistor is operated toward a minimum speed position, the necessary signal differential for operating

the solid state switch occurs later in the positive half-cycle so that the duration of application of the positive half-cycle of AC line voltage to the motor armature is reduced; when operated toward a maximum speed position, earlier in the half-cycle so that the duration is increased. A change in motor load affects only the command signal so that the necessary differential for operating the solid state switch occurs either



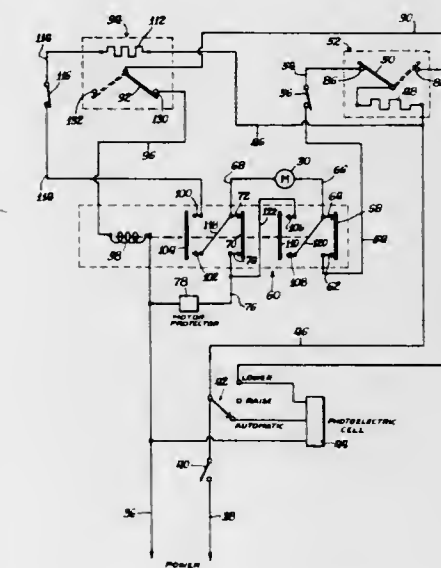
earlier in the positive half-cycle for an increased load or later in the positive half-cycle for a reduced load to thereby maintain the selected motor speed in spite of load changes. Any variation in AC line voltage affects both the command and reference signal circuits in offsetting fashion so that the point at which the necessary differential for operating the solid state switch occurs is at essentially the same point of the positive half-cycle.

3,737,749 MOTOR CONTROL SYSTEM

Theodore F. Schmit, Chicago, Ill., assignor to Electronic Flag Poles, Inc., Maywood, Ill.
Filed June 16, 1972, Ser. No. 263,458
Int. Cl. G05b 9/02

U.S. Cl. 318-472

5 Claims



A system for controlling the operation of a reversible electric motor employed in raising and lowering a flag in an automatic flagpole, including thermally responsive current-sensing switching devices and an electromagnetic relay means in a circuit with the motor and arranged to reverse the motor's direction in response to a predetermined overloading due to obstruction to the free movement of the flag-carrying halyard driven by the motor and to restart the motor in its original direction of rotation after a predetermined time delay.

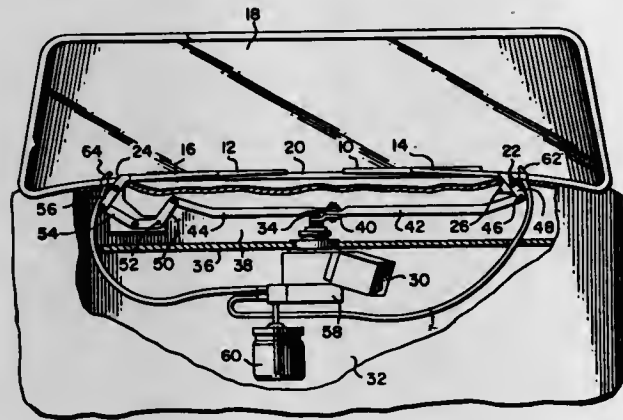
3,737,750 MOTOR SPEED CONTROL

Robert W. Kearns, Detroit, Mich., assignor to Tann Co., Detroit, Mich.

Division of Ser. No. 666,549, Sept. 1, 1967, Pat. No. 3,573,584, which is a continuation-in-part of Ser. No. 414,973, Dec. 1, 1964, Pat. No. 3,351,836. This application Apr. 27, 1970, Ser. No. 43,277
Int. Cl. B60s 1/08

U.S. Cl. 318—443

5 Claims

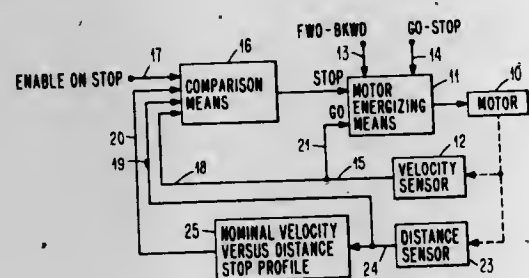


A windshield wiper control which operates the wiper blades continuously or intermittently with a dwell period between each wiping cycles. In the intermittent operation the wiper blades are responsive to the condition of the windshield. Transistors are provided for controlling the intermittent operation and also for controlling the continuous mode of operation.

**3,737,751
SERVOMECHANISM STOP CONTROL**
Philip J. Lima, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed June 24, 1971, Ser. No. 156,222
Int. Cl. H02p 5/06

U.S. Cl. 318—463

12 Claims



Rotation of a direct current motor is brought to a stop in a preselected distance by a closed-loop servomechanism which periodically compares the actual motor velocity-versus-distance stop profile to a nominal velocity-versus-distance stop profile, to thereby originate an error signal. This error signal is used to variably control the motor in a manner devised to achieve the nominal profile at the next distance checkpoint.

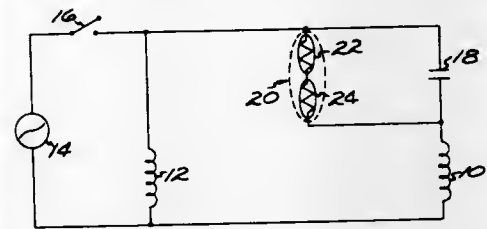
**3,737,752
MOTOR CONTROL SYSTEM**
Richard W. Strachan, Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Apr. 9, 1971, Ser. No. 132,846
Int. Cl. H02p 1/44

U.S. Cl. 318—471

10 Claims

A system adapted for use in controlling an electric motor having a start winding, a run winding, and a capacitor connected to the start winding is disclosed in which a heat responsive current limiting device, the electrical resistance of which

increases abruptly at a predetermined transition temperature, is connected in parallel relationship with the capacitor and coupled to the start winding so as to permit power to be supplied to the start winding therethrough only during starting of the motor until the predetermined transition temperature is



approached whereupon power is applied to the start winding through the capacitor and the voltage established thereacross retains the heat responsive current limiting device in a heated state so that the device continues to block current flow therethrough until another starting cycle is initiated.

**3,737,753
METHOD FOR DETERMINING, WITHOUT PHYSICAL CONTACT, THE SWIVEL POSITION OF A BODY CLAMPED INTO A ROTARY SUPPORT**

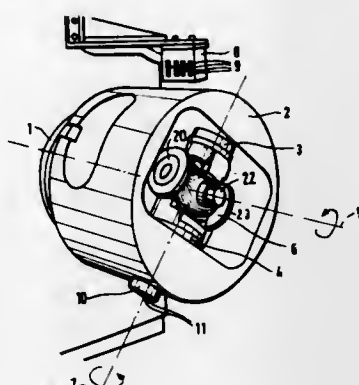
Wilhelm August Karl Junke, 3 Hannover, and Theodor Franz Hauck, Berlin, both of Germany, assignors to Werkzeugmaschinenfabrik Gildemeister & Comp. AG, Bielefeld, Germany

Filed Nov. 3, 1971, Ser. No. 195,325
Claims priority, application Germany, May 4, 1971, P 21 22 051.9

U.S. Cl. 318—602

Int. Cl. G05b 19/28

8 Claims



Apparatus for determining the swivel position of a body which is clamped into a rotary support rotating about a rotational axis and which is swiveled about a swivel axis that is angularly offset in relation to the rotational axis, and doing so without relying on physical contact. One or more transmitter element is supported on a rotary support and is swingable with the body eccentrically about the swivel axis. One or more scanning probe is disposed in a fixed position adjacent the rotary support, so that the transmitter element is moved past it without touching it when the support rotates. An interpretive device is controlled by the scanning probe and evaluates the offset of the transmitter element in relation to the scanning probe caused by the swiveling of the transmitter element, thereby determining the swivel position of the body.

**3,737,754
STORED ENERGY STABILIZATION SYSTEM**
Bernard R. Katz, Irvington, N.J., assignor to The Lummus Company, Bloomfield, N.J.
Filed Mar. 19, 1971, Ser. No. 126,250
Int. Cl. H02j 7/00; H02m 3/00

U.S. Cl. 320—1

12 Claims

A method of stabilizing the energy stored by a reactive storage device, and the apparatus therefor, are provided in accordance with the teachings of the present invention. The amount of energy depleted from said reactive storage device by the inherent leakage characteristics thereof is determined and additional energy is supplied to said reactive storage device accordingly. A recurrent pulse signal having a period dependent upon the energy stored by the reactive storage

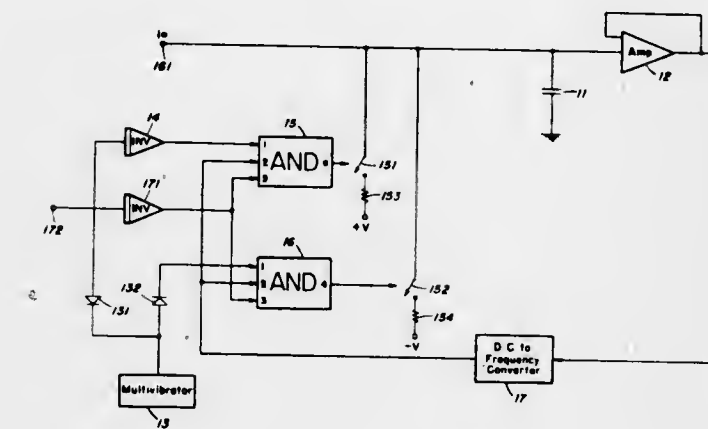
3,737,756 CONVERTER CIRCUIT WITH BALANCED PARALLEL SWITCHING PATHS

Andrew Daniel Hasley, Basking Ridge, and Richard Howard Hock, Landing, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed May 15, 1972, Ser. No. 253,502
Int. Cl. H02m 3/14; G05f 1/58

U.S. Cl. 321—2

8 Claims



device is generated. A change in the period of said recurrent pulse signal is detected by comparing said recurrent pulse signal with reference pulses. The energy stored by the reactive storage device is selectively incremented and decremented in accordance with the comparison of said recurrent pulse signal with said reference pulses.

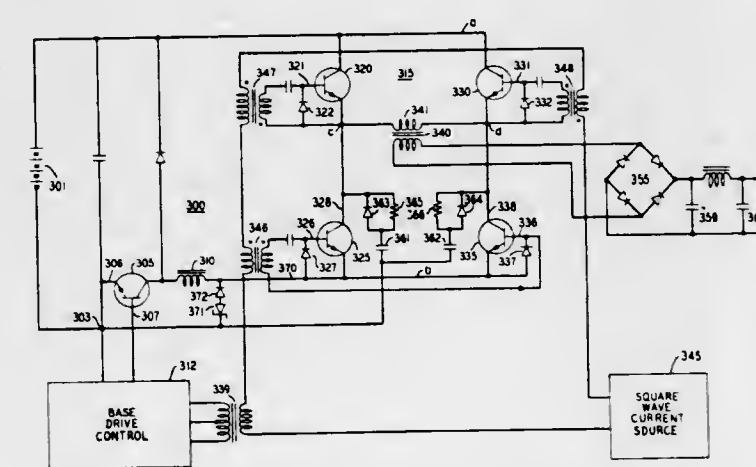
**3,737,755
REGULATED DC TO DC CONVERTER WITH REGULATED CURRENT SOURCE DRIVING A NONREGULATED INVERTER**

Edwin Theodore Calkin, Parsippany; Billy Harold Hamilton, Summit, and Frank Carl La Porta, Livingston, all of N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Mar. 22, 1972, Ser. No. 236,889
Int. Cl. H02m 3/28

U.S. Cl. 321—2

9 Claims



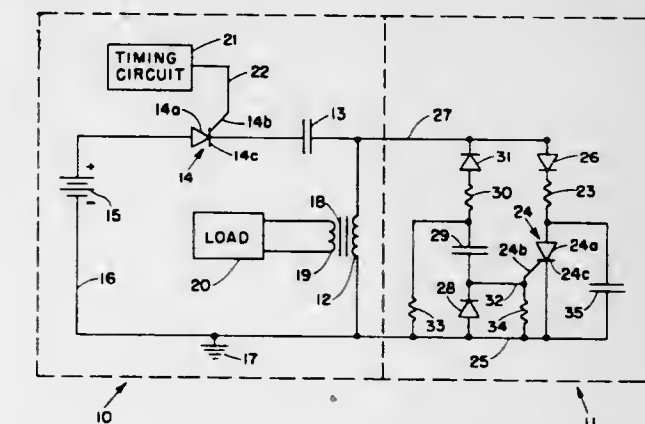
A regulated DC to DC converter comprises a switching-type regulated current source driving a non-regulated bridge-type inverter. The output signal of the converter is regulated by pulse width modulating the switching device in the switching regulator. The output impedance of the current source is inductive. This inductive impedance, which comprises the free-wheeling or flyback inductor of the switching regulator, operates as the principal filter inductor of the converter. This regulator-inverter combination advantageously simplifies the switching control of the inverter switching devices and reduces the switching losses therein. It eliminates the switching control problems which normally occur due to switchthrough phenomena and the saturation of the inverter transformer.

911 O.G.—10

**3,737,757
PARASITIC SUPPRESSING CIRCUIT**
John T. Fowler, Winthrop, and Frank L. Raposa, Concord, both of Mass., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed May 15, 1972, Ser. No. 253,405
Int. Cl. H02m 1/18

U.S. Cl. 321—11

9 Claims



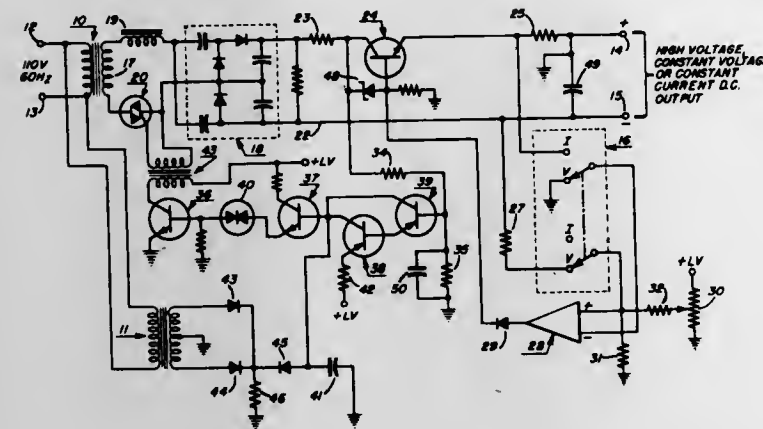
A circuit for suppressing parasitic oscillations across an inductor operating in a resonant mode is described. The circuit includes a switch means and resistive means connected serially across the inductor. A unidirectional resistive-capacitive network is also connected across the inductor and to the switch means to automatically render the switch means conducting when inductive current through the inductor ceases to flow.

3,737,758 SWITCH-MODE VOLTAGE AND CURRENT REGULATOR

Robert W. Allington, 1551 Ridgeway, Lincoln, Nebr.
Continuation of Ser. No. 64,094, July 28, 1970, which is a
continuation of Ser. No. 771,521, Oct. 29, 1968. This
application Nov. 3, 1971, Ser. No. 195,519
Int. Cl. H02m 7/00

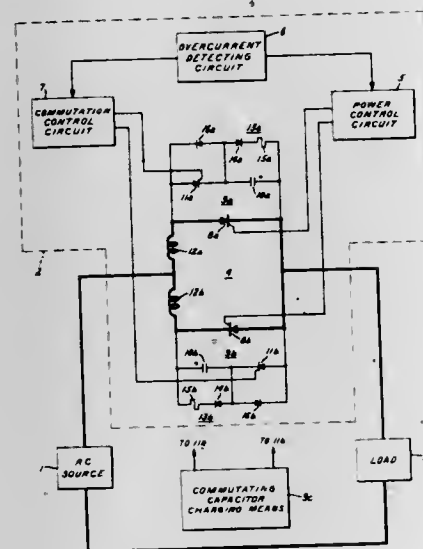
U.S. Cl. 321-18

15 Claims



An alternating current input to direct current output power supply providing a regulated constant voltage or constant current output and incorporating a switching-mode preregulator and a postregulator. Regulation is primarily obtained by means of a bidirectional switching element operated at a relatively low voltage and the alternating current voltage output from the switching element and an associated power transformer is applied to a rectifying voltage multiplier to produce a high voltage output. A series-pass output regulator, is controlled by negative feedback derived from the output circuitry and negative feedback from such regulator controls the switching element.

**3,737,759
STATIC SWITCH INCLUDING SURGE SUPPRESSING MEANS**
Ernest M. Pollard, Cherry Hill, N.J., assignor to General Electric Company, Philadelphia, Pa.
Filed Mar. 1, 1972, Ser. No. 230,559
Int. Cl. H02m 7/00
U.S. Cl. 321-45 C
2 Claims

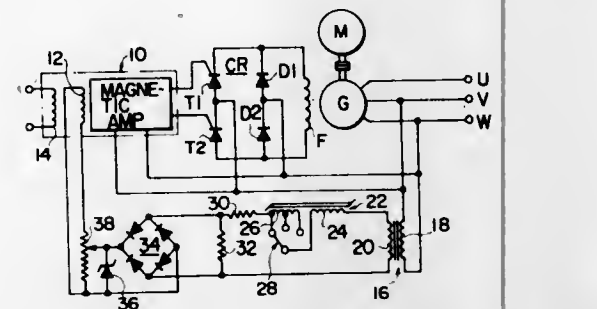


Disclosed is a forced commutation static switch composed of inverse parallel connected thyristors. Commutation circuits are respectively connected across the thyristors. Means for suppressing commutation generated switching transients are coupled to a portion of the commutation means, and means for suppressing external voltage surges are coupled to another portion of the commutation means.

ERRATUM

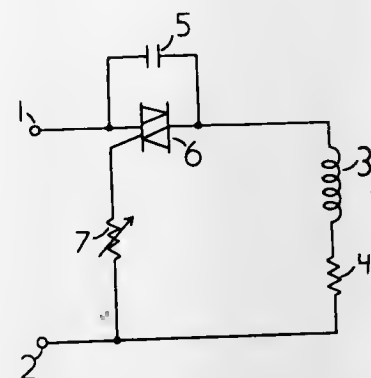
For Class 321-11 see:
Patent No. 3,737,763

**3,737,760
VOLTAGE CONTROL APPARATUS FOR AN
ALTERNATING CURRENT GENERATOR**
Hisakatsu Kiwaki, Hiroshi Sato, and Takeo Kuwabara, all of
Katsuta-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Oct. 12, 1971, Ser. No. 188,333
Claims priority, application Japan, Oct. 12, 1970, 45/88829
Int. Cl. H02p 9/30
U.S. Cl. 322-28
14 Claims



A voltage control apparatus for an alternating current generator comprising an alternating current generator which is self-excited, an electric motor for driving the generator, a control rectifier arrangement for exciting the field winding of the generator by rectifying the output voltage of the generator, a phase shifter for controlling the control rectifier, a saturable reactor excited by the output of the generator, a rectifier for rectifying the current flowing through the reactor to supply a control input for the phase shifter, and a resistor connected across the alternating current terminals of the rectifier to bypass the current of the reactor.

**3,737,761
VOLTAGE ADAPTOR CIRCUIT**
Dieter H. Walther, 851 Furth, Germany, assignor to International Standard Electric Corporation, New York, N.Y.
Filed Apr. 19, 1972, Ser. No. 245,359
Int. Cl. H02j 3/04; G05f 5/00
U.S. Cl. 307-130
5 Claims

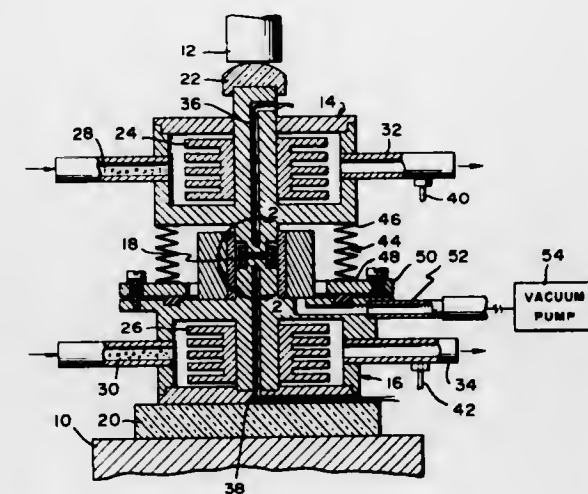


An electrical circuit for automatically adapting an inductive load to that of one of two possible A.C. supply voltages applied across the circuit. The circuit comprises a capacitor connected in series with the load. The capacitor value is such that a series resonant circuit is formed with the load at a frequency of operation. A controlled semiconductor device having a pair of terminals and a gate terminal is connected with the pair of terminals in parallel across the capacitor. The gate terminal is connected through a non-linear current-voltage characteristic electrical component to one of the terminals of the A.C. supply voltage. For the lower A.C. supply voltage, the capacitor and inductor form a series resonant circuit and at the higher A.C. supply voltage, the controlled semiconductor device short circuits the capacitor.

3,737,762 APPARATUS AND METHOD FOR MEASURING THE SEEBECK COEFFICIENT AND RESISTIVITY OF MATERIALS

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Vaclav Hadek, 3246 North Mount Curve, Altadena, Calif.

Filed Aug. 26, 1971, Ser. No. 175,267
Int. Cl. G01r 5/28, 31/00
U.S. Cl. 324-32
2 Claims

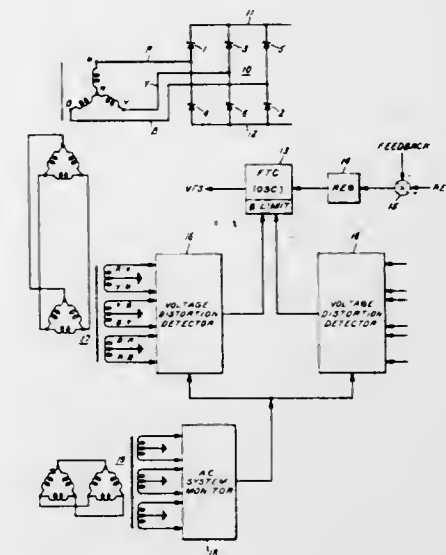


Apparatus for measuring the thermoelectric properties of materials under high pressure, including a pair of force transmitting assemblies constructed of thermally and electrically conductive material positioned between the ram and anvil of a press. Each force transmitting assembly has a small diameter pressing portion for contacting a face of the sample so that the sample can be squeezed between them. Each assembly also includes a heat exchanger to maintain the sample face at a controlled temperature, and an electrical conductor to carry current generated by the sample. A sleeve of thermally and electrically insulating material closely surrounds the pressing portions of the two assemblies to confine the sample and to help align the two pressing portions. A bellows surrounds the pressing portions of the assemblies and a vacuum pump can evacuate the enclosed region.

**3,737,763
VOLTAGE DISTORTION DETECTION AND CONTROL
FOR HVDC CONVERTER**
Philip Chadwick, Media, Pa., assignor to General Electric Company, Philadelphia, Pa.
Continuation of Ser. No. 144,017, May 17, 1971, abandoned.
This application Apr. 13, 1972, Ser. No. 243,748
Int. Cl. H02m 1/08, 7/48
U.S. Cl. 321-11
14 Claims

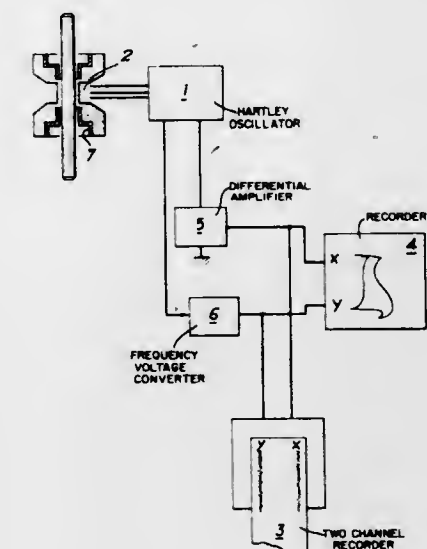
A method and apparatus for controlling line voltage commutated, thyristor bridge power converters operated in the inverting mode comprising sampling the value of the thyristor valve commutating voltage appearing across the respective thyristor valves at a particular point in a cycle in advance of commutation, comparing the instantaneous value of a freshly sampled thyristor valve voltage to a stored value of the valve voltage of the previously conducting thyristor valve, detecting any difference between the instantaneous and stored values of valve voltage for use as an output error control signal, and directly applying the output error control signal back to control the firing angle of advance β of the next thyristor valve to fire in the power converter. The power converter is normally controlled by a main or normal control regulation loop having a relatively slow speed of response and the output error control signal from the comparison circuit is supplied back

directly in parallel with and in addition to the normal control regulation loop as a fast responding control capable of con-



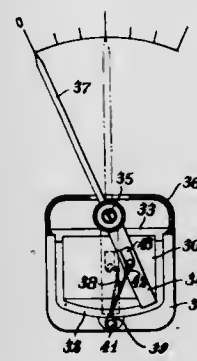
trolling the firing angle of advance β of the next thyristor valve to be rendered conductive in the power converter.

**3,737,764
EDDY-CURRENT TEST APPARATUS FOR DETECTION
OF FLAWS IN A METAL SEAL PLACED WITHIN AN
ELECTRICALLY CONDUCTIVE TUBE**
Jean-Pierre Dufayet, Aix-En Provence, France, assignor to
Commissariat A L'Energie Atomique, Paris, France
Filed Sept. 27, 1971, Ser. No. 183,852
Int. Cl. G01r 33/12
U.S. Cl. 324-40
1 Claim



A method and apparatus for eddy-current detection of flaws such as bubbles and different characteristics of a metal seal within an electrically conductive tube. The method consists in recording separately on the one hand the variations in potential which are directly related to variations in amplitude of the eddy currents as a function of the cross-section of the tube and on the other hand the variations in the frequency of said currents also as a function of said cross-section while also recording simultaneously with these two variations the variations in said potential as a function of said frequency, the frequency of the eddy currents being determined as a function of the nature and shape of the tube and of the seal.

comprising one or more flexible members or a pivot link and substantially rigid rod which is attached to the pointer and



which limits the pointer movement independently of the means for moving the pointer.

3,737,773

TACHOMETER CIRCUIT

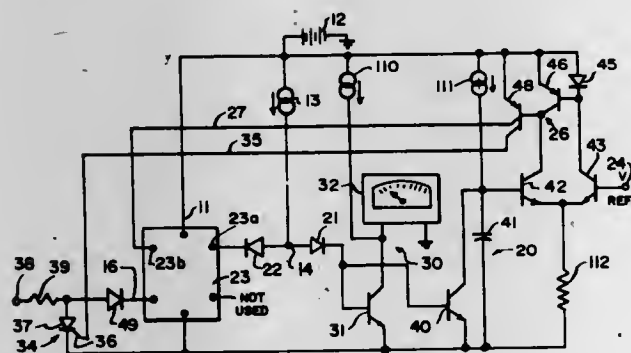
Don William Zobel, Tempe, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed July 28, 1971, Ser. No. 166,688

Int. Cl. G01p 3/48, 3/54, 23/02

U.S. Cl. 324-166

12 Claims



A tachometer circuit is provided with a current steering circuit which has a first circuit portion connected to a power source. An input circuit portion of the steering circuit receives input pulse signals of different and/or indiscriminate pulse width which are indicative of the motion of a movable member to cause the output current of the steering circuit to be diverted from one current path to a second current path. A timing circuit is connected to the output circuit portion of the current steering circuit to produce a timed pulse of predetermined duration. Feedback means is provided for applying the timed pulse to the steering circuit to revert its state and again cause current to be directed through the first current path. This will produce a given-width pulse which is integrated with respect to time and used to produce a tachometer reading. An input lockout circuit is connected to the input circuit portion to shunt that portion of the input signal which exceeds the time duration of the given-width pulse.

3,737,774

AUTOMATIC LEVEL CONTROL DEVICE FOR USE IN TELECOMMUNICATION SYSTEMS

Jan Verhagen, Hilversum, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 6, 1970, Ser. No. 78,381

Claims priority, application Netherlands, Oct. 13, 1969, 6915475

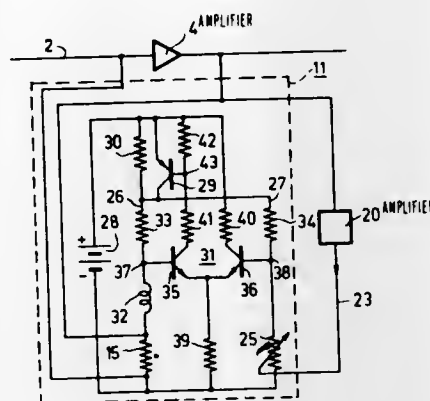
Int. Cl. H04b 3/04

U.S. Cl. 325-2

6 Claims

Automatic level control device for use in telecommunication systems, said device comprising a level control member formed by a current-dependent impedance varying with the level control signal, said device comprising, in order to enable

a very accurate adjustment of the level control signal, furthermore a variable current-independent impedance controlled by the level control signal, which together with the said current-dependent impedance forms part of a Wheatstone bridge



formed by two parallel impedance circuits, of a variable direct-current source connected to said bridge and of a comparison device included in the galvanometer branch of the bridge, the output signal of said comparison device controlling the direct-current source.

3,737,775

ANALOG STORAGE ARRANGEMENT USING TRANSFLUXOR

Hans Mangold, Furth, and Hans-Jurgen Adelman, Furth-Braunsbach, both of Germany, assignors to Grundig Electro-Merchanische Versuchsanstalt Max Grundig, Furth, Germany

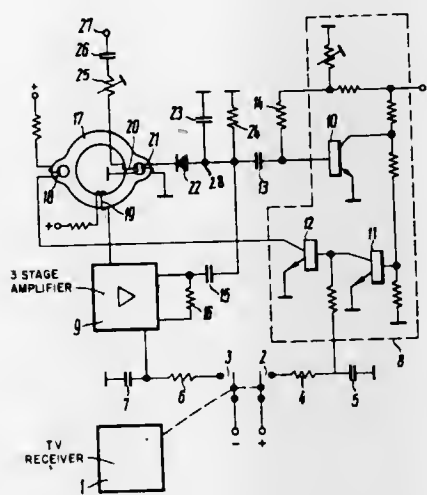
Filed Nov. 10, 1971, Ser. No. 197,468

Claims priority, application Germany, Nov. 13, 1970, P 20 55 863.8

Int. Cl. G11c 27/00; H04b 1/06, 7/00

U.S. Cl. 325-37

20 Claims



A rectifier is connected to transfluxor output winding. A first feedback circuit is connected between rectifier output and setting winding, a second feedback circuit between rectifier output and blocking winding. The first and second feedback circuits have first and second three-stage amplifier respectively. The operating voltage for one stage of first or second three-stage amplifier applied selectively to produce increase or decrease of stored analog value respectively.

3,737,776

TWO CARRIER COMMUNICATION SYSTEM WITH SINGLE TRANSMITTER

James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Mahlon F. Easterling, 106 Marcheta St., Altadena, Calif.

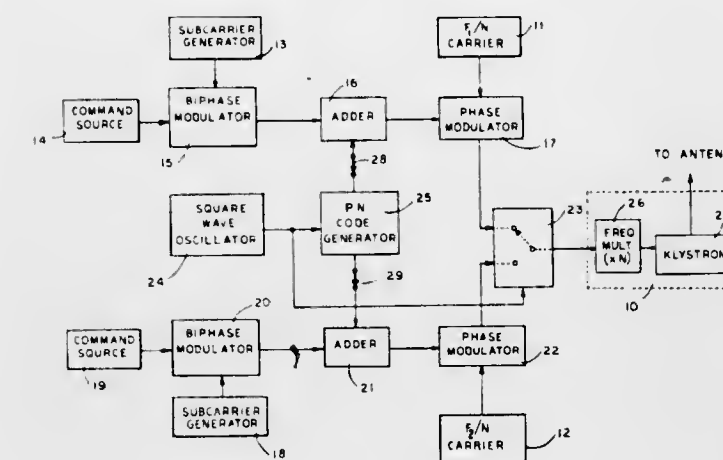
Filed June 9, 1971, Ser. No. 151,411

Int. Cl. H04j 3/00

U.S. Cl. 325-40

2 Claims U.S. Cl. 325-322

3 Claims



A pulse-code modulated communication system is disclosed for transmitting two subcarrier-modulated carriers from a single transmitter comprising two channels for phase modulating the two carriers independently. The modulating subcarriers are independently modulated by data and/or pseudonoise (PN) codes as desired. The modulated carriers are switched alternately to the single transmitter in synchronism with operation of a PN code generator when PN code modulation is present, as for ranging.

3,737,777

INJECTION PHASE LOCKING DEVICE IN AN FM-TRANSMITTER FOR A SELF-OSCILLATING OSCILLATOR MODULATED BY A MODULATION SIGNAL

Gyorgy Geza Endersz, Hagersten, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

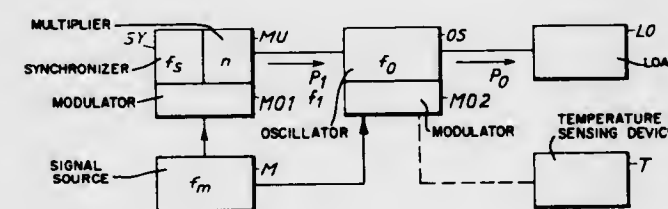
Filed July 2, 1971, Ser. No. 159,327

Claims priority, application Sweden, July 10, 1970, 9580/70

Int. Cl. H03c 3/02; H04b 1/04, 1/66

U.S. Cl. 325-148

8 Claims



A phase locking arrangement in which a free-running oscillator running with a frequency f_0 is injection phase locked by a synchronizing oscillator with a free-running frequency f_s and a multiplier giving a multiplied frequency $n \cdot f_s$. A modulating frequency f_m modulates both the free-running oscillator and the synchronizing oscillator through two direct coupled FM-modulators, so that the free-running oscillator will be continuously tuned to a frequency f_1 which is chosen so that the synchronizing band $\Delta f = f_1 - f_0$ of the free-running oscillator is narrow, so that the synchronizing power from the synchronizing oscillator can be kept low.

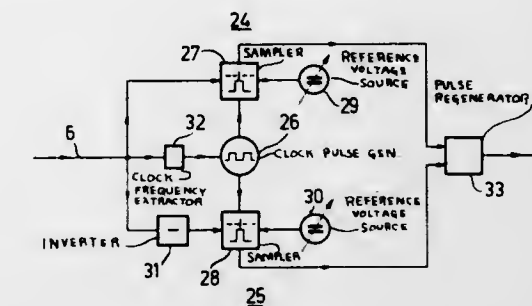
3,737,778

DEVICE FOR THE TRANSMISSION OF SYNCHRONOUS PULSE SIGNALS

Petrus Josephus Van Gerwen, and Willem Harmsen, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Division of Ser. No. 728,706, May 13, 1968. This application Nov. 4, 1971, Ser. No. 195,889

Int. Cl. H04b 1/16



A receiver for a synchronous pulse signal formed with the clock, carrier, and shift frequencies having mutual ratios of integers. The receiver has two channels controlled by a clock pulse generator synchronized to a received signal and followed by a pulse regenerator. The receiver is well suited for an embodiment using integrated circuits.

3,737,779

PULSE TRAIN PROCESSING SYSTEM WITH DISCRIMINATION AGAINST NOISE FOR USE WITH PULSE WIDTH MODULATION

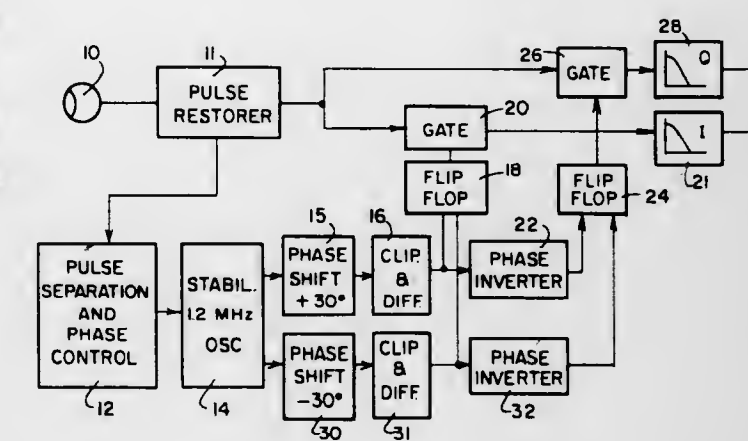
Norman W. Parker, Wheaton, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed June 29, 1972, Ser. No. 267,663

Int. Cl. H04b 1/10

U.S. Cl. 325-324

8 Claims



System for separating pulses containing information in a pulse width modulated pulse train, wherein the leading edges of the pulses occur at a fixed repetition rate. Noise which occurs on the leading edge of the pulses is reduced by slicing the fixed position leading edges. A gating wave stabilized by the received pulse train, and which is insensitive to wide band noise, opens a gate for the pulses after the leading edge of each pulse, and closes the gate before the leading edge of the next pulse. A plurality of gates can be provided to separate pulse trains which are multiplexed to form a composite pulse train. The gates do not affect the pulse width modulation represented by the position of the lagging edges of the pulses and reduces the noise accompanying the demodulated signals.

3,737,780

DIGITAL COMMUNICATION SYSTEM EMPLOYING UNITY BIT PER SAMPLING CODING METHOD

Atsushi Tomozawa, Tokyo, Japan, assignor to Nippon Electric Company Limited, Tokyo, Japan

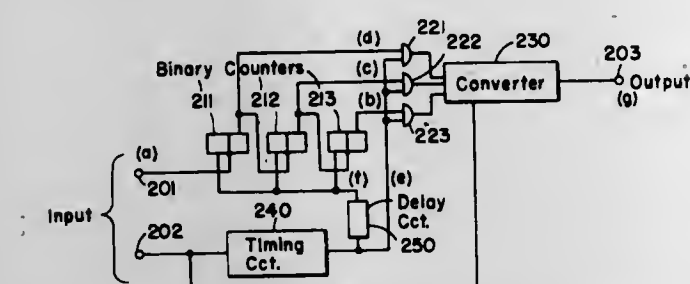
Filed May 4, 1971, Ser. No. 140,033

Claims priority, application Japan, May 11, 1970, 45/40292

Int. Cl. H04b 1/00

U.S. Cl. 325-38 B

3 Claims



A digital communication system reduces the transmission speed required to propagate signals resulting from a unity bit per sample coding process, e.g., delta modulation or delta-sigma modulation. The modulation wave pulses produced during cyclically recurring code converting intervals are counted and the count state transmitted rather than the modulation signal per se, thereby reducing the signal rate impressed on the communication channel. An inverse procedure is employed for signal recovery.

3,737,781

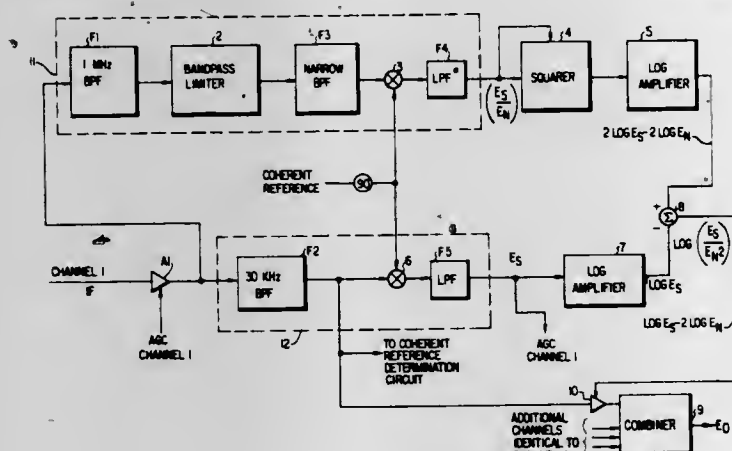
SIGNAL-TO-NOISE RATIO DETERMINATION CIRCUIT
Leonard F. Deerkoski, Laurel, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Sept. 15, 1971, Ser. No. 180,683

Int. Cl. H04b 3/46

U.S. Cl. 325-363

10 Claims



A signal-to-noise ratio (SNR) determination circuit to determine the SNR of an input having signal components (S) within a given frequency range and noise components (N), without actual measurement of the noise (N) components. Input means receive the input, and first filter means having a frequency bandpass range different from said given frequency range are connected to the input means to convert the db level of the input SNR to another level. Bandpass limiter means having a constant signal plus noise output level are connected to the output of the first filter means, the signal-to-noise ratio of the input to the bandpass limiter means being linearly related to the dbm level of signal components at the output thereof, for a given db range of converted SNR input levels. Calibrating means are connected to the bandpass limiter means and are responsive to the signal components at the output thereof to derive the SNR of the input to the determination circuit. The SNR determination circuit is disclosed for use

in a diversity receiver having a plurality of input channels. Weighting means are used to weight the channels prior to summation to provide maximum signal-to-noise ratio at the output of a combiner.

3,737,782

RADIO TRANSMITTERS

Reginald Roy Pierce, Hartley, England, assignor to Burndept Electronics (E.R.) Limited, Kent, England

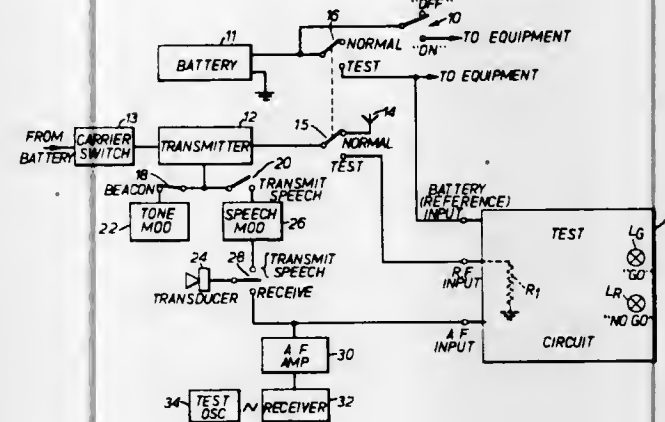
Filed July 13, 1971, Ser. No. 162,097

Claims priority, application Great Britain, July 16, 1970, 34,551/70

Int. Cl. G08b 19/00; H04b 1/00

U.S. Cl. 325-363

9 Claims



The invention provides a self-test facility for such battery powered transmitter and transmitter/receiver apparatus as radio rescue beacons and includes a test circuit which can be switched to receive the output of the transmitter and give a PASS signal only if all the parameters under test, applied to gating networks, are correct. The circuit described is arranged to test the power output and modulation of the transmitter output the battery E.M.F. of a radio rescue beacon, and also the sensitivity and audio power output of the associated receiver.

3,737,783

SIGNAL-TO-NOISE RATIO IMPROVING DEVICE FOR RECEIVING SYSTEMS HAVING TWO WAVE COLLECTORS

Jacques Oswald, Versailles, and Yves Rainsard, Antony, both of France, assignors to Compagnie Industrielle Des Telecommunications, Paris, France

Filed May 14, 1971, Ser. No. 143,337

Claims priority, application France, May 15, 1970, 7017868

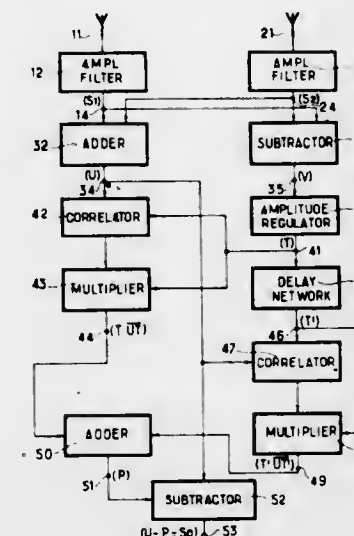
Int. Cl. H04b 1/12

U.S. Cl. 325-367

9 Claims

A signal-to-noise ratio improving device for processing narrow frequency band signals received by two wave collectors (transducers or antennas) and respectively delivered at one and the other of two input terminals in the form of identical useful signals on each of which a different quasi-stationary noise is superposed. The device forms the sum and difference of the noise-affected signals received at said input terminals and the said difference is processed in a circuit comprising amplitude regulating means, first and second correlators each having two inputs to one of which is fed the said sum and to the other of which are applied, for said first correlator, said amplitude-regulated difference and, for said second correlator, the latter said difference delayed by a fixed time interval. The correlators deliver at their respective outputs signals proportional to the time average of the product of the signals applied to their two inputs. The averaged signals are respectively applied to a first input of each one of two multipliers, to a second input of which are respectively applied said amplitude-regulated difference and said delayed amplitude-regulated difference. The outputs of the multipliers deliver new signals

which are applied to the inputs of an adder, and the output signal from said adder is applied to an input of a subtractor, to



the other input of which said sum of noise-affected signals is applied. The output of the subtractor delivers the improved signal.

3,737,784

CIRCUITS WITH BROAD BAND FLAT FREQUENCY RESPONSES USING DIRECTIONAL FILTERS

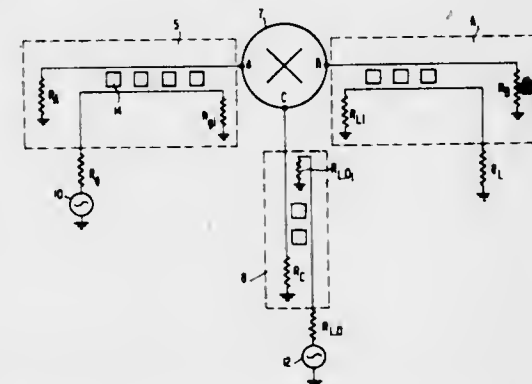
Irving Dostis, Palos Verdes Peninsula, Calif., assignor to Communications Satellite Corporation, Washington, D.C.

Filed July 21, 1971, Ser. No. 164,545

Int. Cl. H04b 1/26

U.S. Cl. 325-436

1 Claim



Disclosed herein is a technique for producing broad band flat frequency responses using active elements by eliminating mismatch caused energy reflections. The technique provides for the upling of directional filters to selected ports of n active element. Each of the directional filters includes a resistive termination matched to the source impedance of the port to which it is coupled over a broad band of frequencies outside of the filter passband.

3,737,785

SOLID-STATE SIGNAL DISTRIBUTION SYSTEM

Adrianus Korpel, Prospect Heights, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Mar. 24, 1971, Ser. No. 127,698

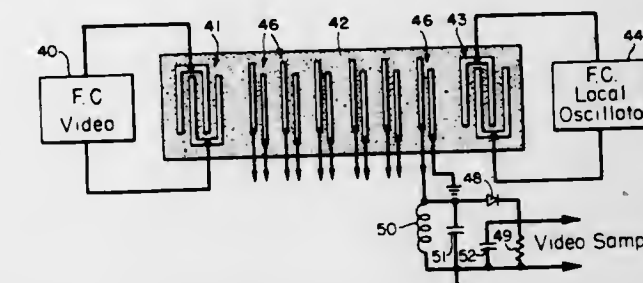
Int. Cl. H04b 1/26

U.S. Cl. 325-442

9 Claims

An acoustic surface-wave device is utilized to distribute coded samples of an information signal among a plurality of output ports. A first surface-wave transducer responds to signals from a source of time-domain information for launching acoustic surface waves in a piezoelectric substrate. The piezoelectric material is one which exhibits a non-linear relationship between an applied electric field and the strain developed by that field; alternatively, non-linear elements are

included in the output circuitry. Either by reason of the dispersive nature of the transducer or by treatment of the time-domain signals before their application to the transducer, the surface waves propagate in one direction and exhibit a given mode of spatial dispersion along that path of propagation. A second surface-wave transducer responds to counter-part signals from another source to launch acoustic surface waves in the opposing direction which exhibit a mode of spa-



tial dispersion that effectively is the conjugate of the aforesaid given mode. Finally, a plurality of output transducers are spaced successively along the propagation paths. The output transducers are individually responsive to respective different spatially-distributed combinations of the dispersion modes that all have the same frequency but which yield respective different output signals individually corresponding to respective different time-displaced portions of the information signal.

3,737,786

RADIO RECEIVER ADAPTED TO MONITOR WARNING SIGNALS

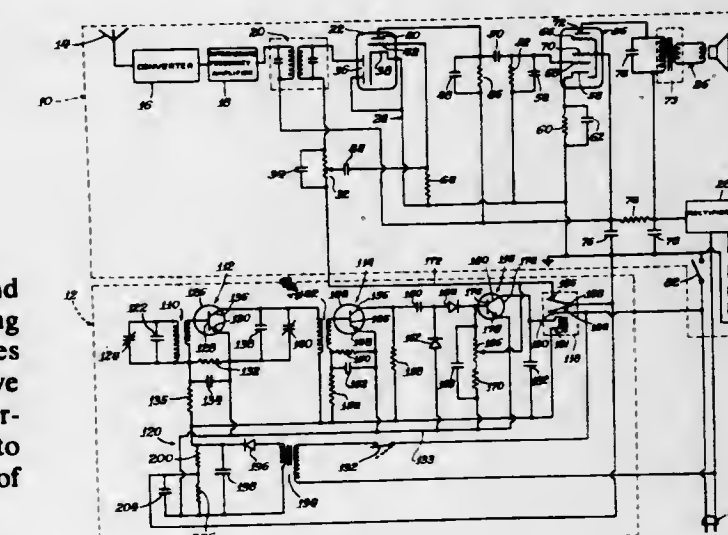
John J. McDermott, 1446 Suffolk Avenue, Westchester, Ill., and Francis M. Macken, 800 Washington Boulevard, Oak Park, Ill.

Filed June 4, 1971, Ser. No. 149,959

Int. Cl. H04b 1/06

U.S. Cl. 325-466

9 Claims



A device, for detecting and demodulating only a transmission of an audio frequency modulated radio frequency carrier signal of a preselected fixed carrier frequency, is selectively interconnected, through switching means, between the demodulating circuit and audio amplification and output circuit of a tunable receiver designed to detect the transmission of audio frequency modulated radio frequency signals of different carrier frequencies. The switching means is further interconnected in the power supply circuit of the tunable receiver so that when the device detects a transmission of a signal at the preselected fixed frequency the switching means provides a power path to the tunable receiver. Simultaneously the switching means impresses a signal, developed in the device, which includes a direct current voltage component and an audio frequency component, on the demodulating and

audio amplification circuits in the tunable receiver to suppress signals from the demodulating circuit and permit amplification of the audio frequency component.

3,737,787

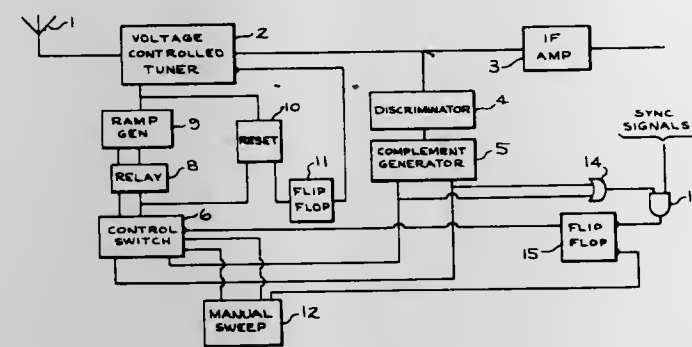
ELECTRONIC SIGNAL SEEKING SYSTEM WITH RAPID SCAN

Adolf Wolfram, Portsmouth, Va., assignor to General Electric Company, Portsmouth, Va.

Filed June 29, 1971, Ser. No. 158,015
Int. Cl. H04b 1/32

U.S. Cl. 325—470

3 Claims



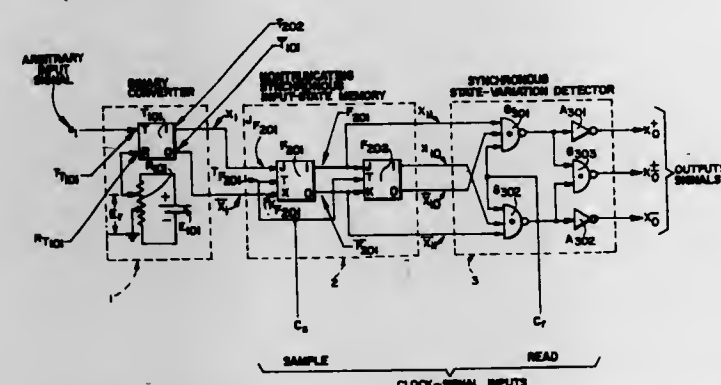
A signal-seeking tuning control system for use with a voltage-controlled tuner. A ramp generator is operated manually to cause the tuner to sweep through a spectrum of channel frequencies. When the converted-frequency signal outputted by the tuner approaches a desired frequency range a discriminator produces an error signal for energizing a control system having three discrete states. When the discriminator output is within a fixed, narrowly defined range the control system arrests the operation of the ramp generator. Should the converted frequency drift beyond the narrow range, the discriminator produces an error signal which reflects the change in frequency, energizing an appropriate segment of the control to operate the ramp generator. Retrace means are provided for recycling the ramp generator when the voltage outputted thereby achieves a predetermined maximum or minimum value.

3,737,788

SLOPE RESPONSIVE SIGNAL IDENTIFICATION MEANS
Charles E. Lenz, Fullerton, Calif., assignor to North American Rockwell Corporation, El Segundo, Calif.
Continuation-in-part of Ser. No. 463,090, June 11, 1965, Pat. No. 3,508,246. This application Apr. 16, 1970, Ser. No. 29,221

Int. Cl. H03k 5/20, 19/00, 19/36
U.S. Cl. 328—118

9 Claims



A slope responsive signal identification means which is excited by at least one input signal. The system has a circuit for quantizing the input signal, which quantizer provides a binary output. There is also available a clock pulse supply source the output of which together with the output of the

quantizer is fed to a memorizer circuit which provides memorization of the state of logic of the binary output. Additionally a circuit responsive to the memorizer and clock pulse supply source is provided for identification of the slope polarity of the input signal.

3,737,789

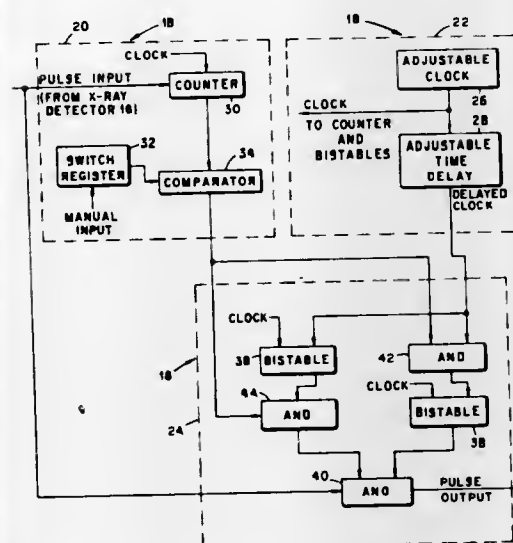
COUNT RATE DISCRIMINATOR

Donald D. McCoy, Pacheco; Bruce H. Shue, Livermore, and Ralph G. Gutmacher, Danville, all of Calif., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Dec. 21, 1971, Ser. No. 210,343
Int. Cl. H03k 9/06

U.S. Cl. 328—138

1 Claim



A count rate discriminator which detects pulsed input signals having a pulse repetition rate within a selectable lower and higher pulse rate limit and which passes, during a predetermined time period, only those input pulses contributing to exceed the preselected low limit pulse rate providing said input pulse rate does not exceed the preselected high limit.

3,737,790

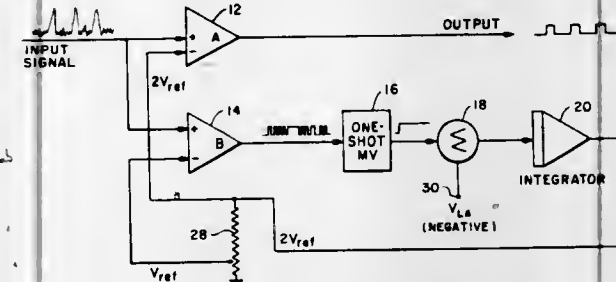
NOISE-RIDING SLICER

Bruce J. Brown, Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Navy

Filed Dec. 21, 1971, Ser. No. 210,455
Int. Cl. H03k 5/08

U.S. Cl. 328—165

7 Claims



A noise-slicing device for substantially eliminating the noise from an input signal consisting of signal pulses riding in a background of noise. The input signal is fed to one terminal of a voltage comparator the output of which is the output of the device. The other input to the comparator is a reference voltage which is the output of a feedback loop. The feedback loop comprises another voltage comparator, a one-shot multivibrator, a summer and an integrator. The inputs to the integrator are the input signal to the device and a proportion of the output of the integrator, which constitutes the feedback signal.

3,737,791

CONTROL DEVICE FOR FILTER CIRCUITS CONNECTED IN PARALLEL WITH EACH OTHER AND TUNED TO DIFFERENT RESONANCE FREQUENCIES

Michael Becker, Uttenreuth, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

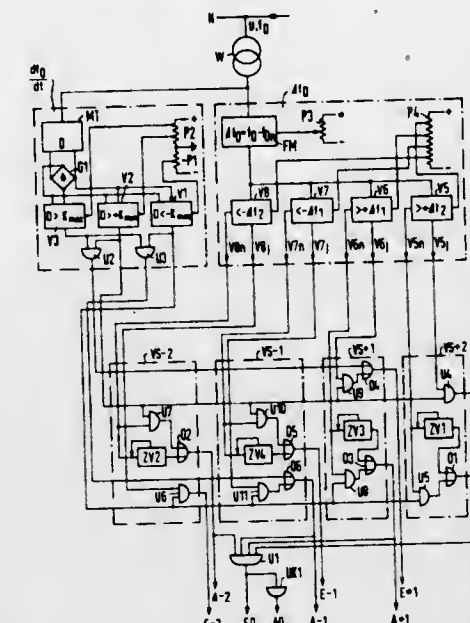
Filed May 18, 1972, Ser. No. 254,405

Claims priority, application Germany, June 1, 1971, P 21 27 108.9

Int. Cl. H03h 7/10

U.S. Cl. 328—167

5 Claims



A control device for filter circuits connected in parallel with each other and tuned to different resonance frequencies is disclosed. To prevent the occurrence of parallel resonances in the filter circuits connected to an electrical system in the event of sudden load changes or faults in the system, the control device switches the reactive member of these filter circuits in steps to retune the same in accordance with changes in the fundamental frequency of the system. The switching takes place upon reaching predetermined values of frequency deviation and frequency rate of change.

3,737,792

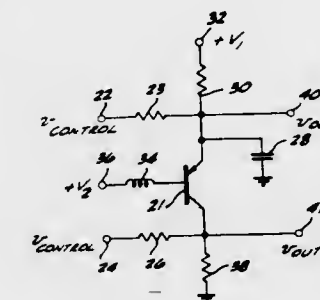
PHASE LOCKED FREQUENCY MODULATION DEMODULATOR CIRCUIT INCLUDING COLPITTS TRANSISTOR AND FEEDBACK TRANSISTOR

O. D. Parham, Downey, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Division of Ser. No. 855,007, Sept. 3, 1969, Pat. No. 3,611,195. This application Feb. 16, 1971, Ser. No. 119,408
Int. Cl. H03d 3/24

U.S. Cl. 329—103

11 Claims



A phase locked frequency modulation demodulator circuit is disclosed including a transistor connected in a Colpitts configuration. An effective tank circuit capacitance is varied in accordance with an error signal indicative of the frequency difference between a frequency modulated input signal and a signal at the instantaneous oscillation frequency of the circuit

to vary the instantaneous oscillation frequency accordingly, causing the circuit to phase lock onto the carrier frequency of the input signal and to produce an amplitude varying signal indicative of the frequency modulation on the input signal.

3,737,793

DC LEVEL RESTORING CIRCUIT

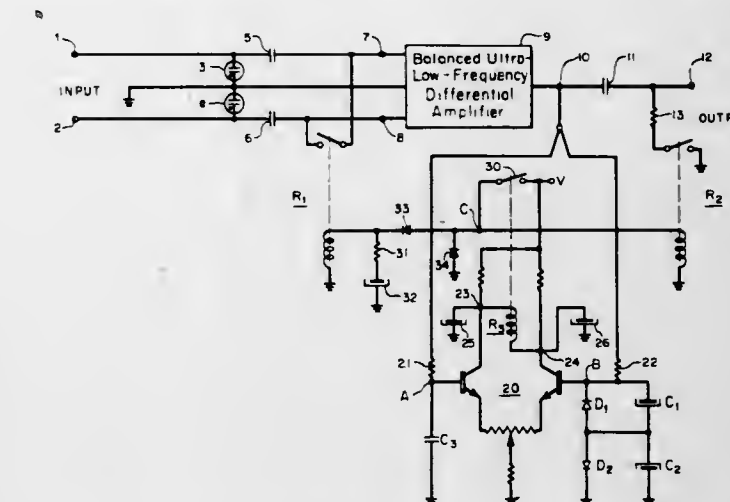
Roman Buch, Chicago, and Louis L. Kocsis, Elmhurst, both of Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed July 1, 1968, Ser. No. 741,462

Int. Cl. H03f 21/00

U.S. Cl. 330—11

4 Claims



There is described a DC level restoring circuit for an AC coupled, ultra-low frequency differential amplifier of the type used in conjunction with an electrocardiograph. A sensing circuit, in the form of a balanced differential amplifier is used to determine the presence of transient pulses at the output of the ECG amplifier and actuate two switches, one at the input AC coupling device and one at the output AC coupling device, to restore the AC coupling devices to their respective operating DC signal levels.

3,737,794

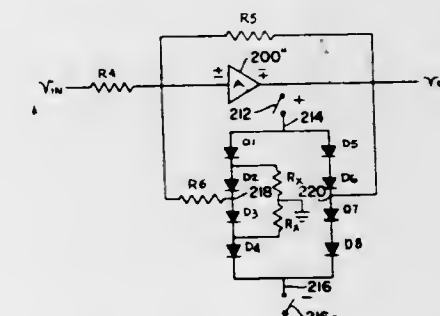
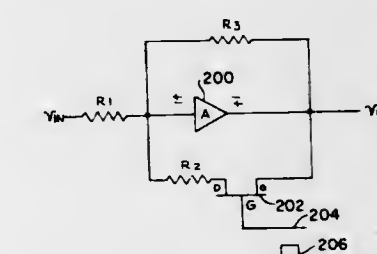
VARIABLE GAIN AMPLIFIER SYSTEM

Rainer Kurz, Oak Ridge, Tenn., assignor to Tennelec, Inc., Oak Ridge, Tenn.

Division of Ser. No. 819,911, April 28, 1969, Pat. No. 3,646,586. This application Feb. 23, 1971, Ser. No. 117,952
Int. Cl. H03f 1/02

U.S. Cl. 330—9

6 Claims



A serial-parallel analogue-to-digital converter system utilizes a conventional ADC having a relatively low number of

channels together with at least one amplifier which may be set at different amplification factors, a conventional digital-to-analogue converter, and an arithmetic device that generates the digital output, to provide a fast conversion and an output having a substantially greater number of channels and a correspondingly high resolution. The conventional ADC is utilized several successive times at increasingly higher sensitivity through the use of the amplifier which may have its gain increased and its zero offset changed with each succeeding use of the ADC. Various means are described which may be employed for reducing or eliminating any errors which could be generated in the operation of this system. Additionally, particular circuit configurations are described which may be advantageously employed in the system for effecting the necessary gain changes with a minimum of error in result and a minimum of circuit complexity.

3,737,795

AMPLIFIER FOR AMPLIFYING AN INPUT SIGNAL DERIVED FROM A SIGNAL SOURCE AND PROVIDED WITH AN AMPLITUDE-LIMITING TWO-TERMINAL NETWORK CONNECTED TO ITS OUTPUT CIRCUIT

Willem van Doorn, Hilversum, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

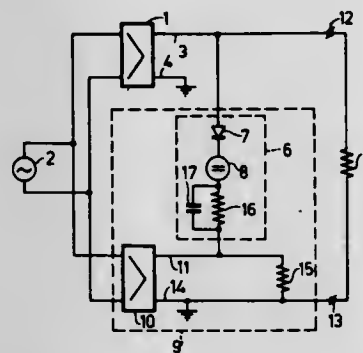
Filed Nov. 3, 1971, Ser. No. 195,336

Claims priority, application Netherlands, Nov. 10, 1970, 7016402

Int. Cl. H03g 3/30

U.S. Cl. 330-29

10 Claims



The invention relates to a limiter for limiting the output signal from an amplifier, for example, a video amplifier, which limiter is provided with an amplitude-limiting two-terminal network and an auxiliary amplifier, a first terminal of the two-terminal network being connected to the signal output lead of the amplifier and a second terminal being connected to an auxiliary signal output lead of the auxiliary amplifier, a signal being derived from said auxiliary amplifier which is in phase opposition with the output signal from the amplifier. The output terminals of the limiter are connected to said first terminal of the two-terminal network and to a terminal of fixed reference potential respectively.

3,737,796

LINEARLY CONTROLLED AMPLIFIER

Ernst Legler, 6101 Seeheim, Germany, assignor to Robert Bosch Fernsehgerätekunde Gesellschaft mit beschränkter Haftung, Stuttgart, Germany

Filed Dec. 7, 1971, Ser. No. 205,668

Claims priority, application Germany, Dec. 8, 1970, P 20 60 192.7

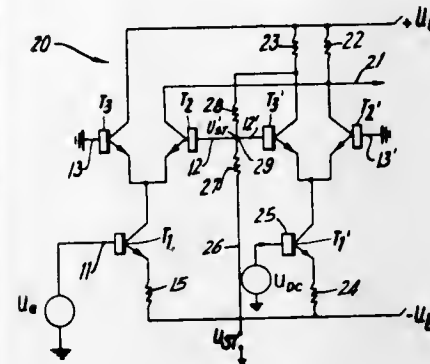
Int. Cl. H03g 3/30

U.S. Cl. 330-29

9 Claims

A linearly controlled amplifier has delay-free amplification control. The amplifier has a first cascode amplification stage for amplifying an alternating current signal which has a non-linear gain control characteristic for amplifying the signal. A control voltage is supplied to the first amplification stage for controlling the gain of the latter. A second cascode amplification stage is connected to the control means for distorting the

control signal applied to the first amplification stage. The second amplification stage comprises a DC amplifier and is provided with negative feedback for distorting the control voltage. The application of the thus predistorted control volt-



age to the first amplification stage results in a linear relationship between the control voltage and the gain of the first amplification stage. Each of the stages consist of the cascode amplifier has one input and two output transistors.

3,737,797

DIFFERENTIAL AMPLIFIER

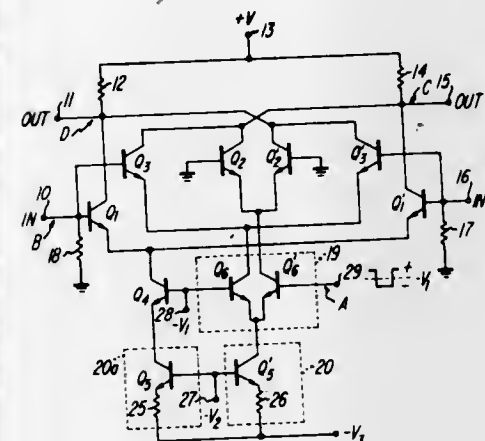
Hiroshi Amemiya, Morrisville, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 26, 1971, Ser. No. 128,473

Int. Cl. H03f 3/30

U.S. Cl. 330-30 D

8 Claims



Differential amplifier circuits which can be selectively inhibited from operating upon input signals while maintaining a d.c. operating current in the amplifier, whereby recovery from overloading can be accomplished in relatively short time periods.

3,737,798

VERY HIGH IMPEDANCE INPUT CIRCUIT

Claude Faraguet, Clarks Summit, Pa., and Roland Vallier, 92 Meudon, France, assignors to Schlumberger Instrument et Systemes, Paris, France

Filed Mar. 19, 1971, Ser. No. 126,094

Claims priority, application France, Mar. 20, 1970, 7010091

Int. Cl. H03f 3/68

U.S. Cl. 330-85

5 Claims

Disclosed circuit includes two series-connected operational amplifiers A₁ and A₂ inverter connected with resistive nega-

tive feedback so that their inputs are substantially and at least virtually grounded; a feedback loop including a resistor coupled between the output and input terminals of the series of operational amplifiers for increasing the input impedance of

3,737,800

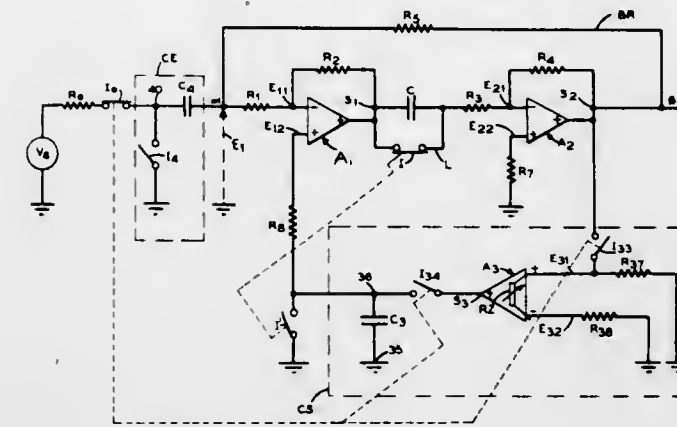
HIGH VOLTAGE OPERATIONAL AMPLIFIER
Ronald W. Russell, Mesa, and James E. Solomon, Scottsdale, both of Ariz., assignors to Motorola, Inc., Franklin, Ill.

Filed June 15, 1970, Ser. No. 46,253

Int. Cl. H03f 21/00

U.S. Cl. 330-207 P

2 Claims



the circuit; and means of controlling stability and of correction comprising a capacitor C in the feedback loop circuit, and at least one intermittently-operating DC error signal correction circuit.

3,737,799

CIRCUIT ARRANGEMENT FOR ATTENUATING A BROADBAND BACKGROUND NOISE LEVEL AND INTERFERING SIGNALS SUPERIMPOSED THEREUPON
Jurgen Stander, D-28 Bremen, Germany, assignor to Fried Krupp Gesellschaft mit beschränkter Haftung, Essen, Germany

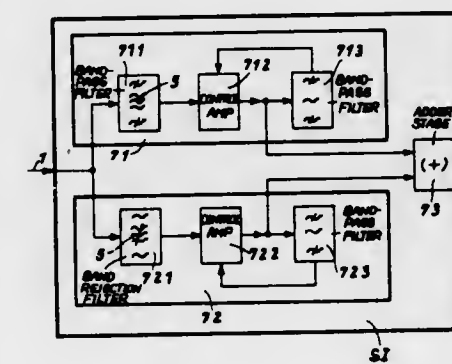
Filed Dec. 2, 1971, Ser. No. 204,248

Claims priority, application Germany, Dec. 3, 1970, P 20 59 507.7

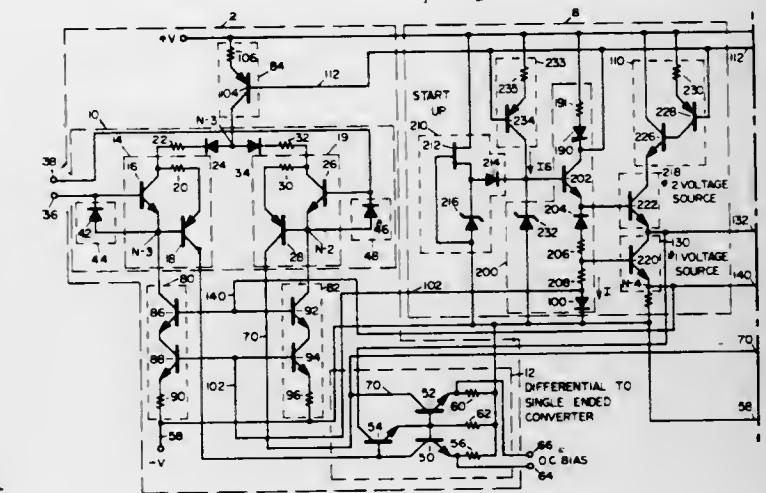
Int. Cl. H03f 3/68

U.S. Cl. 330-126

4 Claims



A circuit for attenuating broadband background noise signals and narrower band interfering signals for facilitating detection of simultaneously appearing useful signals having a shorter duration than the interfering signals, the circuit including two channels for respectively attenuating signals in the narrower band and outside the narrower band but with a broader band, with an operational amplifier connected in at least one channel and controlled to have a constant output with respect to signals of longer duration than the useful signals, the amplifier output providing the desired circuit output signal.



A monolithic operational amplifier is disclosed suitable for high voltage operation including an input transistor protection capability under large signal swing and a negative short circuit limit function. Another feature includes an internal current regulator and a protection circuit for circuit turn on.

ERRATUM

For Class 331-111 see:
Patent No. 3,737,731

3,737,801

LOSS CANCELLING RESONATOR AND FILTERS
David K. Adams, Portola Valley, and Raymond Y.-C. Ho, Sunnyvale, both of Calif., assignors to Stanford Research Institute, Menlo Park, Calif.

Division of Ser. No. 60,381, Aug. 3, 1970, Pat. No. 3,680,011.

This application Jan. 17, 1972, Ser. No. 218,386

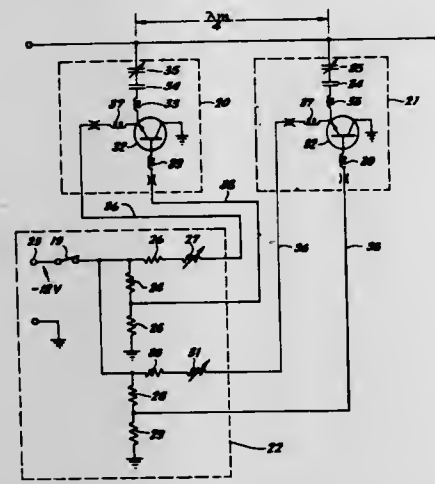
Int. Cl. H03b 19/00

U.S. Cl. 331-53

1 Claim

A loss cancelling resonator is disclosed which comprises a passive LC circuit coupled to a transistor in the inverted-common-collector configuration. Typical notch filter configura-

tions are also disclosed including notch filters with more than one resonator. Switchable notch filters are disclosed as well as

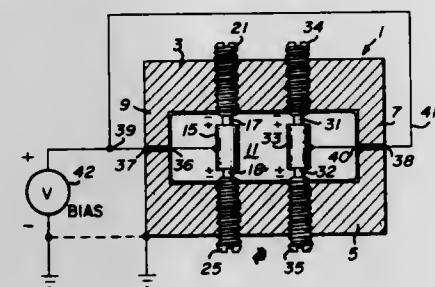


a frequency synthesizer which utilizes a plurality of switchable notch filters.

3,737,802
MICROWAVE OSCILLATOR WITH MULTIPLE GUNN DIODES IN A CAVITY RESONATOR
Kenneth Nobuo Kawakami, Thousand Oaks, Calif., assignor to Litton Systems, Inc., San Carlos, Calif.
Filed Nov. 12, 1971, Ser. No. 198,287
Int. Cl. H03b 7/14

U.S. Cl. 331-96

23 Claims



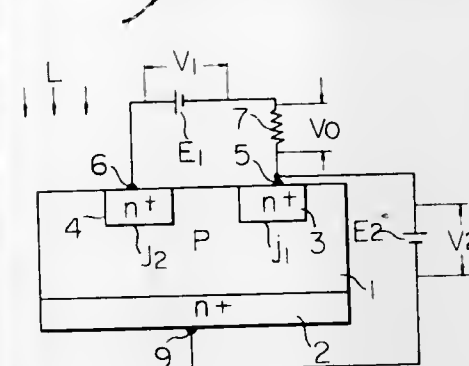
A solid state oscillator of a novel and inexpensive construction incorporates a plurality of microwave energy generating diodes, suitably Gunn diodes, for providing output powers in excess of that obtainable from a single diode. More particularly, the oscillator includes a rectangular waveguide type transmission line with a short circuit termination at one end. One or more pairs of diodes are located within the hollow of the waveguide; each diode of a given pair is geometrically arranged to be coupled between opposite ends of a cylindrical metal post and a respective top wall and bottom wall of the waveguide. A bias source is applied to the diodes by connection through a side wall to the metal post and to the waveguide. Microwave energy output coupling means, such as a waveguide, is connected to the open end of the waveguide.

3,737,803
CONTROL SYSTEM FOR ELECTRIC CIRCUIT UTILIZING PHOTOSENSITIVE SOLID OSCILLATOR
Kiyoshi Kojima, and Toshiro Abe, both of Osaka, Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan
Continuation-in-part of Ser. No. 889,236, Dec. 30, 1969, Pat. No. 3,665,340. This application Feb. 3, 1972, Ser. No. 223,121
Claims priority, application Japan, Jan. 5, 1969, 44/1264; Feb. 14, 1969, 44/11180; Mar. 31, 1969, 44/25113; Apr. 24, 1969, 44/32102; Apr. 30, 1969, 44/33831
Int. Cl. H03b 7/06

U.S. Cl. 331-107 R

Control system for electric circuits utilizing a photosensitive solid oscillator which comprises an impurity layer formed on a

surface of a semi-conductor wafer, two separate impurity layers formed on the other surface of said wafer as spaced from each other, and electrodes respectively provided at least on each of the latter two impurity layers, the respective impurity layers on both surfaces of the wafer being of a reversely conducting type semiconductor with respect to said wafer and

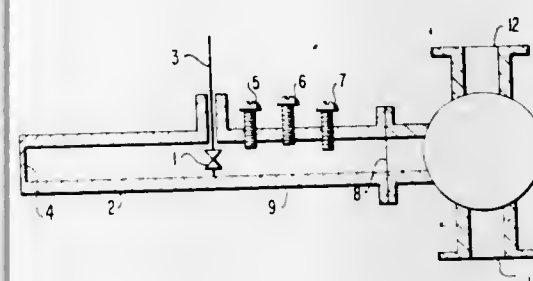


containing an impurity of a higher concentration than in the wafer. Source voltage to said electric circuit is supplied through the photosensitive solid oscillator, and the operation of the circuit is controlled by a pulse type oscillation output of the oscillator having an oscillating frequency which varies depending on variations in light amount or source voltage.

3,737,804
INJECTION-TYPE FREQUENCY-LOCKED AMPLIFIER
Kazuo Sakamoto, and Ryoji Tamura, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan
Filed June 12, 1972, Ser. No. 261,758
Claims priority, application Japan, June 15, 1971, 46/42771
Int. Cl. H03b 7/14

U.S. Cl. 331-107 R

12 Claims



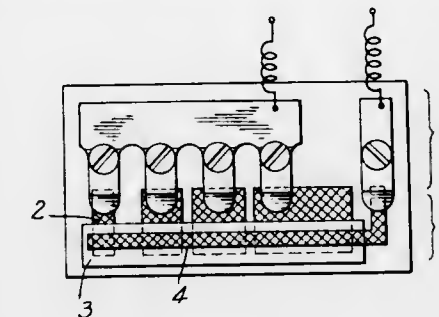
An injection-type frequency-locked amplifier having separate input and output terminals as opposed to a single input/output terminal. The input impedance of the amplifier is selected such that a portion of the input signal is reflected whereby the reflected input signal cancels the output signal appearing at the input terminal. The output terminal is impedance matched independent of the input terminal.

3,737,805
CRYSTAL OSCILLATOR WITH STEPPED VARIABLE CAPACITOR
Tadayoshi Shimodaira, Shig and Okito Naito, Suwa, both of Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
Continuation of Ser. No. 862,819, Oct. 1, 1969, abandoned.
This application Sept. 20, 1971, Ser. No. 182,251
Claims priority, application Japan, Oct. 2, 1968, 43/71343
Int. Cl. H01g 5/24; H03b 5/36

U.S. Cl. 331-116 R

A miniature variable condenser for and coupled to a quartz crystal vibrator including sandwich type evaporated capacitor

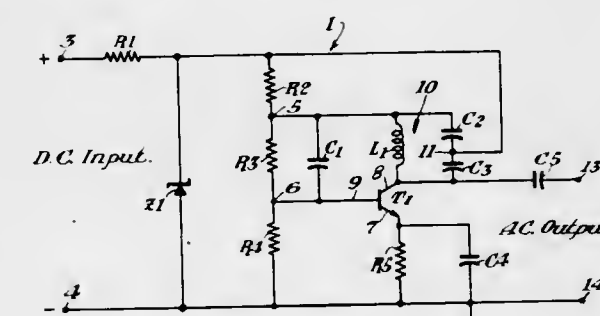
sections of a plurality of capacitance, means being provided



for selectively varying the total capacitance in a step by step manner by selecting combinations of said capacitor sections.

3,737,806
FAIL-SAFE CIRCUIT ARRANGEMENTS
John O. G. Darrow, Murrysville, Pa., assignor to Westinghouse Air Brake Company, Swissvale, Pa.
Continuation of Ser. No. 706,914, Feb. 20, 1968, abandoned.
This application Jan. 12, 1970, Ser. No. 1,970
Int. Cl. H03b 5/12
U.S. Cl. 331-117 R

1 Claim

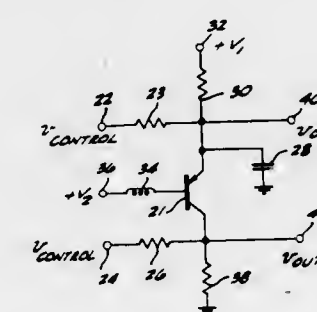


A fail-safe level detector comprising a regenerative feedback oscillator and a voltage breakdown device interconnecting the output and common electrodes of the oscillator so that sufficient feedback for sustaining oscillations only occurs when a D.C. input causes the breakdown device to conduct and to assume its low dynamic impedance condition.

3,737,807
PHASE MODULATOR CIRCUIT INCLUDING COLPITTS TRANSISTOR AND FEEDBACK TRANSISTOR
O. D. Parham, Downey, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Division of Ser. No. 855,007, Sept. 3, 1969, Pat. No. 3,611,195. This application Feb. 26, 1971, Ser. No. 119,409
Int. Cl. H03c 3/22, 3/08

U.S. Cl. 332-16 T

9 Claims

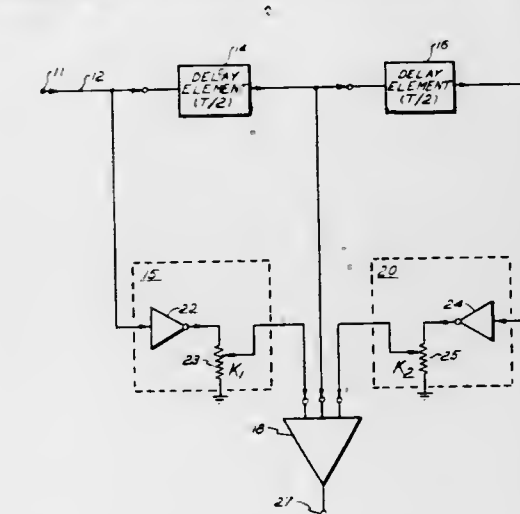


A phase modulator circuit is disclosed including a transistor connected in a Colpitts configuration. An effective tank circuit capacitance is varied in accordance with an error signal indicative of the instantaneous phase difference between a carrier frequency input signal and a signal at the instantaneous

oscillation frequency of the circuit. The instantaneous oscillation frequency of the circuit is varied in response to an amplitude varying input signal, thereby phase modulating the carrier frequency signal in accordance with the amplitude varying input signal.

3,737,808
PULSE SHAPING NETWORK
Keshava Srivastava, Oklahoma City, Okla., assignor to Honeywell Information Systems Inc., Waltham, Mass.
Filed Dec. 29, 1971, Ser. No. 214,501
Int. Cl. H03b 7/28, 7/30; H04b 3/04
U.S. Cl. 333-20

11 Claims

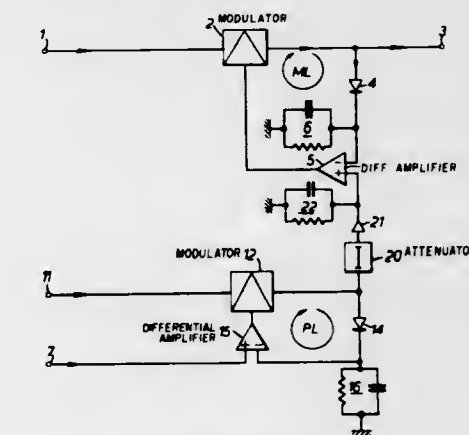


An electrical network for reducing the effective duration of a pulse by increasing the peak amplitude of the pulse within a predetermined portion of its defining bit period relative to the maximum amplitude of such pulse within a predetermined portion of an adjacent bit period, wherein a signal representation of such pulse, an inverter advanced signal representing such pulse, and an inverted retarded signal representing such pulse are combined to generate a combination pulses of reduced effective duration.

3,737,809
MODULATED CARRIER FREQUENCY SOURCES
John Michael Parkyn, St. Albans, Hertfordshire, England, assignor to Marconi Instruments Limited, London, England
Filed Sept. 8, 1971, Ser. No. 178,639
Claims priority, application Great Britain, Sept. 23, 1970, 45,321/70
Int. Cl. H03c 1/06

U.S. Cl. 332-31 R

8 Claims



An amplitude modulated carrier frequency source has a first modulator and a first differential amplifier in a feedback loop of the first modulator, and a second modulator and a second differential amplifier in a feedback loop of the second modulator. A high level carrier frequency is applied to the second modulator and a further input of the second dif-

ferential amplifier is derived from the modulating frequency. Another carrier frequency is applied to the first modulator whose associated differential amplifier has, as a further input, stabilizing output from the second modulator. A reference is thus achieved for modulation and carrier level that is a modulated carrier.

3,737,810

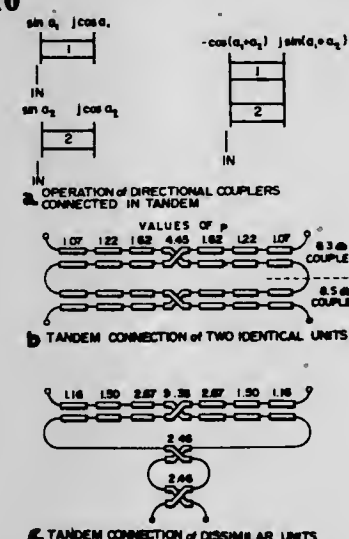
WIDEBAND TEM COMPONENTS

John Paul Shelton, McLean, Va., assignor to Radiation Systems Incorporated, McLean, Va.

Continuation-in-part of Ser. No. 485,723, Sept. 8, 1965, abandoned. This application May 5, 1969, Ser. No. 821,612
Int. Cl. H03h 7/30; H01p 3/08, 5/14

U.S. Cl. 333-10

15 Claims



A prior art microwave component for multi-octave operation includes a plurality of sections of coupled TEM transmission lines interconnected in cascade to form a single composite four-port network in which the coupled sections have progressively tighter coupling coefficients. As the number of sections of the composite network increases, or as the bandwidth requirements of the network increase, the separation between adjacent transmission lines becomes progressively smaller until a point is attained at which the coupling coefficient cannot be realized using conventional manufacturing processes.

The disclosed invention provides a technique by which coupling coefficients that have heretofore been unrealizable in practice can be achieved for coupled sections requiring such coupling coefficients, by interconnecting one or more additional groups of cascaded coupled sections in tandem with the original cascade configuration.

In a cascade interconnection, the direct and isolated ports of one couple are connected to the input and coupled ports of the next succeeding section. In contrast, in the tandem interconnection the direct and coupled ports of one group of cascaded coupled sections are connected to the input and isolated ports of another group of cascaded coupled sections, where a "group" may constitute simply one section, as well as any larger number of sections.

3,737,811

ACOUSTIC SURFACE WAVE DEVICE WHEREIN ACOUSTIC SURFACE WAVES MAY BE PROPAGATED WITH AN ELECTRIC FIELD DEPENDENT VELOCITY

Edward George Sydney Paige, Worcestershire, England, assignor to Minister of Aviation Supply in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Feb. 8, 1971, Ser. No. 113,587

Claims priority, application Great Britain, Feb. 13, 1970, 6,972/70

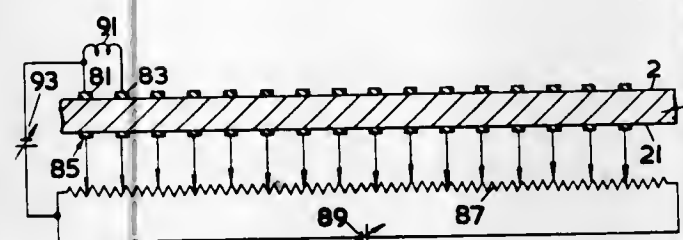
Int. Cl. H03h 9/30; H03f 13/00; H01v 7/02

U.S. Cl. 333-30 R

11 Claims

An acoustic wave device relies on its effectiveness not on the piezoelectric effect but on the elastic stiffness effect and

the electro-elastic stiffness effect whereby the effectiveness of



the device is electric field dependent.

3,737,812

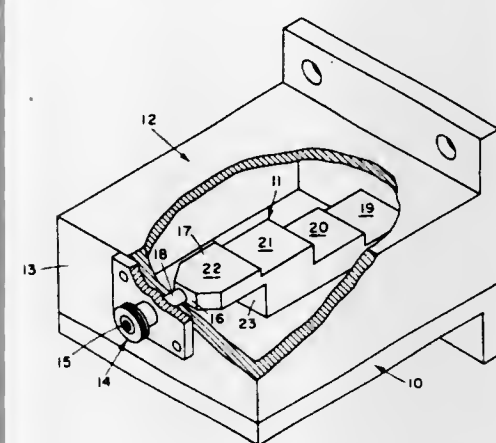
BROADBAND WAVEGUIDE TO COAXIAL LINE TRANSITION

Joseph G. Gaudio, Jefferson Station, and Thomas R. Debski, 23 Rose St., Bethpage, both of N.Y., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sept. 8, 1972, Ser. No. 287,320
Int. Cl. H03H 7/30

U.S. Cl. 333-32

6 Claims



Transition apparatus for interconnecting a waveguide to a coaxial line comprising a first subassembly which forms the top, both side and end closing walls of a rectangular waveguide section and a second subassembly which provides the bottom wall thereof and has an impedance transforming section integrally formed therewith. This transforming section is in the form of a staircase and the first and top step thereof has an overhanging tab which confronts the end closing wall of the waveguide section. The center conductor of a coaxial connector attached to this end wall contacts the end face of the tab, and these elements together with the back of the staircase and an adjacent portion of the bottom wall define a magnetic field coupling loop.

3,737,813

TRANSMISSION SEPARATION FILTER NETWORK FOR ELECTRIC OSCILLATIONS

Erwin Buecherl, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany

Filed Mar. 20, 1972, Ser. No. 236,423

Claims priority, application Germany, Mar. 22, 1971, P 21 13 761.1

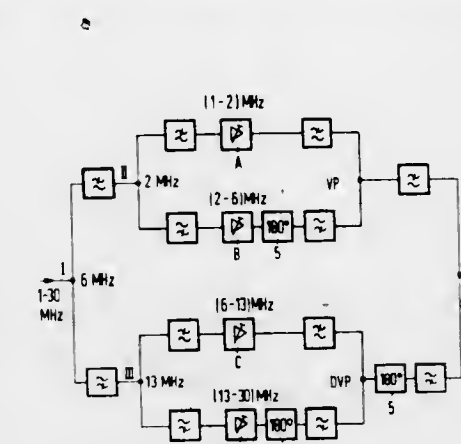
Int. Cl. H03h 7/04; H04b 31/00

U.S. Cl. 333-70 R

5 Claims

A transmission separation filter designed as an all pass filter network which comprises two equal frequency filters whose partial filters have reciprocal characteristic functions and are symmetrically connected with respect to the input and output of the transmission separation filter. Two-port circuits are connected between respectively equal partial filters and may be embodied as transformers, reactance networks, distortion

correctors or amplifiers, and are dimensioned such that the electrical properties of the entire network coincide with the electrical properties of the interconnected two-port circuits in the partial frequency ranges, with the exception of an addi-



tional phase. The partial filters have uneven characteristic functions and a 180° phase shifter is provided in one filter branch and the two-port circuit of the same branch is the dual of the respective two-port circuit interconnected in the other filter branch.

3,737,814

CRYSTAL FILTER CIRCUIT WITH SHARPLY DEFINED PASSBAND EDGE

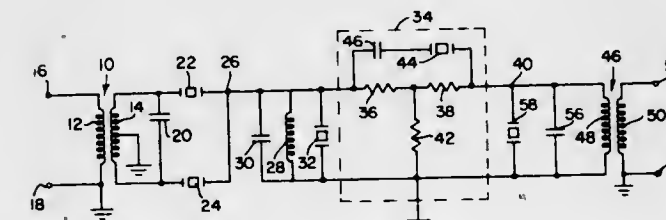
Charles W. Pond, Costa Mesa, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 6, 1971, Ser. No. 186,873

Int. Cl. H03h 7/10, 9/00

U.S. Cl. 333-72

7 Claims



A crystal filter is disclosed wherein compensation for passband edge rounding due to inherent crystal resistance is afforded using an attenuation equalizer arrangement providing an impedance which varies as a function of frequency such that its magnitude is of a minimum value in the vicinity of the passband edge to be sharply defined. The attenuation equalizer includes a resistive T-network and a crystal resonator having a series resonant frequency approximately equal to the cutoff frequency at the aforementioned passband edge.

3,737,815

HIGH-Q BANDPASS RESONATORS UTILIZING BANDSTOP RESONATOR PAIRS

George M. Low, Acting Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Herman C. Okean, Huntington, N.Y.

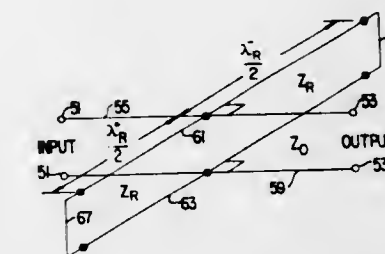
Filed Nov. 27, 1970, Ser. No. 93,329

Int. Cl. H01p 3/04, 3/08; H03h 7/08

U.S. Cl. 333-73 R

2 Claims

This disclosure describes high-Q bandpass resonators utilizing composite bandstop resonator pairs. The bandstop resona-



realizable transmission line elements. The elements are exclusively either quarter-wavelength lines or half-wavelength lines.

3,737,816

RECTANGULAR CAVITY RESONATOR AND MICROWAVE FILTERS BUILT FROM SUCH RESONATORS

Helmut Honicke, 7531 Dietlingen, Germany, assignor to International Standard Electric Corporation, New York, N.Y.

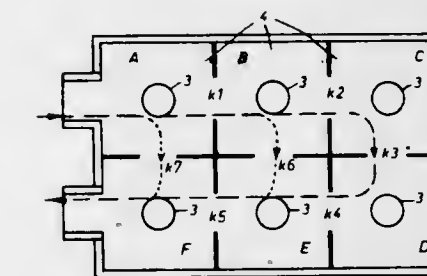
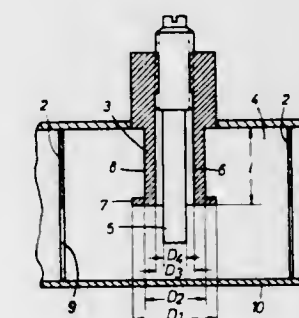
Filed Aug. 5, 1971, Ser. No. 169,417

Claims priority, application Germany, Sept. 15, 1970, P 20 45 560.1

Int. Cl. H01p 1/20, 7/06

U.S. Cl. 333-73 W

6 Claims



A tunable capacity-loaded rectangular cavity resonator having an inner conductor and a tuning plunger capacitively coupled to and disposed coaxially of the inner conductor is disclosed. The resonant frequency and impedance of the resonator are essentially determined by the inner conductor dimensions. A plurality of these resonators forming a microwave filter are coupled together by means of inductive diaphragms. The slope of the coupling admittance in the tuning range can be chosen by height and width variations of the aperture in the diaphragm with respect to the length of the tuning plunger. Coupling apertures can be provided in all four sides.

3,737,817

PUSH-BUTTON OPERATED TUNER

Takashi Ashida; Teigi Sasagawa; Masaru Fukabori, all of Akashi; Shinobu Karino, and Sadao Motoki, both of Tokyo, all of Japan, assignors to Fujitsu Limited, Kanagawa-ken and Mitsumi Electric Co., Ltd., Tokyo, Japan

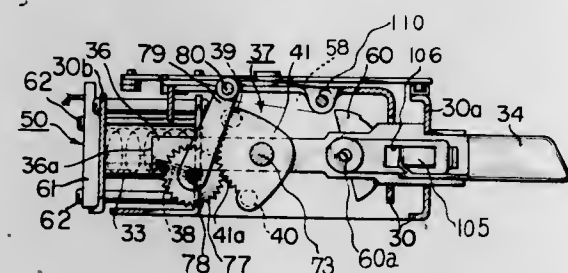
Filed Nov. 20, 1970, Ser. No. 91,426

Claims priority, application Japan, Nov. 20, 1969, 44/92654; Nov. 20, 1969, 44/92655

Int. Cl. H03j 5/06, 5/08, 5/32

U.S. Cl. 334-7

3 Claims



A push button operated tuner is provided with a plurality of mu-tuner elements arranged parallel to each other in a common plane and a plurality of axially movable cores arranged for simultaneous movement into and out of the mu-tuner elements. A manually rotatable adjuster is provided for adjusting the core elements relative to the push button stems and an operator segment on each stem may be angularly adjusted relative to the stem to vary the movement of the cores into the mu-tuner elements upon movement of a push button. The push button stems are arranged in an alternating manner with the mu-tuner elements in a common plane to reduce the vertical height of the unit.

3,737,818

MATRIX TUNING SYSTEM

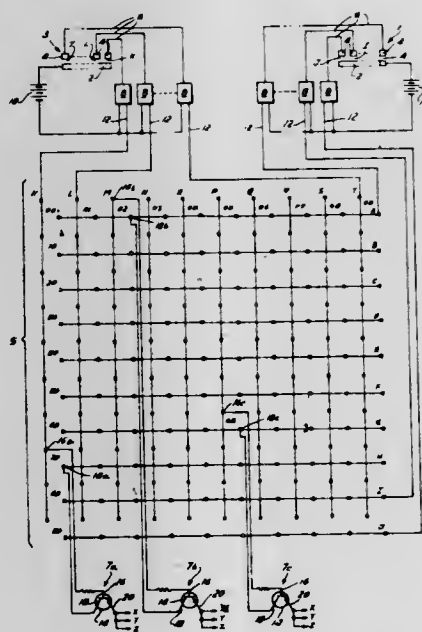
Abraham H. Jacob, Longmeadow, Mass., assignor to General Instruments Corporation, Newark, N.J.

Filed July 23, 1971, Ser. No. 165,609

Int. Cl. H03j 5/04

U.S. Cl. 334-11

20 Claims



A standardized tuning structure is disclosed which is capable of being digitally tuned to correspond to selected communication channels, the standardized construction being adaptable for use in connection with whatever communication channels, in whatever band range, may be present in a given locality. Thus while there may be some eighty or more available channels, with only a small number of them available in a given locality, the standardized matrix-type tuning system can be used in any locality simply by making appropriate electrical

connections to a terminal board. All-electrical circuitry is provided to effect the desired tuning and band selection, that circuitry including a novel pulse-producing circuit specially adapted to cooperate with touch-type switches, and also including flip-flop circuits and AND-gates for controlling band and channel selection and appropriate tuning within the communication receiver.

3,737,819

CONTROL DEVICE FOR AUXILIARY CIRCUIT BREAKER SWITCHES

Edmond Thuriès, 69-Puignan, and François Joly, 69-Lyon 6e, both of France, assignors to Delle-Alsthom, Villeurbanne, France

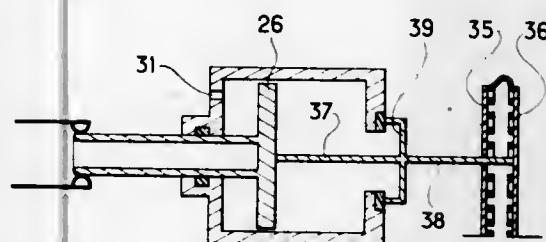
Filed Jan. 10, 1972, Ser. No. 216,475

Claims priority, application France, Jan. 12, 1971, 7100789, Nov. 16, 1971, 7140996

Int. Cl. H01h 75/00

U.S. Cl. 335-16

8 Claims



Control for auxiliary switches on circuit breakers wherein the control is placed so that it will be dependent on the detection of an appreciable current in a conductor of the circuit of an auxiliary switch of the circuit breaker.

3,737,820

CONDITION CONTROL DEVICE AND SYSTEM

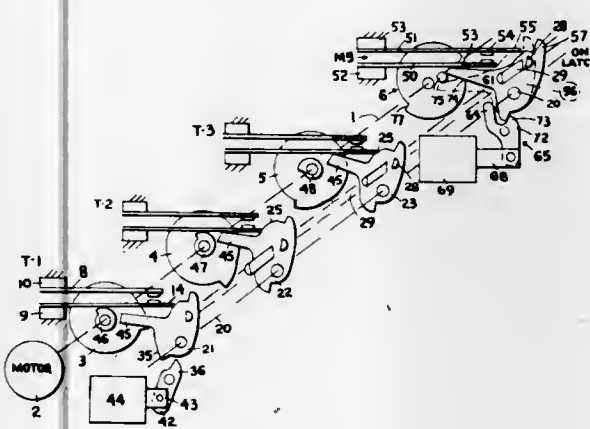
John L. Harris, Clearwater, Fla., assignor to Deltrol Corp., Bellwood, Ill.

Division of Ser. No. 133,236, April 12, 1971. This application Aug. 24, 1972, Ser. No. 283,546

Int. Cl. H01h 7/14

U.S. Cl. 335-65

2 Claims



A timing device controls a group of electric heaters, turning them on in sequence in response to call for heat by a thermostat and turning them off in sequence when the call for heat is satisfied. The timer has two stopping points, one with the heaters off and the other with the heaters on. A single switch controls the timer motor and is opened by a timer cam at the off and on positions. The switch is held open at the off position by an off latch and at the on position by an on latch. These latches are released by a solenoid controlled by the room thermostat. The latches are also controlled by a timer cam, the off latch being held released when the timer is in the on position, and the on latch being held out at the off position. The load switches for the heaters are also opened instantly by a second solenoid responding to an unfavorable condition. This same action releases the on latch to cause the timer to return to the off position.

3,737,821

ELECTRICAL CONTACTORS

John Morton, Hazel Grove; Keith Drummond Stevens, Marple, and Graham Spencer Thexton, Marple Bridge, all of England, assignors to Cableform Limited, Romley, Stockport, England

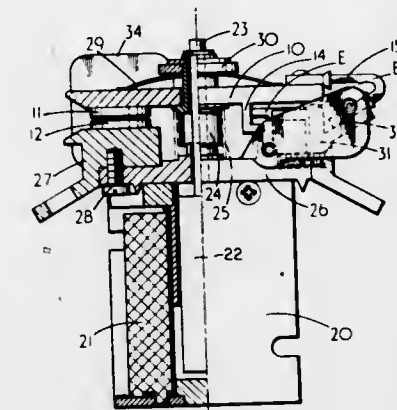
Filed Sept. 24, 1971, Ser. No. 183,489

Claims priority, application Great Britain, Sept. 25, 1970, 45,709/70

Int. Cl. H01h 1/12

U.S. Cl. 335-133

9 Claims



A solenoid operated contactor is disclosed which provides a larger than armature travel air gap, higher contact pressures and rolling or wiping action of the main contacts, by providing a conductive strap supporting the main moving contact, which strap is coupled intermediate its ends to the solenoid armature and has alternative fulcrum, one nearer and one more distant from the armature-strap junction.

3,737,822

MAGNETIC SEPARATOR

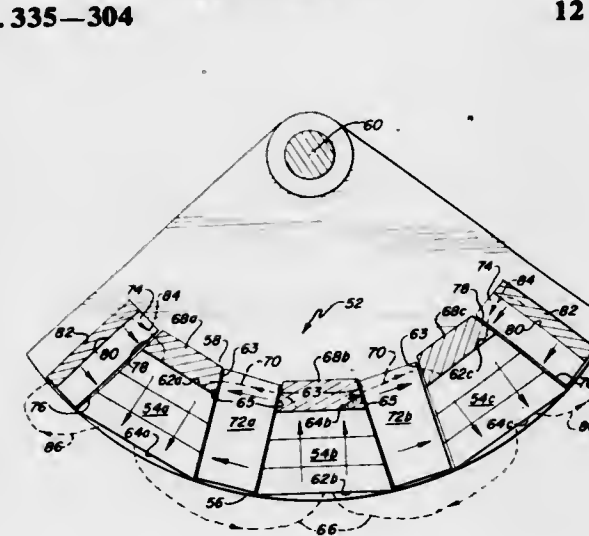
Harold W. Buus, Hales Corners, and Donald G. Morgan, Milwaukee, both of Wis., assignors to Magnetics International, Inc., Maple Heights, Ohio

Continuation-in-part of Ser. No. 45,095, June 10, 1970, Pat. No. 3,678,427. This application Mar. 29, 1972, Ser. No. 239,098

Int. Cl. H01f 7/02

U.S. Cl. 335-304

12 Claims



A magnet assembly for use such as in a magnetic separator having main magnetic elements with aiding magnetic elements disposed therebetween and having their polarities directed transversely thereto such that increased lines of magnetic flux, increased effective pole area, decreased gap length, improved repulsion of flux leakage both at the edges of the main magnetic elements and between the sides of adjacent main magnetic elements, and reduced flux leakage at the rear face of the main magnetic elements is achieved.

3,737,823

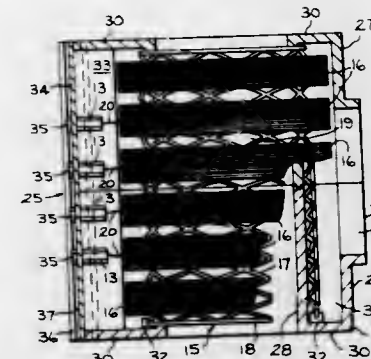
INTEGRAL ELECTRICAL COIL STRUCTURE

Robert D. Mees, Fort Wayne, Ind., and George I. Duncan, Danville, Ill., assignors to General Electric Company, Ft. Wayne, Ind.

Filed Dec. 17, 1971, Ser. No. 209,193

Int. Cl. H01f 27/30

13 Claims



An integral, cast electric coil structure includes an open mesh supporting spool with at least one coil of electrical conductor supported on the spool and an encapsulant substantially encasing the spool and the coil. Portions of the encapsulant are both inside and outside of the spool and extend through openings in the spool to form an integral structure.

3,737,824

TWISTED MULTIFILAMENT SUPERCONDUCTOR

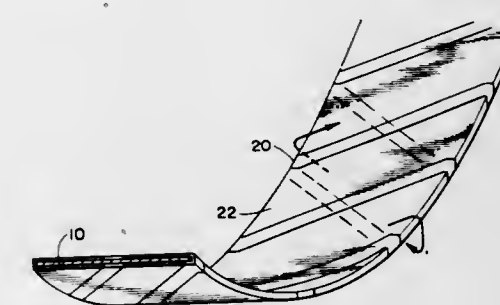
Willard D. Coles, Fairview Park, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 11, 1972, Ser. No. 280,031

Int. Cl. H01v 1/06

U.S. Cl. 336-200

10 Claims



Masking selected portions of a ribbon and forming an intermetallic compounds on the unmasked portions by a controlled diffusion reaction produces a twisted filamentary structure. The masking material prohibits the formation of superconductive material on predetermined areas of the substrate.

3,737,825

OVERLOAD CIRCUIT BREAKER

Richard D. Summe, 5302 East 72nd Place, Indianapolis, Ind., and Everett H. Vannoy, 500 Hillside Court, Kokomo, Ind.

Filed July 13, 1972, Ser. No. 271,603

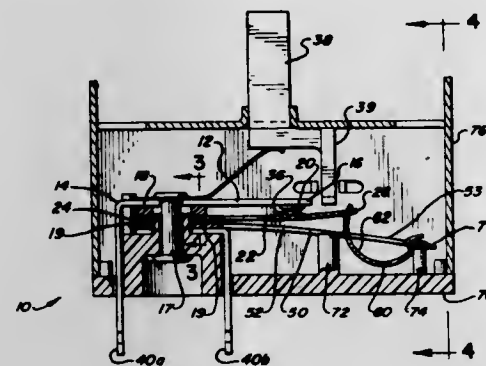
Int. Cl. H01h 61/00

U.S. Cl. 337-91

11 Claims

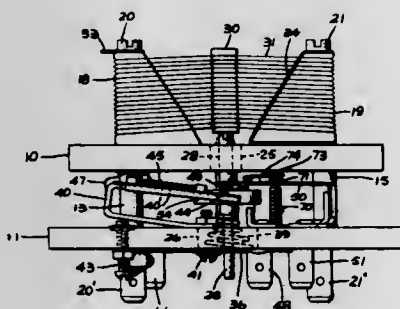
An overload circuit breaker utilizes a stationary member having a first contact element located on its surface and a

movable resilient member having a sacrificial contact element located on its surface. A resilient bimetallic member is operable as a toggle to control the movable member. An electrical terminal means is connected such that an electrical circuit is formed through the first and second contact elements as well as through the resilient bimetallic member and the movable resilient member. The resilient bimetallic member and movable resilient member move with a snap-action from the first stable position to the second stable position upon a flow of a predetermined electrical current through the electrical circuit,



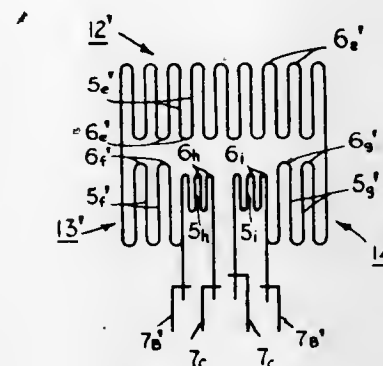
thereby opening the first contact element and the sacrificial contact element and breaking the electrical circuit. A reset element actuatable from a first position to a second position is provided to move the first resilient bimetallic member from the second stable position and back to the first stable position. The reset element is adapted such that the first contact element and the sacrificial contact element do not close until the reset element returns to its first position. In some embodiments, an ambient temperature compensating element is also provided for the overload circuit breaker.

3,737,826
OVEN TEMPERATURE CONTROL SYSTEM AND THERMOSTATIC COMPONENT THEREOF
Russell T. Simmons, Morrison, Ill., assignor to General Electric Company, Fort Wayne, Ind.
Filed Sept. 21, 1971, Ser. No. 182,453
Int. Cl. H01h 37/50
U.S. Cl. 337-395
22 Claims



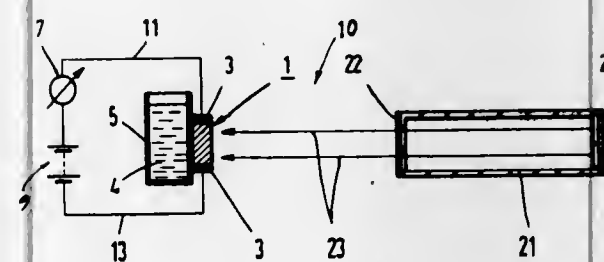
A thermostat is described for sensing the temperature of a gaseous medium such as air and for actuating an electrical switch when the temperature reaches a predetermined value. The thermostat employs a thermally expandable wire mechanically coupled to a switch actuating plunger.

3,737,827
CREEP-COMPENSATING STRAIN GAGES
Jurgen Paetow, 61 Darmstadt, Germany, assignor to Hottinger Baldwin Messtechnik GmbH, Darmstadt, Germany
Filed Oct. 12, 1971, Ser. No. 188,305
Claims priority, application Germany, Oct. 10, 1970, P 20 49 820.8
Int. Cl. G011 1/22
U.S. Cl. 338-2
12 Claims



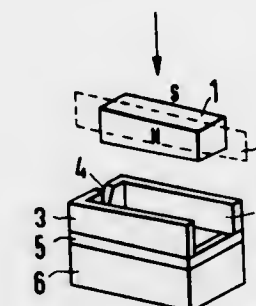
Creep effects exhibited by elastically deformable load sensing members equipped with foil-type resistive strain gages are counteracted by way of strain gage constructions in which a plurality of relatively short end-to-end grids, including a multiplicity of end tabs, develop compensatory inversely varying electrical output characteristics due to slippage.

3,737,828
RADIATION DETECTOR
Kurt Fuschsenger; Johannes Rachmann, and Klaus Mettler, all of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed May 19, 1971, Ser. No. 144,756
Claims priority, application Germany, May 26, 1970, P 20 25 773.2
Int. Cl. H01c 7/08
U.S. Cl. 338-18
4 Claims



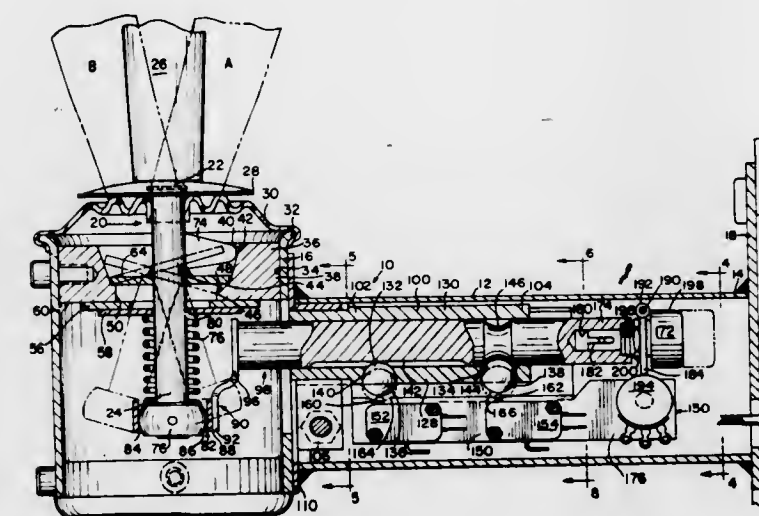
An electromagnetic radiation detector for successive high frequency short impulse radiations, as from a CO₂ laser having a 10.6 μm wave length. The detector device includes a uniform semiconductor material of gallium arsenide doped with Cu, Ge, Li, or Mn.

3,737,829
CONTACTLESS SWITCHING DEVICE
Hans Schneider, Amberg, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Nov. 22, 1971, Ser. No. 200,770
Claims priority, application Germany, Nov. 23, 1970, G 70 43 185.5
Int. Cl. H01c 7/16
U.S. Cl. 338-32 R
8 Claims



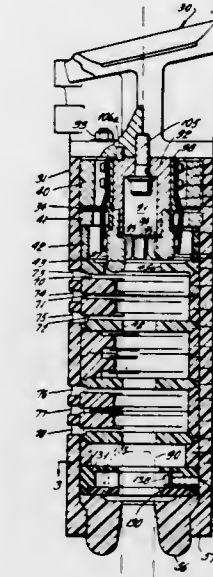
In a contactless switching device, a permanent magnet can be moved relative to a magnetic field dependent resistance positioned between return yoke parts. The longitudinal axis of the magnetic field dependent resistance is in the direction of the neutral zone of the permanent magnet. The return yoke parts face the poles of the permanent magnet over a large area. In order to remove the lines of force from the magnetic field dependent resistance, a part causing a magnetic short-circuit is inserted after the return yokes in the direction of movement of the permanent magnet. It is thereby possible to relieve the magnetic flux practically completely in the OFF position of the device with a relatively small distance of travel of the permanent magnet.

3,737,830
ONE HANDLE CONTROL FOR LOADERS
Wayne W. Lark, Clarendon Hills, and Marvin D. Jennings, Naperville, both of Ill., assignors to International Harvester Company, Chicago, Ill.
Filed Feb. 1, 1972, Ser. No. 222,495
Int. Cl. H01c 5/00
U.S. Cl. 338-128
11 Claims



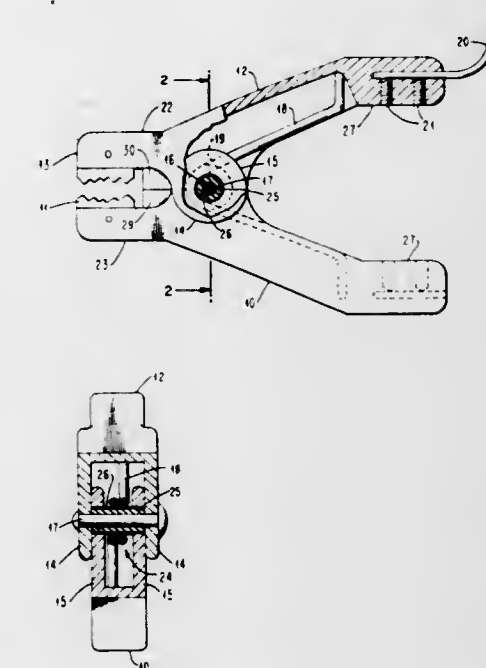
A lever fixed to a shaft having a system of grooves with spherical balls therein. Upon movement of the shaft in, out, or around, the balls open and close particular electrical circuits while activating implement movement by the creation of unbalance in other circuits.

3,737,831
RESISTOR ASSEMBLY WITH COMPRESSION PLATE SUPPORTS
Earl B. Rietz, La Canada; James R. McCloud, Burbank; Hubert J. Koenn, Alhambra, and David A. Wall, Pasadena, all of Calif., assignors to I-T-E Imperial Corporation, Philadelphia, Pa.
Division of Ser. No. 764,975, June 7, 1968, Pat. No. 3,560,905, which is a division of Ser. No. 439,304, March 12, 1965, Pat. No. 3,392,248. This application Oct. 12, 1970, Ser. No. 80,109
Int. Cl. H01c 1/16
U.S. Cl. 338-261
3 Claims



A non-inductive resistor for an oil circuit breaker is formed of pancake coils stacked atop one another and held compressed against one another by a central support rod.

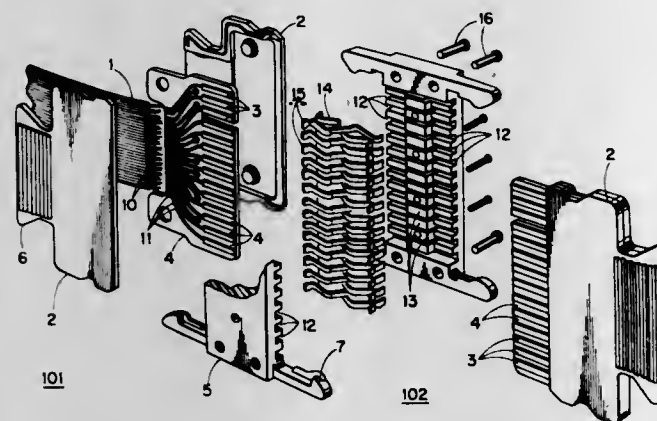
3,737,832
ELECTRICAL CLAMP
Gordon S. Anderson, Dahlem Road, Millbrook, N.Y.
Filed Sept. 27, 1971, Ser. No. 183,765
Int. Cl. H01r 3/06
U.S. Cl. 339-14 R
6 Claims



A standard form of cast aluminum ground clamp is disclosed wherein the connecting means provided at the pivot point has shock absorbing properties and is comprised of a resilient sleeve surrounding the interconnecting rivet.

3,737,833
RIBBON CABLE CONNECTOR SYSTEM HAVING FEED THRU CONNECTOR
 Raymond Jerominek, Sherborn, Middlesex, Mass., assignor to Honeywell Information Systems Inc., Waltham, Mass.
 Filed May 12, 1971, Ser. No. 142,652
 Int. Cl. H01r 13/54, 13/58; H05k 1/04
 U.S. Cl. 339-17 F

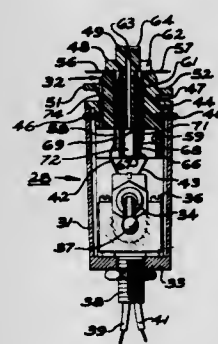
7 Claims



An improved ribbon cable connector system for accurate and reliable connection of flat multiconductor electrical ribbon cable to other electrical components or subsystems. A plurality of flat conductive fingers embedded in a non-conductive medium are connected one each to a wire of the flat multi-conductor ribbon cable and encapsulated in a protective case which grips the ribbon cable so as to minimize stresses on the electrical connections. A female edge type connector, having a plurality of receptacles along two edges, is adapted to receive a plurality of flat conductive fingers and electrically reverse the position of the wires it connects.

3,737,834
ADAPTER FOR THREE CONDUCTOR ELECTRICAL POWER DISTRIBUTION TRACK
 James Contratto, San Leandro, Calif., assignor to U.S. Industries, Inc., New York, N.Y.
 Filed Sept. 20, 1971, Ser. No. 181,973
 Int. Cl. H01r 9/00
 U.S. Cl. 339-21 R

9 Claims

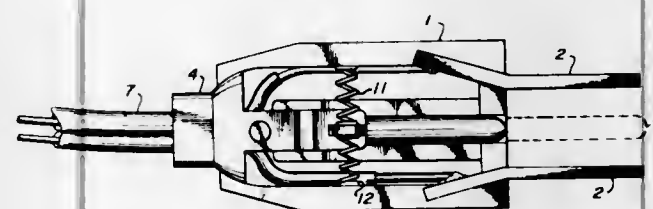


An adapter for electrically and mechanically securing an electrical fixture to an elongated three conductor, two circuit electrical power distribution track of the type having an open mouthed channel running for its length with two of the conductors disposed on opposite sides of the channel and the third conductor disposed at a transverse inwardly and upwardly displaced location therefrom. The adapter is of the type which has a cylindrical body adapted at one end for securement to an electrical light fixture and having a connecting head at its opposite end for securing the adapter to the channel upon insertion of the head into the channel and rotation through 90°. The head is provided with a pair of contact fingers in electrically conducting relation to an electrical lead-

in arrangement for the fixture, which fingers are also arranged to engage either of two circuit pairs of the three conductors upon insertion and rotation of the head in the channel. The principal feature of the adapter is that one of the contact fingers is removably insertable into the head at two positions transversely and longitudinally displaced from each other and in each position the finger is in electrically conducting relation to the electrical lead-in arrangement for the fixture. In one position, the removable contact finger is engageable with one of the side conductors of the channel while the fixed finger is engageable with the opposite second side conductor. In the other position, the removable finger is engageable with the second side conductor. In this manner, a single adapter may be employed to selectively connect a fixture to either of the two circuits of the three conductor power distribution system.

3,737,835
SELF-EJECTING LINE PLUG
 Clyde H. Clement, and Leland B. Larson, both of Phoenix, Ariz., assignors to Clyde H. Clement and Leland B. Larson, part interest to each
 Filed July 21, 1971, Ser. No. 164,681
 Int. Cl. H01r 13/50, 13/62
 U.S. Cl. 339-45 R

2 Claims



A plug is provided for insertion into an ordinary wall outlet and contains a mechanism for effecting self-ejection when the line cord is pulled laterally with respect to the plug. A line cord is attached to the plug and supported on a trigger member disposed to pivot about a vertical axis within the plug. The trigger member is normally biased to a central position by means of laterally disposed, oppositely acting compression springs bearing against a forwardly directed trigger arm. An ejecting member is biased in a forward direction to assume a normal attitude parallel to the plug prongs and extending slightly forwardly beyond the ends thereof. When the prongs are inserted into the wall socket, the ejecting member is pushed rearwardly and is cocked beneath a catch portion of the trigger arm. When sufficient lateral force is exerted on the cord to pull the trigger arm to either side a predetermined minimum distance, the trigger arm releases the ejecting member which springs forward under the influence of its compression spring to forcefully eject the plug which may then be safely retrieved by manually pulling the line toward the operator.

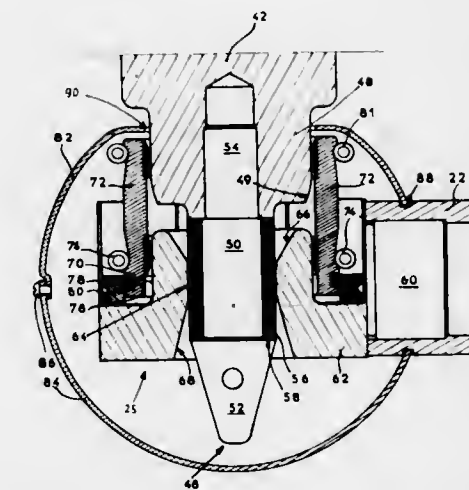
3,737,836
SELF-COUPLING DEVICE FOR DRAWOUT MOUNTED ELECTRIC APPARATUS
 Jean-Claude Henry, Grenoble; Cesar Castelli, 38 Montfleury, and Georges Henry, 38 St. Martin-le-Vignoux, all of France, assignors to Merlin Gerin, Societe Anonyme, Grenoble, France
 Filed Sept. 8, 1971, Ser. No. 178,727
 Claims priority, application France, Sept. 17, 1970, 7033848
 Int. Cl. H01r 13/20
 U.S. Cl. 339-64 R

2 Claims

An electrically conducting and mechanically guiding self-coupling device for connecting and disconnecting a terminal member of a removable electric apparatus, such as a circuit interrupter, to and from a stationary terminal member of a

metal housing. The device comprises plug-in members for mechanical guiding and coaxial resilient contact means

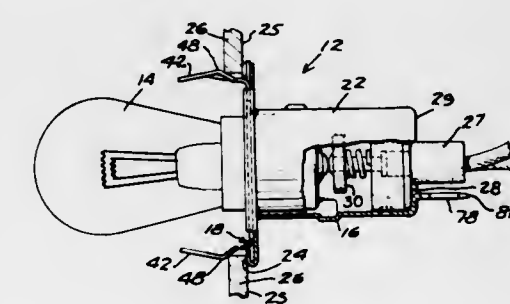
interconnected by a central mounting portion. The contact is inserted on a mounting member in an unstressed condition with the contacting surface extending from the mounting member in one direction and the terminal portion extending from the mounting member in an opposite direction. A connector housing member contains a slot therethrough for positioning a



whereby the plug-in members position the terminal members in a manner preserving the contact means from mechanical stresses.

3,737,837
SNAP-IN TYPE LAMP BULB SOCKET
 George B. Whitehead, Birmingham, Ala., assignor to Elmatic Corporation, Livonia, Mich.
 Filed May 6, 1971, Ser. No. 140,681
 Int. Cl. H01r 13/60
 U.S. Cl. 339-127

3 Claims



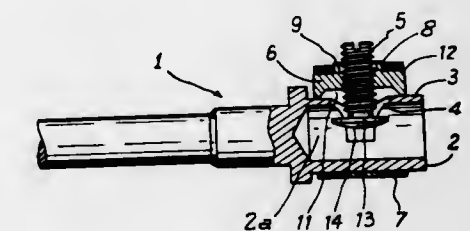
A lamp socket normally used on automotive vehicles which is snapped into an opening in a panel for mounting featuring T-shaped spring retaining prongs projecting axially from the shell of the socket. Each prong has two knees depending from each side of the T-shaped prong which are axially spaced apart to provide improved socket retention in panels of varying thicknesses. A lock-in feature is also provided which allows the socket to be snapped into a keyed opening in a mounting panel, but which requires the socket to be indexed relative to the opening before the socket can be removed therefrom. The lamp-receiving shell includes an integrally formed grounding terminal adapted to be connected to an electrical ground for conducting electric current away from the lamp.

3,737,838
PRINTED CIRCUIT BOARD CONNECTOR
 William Russell Mattingly, Jr., Santa Ana, and Peter Michael Gregson, Redondo Beach, both of Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.
 Filed Nov. 17, 1971, Ser. No. 199,470
 Int. Cl. H05k 1/07; H01r 13/64
 U.S. Cl. 339-186 M

3 Claims

A printed circuit board connector having a plurality of contacts mounted in the connector housing and the method of assembly thereof. The contacts are formed of a spring contact portion having a contacting surface and terminal portions in-

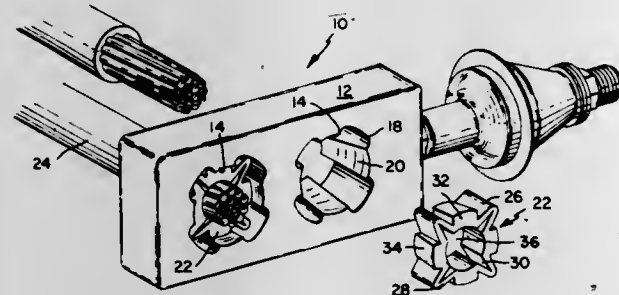
In order to resiliently clamp the stripped end of a conductor to a connector terminal, the latter is provided with a contact socket assembly in which the clamping setscrew is threadedly supported by a nut held on the socket casing by a resiliently deformable spring band. In the operative position of the contact socket assembly, the nut is spaced from the casing wall and the setscrew clamps down on the conductor end by virtue of the force exerted thereon by the deformed spring band.



3,737,839
CONNECTOR TERMINAL HAVING A CONTACT SOCKET ASSEMBLY FOR RECEIVING THE END OF A CONDUCTOR
 Gilles Adrien Georges Marechal, 36 Quai de Bethune, 75 Paris 4, France
 Continuation-in-part of Ser. No. 166,789, July 28, 1971, abandoned. This application Mar. 30, 1972, Ser. No. 239,714
 Claims priority, application France, Aug. 4, 1970, 7028749; Mar. 30, 1971, 7111094
 Int. Cl. H01r 11/10
 U.S. Cl. 339-272 R

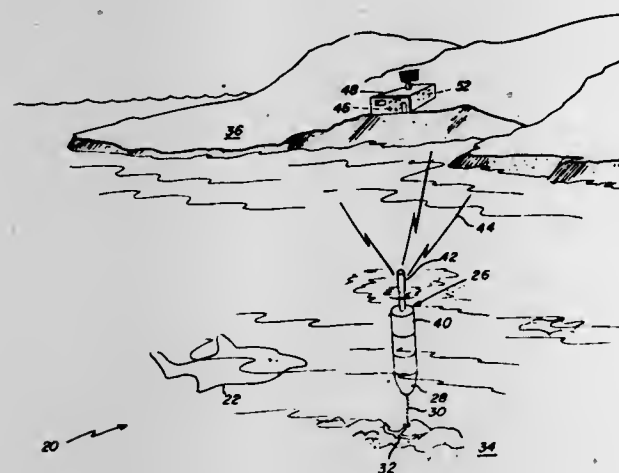
13 Claims

3,737,840
LUG ASSEMBLY
 Norman Edwin Hoffman, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
 Filed Nov. 22, 1971, Ser. No. 200,963
 Int. Cl. H01r 7/06
 U.S. Cl. 339-273 F 2 Claims



This invention relates to a lug assembly and more particularly to a bar having one or more tapered passageways therein to receive a partly deformable connector in which is emplaced the end of a cable to be joined to the lug assembly. Further this invention relates to a tool for inserting the connector into the bar as well as for removing the same therefrom.

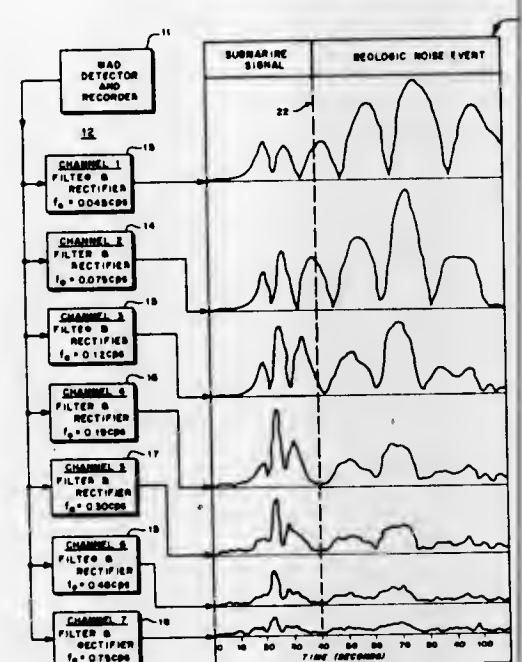
3,737,841
DIRECTIONAL TRANSDUCER SYSTEM
 David D. Edson, Portsmouth, R.I., assignor to Raytheon Company, Lexington, Mass.
 Filed May 25, 1971, Ser. No. 146,705
 Int. Cl. G01s 3/80, 9/68
 U.S. Cl. 340-2 6 Claims



A directional transducer system adapted for generating signals indicative of the direction of a source of radiant energy submerged in a fluid medium. This system is particularly useful in sonar applications which contemplate the use of a multisectioned transducer with arithmetic means for combining the signals received by each of these transducer sections to provide a set of three signals, namely, a reference signal and two coordinate signals which are suitable for transmission via a telemetry link to a utilization device such as a display. Means are also disclosed for compressing the dynamic range of the

signals to facilitate their transmission via a telemetry link as well as means for energizing a transducer with a signal having an average power independent of a variation in the supply voltage utilized in energizing the circuitry of the invention.

3,737,842
FEATURE RECOGNITION TECHNIQUES
 Marshall C. Bobrin, Philadelphia, Pa., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
 Filed Mar. 30, 1966, Ser. No. 540,148
 Int. Cl. G01r 33/02
 U.S. Cl. 340-4 R 1 Claim



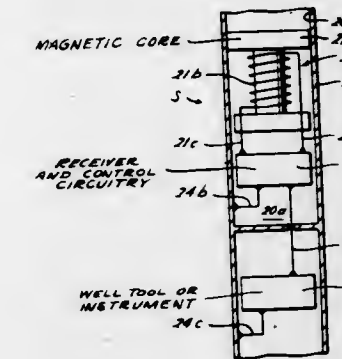
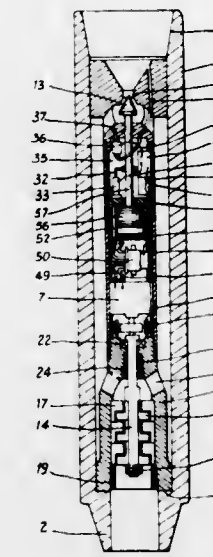
A feature recognition system for extracting transient signal information from a signal-like noise background by separating a time domain signal into a plurality of frequency-time domain signals by frequency selective filters. Each of the filtered outputs is converted to unidirectional signals and then displayed on a chart recorder from which the presence of a signal is determined on the basis of one or more of three criteria. The first criteria is maximum energy in a predetermined one of the selected frequencies; the second criteria is the time convergence of the time-tracings of peaks and troughs of the unidirectional signal lobes at the higher frequencies; and the third criteria is the difference in shape factors for signal information as opposed to noise information.

3,737,843
HYDRAULICALLY CONTROLLED DEVICE FOR MODULATING THE MUD
 Jean-Pierre Le Peuvedic, Pau, and Claude Quichaud, Billere, both of France, assignors to Societe Anonyme dite: Societe Nationale Des Petroles D'Aquitaine, Courbevoile, France
 Filed Dec. 9, 1971, Ser. No. 206,367
 Int. Cl. G01v 1/40
 U.S. Cl. 340-18 NC 5 Claims

A hydraulically controlled device to transmit measurements taken at the bottom of a well to the surface, in the form of pressure modulations created by periodical restrictions on the passage of the drilling fluid, characterized by the use of a ser-

vovalve which operates the drilling fluid flow-restriction system, and the hydraulic control fluid of which is uniformly

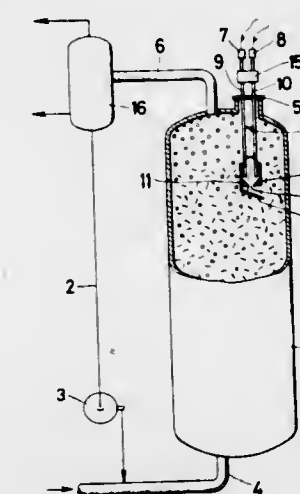
3,737,845
SUBSURFACE WELL CONTROL APPARATUS AND METHOD
 Harold W. Maroney, Box 44, Markham; Lester R. Hathcote, Box 356, Courroe, and Thomas W. Sparkman, Box 1410, Cedar Post Lane, Houston, all of Tex.
 Filed Feb. 17, 1971, Ser. No. 116,153
 Int. Cl. G01v 1/40
 U.S. Cl. 340-18 P 11 Claims



related, in quantity and direction, to the electric intensity passing through its coil.

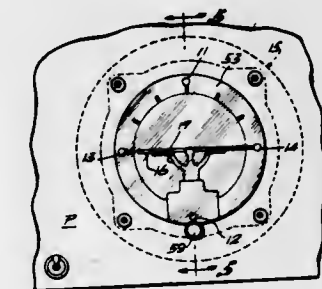
A new and improved method and apparatus for reliably and accurately controlling one or more operations of subsurface well drilling and well control equipment, and for reducing the likelihood of inadvertent actuation of such apparatus from stray or other undesired or spurious signals, is disclosed.

3,737,844
METHOD FOR DETECTING SMALL PARTICLES IN A TANK AND AN APPARATUS FOR CARRYING OUT THE SAME
 Tohru Yokoyama, Sagami-hara; Tetsuo Kanda, Yokohama; Yudo Oshio, Kawasaki; Yoshiro Hori, and Kimihiko Yazawa, both of Tokyo, all of Japan, assignors to Chiyoda Kako Kensetsu Kabushiki Kaisha, Yokohama, Japan
 Filed Oct. 26, 1971, Ser. No. 192,157
 Claims priority, application Japan, Oct. 27, 1970, 45/93937
 Int. Cl. H04b 11/00
 U.S. Cl. 340-15 10 Claims



An ultra-sonic transmitting means and an ultra-sonic receiving means are provided in fluidized region of a tank at a fixed interval. An ultra-sonic wave is transmitted from the transmitting means to the receiving means and bubbles are prevented from entering the space between the transmitting means and the receiving means, and the presence or absence of small particles is detected by measuring the attenuation of the ultra-sonic wave.

3,737,846
AIRCRAFT GYROHORIZON INDICATOR WITH SIGNAL LAMP POSITIONAL ATTITUDE INDICATING MEANS
 Ralph Hernandez, Jr., 420 Lincoln Road, Miami, Fla.
 Continuation-in-part of Ser. No. 813,252, April 3, 1969. This application July 20, 1970, Ser. No. 56,356
 Int. Cl. G08g 5/00
 U.S. Cl. 340-27 AT 9 Claims



A combination gyrohorizon instrument for aircraft which visually indicates in addition to the dial display presentation of the instrument, by means of signal lamps appropriately placed with respect to the instrument dial and an audible signal indicative of energization of any one of the signal lamps, departures from straight and level flight that exceed reasonable limits of pitch and bank. The signal lamps, indicating "nose up," "nose down," "left wing down" and "right wing down" are in circuits energized by a first switching means controlled by the relative rotational position of the inner and outer gimbals of the instrument for sensing departure beyond reasonable safety limits in one direction or the other in the pitch axis, i. e., either "nose up" or "nose down" flight, and a second switch means controlled by the relative rotation position of the outer gimbal and the instrument casing for sensing departure beyond reasonable limits in the roll axis, i. e., either "left wing down" or "right wing down" flight.

3,737,847

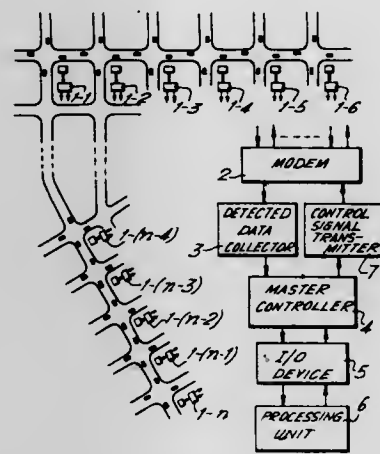
TRAFFIC SIGNAL CONTROL SYSTEM

Toshio Kato, and Tatsuro Ichihara, both of Kyoto, Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan
Filed Mar. 25, 1971, Ser. No. 128,037

Claims priority, application Japan, Apr. 3, 1970, 45/28849
Int. Cl. G08g 1/08

U.S. Cl. 340—35

3 Claims



An apparatus for centrally controlling traffic over a wide geographical area. A master controller collects traffic information from traffic signal stations throughout the area at predetermined intervals, and stores this information in its associated memory, along with various operating time parameters associated with the traffic signal operation at each traffic signal station. A central processor reads and evaluates the traffic information stored in the master controller and continuously updates the operating time parameters. The master controller controls the traffic signals on the basis of their operating time parameters.

3,737,848

VEHICLE TRANSISTORIZED WARNING CIRCUIT

Rodney Hayden, Stoney Creek, Ontario, Canada, assignor to TRW Inc., Cleveland, Ohio

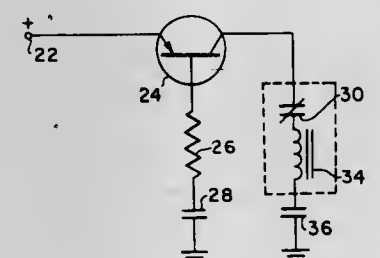
Filed Aug. 5, 1971, Ser. No. 169,399

Claims priority, application Canada, June 18, 1971, 115,987

Int. Cl. B60q 5/00

U.S. Cl. 340—52 D

3 Claims



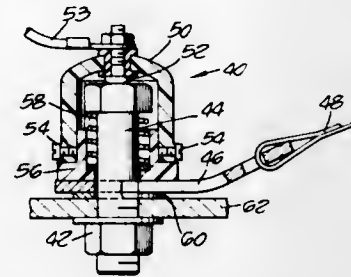
An electrical circuit including a source of voltage, a transistor, and two switches. The source of voltage and two switches each being connected to a different electrode of the transistor and a normally closed relay connected in series whereby actuation of the two switches will cause the relay to buzz or chatter.

3,737,849

SEAT BELT ALARM SYSTEM

Philip E. Mead, 16795 Ivy Avenue, Fontana, Calif.
Filed Aug. 30, 1971, Ser. No. 176,020
Int. Cl. B60r 21/00

6 Claims



A seat belt alarm system for vehicles which incorporates a pressure switch which secures the seat belt to the floor or frame of the vehicle and an audio and/or visual warning feature that is activated by the failure of the driver and/or passenger to open the switch by properly fastening their seat belts.

3,737,850

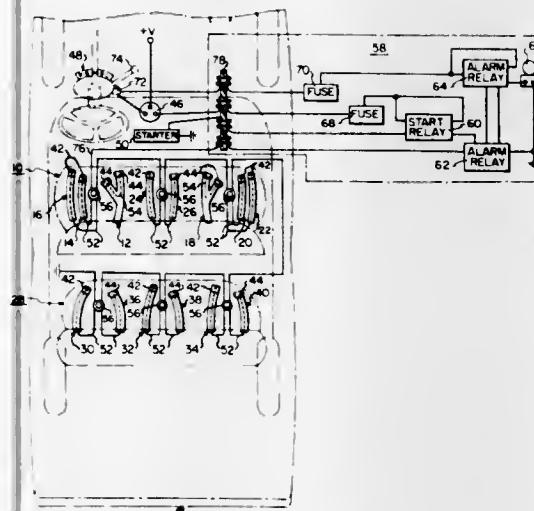
VEHICLE SAFETY BELT SENSOR SYSTEM

Richard F. Kopp, 308 Morse Drive, Northlake, Ill.
Filed Feb. 10, 1972, Ser. No. 225,208

Int. Cl. B60r 21/00

U.S. Cl. 340—52 E

6 Claims



A vehicle safety belt sensor system whereby the presence of an occupant in a vehicle seating position is sensed and used as a criterion for preventing the operation of the vehicle when a seat belt or harness at the occupied position is not in actual use.

3,737,851

PRECISION VEHICLE INTERVAL DETECTION AND SIGNALING SYSTEM

Arthur N. Marshall; James W. Rinehart, and Charles A. Gregory, Jr., all of Richmond, Va., assignors to Traffic Safety Systems, Inc., Richmond, Va.

Filed Apr. 1, 1971, Ser. No. 130,382

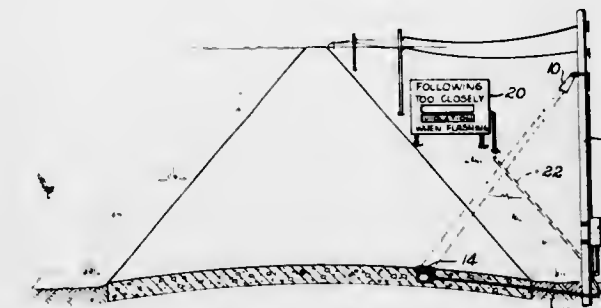
Int. Cl. G08q 1/09

U.S. Cl. 340—104 R

14 Claims

A beam of radiant energy, such as from an infrared transmitter, is directed in a path, preferably downwardly, across the center of a traffic lane to impinge upon an appropriate photoelectric receiver or other detector so that a vehicle interrupts the beam path as it travels along the traffic lane. As the vehicle moves on out of the beam path, the beam again imp-

inges on the receiver to produce an output indicating passage of the rear of a vehicle to actuate a first timing delay circuit that produces a minimum timing interval, such as 0.2 seconds. Timing delay circuits defining longer unsafe and/or illegal headway intervals between the rear of one vehicle and the front of a following vehicle are then actuated at the conclusion of this minimum interval to generate a signal from the system



indicating unsafe or illegal "tailgating" conditions if the beam is again interrupted within these defined intervals. However, if the beam is prematurely interrupted during the minimum interval defined by the first timing delay circuit, the system is prevented from responding to indicate arrival of another vehicle or to signal an unsafe or illegal headway interval between vehicles.

3,737,852

PATTERN RECOGNITION SYSTEMS USING ASSOCIATIVE MEMORIES

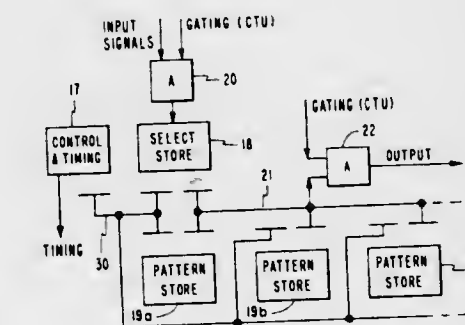
Thomas E. Robinson, Hampshire, England, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 8, 1971, Ser. No. 121,667

Int. Cl. G06k 9/00

U.S. Cl. 340—146.3 Q

17 Claims



In a pattern recognition system, a pattern is either presented as a bit string or is transduced to the form of a bit string. An associative store cycles to select different sections of the bit string for application to a data bus to which is connected a plurality of associative stores for both data input and data output. The bit string sections are processed in each store of the plurality of associative stores against tables located in the store to locate either matched words or completely matched tables resulting in a bit pattern gated onto the data bus identifying the pattern, representing the information content of the pattern or signifying that the pattern is one which the system cannot recognize.

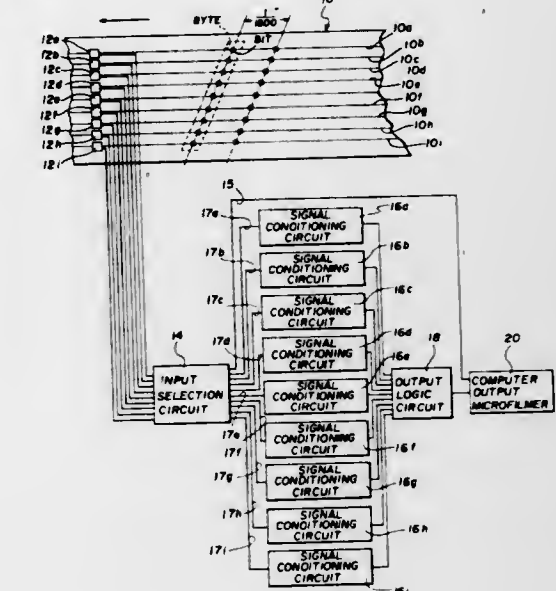
3,737,853

APPARATUS FOR SENSING AND PROCESSING MISSING OR ERRONEOUSLY RECORDED INFORMATION

Allan J. Wolfer, La Jolla, and Edward Cooper, San Diego, both of Calif., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Oct. 27, 1971, Ser. No. 192,837
Int. Cl. G06f 11/10; G06k 5/04

U.S. Cl. 340—146.1 F

5 Claims



Apparatus for sensing and processing missing or erroneously recorded phase encoded binary information recorded upon a plurality of tracks of a suitable information storage medium such as a magnetic tape. Each track is recorded with binary information taking the form of periodically spaced, information bearing significant transitions and non-significant transitions spaced therebetween. The significant transitions are stored upon a first plurality of storage devices associated with each of the tracks. If a significant transition is erroneously recorded or is missing, this error condition is sensed and is stored upon a second plurality of storage devices associated with each of the tracks. The corresponding significant transitions recorded on each of the tracks comprise a byte of information. The information bits and error condition signal are stored for a sufficient length of time to permit information bits corresponding to each of the significant transitions of the byte of information to be placed upon the first plurality of storage devices and for the signal(s) indicating an error condition to be placed upon the second plurality of storage devices. Then, the information bits and error condition signals if any, are read out in synchronism.

3,737,854

METHOD OF CLASSIFYING CHARACTERS WHEREIN THE EFFECTS OF VARIATIONS IN CONTRAST BETWEEN A PRESENTED CHARACTER AND ITS BACKGROUND AND VARIATIONS IN BACKGROUND BRIGHTNESS ARE REDUCED, AND THE APPARATUS THEREFOR

Arthur Klemt, Schwalbenek 5, 8031 Olching, Germany
Filed Sept. 8, 1971, Ser. No. 178,686

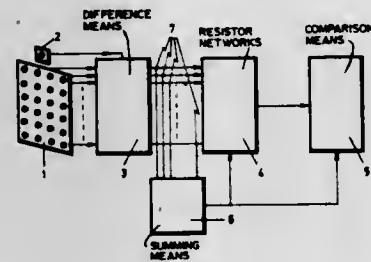
Int. Cl. G06k 9/12

U.S. Cl. 340—146.3 AG

6 Claims

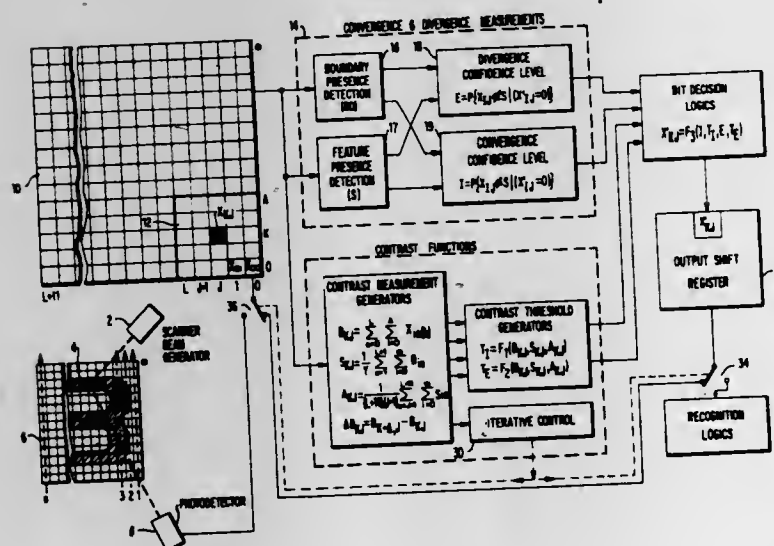
A method of reducing the effects upon character classification attributed to variations in the contrast between a presented character and its background and to variations in background brightness, and the apparatus therefor, are disclosed in accordance with the teachings of the present invention. A presented character is partitioned into a plurality of raster areas and a voltage representing the light intensity of each raster area is produced. A reference voltage proportional to the light intensity of a background area is also produced

and difference voltages corresponding to the difference between the reference voltage and each raster area voltage are generated. The difference voltages together with the reference voltage are combined in resistor networks representing predetermined classes of characters to produce output voltages.



ages. Each output voltage is compared to a comparison voltage to determine which output voltages lie within certain predetermined limits. The presented character corresponds to the one predetermined class of characters represented by those resistor networks that produce such proper output voltages.

3,737,855
CHARACTER VIDEO ENHANCEMENT SYSTEM
Alfred Cutala, Rochester, Minn., assignor to International Business Machines Corporation, Rochester, Minn.
Filed Sept. 30, 1971, Ser. No. 185,214
Int. Cl. G06k 9/17
U.S. Cl. 340-146.3 AG 13 Claims



Disclosed herein is a character video enhancement system which functions to minimize undesirable black fillins, noise and white voids in character patterns. The characters and noise patterns may be viewed as comprised of pluralities of elemental areas. Enhancement is accomplished by using a series of algorithms which enables a decision to be made at each elemental area as to whether a black mark in an elemental area should be converted to a white mark, or a white mark to a black mark or left black or white. The decision made at each elemental area is made independent of the raw video at that area and depends only on the markings in neighboring areas. For each elemental area, the surrounding neighborhood is investigated to determine:

a. the probability E that the surrounding elemental areas are not part of an a priori defined primitive feature set given that

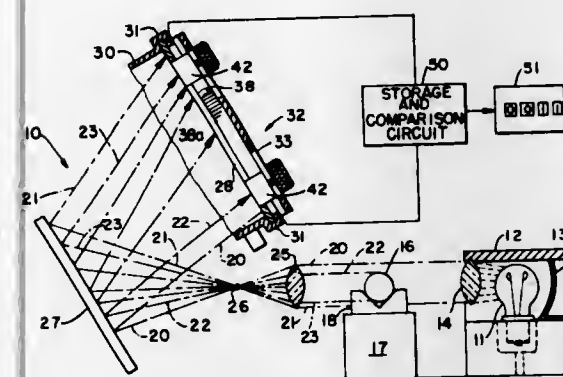
the elemental area under consideration is assumed to contain a white mark;

b. the probability I that the surrounding elemental areas are part of the a priori defined primitive feature set given that the elemental area under consideration is assumed to contain a black mark; and

c. threshold levels T_E and T_I determined on the basis of contrast measurements.

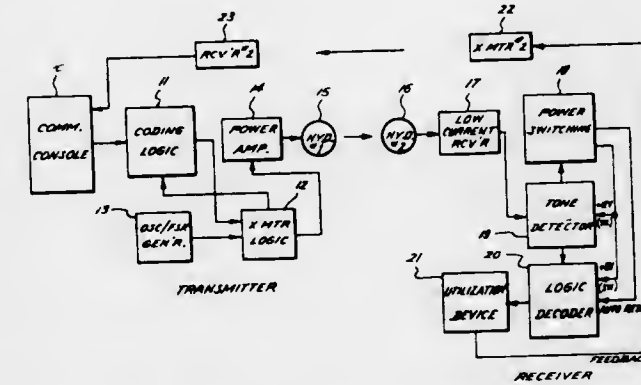
The probabilities E AND I are compared with the threshold levels T_E and T_I to determine whether the content of the elemental area under consideration should be altered or left as is.

3,737,856
AUTOMATED OPTICAL COMPARATOR
Stanley Lehrer, Pompton Lakes; Raymond A. Robertson, Dover, and John C. Holme, Wayne, all of N.J., assignors to Electro-Optics Devices Corporation, Butler, N.J.
Filed Mar. 6, 1970, Ser. No. 17,054
Int. Cl. G01n 21/22
U.S. Cl. 340-146.3 Q 19 Claims



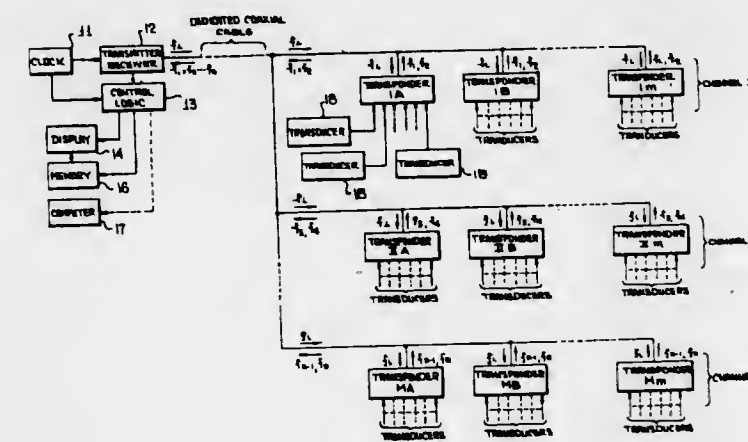
Apparatus for automating the determination of the dimensional measurements of an object having its silhouette displayed on an optical comparator and providing a digital representation of those measurements. The apparatus utilizes a plurality of photodetector arrays, each of which includes a plurality of photodetectors, which operate in circuit with electronic storage and comparison means to convert the output from the photocells into a digital indication of the deviation of the dimensions of the object from the dimensions of a reference part. In one embodiment, a pair of photodetector arrays are adjustably secured to a translucent viewscreen on the optical comparator. The arrays sense the position of the shadow edge of the image of the object and provide signals which indicate the location of that edge. A signal corresponding to the output from the photodetector arrays which was produced in response to the silhouette of a standard object is stored within a standard register. A signal corresponding to the output generated by the photodetector arrays for the dimensions of the object to be measured is compared with the signals stored in the standard register to provide a digital readout which represents the deviation of the object from the standard. Each of the photodetector arrays includes a plurality of photocells which are secured in a linear spaced relationship within an array housing. The housing is slidably secured to a track member attached to one side of the viewscreen. Thus, the array may be adjusted with respect to the silhouette of the object displayed on the viewscreen to accommodate a wide range of dimensions. In other embodiments, a plurality of arrays are secured to the viewscreen for multi-dimensional or profile measurement. Circuit means are also provided for indicating when the boundary of the object is outside of the limits of the array. Means are also disclosed for electronically focusing and for automatically positioning the array module.

3,737,857
ACOUSTIC CONTROL SYSTEM HAVING ALTERNATE ENABLING AND CONTROL SIGNAL
Richard J. Carman, Houston, Tex., assignor to Cameron Iron Works, Inc., Houston, Tex.
Continuation of Ser. No. 38,761, May 19, 1970, abandoned.
This application Apr. 19, 1972, Ser. No. 245,582
Int. Cl. H04g 5/00
U.S. Cl. 340-148 R 16 Claims



A control system utilizing an acoustic link between a transmitter and a receiver and operating upon signals having a unique coding format. The transmitter generates and transmits an acoustic coded signal which comprises a plurality of space tones of one frequency, and a data tone of a different frequency between successive space tones. The receiver includes an input circuit that receives the transmitted coded signal and responds to the space tone to provide an enabling signal, and detecting and decoding means which is connected to the input means and rendered operative in response to the enabling signal to detect and decode the data tones to provide a control signal for controlling a remote device when a proper sequence of data signals is decoded.

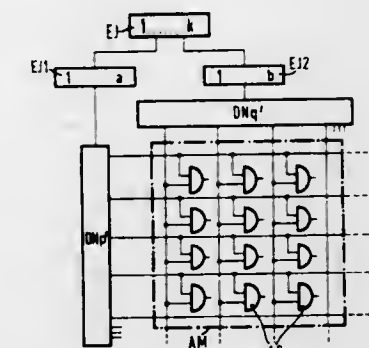
3,737,858
VERSATILE TELEMETERING SYSTEM
Loyce A. Turner, Smyrna, and Edward A. Rollo, Jr., Marietta, both of Ga., assignors to Advanced Research Corporation, Atlanta, Ga.
Filed July 13, 1971, Ser. No. 162,111
Int. Cl. H04q 9/1
U.S. Cl. 340-151 33 Claims



A telemetering system permits multiple functions to be monitored in response to each interrogation pulse by utilizing multiple sets of reply frequencies to distinguish between simultaneous reply pulses. The status of the various functions is displayed on a color television screen segmented into a grid wherein the color of each grid location represents the status of a respective monitored function. Remote utility meter reading is effected using a single reply pulse per interrogation by monitoring only one dial of a multiple-dial meter for intervals of an

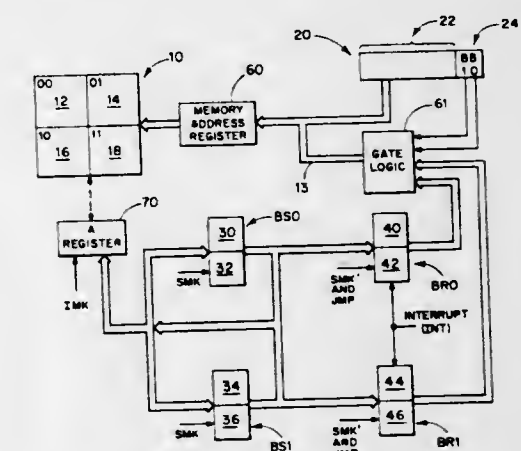
gular motion of the indicator and updating a total accumulated count at the central station each time a unit of fractional revolution is sensed. In a preferred embodiment, telemetering is effected via a coaxial cable dedicated solely to the telemetering system.

3,737,859
SELECTION MATRIX PROTECTED AGAINST OVERCHARGING AND DESIGNED FOR A DATA MEMORY HAVING RANDOM ACCESS
Hermann Kadow, Vaterstetten, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Mar. 21, 1972, Ser. No. 236,696
Claims priority, application Germany, Mar. 30, 1971, P 21 15 371.9
Int. Cl. G01r 15/12; H04q 9/00
U.S. Cl. 340-166 R 3 Claims



A selection matrix for a data memory having random access and which is dimensioned for a medium loading such as exists during normal operation and to which a control device is assigned which ensures that even in exceptional cases such as constant order the selection circuits are not overloaded the selection matrix employing a control system constructed as a selection matrix, two groups of control signal generators each corresponding to lines and columns of the selection matrix by which individual control signal generators may be selected.

3,737,860
MEMORY BANK ADDRESSING
Michael Sporer, Somerville, Mass., assignor to Honeywell Information Systems Inc., Waltham, Mass.
Filed Apr. 13, 1972, Ser. No. 243,700
Int. Cl. G11c 7/00
U.S. Cl. 340-172.5 12 Claims



Any one of multiple memory banks and storage locations therein are selected in response to a first address and a second address respectively. The first address is formed in either of two registers, one of which is selected in response to a bank select signal. In response to an interrupt condition, either or both of the registers are enabled to address preselected ones

modified addressing. Because of the versatility of this type of instruction, only a few instructions are required to in-line program a variety of normally iterate routines.

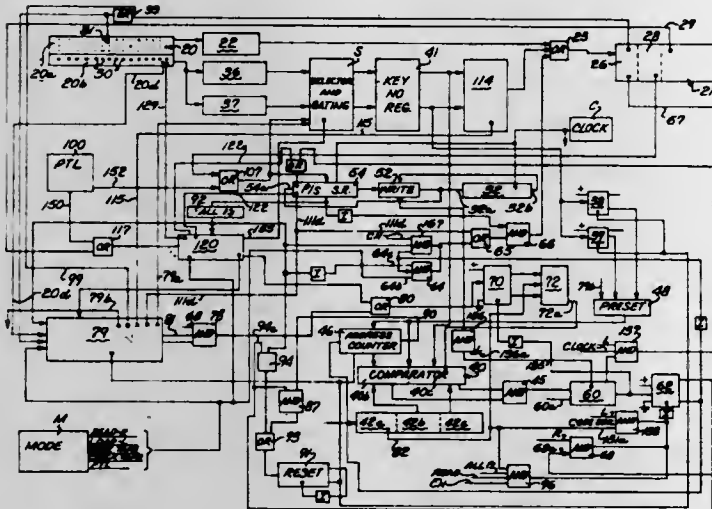
3,737,868 APPARATUS FOR PREPARING A BINARY CODED RECORD

Leon Tregerman, Syosset, and Stanley M. Brindle, East Setauket, both of N.Y., assignors to Addressograph-Multigraph Corporation, Cleveland, Ohio

Filed Mar. 30, 1972, Ser. No. 239,445
Int. Cl. G06k 3/00

U.S. Cl. 340—172.5

14 Claims



Keyboard encoding apparatus for preparing binary coded tape. The keyboard has special address keys for addressing a memory which, in response to the depression of a key, effects coding of a message on a tape comprising a plurality of words. The memory may be loaded from the keyboard or from paper tape and a punched tape is prepared when loading a memory from the keyboard. The memory may also be read to provide a check tape of data stored therein including key address and rub-out codes not stored in the memory. When loading the memory from the keyboard, the depression of a special key addresses the memory and data keys are operable to load the memory. The actuation of the special key in this mode effects a punching of a rub-out code and a key address code but does not store these in the memory.

3,737,869 ELECTRIC CONTROL DISTRIBUTOR

Jean Marie Treliat, La Celle St. Cloud, and Jean Bernard Michel, Llot, Bailly, both of France, assignors to International Standard Electric Corporation, New York, N.Y.

Continuation of Ser. No. 44,322, June 8, 1970, abandoned.
This application Feb. 11, 1972, Ser. No. 225,612

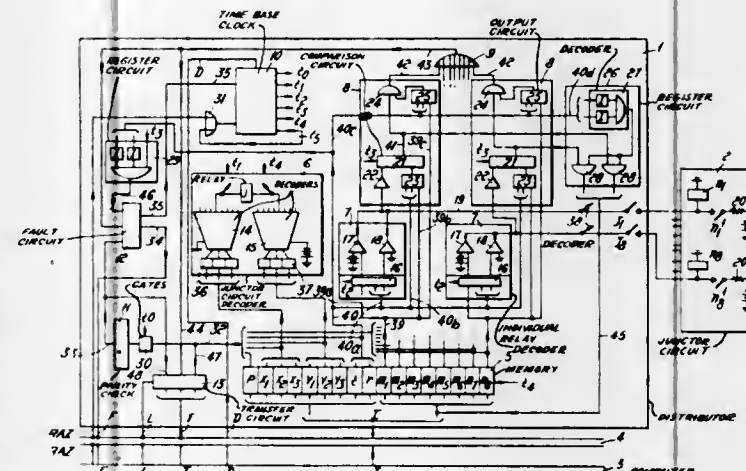
Int. Cl. G06f 11/00

U.S. Cl. 340—172.5

3 Claims

This distributor may be thought of as an interfacing circuit for use between a digital computer and peripheral equipment, such as a telephone exchange, controlled by the computer. The components of the peripheral equipment are bi-stable and

may be operated in groups or singly. The interfacing circuit cyclically tests these bistable components through the operat-



ing program of the peripheral unit. At each test, a comparison check against the program is made.

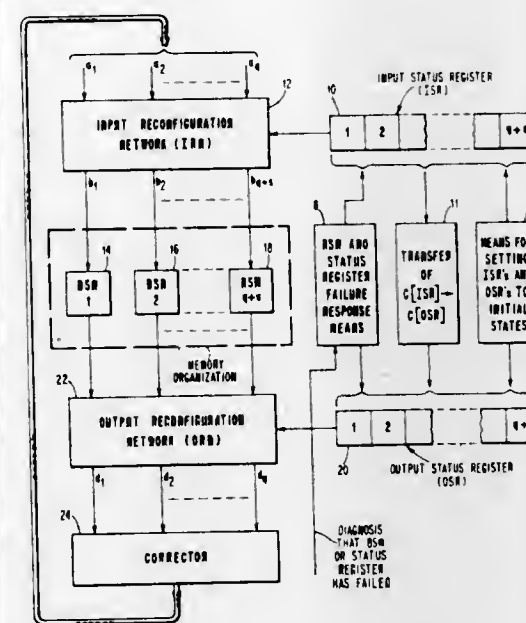
3,737,870 STATUS SWITCHING ARRANGEMENT

William C. Carter, Ridgefield, Conn.; Edward P. Hsieh, Yorktown Heights, and Aspi B. Wadia, Chappaqua, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 24, 1972, Ser. No. 246,733
Int. Cl. G06f 11/00, 13/06

U.S. Cl. 340—172.5

9 Claims



There is disclosed a switching arrangement for effecting storage module reconfiguration in a data processing system wherein the memory comprises a quantity q of operating n -bit/BSM's (basic storage modules) and a quantity s of spare n -bit/BSM's. The arrangement comprises an input status register means which in turn comprises an input status register associated with each of the BSM's respectively, which control an input reconfiguration network, and an output status register means which comprises an output status register respectively associated with each of the BSM's, which control an output reconfiguration network. The input and output status registers and the input and output reconfiguration networks are of like structures, respectively. Initially, in normal operation, the operating BSM's are connected to respective bit positions and all of the input and output status registers assume a chosen initial state. Initially, upon the ascertaining from a diagnosis, for example, that one of the operating BSM's has failed, the input status register with which the failed BSM is associated is

forced to a parity state opposite from the normal operating parity state, and all of the input status registers succeeding in designated numerical value are switched to a next state. This causes the failed BSM to be disconnected from the input; the input originally connected to the failed BSM is connected to the BSM of succeeding higher value, the next higher input connected to the next BSM and so on until the last input is connected to the first spare BSM. At this point, all of the contents of the memory, i.e., the initially operating BSM's, are passed through the output reconfiguration network under the control of the output status registers (which is not yet altered) and through a correction circuit wherein there is provided means for applying an error correction code. The memory contents are then passed from the correction circuit back into the present operating BSM's through the input reconfiguration network under the control of the input status registers. Thereafter, the contents of the output status registers are then brought into conformity with the present contents of the input status registers whereupon normal operation can resume. The arrangement permits as many changes in the contents, i.e., states of the status registers after their initial states as there are spare BSMM's in the memory organization, the contents of status registers of operating BSM's which succeed a failed BSM being switched to a next state. Suitably, an operating parity state of a status register is of even parity and, when its associated BSM fails, its state is forced to an odd parity. An algorithm is presented for diagnosing as a failed BSM which is based upon the criterion of the ascertaining of a bit position which has undergone corrections most frequently over a chosen period of time.

The switching arrangement also contemplates a basic storage module reconfiguration in the case of a status register failure in which situation, similar events ensue in the arrangements operation as would have occurred has a BSM failed.

3,737,871 STACK REGISTER RENAMER

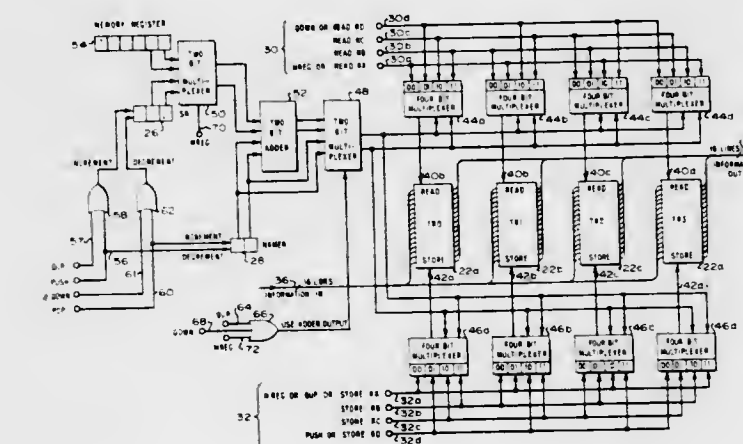
James A. Katzman, Cupertino, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed July 28, 1971, Ser. No. 166,867

Int. Cl. G11c 19/00; G06f 9/06

U.S. Cl. 340—172.5

10 Claims



A stack oriented memory system for a computer is provided with a plurality of top of the stack registers. The top elements of a logical stack of information are stored in the stack registers and the remaining information is stored in core memory. An embodiment of a bookkeeping scheme for keeping track of the order of the information in the stack registers comprises two additional registers. A first register stores the number of stack registers filled with stack information. A second register stores a number representing a naming state which defines the logical order of the stack registers. There is also a third register for storing the location of the top piece of information in the stack in core memory. These three registers store the necessary information to keep track of the order of the information in and the size of the logical stack. These re-

gisters also facilitate the bookkeeping when information is added to or deleted from the stack registers.

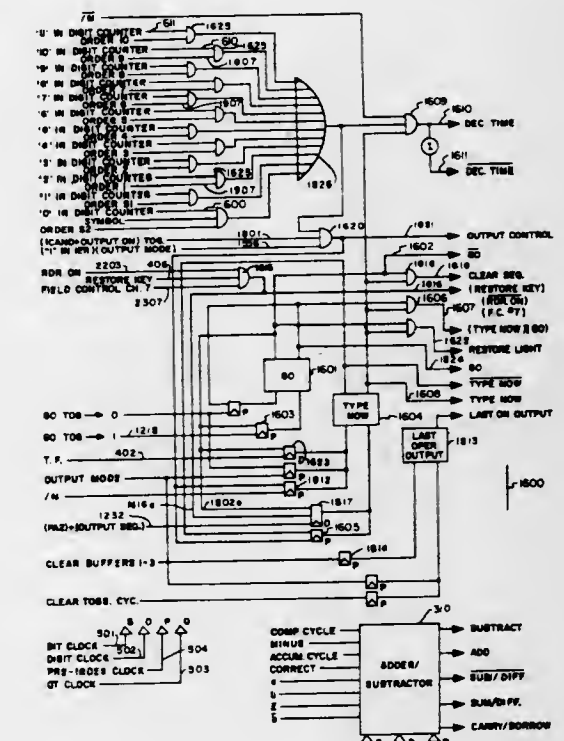
3,737,872 PLUGBOARD SELECTION OF ORDINAL LIMITS OF REGISTER READOUT

Winsor Soule, Jr., Berkeley, and Lelf Andrasen, Newark, both of Calif., assignors to SCM Corporation, New York, N.Y.

Division of Ser. No. 434,265, Feb. 23, 1965, Pat. No. 3,522,416. This application Mar. 2, 1970, Ser. No. 24,904
Int. Cl. G06f 9/02, 15/00

U.S. Cl. 340—172.5

22 Claims



Designation of the start and end of readout of a register's contents by use of a plugboard in conjunction with the usual digit position identification signals, together with instructions on program media for selection of alternate designations.

3,737,873 DATA PROCESSOR WITH CYCLIC SEQUENTIAL ACCESS TO MULTIPLEXED LOGIC AND MEMORY

Sergio E. Puccini, Wood Dale, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Del.

Filed Nov. 24, 1971, Ser. No. 201,851

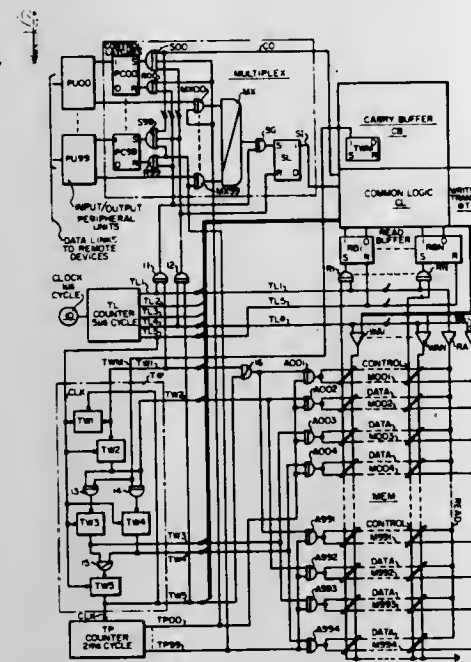
Int. Cl. G06f 9/18

U.S. Cl. 340—172.5

39 Claims

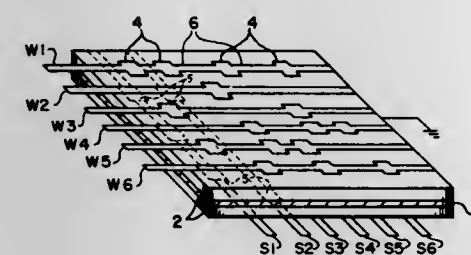
The register-sender subsystem of a telephone switching system is of the type having common logic circuits including a wired program shared during cyclically recurring time slots by a plurality of registers, with each register comprising a block of a common memory and having an associated register junction serving as a peripheral unit for connection via a switching network to a calling line or incoming trunk. The memory block for each register comprises a plurality of sets of storage elements including control sets and data sets which are accessed during sub-time slots, each of the control sets having two sub-time slots, one occurring before the other after the data sub-time slots. Each set of storage elements is organized as two memory words which during a sub-time slot, are read in sequence, the information processed by the common logic circuits, and then written back into memory. A carry buffer provides for storage of information from some of the sub-time slots for use during other sub-time slots, and is cleared at the end of the complete time slot. A stored program main processor also is provided with random access to the register-sender memory. The register-sender is provided with mode control to skip data sub-time slots, with a normal mode in which called

digits are received via a register junctor and stored into memory into called number word stores, while sub-time slots for calling number storage are skipped; and an automatic-



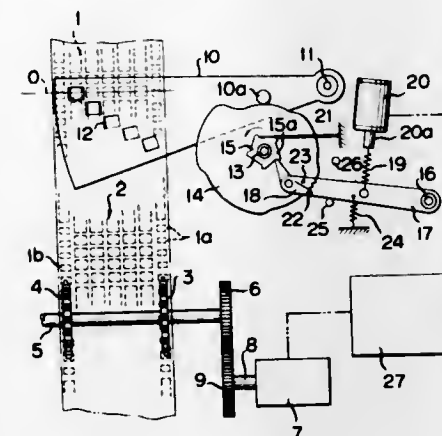
number-identification mode in which the called number sub-time slots are skipped and sub-time slots for calling number storage occur instead. A maintenance mode provides for scanning all sub-time slots of a selected time slot.

3,737,874
CAPACITIVE READ ONLY MEMORY
George A. Hess, Acton; John H. Kefalas, Billerica, and Richard D. MacInnes, Littleton, all of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.
Filed Dec. 3, 1970, Ser. No. 94,719
Int. Cl. G11c 17/00
U.S. Cl. 340-173 SP 4 Claims



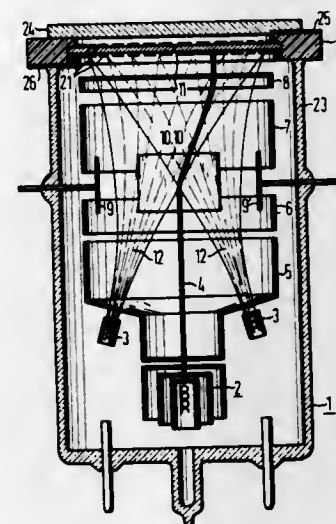
A capacitive read only memory which has a ground plane with a plurality of holes, a plurality of word conductors insulated from and disposed over one surface of the ground plane, and a plurality of sense conductors insulated from and disposed on the other surface of the ground plane. The word and sense conductors are substantially orthogonal to one another so as to define a plurality of conductor intersections, at least some of which correspond with the holes in the ground plane. An intersection position at which there is no hole identifies one of the binary storage states, while an intersection position corresponding with a hole in the ground plane identifies the other storage state.

3,737,875
DEVICE FOR SELECTING INFORMATION
Sakae Fujimoto, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
Continuation of Ser. No. 813,035, April 3, 1969, abandoned.
This application Sept. 30, 1971, Ser. No. 185,415
Claims priority, application Japan, Apr. 13, 1968, 43/24622; Apr. 13, 1968, 43/24623
Int. Cl. G11c 11/42; G11b 7/00
U.S. Cl. 340-173 LM 1 Claim



An information selecting device having information stored in rows and columns in a storage medium. Wheels drive the medium in increments according to pulses from a command unit. This same unit sends pulses to a movable selection plate having apertures therein to select information from the medium.

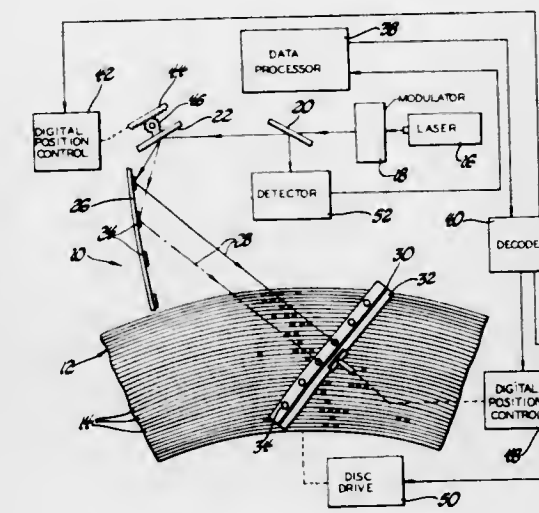
3,737,876
METHOD AND DEVICE FOR SCANNING INFORMATION CONTENT OF AN OPTICAL MEMORY
Dieter Froelich, and Wolfgang Welsch, both of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed June 16, 1971, Ser. No. 153,568
Claims priority, application Germany, June 24, 1970, P 20 31 320.6
Int. Cl. G11c 11/42
U.S. Cl. 340-173 CR 12 Claims



An electron beam tube for use in retrieving information from an optical memory characterized by being provided with one or more electron guns for flooding the matrix of photosensitive elements after a retrieval cycle to erase any information stored thereon prior to a subsequent retrieval cycle. The photosensitive elements of the electron tube are arranged in columns and rows corresponding to the columns and rows of the stored information of the optical memory and may include

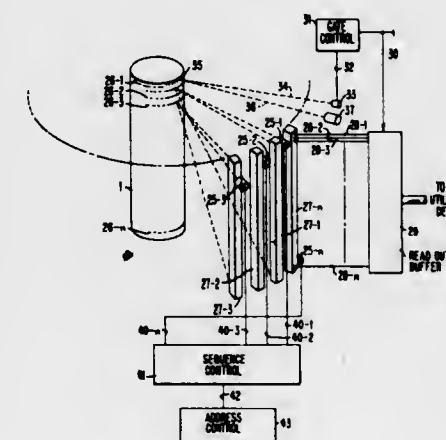
at least one row of switching diodes utilized to control the scan of the reading electron beam along the desired column.

3,737,877
DATA STORAGE SYSTEM WITH COARSE AND FINE DIRECTING MEANS
Julius Feinleib, Birmingham, Mich., assignor to Energy Conversion Devices, Inc., Troy, Mich.
Filed Sept. 24, 1970, Ser. No. 75,002
Int. Cl. G11c 13/04; G01d 15/14; G02b 5/08
U.S. Cl. 340-173 LT 18 Claims



An optical memory for a data processor comprising an optical memory disc having concentric data tracks, a first coarse adjustment device for selectively directing a laser beam onto each of widely spaced areas across the disc and a second fine adjustment device for selecting the desired track within the selected area.

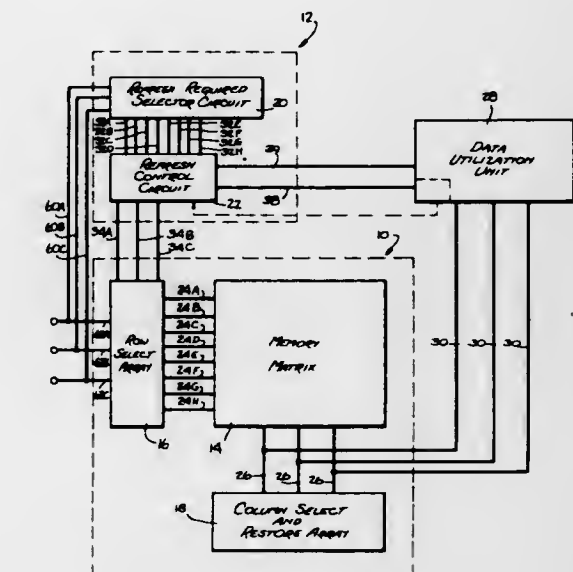
3,737,878
HOLOGRAPHIC READ/WRITE STORAGE SYSTEM
Rodger L. Gamblin, Vestal, N.Y., and Carl D. Southard, Raleigh, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.
Division of Ser. No. 813,198, April 3, 1969, Pat. No. 3,656,827. This application Mar. 22, 1971, Ser. No. 127,013
Int. Cl. G11c 13/04; G02b 27/00
U.S. Cl. 340-173 LM 4 Claims



The invention relates to a holographic mass data storage system in which coded representations of data are recorded on

the photosensitive surface of a drum sequentially under control of mechanical means, and means for reading the written information, by reflection onto an array of radially disposed photodetectors. An address control means is provided whereby the written information may be selectively read out in any desired combinations of words of information.

3,737,879
SELF-REFRESHING MEMORY
Richard M. Greene, Audubon; Donald L. McLaughlin, and John O. Paivinen, both of Newtown Square, all of Pa., assignors to Mos Technology, Inc., Valley Forge, Pa.
Filed Jan. 5, 1972, Ser. No. 215,506
Int. Cl. G11c 7/00
U.S. Cl. 340-173 R 20 Claims



A self-refresh circuit having a counter connected to each row of a memory matrix. The matrix is formed of memory units which require repeated refreshing to retain the stored information and the maximum count of each counter corresponds in time to the maximum time that the memory units are permitted to be without a refresh. Each time a row of the matrix is accessed for a writing or a reading and restore operation, the corresponding row counter is reset and its count begins again, so that if at any time the row is not accessed within the period permitted for refreshing a memory unit, its counter completes its count and initiates a mandatory refresh operation for that row while temporarily inhibiting all access to the memory. Also, there is a program sensing unit which determines from the nature of the program steps when access to the memory is not required for a sufficiently long time to permit one or more rows of the memory to be refreshed. When such a time period is detected, a voluntary refresh operation of one or more memory rows nearest to requiring a mandatory refresh is effected, and the corresponding row counters are reset to avoid any interference with the mandatory refresh operation and yet minimize the time in which access to the memory will be inhibited for purposes of memory refresh.

3,737,880
FLEXIBLE DISC WITH AIR INTAKE IN TURNTABLE
Jerry O. Kelley, Grass Valley, Calif., assignor to Arvin Industries, Inc., Grass Valley, Calif.
Filed Sept. 10, 1971, Ser. No. 179,465
Int. Cl. G11b 5/60, 25/04
U.S. Cl. 340-174.1 E 3 Claims

A magnetic disc recorder includes a removably mounted lightweight disc having a shallow air chamber over which is fastened a flexible membrane of recording media. The disc is

3,737,888
METHOD OF DETECTING AN OVERSTEPPING OF A
MAXIMUM PARAMETER ADMISSIBLE FOR THE
OPERATION OF A MACHINE

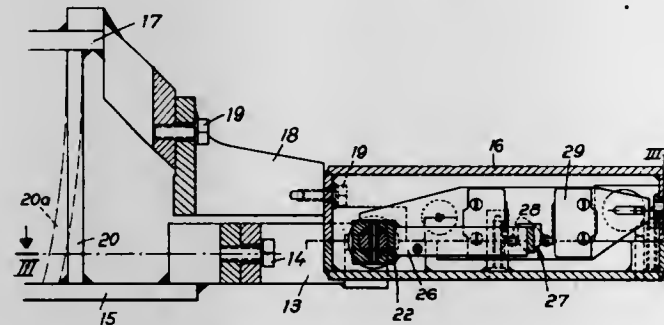
Bernard J. Cheze, Montceau-les-Mines, France, assignor to
 Potain Poclaim Materiel, Montceau-les-Mines, France
 Filed Mar. 12, 1971, Ser. No. 123,541

Claims priority, application France, Mar. 17, 1970,
 7009516

Int. Cl. G08b 21/00

U.S. Cl. 340—267 R

16 Claims



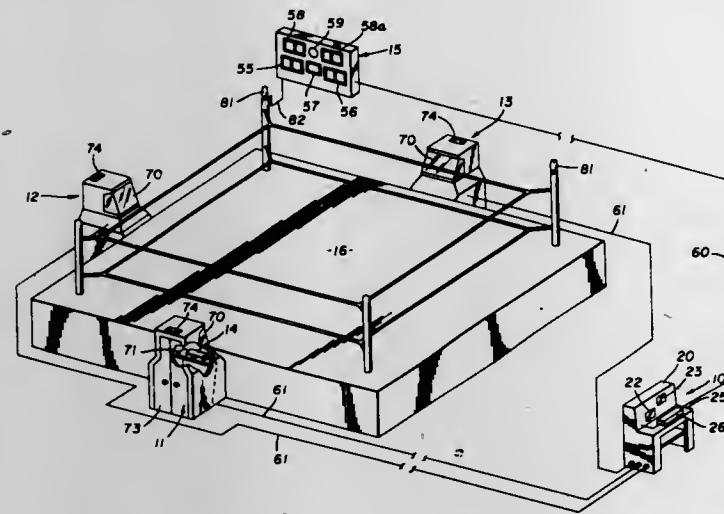
A detecting apparatus for detecting excessive mechanical stresses on a machine having a one-piece structural element the first part of which moves with respect to a second part to an extent determined by the mechanical stress applied to the machine includes a casing rigidly secured to one of those parts and a plurality of electrical switches mounted in the casing. A first arm means is mounted on the other of the first and second parts of the machine and first cam means is rotatably mounted on the casing in contact with the first arm means for rotation thereby upon movement of the first part with respect to the second part. The cam means are operatively connected to the switch means to selectively actuate the switch means upon stressing of the structural elements of the machine.

3,737,889
SCORING SYSTEM FOR ATHLETIC EVENTS
 Edward J. Sweeny, 3530 Fenley Road, Cleveland Heights,
 Ohio

Filed Mar. 3, 1971, Ser. No. 120,550
 Int. Cl. G08b 23/00

U.S. Cl. 340—323

7 Claims



A method and apparatus for scoring athletic events such as a boxing contest. Each official is provided with an individual panel upon which performance points are recordable. The points scored by each individual judge or official are transmitted into a master console for cumulative progressive scoring of the event as it progresses, with the collected points being flashed on a scoreboard that is visible to the audience so that they may be progressively aware of the standing of the contest as it progresses.

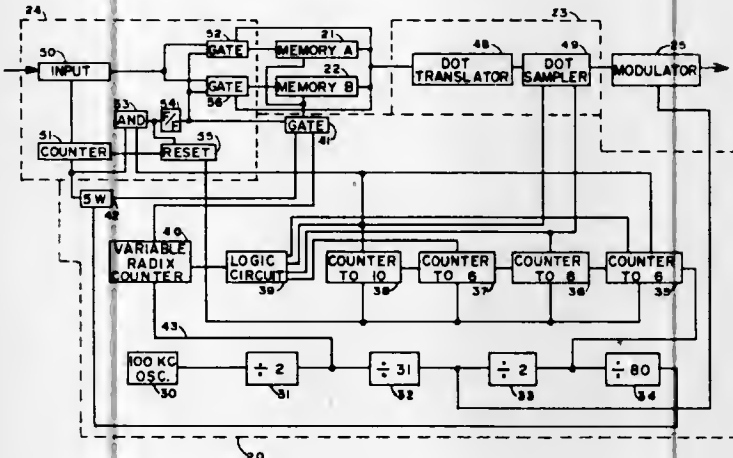
3,737,890
CHARACTER TO DOT GENERATOR

Roger F. Salava, Arlington Heights, Ill., assignor to Motorola,
 Inc., Franklin Park, Ill.

Filed Aug. 24, 1970, Ser. No. 66,489
 Int. Cl. H04I 3/00

U.S. Cl. 340—347 DD

25 Claims



An apparatus for converting binary signals representing characters to dot matrix signals representing the characters and transmitting the dot matrix signals in a particular sequence. A plurality of binary signals representing a predetermined number of alpha-numeric characters are coupled to a first memory and recirculated through the memory in a predetermined sequence. A dot translator coupled to the memory output converts the binary signals to dot matrix signals representing the character. A dot sampler selects particular of the dot matrix signals and couples them to a modulator for phase modulating an output signal. A second storage memory identical to the first storage memory can be used to store a second group of binary signals while the binary signals in the first group are being recirculated.

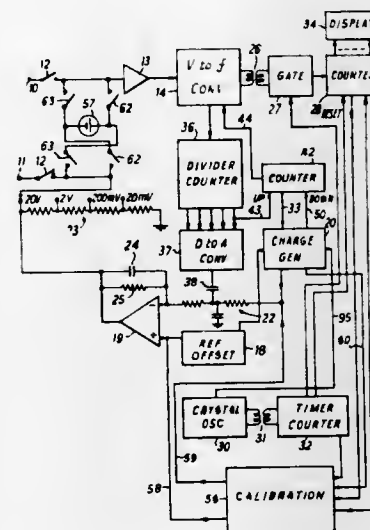
3,737,891
DIGITAL VOLTMETER
 Eric Metcalf, Farnborough, England, assignor to The Solartron
 Electronic Group Limited, Farnborough, England

Filed May 7, 1971, Ser. No. 141,327
 Claims priority, application Great Britain, May 11, 1970,
 22,750/70

Int. Cl. H03k 13/02

U.S. Cl. 340—347 CC

23 Claims



An input voltage is converted to a digital output by applying the voltage to a voltage to frequency converter whose output is counted for a measured interval. To obtain high digital resolution with a short measurement interval, the v to f

frequency at full scale input is very high. The voltmeter is linearized by completing a loop from the v to f converter, through a frequency divider and a standard charge generator supplying a fixed pulse of charge for each pulse from the divider, to a smoothing circuit which provides a voltage opposing the input voltage. The frequency divider is included because of the said high frequency, but then the slow speed of the pulses from the divider at small inputs causes the fixed pulses of charge to be inadequately smoothed. Therefore a digital to analogue converter is driven off the frequency divider binary stages to provide a periodic staircase ramp function which is a.c. coupled into the smoothing circuit to cancel out the a.c. component of the inadequately smoothed pulses.

Auto-calibration is provided at both plus and minus full scale input, enabling both zero offset and slope of the voltmeter calibration line to be corrected.

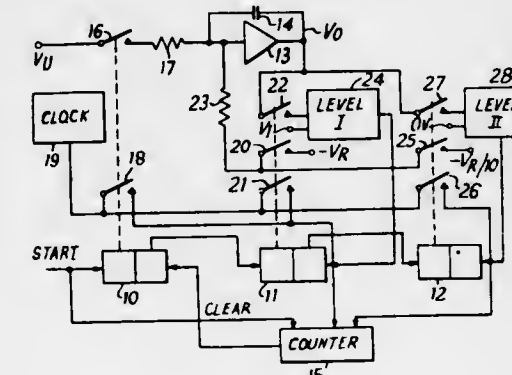
3,737,892
TRIPLE-SLOPE ANALOG-TO-DIGITAL CONVERTERS
 Howard Anthony Dorey, Godalming, England, assignor to The
 Solartron Electronic Group Limited, Farnborough,
 Hampshire, England

Division of Ser. No. 764,490, Oct. 2, 1968. This application
 Mar. 8, 1972, Ser. No. 232,883

Int. Cl. H03k 13/02, 13/20

U.S. Cl. 340—347 NT

4 Claims



A ramp type analogue to digital converter including an integrating circuit the output of which is first set to a level dependent upon the magnitude of an analogue input voltage to be converted. A reference signal is then applied to ramp down the integrator output level to a datum level and the conversion is effected by counting clock pulses while the integrator output is ramping down to datum level. The magnitude of the reference signal and the numerical weighting of the clock pulses being counted are scaled down by a common factor when the ramp reaches a value close to the datum level so that the slope of the ramp is reduced and the resolution of conversion is increased as it approaches datum. Thus, compared with a ramp type digital voltmeter having a constant slope discharge ramp and a given resolution, the discharge time is reduced for the same resolution of conversions.

3,737,893
BIPOLAR CONVERSION ANALOG-TO-DIGITAL
CONVERTER
 Joseph J. Belet, Delray Beach, and Jack L. Quanstrom, Boca
 Raton, both of Fla., assignors to International Business
 Machines Corporation, Armonk, N.Y.

Filed Apr. 6, 1971, Ser. No. 131,749

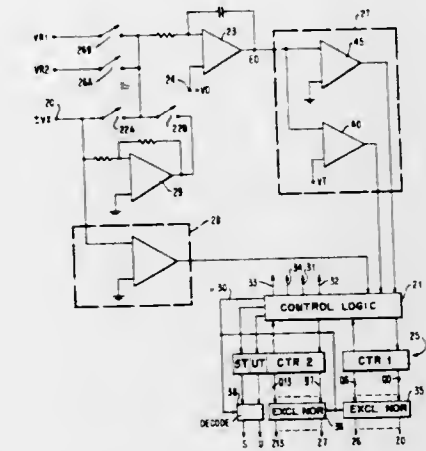
Int. Cl. H03k 13/02

U.S. Cl. 340—347 NT

9 Claims

Bipolar analog input signals are tested for apparent polarity, and depending on the polarity indication, the analog signal is either inverted or not inverted and resulting input signal is combined with a constant reference voltage so that the effective input to the analog-to-digital converter will always be a unipolar voltage having a minimum nominal value greater

than the potential error of the polarity decision element. A counter or register type output device, which reflects the digital resultant from the conversion, is corrected by subtracting the digital equivalent of the constant reference voltage,



either by presetting the counter to an initial negative value or by subtraction following the conversion. The initial polarity decision further controls the readout, either direct or complemented, to correspond to the apparent polarity of the input signal.

3,737,894
ENCODER FOR HIGH-SPEED PCM SYSTEM
 Isidoro Poretti, Catiglione, and Giancarlo Monti, Milan, both
 of Italy, assignors to Societa Italiana Telecomunicazioni
 Siemens S.p.A., Milan, Italy

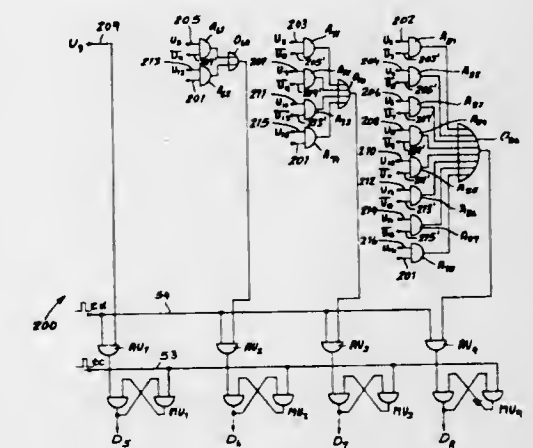
Filed Oct. 28, 1971, Ser. No. 193,446

Claims priority, application Italy, Nov. 18, 1970, 31877
 A/70

Int. Cl. H03k 13/06

U.S. Cl. 340—347 AD

4 Claims



An analog signal to be encoded is fed in parallel to 16 comparison stages of 16 comparators each, every comparator working into an individual flip-flop to set it upon the occurrence of a reading pulse if the instantaneous signal amplitude surpasses a respective reference voltage selected in accordance with a predetermined coding characteristic spanning 16 amplitude ranges of 16 levels each. The outputs of the several flipflops are selectively combined in a logic network deriving therefrom two halves of an eight-bit word; the first half, controlled by the highest-ranking comparison stage in which any comparator is operative to produce a finite output, determines the amplitude range whereas the second half, controlled by the highest-ranking operative comparator in that stage, determines the amplitude level within the designated range.

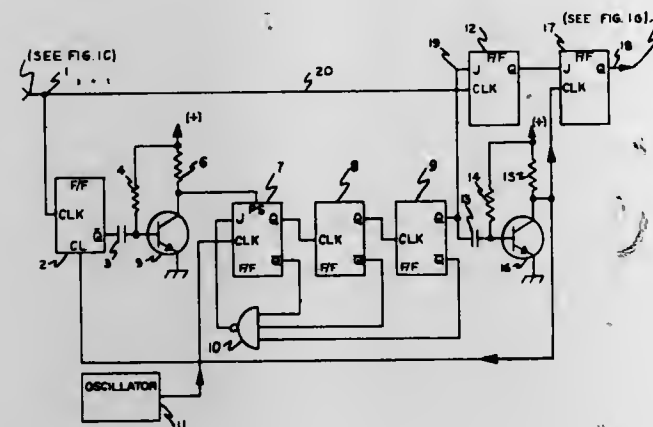
3,737,895

BI-PHASE DATA RECORDER

Frederick B. Cupp, Fairport, and Gary Van Camp, Palmyra, both of N.Y., assignors to EDMAC Associates Inc., Rochester, N.Y.

Filed Aug. 2, 1971, Ser. No. 168,199
Int. Cl. G06f 3/00

U.S. Cl. 340—347 DD



Apparatus is disclosed for decoding a stream of Bi-Phase mark data which includes an oscillator, operating at a frequency at least three times greater than the Bi-Phase data rate, and a counter. Differentiated pulses derived from the Bi-Phase mark data stream are applied to two flip-flops. The first flip-flop provides a pulse which enables the counter coupling it to the oscillator output to count a predetermined sequence. During a portion of the predetermined sequence of the counter, it enables the second flip-flop which in response to the Bi-Phase mark data pulses produces a binary data stream. When the counter reaches a predetermined number, it enables a gate which decouples the counter from the oscillator and the second flip-flop is then prevented from changing state.

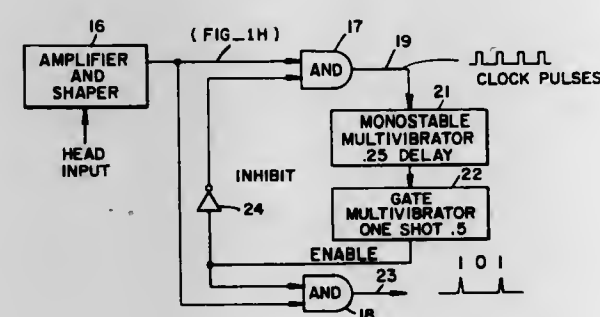
3,737,896

APPARATUS FOR RECOVERY OF RECORDED BIT INFORMATION ON A MAGNETIC RECORDING MEDIUM

Andrew Gabor, Danville, Calif., assignor to Diablo Systems, Inc., Hayward, Calif.

Filed Oct. 27, 1971, Ser. No. 192,826
Int. Cl. G11b 5/06

U.S. Cl. 340—174.1 H



Apparatus for the recovery of recorded data bits from a magnetic recording medium where the data has been recorded by the frequency encoding or phase encoding method. Improved noise immunity and timing margins are provided by integrating the differentiated signal and summing the differentiated signal with the integrated signal to thus provide an improved playback waveform which is processed by a gating system which discriminates between clock pulses and data pulses.

3,737,897

ANALOG TO DIGITAL CONVERTER

Laurence Geoffrey Cuthbert, Harlow, and Raymond John Anderson, Boreham Wood, both of England, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Dec. 29, 1971, Ser. No. 213,617

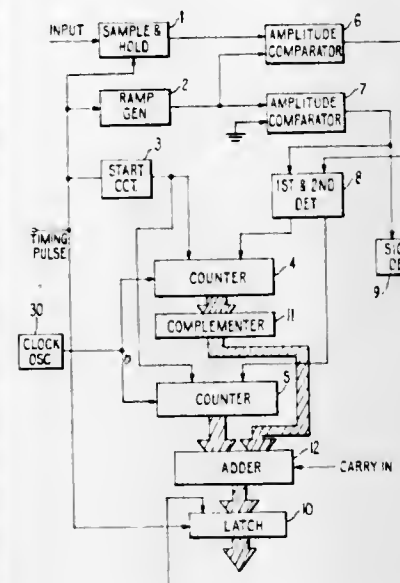
Claims priority, application Great Britain, Jan. 25, 1971,

1 Claim 3,086/71

Int. Cl. H03k 13/20

U.S. Cl. 340—347 AD

5 Claims



An analog to digital converter is disclosed having a reference signal in the form of a ramp waveform starting at a given negative potential and increasing to a given positive potential through ground or zero potential. Two amplitude comparators are provided, the first comparator producing a first output signal when the amplitude of the analog signal equals the amplitude of the ramp waveform and the second comparator producing a second output signal when the amplitude of the ramp waveform equals zero or ground potential. A counting and arithmetic arrangement responds to the first and second output signals to provide a digital output signal representative of the amplitude difference between ground potential and the amplitude of the analog signal. A polarity detector is coupled to the output of the first and second detectors and in response to the first and second output signals provide a digital bit representing the polarity of the analog signal. A storage device combines the digital output signal from the counting and arithmetic arrangement and the digital bit from the polarity detector to provide the digital output signal for the converter. Three embodiments of the counting and arithmetic arrangement are disclosed.

3,737,898

CONSOLE FOR RANDOM ACCESS FILING EQUIPMENT OR THE LIKE HAVING PUSH BUTTON DISPLAY

Laurence Allan Cross, Jr., Groveville, N.J., assignor to Randomatic Data Systems, Inc., Trenton, N.J.

Filed Oct. 5, 1970, Ser. No. 77,970

Int. Cl. G08b 5/36

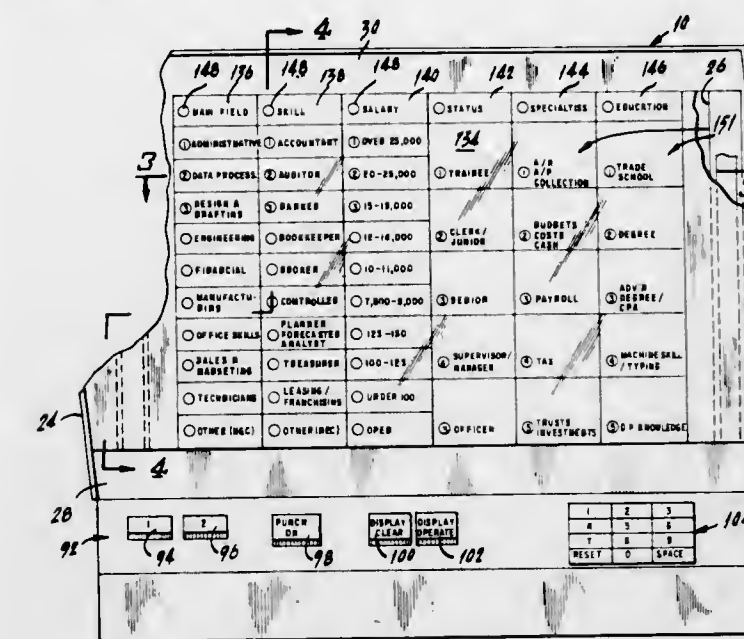
U.S. Cl. 340—381 R

12 Claims

An operator's console for such apparatus as random access filing equipment includes a readily interchangeable, back-lighted view panel marked off into individually illuminable signal selection areas. The panel is imperforate but flexible. In back of it is a bank of light-transmitting bars, one behind each area. Any one of the bars is depressible by finger pressure exerted against the corresponding, overlying area, to cause the bar to operate a switch that illuminates an associated lamp the light from which is transmitted through the bar to visibly indicate the selected area. The switches also actuate signal generating devices, so that when certain areas have been selected and illuminated as a visible indication of their selection.

tion, the signals corresponding thereto will be transmitted to the associated apparatus. If for example said apparatus is ran-

the power spectral density of received signals for each of a plurality of discrete doppler frequencies, corresponding to a doppler pass band of interest. Use of such digital technique allows convenient phase and frequency compensation of the



dom access filing equipment, the transmitted signals may be operable to produce a coded, randomly filed card or cards corresponding to the selection made by the user.

3,737,899

PHASED ARRAY ANTENNA CONTROLLER

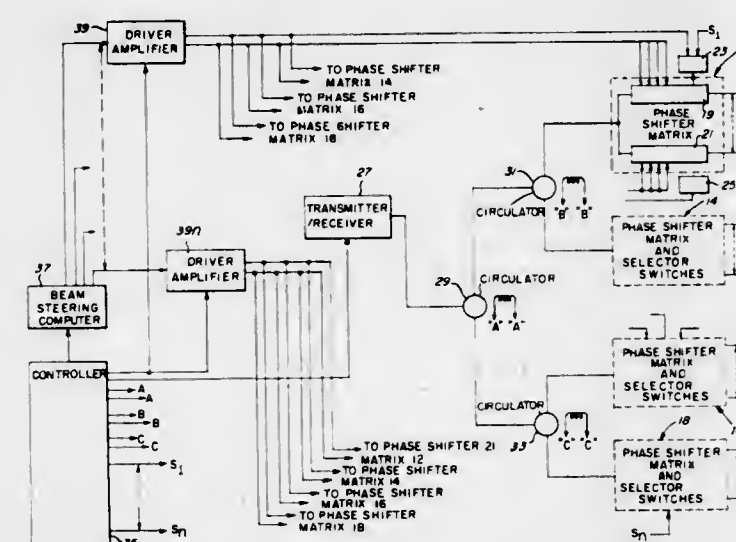
Christos J. Georgopoulos, Lowell, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Feb. 1, 1971, Ser. No. 111,423

Int. Cl. G01s 9/02

U.S. Cl. 343—5 R

1 Claim



A phased array antenna arrangement which includes a plurality of independently operable phased arrays is disclosed. The phase shifters in each such array are connected to appropriate ones of a set of driver amplifiers through an electronic switching arrangement which is operable as desired to permit only the phase shifters in a selected one, or selected ones, of the phased arrays to be actuated.

3,737,900

DIGITAL DOPPLER PROCESSOR

Charles L. Vehrs, Jr., Anaheim, Calif., assignor to North American Rockwell Corporation, El Segundo, Calif.

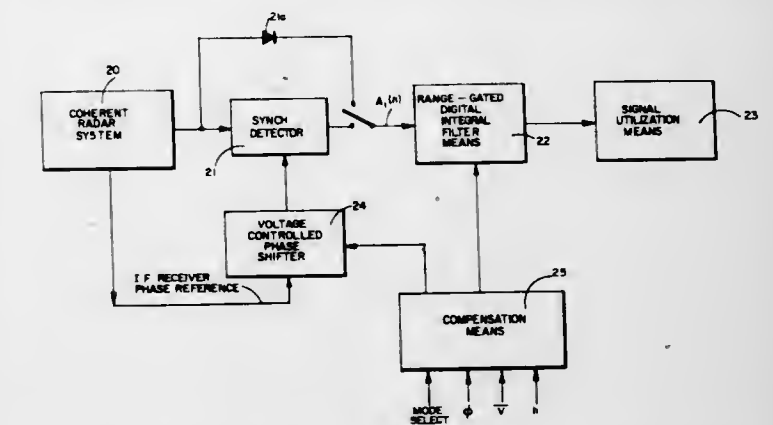
Filed Sept. 25, 1967, Ser. No. 670,363

Int. Cl. G01s 9/42

U.S. Cl. 343—7 A

9 Claims

In a multi-mode pulsed energy system adapted for airborne operation, a range-gated doppler processor utilizing digital integral filter means. The digital integral filter means computes



doppler processor for changes in system look-angle, altitude and platform motion in a selected one of a high resolution ground mapping, squint, coherent AMTI and noncoherent AMTI mode of a multi-mode radar system.

3,737,901

REDUNDANT AIRCRAFT CLOCK SYNCHRONIZATION

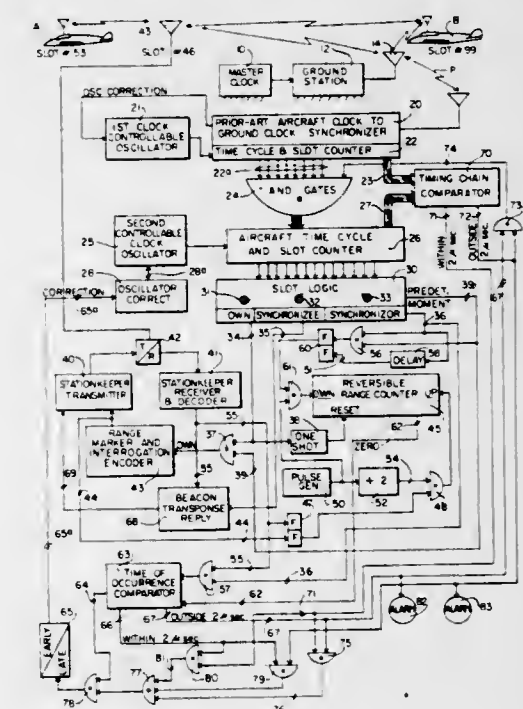
William V. Scott, Depew, N.Y., assignor to Sierra Research Corporation, Buffalo, N.Y.

Filed May 3, 1971, Ser. No. 139,470

Int. Cl. G01s 9/56

U.S. Cl. 343—7.5

14 Claims



An air traffic system in which participating aircraft occupy uniquely assigned time slots and have first time clock means which are assumed to be already finely synchronized to a ground-based master time clock by signal exchanges with ground stations and have second time keeping means in each aircraft which are synchronized first to the master time clock and are thereafter further and more finely synchronized to other aircraft nearby, to provide a desirable degree of redundancy while also remaining within the limits of the ground station imposed synchronization. Each aircraft in the illustrative embodiment selects by time-slot designation another nearby aircraft as its synchronizer, and in addition also responds to requests for synchronization by other synchronizer aircraft identified by other time-slot selection. This redundant fine synchronization among nearby synchronizer and synchronizer aircraft is especially useful in

situations where large numbers of aircraft are flown close together in formations, or in groupings of commuter aircraft, for instance, in which STOL aircraft fly between cities close together, perhaps one behind the other.

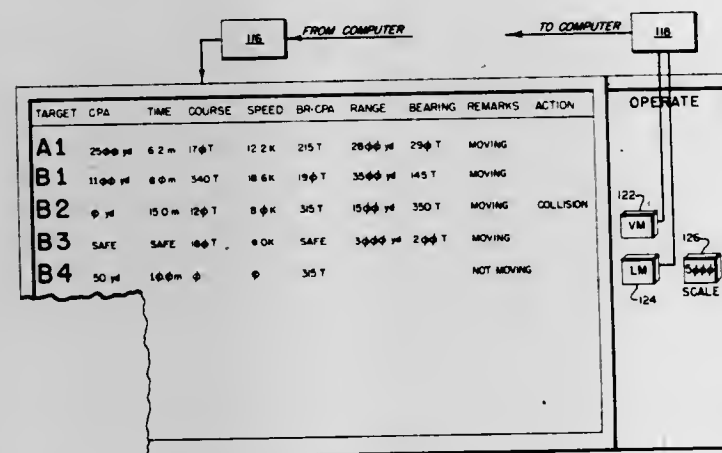
3,737,902

COLLISION AVOIDANCE SYSTEM PROVIDING A VECTOR SIGNAL REPRESENTATIVE OF THE DISTANCE AND BEARING BETWEEN A PRIME VEHICLE AND TARGET OBJECT AT A PREDICTED CLOSEST POINT OF APPROACH THEREBETWEEN
Robert M. O'Hagan; Joseph F. De Spautz; James E. Carroll, Jr., and Richard H. Sorensen, all of North Plymouth, Mass., assignors to State Street Bank and Trust Company, Boston, Mass.

Filed Aug. 19, 1970, Ser. No. 65,228
Int. Cl. G01s 9/44

U.S. Cl. 343-9

14 Claims



Radar and associated apparatus track the course of neighboring target vehicles and display closest points of approach between the prime vehicle and the target vehicles to signal potential collisions sufficiently in advance to avoid them, may enter a proposed maneuvering change for the prime vehicle into the apparatus, and the apparatus displays whether the proposed change will present any collision situations.

3,737,903

EXTREMELY THIN, WAVE ABSORPTIVE WALL
Kunihiko Suetake, No. 10-11 Minami 3-chome, Tokyo, and Yoshiyuki Naito, No. 261-44 Suenaga, Kawasaki, both of Japan

Filed July 6, 1970, Ser. No. 56,576
Int. Cl. H01q 17/00

U.S. Cl. 343-18 A

2 Claims



An electromagnetic wave absorbing wall employing ferromagnetic ferrite and ferroelectric material. Much thinner walls of this construction are effective shields in contrast to the thick walls of lossy materials required to achieve equivalent shielding.

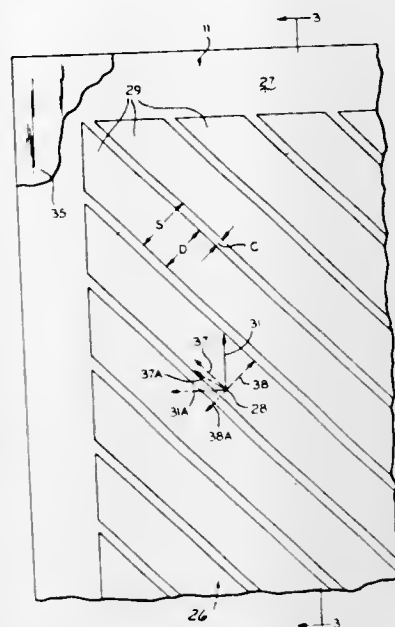
3,737,904 THIN FILM POLARIZATION ROTATION MICROWAVE REFLECTORS

Hideo Mori, Woodland Hills, and Joseph M. Garcia, Camarillo, both of Calif., assignors to Abex Corporation, New York, N.Y.

Filed June 22, 1970, Ser. No. 47,985
Int. Cl. H01g 15/14

U.S. Cl. 343-18 B

11 Claims



A reflector target for reflecting an impinging microwave beam with a 90° change in polarization; the target comprises a layer of high dielectric constant material having a conductive backing and having one or more thin film conductive line grids on its front surface. The thickness of the dielectric layer is less than one-quarter wavelength, as measured in the dielectric, at the chosen microwave frequency, and the grid lines are oriented at 45° to the polarization of the impinging beam. The width of the conductive grid lines is about equal to or greater than the width of the inter-line spaces.

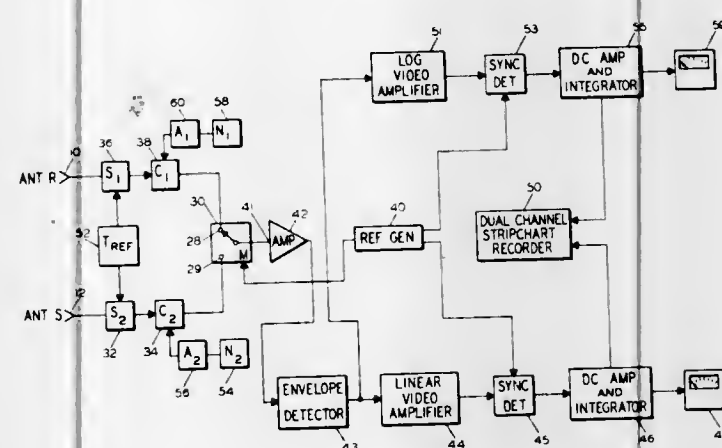
3,737,905

METHOD AND APPARATUS FOR MEASURING SOLAR ACTIVITY AND ATMOSPHERIC RADIATION EFFECTS
George G. Haroules, Lexington, and Wilfred E. Brown, North Acton, both of Mass., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 31, 1970, Ser. No. 24,155
Int. Cl. H04b 7/00

U.S. Cl. 343-100 ME

4 Claims



This disclosure describes a radiometric measuring system for observing solar activity, atmospheric attenuation and atmospheric emission. Two highly directional microwave anten-

nas are mounted side-by-side on an equatorial mount which tracks the sun. One antenna is aimed directly at the sun to provide a sun temperature and the other antenna is aimed at a slight angle to the sun antenna to provide a sky temperature reference. Signals from the two antennas are compared in a radiometric detecting system and provide information concerning solar activity and atmospheric attenuation and emission.

3,737,906

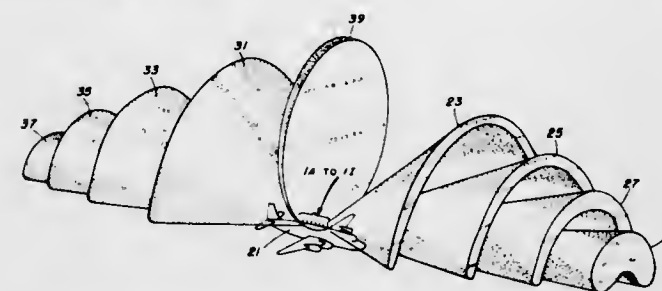
ELECTRICALLY STEERABLE AIRCRAFT MOUNTED ANTENNA

Lawrence A. Maynard, Almonte, Ontario, Canada, assignor to Her Majesty the Queen in Right of Canada, as represented by the Minister of National Defence

Filed Nov. 18, 1971, Ser. No. 199,900
Int. Cl. H01q 1/28

U.S. Cl. 343-705

7 Claims



The application discloses an electronically steerable aircraft-to-satellite antenna system using a linear series of parallel dipoles fed through phase-shifting controls. By variation of the phase-shift to the various dipoles, different cones of radiation (or preferred reception) are provided. The cone axes are parallel to or coincident with the longitudinal axis of the aircraft, so that aircraft roll has little effect on the orientation of the cone.

3,737,907

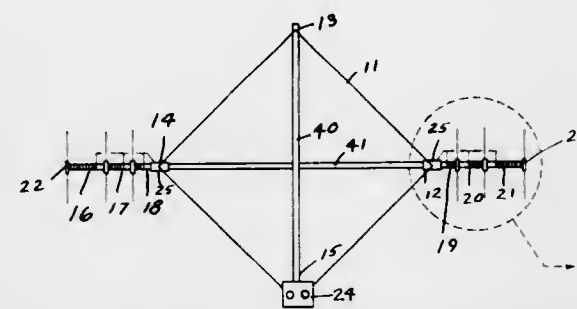
MULTIBAND QUAD AND LOOP ANTENNA

Wilbert E. Monola, Erie, Pa., assignor to Mini-Products, Inc., Erie, Pa.

Filed June 30, 1971, Ser. No. 158,424
Int. Cl. H01q 1/12

U.S. Cl. 343-744

7 Claims



An antenna which incorporates a single four-sided radiating element or loop in conjunction with series or parallel connected loading units to cover a multiple of operating frequencies.

3,737,908

DOPPLER NAVIGATION BEACON SYSTEM WITH ANGULAR FILTER

Jeffrey T. Nemit, Canoga Park, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

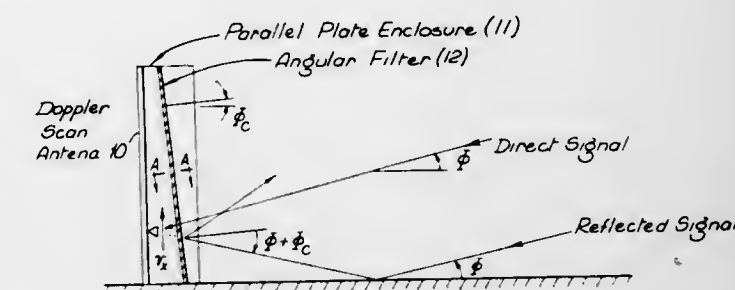
Filed Apr. 6, 1972, Ser. No. 241,717
Int. Cl. G01s 1/18

U.S. Cl. 343-754

8 Claims

An antenna system particularly adapted for use with commutated array Doppler Navigation Beacons. Particularly in

elevation determination where the Doppler array is vertically oriented, ground reflections produce multiple path errors. A fixed passive near-field microwave filter structure transmits energy from the array substantially only within an angular band-on either side of a radiation normal. Parallel plate struc-



ture in the one embodiment uses a vertically extended tapered matching section within the parallel plate structure. The other embodiment employs a wire grid structure within the parallel plate structure. Both embodiments illustrated provide for angle of incidence (or radiation) sensitivity.

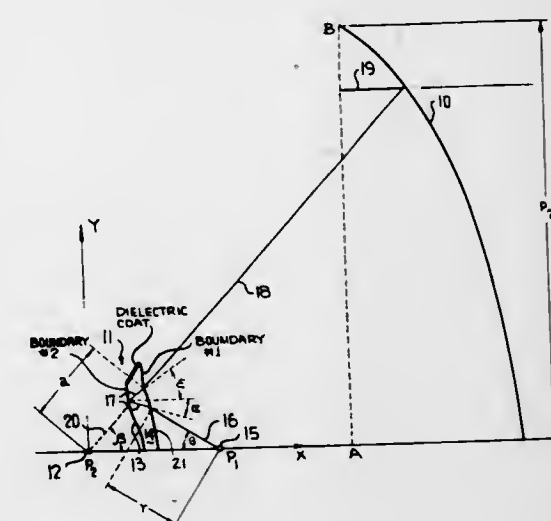
3,737,909

PARABOLIC ANTENNA SYSTEM HAVING HIGH-ILLUMINATION AND SPILLOVER EFFICIENCIES
Homer E. Bartlett, Melbourne, Fla., and Emory L. Sheppard, Morrisville, N.C., assignors to Radiation Incorporated, Melbourne, Fla.

Filed June 18, 1970, Ser. No. 47,378
Int. Cl. H01q 19/10

U.S. Cl. 343-755

9 Claims



An antenna feed system which simultaneously produces nearly uniform amplitude and phase illumination as well as high spillover efficiency, in a parabolic antenna, is composed of a feed or horn source and an interposed dielectric element. The dielectric element diffracts the emitted energy to maximize the spillover and illumination efficiencies. These efficiencies are increased by configuring the surface of the interposed dielectric element. In one species the interposed element is a lens and in another is a reflector coated with dielectric material.

3,737,910
MULTIELEMENT RADIO-FREQUENCY ANTENNA
STRUCTURE HAVING HELICALLY COILED
CONDUCTIVE ELEMENTS

Richard J. Francis, and Clara A. Francis, both of 11855 Broad St., Pataskala, Ohio

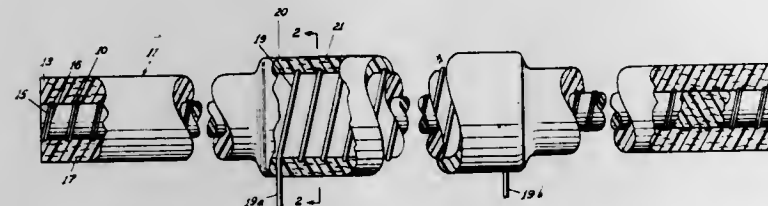
Filed July 26, 1971, Ser. No. 165,510

Int. Cl. H01q 1/36, 1/40

U.S. Cl. 343—895

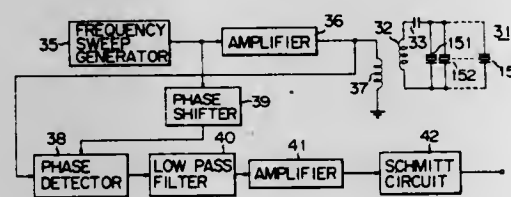
14 Claims

U.S. Cl. 343—880



A multielement antenna for radio frequency transmission is provided having a plurality of helically formed, electrically conductive elements disposed in coaxial, longitudinally extending relationship that are structurally supported and protectively encased in a dielectric material comprising a fiber-glass-reinforced synthetic resin matrix. Coupling of the helical elements through a coaxial cable to associated electronic equipment is effected by a helical conductor disposed in electromagnetically coupled relationship to the conductive elements and which is also physically supported by a similar dielectric material reinforced with fiber glass.

3,737,911
OBJECT IDENTIFICATION SYSTEM
 Johji Sakuragi, Kunitachi-shi, Tokyo, and Kazuhiko Kameda, Kawasaki-shi, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
 Continuation of Ser. No. 794,854, Jan. 29, 1969, abandoned.
 This application Aug. 17, 1970, Ser. No. 64,585
 Claims priority, application Japan, Feb. 3, 1968, 43/6464; Dec. 28, 1968, 43/114288
 Int. Cl. G01s 9/02
 U.S. Cl. 343—6.5 SS
 6 Claims



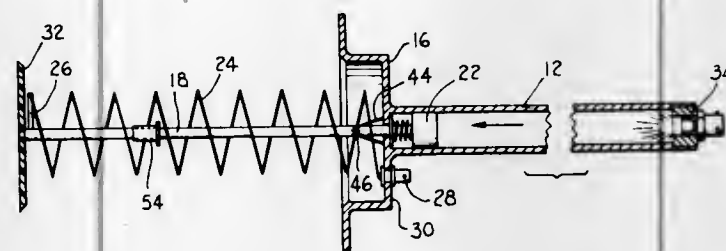
An object identification system comprising a frequency sweep generator which generates an interrogation signal to be transmitted by the transmitter; a response device, consisting of passive resonance elements, mounted on the object to be identified; a receiver for receiving the reply signals; a phase shifter connected to the output of the frequency sweep generator; phase detector which compares the output of the receiver with the phase shifter output; and the series connection of a low pass filter, amplifier, and Schmitt circuit connected to the output of the phase detector in order to detect the steep phase variation of the signal received from the object.

3,737,912
COLLAPSIBLE HIGH GAIN ANTENNA
 Herbert E. Cribb, Satellite Beach, Fla., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Sept. 16, 1971, Ser. No. 181,024

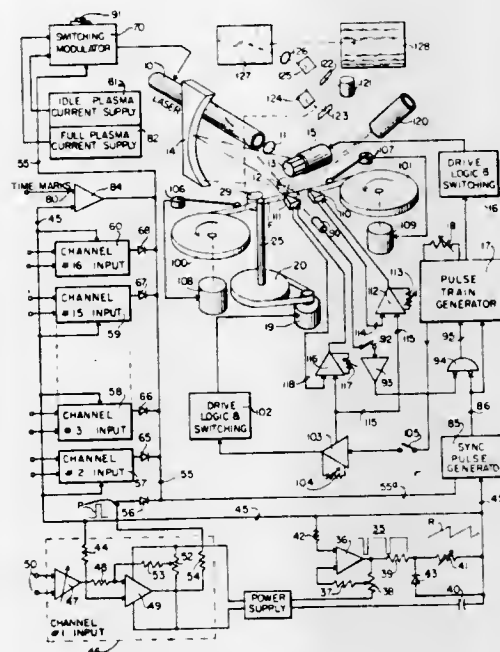
Int. Cl. H01q 1/08

4 Claims



A lightweight small high gain antenna which is capable of being packaged in a collapsed form and automatically expanded when in use. The antenna includes a cylindrical housing having a rod with a piston adjacent one end extending therethrough. Attached to the outer end of the rod in a normally collapsed state is a helical wire coil. When the gas producing means is activated the piston and rod are shifted outwardly to expand the wire coil. A latch means is provided for holding the helical coil in the expanded position.

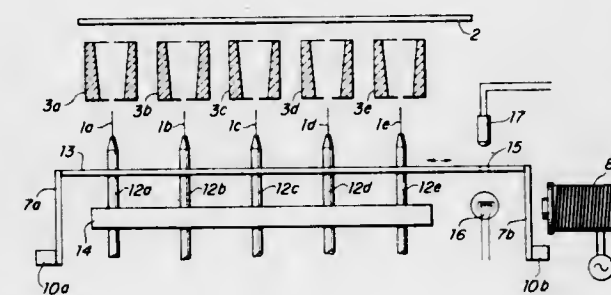
3,737,913
MULTIPLE CHANNEL DRY-PROCESS FILM RECORDER
 Burnard M. Kirkpatrick, Dallas, Tex., assignor to Teledyne Industries Inc. (Geotech Division), Dallas, Tex.
 Filed June 9, 1971, Ser. No. 151,210
 Int. Cl. G01d 9/36
 U.S. Cl. 346—34
 8 Claims



A recorder for recording on a sensitized medium multiple side-by-side traces representing input signals at plural separate input terminals, the system being illustrated by a typical embodiment in which a laser beam is focused to write upon a dry process film which is heat developed by passing the film over heaters which are servo-controlled to maintain constant surface temperature, the film being longitudinally advanced past a recording zone in which the laser beam spot is cyclically scanned transversely of the film in synchronism with a ramp signal, the multiple traces representing the various input signals all being mutually offset transversely of the film by adding progressively increasing constant pedestal voltages to the various input signals to create composite signals which are

mutually stepped to successively higher voltage levels, these voltage levels being compared for coincidence with the rising voltage of the ramp signal during each transverse scan of the laser beam spot which is shuttered "on" to mark the film each time coincidence is found.

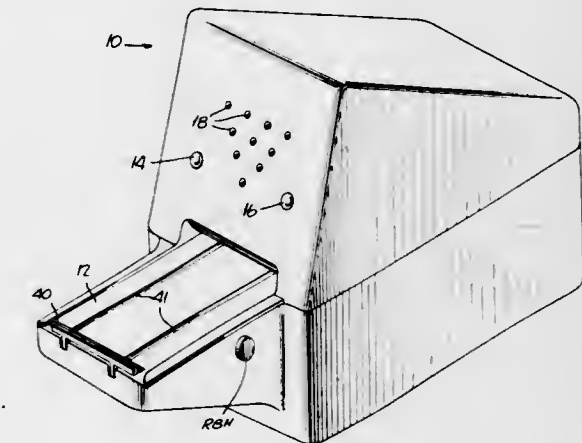
3,737,914
LIQUID JET RECORDER
 Carl Hellmuth Hertz, Skolbanksvagen 8, 223 67 Lund, Sweden
 Filed Mar. 26, 1971, Ser. No. 128,278
 Claims priority, application Sweden, Apr. 4, 1970, 4528/70; Germany, Sept. 15, 1970, P 20 45 617.1
 Int. Cl. G01d 15/18
 U.S. Cl. 346—75
 10 Claims



A liquid jet recording system in which an electrically conductive tracing fluid is pressure ejected through a capillary nozzle to form a jet directed toward a recording sheet. A hollow control electrode is disposed around the point of drop formation so that a large potential pulse imposed between the fluid and electrode will cause the jet to break up, thus permitting the jet to be intensity modulated. The jet nozzle is supported in an element which can be moved to vary the direction of the jet axis periodically. In one system, a group of such noz-

zles, mounted to provide a corresponding group of jets in a common plane, can be moved periodically together.

3,737,915
APPARATUS FOR AUTOMATIC RECORDING OF
SUCCESSIVE MEASUREMENTS SUCH AS BOWLING PIN
STATUS
 John J. Matcovich, 65-15 38th Avenue, Woodside, N.Y., and John E. Magee, 191 Forest Boulevard, Ardsley, N.Y.
 Division of Ser. No. 786,255, Dec. 23, 1968, Pat. No. 3,610,619. This application Sept. 30, 1971, Ser. No. 185,068
 Int. Cl. A63d 5/04
 U.S. Cl. 346—79
 14 Claims



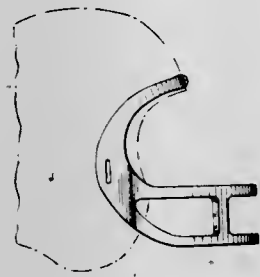
An electro-mechanical apparatus for transferring and permanently recording data indicating specific bowling pins left standing, and conversely those bowling pins knocked down, following the roll of each ball in a bowling game; this data is recorded in punched card form and is then adaptable for either manual or machine totalization.

DESIGNS

JUNE 5, 1973

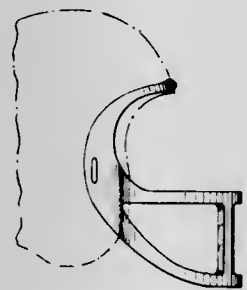
227,046
FACE GUARD FOR A HELMET
Fred R. Dunning, 3800 Oakes Road,
Brecksville, Ohio 44141
Filed Jan. 3, 1972, Ser. No. 215,262
Term of patent 14 years
Int. Cl. D2—03

U.S. Cl. D2—233



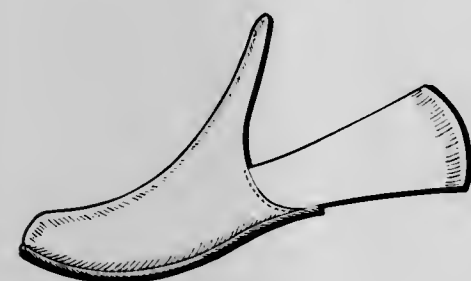
227,047
FACE GUARD FOR A HELMET
Fred R. Dunning, 3800 Oakes Road,
Brecksville, Ohio 44141
Filed Jan. 3, 1972, Ser. No. 215,261
Term of patent 14 years
Int. Cl. D2—03

U.S. Cl. D2—233



227,048
PROTECTIVE COVERING FOR A BOOT
Lilit Goldman, 325 West End Ave.,
New York, N.Y. 10023
Filed Dec. 20, 1971, Ser. No. 210,291
Term of patent 14 years
Int. Cl. D2—04

U.S. Cl. D2—278



334

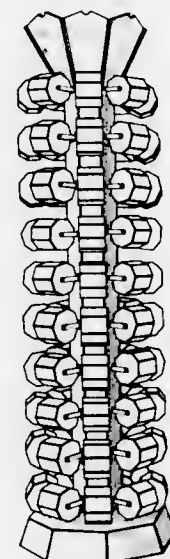
227,049
CLIMBING IRON
Floyd H. Larrabee, 13922 S. Gracebee Ave.,
Norwalk, Calif. 90650
Filed June 3, 1971, Ser. No. 149,887
Term of patent 14 years
Int. Cl. D2—04

U.S. Cl. D2—317



227,050
DISPLAY STAND
James A. Slater, 18A Torrance Road,
Scarborough, Ontario, Canada
Filed Jan. 25, 1971, Ser. No. 109,740
Term of patent 14 years
Int. Cl. D6—04

U.S. Cl. D6—20



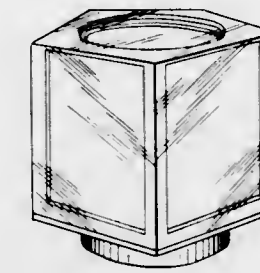
JUNE 5, 1973

U. S. PATENT OFFICE

335

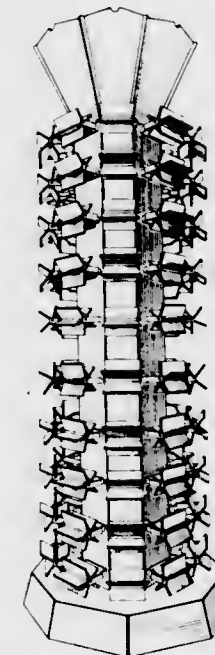
227,051
DISPLAY STAND FOR PICTURES OR THE LIKE
Jeffrey Snyder, New York, N.Y., assignor to Etna
Products Co., Inc., New York, N.Y.
Filed Mar. 8, 1971, Ser. No. 122,272
Term of patent 14 years
Int. Cl. D6—06, 07

U.S. Cl. D6—20



227,052
DISPLAY STAND
James A. Slater, 18A Torrance Road,
Scarborough, Ontario, Canada
Filed Jan. 25, 1971, Ser. No. 109,739
Term of patent 14 years
Int. Cl. D6—04

U.S. Cl. D6—20



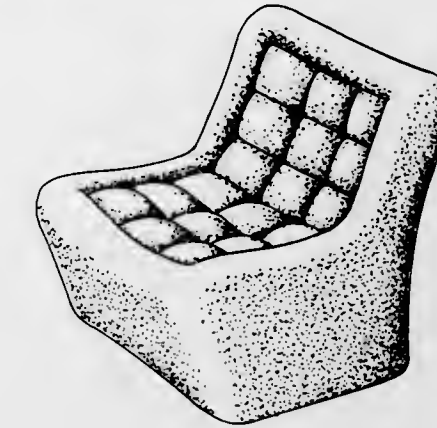
227,053
CHAIR
Gunter F. Ris, Oberpleis, Siegburg, Germany, assignor to
Rosenthal Aktiengesellschaft, Selb, Bavaria, Germany
Filed Apr. 14, 1971, Ser. No. 134,119
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D6—26



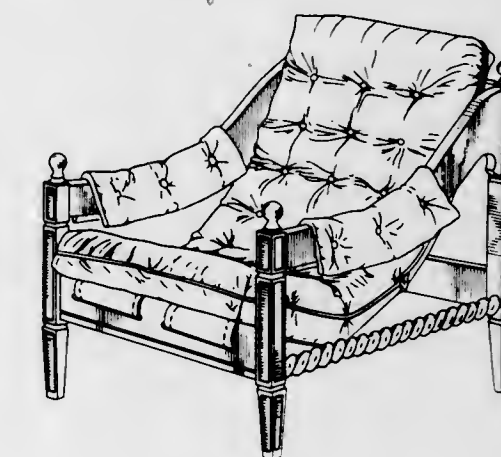
227,054
CHAIR OR SIMILAR ARTICLE
Hartmut Lohmeyer, Munich, Germany, assignor to Burris
Manufacturing Company, Lincolnton, N.C.
Filed June 14, 1971, Ser. No. 153,153
Term of patent 7 years
Int. Cl. D6—02

U.S. Cl. D6—66



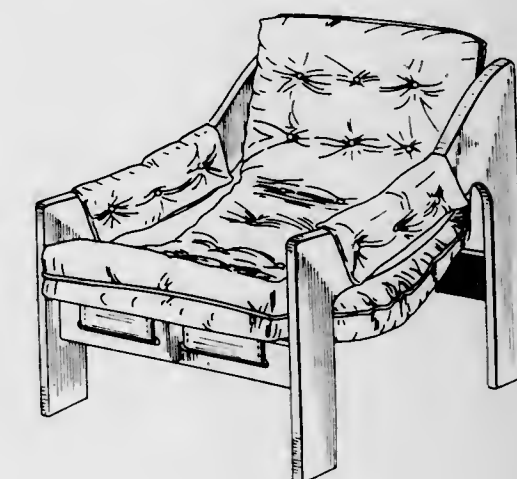
227,055
CHAIR
Morris F. Fisher, Carmel, Ind., assignor to Jackson
Chair Company, Inc., Danville, Ky.
Filed Aug. 23, 1971, Ser. No. 174,296
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D6—73



227,056
CHAIR
Morris F. Fisher, Carmel, Ind., assignor to Jackson
Chair Company, Inc., Danville, Ky.
Filed Aug. 20, 1971, Ser. No. 173,726
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D6—73

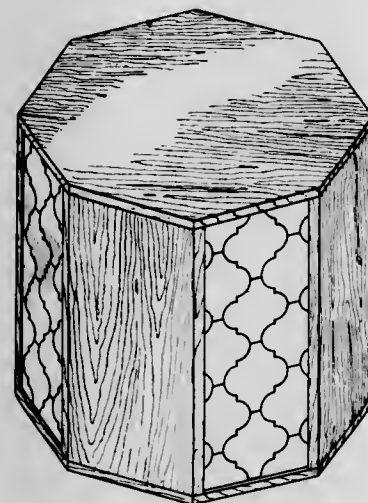


**227,057
CHAIR**

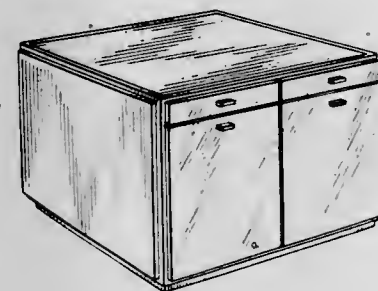
Randall P. Buhk, Wyoming, Mich., assignor to Steelcase Inc., Grand Rapids, Mich.
Filed May 24, 1971, Ser. No. 146,608
Term of patent 14 years
Int. Cl. D6—02
U.S. Cl. D6—30

**227,058
TABLE**

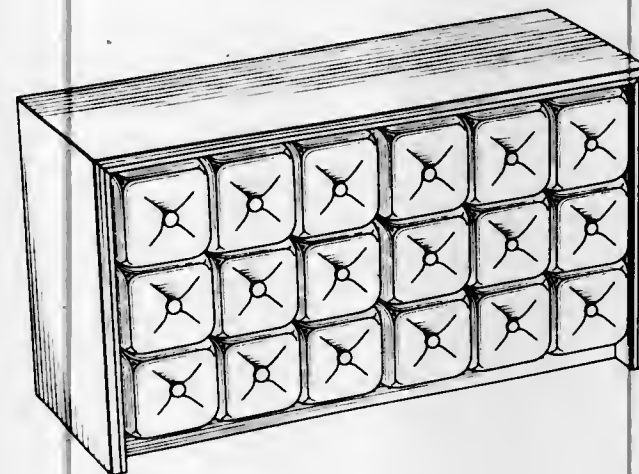
Neil J. Maina, 3 Brighton Way, Boulder Hill, Ill. 60538
Filed May 10, 1971, Ser. No. 142,099
Term of patent 14 years
Int. Cl. D6—03
U.S. Cl. D6—149

**227,059
CABINET**

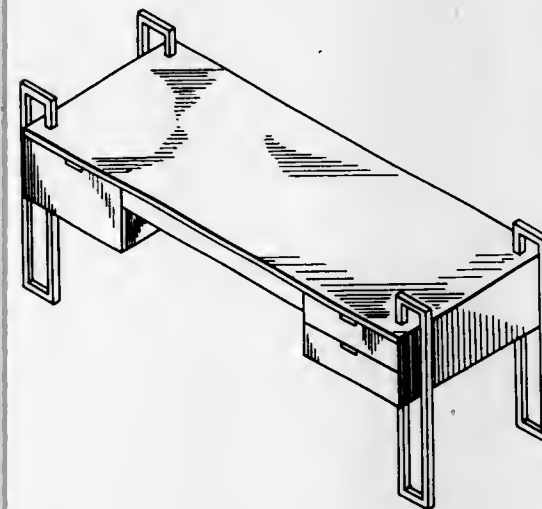
Davis B. Allen, New York, N.Y., assignor to The General Fireproofing Company, Youngstown, Ohio
Filed Oct. 8, 1970, Ser. No. 25,384
Term of patent 14 years
Int. Cl. D6—04
U.S. Cl. D6—159

**227,060
DRESSER OR THE LIKE**

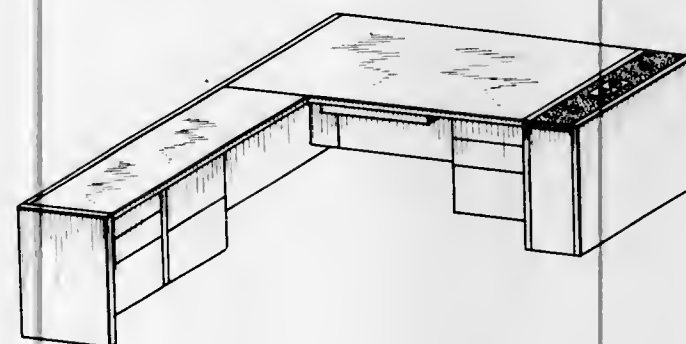
Leo A. Jiranek, Old Greenwich, Conn., assignor to The Magnavox Company, Fort Wayne, Ind.
Filed Nov. 17, 1971, Ser. No. 199,842
Term of patent 14 years
Int. Cl. D6—04
U.S. Cl. D6—160



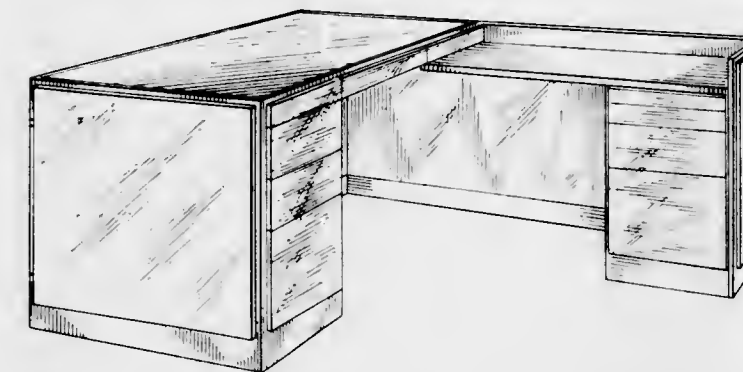
**227,061
DESK OR SIMILAR ARTICLE**
Sigmar E. Sobczak, P.O. Box 59410, Chicago, Ill. 60659
Filed June 9, 1971, Ser. No. 151,618
Term of patent 14 years
Int. Cl. D6—04
U.S. Cl. D6—161

**227,062
MODULAR DESK UNIT**

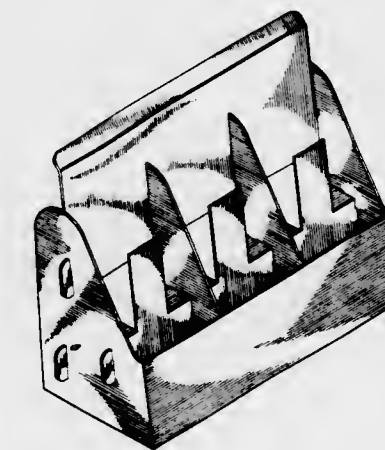
John Nance, Quakertown, Pa., assignor to JG Furniture Co. Inc., New York, N.Y.
Original design application Dec. 29, 1970, Ser. No. 26,689.
Divided and this application Apr. 14, 1972, Ser. No. 244,330
Term of patent 14 years
Int. Cl. D6—04
U.S. Cl. D6—162

**227,063
DESK**

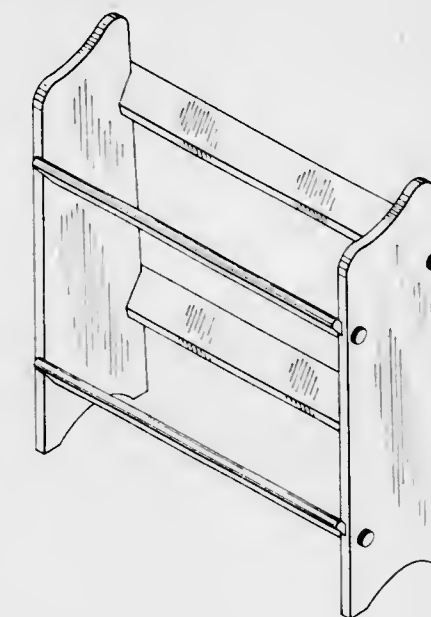
Davis B. Allen, New York, N.Y., assignor to The General Fireproofing Company, Youngstown, Ohio
Filed Oct. 8, 1970, Ser. No. 25,381
Term of patent 14 years
Int. Cl. D6—04
U.S. Cl. D6—162

**227,064**

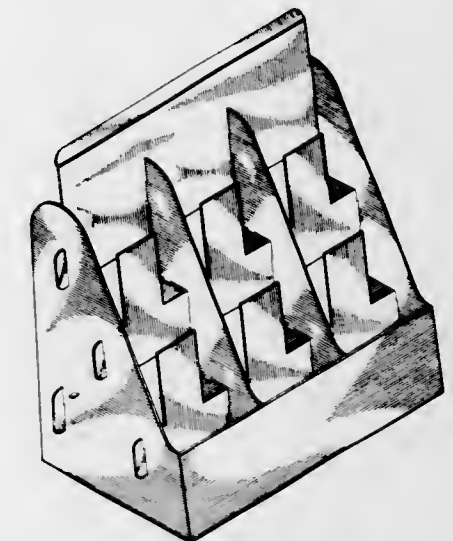
BROCHURE STAND
Paul N. Gallat, 4333 E. 10 Lane, Hialeah, Fla. 33012
Filed Dec. 9, 1971, Ser. No. 206,585
Term of patent 14 years
Int. Cl. D6—99; D20—03
U.S. Cl. D6—184

**227,065
BOOKRACK**

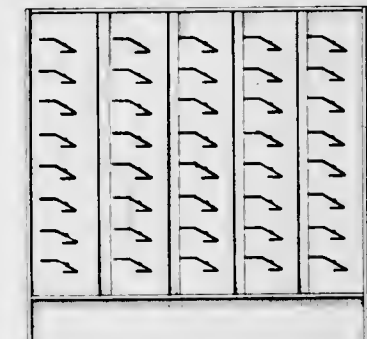
Edward M. Mayers, Hong Kong, assignor to Action-Lobeco, Imports, Ltd., Cheswick, Pa.
Filed May 24, 1971, Ser. No. 146,580
Term of patent 14 years
Int. Cl. D6—04
U.S. Cl. D6—184

**227,066**

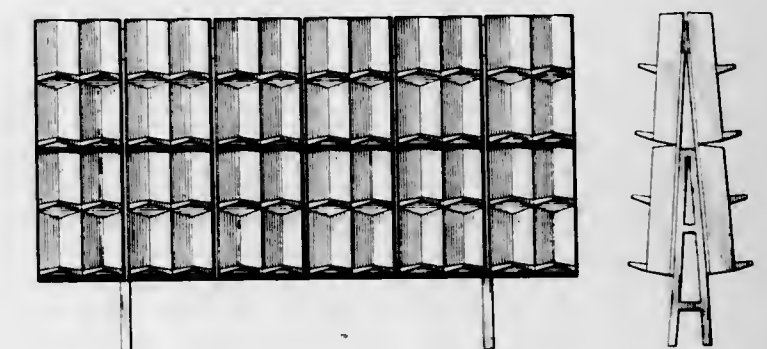
BROCHURE STAND
Paul N. Gallat, 4333 E. 10 Lane, Hialeah, Fla. 33012
Filed Dec. 9, 1971, Ser. No. 206,586
Term of patent 14 years
Int. Cl. D6—99; D20—03
U.S. Cl. D6—184



**227,067
DISPLAY RACK FOR MERCHANDISE**
Robert C. Young, Jr., Dallas, Tex., assignor to Volume Shoe Corporation, Topeka, Kans.
Filed June 9, 1971, Ser. No. 151,630
Term of patent 14 years
Int. Cl. D6—04
U.S. Cl. D6—186

**227,068
DISPLAY RACK**

Hal D. Sandy, Shawnee Mission, Kans., assignor to R/Design Consultants, Inc., Kansas City, Mo.
Filed Dec. 1, 1971, Ser. No. 203,934
Term of patent 14 years
Int. Cl. D6—04
U.S. Cl. D6—190



227,069
COMBINED TRAY AND PIVOTAL ARM
SUPPORT THEREFOR

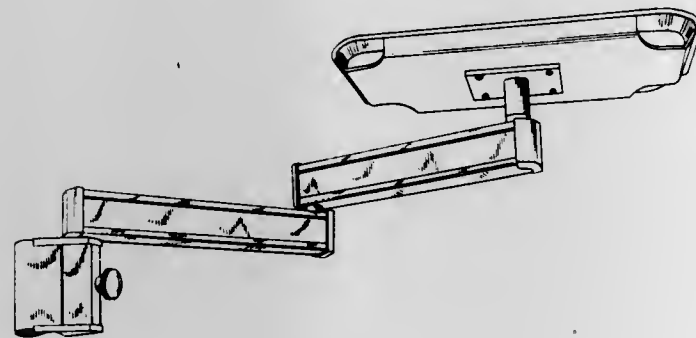
Ronald C. Webb, York, Pa., assignor to Dentsply Research & Development Corporation, Wilmington, Del.

Filed Feb. 10, 1971, Ser. No. 114,407

Term of patent 14 years

Int. Cl. D6—06

U.S. Cl. D6—194



227,070
DISPLAY HOLDER FOR PHOTOGRAPHS
OR THE LIKE

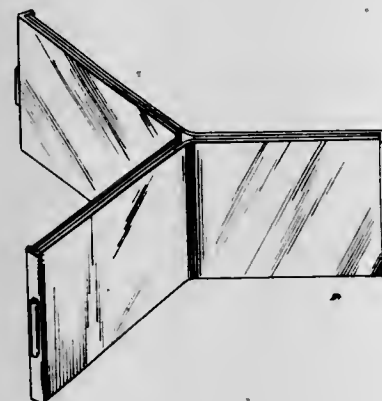
Robert H. Dembar, Croton, N.Y., assignor to Graphicana Corporation, Ossining, N.Y.

Filed Mar. 2, 1971, Ser. No. 120,245

Term of patent 14 years

Int. Cl. D6—07

U.S. Cl. D6—234



227,071
KNIFE

Sigvard Bernadotte, 8 Soderlalmstorg, 11645 Stockholm, Sweden, and Torbjorn Evrell, Box 6, 63102 Eskilstuna, Sweden

Filed Jan. 3, 1972, Ser. No. 215,289

Term of patent 14 years

Int. Cl. D8—03

U.S. Cl. D8—99



227,072
CABINET PULL

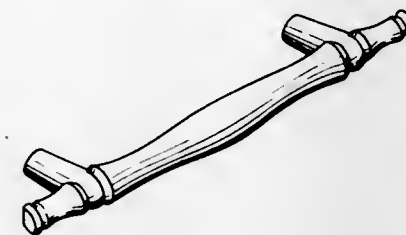
Richard C. J. Palson, Medfield, Mass., assignor to P.X. Industries, Inc., Rockland, Mass.

Filed Dec. 20, 1971, Ser. No. 210,289

Term of patent 14 years

Int. Cl. D8—06

U.S. Cl. D8—166



227,073
HANDLE FOR DOORS, DRAWERS, AND THE LIKE

David F. James, Redondo Beach, Calif., assignor to Heyer Hardware Mfg. Co., Anaheim, Calif.

Filed Sept. 10, 1971, Ser. No. 179,604

Term of patent 14 years

Int. Cl. D8—06

U.S. Cl. D8—166



227,074
PULL HANDLE FOR DOORS, DRAWERS, AND THE LIKE

David F. James, Redondo Beach, Calif., assignor to Hyer Hardware Mfg. Co., Anaheim, Calif.

Filed Sept. 10, 1971, Ser. No. 179,606

Term of patent 14 years

Int. Cl. D8—06

U.S. Cl. D8—166



227,075
TENT POLE CONNECTOR

Gordon Hampton Salt, Birmingham, England, assignor to The Hampton Works (Stampings) Limited, Birmingham, England

Filed Nov. 20, 1970, Ser. No. 26,090

Claims priority, application Great Britain May 20, 1970

Term of patent 14 years

Int. Cl. D8—08

U.S. Cl. D8—236



227,076
COMBINED BOTTLE AND DISPLAY
CONTAINER THEREFOR

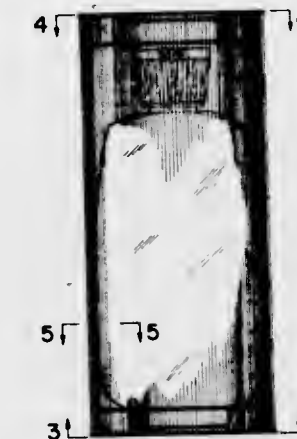
John Vincent Massey, Glencoe, and Robert Joseph Hutchcroft, Glen Ellyn, Ill., assignors to The Gillette Company, Boston, Mass.

Filed Aug. 25, 1971, Ser. No. 175,031

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—12



227,077
BOTTLE

Salvatore Auditore, New York, N.Y., assignor to G. Heileman Brewing Company Inc., La Crosse, Wis.

Filed Feb. 25, 1970, Ser. No. 21,605

Term of patent 14 years

Int. Cl. D9—28

U.S. Cl. D9—28



227,078
JUG

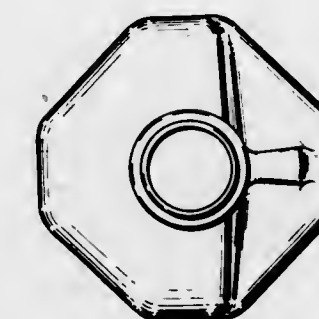
Richard L. Platte, Ann Arbor, Mich., assignor to Hoover Ball and Bearing Company, Saline, Mich.

Continuation-in-part of design application Ser. No. 22,978, May 14, 1970. This application May 17, 1971, Ser. No. 144,381

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—40



227,079
BARREL OR THE LIKE

David Lustig, 168—03 67th Ave., Flushing, N.Y. 11365

Filed Aug. 31, 1971, Ser. No. 176,777

Term of patent 14 years

Int. Cl. D9—02

U.S. Cl. D9—170



227,080
RAZOR CASE

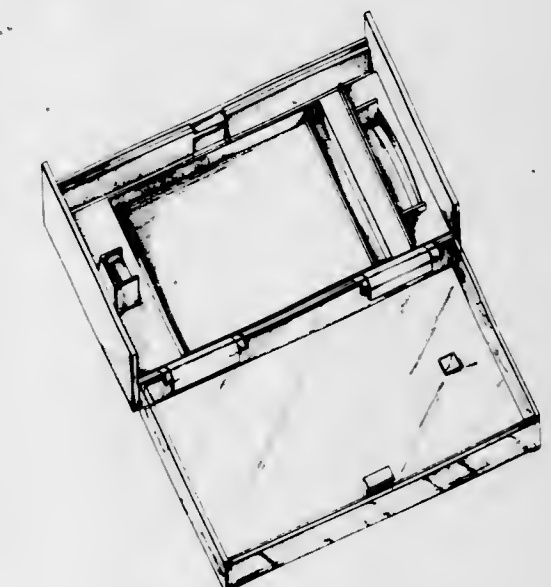
Norman D. Poisson, Andover, Mass., assignor to The Gillette Company, Boston, Mass.

Filed July 19, 1971, Ser. No. 164,184

Term of patent 14 years

Int. Cl. D9—03

U.S. Cl. D9—186



227,081
PACKAGING CONTAINER

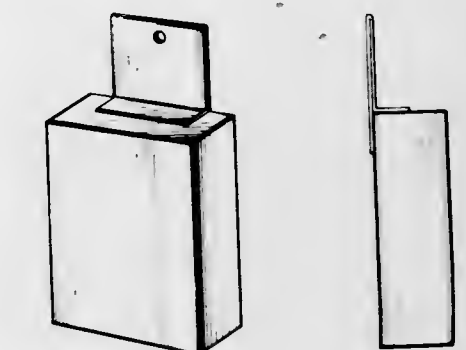
James Alexander, Belleville, N.J., assignor to Scandia Packaging Machinery Company, Clifton, N.J.

Filed Feb. 9, 1971, Ser. No. 114,100

Term of patent 14 years

Int. Cl. D9—03

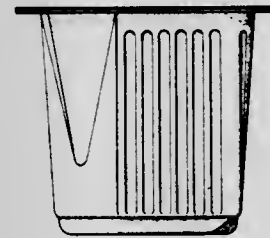
U.S. Cl. D9—191



227,082
FORCING BAG FOR DECORATING PASTRY
AND THE LIKE
 John MacManus, 143-16 22nd Road,
 Whitestone, N.Y. 11357
 Filed Apr. 21, 1971, Ser. No. 136,282
 Claims priority, application Great Britain Jan. 7, 1971
 Term of patent 14 years
 Int. Cl. D9-05
 U.S. Cl. D9-194



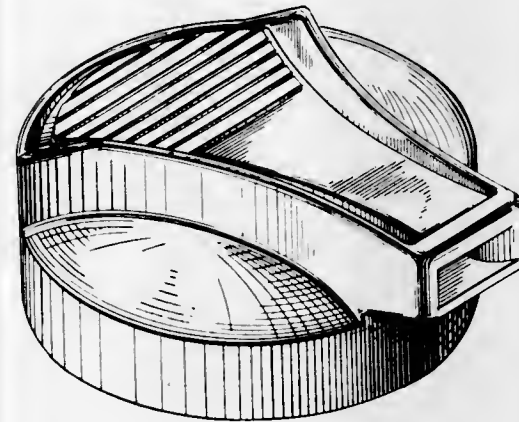
227,083
PACKAGING CONTAINER FOR LIQUIDS
OR THE LIKE
 John R. Anderson and William P. Jacobson, Rockford,
 Ill., assignors to Anderson Bros. Mfg. Co., Rockford,
 Ill.
 Filed June 18, 1971, Ser. No. 154,714
 Term of patent 14 years
 Int. Cl. D9-03
 U.S. Cl. D9-219



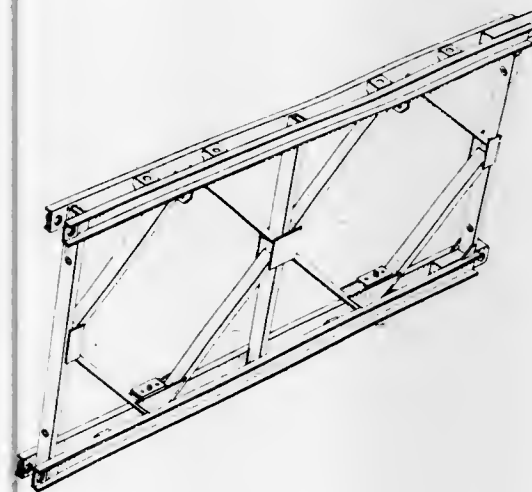
227,084
PACKAGING TRAY
 Kjell Karlsen, Lilleakerveien 31, Oslo, Norway
 Filed Jan. 31, 1972, Ser. No. 222,430
 Claims priority, application Norway Nov. 15, 1971
 Term of patent 14 years
 Int. Cl. D9-03
 U.S. Cl. D9-242



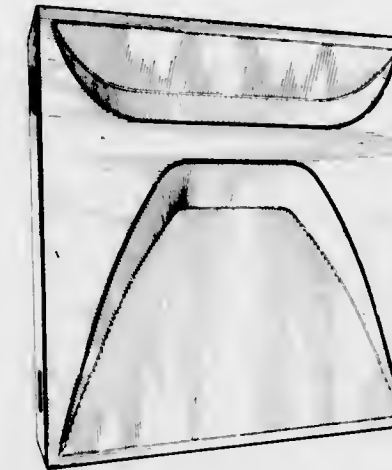
227,085
DISPENSER CAP FOR A PRESSURIZED
CONTAINER
 Louis V. Nigro, Saugus, Mass., assignor to The
 Gillette Company, Boston, Mass.
 Filed June 21, 1971, Ser. No. 155,402
 Term of patent 14 years
 Int. Cl. D9-07
 U.S. Cl. D9-258



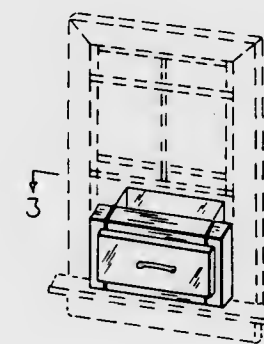
227,086
PANEL MEMBER FOR A PRE-FABRICATED
 John Richard Johnson, London, England, assignor to
 Thos. Storey (Engineers) Limited, London, England
 Filed May 10, 1971, Ser. No. 142,105
 Term of patent 14 years
 Int. Cl. D25-02
 U.S. Cl. D13-1 H



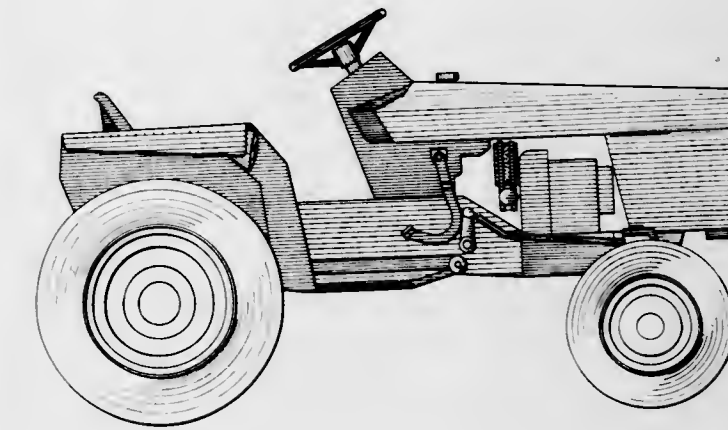
227,087
BRIDGE
SHEET METAL PANEL
 Guy Charles Spoo, 18-20 Place Van Meyel,
 1040 Brussels, Belgium
 Filed July 14, 1971, Ser. No. 163,129
 Term of patent 7 years
 Int. Cl. D25-01
 U.S. Cl. D13-1 J



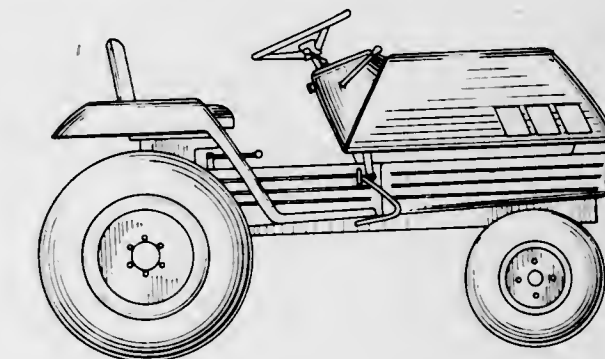
227,088
RETRACTABLE WINDOW CASE STRUCTURE
AND SUPPORT THEREFOR
 John P. Francis, 20 Boston St., Haverhill, Mass. 01830
 Filed Sept. 9, 1971, Ser. No. 179,247
 Term of patent 14 years
 Int. Cl. D25-02
 U.S. Cl. D13-1 M



227,089
TRACTOR
 Igor Kamlukin, Mequon, Nolan Rhoades, Beloit, Marc
 Colloton, Cedarburg, and William Lee Stevenson,
 Mequon, Wis., assignors to Simplicity Manufacturing
 Company, Inc., Port Washington, Wis.
 Filed Aug. 9, 1971, Ser. No. 170,413
 Term of patent 14 years
 Int. Cl. D12-09
 U.S. Cl. D14-3 A



227,090
TRACTOR
 Seiya Noma, Toshikado Yamasaki, Kazuo Yoshida, Norio
 Orito, and Mineo Horiguchi, Tokyo, Japan, assignors
 to Iseki Agricultural Machinery Mfg. Co. Ltd., Matsu-
 yama, Ehime Pref., Japan
 Filed Dec. 28, 1971, Ser. No. 213,238
 Term of patent 14 years
 Int. Cl. D12-09
 U.S. Cl. D14-3 A



227,091

MOBILE AERIAL WORK PLATFORM

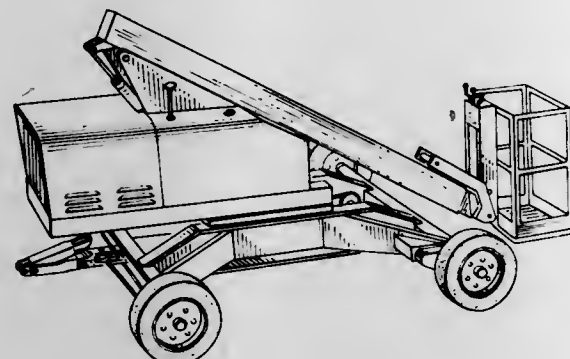
John L. Grove, Greencastle, and Paul K. Shockey, McConnellsburg, Pa., assignors to Fulton Industries, Inc., McConnellsburg, Pa.

Filed June 29, 1971, Ser. No. 158,148

Term of patent 14 years

Int. Cl. D12-13, 09

U.S. Cl. D14-3 R



227,092

VEHICLE FRAME AND BACKHOE

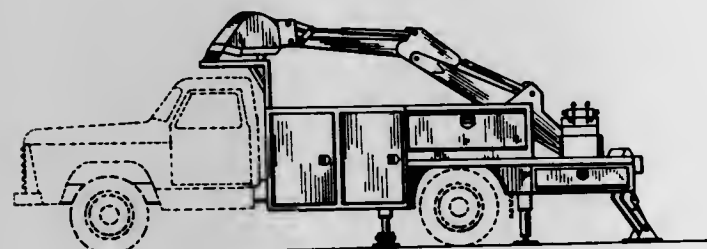
Gerard S. Gremillion, 50 E. 54th St., Kansas City, Mo. 66106, and Bert M. McMillin, 10120 Wenonga Lane, Leawood, Kans. 66206

Filed Mar. 19, 1971, Ser. No. 126,400

Term of patent 14 years

Int. Cl. D12-13

U.S. Cl. D14-3 R



227,093

CONTROL CONSOLE FOR VEHICLE

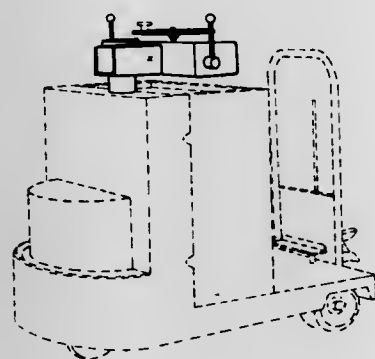
Warner K. Brown and Dennis M. Lanci, Battle Creek, Mich., assignors to Clark Equipment Company

Filed Apr. 8, 1971, Ser. No. 132,461

Term of patent 14 years

Int. Cl. D12-14, 05

U.S. Cl. D14-6 P



227,094

TRACTOR GRILL HOUSING OR SIMILAR ARTICLE

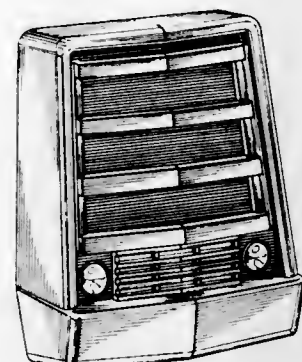
Robert A. Skyer and Mitchell E. Kolak, Palatine, and Harry R. Wilson and Joseph H. Konefes, Libertyville, Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Apr. 16, 1971, Ser. No. 134,930

Term of patent 14 years

Int. Cl. D12-09

U.S. Cl. D14-18 A



227,095

PROCESS CONTROLLER

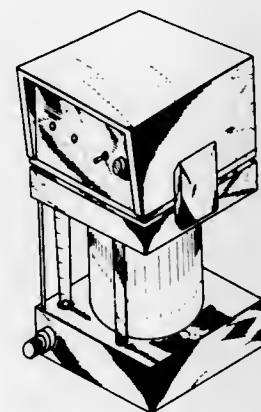
David J. Kelch and Gerald A. Jensen, Dayton, Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed Mar. 16, 1972, Ser. No. 235,473

Term of patent 14 years

Int. Cl. D24-01

U.S. Cl. D16-2 C



227,096

SLING SHOT

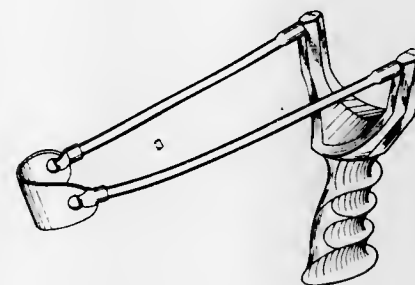
Charles E. Jones, Colorado Springs, Colo., assignor to Colorado Springs Machine Corporation, Colorado Springs, Colo.

Filed Jan. 14, 1972, Ser. No. 218,053

Term of patent 14 years

Int. Cl. D22-01

U.S. Cl. D22-4



227,097

ARCHERY BOW HANDLE

William R. Stewart and Lonnie P. Griggs, Jacksonville, Tex., assignors to AMF Incorporated, New York, N.Y.

Filed June 1, 1971, Ser. No. 149,092

Term of patent 14 years

Int. Cl. D22-01

U.S. Cl. D22-5



227,098

BOW HANDLE

Jack K. Wilson, Norman E. Wilson, and Robert S. Wilson, all of Rte. 8, Box 33-H, Springfield, Mo. 65804

Filed May 4, 1972, Ser. No. 250,476

Term of patent 14 years

Int. Cl. D22-01

U.S. Cl. D22-5



227,099

GUN HOLSTER

Harold A. Barrow, 1612 Cynthia Drive, Rockford, Ill. 61107

Continuation-in-part of design application Ser. No. 129,305, Mar. 29, 1971. This application Mar. 1, 1972, Ser. No. 231,072

Term of patent 14 years

Int. Cl. D22-99

U.S. Cl. D22-13



227,100

BATHTUB

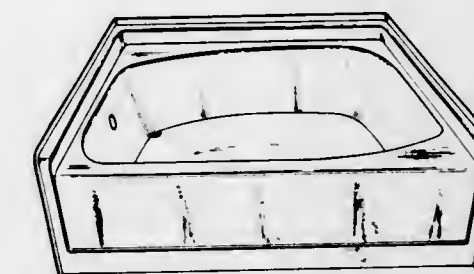
Harold D. Weiss, 56 Dorian Way, San Rafael, Calif. 94901

Filed Jan. 17, 1972, Ser. No. 218,646

Term of patent 14 years

Int. Cl. D23-02

U.S. Cl. D23-55



227,101

BATHTUB

Andre Primault, Noyon, France, assignor to Societe Generale de Fonderie Societe Anonyme, Paris, France

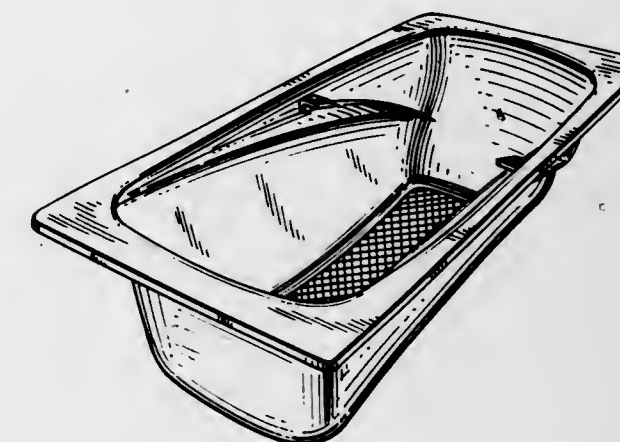
Filed Jan. 6, 1972, Ser. No. 215,992

Claims priority, application France Sept. 2, 1971

Term of patent 14 years

Int. Cl. D23-02

U.S. Cl. D23-55



227,102

SHOWER STALL

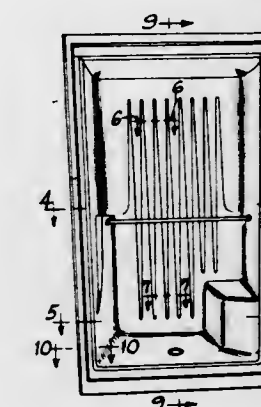
Fred C. Alexander, New Castle, Pa., assignor to Universal-Rundle Corporation, New Castle, Pa.

Filed June 23, 1971, Ser. No. 156,161

Term of patent 14 years

Int. Cl. D23-02

U.S. Cl. D23-57



227,103 LAVATORY BASIN

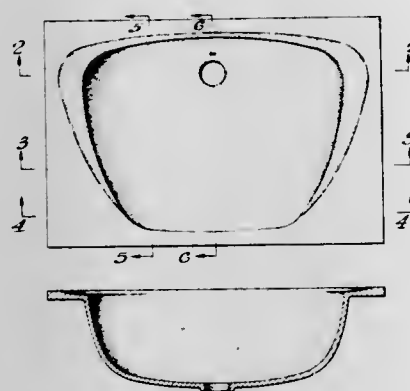
Wayne M. Lippert, 2615 N. 75th St., Milwaukee, Wis. 53215, and William L. Lippert, 398 Wildwood Ridge, Colgate, Wis. 53017

Filed Mar. 16, 1971, Ser. No. 125,001

Term of patent 14 years

Int. Cl. D23—02

U.S. Cl. D23—58



227,104 DOUBLE TUBING UNIT FOR A WATER COOLED DENTAL IMPRESSION TRAY

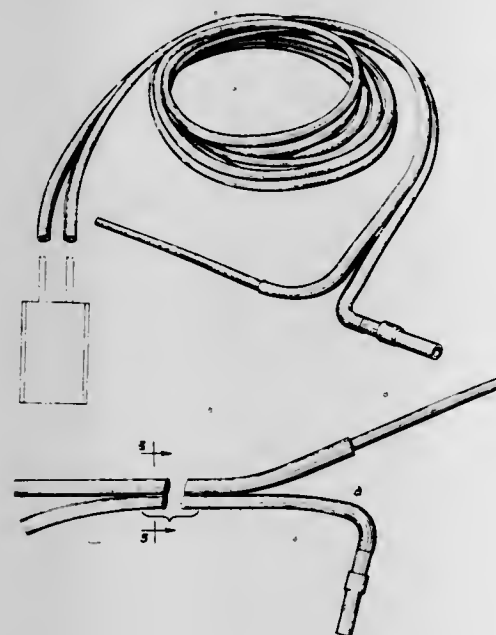
Peter L. Johnson, Bernardsville, N.J., assignor to Warner-Lambert Company, Morris Plains, N.J.

Filed Mar. 15, 1972, Ser. No. 235,095

Term of patent 14 years

Int. Cl. D24—02

U.S. Cl. D24—1 A



227,105 DENTAL LABORATORY MIXING MACHINE

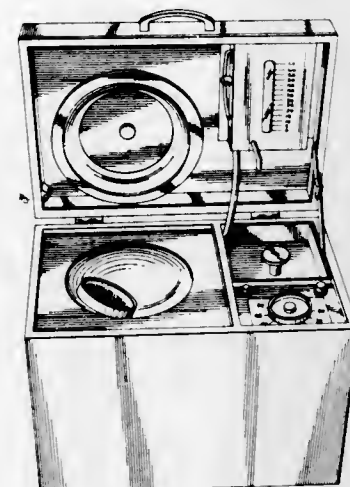
Alan David Ellies, Frederick M. Hill, and James H. Murray, Columbus, Ohio, assignors to The Columbus Dental Manufacturing Company, Columbus, Ohio

Filed Aug. 18, 1972, Ser. No. 281,710

Term of patent 14 years

Int. Cl. D24—01

U.S. Cl. D24—1 A



227,106 DENTAL OPERATORY

Ronald C. Webb, Red Lion, and Kenneth B. Wikel, York, Pa., assignors to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka-ken, Japan

Continuation of design applications Ser. No. 117,171, 117,185, 117,186, 117,187, and 117,888, all Feb. 19, 1971. This application Apr. 13, 1972, Ser. No. 243,917

Term of patent 14 years

Int. Cl. D24—01

U.S. Cl. D24—1 B



227,107 CONTAINER FOR DENTAL RESTORATIVES

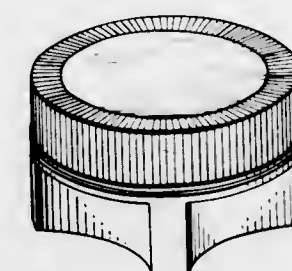
Arnold L. Bereson, Kendall Park, and Michael F. Fuhrman, Trenton, N.J., assignors to Johnson & Johnson

Filed Jan. 28, 1972, Ser. No. 221,858

Term of patent 14 years

Int. Cl. D24—99; D9—01

U.S. Cl. D24—1 R



227,108 TOILET TRAINER

Simeon L. Halenar, 11409 S. King Drive, Chicago, Ill. 60628

Filed June 7, 1972, Ser. No. 260,708

Term of patent 14 years

Int. Cl. D19—07

U.S. Cl. D25—1



227,109 UPPER HOUSING FOR A TEST SCORING MACHINE

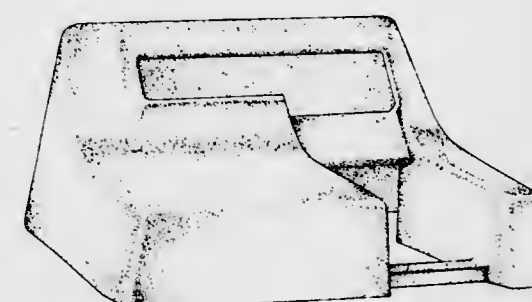
Perry Hall Rosen and Roy E. Seymour, Beaverton, and Walter James Sirois, Sherwood, Oreg., assignors to Automata Corporation, Richland, Wash.

Filed June 4, 1971, Ser. No. 150,259

Term of patent 14 years

Int. Cl. D10—05

U.S. Cl. D25—1 R



227,110 PORTABLE AIRPLANE FLIGHT SIMULATOR TRAINER

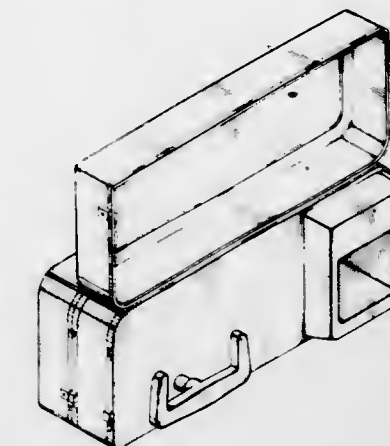
Harry E. Cramer and Steven F. Cramer, both of 7609 S. Laurel St., Seattle, Wash. 98178

Filed Dec. 8, 1971, Ser. No. 206,243

Term of patent 14 years

Int. Cl. D19—07

U.S. Cl. D25—1 R



227,111 HOUSING FOR AN ELECTRONIC TEST SCORING MACHINE

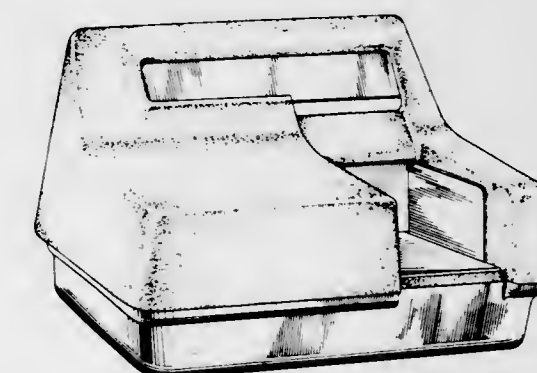
Perry Hall Rosen and Roy E. Seymour, Beaverton, and Walter James Sirois, Sherwood, Oreg., assignors to Automata Corporation, Richland, Wash.

Filed June 4, 1971, Ser. No. 150,261

Term of patent 14 years

Int. Cl. D10—05

U.S. Cl. D25—1 R



227,112 SELF AUDIO MONITOR FOR SPEECH THERAPY

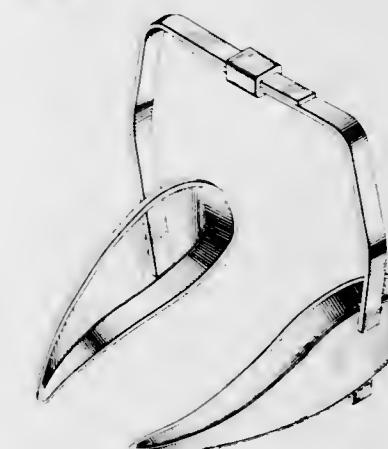
Claude M. Baldwin, 3400 Whitesburg Drive, Huntsville, Ala. 35802

Filed Jan. 26, 1972, Ser. No. 221,128

Term of patent 14 years

Int. Cl. D19—07

U.S. Cl. D26—1 R



227,113

CHECK READER

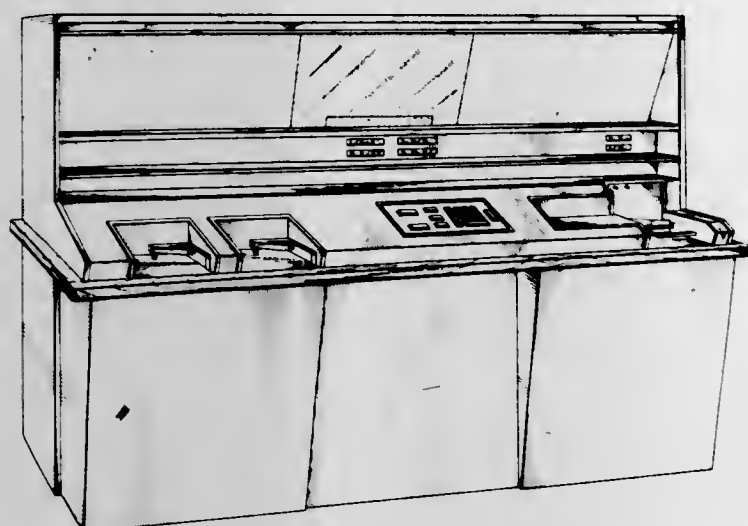
Frank Burroughs, Kensington, Md., and Robert Springer, Woodbridge, Va., assignors to Optical Recognition Systems, Incorporated, Reston, Va.

Filed Apr. 19, 1971, Ser. No. 135,538

Term of patent 14 years

Int. Cl. D14-02

U.S. Cl. D26-5 C



227,114

COMPUTER TERMINAL OR THE LIKE

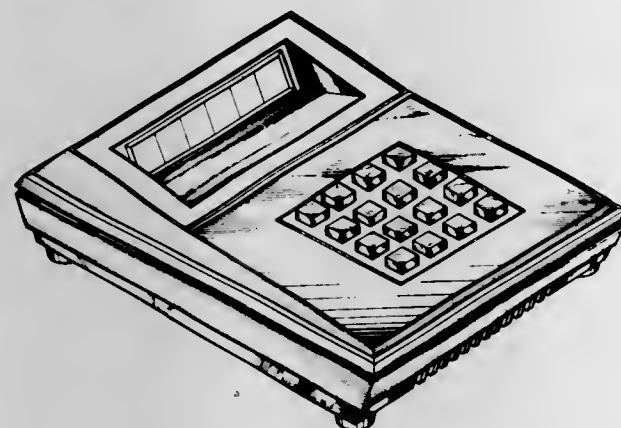
Charles T. Inatomi, Culver City, Calif., assignor to TRW Data Systems, Inc., Torrance, Calif.

Filed Mar. 9, 1972, Ser. No. 233,390

Term of patent 14 years

Int. Cl. D14-02

U.S. Cl. D26-5 C



227,115

COMPUTER TERMINAL

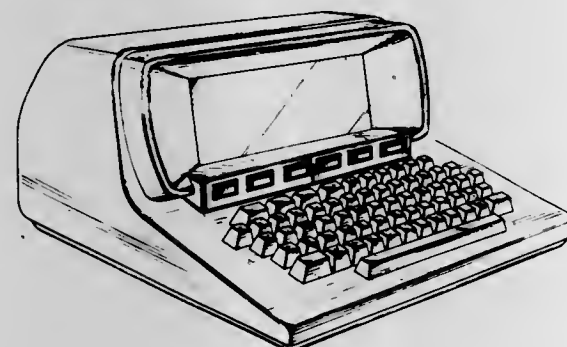
Robert J. Abbott, Jr., Toledo, Ohio, assignor to Owens-Illinois, Inc.

Filed July 24, 1972, Ser. No. 274,701

Term of patent 14 years

Int. Cl. D14-02

U.S. Cl. D26-5 C



227,116

SPEAKER BOX

Kazuhisa Sato, Sagami-hara, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation of design applications Ser. No. 25,416, 25,417, and Ser. No. 25,418, all Oct. 9, 1970, all now abandoned. This application Nov. 4, 1971, Ser. No. 195,901

Claims priority, application Japan Apr. 11, 1970;

Apr. 15, 1970; Apr. 21, 1970

Term of patent 14 years

Int. Cl. D14-01

U.S. Cl. D26-14



227,117

STAND FOR A TELEPHONE INSTRUMENT

Carl-Arne Breger, Malmo, Sweden, assignor to Telefon-aktiebolaget LM Ericsson, Stockholm, Sweden

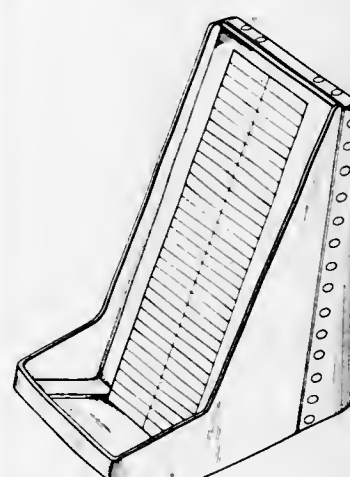
Original design application Mar. 31, 1971, Ser. No. 130,063. Divided and this application May 31, 1972, Ser. No. 258,483

Claims priority, application Sweden Oct. 1, 1970

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D26-14 A



227,118

MAGNETIC HEAD FOR TAPE RECORDERS

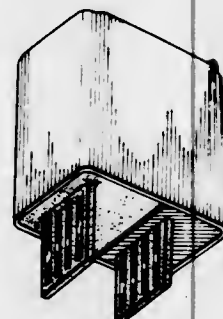
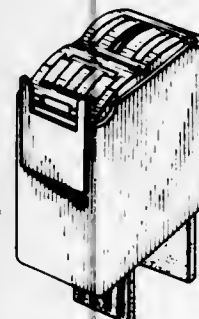
Hiroshi Muraoka, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Ohtaku, Tokyo, Japan

Filed Dec. 16, 1971, Ser. No. 209,006

Term of patent 14 years

Int. Cl. D14-01, 99

U.S. Cl. D26-14 B



227,119

CASSETTE TAPE RECORDER

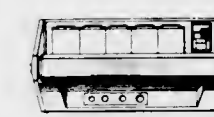
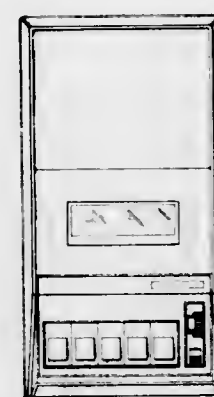
Andrew Kainass, Syracuse, N.Y., assignor to General Electric Company

Filed Dec. 27, 1971, Ser. No. 212,886

Term of patent 14 years

Int. Cl. D14-01

U.S. Cl. D26-14 B



227,120

MULTI-DIRECTIONAL SPEAKER

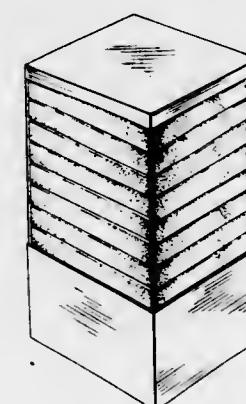
Wilfried Schneider, 59 Perivale Crescent, Scarborough, Ontario, Canada

Filed Dec. 23, 1971, Ser. No. 211,851

Term of patent 7 years

Int. Cl. D14-01

U.S. Cl. D26-14 G



227,121

FACSIMILE TRANSCIVER APPARATUS

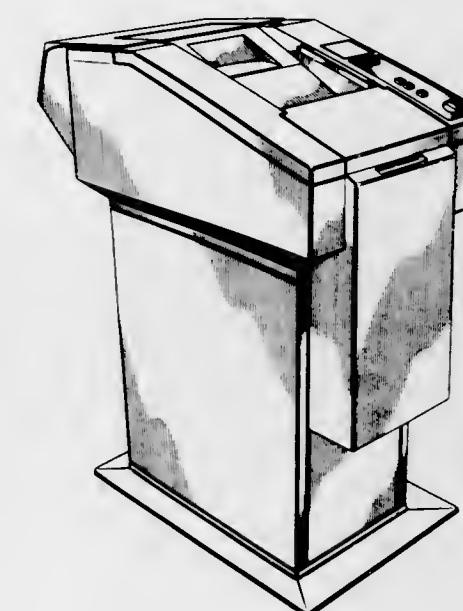
Larry D. Harrison, Clifton Springs, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed May 8, 1972, Ser. No. 251,578

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D26-14 R



227,122

FACSIMILE TRANSCIVER APPARATUS OR SIMILAR ARTICLE

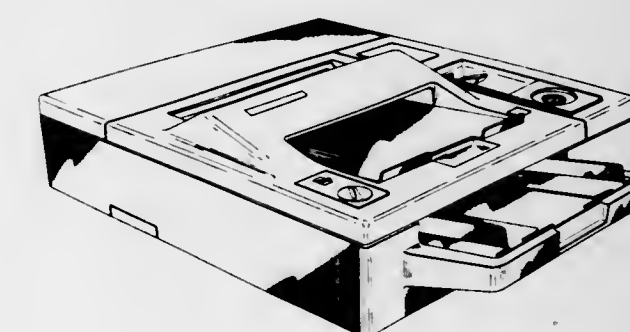
Robert A. Clowe, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed May 8, 1972, Ser. No. 251,498

Term of patent 14 years

Int. Cl. D14-03

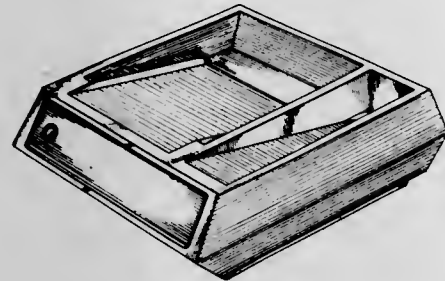
U.S. Cl. D26-14 R



**227,123
BATTERY CHARGER**

Stephens N. Sato, San Diego, Calif., assignor to Ivac Corporation, San Diego, Calif.
Filed Feb. 22, 1972, Ser. No. 228,436
Term of patent 14 years
Int. Cl. D13—02

U.S. Cl. D26—15

**227,124
MEDALLION**

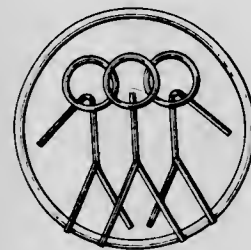
Esteban H. Abenoza and Maria M. Abenoza, both of 1620 San Fernando Road, and Fernando Abenoza and Linda C. Abenoza, both of 1921 Peyton Ave., all of Burbank, Calif. 91504
Filed Aug. 20, 1971, Ser. No. 173,715
Term of patent 14 years
Int. Cl. D11—03

U.S. Cl. D29—19

**227,125
MEDALLION**

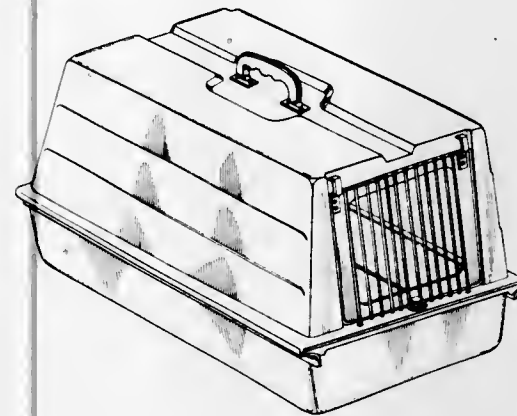
Elaine J. Papavasiliou, Shoreham, N.Y., assignor to Symbolics, Inc., Port Jefferson, N.Y.
Filed July 21, 1971, Ser. No. 164,964
Term of patent 14 years
Int. Cl. D11—03

U.S. Cl. D29—19



**227,126
ANIMAL CARRYING CASE**
Robert L. Brison, Glendora, Calif., assignor to Whittaker Corporation
Filed Aug. 23, 1971, Ser. No. 174,288
Term of patent 14 years
Int. Cl. D30—02

U.S. Cl. D30—1

**227,127
DOLL**

Aune F. Albanese, 7561 NW. 1st St., West Hollywood, Fla. 33024
Filed Feb. 8, 1971, Ser. No. 113,792
Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D34—4 C

**227,128
VELOCIPÈDE**

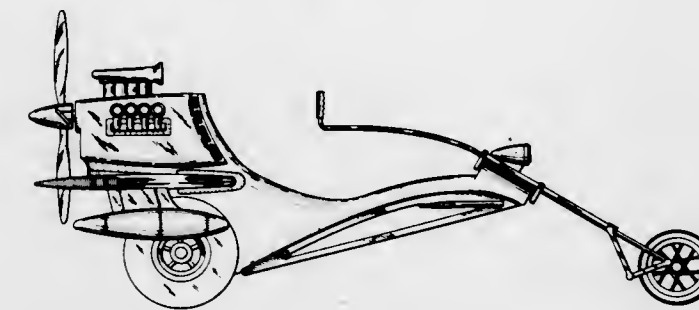
Kotaro Hata, Nara, and Sigeru Morita, Sigeru Kubota, Katsuji Kagayama, and Tsunemitsu Yaso, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kodoma, Osaka, Japan
Filed Mar. 15, 1972, Ser. No. 235,112
Claims priority, application Japan Sept. 17, 1971
Term of patent 14 years
Int. Cl. D12—11

U.S. Cl. D34—15 AL



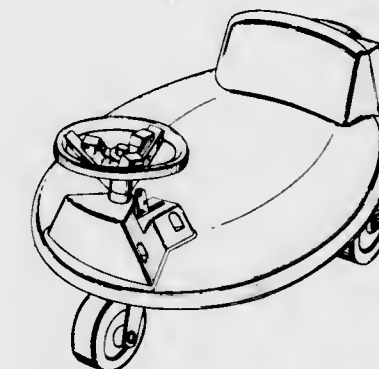
**227,129
TOY MOTOCYCLE**
Donald J. Maurer, Torrance, and Eugene T. Daniel, Walnut, Calif., assignors to Monogram Models, Inc., Morton Grove, Ill.
Filed Aug. 31, 1972, Ser. No. 285,148
Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D34—15 AJ



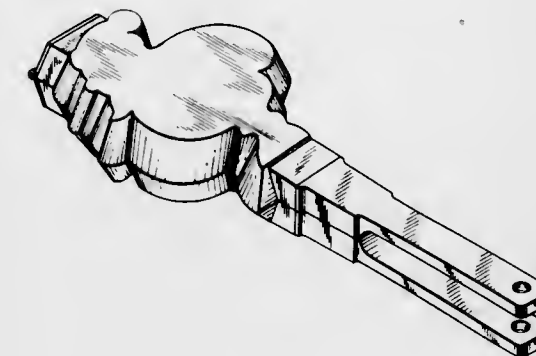
**227,130
CHILD'S RIDING VEHICLE**
Francis E. Pavolko, Albion, and Donald V. Godfrey, Fairview, Pa., assignors to Louis Marx & Co., Inc., New York, N.Y.
Filed May 3, 1972, Ser. No. 250,109
Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D34—15 AJ



**227,131
SKILLET OR SIMILAR ARTICLE**
John Di Lorenzo, 235 W. 46th St., New York, N.Y. 10036
Filed Feb. 7, 1972, Ser. No. 224,373
Term of patent 14 years
Int. Cl. D7—02

U.S. Cl. D44—1 J



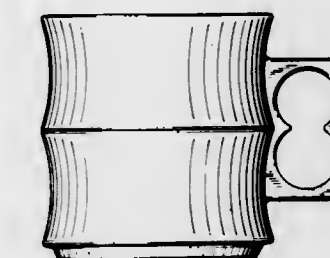
**227,132
PAN FOR COOKING BACON**
Roger J. Kelly, Palatine, Ill., assignor to American Home Products Corporation, New York, N.Y.
Filed Oct. 15, 1971, Ser. No. 189,809
Term of patent 14 years
Int. Cl. D7—02

U.S. Cl. D44—1 J

**227,133
CUP**

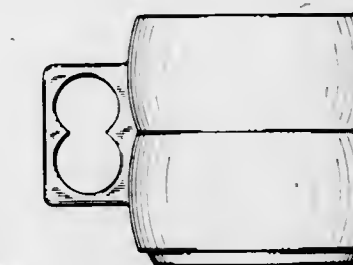
Gerald Gulotta, New York, N.Y., assignor to Block China Corporation, New York, N.Y.
Filed Jan. 3, 1972, Ser. No. 215,270
Term of patent 14 years
Int. Cl. D7—01

U.S. Cl. D44—9 A

**227,134
CUP**

Gerald Gulotta, New York, N.Y., assignor to Block China Corporation, New York, N.Y.
Filed Jan. 3, 1972, Ser. No. 215,271
Term of patent 14 years
Int. Cl. D7—01

U.S. Cl. D44—9 A

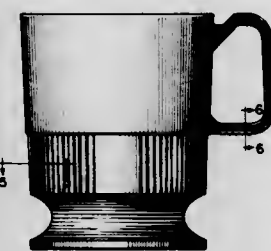


227,135
MUG

Paul Davis, Swampscott, Mass., and Clara Virginia Elcholtz, Midland, and Bertrand N. Trombley, Birmingham, Mich., assignors to Sweetheart Plastics, Inc., Wilmington, Mass.

Filed Jan. 28, 1972, Ser. No. 221,850
Term of patent 14 years
Int. Cl. D7-01

U.S. Cl. D44-9 A

227,136
GOBLET

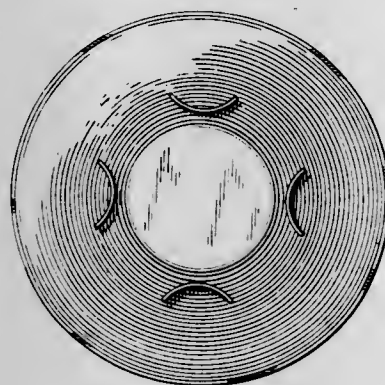
Adolf Kies, 8903 Balboa Blvd., Northridge, Calif. 91324
Filed Feb. 14, 1972, Ser. No. 226,389
Term of patent 14 years
Int. Cl. D7-01

U.S. Cl. D44-9 B

227,137
PLATE

John T. Dolby, Winnetka, and James S. Adler, Chicago, Ill., assignors to Standard Oil Company
Filed Dec. 14, 1970, Ser. No. 26,472
Term of patent 14 years
Int. Cl. D7-01

U.S. Cl. D44-10 A

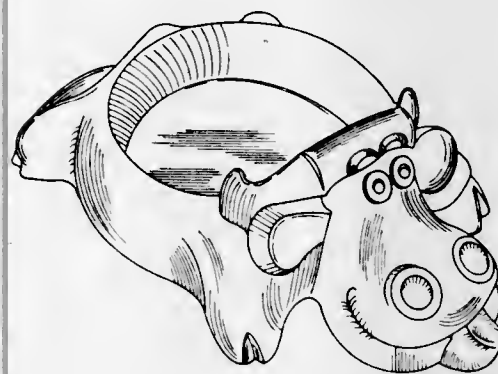
227,138
BEVERAGE GLASS COASTER
Jeffrey S. Snyder, 535 E. 86th St., New York, N.Y. 10021
Filed May 22, 1972, Ser. No. 255,926
Term of patent 14 years
Int. Cl. D7-01

U.S. Cl. D44-10 D

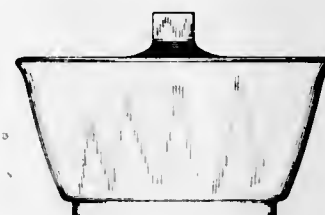
227,139
SERVING TRAY FOR HAMBURGERS
OR THE LIKE

Ronald D. Niven, Chicago, Ill., assignor to Dynagraphic Merchandising Corporation, Chicago, Ill.
Filed Jan. 3, 1972, Ser. No. 215,256
Term of patent 7 years
Int. Cl. D7-01

U.S. Cl. D44-10 E

227,140
SERVING DISH OR SIMILAR ARTICLE
David Douglas, 1119 Lincoln Blvd., Manitowoc, Wis. 54220
Filed Sept. 7, 1971, Ser. No. 178,547
Term of patent 14 years
Int. Cl. D7-01

U.S. Cl. D44-15 A

227,141
PLATE

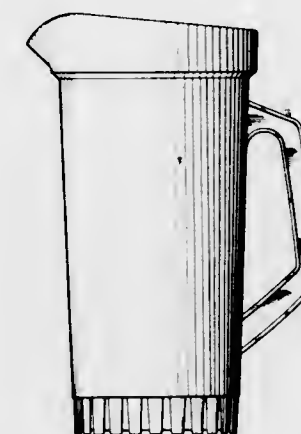
Gerald Gulotta, New York, N.Y., assignor to Block China Corporation, New York, N.Y.
Filed Jan. 3, 1972, Ser. No. 215,272
Term of patent 14 years
Int. Cl. D7-01

U.S. Cl. D44-15 K

227,142
PITCHER OR THE LIKE

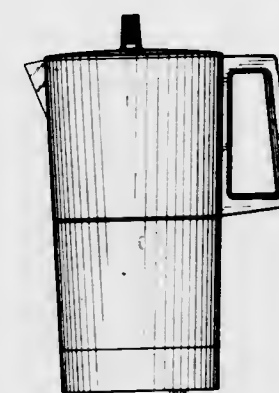
James B. Swett, Barrington, R.I., and Robert F. Bateman, St. Paul, Minn., assignors to Dart Industries Inc., Los Angeles, Calif.
Filed Mar. 9, 1971, Ser. No. 122,642
Term of patent 14 years
Int. Cl. D7-01

U.S. Cl. D44-21 R

227,143
COFFEEMAKER

Julian R. Haynes, Hinsdale, Ill., assignor to Sunbeam Corporation, Chicago, Ill.
Filed Dec. 16, 1971, Ser. No. 208,516
Term of patent 14 years
Int. Cl. D7-04

U.S. Cl. D44-26 A

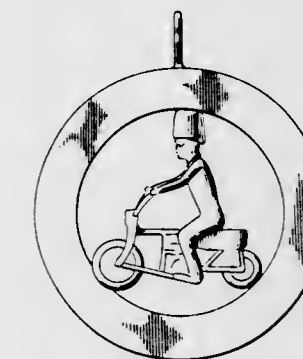
227,144
MOISTURE INJECTOR-BASTER
Anthony W. Chiechi, 828 Di Fiore, Apt. 1, San Jose, Calif. 95128
Filed Sept. 20, 1971, Ser. No. 182,277
Term of patent 14 years
Int. Cl. D7-02

U.S. Cl. D44-29 G

227,145
CHARM

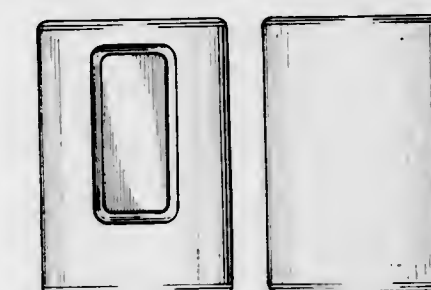
David L. Corbisier, 1092 N. Lincoln St., Orange, Calif. 92667
Filed Feb. 25, 1972, Ser. No. 229,626
Term of patent 3 1/2 years
Int. Cl. D11-01

U.S. Cl. D45-17

227,146
TABLE LIGHTER

Dieter Rams, Königstein, Taunus, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany
Filed Mar. 25, 1970, Ser. No. 21,941
Claims priority, application Germany Oct. 13, 1969
Term of patent 14 years
Int. Cl. D27-05

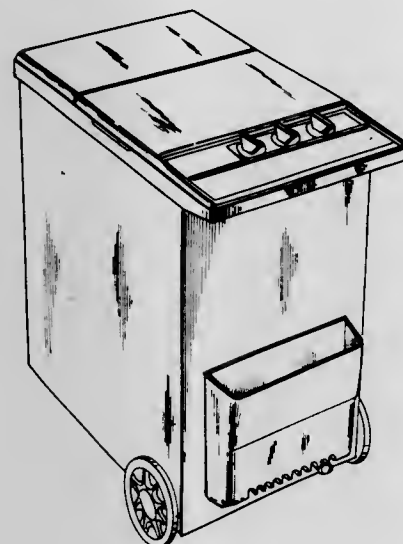
U.S. Cl. D48-27



227,147
ELECTRIC WASHER

Kiyoshi Fujii, Yokohama, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Mar. 17, 1971, Ser. No. 125,458
Term of patent 14 years
Int. Cl. D15—05

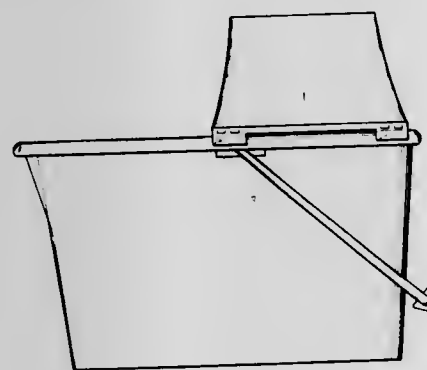
U.S. Cl. D49—1 A



27,148
COMBINED SCRUB PAIL AND MOP SQUEEZER

David B. Oas, S. Creek Road, R.D. 1,
Girard, Pa. 16417
Filed July 13, 1970, Ser. No. 23,910
Term of patent 14 years
Int. Cl. D7—05

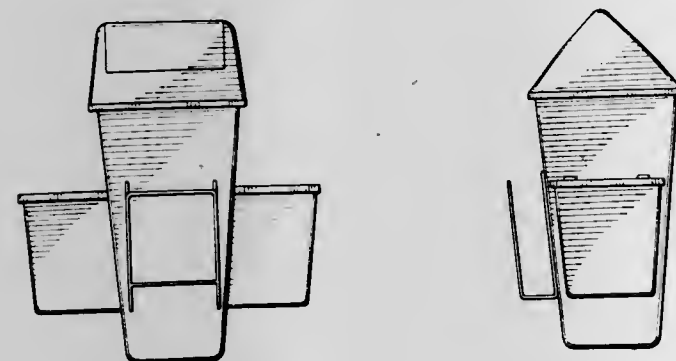
U.S. Cl. D49—29



227,149
TRASH RECEPTACLE

Loryn B. Deane and Edward V. Deane, both of
18 Overlook Road, Ardsley, N.Y. 10502
Filed Feb. 23, 1972, Ser. No. 228,786
Term of patent 14 years
Int. Cl. D7—06

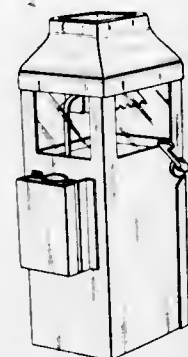
U.S. Cl. D49—32



227,150
COLLECTION BOX

Theodore R. Einke, Euclid, Ohio, assignor to The Euclid Products Co., Inc., Willoughby, Ohio
Filed June 9, 1971, Ser. No. 151,608
Term of patent 14 years
Int. Cl. D20—99

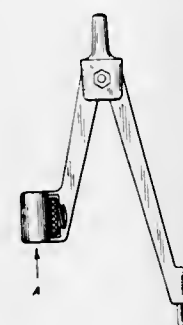
U.S. Cl. D52—4 R



227,151
DRAWING COMPASS

Robert Welch, Chipping Campden, England, assignor to W. J. Harris (Birmingham) Limited, Stafford, England
Filed Jan. 11, 1971, Ser. No. 105,774
Term of patent 14 years
Int. Cl. D19—06

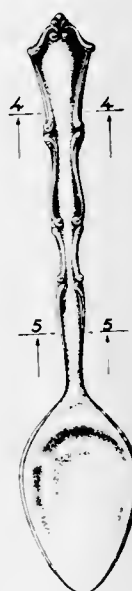
U.S. Cl. D52—6 B



227,152
SPOON OR SIMILAR ARTICLE

Melvin A. Lea, Oneida, N.Y., assignor to Oneida, Ltd., Oneida, N.Y.
Filed Dec. 20, 1971, Ser. No. 210,293
Term of patent 14 years
Int. Cl. D7—03

U.S. Cl. D54—12 R



227,153
SPAGHETTI FORK

Robert A. Balow, Eau Claire, Wis., assignor of a fractional part interest to Francis D. Hurd, Glen Ellyn, Ill.
Filed Sept. 15, 1971, Ser. No. 180,957
Term of patent 14 years
Int. Cl. D7—03

U.S. Cl. D54—12



227,154
SPOON OR SIMILAR ARTICLE

Ellen B. Manderfield, 306 N. McBride St.,
Syracuse, N.Y. 13203
Filed Jan. 24, 1972, Ser. No. 220,560
Term of patent 14 years
Int. Cl. D7—03

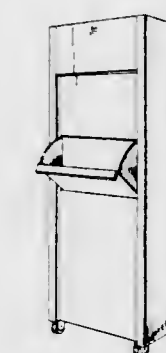
U.S. Cl. D54—12 R



227,155
TRASH COMPACTOR CABINET

Floyd R. Gladwin, 21000 E. River Road,
Grosse Ile, Mich. 48138
Continuation-in-part of design application Ser. No. 18,897, Aug. 28, 1969. This application Apr. 5, 1971, Ser. No. 131,577
Term of patent 14 years
Int. Cl. D15—99

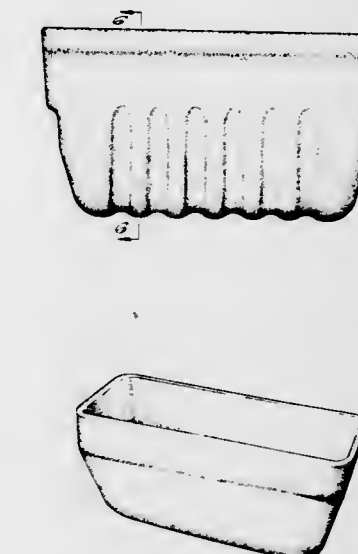
U.S. Cl. D55—1 B



227,156
BUCKET FOR A BUCKET ELEVATOR

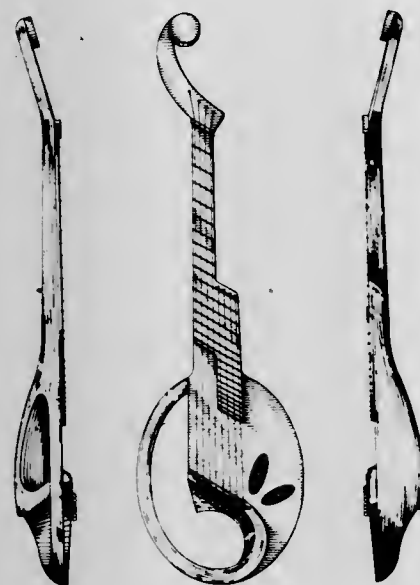
Fritz A. Callies, Menomonee Falls, Wis., assignor to Rex Chainbelt Inc., Milwaukee, Wis.
Filed Sept. 3, 1971, Ser. No. 177,911
Term of patent 14 years
Int. Cl. D15—04

U.S. Cl. D55—1 C



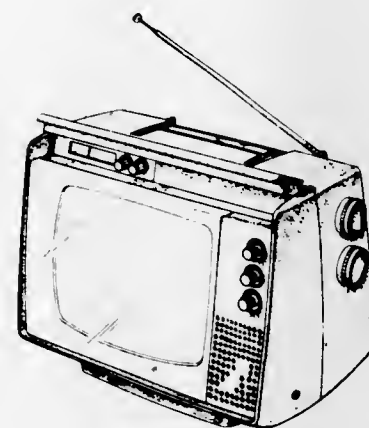
227,157
STRINGED MUSICAL INSTRUMENT
 Walter J. Pelensky, 19C Manheim Gardens,
 Philadelphia, Pa. 19144
 Filed Sept. 20, 1971, Ser. No. 182,279
 Term of patent 14 years
 Int. Cl. D17—03

U.S. Cl. D56—1 A



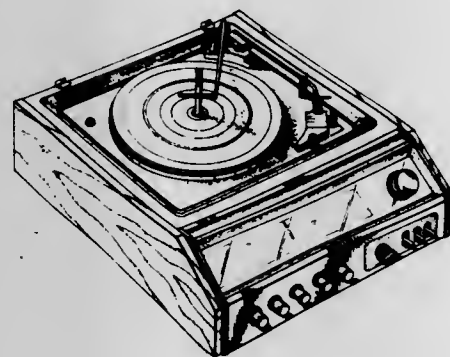
227,159
COMBINED TELEVISION AND RADIO RECEIVER
 Shinji Ikeya and Hiromitsu Natsume, Gunma, Japan,
 assignors to Sanyo Electric Co., Ltd., Osaka, Japan
 Filed June 28, 1971, Ser. No. 157,795
 Term of patent 3½ years
 Int. Cl. D14—03

U.S. Cl. D56—4 D



227,158
RADIO-PHONOGRAPH OR SIMILAR ARTICLE
 Ken Okabe and Nara Hiroaki Yazawa, Yamatokoriyama,
 Japan, assignors to Matsushita Electric Industrial Co.,
 Ltd., Osaka, Japan
 Filed Apr. 6, 1971, Ser. No. 131,839
 Term of patent 14 years
 Int. Cl. D14—03

U.S. Cl. D56—4 B



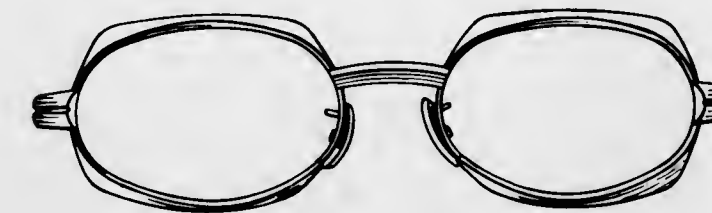
227,160
SKI BOOT
 Alden B. Hanson and Chris A. Hanson, Boulder, Colo.,
 assignors to Hanson Industries Inc., Boulder, Colo.
 Filed Mar. 1, 1972, Ser. No. 231,084
 Term of patent 14 years
 Int. Cl. D2—04

U.S. Cl. D2—276



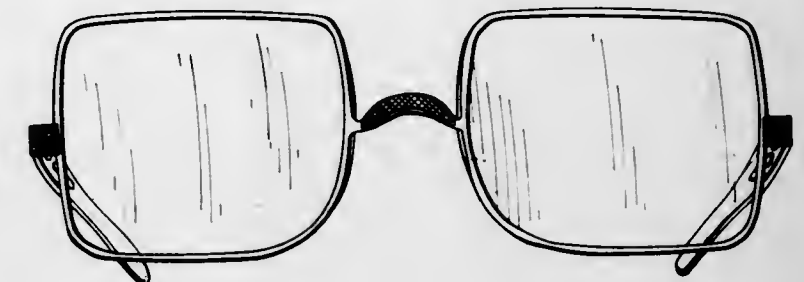
227,161
EYEGLASS FRAME FRONT
 Howell S. Jobbins, Jr., Warwick, R.I., assignor to Univer-
 sal Optical Company, Inc., Providence, R.I.
 Filed Dec. 6, 1971, Ser. No. 205,437
 Term of patent 14 years
 Int. Cl. D16—06

U.S. Cl. D57—1 F



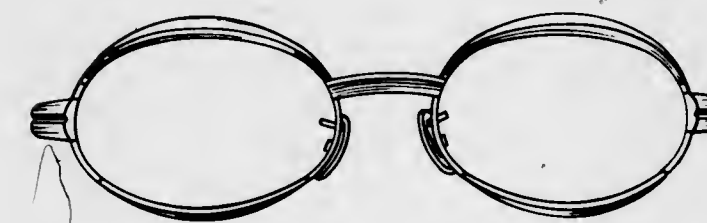
227,164
PAIR OF SPECTACLES
 Anthony Shindler, Brookline, Mass., assignor to American
 Optical Corporation, Southbridge, Mass.
 Filed Mar. 16, 1971, Ser. No. 125,004
 Term of patent 14 years
 Int. Cl. D16—06

U.S. Cl. D57—1 F



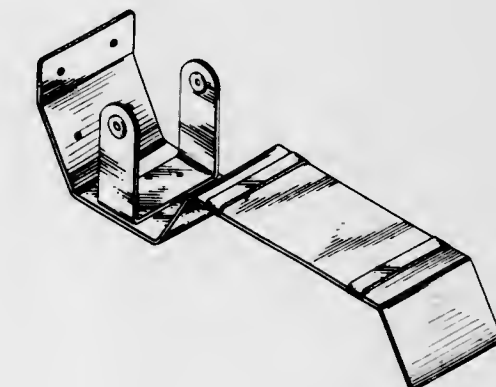
227,162
EYEGLASS FRAME FRONT
 Howell S. Jobbins, Jr., 24 Superior,
 Warwick, R.I. 02886
 Filed Dec. 6, 1971, Ser. No. 205,438
 Term of patent 14 years
 Int. Cl. D16—06

U.S. Cl. D57—1 F



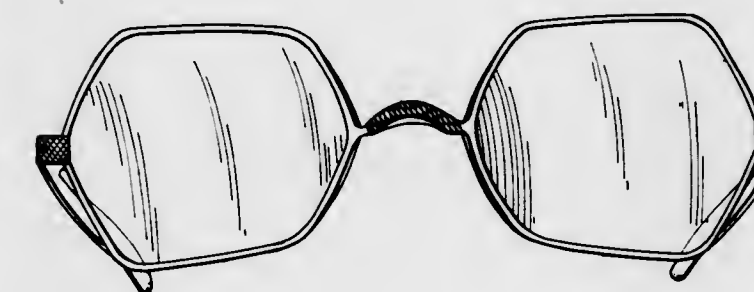
227,165
ROLL HOLDER FOR DISPENSING SANDPAPER
 Herman Gordon, 1315 Wright Drive,
 Huntingdon Valley, Pa. 19006
 Filed Nov. 16, 1970, Ser. No. 26,004
 Term of patent 14 years
 Int. Cl. D19—99

U.S. Cl. D59—2 A



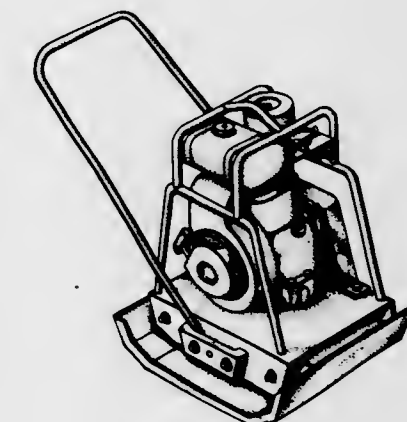
227,163
PAIR OF SPECTACLES
 Anthony Shindler, Brookline, Mass., assignor to American
 Optical Corporation, Southbridge, Mass.
 Filed Mar. 16, 1971, Ser. No. 124,997
 Term of patent 7 years
 Int. Cl. D16—06

U.S. Cl. D57—1 F



227,166
COMPACTOR
 Eugene C. Briggs and Lee E. Reichel, Dayton, Ohio,
 assignors to Koehring Company, Milwaukee, Wis.
 Filed Sept. 15, 1971, Ser. No. 180,933
 Term of patent 14 years
 Int. Cl. D15—04

U.S. Cl. D60—1



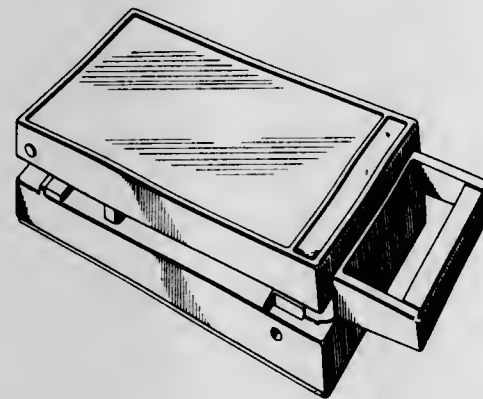
227,167

DATA RECORDER

John A. Maul, Cuyahoga County, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio

Filed May 28, 1971, Ser. No. 148,301
Term of patent 14 years
Int. Cl. D18—02

U.S. Cl. D64—11



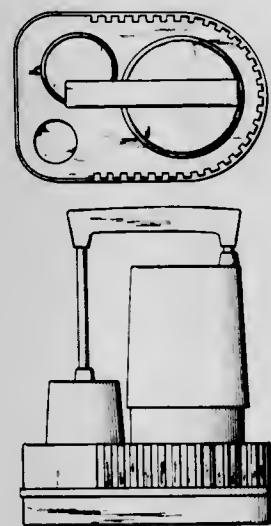
227,168

SUMP PUMP

David O. Chase and Martin V. Maloney, Skaneateles, N.Y., assignors to Houdaille Industries, Inc., Buffalo, N.Y.

Filed Apr. 6, 1972, Ser. No. 241,878
Term of patent 14 years
Int. Cl. D15—02

U.S. Cl. D65—1 R



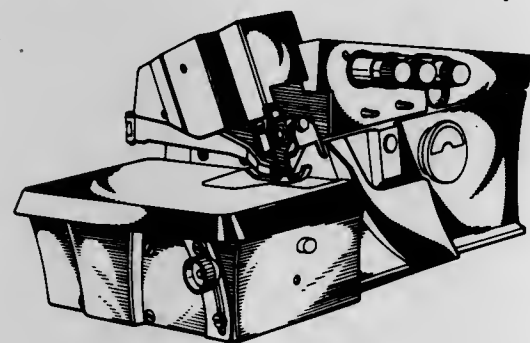
227,169

SEWING MACHINE

Nerino Marforio, Milan, Italy, assignor to S.p.A. Virginio Rimoldi & C., Milan, Italy

Filed Aug. 2, 1971, Ser. No. 168,513
Claims priority, application Italy Feb. 11, 1971
Term of patent 14 years
Int. Cl. D15—06

U.S. Cl. D70—1



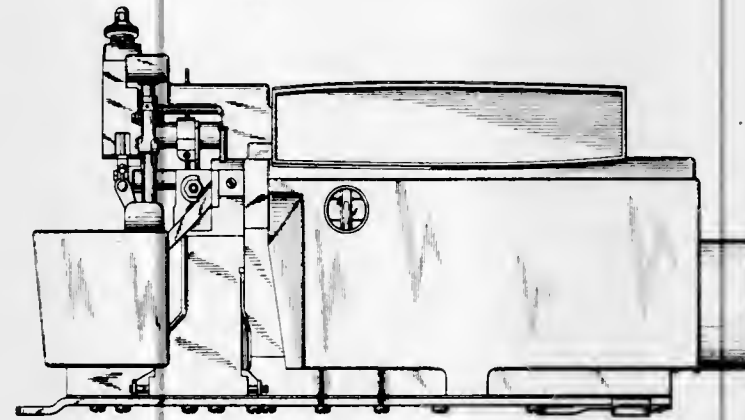
227,170

SEWING MACHINE

James H. Sullivan, Lake Forest, Ill., assignor to Union Special Machine Co., Chicago, Ill.

Filed Apr. 17, 1972, Ser. No. 245,049
Term of patent 14 years
Int. Cl. D15—06

U.S. Cl. D70—1



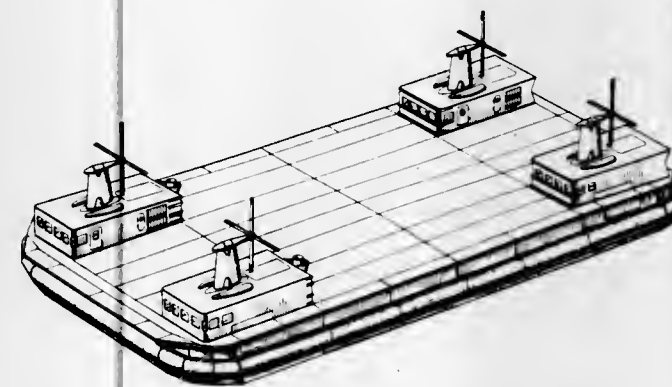
227,171

AIR CUSHION VEHICLE

Raymond Leslie Wheeler, Old Road, East Cowes, Brovacum, Isle of Wight, England

Filed Aug. 23, 1971, Ser. No. 174,307
Term of patent 14 years
Int. Cl. D12—14

U.S. Cl. D71—1 M



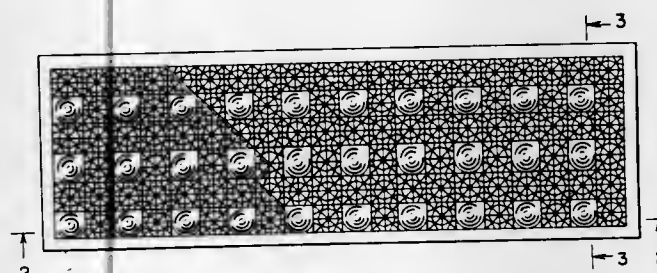
227,172

COMBINED REFLECTOR AND LENS

Sidney A. Heenan, Park Ridge, Ill., assignor to Amerace Esna Corporation, New York, N.Y.

Filed Sept. 2, 1971, Ser. No. 177,521
Term of patent 14 years
Int. Cl. D29—02; D26—05

U.S. Cl. D72—1 E



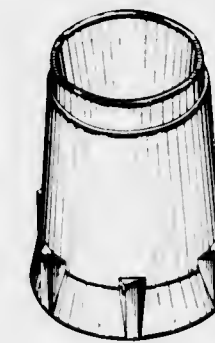
227,173

TRAFFIC MARKER

Howard Bryan Carter, Scarborough, Ontario, Canada, assignor to Rosedale Plastics (Containers) Limited, Toronto, Ontario, Canada

Filed Oct. 27, 1971, Ser. No. 193,240
Term of patent 14 years
Int. Cl. D29—02

U.S. Cl. D72—1 H



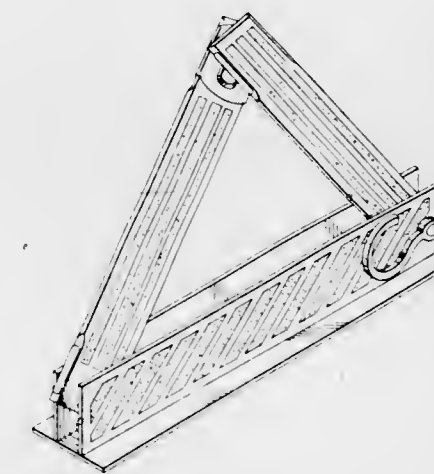
227,174

VEHICLE SAFETY SIGNAL

Katie Adams, Box 271, Ketchum, Idaho 83340

Filed Mar. 31, 1972, Ser. No. 240,322
Term of patent 14 years
Int. Cl. D29—02

U.S. Cl. D72—1 H



227,175

TAPE DISPENSER

Henry Finkel, Montreal, Quebec, Canada, assignor to Arrow Tape Industries Inc., Lachine, Quebec, Canada

Filed Jan. 31, 1972, Ser. No. 222,463
Claims priority, application Canada Oct. 26, 1971
Term of patent 14 years
Int. Cl. D19—02

U.S. Cl. D74—1 B



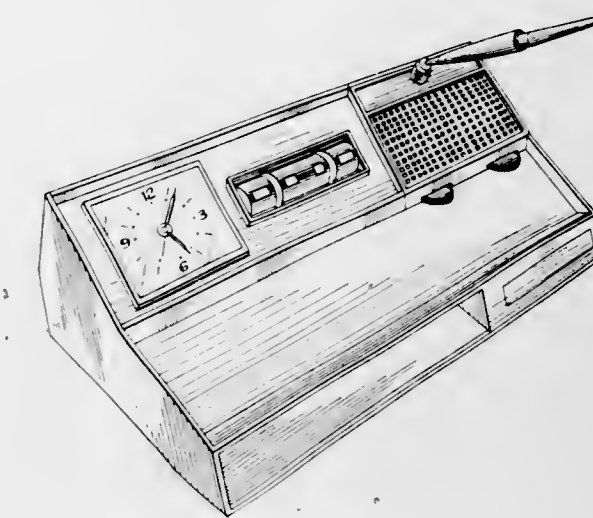
227,176

DESK STAND

Lester Kenneth Franklin, 23 Repulse Bay Road, Apt. 10-A, Hong Kong

Filed Nov. 8, 1971, Ser. No. 196,880
Claims priority, application Great Britain May 5, 1971
Term of patent 14 years
Int. Cl. D19—02

U.S. Cl. D74—5 A



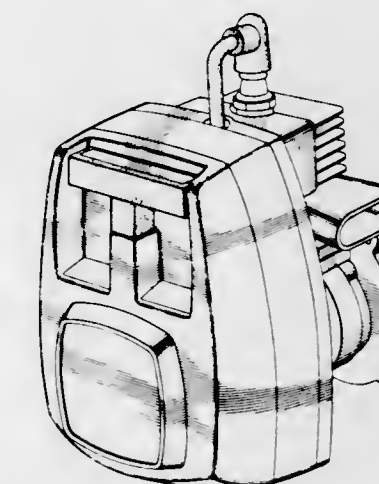
227,177

ENGINE

Cecil T. Cookson, Burbank, and Kenneth H. Seitz, Palos Verdes Peninsula, Calif.; said Cookson assignor to O & R Engines, Inc., Los Angeles, Calif.

Filed Dec. 21, 1970, Ser. No. 26,612
Term of patent 14 years
Int. Cl. D15—01

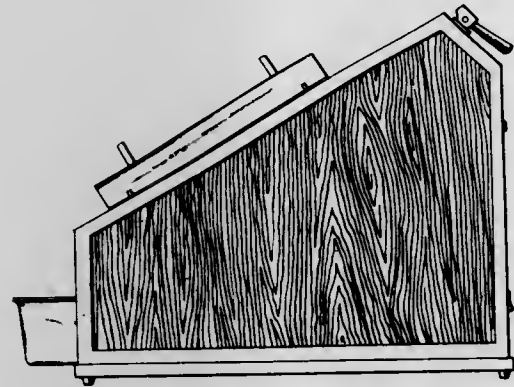
U.S. Cl. D77—1 R



227,178 COOKING GRILL

Roland L. Duning, Indianapolis, Ind., assignor to Burger Chef Systems, Inc. (BC), Indianapolis, Ind.
Filed Mar. 26, 1971, Ser. No. 128,640
Term of patent 14 years
Int. Cl. D7—02

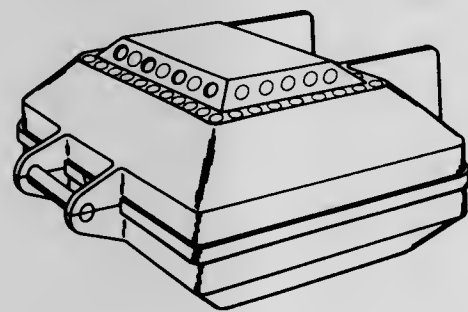
U.S. Cl. D81—10



227,179 PORTABLE COOKING GRILL

Jim R. Grafton, 1112 34th Ave., Moline, Ill. 61265; Glenn E. Wilkins, 3722 Forrest Road, Davenport, Iowa 52804; and Joseph F. Murphy, 1106 25th Avenue Court, Moline, Ill. 61265
Filed Feb. 25, 1971, Ser. No. 119,071
Term of patent 14 years
Int. Cl. D7—02

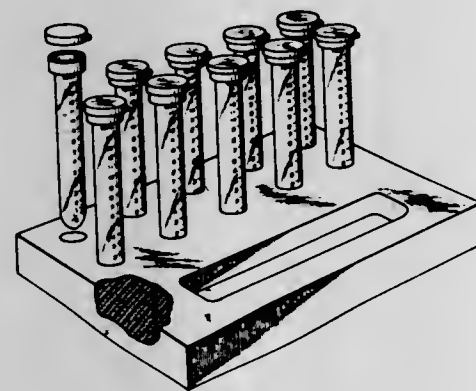
U.S. Cl. D81—10 G



227,180 URINE SPECIMEN KIT

David L. Brodsky, Providence, R.I., assignor to Superior Plastic Products Co., Providence, R.I.
Filed June 21, 1971, Ser. No. 155,401
Term of patent 14 years
Int. Cl. D24—02

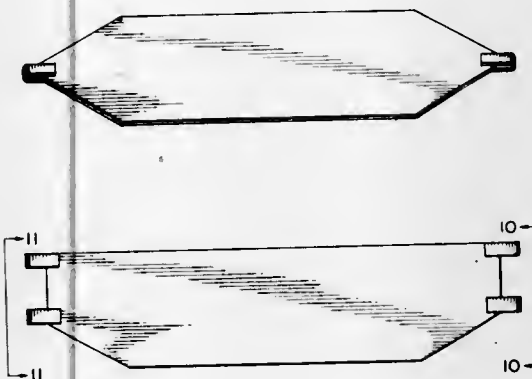
U.S. Cl. D83—1 U



227,181 STRETCHER BARRIER

Bernard E. Shaw, 6732 Colonville Road E., Clare, Mich. 48617
Filed Apr. 21, 1971, Ser. No. 136,297
Term of patent 14 years
Int. Cl. D24—02

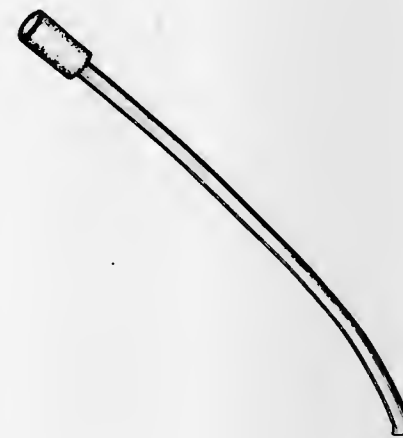
U.S. Cl. D83—1



227,182 BREATH INPUT UNIT FOR A BREATH TESTER

Samuel Shiber, Chicago, and Joseph P. Hoppesch, Streamwood, Ill., assignors to Borg-Warner Corporation, Chicago, Ill.
Filed Oct. 8, 1971, Ser. No. 187,723
Term of patent 14 years
Int. Cl. D24—02

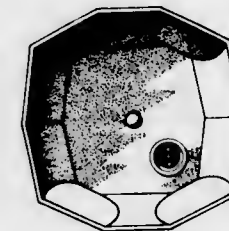
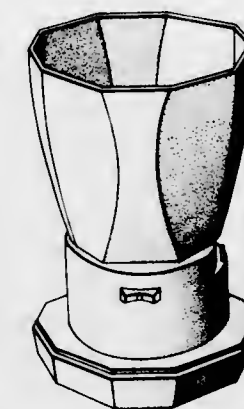
U.S. Cl. D83—1 N



227,183 ELECTRIC DOUCHE

Eloise McCarthy Kenner, Miami, Fla., assignor to Hahn Laboratories, Inc., Miami, Fla.
Filed May 24, 1971, Ser. No. 146,584
Term of patent 3½ years
Int. Cl. D24—04

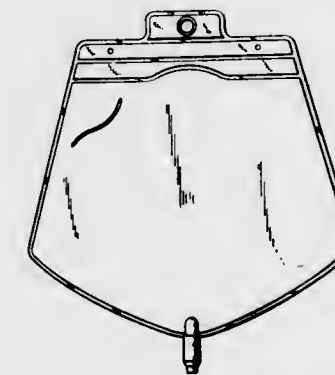
U.S. Cl. D83—1 P



227,184 PEDIATRIC URINARY DRAINAGE BAG OR SIMILAR ARTICLE

Frank William Stevens, Rutherford, and Samuel Dochung Han, Leonia, N.J., assignors to Becton, Dickinson and Company, East Rutherford, N.J.
Filed June 18, 1968, Ser. No. 12,409
Term of patent 14 years
Int. Cl. D24—04

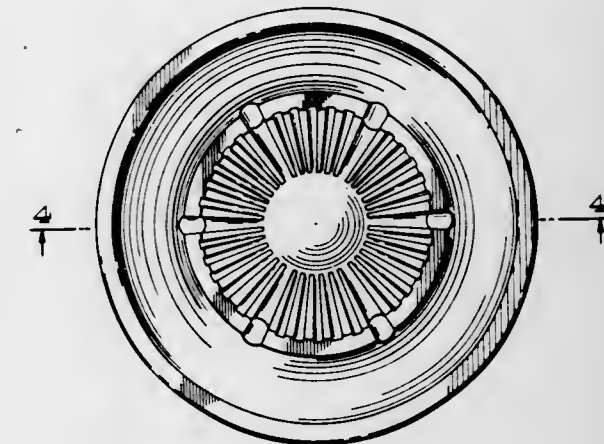
U.S. Cl. D83—1 U



227,185 ASH TRAY

Robert W. Minners, Greenwich, Conn., assignor to Minners and Co., Inc., New York, N.Y.
Filed Sept. 14, 1971, Ser. No. 180,542
Term of patent 14 years
Int. Cl. D27—03

U.S. Cl. D85—2 H



227,186 WIG SUPPORTING AND RETAINING STAND

Kathi Dangeli, 25 Gurnigelstrasse, 2560 Nidau-Bienne, Switzerland
Filed Oct. 14, 1970, Ser. No. 25,483
Term of patent 14 years
Int. Cl. D28—03

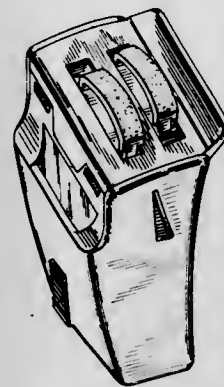
U.S. Cl. D86—10 A



227,187
CALLOUS REMOVER

Richard Ihasz, Stratford, Conn., assignor to Sperry
Rand Corporation, New York, N.Y.
Filed June 21, 1971, Ser. No. 155,405
Term of patent 14 years
Int. Cl. D28—03

U.S. Cl. D86—10 C



227,188
BOOT JACK

Raymond Hartman, Box 163, Oelrichs, S. Dak. 57763
Filed Apr. 21, 1972, Ser. No. 246,518
Term of patent 14 years
Int. Cl. D3—99

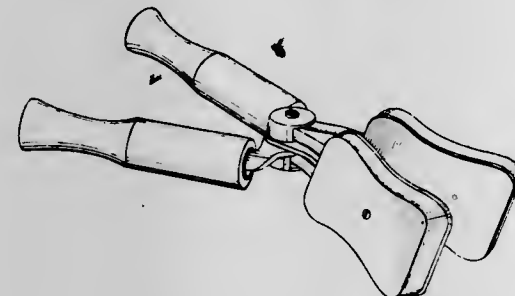
U.S. Cl. D86—10 D



227,189
HAIR STRAIGHTENING IRON

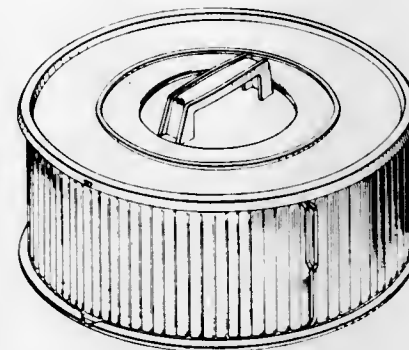
John Cusenza, 5334 Lindley, Encino, Calif. 91316
Filed Mar. 10, 1972, Ser. No. 233,870
Term of patent 14 years
Int. Cl. D28—03

U.S. Cl. D86—10 E



227,190
CONTAINER FOR TAPE CASSETTES
Kevin P. McKinsey, Northfield, and Thomas C. Mills,
Wheaton, Ill., assignors to Double Sixteen Company
Filed Dec. 17, 1970, Ser. No. 26,542
Term of patent 14 years
Int. Cl. D3—02

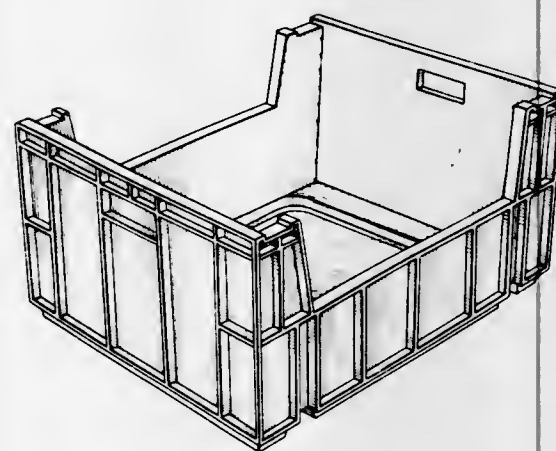
U.S. Cl. D87—1 D



227,191
**MEAT HANDLING TRAY OR
SIMILAR ARTICLE**

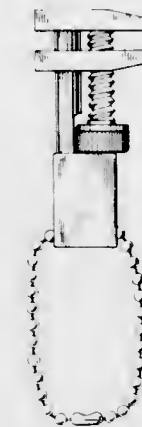
Donald P. Cape, Crystal Lake, Ill., assignor to Ekco
Products, Inc., Wheeling, Ill.
Filed Aug. 12, 1971, Ser. No. 171,412
Term of patent 14 years
Int. Cl. D3—02

U.S. Cl. D87—1 R



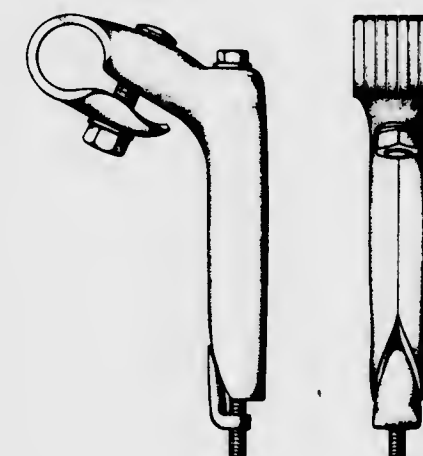
227,192
KEY HOLDER
Herman J. Schafhauser, 536 N. Parker Ave.,
Indianapolis, Ind. 46201
Filed Jan. 17, 1972, Ser. No. 218,639
Term of patent 14 years
Int. Cl. D3—99

U.S. Cl. D87—8



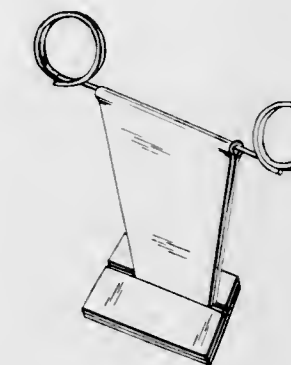
227,193
BICYCLE STEERING POST
Carlton P. Pawsat, Maysville, Ky., assignor to Wald
Manufacturing Company, Inc., Maysville, Ky.
Continuation-in-part of abandoned design applications Ser.
No. 22,178, and Ser. No. 22,179, both Apr. 1, 1970.
This application Nov. 5, 1970, Ser. No. 109,068
Term of patent 14 years
Int. Cl. D12—11

U.S. Cl. D90—9



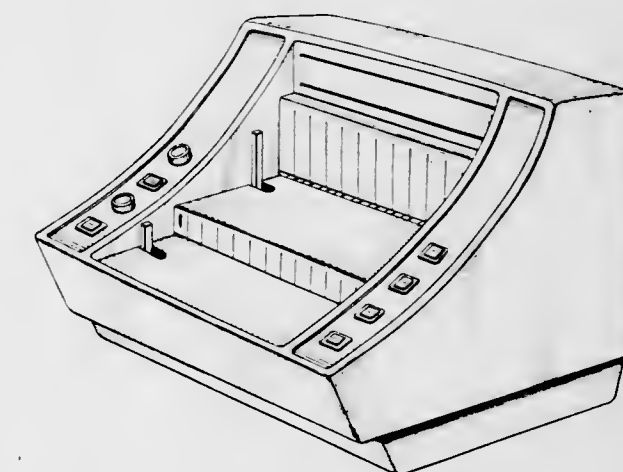
227,194
TAG HOLDER
Donald M. Palmer, 2627 E. 68th Ave.,
Portland, Oreg. 97206
Filed May 17, 1971, Ser. No. 144,395
Term of patent 14 years
Int. Cl. D8—08

U.S. Cl. D8—243



227,195
MACHINE FOR BINDING BOOKS
William H. Abildgaard, Los Altos Hills, and Charles T.
Grosz III, Los Altos, Calif., Logan W. Johnson,
Lake Minnetonka, Minn., and David R. Estes, Mountain
View, Calif., assignors to Abildgaard Laboratories, Inc.,
Mountain View, Calif.
Filed Sept. 7, 1971, Ser. No. 178,540
Term of patent 14 years
Int. Cl. D19—04

U.S. Cl. D97—1



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 5TH DAY OF JUNE, 1973

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Abbott Laboratories: *See—*
Flouret, George Rogelio, 3,737,422.
Plotnikoff, Nicholas Peter, 3,737,549.
- Abe, Jinnosuke; Watanabe, Tetsuo; Yamaguchi, Tsutomu; and Gocho, Sinobu, to Toyo Jozo Kabushiki Kaisha. Process for production of enzyme alkaline dextranase. 3,737,383, Cl. 195-62.000.
- Abe, Toshiro: *See—*
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- Abegg, Jean-Louis: *See—*
Ghilardi, Guilian; Kalopissis, Gregoire; de Beaulieu, Henri Philippe; and Abegg, Jean-Louis, 3,736,944.
- Abele, Manfred: *See—*
Roos, Ernst; Abele, Manfred; Nast, Roland; Kempermann, Theo; and Schubart, Rudiger, 3,737,438.
- Abex Corporation: *See—*
Mori, Hideo; and Garcia, Joseph M., 3,737,904.
- Abraham, Erich E. Rotary engine. 3,737,248, Cl. 415-198.000.
- Ackley, Donald M.: *See—*
Rosales, Joseph G., 3,737,202.
- Adams, David K.; and Ho, Y.-C., to Stanford Research Institute. Loss cancelling resonator and filters. 3,737,801, Cl. 331-53.000.
- Adams, Jim Mills; and Grimmell, William Charles, to Hoffmann-La Roche, Inc. Machine color recognition. 3,737,239, Cl. 356-177.000.
- Addressograph-Multigraph Corporation: *See—*
Bates, Darwin S.; and Szymanski, Edward R., 3,736,867.
See, Gary G., 3,737,629.
- Tregerman, Leon; and Brindle, Stanley M., 3,737,868.
- Adelmann, Hans-Jurgen: *See—*
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- Ader, Gary B.: *See—*
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- Adickes, Cecil F.: *See—*
Bruce, Roger K.; Marhold, Werner; and Adickes, Cecil F., 3,737,077.
- Advanced Research Corporation: *See—*
Turner, Loyce A.; and Rollor, Edward A., Jr., 3,737,858.
- Aelony, David: *See—*
Throckmorton, Peter E.; Aelony, David; Egan, Richard R.; and Otey, Felix H., 3,737,426.
- Aerojet-General Corporation: *See—*
Rudy, Erwin, 3,737,289.
- AFCO Manufacturing Corporation: *See—*
Foon, Alvin N., 3,737,134.
- African Explosives and Chemical Industries Limited: *See—*
Stander, Cornelius Marthinus; and Hughes, David Owen, 3,737,491.
Stander, Cornelius Marthinus; and Hughes, David Owen, 3,737,492.
- Agence Nationale de Valorisation de La Recherche: *See—*
Walter, Marc, 3,736,739.
- Agfa-Gevaert Aktiengesellschaft: *See—*
Wagner, Karl, 3,737,240.
Wick, Richard; Bestenreiner, Friedrich; and Deml, Reinhold, 3,737,574.
- Agrest, Jacobo. Steam generator having at least one combustion chamber for burning solid, liquid and/or gaseous fuels. 3,736,907, Cl. 122-2.000.
- Ahlen, Dan Ragnar, to Aktiebolaget Volvo. Device for cleaning the glass on vehicle headlights. 3,736,617, Cl. 15-250.220.
- Ahmed, Adel Abdel Azia, to RCA Corporation. Triggered flip-flop. 3,737,682, Cl. 307-291.000.
- Air Repair, Inc.: *See—*
Murton, Crawford B., 3,737,489.
- Aisin Seiki Kabushiki Kaisha: *See—*
Okamoto, Toshiaki; Kuwana, Kazutaka; and Sato, Takefumi, 3,737,201.
- Aizawa, Tatsuo: *See—*
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- Akron Brass Company: *See—*
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- Aktiebolaget Bofors: *See—*
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- Aktiebolaget Volvo: *See—*
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- Akzona Incorporated: *See—*
Van Den Broek, Albertus Joannes, 3,737,427.
- Alarm Products International, Inc.: *See—*
Parlato, Philip J., 3,737,591.
- Albar Corporation: *See—*
Kreider, Benjamin A.; Jones, William R.; Metalsky, William J.; and Gibb, Thomson B., 3,737,553.
- Alcott, Graham J.; Bennett, Ian M.; and Secrest, Gerald R., to Fairchild Camera and Instrument Corporation. Graded impurity profile in epitaxial films to improve integrated circuit performance. 3,737,347, Cl. 148-17.500.
- Aldebert, Friedrich: *See—*
Von Brachel, Hanswilli; and Aldebert, Friedrich, 3,737,437.
- Aldenhoven, Chislanus Matheus Anthonius Maria, to U.S. Philips Corporation. Tape recorder control with shaft rotation sensing mechanism for actuating switch. 3,737,600, Cl. 200-61.390.
- Alexander, Paul, Jr.: *See—*
United States of America, National Aeronautics and Space Administration, 3,737,181.
- Alfrey, Turner, Jr.: *See—*
Schrenk, Walter J.; Cleereman, Kenneth J.; Chisholm, Douglas S.; and Alfrey, Turner, Jr., 3,737,263.
- All American Industries, Inc.: *See—*
Carnevale, Umberto A., 3,737,123.
Schilgel, William R., 3,737,124.
- Allan, George, to FMC Corporation. Apparatus for clearing the screen of crop-harvesting product. 3,737,035, Cl. 209-380.000.
- Alleman, Carl E.; and Tuckett, William F., to Phillips Petroleum Company. Apparatus and method for drying gas by glycol scrubbing. 3,736,725, Cl. 55-32.000.
- Allied Chemical Corporation: *See—*
Ameen, Jamel; and Furbush, Seymour A., 3,737,392.
Cheema, Zafarullah K.; Formaini, Robert L.; and Ulmer, Harry L., 3,737,462.
Stewart, Donald F., 3,737,030.
Turner, Garland Linwood; Schuettler, Ralph William; and Collingwood, George Howard, 3,737,505.
- Allington, Robert W. Switching-mode voltage and current regulator. 3,737,758, Cl. 321-18.000.
- Allis-Chalmers Corporation: *See—*
Dreisin, Alexander, 3,737,100.
- Allison, Leroy K., to North American Rockwell Corporation. Weft yarn control device. 3,736,963, Cl. 139-122.000.
- Alphamedics Mfg. Corporation: *See—*
Berman, Richard M.; Schwartz, Bernard; and Bethke, Lyman W., 3,737,251.
- Alsberg, Henry; and Frederiksen, Ronald A., to Richardson Company, The. Fabrication of printed circuit boards. 3,737,339, Cl. 117-212.000.
- Alt, Hans Rudolf; Just, Christian; and Wildbolz, Rudolf, to Rieter Machine Works, Ltd. Bale reducing apparatus and method of reducing fiber bales. 3,736,624, Cl. 19-80.00r.
- Aluminum Company of America: *See—*
Blayden, Lee C.; Brondyke, Kenneth J.; and Spear, Robert E., 3,737,303.
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- Alvarado, Samuel Laboy. Music chord teaching device. 3,736,833, Cl. 84-473.000.
- Amari, Katsuioshi: *See—*
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- Amberg, Stephen W.; and Ludder, Rodney E., to Owens-Illinois, Inc., mesne. Multi wall container and package. 3,737,093, Cl. 229-14.00r.
- Ameen, Jamel; and Furbush, Seymour A., to Allied Chemical Corporation. Solvent composition useful in acid gas removal from gas mixtures. 3,737,392, Cl. 252-364.000.
- Amemiya, Hiroshi, to RCA Corporation. Differential amplifier. 3,737,797, Cl. 330-30.00d.
- American Aviation Corporation: *See—*
Donnelly, Thomas S., 3,737,725.
- American Cyanamid Company: *See—*
O'Brien, Samuel James; Stockel, Richard Frederick; and Herbes, William Frank, 3,737,284.
Schmitt, Edward E.; and Bailey, William J., 3,737,440.
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- American Home Products Corporation: *See—*
Stepanek, Frank E., 3,736,917.
- American Seating Company: *See—*
Barecki, Chester J.; and Karpik, Alexander A., 3,737,198.
- American Standard, Inc.: *See—*
Parkison, Richard G., 3,736,959.
Parkison, Richard Grant, 3,736,923.
- Ames, John B. Container construction. 3,737,066, Cl. 220-31.00s.

Amidon, Charles H., Jr.; and Galeone, Vincent A., to Gulf & Western Systems Company. Nozzle design for a fabric web treating facility. 3,736,669, Cl. 34-229.000.

AMP Incorporated: See—
Hoffman, Norman Edwin, 3,737,840.
Plana, Roberto, 3,737,656.

Anderson Electric Corporation: See—
Sequist, James J., 3,737,558.

Anderson, Gordon S. Electrical clamp. 3,737,832, Cl. 339-14.00r.

Anderson, James E., to Jackson Vibrators, Inc. Ballast tamper blade. 3,736,879, Cl. 104-12.000.

Anderson, Norman C., to Varian Associates. Method for making metal-to-ceramic seals. 3,736,650, Cl. 29-473.100.

Anderson, Raymond John: See—
Cuthbert, Laurence Geoffrey; and Anderson, Raymond John, 3,737,897.

Anderson, Richard C., to General Electric Company. Thorium-yttrium-based ceramic materials. 3,737,331, Cl. 106-39.00r.

Andersson, Bror Axel Erling: See—
Andersson, Erik Arne; and Andersson, Bror Axel Erling, 3,736,928.

Andersson, Erik Arne; and Andersson, Bror Axel Erling, to Rundblad, Nils, O. W. Collapsible face mask. 3,736,928, Cl. 128-146.200.

Andersson, John-Erik, to Aktiebolaget Bofors. Tubular transducer with strain gauges and sensitive to a force transmitted to its end surfaces via lead surfaces. 3,736,795, Cl. 73-141.00a.

Ando, Shioichi; and Yoshiko, Shinji, to Hida Denki Kogyo Kabushiki Kaisha. Apparatus for taking tomograms of parabolically curved objects. 3,737,660, Cl. 250-50.000.

Andreasen, Leif: See—
Soule, Winsor Jr.; and Andreasen, Leif, 3,737,872.

Ansari, Hifzur R.: See—
Fordham, William D.; and Ansari, Hifzur R., 3,737,467.

Antonio, John, to Mosler Safe Company, The. Ultrasonic transducer for intruder alarm system. 3,737,690, Cl. 310-8.200.

Antonson, Arvid L.; Bigelow, John E.; Stein, Charles R.; Mc Campbell, Carroll B.; and Van Horn, James W. General Electric Company Diffraction optics head of display. 3,737,212, Cl. 3-23-73.

Apparatus for removing tassels: See—
Dobson, Ora B., 3,736,730.

Appelmann, Horst: See—
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Applegate, Robert L. Portable X-ray radiation shielding device. 3,737,661, Cl. 250-65.00r.

Applied Power Industries, Inc.: See—
Leibundgut, James A., 3,736,843.

Aqua-Chem, Inc.: See—
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Arai, Sakuji: See—
Okura, Takao; Miyaki, Kiyoshi; and Arai, Sakuji, 3,736,912.

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Ruckel, Erwin Richard; Phillips, Ronald Frank; and Arlt, Herbert George, Jr., 3,737,418.

Armo Steel Corporation: See—
Hacker, Leon, 3,737,493.

Armstrong, Robert G., to Park-Ohio Industries, Inc. Apparatus for inductively heating and quench hardening an elongated workpiece. 3,737,610, Cl. 219-10.670.

Arnold, Melvin R.; and Schrage, Albert, to Dart Industries, Inc. Preparation of carbon supported promoted noble metal catalysts. 3,737,395, Cl. 252-447.000.

Arnold, Orlan M.; and Horn, Michael F., to Peabody Engineering Corporation. Double spray nozzle. 3,737,105, Cl. 239-423.000.

Arnold, Orlan M.; and Horn, Michael F., to Peabody Engineering Corporation. 360° spray nozzle. 3,737,106, Cl. 239-518.000.

Arnosky, Joseph E.; and Meermans, Ronald A., to Park-Ohio Industries, Inc. Workpiece expansion compensator for resistance heating apparatus. 3,737,619, Cl. 219-156.000.

Arnosky, Joseph L., to Park-Ohio Industries, Inc. Method and apparatus for resistance heating slotted tubes. 3,737,618, Cl. 219-156.000.

Arthur, Ronald H.; Eickhorst, Melvin F.; and Hansen, Earl A., to U.I.D. Electronics Corporation. Snap action slide switch. 3,737,601, Cl. 200-76.000.

Artzt, William Walter. Pull-over infant's garment. 3,736,597, Cl. 2-111.000.

Arvin Industries, Inc.: See—
Kelley, Jerry O., 3,737,880.

Asahi Kasei Kogyo Kabushiki Kaisha: See—
Takaki, Marcaki, 3,737,510.

Tsutsumi, Shigeru; and Sonoda, Noboru, 3,737,428.

Ashida, Takashi; Sasagawa, Teigi; Fukabori, Masaru; Karino, Shinobu; and Motoki, Sadao, to Fujitsu Limited. Push-button operated tuner. 3,737,817, Cl. 334-7.000.

Ashland Oil, Inc.: See—
Green, William S.; and Newman, John W., 3,737,472.
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Askam, John F.; and Goodwin, Charles, to Dunlop Company Limited, The. Apparatus for consolidating at least the bead portion of a tire carcass. 3,737,356, Cl. 156-402.000.

Aspenson, Lawrence A. Tile grooving and painting machine. 3,736,901, Cl. 118-2.000.

Asquith, William, Limited: See—
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Atchley, Oscar J. Multi-compartmental condiment shaker. 3,737,075, Cl. 222-142.900.

Atkinson, Joseph G.; and Cillis, David W., to Frosst, Charles E., & Co. Deuterated paraformaldehyde process. 3,737,464, Cl. 260-615.500.

Atlantic Richfield Company: See—
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Audio Designs and Manufacturing, Inc.: See—
Bloom, Robert A.; Sturtz, Charles R.; and McGrath, Timothy P., 3,736,801.

Aughton, John E., to Crosfield Electronics Limited. Half-tone image reproduction. 3,737,225, Cl. 355-48.000.

Aupoix, Marcel; Franckhauser, Francois Moisson; and Royet, Jean, to Compagnie Generale d'Electricite. Method of manufacturing asymmetrical superconductive cables for carrying either alternating or direct current. 3,736,656, Cl. 29-599.000.

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Morgan, George H.; and Nehrig, R. Harlan, 3,737,147.

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Automata Corporation: See—
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Azure, Leo L., Jr., to Automata Corporation. Automatically programmed test grading and scoring method and system. 3,737,628, Cl. 235-61.60e.

Babb, Burton A.; Byer, Edward L.; Giffin, George S.; and Rife, Robert E. Electro-optical viewing device. 3,737,667, Cl. 250-213.00r.

Babel, Louis: See—
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Offutt, Elmer Bradley; and Babich, Edward, 3,737,071.

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Bader Development Corporation: See—
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Badische Anilin- & Soda-Fabrik Aktiengesellschaft: See—
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Baillly, Jean Claude, to Naphtachimie. Method of preparation of polymers of propylene and/or butylenes. 3,737,476, Cl. 260-683.15d.

Baker, Colin J., to Email Limited. Lid latch off-balance switch. 3,736,772, Cl. 68-12.00r.

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Ball, Malcolm James, to Imperial Chemical Industries Limited. Composite cartridge pack for hardening resins. 3,737,027, Cl. 206-47.00a.

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Bannister, Brian, to Upjohn Company, The. Derivatives of lincomycin. 3,737,425, Cl. 260-210.00r.

Baptista, John L.; and Smith, Albert C., Jr., to Eastman Kodak Company. Multicolor photographic film elements comprising a minimum sensitivity sound track recording silver halide emulsion layer and processes for their use. 3,737,312, Cl. 96-4.000.

Baranauckas, Charles F.; and Gordon, Irving, to Borg-Warner Corporation, mesne. Esters of phosphonic acid as fire-retardants in polyurethane foams. 3,737,397, Cl. 260-2.5aj.

Barecki, Chester J.; and Karpip, Alexander A., to American Seating Company. Rapid transit seating. 3,737,198, Cl. 297-450.000.

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Barna, Theodore B.; Dimmick, Roger F.; Ricklefs, Merlin J.; Schaffer, Walter S.; and Westphal, Gordon W., to International Business Machines Corporation. Machine for punching and printing document cards. 3,737,097, Cl. 234-114.000.

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Estabrook, Mark R.; and Treder, Wilfred F. W., 3,736,703.

Barnes, Edward. Meter. 3,736,890, Cl. 111-7.000.

Barnes, Roland C. Rate adaptive nonsynchronous demodulator apparatus for biphasic binary signals. 3,737,632, Cl. 235-61.11e.

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Barrow, Gilbert C., to Massa Division, Dynamics Corporation of America. Method of making an electroacoustic transducer. 3,736,632, Cl. 29-25.350.

Barta, Franz; and Grupp, Alfred F., to Meyercord Co., The. Web processing apparatus. 3,737,088, Cl. 226-119.000.

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Bartlett, Homer E.; and Sheppard, Emory L., to Radiation Incorporated. Parabolic antenna system having high-illumination and spillover efficiencies. 3,737,909, Cl. 343-755.000.

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Basseches, Harold; Gerstenberg, Dieter; Lepselter, Martin Paul; Macrae, Alfred Urquhart; and Scholn, Joel Mark, to Bell Telephone Laboratories, Incorporated. Technique for the preparation of ion implanted tantalum-aluminum alloy. 3,737,343, Cl. 117-227.000.

Basso, Jude A.; Lemaire, Norman A.; and Fulger, Charles V., to Kellogg Company. Beverage containing egg albumen and whey. 3,737,326, Cl. 99-78.000.

Bastin, Jean-Michel: See—
Jucker, Ernst; Ebnother, Anton; and Bastin, Jean-Michel, 3,737,544.

Bates, Darwin S.; and Szymanski, Edward R., to Addressograph-Multi-graph Corporation. Traveling cylinder printer with selectively slidable code bars having plural marking means. 3,736,867, Cl. 101-45.000.

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Bazler, Seward M.; and Lane, William C., to Mead Corporation, The. High opacity paper. 3,737,371, Cl. 162-181.00b.

Beach, David E., to Eastman Kodak Company. Film metering mechanism for cameras. 3,736,854, Cl. 95-31.0fm.

Beadley, Charles Edward, Jr.: See—
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Beals, Duane E.; and Page, Russell D., to Caterpillar Tractor Company. Adjustable control console for vehicles. 3,737,003, Cl. 180-78.000.

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Becker, Michael, to Siemens Aktiengesellschaft. Control device for filter circuits connected in parallel with each other and tuned to different resonance frequencies. 3,737,791, Cl. 328-167.000.

Beckley, William E. Dry chemical unit fire truck. 3,736,985, Cl. 169-31.00p.

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Beckman, Milo H., to ESB Incorporated. Method for forming and placing tubular battery separators and means embodying the method. 3,736,655, Cl. 29-592.000.

Becton, Dickinson & Company: See—
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- Blakeslee, A. Eugene; Gukelberger, Thomas F., Jr.; and Lyons, Vincent J., to International Business Machines Corporation. Single crystal regions in dielectric substrate. 3,737,739, Cl. 317-235.000.
- Blau, Donald Z.; and Kaufman, Jesse C., to Singer Company, The. Vector velocimeter. 3,737,233, Cl. 356-28.000.
- Blayden, Lee C.; Brondyke, Kenneth J.; and Spear, Robert E., to Aluminum Company of America. Refining molten aluminum with chlorine-activated bodies. 3,737,303, Cl. 75-68.00r.
- Blayden, Lee C.; Brondyke, Kenneth J.; and Spear, Robert E., to Aluminum Company of America. Process for treating molten aluminum. 3,737,304, Cl. 75-68.00r.
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- Bloom, Robert A.; Sturtz, Charles R.; and McGrath, Timothy P., to Audio Designs and Manufacturing, Inc. Slide antennuator. 3,736,801, Cl. 74-89.000.
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- Bobrin, Marshall C., to United States of America, Navy. Feature recognition techniques. 3,737,842, Cl. 340-4.00r.
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- Boer, Dirk, to U.S. Philips Corporation. Signal processing arrangement for a colour television camera circuit. 3,737,561, Cl. 178-5.40r.
- Boissier, Lucien Albert; and Barge, Jean Joseph. Torsion bar suspension system. 3,737,173, Cl. 280-104.50r.
- Boldebeck, Edith M., to General Electric Company. Method for making polyamide acid salts and products derived therefrom. 3,737,478, Cl. 260-780.00a.
- Bolduc, Lee R., to Medtronic, Inc. Body tissue electrode and device for screwing the electrode into body tissue. 3,737,579, Cl. 128-418.000.
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- Brown, Lloyd H.; Dunlop, Andrew P.; and Eftax, Daniel S. P., to Quaker Oats Company, The. N,N'-bis(tri(substituted)silylalkylene)-1,4-xylene-alpha, alpha'-diimine. 3,737,430, Cl. 260-240.00g.
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- Burkhardt, Edward A., to FMC Corporation [C R P3737212 L8 W1]. Extended life bearing. 3,737,204, Cl. 308-241.000.
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- Gager, Robert M., to Picker Corporation. X-ray tube having anode target layer of molybdenum rhenium alloy. 3,737,699, Cl. 313-60.000.
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Knight, Lindsay Charles. Target holder rigidity securing small arms target and transducer mounted thereon. 3,737,166, Cl. 273-102.20s.
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Knobloch, John C.; and Shepard, Ray M., to Fairfield Manufacturing Company, Inc., mesne. Planetary reduction drive. 3,737,000, Cl. 180-43.00b.
Knudsen Creamery Co. of California: See—
Mayer, Bromley M.; and Tricket, Ralph J., 3,737,327.
Kobayashi, Kingo; and Nishizawa, Koji, to Fuji Photo Film Co., Ltd. Film casting process. 3,737,509, Cl. 264-212.000.
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Kobe Steel, Ltd.: See—
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Koch, Carl; and Lipshutz, Joel Leon, to Techcrete, Inc. Building system. 3,736,709, Cl. 52-97.000.
Koch, Hans Adalbert: See—
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Koch, Theodor, to Messrs. Heckler & Koch GmbH. Firearm barrel. 3,736,693, Cl. 42-78.000.
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Koenn, Hubert J.: See—
Rietz, Earl B.; McCloud, James R.; Koenn, Hubert J.; and Wall, David A., 3,737,831.
Kofink, Siegfried, to Esslinger, J. Eberspacher. Device for the combustion of burnable components of exhaust gases. 3,737,286, Cl. 23-277.00c.
Kohl, Willibald F.; Sourby, John C.; and Ellinger, Rudolph H., to Stauffer Chemical Company. Process for the pasteurization of egg whites. 3,737,330, Cl. 99-215.000.
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Brokmeier, Dieter; Englehard, Helmut; Bentz, Francis; Kohler, Armin; and Nischk, Gunther, 3,737,420.
Kohner, Michael R. Collapsible table. 3,736,884, Cl. 108-48.000.
Kohren-Keller A.G.: See—
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Koide, Hideo: See—
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Kojima, Kiyoshi; and Abe, Toshiro, to Matsushita Electric Works, Ltd. Control system for electric circuit utilizing photosensitive solid oscillator. 3,737,803, Cl. 331-107.00r.
Kojiki, Kenichi, to Kabushiki Kaisha. Timepiece regulating mechanism vibration. 3,736,743, Cl. 58-109.000.
Kominami, Takuji, to Matsushita Graphic Communication Systems, Inc. Facsimile scanning apparatus. 3,737,575, Cl. 178-7.600.
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Konishioku Photo Industry Co., Ltd.: See—
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Kontz, Robert F., to Owens-Illinois, Inc. Safety device for blow molding machine. 3,737,267, Cl. 425-154.000.
Kontz, Robert F., to Owens-Illinois, Inc. Blow needle and valve. 3,737,275, Cl. 425-387.00b.
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Kopp, Richard F. Vehicle safety belt sensor system. 3,737,850, Cl. 340-52.00c.
Kornfeld, Edmund C., to Lilly, Eli, and Company. Alpha-tetrazolyl-6-substituted tryptamine and -alpha-tetrazolyl-5,6-disubstituted tryptamine compounds. 3,737,436, Cl. 260-308-d.
Korpel, Adrianus, to Zenith Radio Corporation. Solid-state signal distribution system. 3,737,785, Cl. 325-442.000.
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Penicula, Giedrius, 3,737,165.
Kosaka, Yujiro; Uemura, Masaru; Saito, Mitsutaka; Suzuki, Yuji; and Takamoto, Kunio, to Toyo Soda Manufacturing Co., Ltd. Graft copolymerization of maleic anhydride and an alpha olefin onto an ethylene-vinyl acetate copolymer. 3,737,483, Cl. 260-878.00r.
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Krall, Heribert; and Koch, Hans Adalbert, to Technica-Guss GmbH. Die for tube profiles. 3,736,979, Cl. 164-281.000.
Kratomii, Shunsei. Stereoscopic apparatus having liquid crystal filter viewer. 3,737,567, Cl. 178-6.500.
Krauer, Otto Albert, to Otis Elevator Company. Servomechanism including a polyphase alternating current synchronous motor. 3,737,747, Cl. 318-178.000.
Krauja, Ziedonis I.; and Opperman, Kenton C., to Caterpillar Tractor Company. Fuel injection pump with timing port. 3,737,258, Cl. 417-499.000.
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Kreider, Benjamin A.; Jones, William R.; Metalsky, William J.; and Gibb, Thomson B., to Albar Corporation. Vacuum electric furnace. 3,737,553, Cl. 13-25.000.
Kreischmer, Willi K.; and Heady, Paul A., Jr., to Lockheed Missiles & Space Company. Open loop on-demand variable flow gas generator system with a two-position injector. 3,736,749, Cl. 60-39.74a.

Kress, James Henry; Michael, Richard Arlo; and Madson, Lyle Robert, to Deere & Company. Combined hydrostatic and mechanical transmission. 3,736,813, Cl. 74-740.000.
Kresta, Erich: See—
Petraschek, Ernst; Mick, Oskar; Kresta, Erich; Windbichler, Josef; and Zochling, Johann, 3,736,972.
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Kroyer, Karl Kristian Kobs; and Nielsen, Erik, said Nielsen assor. to said Kroyer, Karl Kristian Kobs. Cooking utensil with gauge. 3,736,861, Cl. 99-343.000.
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Kudman, Irwin; and Schmelz, Carl Michael, to RCA Corporation. Protected thermoelectric elements and method of protecting same. 3,737,345, Cl. 136-238.000.
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Kuhnis, Hans Herbert; and Denss, Rolf, to Ciba-Geigy Corporation. Antitussive compositions and method with isonipecotic acid derivatives. 3,737,538, Cl. 424-248.000.
Kuhnke, H. Elektrotechnik GmbH: See—
Hodler, Karl, 3,737,143.
Kulak, John; and Kirkpatrick, Kenneth Lawrence, to Deere & Company. Mechanism for retaining the wing section of an implement in its raised position. 3,736,735, Cl. 56-13.600.
Kulas, William C., to Krohn-Hite Corporation. Function generating using piece-wise linear approximation. 3,737,642, Cl. 235-197.000.
Kumaki, Kozo, to Nakamichi Kikai Co., Ltd., Nichimen Co., Ltd. and Nippon Pneumatic Manufacturing Co., Ltd. Slag removing equipment for high temperature furnaces. 3,736,615, Cl. 15-104.10c.
Kumasaka, Sadao; Suzuki, Satomi; Yoshino, Takeo; and Kobayashi, Tutomu, to Toyo Rubber Chemical Industrial Corporation. Self-extinguishable polyurethane foam. 3,737,400, Cl. 260-2.5aj.
Kuno, Hiroshi; Suzuki, Kenji; and Ishikawa, Mineo, to Kabushiki Kaisha Toyota Chuo Kenkyusho and Toyoda Koki Kabushiki Kaisha. System for compensating for drift in semiconductor transducers. 3,737,684, Cl. 307-308.000.
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Kwong Chu, Vincent Hao, to Bethlehem Steel Corporation. Process for producing iron-molybdenum alloy powder metal. 3,737,301, Cl. 75-5ba.
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Terase, Hitoshi; and Namikawa, Sumio, 3,737,769.
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Grimm, Richard; Herzog, Willi; and Lademann, Rudolf, 3,736,726.
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Debergh, Philippe; and Lagrange, Maurice, 3,737,372.
Laird, Alexandra B.; and Bass, Sidney, to Mattel, Inc. Construction toy utilizing real or simulated household tools and simulating a real or imagined living thing. 3,736,696, Cl. 46-17.000.
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Jennings, Teari James; Vogelaar, Bernard Francis; and Lamp, Robert, 3,736,732.
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Larson, Willis A., to Magic Dot Inc. Touch sensitive electronic switch. 3,737,670, Cl. 307-116.000.
Lattke, Horst G., to Emhart Corporation. Film wrapping machine. 3,736,723, Cl. 53-180.000.
Law, John M.; Stricker, Alfred A.; and Von Kaenel, Walter, to International Business Machines Corporation. Automatic pin insertion and bonding to a metallized pad on a substrate surface. 3,736,651, Cl. 29-428.000.
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Weaver, Cliff V.; Ranken, William A.; and Lawton, Robert G., 3,736,658.
Lay, Jorge, to Lee, Raymond, Organization, Inc. Replaceable electric switch. 3,737,592, Cl. 200-51.140.
Lazenby, Peter G.; and Wondergem, Hendrik M., to Selco Mining Corporation, Limited, mesne. Apparatus for the remote detection of conducting bodies utilizing electromagnetic waveforms exhibiting abrupt discontinuities. 3,737,768, Cl. 324-3.000.
Le Peuvédic, Jean-Pierre; and Quichaud, Claude, to Societe Anonyme dite: Societe Nationale des Petroles d'Aquitaine. Hydraulically controlled device for modulating the mud. 3,737,843, Cl. 340-18.00s.
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Ruleff, Robert L.; Lee, William P., II; and Childress, Jay W., 3,737,314.
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Llop, Helenio; and Lefort, Pierre, 3,737,617.

- Legler, Ernst, to Bosch, Robert, Fernschaltanlagen Gesellschaft mit beschränkter Haftung. Linearly controlled amplifier. 3,737,796, Cl. 330-29.000.
- Lehrer, Stanley; Robertson, Raymond A.; and Holme, John C., to Electro-Optics Devices Corporation. Automated optical comparator. 3,737,856, Cl. 340-146.30q.
- Leiberitz, Walter A.: See—
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- Leibundgut, James A., to Applied Power Industries, Inc. Vibrator apparatus. 3,736,843, Cl. 91-234.000.
- Lejdegard, Sixten H.: See—
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- Lemaire, Normand A.: See—
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- Life Support, Inc.: See—
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- Lilly, Eli, and Company: See—
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- Lin, Min-Shung. Sequential switch arrangements for operating electrically controlled locks. 3,737,733, Cl. 317-134.000.
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- Linburg, Norman Lee; Bonnette, Richard Arthur; and Deegan, Thomas Edward, to RCA Corporation. Numerical display device having filamentary light sources. 3,737,706, Cl. 313-109.500.
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- Lorinet, Jean-Paul Philippe, to Merlin Gerin, Societe Anonyme. Stand-still-positioning and restarting arrangement for a linear induction motor-driven vehicle. 3,736,881, Cl. 104-148.01m.
- Lorton Laboratories, Ltd.: See—
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- Lukas, Josef; and Illig, Dietmar, to Patent-Treuhand-Gesellschaft fur elektrische Gluhlampen m.b.H. Multiflash device, particularly flash-cube, with mechanical striking mechanism. 3,737,643, Cl. 240-1.300.
- Lukes, Robert M., to General Electric Company. Automatic icemaker including reversible mold cavities. 3,736,767, Cl. 62-349.000.
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- Lunden, Sidney L., to Moore-Iem, Inc. Carriage drive for lumber stacker. 3,737,052, Cl. 214-6.0dk.
- Lunden, Sidney L., to Moore-Iem, Inc. Lumber stacking apparatus. 3,737,053, Cl. 214-6.0dk.
- Lundin, Robert S.: See—
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- Lupert, Rosemarie. Apparatus for proportionally dosing a plurality of liquids. 3,737,073, Cl. 222-134.000.
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- Lyons, John H.: See—
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- Marconi Instruments Limited: See—
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- Wellauer, Edward J., to Falk Corporation, The. Speed reducer recirculating cooling system. 3,736,812, Cl. 74-606.00a.
- Wellman Industries Inc.: See—
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- Wells, Ralph E.: See—
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- Werdehausen, Achim; to Henkel & Cie G.m.b.H. Washing, bleaching and cleansing agents containing poly-(N-alkyldicarboxylic acid)-alkyleneimines. 3,737,385, Cl. 252-102.000.
- Werkzeugmaschinenfabrik Gildemeister & Comp. AG, mesne: See—
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- West, Harold H., to Robbins Company, The. High torque boring machine. 3,736,993, Cl. 173-163.000.
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- Combs, Robert L.: See—
- Meyer, Max F., Jr., Combs, and Wooten. T911,005.
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- Du Pont de Nemours, E. I., and Co.: See—
- Himmelreich, Louis E., Jr. T911,008, a
- Getsinger, John G. Nitrogen solutions and suspensions. T911,008, 6-5-73, Cl. 71-30.
- Henry, James W. Magnetic torque transfer system. T911,002, 6-5-73, Cl. 259-108.
- Himmelreich, Louis E., Jr., to E. I. du Pont de Nemours and Co. Granulation siltter. T911,003, 6-5-73, Cl. 83-675.
- Huber, J. M., Corp.: See—
- Pugliese, Michael. T911,011.
- Imperial Chemical Industries Ltd.: See—
- Taylor, Ian C. T911,007.
- Lewis, Howard M., and F. F. Schrum, Jr. Durable-press textiles of improved stain release. T911,001, 6-5-73, Cl. 8-115.6.
- McKague, James F. Lithographic printing plate. T911,004, 6-5-73, Cl. 96-86.
- Meyer, Max F., Jr., R. L. Combs, and W. C. Wooten, Jr. Poly-alpha-olefin polymers. T911,005, 6-5-73, Cl. 260-878.
- Meyer, Max F., Jr., R. L. Combs, and W. C. Wooten, Jr. Polyethylene graft polymers. T911,006, 6-5-73, Cl. 260-878.
- Perrin, John H., to United States of America, Health, Education and Welfare. Method for increasing the availability of drugs having high serum protein bound characteristics. T911,009, 6-5-73, Cl. 424-317.
- Pugliese, Michael, to J. M. Huber Corp. De-inkable news ink compositions. T911,011, 6-5-73, Cl. 106-32.
- Sakshaug, Eugene C., and E. W. Stetson. Spark gap assembly having arc-erosion resistant electrodes. T911,010, 6-5-73, Cl. 313-325.
- Schrum, Forrest F., Jr.: See—
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- Wooten, Willis C., Jr.: See—
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LIST OF REISSUE PATENTEEES

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- Barnes, Theodore M.: See—
- Soteropoulos, Gust, and Barnes. Re. 27,657.
- Bolduc, Lee R., G. F. Schwoboda, by Medtronic, Inc. Magnetically coupled implantable servomechanism. Re. 27,661, 6-5-73, Cl. 338-12.
- Chapman, Frederick F., and D. Hill, to Ernest E. Runnion. Cutter-head structure. Re. 27,654, 6-5-73, Cl. 144-229.
- Deere and Co.: See—
- Soteropoulos, Gust, and Barnes. Re. 27,657.
- Ellison, Joseph E.: See—
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- Hill, Daniel: See—
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- Medtronic, Inc.: See—
- Bolduc, Lee R., and Schwoboda. Re. 27,661.
- Miller, Lewis S., to Weyerhaeuser Co. Process of curing polymerizable resins having terminal vinyl ester groups using high energy electrons. Re. 27,656, 6-5-73, Cl. 117-93.31.
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- Runnion, Ernest E.: See—
- Chapman, Frederick F., and Hill. Re. 27,654.
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- Soteropoulos, Gust, and T. M. Barnes, by Deere and Co. Bale thrower. Re. 27,657, 6-5-73, Cl. 214-42.
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- Trebnik, Augustine: See—
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- Wolfe, Robert L., and A. Trebnik, to Reliance Electric Co. Method for manufacturing an improved composite gear. Re. 27,659, 6-5-73, Cl. 29-159.2.

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CLASSIFICATION OF PATENTS

ISSUED JUNE 5, 1973

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2	3,736,595	496	3,736,650	677	3,736,719	CLASS 71	3,737,298	77	3,737,298	CLASS 91	3,736,842	7R	3,736,886
2	3,736,595	592	3,736,655	720	3,736,718	94	3,737,299	94	3,737,299	234	3,736,843	8A	3,736,888
111	3,736,597	599	3,736,656	741	3,736,720	390	3,736,845	390	3,736,845	390	3,736,845	8R	3,736,887
CLASS 3	3,736,598	603	3,736,657	22A	3,736,721	8	3,736,782	8	3,736,782	CLASS 92	3,736,844	1	3,736,889
1	3,736,598	624	Re.27,658	124E	3,736,722	57	3,736,783	57	3,736,783	24	3,736,844	7	3,736,890
CLASS 4	3,736,599	631	3,736,658	180	3,736,723	145	3,736,784	145	3,736,784	CLASS 93	3,736,845	1	3,736,891
172.19	3,736,599	4R	3,736,659	29	3,736,724	238	3,736,785	238	3,736,785	82	3,736,846	79R	3,736,891
191	Re.27,655	6.4	3,736,660	32	3,736,725	255	3,736,786	255	3,736,786	1R	3,736,848	203	3,736,892
231	3,736,600	192	3,736,661	73	3,736,726	385	3,736,787	385	3,736,787	1.1	3,736,849	141	3,736,893
CLASS 5	3,736,601	283	3,736,662	101	3,736,727	402	3,736,788	402	3,736,788	CLASS 95	3,736,850	203	3,736,894
9R	3,736,601	17	3,736,663	341	3,736,728	1B	3,736,789	1B	3,736,789	1R	3,736,851	203	3,736,895
176R	3,736,602	169R	3,736,665	10	3,736,729	1E	3,736,791	1E	3,736,791	4.5	3,736,855	1K	3,736,896
317R	3,736,603	174TC	3,736,666	10.9	3,736,732	27R	3,736,792	27R	3,736,792	10CT	3,736,851	120Y	3,736,893
348WB	3,736,604	13.6	3,736,667	14.5	3,736,735	37	3,736,793	37	3,736,793	10CT	3,736,852	5	3,736,897
CLASS 7	3,736,606	63	3,736,668	63	3,736,736	38	3,736,794	38	3,736,794	11.5R	3,736,853	4	3,736,898
14.1R	3,736,606	48	3,736,667	63	3,736,737	102	3,736,795	102	3,736,795	12	3,736,854	70	3,736,899
CLASS 8	3,737,284	218	3,736,670	98	3,736,738	141A	3,736,796	141A	3,736,796	31FM	3,736,854	CLASS 116	3,736,899
183	3,737,284	229	3,736,669	119	3,736,739	178T	3,736,797	178T	3,736,797	1R	3,737,310	70	3,736,900
CLASS 9	3,736,607	208	3,736,737	308	3,736,738	194EM	3,736,798	194EM	3,736,798	CLASS 96	3,737,311	72	3,737,335
2A	3,736,607	9C	3,736,671	13	3,736,739	213	3,736,797	213	3,736,797	1R	3,737,310	75	3,737,336
6	3,736,608	35A	3,736,672	13	3,736,739	3.52	3,736,799	3.52	3,736,799	4	3,737,312	93.31	Re.27,656
310A	3,736,609	44	3,736,673	23BA	3,736,741	89	3,736,801	89	3,736,801	27R	3,737,313	100	3,737,338
342	3,736,610	2R	3,736,674	23D	3,736,740	89.15	3,736,802	89.15	3,736,802	36.3	3,737,314	102L	3,737,339
CLASS 12	3,736,611	141R	3,736,664	109	3,736,743	192	3,736,803	192	3,736,803	56.6	3,737,316	212	3,737,341
54.2	3,736,611	42R	3,736,675	6	3,736,744	230.17C	3,736,804	230.17C	3,736,804	76C	3,737,315	217	3,737,342
142D	3,736,613	142P	3,736,612	13	3,736,752	237	3,736,805	237	3,736,805	100	3,737,318	227	3,737,343
CLASS 13	3,737,553	25	3,737,553	39.02	3,736,745	336	3,736,806	336	3,736,806	115P	3,737,320	217	3,737,343
33	3,737,554	97R	3,736,614	39.36	3,736,746	410	3,736,807	410	3,736,807	115P	3,737,320	217	3,737,343
CLASS 15	3,736,615	104.1C	3,736,615	39.65	3,736,747	469	3,736,808	469	3,736,808	116	3,737,321	217	3,737,343
210R	3,736,616	250.22	3,736,617	39.67	3,736,748	483PB	3,736,809	483PB	3,736,809	40C	3,736,858	2	3,736,901
306A	3,736,618	340	3,736,619	39.74	3,736,749	491	3,736,810	491	3,736,810	CLASS 99	3,737,322	50	3,736,902
CLASS 16	3,736,620	87.4R	3,736,620	226A	3,736,750	573	3,736,811	573	3,736,811	23	3,737,322	218	3,736,903
116	3,736,621	126B	3,736,683	262	3,736,751	606A	3,736,812	606A	3,736,812	31	3,737,323	505	3,736,904
CLASS 17	3,736,622	152	3,736,684	282	3,736,752	740	3,736,813	740	3,736,813	23	3,737,323	218	3,736,903
24	3,736,623	158	3,736,685	489	3,736,753	759	3,736,814	759	3,736,814	35	3,737,324	51	3,736,905
25	3,736,623	6	3,736,686	5	3,736,754	759	3,736,815	759	3,736,815	35	3,737,325	105	3,736,906
80R	3,736,624	16	3,736,687	12	3,736,755	5BA	3,737,301	5BA	3,737,301	134R	3,737,326	2	3,736,907
159R	3,736,625	76	3,736,693	36R	3,736,758	5BC	3,737,300	5BC	3,737,300	175	3,737,327	4D	3,736,908
295	3,736,626	53.64	3,736,693	46.5	3,736,756	10	3,737,302	10	3,737,302	215	3,737,328	390	3,736,909
CLASS 19	3,736,627	72.1	3,736,760	54	3,736,757	68R	3,737,303	68R	3,737,303	331	3,736,859	32EA	3,736,910
277C	3,737,286	CLASS 43	3,736,688	72.1	3,736,760	101R	3,737,306	101R	3,737,306	339	3,736,861	65VA	3,736,911
277R	3,737,285	CLASS 42	3,736,686	6	3,736,755	109	3,737,307	109	3,737,307	343	3,736,862	140MP	3,736,912
281	3,737,287	CLASS 41	3,736,687	12	3,736,754	124	3,737,308	124	3,737,308	353	3,736,862	148P	3,736,913
285	3,737,288	CLASS 40	3,736,688	12	3,736,754	172R	3,737,309	172R	3,737,309	CLASS 100	3,736,863	148P	3,736,913
CLASS 24	3,736,627	43.14	3,736,690	6	3,736,761	3R	3,736,816	3R	3,736,816	45	3,736,863	198DC	3,736,915
23W	3,736,627	44.8	3,736,691	13	3,736,762	3.1C	3,736,817	3.1C	3,736,817	58	3,736,865	198	3,736,916
205.1	3,736,628	77	3,736,689	85	3,736,763	1R	3,736,818	1R	3,736,818	93R	3,736,866	389	3,736,917
248SA	3,736,629	88	3,736,692	89	3,736,764	2.5	3,736,819	2.5	3,736,819	189	3,736,866	CLASS 128	3,736,918
CLASS 29	3,736,631	127	3,736,765	137	3,736,766	4	3,736,820	4	3,736,820	CLASS 101	3,736,867	2.05F	3,736,919
24.5	3,736,631	127	3,736,765	137	3,736,766	126	3,736,821	126	3,736,821	95C	3,736,868	17	3,736,920
25.2	3,736,630	127	3,736,765	137	3,736,766	155	3,736,822	155	3,736,822	153	3,736,869	33	3,736,920
25.35	3,736,632	127	3,736,765	137	3,736,766	165	3,736,823	165	3,736,823	346	3,736,870	56	3,736,921
90R	3,736,633	127	3,736,765	137	3,736,766	167	3,736,824	167	3,736,824	456	3,736,871	66	3,736,922
103A	3,736,634	127	3,736,765	137	3,736,766	174	3,736,825	174	3,736,825	462	3,736,872	56	3,736,923
116AD	3,736,636	127	3,736,765	137	3,736,766	600	3,736,826	600	3,736,826	467	3,736,873	66	3,736,924
149.5B	3,736,635	127	3,736,765	137	3,736,766	661	3,736,827	661	3,736,827	2	3,736,874	76B	3,736,925
155R	3,736,637	127	3,736,765	137	3,736,766	661	3,736,827	661	3,736,827	24HC	3,736,875	133	3,736,926
156.5A	3,736,638	127	3,736,765	137	3,736,766	661	3,736,827	661	3,736,827	30	3,736,876	145.6	3,736,927
156.8	3,736,638	127	3,736,765	137	3,736,766	661	3,736,827	661	3,736,827	95	3,736,877	146.2	3,736,928
157.1R	3,736,640	127	3,736,765	137	3,736,766	661	3,736,827	661	3,736,827	30	3,736,878	152	3,736,929
159.2	Re.27,659	168	3,736,705	15.7	3,736,770	600	3,736,826	600	3,736,826	12	3,736,879	214E	3,736,930
163.5F	3,736,641	28	3,736,706	23.5	3,736,771	661	3,736,827	661	3,736,827	148LM	3,736,881	216	3,736,933
182.7	3,737,289	CLASS 55	3,736,706	23.5	3,736,771	661	3,736,827	661	3,736,827	148MS	3,736,881	218R	3,736,932
204	3,737,290	CLASS 54	3,736,706	12R	3,736,772	661	3,736,827	661	3,736,827	CLASS 105	3,736,882	280R	3,736,934
267	3,736,642	CLASS 53	3,736,721	17A	3,736,773	661	3,736,827	661	3,736,827	377	3,736,883	293	3,736,935
268	3,736,644	CLASS 52	3,736,722	18A	3,736,774	661	3,736,827	661	3,736,827	71	3,737,332	303.1	3,736,936
422	3,736,645	CLASS 51	3,736,723	23	3,736,775	661	3,736,827	661	3,736,827	73.2	3,737,333	305	3,736,938
428	3,736,646	CLASS 50	3,736,724	33	3,737,292	661	3,736,827	661	3,736,827	288B	3,737,333	348B	3,736,939
429	3,736,647	CLASS 49	3,736,725	99A	3,737,293	661	3,736,827	661	3,736,827	28Q	3,737,334	418	3,737,579
450	3,736,648	CLASS 48	3,736,726	159	3,737,294	661	3,736,827	661	3,736,827	CLASS 107	3,737,335	4A	3,736,940
470.1	3,736,649	CLASS 47	3,736,727	273	3,737,297	661	3,736,827	661	3,736,827	CLASS 108	3,737,336	21R	3,736,941
473.1	3,736,650	CLASS 46	3,736,728	453	3,736,781	661	3,736,827	661	3,736,827	CLASS 109	3,737,337	22R	3,736,942
477.1	3,736,651	CLASS 45	3,736,729	456R	3,736,782	661	3,736,827	661	3,736,827	CLASS 110	3,737,338	235R	3,736,943
480	3,736,652	CLASS 44	3,736,730	12R	3,736,772	661	3,736,827	661	3,736,827	CLASS 111	3,737,339	235R	3,736,943
483	3,736,653	CLASS 43	3,736,731	17A	3,736,773	661	3,736,827	661	3,736,827	CLASS 112	3,737,340	235R	3,736,943
486	3,736,654	CLASS 42	3,736,732	23	3,736,775	661	3,736,827	661	3,736,827	CLASS 113	3,737,341	235R	3,736,943
489	3,736,655	CLASS 41	3,736,733	33	3,737,292	661	3,736,827	661	3,736,827	CLASS 114	3,737,342	235R	3,736,943
492	3,736,656	CLASS 40	3,736,734	99A	3,737,293	661	3,736,827	661	3,736,827	CLASS 115	3,737,343	235R	

7	3,736,944	29	3,736,991	38R	3,737,598	153	3,737,077	326.3	3,737,439
9	3,736,945	163	3,736,993	51.14	3,737,592	154	3,737,078	346.1R	3,737,441
88.5	3,736,946	19	3,737,556	61.39	3,737,600	193	3,737,074	397.3	3,737,427
8R	3,736,947	23R	3,737,557	61.45R	3,737,599	68	3,737,079	397.3	3,737,427
95	3,736,948	86	3,737,558	76	3,737,601	70	3,737,080	404.5	3,737,443
120FC	3,737,344	138F	3,737,559	82D	3,737,602	84	3,737,081	453PC	3,737,445
238	3,737,345	158R	3,737,560	153LB	3,737,603	313	3,737,133	453R	3,737,446
102	3,736,949	103	3,736,994	168G	3,737,605	354R	3,737,134	456R	3,737,447
202	3,736,950	330	3,736,995	169PB	3,737,606	361R	3,737,135	464	3,737,448
217	3,736,951	392	3,736,996	172A	3,737,607	412	3,737,136	465D	3,737,449
355.28	3,736,952	19R	3,737,372	CLASS 203	3,737,378	441	3,737,137	468H	3,737,450
430	3,736,953	37	3,737,373	CLASS 204	3,737,379	469	3,737,138	469	3,737,451
525	3,736,954	145	3,736,997	CLASS 205	3,737,380	501.17	3,737,139	486R	3,737,452
561	3,736,955	187	3,736,998	CLASS 206	3,737,381	518R	3,737,140	501.17	3,737,453
582	3,736,956	208	3,736,999	CLASS 207	3,737,382	520	3,737,141	518R	3,737,454
604	3,736,957	5.2	3,737,574	CLASS 208	3,737,383	520	3,737,142	520	3,737,455
625.17	3,736,958	5.4R	3,737,575	CLASS 209	3,737,384	543P	3,737,143	543P	3,737,456
625.6	3,736,959	5.4R	3,737,576	CLASS 210	3,737,385	545R	3,737,144	545R	3,737,457
38	3,736,961	5.8	3,737,577	CLASS 211	3,737,386	577	3,737,145	577	3,737,458
85	3,736,962	5.8	3,737,578	CLASS 212	3,737,387	583EE	3,737,146	583EE	3,737,459
122H	3,736,963	6.5	3,737,579	CLASS 213	3,737,388	583M	3,737,147	583M	3,737,460
122R	3,736,964	6.6A	3,737,580	CLASS 214	3,737,389	583P	3,737,148	583P	3,737,461
302	3,736,965	7.1	3,737,581	CLASS 215	3,737,390	587	3,737,149	587	3,737,462
392	3,736,966	7.2	3,737,582	CLASS 216	3,737,391	615.5	3,737,150	615.5	3,737,463
172	3,736,967	7.3R	3,737,583	CLASS 217	3,737,392	619A	3,737,151	619A	3,737,464
229	3,736,968	7.5D	3,737,584	CLASS 218	3,737,393	621R	3,737,152	621R	3,737,465
312	3,736,969	7.6	3,737,585	CLASS 219	3,737,394	631.5	3,737,153	631.5	3,737,466
1.5	3,737,346	23A	3,737,586	CLASS 220	3,737,395	648C	3,737,154	648C	3,737,467
175	3,737,347	67	3,737,587	CLASS 221	3,737,396	650R	3,737,155	650R	3,737,468
2	3,737,348	100.2C	3,737,588	CLASS 222	3,737,397	653	3,737,156	653	3,737,469
17	3,737,350	100.3A	3,737,589	CLASS 223	3,737,398	653.3	3,737,157	653.3	3,737,470
89	3,737,349	100.3A	3,737,590	CLASS 224	3,737,399	658F	3,737,158	658F	3,737,471
41.73	3,736,969	100.3A	3,737,591	CLASS 225	3,737,400	680E	3,737,159	680E	3,737,472
226	3,736,970	100.3A	3,737,592	CLASS 226	3,737,401	683.15D	3,737,160	683.15D	3,737,473
353	3,736,971	100.3A	3,737,593	CLASS 227	3,737,402	824R	3,737,161	824R	3,737,474
354	3,736,972	100.3A	3,737,594	CLASS 228	3,737,403	864	3,737,162	864	3,737,475
362R	3,736,973	100.3A	3,737,595	CLASS 229	3,737,404	865	3,737,163	865	3,737,476
62.2	3,737,351	100.3A	3,737,596	CLASS 230	3,737,405	876B	3,737,164	876B	3,737,477
181	3,737,352	100.3A	3,737,597	CLASS 231	3,737,406	878R	3,737,165	878R	3,737,478
190	3,737,353	100.3A	3,737,598	CLASS 232	3,737,407	880B	3,737,166	880B	3,737,479
229	3,737,354	100.3A	3,737,599	CLASS 233	3,737,408	930	3,737,167	930	3,737,480
293	3,737,355	100.3A	3,737,600	CLASS 234	3,737,409	933	3,737,168	933	3,737,481
402	3,737,356	100.3A	3,737,601	CLASS 235	3,737,410	933	3,737,169	933	3,737,482
495	3,737,357	100.3A	3,737,602	CLASS 236	3,737,411	933	3,737,170	933	3,737,483
502	3,737,358	100.3A	3,737,603	CLASS 237	3,737,412	933	3,737,171	933	3,737,484
522	3,737,359	100.3A	3,737,604	CLASS 238	3,737,413	933	3,737,172	933	3,737,485
577	3,737,360	100.3A	3,737,605	CLASS 239	3,737,414	933	3,737,173	933	3,737,486
580	3,737,361	100.3A	3,737,606	CLASS 240	3,737,415	933	3,737,174	933	3,737,487
584	3,737,362	100.3A	3,737,607	CLASS 241	3,737,416	933	3,737,175	933	3,737,488
584	3,737,363	100.3A	3,737,608	CLASS 242	3,737,417	933	3,737,176	933	3,737,489
1.1	3,736,975	100.3A	3,737,609	CLASS 243	3,737,418	933	3,737,177	933	3,737,490
70	3,736,976	100.3A	3,737,610	CLASS 244	3,737,419	933	3,737,178	933	3,737,491
36	3,737,364	100.3A	3,737,611	CLASS 245	3,737,420	933	3,737,179	933	3,737,492
41	3,737,365	100.3A	3,737,612	CLASS 246	3,737,421	933	3,737,180	933	3,737,493
48	3,737,366	100.3A	3,737,613	CLASS 247	3,737,422	933	3,737,181	933	3,737,494
109	3,737,367	100.3A	3,737,614	CLASS 248	3,737,423	933	3,737,182	933	3,737,495
123	3,737,368	100.3A	3,737,615	CLASS 249	3,737,424	933	3,737,183	933	3,737,496
95	3,737,369	100.3A	3,737,616	CLASS 250	3,737,425	933	3,737,184	933	3,737,497
175	3,737,370	100.3A	3,737,617	CLASS 251	3,737,426	933	3,737,185	933	3,737,498
181B	3,737,371	100.3A	3,737,618	CLASS 252	3,737,427	933	3,737,186	933	3,737,499
14	3,736,977	100.3A	3,737,619	CLASS 253	3,737,428	933	3,737,187	933	3,737,500
187	3,736,978	100.3A	3,737,620	CLASS 254	3,737,429	933	3,737,188	933	3,737,501
281	3,736,979	100.3A	3,737,621	CLASS 255	3,737,430	933	3,737,189	933	3,737,502
283	3,736,980	100.3A	3,737,622	CLASS 256	3,737,431	933	3,737,190	933	3,737,503
2	3,736,981	100.3A	3,737,623	CLASS 257	3,737,432	933	3,737,191	933	3,737,504
55	3,736,982	100.3A	3,737,624	CLASS 258	3,737,433	933	3,737,192	933	3,737,505
208	3,736,983	100.3A	3,737,625	CLASS 259	3,737,434	933	3,737,193	933	3,737,506
313	3,736,984	100.3A	3,737,626	CLASS 260	3,737,435	933	3,737,194	933	3,737,507
31P	3,736,985	100.3A	3,737,627	CLASS 261	3,737,436	933	3,737,195	933	3,737,508
31R	3,736,986	100.3A	3,737,628	CLASS 262	3,737,437	933	3,737,196	933	3,737,509
4.5	3,736,987	100.3A	3,737,629	CLASS 263	3,737,438	933	3,737,197	933	3,737,510
7	3,736,988	100.3A	3,737,630	CLASS 264	3,737,439	933	3,737,198	933	3,737,511
131	3,736,989	100.3A	3,737,631	CLASS 265	3,737,440	933	3,737,199	933	3,737,512
759	3,736,990	100.3A	3,737,632	CLASS 266	3,737,441	933	3,737,200	933	3,737,513
388A	3,736,991	100.3A	3,737,633	CLASS 267	3,737,442	933	3,737,201	933	3,737,514
388B	3,736,992	100.3A	3,737,634	CLASS 268	3,737,443	933	3,737,202	933	3,737,515
388C	3,736,993	100.3A	3,737,635	CLASS 269	3,737,444	933	3,737,203	933	3,737,516
388D	3,736,994	100.3A	3,737,636	CLASS 270	3,737,445	933	3,737,204	933	3,737,517
388E	3,736,995	100.3A	3,737,637	CLASS 271	3,737,446	933	3,737,205	933	3,737,518
388F	3,736,996	100.3A	3,737,638	CLASS 272	3,737,447	933	3,737,206	933	3,737,519
388G	3,736,997	100.3A	3,737,639	CLASS 273	3,737,448	933	3,737,207	933	3,737,520
388H	3,736,998	100.3A	3,737,640	CLASS 274	3,737,449	933	3,737,208	933	3,737,521
388I	3,736,999	100.3A	3,737,641	CLASS 275	3,737,450	933	3,737,209	933	3,737,522
388J	3,737,000	100.3A	3,737,642	CLASS 276	3,737,451	933	3,737,210	933	3,737,523
388K	3,737,001	100.3A	3,737,643	CLASS 277	3,737,452	933	3,737,211	933	3,737,524
388L	3,737,002	100.3A	3,737,644	CLASS 278	3,737,453	933	3,737,212	933	3,737,525
388M	3,737,003	100.3A	3,737,645	CLASS 279	3,737,454	933	3,737,213	933	3,737,526
388N	3,737,004	100.3A	3,737,646	CLASS 280	3,737,455	933	3,737,214	933	3,737,527
388O	3,737,005	100.3A	3,737,647	CLASS 281	3,737,456	933	3,737,215	933	3,737,528
388P	3,737,006	100.3A	3,737,648	CLASS 282	3,737,457	933	3,737,216	933	3,737,529
388Q	3,737,007	100.3A	3,737,649	CLASS 283	3,737,458	933	3,737,217	933	3,737,530
388R	3,737,008	100.3A	3,737,650	CLASS 284	3,737,459	933	3,737,218	933	3,737,531
388S	3,737,009	100.3A	3,737,651	CLASS 285	3,737,460	933	3,737,219	933	3,737,532
388T	3,737,010	100.3A	3,737,652	CLASS 286	3,737,461	933	3,737,220	933	3,737,533
388U	3,737,011	100.3A	3,737,653	CLASS 287	3,737,462	933	3,737,221	933	3,737,534
388V	3,737,012	100.3A	3,737,654	CLASS 288	3,737,463	933	3,737,222	933	3,737,535
388W	3,737,013	100.3A	3,737,655	CLASS 289	3,737,464	933	3,737,223	933	3,737,536
388X	3,737,014	100.3A	3,737,656	CLASS 290	3,737,465	933	3,737,224	933	3,737,537
388Y	3,737,015	100.3A	3,737,657	CLASS 291	3,737,466	933	3,737,225	933	3,737,538
388Z	3,737,016	100.3A	3,737,658	CLASS 292	3,737,467	933	3,737,226	933	3,737,539
388AA	3,737,017	100.3A	3,737,659	CLASS 293	3,737,468	933	3,737,227	933	3,737,540
388AB	3,737,018	100.3A	3,737,660	CLASS 294	3,73				

CLASSIFICATION OF PLANTS

P. —	20	3,351	P. —	41	3,350	P. —	57	3,352	P. —	79	3,353	P. —	80	3,354	
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1 : 3,736,661	3,736,958	3,737,621	3,736,796	3,736,663	3,737,359
3,737,066	3,736,996	3,737,634	3,736,945	3,736,664	3,737,422
3,737,117	3,737,005	3,737,639	3,737,017	3,736,675	3,737,426
3,737,237	3,737,010	3,737,649	3,737,249	3,736,678	3,737,430
3,737,348	3,737,013	3,737,666	3,737,250	3,736,680	3,737,435
3,737,558	3,737,022	3,737,674	3,737,361	3,736,690	3,737,465
3,736,860	3,737,031	3,737,675	3,737,418	3,736,697	3,737,468
3,736,990	3,737,033	3,737,676	3,737,440	3,736,703	3,737,487
3,737,009	3,737,038	3,737,679	3,737,456	3,736,727	3,737,493
3,737,281	3,737,055	3,737,687	3,737,485	3,736,731	3,737,511
3,737,496	3,737,057	3,737,711	3,737,494	3,736,732	3,737,517
3,737,704	3,737,059	3,737,722	3,737,551	3,736,736	3,737,526
3,737,773	3,737,077	3,737,729	3,737,624	3,736,787	3,737,549
3,737,800	3,737,079	3,737,742	3,737,650	3,736,800	3,737,555
3,737,835	3,737,087	3,737,762	3,737,690	3,736,814	3,737,556
3,736,600	3,737,103	3,737,766	3,737,746	3,736,846	3,737,562
Re. 27,660	3,737,120	3,737,771	3,737,765	3,736,917	3,737,565
3,736,603	3,737,121	3,737,776	3,737,870	3,736,939	3,737,568
3,736,604	3,737,133	3,737,784	10 : 3,737,123	3,736,949	3,737,572
3,736,619	3,737,145	3,737,788	3,737,124	3,736,961	3,737,573
3,736,623	3,737,161	3,737,789	3,737,298	3,736,986	3,737,586
3,736,650	3,737,181	3,737,792	3,737,391	3,736,987	3,737,594
3,736,672	3,737,184	3,737,801	3,737,516	3,736,988	3,737,671
3,736,676	3,737,187	3,737,802	3,737,520	3,736,989	3,737,672
3,736,687	3,737,202	3,737,807	11 : 3,736,708	3,737,003	3,737,699
3,736,688	3,737,217	3,737,814	12 : 3,736,651	3,737,019	3,737,727
3,736,689	3,737,231	3,737,834	3,736,665	3,737,025	3,737,749
3,736,691	3,737,235	3,737,838	3,736,855	3,737,032	3,737,772
3,736,696	3,737,247	3,737,849	3,736,922	3,737,056	3,737,779
3,736,698	3,737,261	3,737,853	3,736,931	3,737,065	3,737,785
3,736,717	3,737,280	3,737,861	3,736,956	3,737,069	3,737,786
3,736,745	3,737,325	3,737,864	3,736,992	3,737,075	3,737,793
3,736,749	3,737,327	3,737,865	3,737,137	3,737,086	3,737,826
3,736,764	3,737,347	3,737,867	3,737,186	3,737,099	3,737,830
3,736,771	3,737,363	3,737,871	3,737,248	3,737,100	3,737,850
3,736,792	3,737,384	3,737,872	3,737,260	3,737,107	3,737,873
3,736,793	3,737,407	3,737,880	3,737,287	3,737,127	3,737,890
3,736,810	3,737,442	3,737,883	3,737,453	3,737,129	Re. 27,659
3,736,831	3,737,450	3,737,896	3,737,601	3,737,131	3,736,644
3,736,865	3,737,452	3,737,900	3,737,820	3,737,140	3,736,719
3,736,874	3,737,459	3,737,904	3,737,846	3,737,157	3,736,766
3,736,880	3,737,500	3,737,908	3,737,893	3,737,165	3,736,870
3,736,905	3,737,514	8 : 3,737,587	3,737,909	3,737,185	3,736,876
3,736,909	3,737,528	3,737,637	3,737,912	3,737,206	3,736,883
3,736,924	3,737,530	3,737,721	13 : 3,736,682	3,737,219	3,736,952
3,736,925	3,737,532	3,737,751	3,736,825	3,737,222	3,736,971
3,736,926	3,737,571	9 : 3,736,638	3,737,332	3,737,232	3,737,000
3,736,930	3,737,580	3,736,643	3,737,858	3,737,258	3,737,007
3,736,936	3,737,582	3,736,646	16 : 3,737,195	3,737,268	3,737,061
3,736,937	3,737,599	3,736,657	17 : Re. 27,657	3,737,271	3,737,094
3,736,955	3,737,605	3,736,723	3,736,648	3,737,339	3,737,102

3,737,147	3,736,802	3,736,728	3,737,259	3,737,405	44 : 3,736,620
3,737,204	3,736,804	3,736,757	3,737,282	3,737,410	3,736,761
3,737,226	3,736,825	3,736,778	3,737,292	3,737,421	3,737,752
3,737,377	3,736,834	3,736,780	3,737,293	3,737,431	3,737,841
3,737,382	3,736,844	3,736,783	3,737,294	3,737,458	3,736,963
3,737,406	3,736,864	3,736,824	3,737,300	3,737,472	3,737,262
3,737,408	3,736,866	3,736,837	3,737,310	3,737,501	3,736,734
3,737,436	3,736,879	3,736,871	3,737,311	3,737,521	3,736,755
3,737,474	3,736,915	3,736,884	3,737,312	3,737,522	3,737,279
3,737,512	3,736,943	3,736,900	3,737,313	3,737,593	3,737,309
3,737,597	3,736,953	3,736,913	3,737,315	3,737,610	3,737,395
3,737,651	3,736,954	3,736,919	3,737,316	3,737,611	3,737,424
3,737,695	3,737,004	3,736,959	3,737,317	3,737,613	3,737,626
3,737,823	3,737,014	3,736,999	3,737,319	3,737,618	3,737,794
3,737,825	3,737,036	3,737,020	3,737,320	3,737,619	3,736,607
19 : 3,736,729	3,737,039	3,737,026	3,737,360	3,737,629	3,736,692
3,736,730	3,737,105	3,737,030	3,737,364	3,737,646	3,736,756
3,736,775	3,737,106	3,737,042	3,737,460	3,737,663	3,736,760
3,736,813	3,737,134	3,737,072	3,737,461	3,737,717	3,736,830
3,736,975	3,737,146	3,737,119	3,737,478	3,737,725	3,736,849
3,737,627	3,737,158	3,737,122	3,737,479	3,737,731	3,736,888
20 : 3,736,706	3,737,177	3,737,135	3,737,547	3,737,824	3,736,951
3,736,707	3,737,193	3,737,148	3,737,552	3,737,889	3,736,982
3,736,733	3,737,196	3,737,229	3,737,569	3,737,910	3,736,983
3,737,299	3,737,198	3,737,239	3,737,570	3,736,725	3,737,415
3,737,535	3,737,207	3,737,243	3,737,591	3,737,081	3,737,419
21 : 3,736,765	3,737,224	3,737,274	3,737,623	3,737,273	3,737,446
3,736,767	3,737,256	3,737,284	3,737,648	3,737,411	3,737,470
3,736,802	3,737,257	3,737,288	3,737,723	3,737,415	3,737,473
3,736,916	3,737,270	3,737,333	3,737,738	3,737,419	3,737,482
3,736,923	3,737,326	3,737,335	3,737,739	3,737,446	3,737,484
3,736,950	3,737,329	3,737,345	3,737,743	3,737,470	3,737,808
3,737,595	3,737,350	3,737,370	3,737,744	3,737,473	3,736,948
3,737,630	3,737,387	3,737,374	3,737,747	3,737,482	3,736,967
22 : 3,737,163	3,737,397	3,737,396	3,737,812	3,737,484	3,736,968
3,737,189	3,737,401	3,737,402	3,737,815	3,737,808	3,737,049
3,737,513	3,737,425	3,737,451	3,737,832	3,737,414	3,737,164
3,736,630	3,737,455	3,737,455	3,737,862	3,737,463	3,737,245
3,736,621	3,737,462	3,737,462	3,737,868	3,737,486	3,737,289
3,736,863	3,737,499	3,737,529	3,737,878	3,737,486	3,736,599
3,736,908	3,737,527	3,737,545	3,737,881	3,737,576	3,736,610
3,737,118	3,737,533	3,737,546	3,737,885	3,737,667	3,736,669
3,737,448	3,737,550	3,737,644	3,737,895	3,737,845	3,736,671
3,737,480	3,737,603	3,737,655	3,737,895	3,737,857	3,736,710
3,737,686	3,737,612	3,737,682	3,737,901	3,737,913	3,736,714
3,737,689	3,737,631	3,737,685	3,737,915	3,736,677	3,736,763
3,737,694	3,737,652	3,737,706	3,736,606	3,736,720	3,736,779
3,737,698	3,737,691	3,737,713	3,736,625	3,736,832	3,736,790
3,737,781	3,737,698	3,737,719	3,736,695	3,736,877	3,736,797
25 : Re.27,658	3,737,708	3,737,715	3,737,708	3,736,976	3,736,822
3,736,632	3,737,718	3,737,741	3,737,701	3,736,976	3,736,869
3,736,704	3,737,748	3,737,754	3,737,765	3,737,068	3,736,882
3,736,709	3,737,750	3,737,755	3,737,779	3,737,381	3,736,885
3,736,808	3,737,837	3,737,756	3,737,785	3,737,803	3,737,392
3,736,829	3,737,877	3,737,759	3,737,791	3,737,863	3,737,505
3,736,868	Re.27,661	3,737,767	3,737,799	3,736,740	3,737,508
3,736,892	3,736,609	3,737,831	3,737,800	3,736,786	3,737,787
3,736,904	3,736,612	3,737,856	3,737,815	3,736,839	3,737,790
3,736,929	3,736,642	3,737,898	3,737,827	3,736,885	3,737,810
3,736,934	3,736,667	3,736,658	3,736,602	3,737,892	3,737,851
3,736,935	3,736,715	3,737,211	3,736,605	3,737,044	3,737,375
3,736,964	3,736,777	3,737,670	3,736,622	3,737,080	3,737,656
3,737,067	3,736,836	3,737,688	3,736,634	3,737,114	3,736,652
3,737,076	3,736,859	3,736,597	3,736,645	3,737,136	3,736,798
3,737,082	3,736,899	3,736,649	3,736,653	3,737,141	3,736,816
3,737,084	3,736,981	3,736,673	3,736,705	3,737,153	3,736,970
3,737,169	3,737,058	3,736,684	3,736,746	3,737,178	3,736,993
3,737,175	3,737,083	3,736,694	3,736,768	3,737,199	3,737,052
3,737,218	3,737,097	3,736,699	3,736,826	3,737,208	3,737,053
3,737,241	3,737,162	3,736,742	3,736,842	3,737,251	3,737,244
3,737,358	3,737,179	3,736,744	3,736,867	3,737,269	3,737,628
3,737,367	3,737,241	3,736,747	3,736,896	3,737,283	3,737,632
3,737,368	3,737,259	3,736,755	3,736,938	3,737,296	3,737,661
3,737,404	3,737,358	3,737,756	3,736,960	3,737,297	3,736,713
3,737,409	3,737,367	3,737,759	3,736,985	3,737,301	3,737,006
3,737,498	3,736,829	3,737,767	3,737,799	3,737,303	3,737,285
3,737,588	3,736,868	3,737,831	3,737,800	3,737,304	3,737,388
3,737,625	3,736,892	3,737,856	3,737,815	3,737,305	3,737,389
3,737,641	3,736,904	3,737,898	3,736,927	3,737,306	3,737,390
3,737,642	3,736,929	3,736,658	3,736,933	3,737,322	3,736,655
3,737,645	3,736,934	3,737,211	3,736,978	3,737,342	3,736,674
3,737,653	3,736,935	3,737,670	3,736,997	3,737,343	3,736,683
3,737,710	3,736,964	3,737,688	3,737,012	3,737,346	3,736,781
3,737,712	3,736,967	3,736,597	3,737,029	3,737,375	3,736,799
3,737,714	3,736,989	3,736,649	3,737,044	3,737,388	3,736,812
3,737,728	3,737,076	3,736,673	3,737,080	3,737,389	3,736,840
3,737,757	3,737,082	3,736,684	3,737,114	3,737,390	3,736,843
3,737,818	3,737,084	3,736,694	3,737,136	3,737,632	3,736,847
3,737,833	3,737,169	3,737,097	3,737,141	3,737,661	3,736,901
3,737,860	3,737,175	3,737,162	3,737,153	3,737,673	3,736,903
3,737,866	3,737,218	3,737,241	3,737,178	3,737,693	3,736,906
3,737,874	3,737,241	3,737,358	3,737,199	3,737,698	3,737,043
3,737,884	3,737,259	3,737,367	3,737,208	3,737,705	3,737,090
3,737,899	3,737,358	3,737,375	3,737,251	3,737,728	3,737,095
3,737,902	3,737,367	3,737,385	3,737,269	3,737,745	3,737,197
3,737,905	3,737,404	3,736,711	3,737,283	3,737,763	3,737,328
3,736,608	3,737,409	3,736,614	3,737,296	3,737,797	3,737,376
3,736,633	3,737,498	3,736,659	3,737,301	3,737,798	
3,736,640	3,737,588	3,736,809	3,737,303	3,737,806	
3,736,641	3,737,625	3,736,835	3,737,304	3,737,840	
3,736,702	3,737,641	3,736,852	3,737,305	3,737,842	
3,736,718	3,737,642	3,736,854	3,737,306	3,737,879	
3,736,801	3,737,645	3,736,872	3,737,307	3,737,907	
	3,737,653	3,736,873	3,737,308	3,736,833	
	3,737,710	3,736,874	3,737,309	3,737,592	
	3,737,712	3,736,884	3,737,310		
	3,737,714	3,736,894	3,737,311		
	3,737,728	3,736,904	3,737,312		
	3,737,757	3,736,914	3,737,313		
	3,737,818	3,736,924	3,737,314		
	3,737,833	3,736,934	3,737,315		
	3,737,860	3,736,944	3,737,316		
	3,737,866	3,736,954	3,737,317		
	3,737,874	3,736,964	3,737,318		
	3,737,884	3,736,974	3,737,319		
	3,737,899	3,736,984	3,737,320		
	3,737,902	3,736,994	3,737,321		
	3,737,905	3,737,004	3,737,322		
	3,736,608	3,737,014	3,737,323		
	3,736,633	3,737,024	3,737,324		
	3,736,640	3,737,034	3,737,325		
	3,736,641	3,737,044	3,737,326		
	3,736,702	3,737,054	3,737,327		
	3,736,718	3,737,064	3,737,328		
	3,736,801	3,737,074	3,737,329		

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1 : 227,112	12 : 227,064	18 : 227,191	29 : 227,092	227,134	227,091
6 : 227,049	227,066	227,055	227,098	227,138	227,102
227,073	227,127	227,056	34 : 227,081	227,141	227,106
227,074	227,183	227,178	227,104	227,149	227,130
227,100	227,174	227,192	227,107	227,152	227,148
227,114	227,058	20 : 227,068	227,184	227,154	227,157
227,123	227,061	21 : 227,193	36 : 227,048	227,168	227,165
227,124	227,076	25 : 227,072	227,051	39 : 227,046	44 : 227,161
227,126	227,083	227,080	227,059	227,047	227,162
227,129	227,094	227,085	227,063	227,095	227,180
227,136	227,099	227,088	227,070	227,105	46 : 227,188
227,144	227,108	227,135	227,077	227,115	48 : 227,067
227,145	227,132	227,163	227,079	227,150	51 : 227,097
227,147	227,137	227,164	227,082	227,166	227,113
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227,156	227,144	227,093	227,122	227,111	227,103
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PATENT OFFICE NOTICES

Removal from Register

Pursuant to the provisions of Rule 347 of the Rules of Practice of the United States Patent Office in Patent Cases, a letter was directed on Mar. 15, 1973, to Mr. Mel Sirkin, 1224 17th St. NW., Washington, D.C., 20036, the last post office address furnished by him to the Committee on Enrollment. No reply was received within the one month period therein set. Accordingly, his name is being removed from the Register of Attorneys and Agents.

LUTRELLE F. PARKER,
Chairman, Committee on Enrollment.
May 15, 1973.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,750,055, J. D. Huffines, REFUSE COMPRESSOR MECHANISM FOR VEHICLES, filed Oct. 31, 1972, D.C., E.D. Mo. (St. Louis), Doc. 72C682(A), *James Donle Huffines v. R-V Industries*. Same, filed Nov. 6, 1972, D.C., N.D. Ohio (Cleveland), Doc. C72-1206, *James Donle Huffines v. Peabody Galtion, Inc.*, doing business as E-Z Pack.

2,828,449, I. L. Kerper, SAFETY FEATURE FOR ELECTRIC WATERTIGHT DOOR SYSTEMS, filed Nov. 17, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72-2754-IH, *Irving L. Kerper v. Pacific Far East Line, Inc.*

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3,225,677, R. M. Steele, JUNCTION CHAMBER FOR EQUALIZING PRESSURE OF CONDITIONED-AIR SUPPLY INCORPORATING RETURNED-AIR DUCT, filed Nov. 21, 1972, D.C., N.D. Calif. (San Francisco), Doc. 72-2128, *Richard M. Steele v. Carrier Corporation*.

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3,371,828, N. E. Elsas, TURNING APPARATUS, filed Dec. 1, 1972, D.C., S.D.N.Y., Doc. 72-C-5104, *Nemo Industries, Inc. v. Pulver Machine Corporation*.

3,376,752, E. E. Malone, GRAVEL SAMPLING MACHINE, filed Nov. 16, 1970, D.C. Idaho (Boise), Doc. C-1-70-113, *Eugene E. Malone v. Twin Falls Construction Co. et al.* Order dismissing complaint on Nov. 21, 1972.

3,421,171, T. Tsuruzawa, BRUSH FOR CLEANING, filed May 24, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72-

1160-IH, *K-Tel International, Inc. v. Sav-On-Drugs, Inc.*, and *S. C. Chan, doing business as Sing Lee Plastic & Metal Manufacturing*. Filed judgment by defendant; order enjoining defendant from infringing plaintiff's U.S. Patent No. 3,421,171 and U.S. Trademark Registration No. 890,887. Court retains jurisdiction, Nov. 27, 1972.

3,426,580, F. J. Callahan, METHOD OF TESTING JOINTS (N PRESSURIZED FLUID LINE), filed Jan. 11, 1972, D.C. Minn. (Minneapolis), Doc. 4-72-C-20, *Nupro Co. v. Guy Speaker Company, Inc.*, doing business as Fluid Products Co., also known as Guy Speaker Process Accessories Co., and *Guy Speaker*. Consent judgment against defendant and in favor of plaintiff, enjoining defendant from infringing said patent, filed Nov. 30, 1972.

3,475,681, S. Hall, Jr., SAFETY MEDICINE BOTTLE CLOSURE, filed Nov. 29, 1972, D.C., W.D. Okla. (Oklahoma City), Doc. 72-825-C, *Plastic Container Corporation v. Continental Plastics of Oklahoma, Inc.*

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3,660,797, J. Firestone, TELEPHONE CONNECTOR, filed Nov. 29, 1972, D.C., S.D.N.Y., Doc. 72-C-5070, *Trox-Tech, Inc. v. Sapton Products, Inc.* Case transfer from Central District of California, Nov. 29, 1972.

3,675,247, J. O. Ferrell, METHOD FOR FABRICATING PANTY HOSE, filed Oct. 17, 1972, D.C., M.D.N.C. (Greensboro), Doc. C-302-G-72, *Tights, Inc. v. Kayser Roth Corporation*.

D. 207,360, J. Jensen, FIRE EXTINGUISHER, filed May 22, 1972, D.C., N.D. Ohio (Cleveland), Doc. C-72-523, *Modulus Corporation v. Jack E. Mosow, doing business as JEM Associates*. Consent judgment; plaintiff owner of said patent; defendant enjoined, Dec. 5, 1972.

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JUNE 12, 1973

U. S. PATENT OFFICE

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3,293,571	3,684,143	3,702,847	3,710,495
3,328,309	3,684,821	3,703,371	3,710,809
3,412,113	3,684,903	3,703,374	3,711,184
3,437,729	3,684,983	3,703,522	3,711,205
3,467,555	3,685,564	3,703,541	3,711,250
3,522,225	3,685,963	3,703,653	3,711,434
3,559,451	3,686,412	3,704,124	3,711,436
3,577,041	3,687,223	3,704,649	3,711,440
3,577,354	3,687,828	3,704,733	3,711,563
3,580,756	3,688,558	3,705,170	3,711,793
3,598,831	3,689,448	3,705,815	3,711,805
3,622,862	3,690,066	3,705,917	3,712,026
3,623,138	3,690,707	3,706,161	3,712,235
3,632,013	3,691,212	3,706,578	3,712,475
3,634,559	3,692,118	3,706,674	3,712,693
3,637,578	3,692,798	3,706,741	3,712,727
3,640,267	3,693,017	3,708,796	3,712,840
3,645,857	3,693,030	3,707,103	3,713,315
3,647,441	3,693,875	3,707,169	3,713,359
3,652,373	3,694,151	3,707,378	3,713,563
3,658,577	3,694,562	3,707,678	3,713,630
3,660,829	3,696,255	3,707,803	3,713,631
3,666,628	3,697,458	3,707,877	3,713,753
3,670,127	3,697,597	3,707,992	3,714,000
3,670,175	3,698,068	3,708,210	3,714,180
3,670,213	3,698,829	3,708,298	3,714,307
3,671,160	3,699,165	3,708,329	3,714,365
3,671,282	3,699,355	3,708,490	3,714,418
3,672,728	3,699,405	3,708,793	3,714,472
3,672,817	3,700,049	3,708,872	3,714,512
3,678,515	3,700,144	3,708,926	3,714,556
3,678,899	3,700,751	3,709,073	3,714,783
3,680,411	3,700,801	3,709,162	3,714,859
3,681,151	3,700,814	3,709,367	3,714,793
3,682,712	3,701,855	3,709,472	3,715,651
3,683,080	3,701,935	3,709,651	
3,683,166	3,701,941	3,709,716	
3,683,212	3,702,417	3,709,727	
3,683,612	3,702,555	3,710,276	

National Technical Information Service

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DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Information Service.

U.S. ATOMIC ENERGY COMMISSION
Assistant General Counsel for Patents,
Washington, D.C. 20545

Patent 3,677,743. Mixing and Settling Separation Process for Uranium or Plutonium. Filed June 3, 1969. Patented July 18, 1972. Not available NTIS.
Patent 3,677,891. Antijam Sliding Seal Structure. Filed June 16, 1971. Patented July 18, 1972. Not available NTIS.
Patent 3,687,804. Compact and Safe Nuclear Reactor. Filed Oct. 27, 1971. Patented Aug. 29, 1972. Not available NTIS.
Patent 3,688,305. Pulse Height Analyzer With Digital Readout. Filed Nov. 18, 1970. Patented Aug. 29, 1972. Not available NTIS.
Patent 3,691,084. Base-Borate Reactor Safety Spray Solution for Radiolytic Hydrogen Suppression. Filed Apr. 19, 1971. Patented Sept. 12, 1972. Not available NTIS.

Patent 3,692,626. Apparatus for Forming and Containing Plasma. Filed Mar. 21, 1969. Patented Sept. 19, 1972. Not available NTIS.

Patent 3,694,274. High-Transition-Temperature Superconductors in the Nb-Al-Ge System. Filed Apr. 26, 1971. Patented Sept. 26, 1972. Not available NTIS.

Patent 3,694,369. Selective Ion Exchange for the Isolation of Certain Alkaline Earths. Filed May 11, 1971. Patented Sept. 26, 1972. Not available NTIS.

Patent 3,657,801. Methods of Joining Certain Metals. Filed Apr. 22, 1970. Patented Apr. 25, 1972. Not available NTIS.

Patent 3,649,827. Helical Three-Stage Isotope Separation. Filed Aug. 13, 1970. Patented Mar. 14, 1972. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Assistant General Counsel for Patent Matters, NASA—
Code GP-2, Washington, D.C. 20546

Patent application 333,912. Automatic Frequency Control for FM Transmitter. Filed Feb. 20, 1973. PC \$3/MF \$0.95.

Patent application 329,237. Integrated, Single Channel Type FET Gyrator. Filed Feb. 2, 1973. PC \$3/MF \$0.95.

Patent application 318,357. Method and Apparatus for Checking Fire Detectors. Filed Dec. 26, 1972. PC \$3/MF \$0.95.

Patent application 337,816. A Leak Detector. Filed Mar. 5, 1973. PC \$3/MF \$0.95.

Patent application 337,487. A Device for Configuring Multiple Leads. Filed Mar. 2, 1973. PC \$3/MF \$0.95.

Patent 3,708,674. Combustion Detector. Patented Jan. 2, 1973. Not available NTIS.

[FR Doc. 73-10101; Filed 5-22-73; 8:45 am]

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DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Information Service.

U.S. ATOMIC ENERGY COMMISSION
Assistant General Counsel for Patents,
Washington, D.C. 20545

Patent 3,677,889. Magnetic Compression Controlled Thermo-nuclear Reactor. Filed July 8, 1970. Patented July 18, 1972. Not available NTIS.

Patent 3,667,719. Method for Reprocessing Molten Fluoride Salt Reactor Fuels. Filed Mar. 9, 1971. Patented July 18, 1972. Not available NTIS.

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Patent 3,678,323. Hydrogen Ion Beam Generating Electrode. Filed Dec. 8, 1970. Patented July 18, 1972. Not available NTIS.

Patent 3,683,272. Method and Apparatus for Determining Hydrogen Concentration in Liquid Sodium Utilizing an Ion Pump to Ionize the Hydrogen. Filed Nov. 24, 1970. Patented Aug. 8, 1972. Not available NTIS.

Patent 3,687,641. Separation and Recovery of Americium From Curium and Other Elements. Filed Mar. 9, 1971. Patented Aug. 29, 1972. Not available NTIS.

Patent 3,689,428. Nuclear Fuel Having Minimum-Gas-Release Properties. Filed June 8, 1970. Patented Sept. 5, 1972. Not available NTIS.

Patent 3,692,472. Recovery of Sulfur Dioxide. Filed Apr. 28, 1971. Patented Sept. 19, 1972. Not available NTIS.

Patent 3,692,989. Computer Diagnostic With Inherent Fail-Safety. Filed Oct. 14, 1970. Patented Sept. 19, 1972. Not available NTIS.

Patent 3,694,370. Process for Palladium Recovery. Filed June 21, 1971. Patented Sept. 26, 1972. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Assistant General Counsel for Patent Matters, NASA—
Code GP-2, Washington, D.C. 20548

Patent application 319,150. A System for Generating Timing and Control Signals. Filed Dec. 26, 1972. PC \$4/MF \$0.95.
Patent application 334,349. An Automatic Liquid Inventory Collecting and Dispensing Unit. Filed Feb. 21, 1973. PC \$3/MF \$0.95.

[FR Doc. 73-10102; Filed 5-22-73; 8:45 am]

Disclaimers

3,486,547.—Robert Pope Powers, Akron, Ohio. PNEUMATIC TIRE. Patent dated Dec. 30, 1969. Disclaimer filed Mar. 2, 1973, by the assignee, *The Firestone Tire & Rubber Company*.

Hereby disclaims the portion of the term of the patent subsequent to July 16, 1985.

3,571,655.—Akira Tanimoto, Yamatokoriyama-shi, Japan. ELECTRONIC INDICIA DISPLAY SYSTEM. Patent dated Mar. 23, 1971. Disclaimer filed Apr. 3, 1973, by the assignee, *Sharp Kabushiki Kaisha*.

Hereby enters this disclaimer to claim 1 of said patent.

3,576,063.—Franciscus C. Bakermans, Harrisburg, Pa. BOB-BIN LUGGER AND METHOD. Patent dated Apr. 27, 1971. Disclaimer filed Mar. 15, 1973, by the assignee, *E. I. du Pont de Nemours and Company*.

Hereby enters this disclaimer to claims 14 and 15 of said patent.

3,576,454.—Lawrence R. Beach, Jr., Boulder, Colo. and Robert J. Black, Los Gatos, Calif. DATA STORAGE ACCESSING MECHANISM WITH MOVING COIL MOTOR. Patent dated Apr. 27, 1971. Disclaimer filed Feb. 22, 1973, by the assignee, *International Business Machines Corporation*.

Hereby enters this disclaimer to all claims of said patent.

3,596,889.—George F. Hanks, Avon, Conn. GLASS MELTING FURNACE. Patent dated Aug. 3, 1971. Disclaimer filed Mar. 28, 1973, by the assignee, *Emhart Corporation*.

Hereby enters this disclaimer to claim 1 of said patent.

3,598,354.—Phillips J. Williams, Bridgeport, Conn. CHAIR CONTROL STRUCTURE. Patent dated Aug. 10, 1971. Disclaimer filed Feb. 8, 1973, by the assignee, *Stewart-Warner Corporation*.

Hereby enters this disclaimer to claims 1 through 11 of said patent.

3,607,263.—Julius Battaglini, Fairport, John H. Goselin, Rochester, and Walter P. Horylev, Hilton, N.Y. PHOTOGRAPHIC REVERSAL COLOR PROCESS. Patent dated Sept. 21, 1971. Disclaimer filed Feb. 26, 1973, by the assignee, *Eastman Kodak Company*.

Hereby enters this disclaimer to claims 1 to 7, inclusive, of said patent.

3,635,901.—Federico Urgesi, Vercelli, Italy and Horst Rothert, Berlin, Germany. PROCESS AND APPARATUS FOR CONTINUOUSLY POLYCONDENSING OR POLYMERIZING MONOMERS. Patent dated Jan. 18, 1972. Disclaimer filed Mar. 20, 1972, by the assignees, *Chatillon Societa Anonima Italiana per le Fibre Tessili Artificiali S.p.A.* and *Karl Fischer Apparate- u. Rohrleitungsbau*.

Hereby disclaim the portion of the term of the patent subsequent to Oct. 12, 1988.

3,660,036.—Royal H. Benson, Texas City, Tex. ANALYTICAL METHOD AND APPARATUS. Patent dated May 2, 1972. Disclaimer filed Jan. 7, 1972, by the assignee, *Monsanto Company*.

Hereby disclaims the portion of the term of the patent subsequent to Feb. 2, 1988.

3,663,224.—Robert W. Hallman, Utica, and Gary W. Kurtz, Southfield, Mich. ELECTRICAL COMPONENTS, ELECTRICAL CIRCUITS, AND THE LIKE, AND METHODS FOR MAKING THE SAME BY MEANS OF RADIATION SENSITIVE ELEMENTS. Patent dated May 16, 1972. Disclaimer filed Jan. 24, 1972, by the assignee, *Teeg Research, Inc.*

Hereby disclaims the portion of the term of the patent subsequent to Jan. 25, 1989.

3,663,775.—Fordyce H. Horn, deceased, late of Schenectady, by Helen W. Horn, executrix, Schenectady, N.Y., and Joseph W. Porter, and Joseph L. Talento, Media, Pa. VACUUM INTERRUPTER WITH CONTACTS CONTAINING A MINOR PERCENTAGE OF ALUMINUM. Patent dated May 16, 1972. Disclaimer filed May 4, 1971, by the assignee, *General Electric Company*.

Hereby disclaims the portion of the term of the patent subsequent to Feb. 24, 1987.

3,669,873.—Joseph Jaffe, Berkeley, and James R. Kittrell, Palos Verdes Estates, Calif. HYDROFINING-HYDROCRACKING PROCESS. Patent dated June 13, 1972. Disclaimer filed Feb. 7, 1972, by the assignee, *Chevron Research Company*.

Hereby disclaims the portion of the term of the patent subsequent to Oct. 20, 1987.

3,686,344.—Erwin Brunner, Ludwigshafen, Rolf Platz, Mannheim, and Kurt Taglieber and Kurt Weinsfurter, Ludwigshafen, Germany. PRODUCTION OF ACETYLENE. Patent dated Aug. 22, 1972. Disclaimer filed May 15, 1972, by the assignee, *Badische Anilin- & Soda-Fabrik Aktiengesellschaft*.

Hereby disclaims the portion of the term of the patent subsequent to Apr. 18, 1989.

3,690,097.—Dieter Widmaier, Fellbach, Germany. APPARATUS HAVING INTERCONNECTED HYDRAULIC UNITS OPERABLE AS PUMPS, HYDRAULIC MOTORS, AND AS A HYDROSTATIC TRANSMISSION. Patent dated Sept. 12, 1972. Disclaimer filed June 5, 1972, by the assignee, *Robert Bosch GmbH*.

Hereby disclaims the portion of the term of the patent subsequent to Feb. 22, 1989.

3,692,713.—Peter Spiros Columbus, Whitestone, and Ronald Thomas Mason, New York, N.Y. LABELING ADHESIVE COMPOSITION. Patent dated Sept. 19, 1972. Disclaimer filed Mar. 22, 1972, by the inventors.

Hereby disclaim the portion of the term of the patent subsequent to June 2, 1987.

3,697,299.—John E. P. Pickett, Durham, N.C. MICROSCOPY TISSUE RECEPTACLE METHOD. Patent dated Oct. 10, 1972. Disclaimer filed Jan. 24, 1972, by the assignee, *Triangle Biomedical Equipment, Inc.*

Hereby disclaims the portion of the term of the patent subsequent to Oct. 27, 1987.

3,699,025.—Philip W. Jenkins, Donald W. Heseltine, and John D. Mee, Rochester, N.Y. PROCESS FOR RADIATION CROSS-LINKING UTILIZING N-HETEROCYCLIC COMPOUNDS WITH CLEAVABLE OXY SUBSTITUENTS. Patent dated Oct. 17, 1972. Disclaimer filed Aug. 4, 1972, by the assignee, *Eastman Kodak Company*.

Hereby disclaims the portion of the term of the patent subsequent to Oct. 26, 1988.

3,702,159.—William L. Livingston, Sharon, Mass. FIRE PROTECTION SYSTEM UTILIZING DIRECT DISCHARGE NOZZLES AND FILL-IN SPRINKLER HEADS. Patent dated Nov. 7, 1972. Disclaimer filed Aug. 23, 1972, by the assignee, *Factory Mutual Research Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to July 6, 1988.

3,705,691.—Karol R. Zenker, Needham, Mass. DISCHARGE HEAD UTILIZING A PRESSURE-RESPONSIVE DETENT MECHANISM. Patent dated Dec. 12, 1972. Disclaimer filed Aug. 7, 1972, by the assignee, *Factory Mutual Research Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to Mar. 28, 1989.

3,708,257.—Rudolf Lowenfeld, Buchschlag, and Uwe Kosubek, Offenbach, Main, Germany. PROCESS FOR THE DYEING OF TEXTILE MATERIAL MADE FROM MIXTURES OF POLYESTER AND CELLULOSIC FIBERS. Patent dated Jan. 2, 1973. Disclaimer filed June 12, 1972, by the assignee, *Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruening*.

Hereby disclaims the portion of the term of the patent subsequent to Nov. 30, 1988.

3,717,561.—Orville W. Rigdon, Groves, Robert S. Edwards, and Edward H. Holst, Nederland, Tex. PHOTONITROSA-TION OF NORMAL PARAFFINS. Patent dated Feb. 20, 1973. Disclaimer filed May 30, 1972, by the assignee, *Tezaco Inc.*

Hereby disclaims the portion of the term of the patent subsequent to May 11, 1988.

3,723,113.—William L. Goffe, Webster, N.Y. POLYCHROMATIC ELECTROSOLOGRAPHIC IMAGING PROCESS. Patent dated Mar. 27, 1972. Disclaimer filed Aug. 22, 1972, by the assignee, *Xerox Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to July 14, 1987.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MAY 29, 1973

PATENT EXAMINING GROUPS

Actual
Filing Date
of Oldest
New Case
Awaiting
Action

CHEMICAL EXAMINING GROUPS

GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... 1-27-72
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro
Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and
Igniting Devices.
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... 4-07-72
Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids;
Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... 4-03-72
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins
With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding;
Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director.... 3-01-72
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical
Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director.. 2-02-73
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas;
Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation;
Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Pro-
cesses.

ELECTRICAL EXAMINING GROUPS

INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... 10-18-72
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches;
Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director..... 9-05-72
Ordnance, Firearms and Ammunition; Radar, Underwater Signaling, Directional Radio, Torpedoes, Seismic Exploring, Radio-
Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUGH, Director..... 7-03-73
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and
Related Arts.
RECEPTACLES, SANITATION AND CLEANING, WINDING AND MEASURING, GROUP 240—L. FORMAN, Director.. 2-09-72
Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical
Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director..... 5-08-72
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Net-
works; Optics; Radiant Energy; Measuring.
DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... 7-06-71
Industrial Arts; Household, Personal and Fine Arts.

MECHANICAL EXAMINING GROUPS

HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... 6-05-72
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling;
Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics;
Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... 3-03-72
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire
Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and
Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... 5-23-72
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating;
Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery;
Information Dissemination.
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director..... 3-06-72
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and
Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gear-
ing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director..... 4-24-72
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators;
Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations;
Coating; Textiles; Apparel and Shoes; Sewing Machines.

Expiration of patents: The patents within the range of numbers indicated below expire during June 1973, except those which may have
expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public
Law 810, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of
35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for
the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.
Patents..... Numbers 2,748,388 to 2,752,594, inclusive
Plant Patents..... Numbers 1,481 to 1,491, inclusive

REISSUES

JUNE 12, 1973

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter
printed in italics indicates additions made by reissue.

27,662 COMPOSITIONS AND METHODS FOR TREATING METAL SURFACES

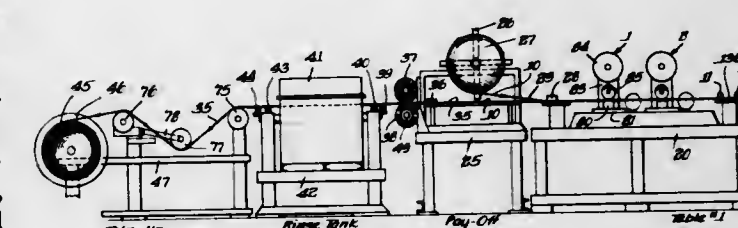
Andrew J. Hamilton, Philadelphia, Pa., assignor to
Amchem Products, Inc., Ambler, Pa.

No Drawing. Original No. 3,635,826, dated Jan. 18, 1972,
Ser. No. 873,626, Nov. 3, 1969. Application for reissue
Aug. 14, 1972, Ser. No. 280,582

Int. Cl. C23f 3/00; C23g 1/08, 1/12
U.S. Cl. 252—79.4

20 Claims

Acidic solutions having as an acidic component phos-
phoric acid and sulfuric acid, as a surfactant component
a mixture of primary ethoxylated alcohol and modified
polyethoxylated straight chain alcohol, and as a seques-
trant component a mixture of oxalic acid and citric acid,
are useful in cleaning aluminum, especially drawn and
ironed aluminum cans coated with drawing oil, in clean-
ing, deoxidizing and brightening stainless steel, and in
forming corrosion resistant and paint adherent iron phos-
phate coatings on ferrous surfaces when applied thereto
by the reverse roll coat method.



wardly facing side of the metallic strip in said other ad-
jacent path. An inspection station including a comparator
is located adjacent the center of the machine for in-
specting the upwardly facing milled sides of the metallic
strip passing thereby in said paths.

27,663 PROCESS FOR THE MANUFACTURE OF VINYL ESTERS OF CARBOXYLIC ACIDS

Hans Fernholz, Fischbach, Taunus, Hans-Joachim
Schmidt, Frankfurt am Main, and Friedrich Wunder,
Florsheim am Main, Germany, assignors to Farbwerke
Hoechst Aktiengesellschaft vormals Meister Lucius &
Bruning, Frankfurt am Main, Germany

No Drawing. Original No. 3,625,998, dated Dec. 7, 1971,
Ser. No. 708,509, Feb. 27, 1968. Application for reissue
May 22, 1972, Ser. No. 255,869

Claims priority, application Germany, Mar. 3, 1967,
F 51,719; Aug. 10, 1967, F 53,201

Int. Cl. C07c 67/04

U.S. Cl. 260—497 A

14 Claims

Preparation of vinyl esters of carboxylic acids in the
gaseous phase by reacting ethylene, oxygen and carbox-
ylic acids at elevated temperatures in the presence of
a catalyst consisting of a salt of a noble metal of the eighth
group of the periodic system and 0.01 to 200 g. cad-
mium in the form of a cadmium salt of a carboxylic
acid, this catalyst being supported on a carrier.

27,664 METALLIC STRIP MILLING MACHINE

Stanley R. Hood, La Jolla, Calif., and Robert E. Truitt,
Reading, Pa., assignors to Metals Engineering Com-
pany, Reading, Pa.

Original No. 3,494,253, dated Feb. 10, 1970, Ser. No.
733,579, May 31, 1968. Application for reissue Feb.
22, 1971, Ser. No. 109,067

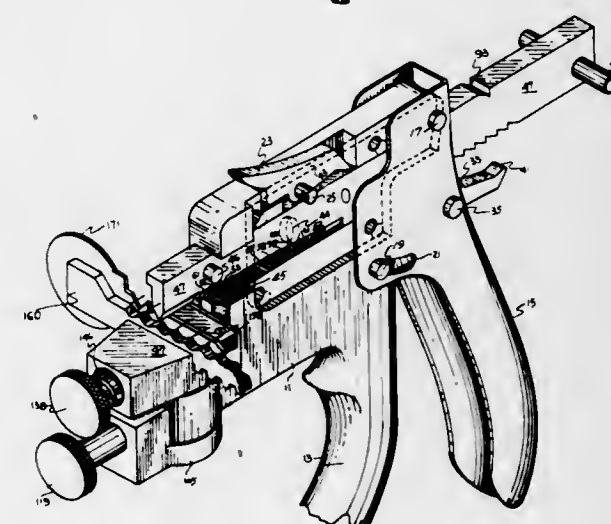
Int. Cl. B23c 3/00, 9/00

U.S. Cl. 90—21

11 Claims

A milling machine is provided for simultaneously mill-
ing contours in opposite sides of a metallic strip, wherein
the metallic strip is fed from a supply reel at one end
of the machine in one path lengthwise along the machine
and is reversed upside down by a reversing roll at the
other end of the machine and fed in another adjacent path
lengthwise along the machine to a take-up reel at said

A key cutting machine has a rotatably mounted key
holder where a key blank may be mounted for cutting.
The key holder is positioned for the desired angle of the
cut, and is also positioned to cut the desired V bit. The
broach is then advanced to cut the selected V bit to the
desired bitting level.



27,666

BOAT FENDER STRUCTURES

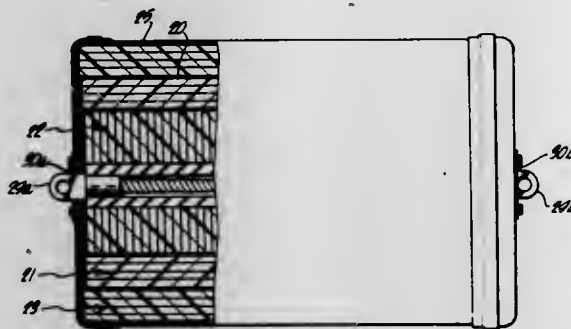
Duff L. Dean, deceased, late of North Hollywood, Calif., by Jean C. Dean, executrix, Palo Alto, Calif.; said Dean assignor to Triple D Industries, Inc., Burbank, Calif.

Original No. 3,455,269, dated July 15, 1969, Ser. No. 732,481, Apr. 26, 1968, which is a continuation-in-part of Ser. No. 596,892, Nov. 25, 1966. Application for reissue June 11, 1971, Ser. No. 152,458

Int. Cl. B63b 21/00

U.S. Cl. 114—219

10 Claims



A boat fender structure having several different bagged configurations of buoyant material one inside of the other. The inside configuration comprises relatively rigid, disc-shaped sections stacked one next to the other. The outer configurations comprise sheets of relatively resilient, buoyant material which are wrapped in the form of a spiral.

27,667

TRAILER SAFETY BRAKE CONSTRUCTION

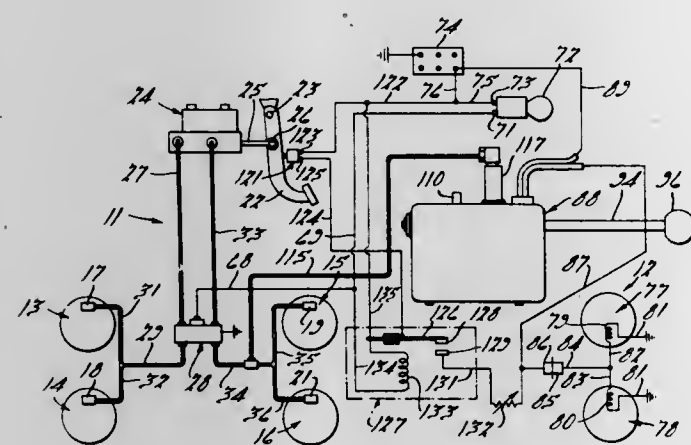
David T. Ayers, Jr., Birmingham, Mich., assignor to Kelsey-Hayes Company

Original No. 3,507,541, dated Apr. 21, 1970, Ser. No. 685,794, Nov. 27, 1967. Application for reissue Sept. 14, 1970, Ser. No. 72,176

Int. Cl. B60t 13/70

U.S. Cl. 303—7

12 Claims



A trailer safety brake construction for association with a towing vehicle having a primary brake system. The trailer safety brake construction includes a brake arrangement for the towed vehicle that is operative either selectively at the driver's direction, automatically upon application of the towing vehicle brakes or automatically in

response to actuation of the brake pedal of the towing vehicle and failure of the brakes of the towing vehicle.

27,668

pH DETECTING DEVICE USING TEMPERATURE COMPENSATING FIELD-EFFECT TRANSISTOR DIFFERENTIAL AMPLIFIER

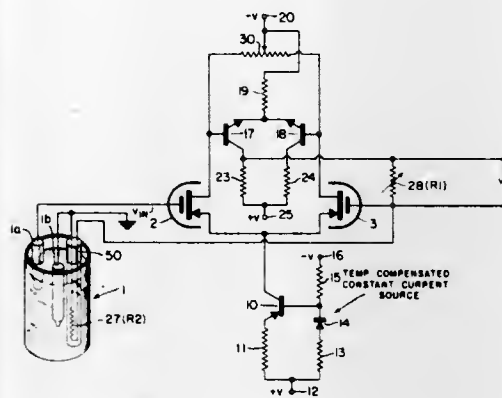
Daniel J. Soltz, Norristown, and Homer L. Greer, Bryn Athyn, Pa., assignors to Honeywell Inc., Minneapolis, Minn.

Original No. 3,431,508, dated Mar. 4, 1969, Ser. No. 534,834, Mar. 16, 1966. Application for reissue Sept. 4, 1970, Ser. No. 69,763

Int. Cl. H03f 3/68

U.S. Cl. 330—30 D

6 Claims



There is provided a solid state electronic pH detector.

27,669

SWIMMING POOL COPING AND DECK CONSTRUCTION

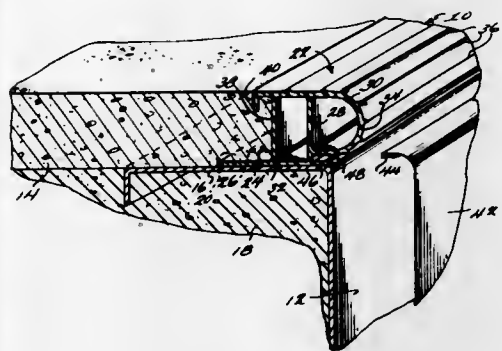
Henry A. Rozanski, P.O. Box 127, R.D. 2, Elizabethtown, Pa. 17022

Original No. 3,524,291, dated Aug. 18, 1970, Ser. No. 726,180, May 2, 1968. Application for reissue Apr. 7, 1971, Ser. No. 135,510

Int. Cl. E04h 3/16, 7/18

U.S. Cl. 52—169

2 Claims



A swimming pool coping and deck construction wherein a horizontal, elongate coping member of metal or plastic is secured to the top of a swimming pool wall and serves as a finished edge and as a form for concrete decking or as a finished edge for wooden decking. The swimming pool wall, the coping and the deck bond together to support the deck at the swimming pool wall independent of any backfill.

27,670

METHOD FOR PRODUCING A SMOKE- PREPARATION

Kazimierz Miller and Zbigniew Kozlowski, Warsaw, Poland, assignors to Instytut Przemysłu Mięsnego, Warsaw, Poland

No Drawing. Original No. 3,445,248, dated May 20, 1969, Ser. No. 510,737, Apr. 7, 1965. Application for reissue May 19, 1971, Ser. No. 145,074

Claims priority, application Poland, Apr. 8, 1964, 104,255

Int. Cl. A23b 1/04, 3/04

U.S. Cl. 99—229

1 Claim

Method of obtaining smoke which imparts smell and taste similar to those of conventionally smoke-dried sausages and which is free of carcinogenic compounds and ballast. Wood is distilled in excess air and smoke therefrom is absorbed in an alkaline solution. Undesired compounds are extracted from the solution with an organic solvent. [Carbon dioxide is introduced into] Phenolates contained in the aqueous layer [to convert phenolates] are converted into phenols which are then also extracted with the organic solvent and then dissolved in sausage material. The remaining aqueous layer is [dissolved in sausage material] discarded.

27,671

STAINLESS STEEL

Harry Tanczyn, Baltimore, Md., assignor to Armco Steel Corporation

No Drawing. Original No. 3,000,729, dated Sept. 19, 1961, Ser. No. 856,925, Dec. 3, 1959. Application for reissue Mar. 1, 1971, Ser. No. 111,774

Int. Cl. C22c 39/14

U.S. Cl. 75—126 F

5 Claims

1. A quench hardenable straight-chromium, low carbon stainless steel [comprising] essentially consisting of 10.0% to 14.0% chromium, .07% to .14% carbon, [and remainder substantially all iron] in which the response in hardness of the metal to variation in tempering temperature thereof is appreciably retarded and improved toughness in the hardened and tempered condition is had, through the inclusion in the metal of .05% to .35% columbium-tantalum, and 0% to .20% vanadium, the precise amount of [these ingredients within these ranges] columbium-tantalum being about one to [three] two times the carbon content, and remainder substantially all iron.

27,672

ANALOGUE COMPUTER FOR LINEAR PROGRAMMING

William John Niblock, Castlebellingham, Ireland, assignor to Oeleg Limited, Dublin, Ireland

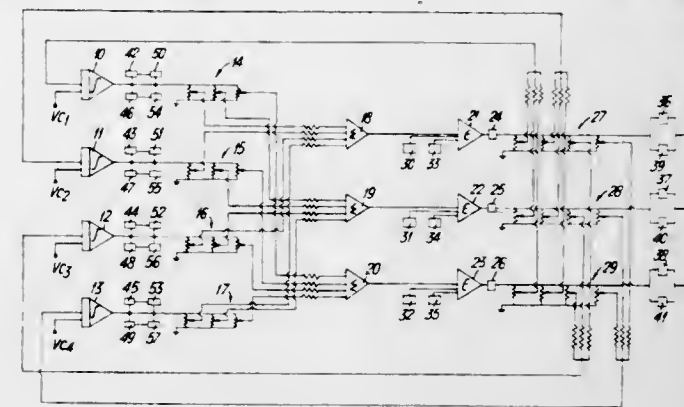
Original No. 3,546,443, dated Dec. 8, 1970, Ser. No. 729,008, May 14, 1968. Application for reissue Sept. 1, 1971, Ser. No. 177,011

Claims priority, application Great Britain, May 17, 1967, 22,844/67

Int. Cl. G06g 7/34

U.S. Cl. 235—180

14 Claims



An analogue computer arranged for the solution of linear-programming problems by the method of steepest ascents solves the set of differential equations in the form

$$\frac{dX_i}{dt} = -K_1(A_{1i}f_{i1} + A_{2i}f_{i2} + \dots + A_{Ni}f_{iN}) - K_2C_i$$

In order to optimise the value of an objective function which is represented by C_i . When the objective function is optimised the parameter A_1 is zero for all values of i and specific values of X_i are determined. A_1 is zero when values of

$$\sum_{i=1}^N f_{ij}$$

lie within predetermined limits. The invention provides defectors associated with each amplifier of the computer having limit-setting means whereby the operator can determine immediately if a limit has been set on the output signal from a specific amplifier and if the output signal therefrom is in fact constrained by that limit, by means of lamps forming part of each detector.

PLANT PATENTS

GRANTED JUNE 12, 1973

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,355
AZALEA PLANT
Joseph L. Mossholder, 5547 5th St.,
Fallbrook, Calif. 92028
Filed Nov. 8, 1971, Ser. No. 196,701
Int. Cl. A01h 5/00

U.S. Cl. Plt.—55

1 Claim

1. A distinct and new variety of azalea plant, substantially as illustrated and described hereinabove, and characterized generally by its unusual colors of its flowers, these flowers having a yellow speckled throat leading to a pink to an azalea and finally to a rose outer edge, the plant otherwise having the characteristics of an azalea plant as set forth and claimed in the Plant Patent 1,707.

3,356
AZALEA PLANT
Howard Kerrigan, 25783 Mission Blvd.,
Hayward, Calif. 94544
Filed Oct. 18, 1971, Ser. No. 190,236
Int. Cl. A01h 5/00

U.S. Cl. Plt.—56

1 Claim

1. A new and distinct variety of azalea plant of the Belgian-Indica type substantially as herein shown and described primarily characterized by: a combination of large, ruffled, flat, "hose-in-hose" flowers of an unusual shade of apricot pink and a strong, densely compact, low growing plant.

3,357
CHRYSANTHEMUM PLANT
Walter H. Jessel, Jr., Doylestown, and William E. Duffett,
Akron, Ohio, assignors to Yoder Brothers, Inc., Bar-
berton, Ohio
Filed Sept. 14, 1971, Ser. No. 180,532
Int. Cl. A01h 5/00

U.S. Cl. Plt.—74

1 Claim

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the parent cultivar Aglow by its flowers which are approximately 1/4" smaller in diameter; its higher production, producing approximately 3 to 4 more flowers per stem; more orange coloration; approximately 2"

to 3" less vigor; lighter foliage color; approximately three days earlier response, and its more uniform response within a flowering block.

3,358
CHRYSANTHEMUM PLANT
Walter H. Jessel, Jr., Doylestown, and William E. Duffett,
Akron, Ohio, assignors to Yoder Brothers, Inc., Bar-
berton Ohio
Filed Aug. 25, 1971, Ser. No. 175,011
Int. Cl. A01h 5/00

U.S. Cl. Plt.—77

1 Claim

1. A new and distinct cultivar of chrysanthemum characterized particularly as to uniqueness when compared to the cultivar Neptune by its response which is approximately 4-10 days earlier depending on the season of the year, a more vigorous variety which can be grown under medium rather than short treatment, stronger, heavier stems, no pinking of the flowers with a cool finish of 60° or less, no longitudinal petal roll under low light and also high temperature finishes of 70°-75° or above, no open center or significant petal reduction under low light or low temperature conditions, a wider, more spreading habit when both varieties are grown and flowered with their recommended response and treatments, average of one more break per plant, foliage approximately one-quarter inch shorter in length, a lighter foliage color, with the foliage being less indented with less serration.

3,359
CHRYSANTHEMUM PLANT
Walter H. Jessel, Jr., Doylestown, and William E. Duffett,
Akron, Ohio, assignors to Yoder Brothers, Inc., Bar-
berton Ohio
Filed Aug. 13, 1971, Ser. No. 171,782
Int. Cl. A01h 5/00

U.S. Cl. Plt.—78

1 Claim

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the parent cultivar Wildfire by its golden yellow flower color and by its 2-3 day earlier response when grown under comparable conditions

PATENTS

GRANTED JUNE 12, 1973

GENERAL AND MECHANICAL

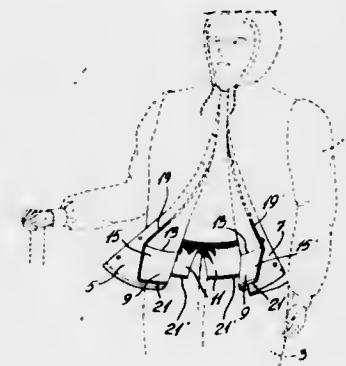
3,737,916
JACKET AND TROUSERS COMBINATION
Andre Grenier, 401 Moffat Street, Verdun 204, Quebec,
Canada
Filed Mar. 15, 1971, Ser. No. 123,966
Int. Cl. A41d 1/00

U.S. Cl. 2—70

3,737,918
ADJUSTABLE-SIZE HEAD COVERING
Joseph Henschel, 7481 Cornell, St. Louis, Mo., and Edward
Henschel, 8725 Warner, St. Louis, Mo.
Filed Aug. 16, 1971, Ser. No. 171,936
Int. Cl. A42b 1/22

6 Claims U.S. Cl. 2—197

9 Claims



Jacket and trousers combination wherein the jacket has, along the waist, an inner horizontal flap and the trousers likewise have, along the waist, an outer flap intended to cooperate with the inner flap to prevent entry of wind beneath the jacket. For that purpose, a first fastener closes the opening of the jacket and extends down along the vertical edge of the inner flap while a second fastener interlocks the lower horizontal edges of the inner flap and of the outer flap.

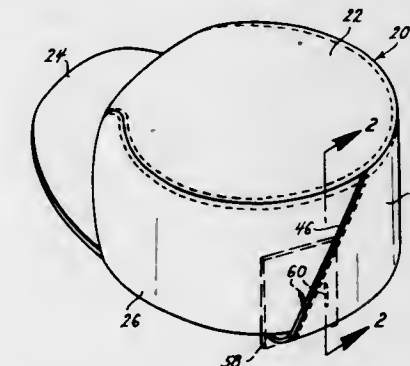
3,737,917
ADJUSTABLE PREFORMED NECKTIE
John E. Orr, 2620 48th Street, Lubbock, Tex.
Filed Aug. 9, 1971, Ser. No. 170,108
Int. Cl. A41d 25/02

U.S. Cl. 2—150

1 Claim



The invention discloses a necktie so designed that the knot stays tied and allows the portion around the neck to be unfastened and taken off the neck with the small portion of the tie sliding through the knot when refastened to adjust the neck portion to the user.

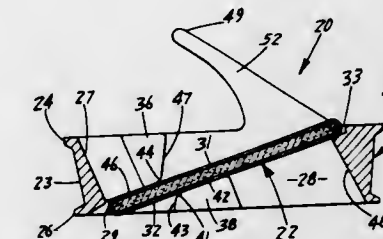


A head covering, which can be adjusted to accommodate substantially all adult head-sizes, has a plural-section side and releasable securing means to releasably hold the free edges of a lapping section and of a lapped section of that side in selectively different lapped positions. The lower end of the free edge of the lapping section of the side is spaced below the lower edge of the lapped section of that side, whenever those sections are unstressed and are in a condition of minimum lapping; but that lower end of that free edge engages and slightly raises the lower edge of that lapped section whenever those sections are in a condition of maximum lapping. A tab, carried by the lapping section of the side, requires the free edge of the lapped section of the side to be passed inwardly of the free edge of the lapping section of said side, and thus makes certain that the free edge of the lapped section is overlain and concealed by the free edge of the lapping section.

3,737,919
PIVOTED DISC-TYPE HEART VALVE
Francis W. Child, Maple Plain, Minn., assignor to The Regents
of the University of Minnesota, Minneapolis, Minn.
Filed Mar. 16, 1971, Ser. No. 124,754
Int. Cl. A61f 1/22; A16k 17/12

U.S. Cl. 3—1

21 Claims

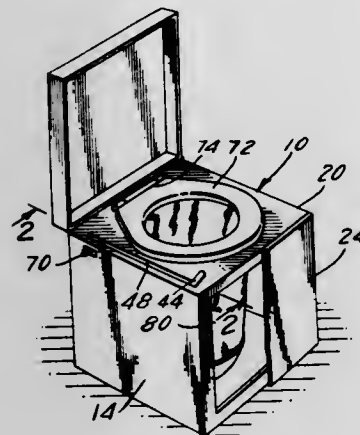


A heart valve having a base cooperating with a free floating pivoting disc to control the flow of blood through the valve. The disc has a substrate covered with a coating of silicon-alloyed Pyrolite carbon. The base can be a one-piece housing having side arms or two members joined together to confine the disc in a pivoting relationship with the housing. The disc pivots about a chordal axis and rotates about its center. The two members of the base have substrates with coatings of silicon-alloyed Pyrolite carbon.

3,737,920 PORTABLE TOILET

Kenneth N. Savee, 11416 Sunnybrook Lane, Whittier, Calif.
Filed Apr. 26, 1971, Ser. No. 137,246
Int. Cl. A47k 11/00, 13/24
U.S. Cl. 4-142

9 Claims



A portable toilet apparatus having a rotatable bowl, or platform, for supporting the lower end of a flexible, leak-proof bag of material, such as plastic, the upper end of the bag being fixed and aligned with an opening in the top wall of a housing, there being a toilet seat hinged to the top wall.

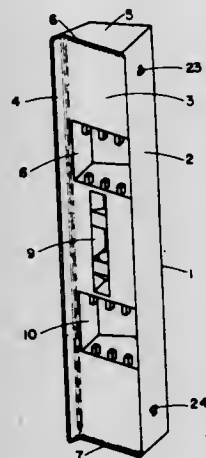
Within the bowl are a plurality of fins for positive engagement with the closed lower end of the bag. A spring is operably connected with the bowl to rotate it in one direction, and there is a manually actuatable lever for rotating the bowl in the opposite direction and, at the same time, put the spring under tension for rotating the bowl when the lever is released. Rotation of the bowl in one direction twists an intermediate part of the bag to seal the bag, and rotation of the bowl in the opposite direction untwists and opens the bag.

3,737,921 PERMANENT OR MOBILE SPLASH-GUARD

Stephen J. Baumrind, Charleston, S.C., assignor to Larry Harold Kline, Charleston, S.C., a part interest
Filed Dec. 30, 1971, Ser. No. 214,186
Int. Cl. A47k 3/22

U.S. Cl. 4-148

22 Claims



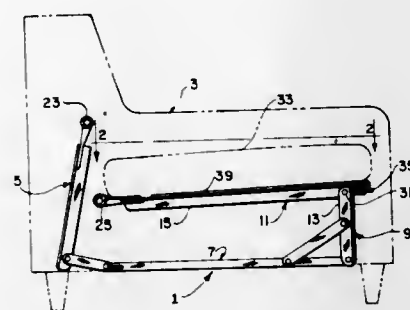
A splash-guard is disclosed which may be either permanent or mobile, which contains storage means and hanging means, and which may be effectively used on any corner of a bathtub.

3,737,922 SOFA BED FOLDING FIXTURE WITH SEAT CUSHION PAD

Worthy John Warner, Collinsville, Ill., assignor to The Foster Brothers Manufacturing Company, St. Louis, Mo.
Filed Feb. 1, 1972, Ser. No. 222,540
Int. Cl. A47c 17/13

U.S. Cl. 5-13

6 Claims



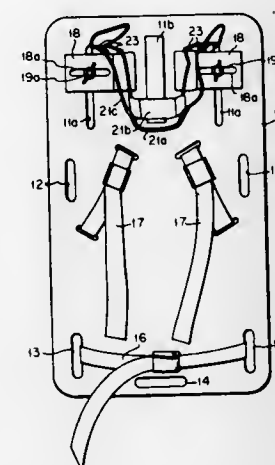
A folding fixture for a sofa bed having a plurality of sections pivotally connected together end-to-end with each section having a pair of bars at the sides of the fixture, and a bedspring for supporting a mattress extending between and connected to the side bars. The fixture is foldable into a retracted position in the sofa with one of the sections constituting a foot section extending generally horizontally of the sofa and acting as seat section for supporting a seat cushion or cushions. This foot section has a cross bar at its free end and the fixture has a support bar extending transversely of its side bars adjacent the pivotal connection between the foot section and the next adjacent section (i.e., the intermediate section). This support bar is of hollow cross section and has a slot therein extending lengthwise thereof facing away from the cross bar when the fixture is folded in its retracted position. A pad secured to the fixture overlies the bedspring in the foot section when it is folded in its retracted position, the pad having a welt along one longitudinal margin insertable endwise into the support bar with the pad extending from the welt through the slot, the welt being of sufficient cross section to prevent the welt from being pulled through the slot. The other longitudinal margin of the pad is secured to the fixture adjacent the cross bar.

3,737,923 CERVICAL STABILIZATION DEVICE

Donald J. Prolo, 1163 Crescent Drive, San Jose, Calif.
Filed Sept. 27, 1971, Ser. No. 183,759
Int. Cl. A47b 83/04

U.S. Cl. 5-82

5 Claims



A cervical spine immobilization device employs a rigid board member having movable block members which are adjustable in two directions on the surface of the board. Once adjustable, the device is used to immobilize the cervical spine.

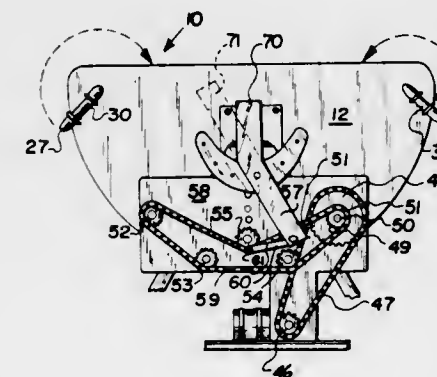
the patient's trunk is stabilized on the board, the block members are locked in position adjacent the patient's head to prevent lateral motion and rotation of the patient's head. A sling member is employed under the patient's chin and mastoid processes and is secured to the block members to prevent flexion and extension of the patient's head and neck.

3,737,924 ROCKING BED

George Alvin Davis, RFD No. 3, Farmington, Maine
Filed Apr. 10, 1972, Ser. No. 242,492
Int. Cl. A47d 9/02; F16h 19/06

U.S. Cl. 5-108

15 Claims



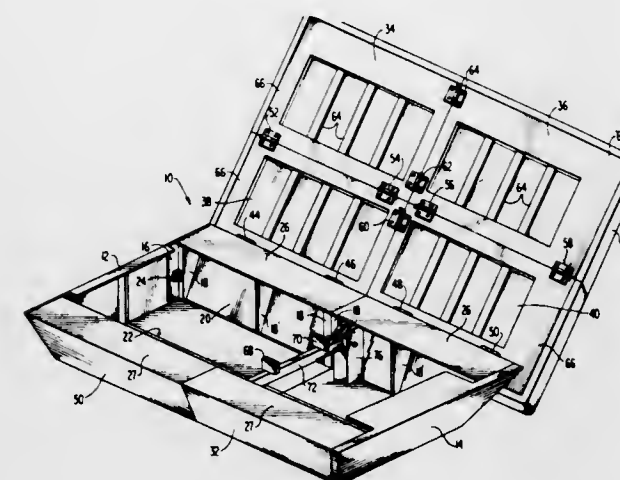
A hemicylindrical bed is driven by the movement of an arm for controlled movement and user security.

3,737,925 PREFABRICATED BED STRUCTURE

John A. Oxford, P.O. Box 647, Americus, Ga.
Filed Sept. 21, 1971, Ser. No. 182,421
Int. Cl. A47c 19/00

U.S. Cl. 5-131

11 Claims

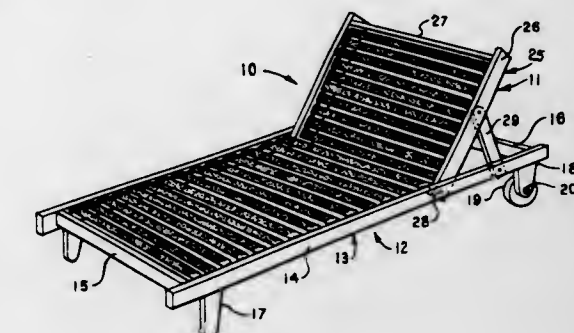


The invention relates to a bed structure capable of being assembled from a plurality of sectional interlockable elements, which upon assembly, provide a storage receptacle, the top structure of which supports the mattress, the top structure also including an arrangement to prevent relative longitudinal and lateral movement of the mattress on the top structure.

3,737,926
OUTDOOR FURNITURE CONSTRUCTION
Lloyd H. Hermanson, Chula Vista, Calif., assignor to John Hancock Furniture Manufacturing Co., San Diego, Calif.
Filed Feb. 19, 1971, Ser. No. 116,935
Int. Cl. A45f 1/00; A47c 4/02

U.S. Cl. 5-191

4 Claims



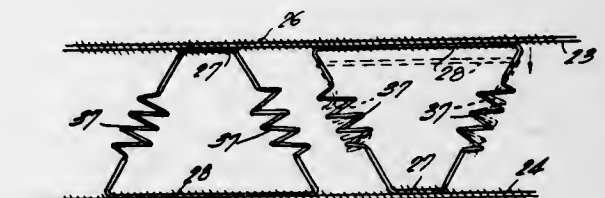
Outdoor furniture comprising seat and/or back frames with plastic straps attached to bars or rails which are attached to side members of frame inside the frame.

3,737,927 TRAPEZOIDAL STABILIZERS FOR INNER SPRING UNITS

John C. Kline, Merrick, and Albert F. Kronman, Locust Valley, both of N.Y., assignors to Eclipse Sleep Products, Inc., Brooklyn, N.Y.
Division of Ser. No. 1,228, Jan. 7, 1970. This application Mar. 5, 1972, Ser. No. 240,579
Int. Cl. A47c 23/00

U.S. Cl. 5-260

4 Claims

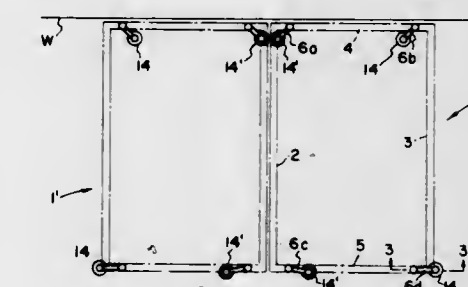


Wire elements of generally trapezoidal shape having a variety of spring members in the non-parallel arms of the trapezoids are disclosed. The spring members are incorporated between the upper and lower edges of inner spring box springs, mattresses and the like to provide a wide variety of support to the edges. The spring members, upon the application of pressure flex inwardly or axially, permitting close spacing of individual trapezoidal elements.

3,737,928
SHIFTABLE BED FRAME CONSTRUCTION
Roland A. Reuther, 5048 Weiss Road, Saginaw, Mich.
Filed July 12, 1971, Ser. No. 161,665
Int. Cl. A47c 19/12

U.S. Cl. 5-312

11 Claims



A bed frame comprises a rectangular frame having a support member pivoted adjacent each of the four corners of the frame.

frame for rotation about a vertical axis. Each support member includes a ground-engaging foot which is spaced from the axis of rotation and each foot is accommodated in a socket formed in a base member. The length of the support members at the head end of the frame is less than the length of the support members at the foot end of the frame and the sockets in the base members at one side of the frame are substantially larger than the sockets in the base members at the opposite side of the frame. The support members are so arranged with respect to the longitudinal axis of the bed frame when the latter is in its normal position that the frame can be shifted relatively to the base members as permitted by the pivotal mounting of the support members.

3,737,929

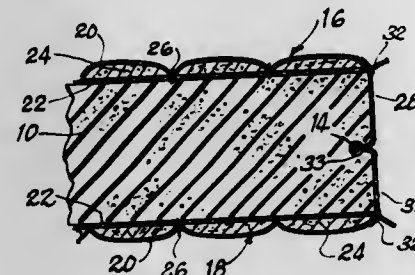
MATTRESS ASSEMBLY

Gerald A. Golembeck, Hazel Crest, Ill., assignor to The United States Bedding Company, Englewood Division, St. Paul, Minn.

Filed May 10, 1971, Ser. No. 141,697
Int. Cl. A47c 23/00

U.S. Cl. 5—345

8 Claims



A mattress formed of a core of foamed flexible material having a border wire embedded in the vertical wall and to which the edges of the covering panel are attached for assembly.

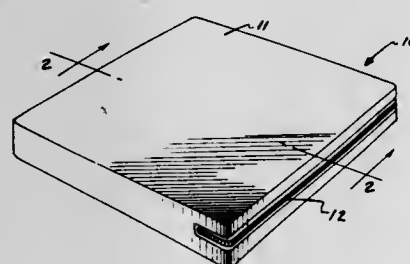
3,737,930

CUSHION STRUCTURE

Lewis Oscar Smith, III, 516 Jay Lane, Dundee, Ill.
Filed July 19, 1971, Ser. No. 163,950
Int. Cl. A47c 27/08, 23/00

U.S. Cl. 5—348 WB

7 Claims

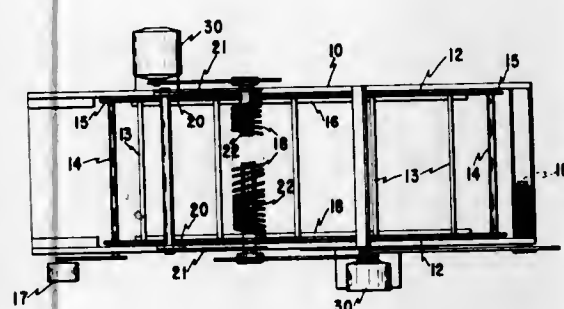


An improved gel-type cushion structure comprising a polyvinylchloride gel containing from approximately 6 to 14 parts by weight of plasticizer for each part by weight of high molecular weight polyvinylchloride resin. Preferably, the cushion structure includes approximately 9 parts by weight of plasticizer for each part by weight of high molecular weight polyvinylchloride resin together with an effective amount of suitable vinyl stabilizers.

3,737,931
HONEYCOMB UNCAPPING MACHINE
Roger R. Hodgson, 1318 Avenue M, Hawarden, Iowa
Filed Dec. 29, 1971, Ser. No. 213,288
Int. Cl. A01k 51/00

U.S. Cl. 6—12 A

9 Claims



A honeycomb uncapping device having a pair of unique arbors arranged to uncap both sides of the comb and a conveyor to carry the comb between the arbors. Each arbor carries a plurality of canted discs arranged with random circumferential location of maximum cant.

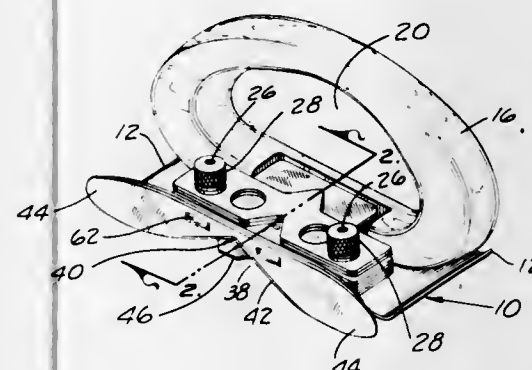
3,737,932

CARPET TRIMMING AND FINISHING DEVICE

Jimmie Joe Armijo, 14216 Fonseca, La Mirada, Calif.
Filed Jan. 27, 1972, Ser. No. 221,349
Int. Cl. B26b 3/08, 11/00

U.S. Cl. 7—14.1

10 Claims



A once-over carpet trimming and finishing tool having a base plate with upwardly curved ends and with a handle attached to said base plate. There is a blade holder including a flat horizontal part and a vertical longitudinally elongated guide and a pressure plate at the outer free edge of the horizontal part, said guide and pressure plate having a downwardly opening notch intermediate the ends thereof and extending upwardly to a point adjacent the upper edge of the vertical plate part but spaced downwardly therefrom. The ends of the guide and pressure plate extends below the plane of the base plate and the base plate has a tongue that extends towards the plane and the vertical plate at the deepest or highest part of the notch and is bent slightly downwardly, the tongue being short of the plane of the guide and pressure plate. The edge of the latter plate defining the notch is beveled inwardly. Cutting blades are disposed beneath the horizontal part of the blade holder and extend to the adjacent side of the vertical guide and pressure plate, the cutting blades are oppositely arranged and a carpet may be cut upon movement of the device in either direction.

3,737,933

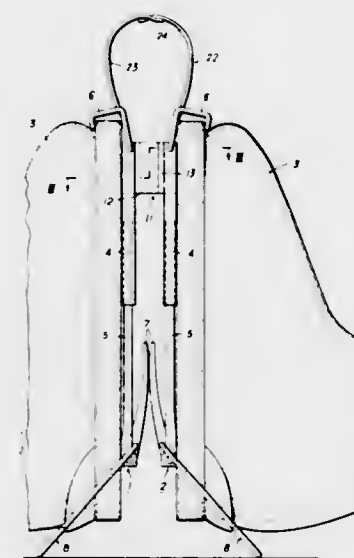
DEVICE FOR STRETCHING AND CARRYING A PAIR OF SHOES AND FOR HOLDING THEM UPRIGHT

Heinrich Wunder, Rothschaig near Dachau, Germany
Filed July 23, 1971, Ser. No. 165,468
Claims priority, application Germany, July 29, 1970, P 20 37 538.6

Int. Cl. A43d 5/00

U.S. Cl. 12—120.5

6 Claims



A device for stretching and carrying a pair of shoes and for holding them upright comprises two shoe stretchers, which stretch the soles of the shoes from the outside and are provided with means for detachably connecting the shoe stretchers and two spaced apart supporting members for holding the pair of shoes upright.

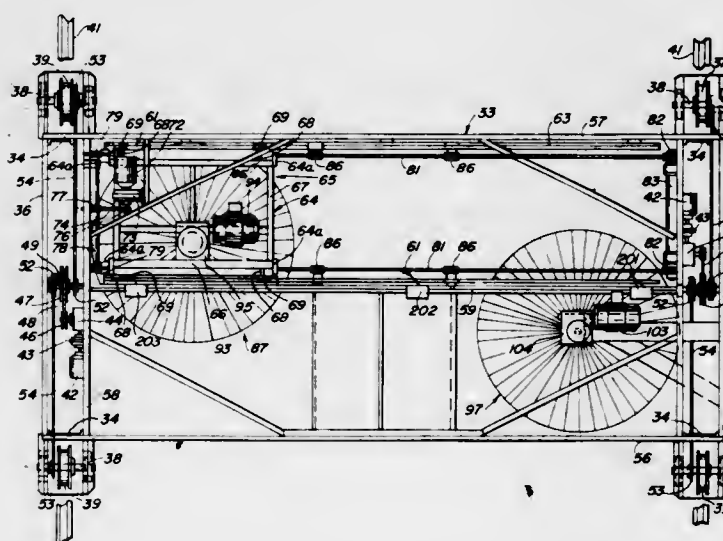
3,737,934

VEHICLE WASHING INSTALLATION WITH REVERSE WASH CYCLE

Thomas W. Skweres, Lisle, Ill., assignor to Ross and White Company, Wheeling, Ill.
Filed June 4, 1971, Ser. No. 149,995
Int. Cl. B60s 3/06

U.S. Cl. 15—21 E

4 Claims



A vehicle washing installation including a lengthwise movable wash rack for washing a stationary vehicle. The lengthwise movable wash rack includes two brushes of which one of the

brushes is located to wash one of the sides of the vehicle during lengthwise movement of the rack. The other of the brushes is mounted for transverse movement and is actuated at the start and end of the lengthwise movement of the rack to wash the front and rear ends of the vehicle. During the lengthwise movement, the movable brush is located to wash the opposite side of the vehicle.

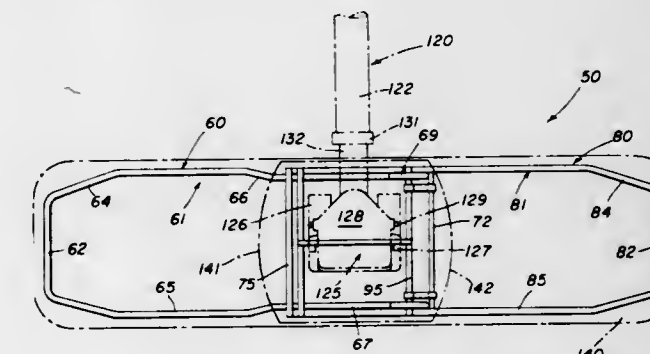
3,737,935

COLLAPSIBLE MOP HEAD

Julian I. Saltzstein, Cleveland, Tenn., assignor to American Uniform Company, Cleveland, Tenn.
Filed June 23, 1971, Ser. No. 155,693
Int. Cl. A47l 13/253

U.S. Cl. 15—147 A

14 Claims



A collapsible mop head for use with a mop swab having two mounting pockets therein, wherein the mop head includes two wings pivotally and longitudinally shiftably interconnected for movement between an extended operative position and a folded position, a keeper fixedly mounted on one of the wings and a latch fixedly mounted on the other of the wings, the latch and the keeper being shiftable longitudinally with the wings between a locking position holding the wings in the operative position thereof and a release position permitting pivotal movement of the wings with respect to each other to the folded position, resilient means interconnecting the wings and continually urging the wings into position wherein the latch is in position to engage the keeper, and a handle mounting structure on at least one of the wings.

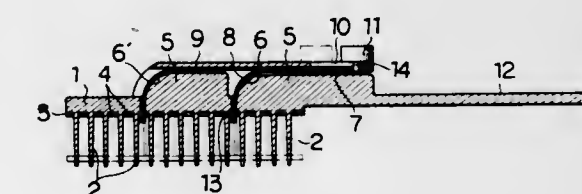
3,737,936

HAIR BRUSH WITH MEANS TO REMOVE FALLEN HAIRS

Shiro Uosaki, 19-2, 1-chome Kamijyojo, Kita-ku, Tokyo, Japan
Filed Mar. 17, 1972, Ser. No. 235,572
Int. Cl. A46b 9/08

U.S. Cl. 15—169

5 Claims



A hair brush having a plate body with a multiple number of projecting pieces plantingly equipped thereon, having an elevating plate to insert projecting pieces therein equipped so as to connect to the plate body through a knob and elastic plates and adapted to remove hairs twined round projecting pieces upon down operation.

3,737,937

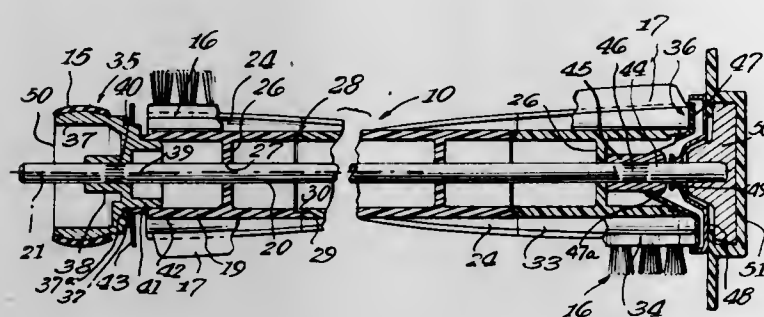
ROTARY BRUSH CONSTRUCTION FOR VACUUM CLEANER

Erwin E. Nordeen, St. Paul, Minn., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Int. Cl. A46b 3/04, 9/02, 9/10

U.S. Cl. 15-182

14 Claims



A brush structure for use in a vacuum cleaner including a dowel carrying an elongated brush for rotation about the longitudinal axis of the dowel. The dowel is formed of a multiplicity of segments and includes drive means for effecting rotation of the brush structure about the axis of the dowel. The dowel is further arranged to carry a beater bar in cooperation with the brush.

3,737,938

COMBINATION DUST CLOTH AND DUST MOP

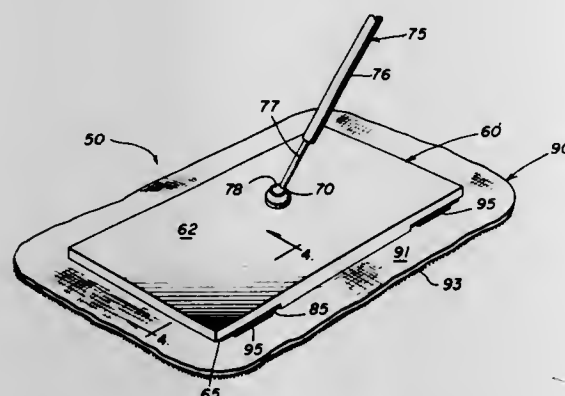
Julian I. Saltzstein, Cleveland, Tenn., assignor to American Uniform Company, Cleveland, Tenn.

Filed June 24, 1971, Ser. No. 156,201

Int. Cl. A47l 13/46

U.S. Cl. 15-231

18 Claims



A dust cloth and mop head and the combination thereof to provide a dust mop, wherein the mop head includes a substantially flat platform having spaced-apart recesses therein, a soft pliable cloth covering the platform and extending therebeyond around the periphery thereof to provide a marginal portion around the platform, separable fastening devices for mounting the cloth to the platform, and a mop handle connected to the platform, whereby the cloth before attachment to the mop head may be first used as a dust cloth and thereafter the cloth may be mounted on said mop head by placing the cloth on a support surface with the back surface disposed upwardly and pressing the fastening member on the platform against the fastening member on the cloth to provide a dust mop and thereafter the cloth may be removed from the mop head by fixedly holding the marginal portion and pulling the mop head therefrom.

3,737,939

DISPOSABLE TOILET APPLICATOR

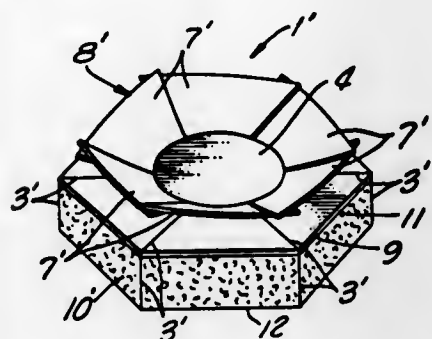
John Leslie Jones, Sr., 1070 Glen Oaks Boulevard, Pasadena, Calif.

Filed Apr. 7, 1969, Ser. No. 814,025

Int. Cl. A47k 7/03

U.S. Cl. 15-244 A

6 Claims



This invention teaches a single use, disposable toilet applicator having a dry, porous, regenerated cellulose sponge, with a pair of parallel planar faces. The sponge is compressed normal to a planar face, to minimum size pore openings. A first, thin, water impermeable sheet is completely coplanarly contiguously secured to one planar face of the sponge, and a second, rigid, thin water impermeable sheet completely coplanarly covers the first, water impermeable sheet and is secured over the central bonded area to the first sheet. The compressed sponge volume, the first water impermeable sheet, and the second water impermeable sheet are bonded together in a laminated composite. A multiplicity of incised slit openings extending from the toilet applicator perimeter to the perimeter of the central bonded area perimeter form a multiplicity of flexible toilet applicator leaves, which also include foldable applicator handle means.

3,737,940

CLEANING APPARATUS FOR OFFSET PRINTING MACHINES

Hans Jacob Moestue, Osteraskroken 9, Osteras, and Clarin Moestue, Vidars vel 23, Jar, both of Norway

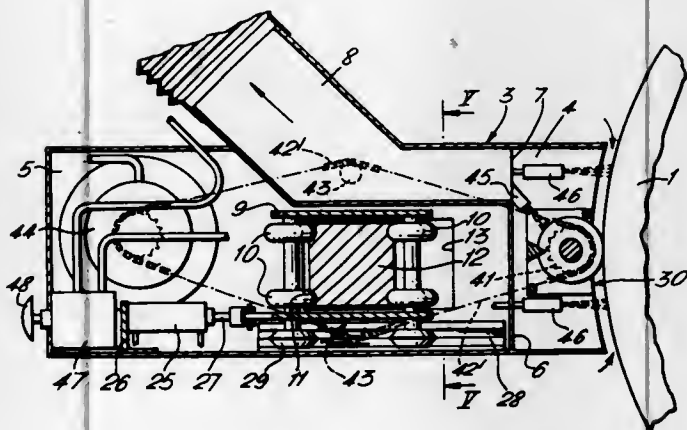
Filed Dec. 6, 1971, Ser. No. 205,262

Claims priority, application Norway, Dec. 10, 1970, 4763/70; May 25, 1971, 1957/71

Int. Cl. A47l 5/38

U.S. Cl. 15-302

7 Claims



A roller-shaped cleaning tool for a rotating cylinder surface in an offset press is rotatably mounted in a housing that is open in front. The cleaning tool is presented to the cylinder surface through the opening in the housing. The cleaning tool produces an atmosphere of atomized cleaning liquid and washed-off dirt in the housing and this atmosphere is drawn

off through an outlet which is connected to a source of sub-atmospheric pressure.

cleaning dirt and the like from articles such as shoes and other articles.

3,737,941

APPARATUS FOR CLEANING FILM

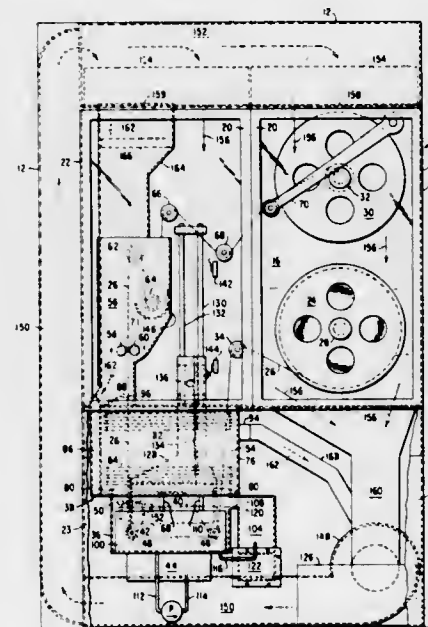
Arthur J. Miller, Fort Lee, N.J.; Raymond Perkins, Plainville, and Harold E. Sullivan, East Hampton, both of Conn., assignors to Jerome B. Gracey, Hartford and Dominic J. Squatrito, Manchester, both of Conn., part interest to each

Filed July 3, 1969, Ser. No. 838,760

Int. Cl. B08b 7/02

U.S. Cl. 15-100

11 Claims



An ultrasonic film cleaner has an enclosed shell within which is provided an internal solvent recovery system for recapturing solvent stripped from the ultrasonically cleaned film. The recovered solvent is recirculated to fluid nozzles which add solvent to a cleaning tank to skim dirty solvent over a spillway into an offset boiling tank, where contaminants precipitated to avoid build up of contamination in the solvent bath. An air filtration and recirculation system is provided to maintain a dust free environment within the shell. The film transport mechanism preferably has rolls with snap-on mountings for ease in adapting the cleaner for various width films.

3,737,942

POWER OPERATED CLEANING DEVICE

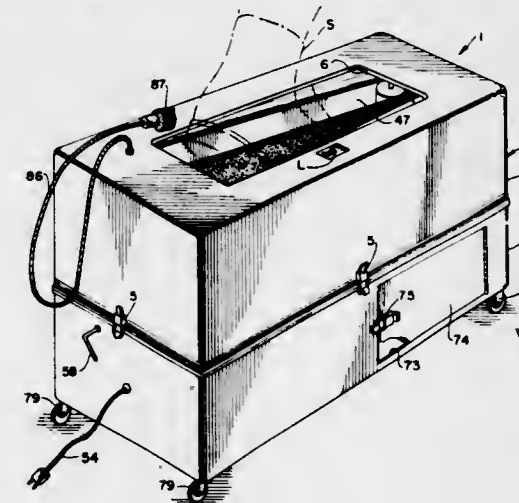
Charles H. Casey, Rt. 5, Box 91, Winchester, Va.

Filed Aug. 6, 1971, Ser. No. 169,769

Int. Cl. A47l 5/22

U.S. Cl. 15-339

28 Claims



A power operated cleaning device comprising a housing enclosing power operated brush means and vacuum means for

3,737,943

SUSPENSION CLIP FOR TEXTILES OR THE LIKE

Elsa Store, Seierstenvn. 6, Drobak, Norway

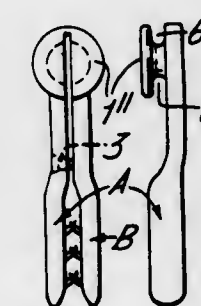
Filed June 24, 1971, Ser. No. 156,312

Claims priority, application Norway, June 24, 1970, 2470

Int. Cl. E05d 13/02

U.S. Cl. 16-87.2

2 Claims



A suspension clip for curtains or the like, made in one piece from plastic material having a sliding member for sliding in a rod track or the like, and a clamping member for gripping the curtain material. The clamping member comprises a series of thin pins or hooks which are locked together by a cooperative locking means, preferably in the form of push button members. The plastic material is formed to substantially similar branches which are joined together at their head portions, and these two branches are locked together by the push button members so that the pins or hooks engage the curtains and the suspension head is free to slide in grooves, slots or the like in a curtain rod or the like.

3,737,944

HANDLE CONSTRUCTION

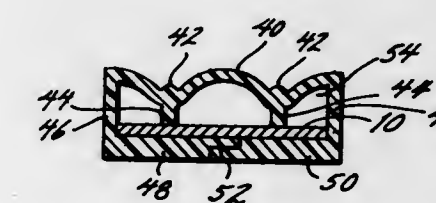
Marton Szabo, 1440 Sheridan Street, Apt. G-5, Camden, N.J., and George W. Bush, 319 Graisbury Avenue, Haddonfield, N.J.

Filed Sept. 16, 1971, Ser. No. 181,068

Int. Cl. A47b 95/02

U.S. Cl. 16-110

9 Claims



A handle construction having a spring steel bar whose ends are offset either from the plane of the bar or relative to the width thereof and a thermoplastic handgrip embracing the body portion of the bar between the offset ends. The handgrip is in the form of a longitudinally split sleeve which is wrapped around the body portion of the bar with the opposite longitudinal ends of the split being mated and sealed to form a seam on the underside of the handgrip which is substantially in the same plane of the underside.

3,737,945 HANDLE MEANS

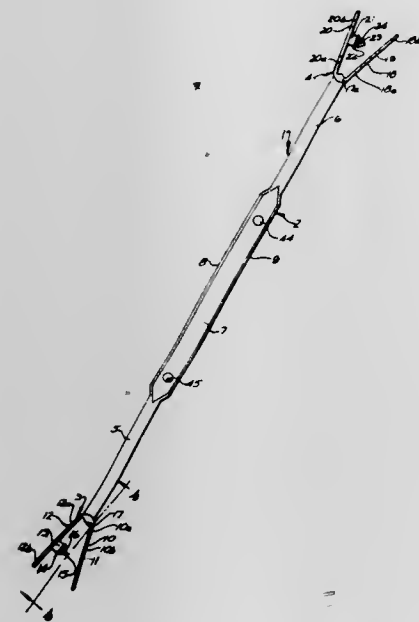
James J. Gould, Cincinnati, Ohio, assignor to Duro Paper Bag Manufacturing Company, Ludlow, Ky.

Filed Nov. 24, 1971, Ser. No. 201,774

Int. Cl. A47b 95/02

U.S. Cl. 16—125

10 Claims



Handle means affixable to articles to be carried such as paper and plastic bags and the like. Each handle means comprises an elongated body of resilient material terminating in enlarged bifurcated ends. A first bifurcation of each end has a perforation therethrough. The second bifurcation of each end has a headed pin thereon adapted to pass through a portion of the article to be carried and the perforation in the first bifurcation, engaging the first bifurcation with a snap fit, whereby the ends of the handle means are affixed to the article. Each headed pin has a breakaway point thereon by which the pin may perforate the portion of the article through which it passes and which may be readily removed when the handle means has been affixed to the article. When the handle means is used in pairs, additional means may be provided whereby the bodies of the handles may be joined together for convenience in carrying.

3,737,946 HINGES AND MORE PARTICULARLY TO HINGES SUITABLE FOR ADJUSTABLE BACK RESTS OF SEATING MEANS

Karl Giuliani, 4 Windrush Avenue, Linkside, Port Elizabeth, South Africa

Filed Apr. 28, 1972, Ser. No. 248,534

Claims priority, application South Africa, Apr. 30, 1971, 2831; Mar. 15, 1972, 1778

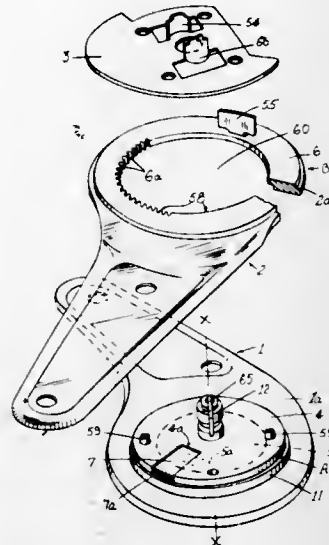
Int. Cl. E05d 11/10

U.S. Cl. 16—139

16 Claims

A hinge including a pair of hinge members rotatable relative to each other about a hinge axis; an arcuate toothed rack of concave configuration fast with the one hinge member and presenting teeth which are directed radially inwardly towards the hinge axis; a toothed locking element which is radially but not circumferentially movable relative to the other hinge member and which is interengageable with the arcuate rack in a plurality of circumferentially spaced positions; and actuating means for moving the locking element into and out of engagement with the arcuate rack. The actuating means comprises the combination of a single rotary actuating member located at least partially within a bore in at least one of the hinge mem-

bers and rotatable about the hinge axis; two arcuate cam surface zones on the actuating member and disposed about the hinge axis, the spacing of each cam surface zone from the hinge axis varying between a maximum and a minimum value along the cam surface zone; a single cam follower connected to the locking element; and an arcuate bearing surface zone on the follower for each cam surface zone, rotation of the ac-



tuating member in opposite directions engaging either one of the two cam surface zones with its own associated bearing surface zone so as positively to urge the locking element into and out of engagement with the arcuate rack, at least the cam surface zone and the associated bearing surface zone which are engaged when the locking element is urged into engagement with the arcuate rack being complementary to one another.

3,737,947 TWO LID COUNTERBALANCE MECHANISM

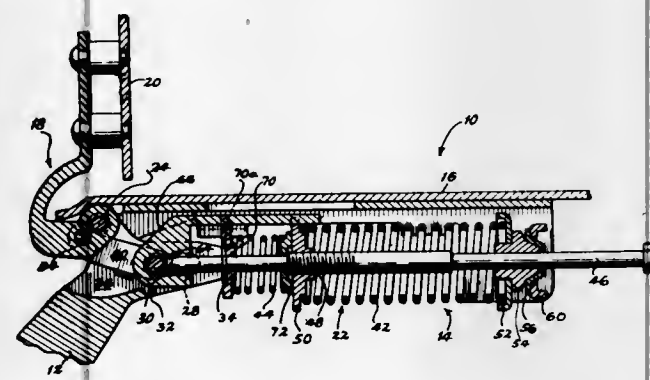
Carl H. Little, Jamestown, N.Y., assignor to Weber-Knapp Company, Jamestown, N.Y.

Filed Dec. 13, 1971, Ser. No. 207,141

Int. Cl. E05f 11/2

U.S. Cl. 16—190

7 Claims



A cover mounting combination hinge and counterbalance mechanism, wherein two lids or covers may be carried and counterbalanced by a single mechanism.

3,737,948 DEVICE FOR REMOVING THE COLUMN OF CERVICAL VERTEBRAS FROM POULTRY

Martinus Petrus Gerardus Van Mil, Boxmeer, Netherlands, assignor to Stork Amsterdam N. V., Sportlaan, Amstelveen, Netherlands

Filed Aug. 10, 1971, Ser. No. 170,437

Claims priority, application Netherlands, Sept. 17, 1970, 13735

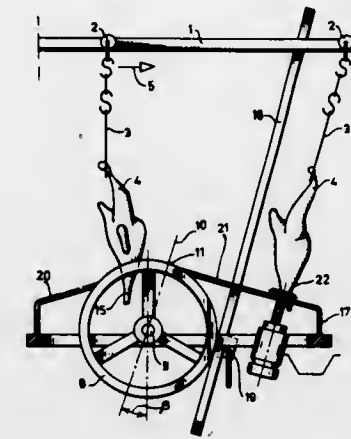
Int. Cl. A22c 21/00

U.S. Cl. 17—11

3 Claims

A device for removing the column of cervical vertebrae from poultry, comprising a horizontal conveyor by which the

birds, hanging by their legs are advanced, and under the conveyor two cooperating driven discs, which discs diverge at an acute angle α — measured in a plane which makes an acute



angle β with the vertical — and have each a bent-over edge, which edges only partially overlap each other in and in the proximity of the upper intersection where the edges intersect the aforementioned plane.

3,737,949 METHOD AND APPARATUS FOR PROCESSING HIDES

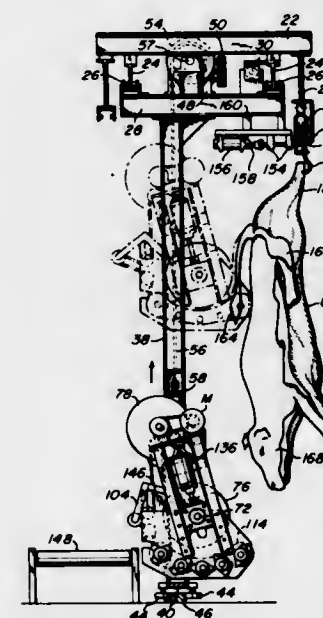
Albert D. Davis, 117 E. 21st Street, Spencer, Iowa

Filed Jan. 25, 1971, Ser. No. 109,339

Int. Cl. A22b 5/16

U.S. Cl. 17—21

23 Claims



A beef carcass suspended at the hind legs from a moving conveyor, is prepared for hide removal by means of a deep rumpling operation performed by hand which frees the tail and provides at each side of the carcass a hide flap. The underside of the hide is slitted down to the forequarters and head, and a pocket is formed at the top of the loin to free the tail and prevent the fat in this region from being pulled off as the hide is stripped from the pack, sides, forelegs, and head in one continuous rapid operation, the head remaining on the carcass.

The stripping involves initially feeding the tail of an animal between two closely moving surfaces which grip progressively the tail, the hind leg flaps, the shoulder portions of the hide, and finally the foreleg and head portions, the stripping continuing uninterruptedly until the head remaining on the carcass is finally bared of hide.

3,737,950 APPARATUS TO PRODUCE A PLANE PADDING WEB

Robert Bolland, and Claude Saligny, both of Lyon, France, assignors to Societe Rhodiaceta, Paris, France

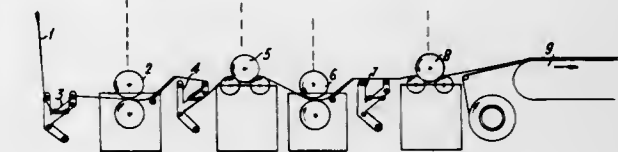
Filed July 12, 1971, Ser. No. 161,627

Claims priority, application France, July 10, 1970, 7026734

Int. Cl. D01d 11/02

U.S. Cl. 19—65 T

7 Claims



Method and apparatus for making padding web is disclosed, wherein uncut, highly crimped, tensioned tow is passed through a series of rollers. The rollers are arranged in at least two sets of pairs, the rollers of each pair rotating at different peripheral velocities. The ratio of peripheral velocities is higher for the upstream pair of rollers. The upper rollers of the two pairs rotates faster than the lower rollers thereof.

The padding web produced is suitable for stuffing articles such as bed covers, sleeping bags, anoraks, and the like.

3,737,951 CARD CLOTHING

Arthur Patrick Pringle Mackie, Albert Foundry, Belfast, Ireland, assignor to James Mackie & Sons Limited, Belfast, Northern Ireland

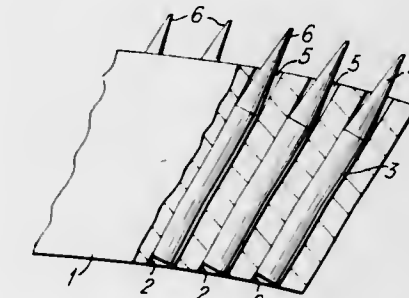
Filed Oct. 19, 1970, Ser. No. 82,415

Claims priority, application Great Britain, Oct. 27, 1969, 52,550/69

Int. Cl. D01g 15/26

U.S. Cl. 19—97

7 Claims



Clothing for the cylinder of a card particularly for use with wool and synthetic fibers comprises a stave having pins mounted in it at a density greater than ten pins per square centimeter with each pin projecting from the stave by a length of less than 2½ mm. The length of taper of each pin is greater than the projecting length so that part of the taper is located within the body of the stave thus leading to improved carding of fine denier material.

3,737,952 CARDING MACHINE FIBER AND AIR CONTROL METHOD AND MEANS

James Everett O'Neal; Josef Karl Gunter, and Colle Walton Gunter, all of c/o Gunter & Cooke, Inc., P. O. Box 339, Durham, N.C.

Continuation of Ser. No. 629,842, Feb. 14, 1967, abandoned, which is a continuation-in-part of Ser. No. 535,126, March 17, 1966, abandoned. This application Apr. 30, 1969, Ser. No. 820,684

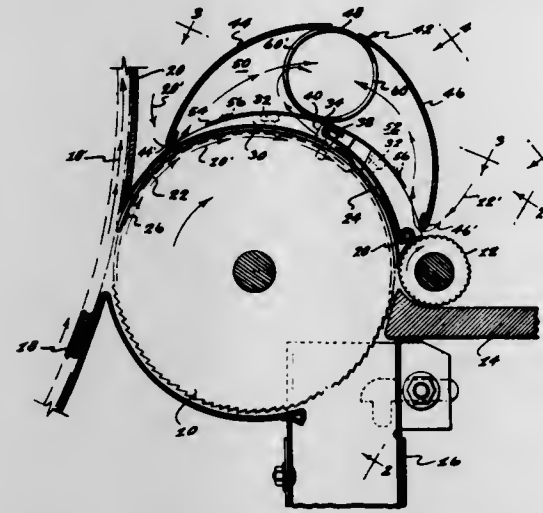
Int. Cl. D01g 15/76

U.S. Cl. 19—107

10 Claims

A method and enabling means is provided for controlling to substantially improved advantage the troublesome air currents

generated in carding machines at the surface of the lickerin roll beyond its tangency with the carding cylinder, and for ad-



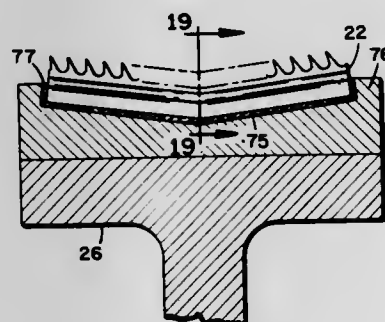
ditionally and comparably controlling the character of fiber going forward on any carding machine roll surface at which appreciable air currents are generated.

3,737,953 CARD CLOTHING

Alfred R. Bechtel, Jr., Portsmouth, R.I., assignor to Ashworth Bros. Inc., Fall River, Mass.
Filed Sept. 11, 1970, Ser. No. 71,481
Int. Cl. D01g 15/26

U.S. Cl. 19—113

1 Claim



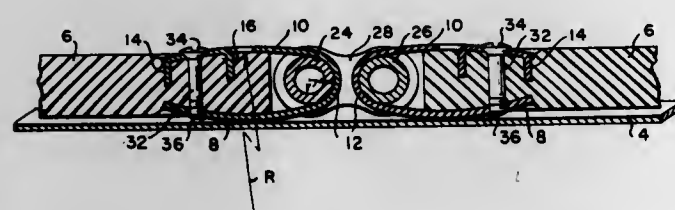
Card clothing for flats comprising a plurality of elongated wire strips assembled in side by side relationship and inclined at an angle to the direction of fiber flow across the flats. The strips have upstanding portions laterally spaced apart, and each upstanding portion provides a row of teeth having sides inclined at an angle to the direction of fiber flow.

3,737,954 CONNECTOR FOR FLEXIBLE BELTS

Charles P. Tabler, 2560 Rosary Circle, Hamilton, Ohio
Filed Oct. 19, 1970, Ser. No. 81,995
Int. Cl. F16g 3/07

U.S. Cl. 24—31 C

7 Claims



A connector for belt ends for belt conveyors in which a belt is guided by a tube. A clamp member is secured to each end of

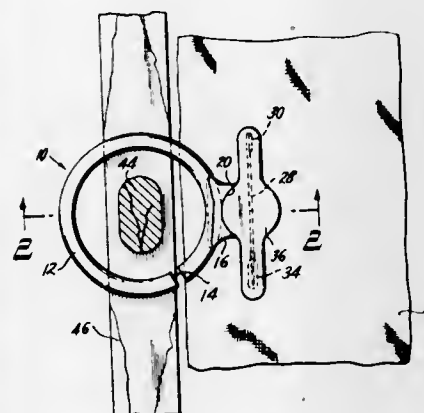
the belt and a hinge pivotally connects the clamps. The clamps are provided with long sharp barbs which spread the reinforcing cords of the belt as the barbs penetrate the belt on assembly to thereby reduce the number of cords which are cut during the application of the clamp members. The legs of the clamp are formed as arcs of a curve with a long radius to provide minimum friction and erosion of the conveyor tube.

3,737,955 BLANKET HOLDER WITH STABLE AND PROTECTED SAFETY PIN

Louise Z. Hakim, P.O. Box 4826, Monroe, La.
Filed Feb. 8, 1972, Ser. No. 224,443
Int. Cl. A47c 21/02

U.S. Cl. 24—72.5

1 Claim



An improved blanket holder for infant blankets of the type applied to the vertical side rails of a crib, wherein the holder includes a split ring having an integral extension at one side thereof. The extension comprises an elongated body member perpendicular to a radius of the ring and serving to fixedly encase the back portion of a safety pin which is sealed therein.

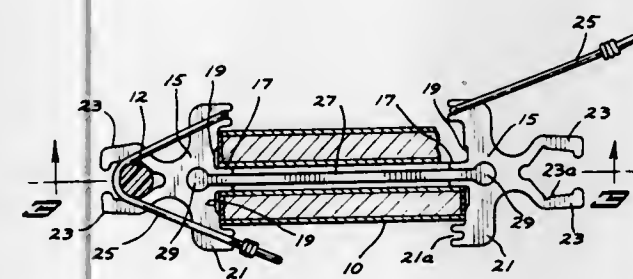
3,737,956 COMBINATION HOLDER FOR SKIS AND SKI POLES

Robert J. Gragert, 4616-40 1/2 Avenue North, Minneapolis, Minn.

Filed Dec. 9, 1971, Ser. No. 206,338
Int. Cl. A44b 21/00

U.S. Cl. 24—815 K

2 Claims



This is a combination holder for skis and ski poles which includes a pair of edge engaging members with a resilient anchoring element extending therebetween to securely hold said members against the edges of a pair of skis positioned in superposed relationship, each of said members being provided with a pair of pole gripping arms and having resilient means for holding the poles in said arms in substantially parallel relation to the skis on opposite sides thereof.

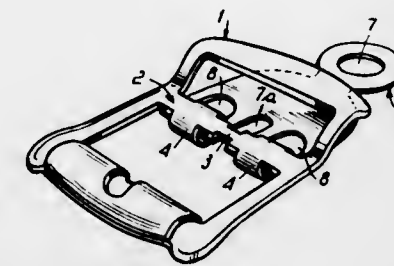
3,737,957 BUCKLE

Adalberto Steinberg, Via Mancini 5, Milan, Italy
Filed Sept. 25, 1970, Ser. No. 75,637
Claims priority, application Italy, Sept. 26, 1969, 22570 A/69

U.S. Cl. 24—188

Int. Cl. A44b 11/24

1 Claim



A buckle structure comprising a buckle frame of substantially rectangular shape and a plate member hingedly connected thereto and secured to footwear articles, clothing articles and the like. The buckle has an intermediate transverse bar provided with lugs projecting from this bar and folded towards each other for receiving the plate member. The plate member is provided with eyelets defined by a flat border portion which is designed to be received within the folded lugs.

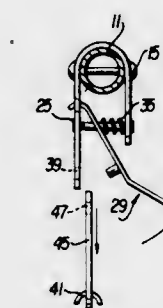
3,737,958 QUICK RELEASE LOCKING MECHANISM

Ernest S. Sharaf, Rockport, Mass., assignor to Questor Corporation, Toledo, Ohio

Filed July 26, 1971, Ser. No. 166,092
Int. Cl. A44b 19/00; F16m 13/02; A47c 31/00

U.S. Cl. 24—230 AK

2 Claims



A quick release mechanism for a seat belt used with an infant's car seat. The belt is secured at one end to one upright post of the seat. The other upright post includes a rigid device having a pivoted finger which is resiliently biased towards the rigid device. The belt terminates in a flat plate having a hole therein. The rigid device has a similar hole and the finger has a boss which passes through both holes so as to secure the belt.

3,737,959 PIPE CLAMP MADE OF NON-CAST MATERIALS

Telford L. Smith, Millbrae, and Frank E. Turner, San Mateo, both of Calif., assignors to Smith-Blair Inc., Pittsburgh, Pa.

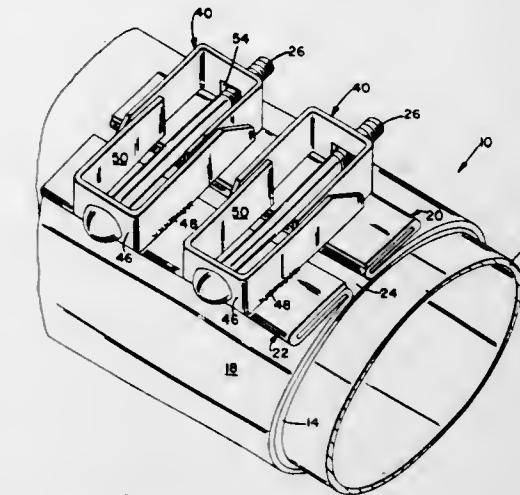
Filed Oct. 29, 1971, Ser. No. 193,774
Int. Cl. B65d 63/06

U.S. Cl. 24—279

12 Claims

An improved pipe clamp comprised of rigid lugs fixed to the ends of a flexible band and fabricated from formed elements

made of rolled or extruded metal stock. Each lug is comprised of a lug bar that retains one end of the clamp band. One or more U-shaped elements, welded to the lug bar have finger



portions that extend perpendicular to it and engage the lug bar of the opposing lug. The U-shaped elements on different embodiments may have separable transverse portions to allow a drop-in bolt feature.

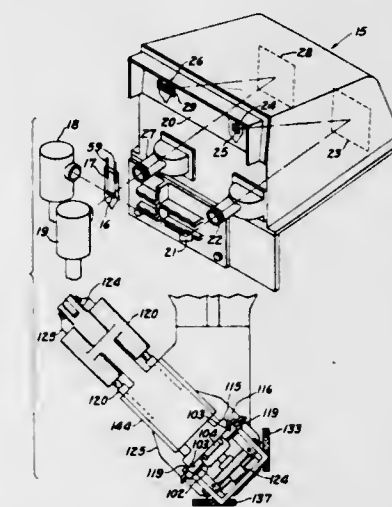
3,737,960 REFLECTOR ALIGNMENT APPARATUS

John A. Billson, Willoughby, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 29, 1971, Ser. No. 213,291
Int. Cl. H01j 9/18

U.S. Cl. 29—25.15

9 Claims



An apparatus for accurately aligning and attaching a lamp to support wires to form a mount and positioning and attaching the mount in metal thimbles of a reflector section comprising an adjustable lamp holder, a support wire holder, an optical apparatus for aligning the lamp's light source, an attaching device for forming a mount and a fixture for positioning the mount at the optical focus of the reflector and attaching the support wires to thimbles embedded in the reflector.

3,737,961 METHOD OF MAKING AN IMPREGNATED PLASTIC DIELECTRIC CAPACITOR

John Lapp, Franklin, and Norbert R. Weller, Greendale, both of Wis., assignors to McGraw-Edison Company, Milwaukee, Wis.

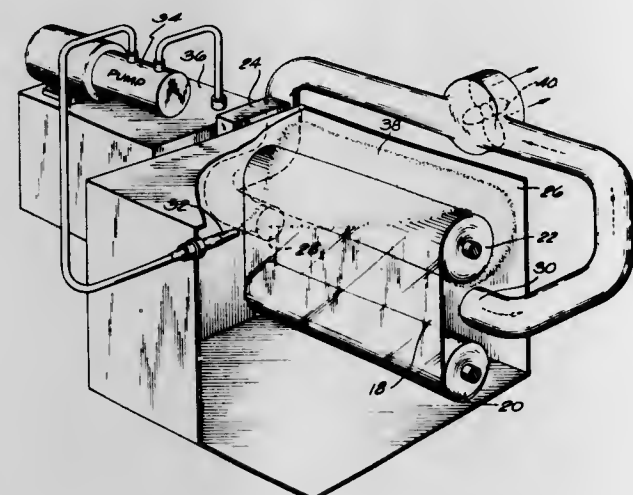
Filed Dec. 8, 1971, Ser. No. 206,044
Int. Cl. H01g 13/04

U.S. Cl. 29—25.42

10 Claims

An all film capacitor includes a sheet of plastic material in film form wound with the capacitor electrode foil, the film

being capable of impregnation by a dielectric liquid medium and having been wetted by the dielectric liquid prior to impregnation. The plastic film and dielectric liquid form the dielectric system of the capacitor. In processing, a dielectric liquid medium is applied to the film to provide a wet film and the wet film is wound with the foil into a capacitor pack. The pack, or packs, are subjected to an elevated temperature and



vacuum to draw off volatile material such as water vapor, i.e., the pack is dried. Subsequent to drying, the pack, or packs, are positioned in a capacitor tank for soaking in the dielectric liquid, again at an elevated temperature and under a vacuum. Complete impregnation of the film by the liquid dielectric occurs during soaking. If desired, the same film material can be wound on the outside of the capacitor packs to insulate the packs from the capacitor tank.

3,737,962

ROLL ASSEMBLY FOR PAPER MACHINE

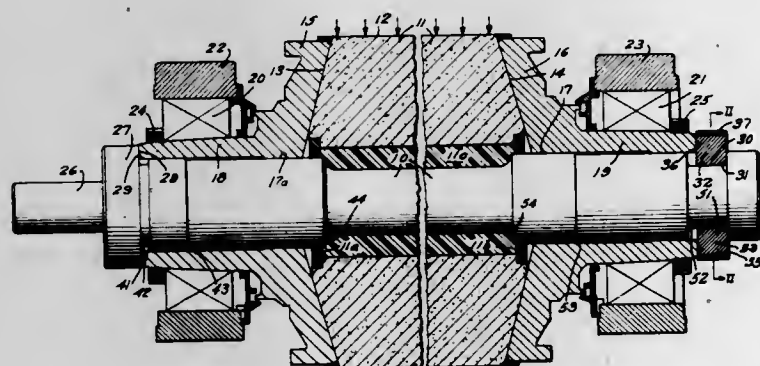
Lester M. Hill, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.

Filed Mar. 3, 1971, Ser. No. 120,396

Int. Cl. B21b 31/08

U.S. Cl. 29—123

7 Claims



A roll assembly for a paper making machine with a rotary shaft and a roll shell surrounding the shaft to rotate therewith, the shell being of a material such as granite and being under compression by being held by an annular compression head at one end of the shaft and another annular compression head at the other end of the shaft. The first head axially engages a radial surface on the shaft and the other head axially engages a split collar axially engaging a radial surface on the shaft. In one arrangement, the collar is positioned in the recess by relatively extending the length of the shaft preferably by heating it relative to the granite roll shell.

3,737,963

ROLLER CONSTRUCTION

Simon Postulka, Markoldenort; Hermann Vordergrugge, and Hans-Christof Thermann, both of Windelsbleiche, all of Germany, assignors to Firma Hermann Windel, Windelsbleiche b. Bielefeld, Germany

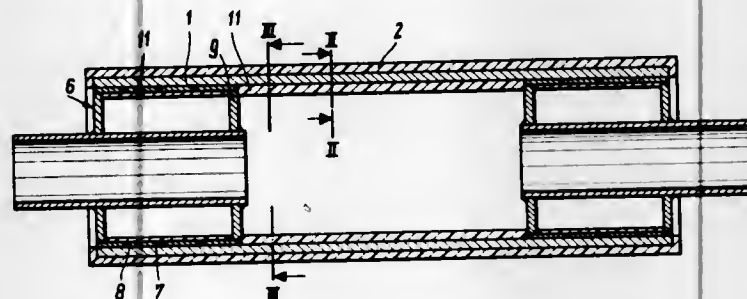
Filed Feb. 2, 1971, Ser. No. 111,988

Claims priority, application Germany, Feb. 7, 1970, P 20 05 619.3

Int. Cl. B21b 31/08

U.S. Cl. 29—130

16 Claims



A roller for textile or similar machines is made by producing a calibrated tube of predetermined configuration which is permeable to a synthetic plastic material, and then embedding it in the synthetic plastic material so that the latter forms a jacket around the tube and also penetrates interstices of the latter.

3,737,964

EXPANDED STRUCTURAL MEMBERS

Harold Rex Jury, Norwood, Australia, assignor to Jury & Spiers Proprietary Limited, Norwood, Australia

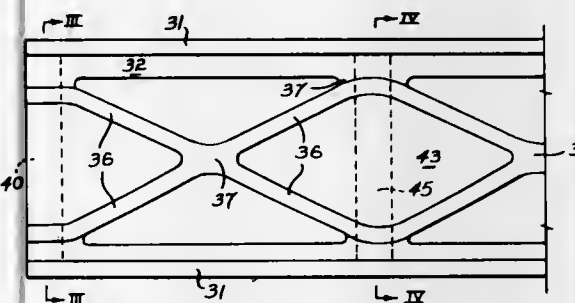
Filed July 27, 1971, Ser. No. 166,390

Claims priority, application Australia, July 31, 1970, 2042

Int. Cl. B23p 17/00

U.S. Cl. 29—155 R

10 Claims



A method of forming an expanded structural member, and a structural member formed thereby, wherein spaced parallel longitudinally extending rows of openings are pierced in a web of a member of ductile metal which has a constant cross-sectional shape, the openings of each row overlapping those of the next adjacent row so as to form a series of strut forming elements in the web, forcing the parallel edges of the member apart so as to stretch the elements and thus form struts, the edge portions thereby becoming chords, and positioning load transmitting members between chords so as to transmit load imposed on one of the chords to the other chord.

3,737,965

ROLLER BEARING RINGS

Edward Ronald Knapp, Duston, England, assignor to The Timken Company, Canton, Ohio

Filed June 14, 1971, Ser. No. 152,703

Claims priority, application Great Britain, June 18, 1970, 29,747/70

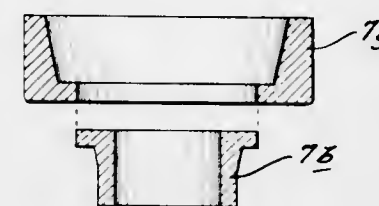
Int. Cl. B21h 1/12; B21k 1/04; B23p 11/00

U.S. Cl. 29—148.4 R

8 Claims

Annular mechanical elements such as bearing rings for roller bearings are manufactured by forming an annular steel

blank of predetermined dimensions by a machining operation and subjecting the blank to a cold extrusions operation to provide an annular element of desired shape. The blank may be formed by the cold extrusion process into a multiplex struc-



ture which can be separated by a punching operation into two or more annular elements each of desired shape. The machining operation may be performed on the end of a seamless steel tube or a hot roller steel bar and the desired annular blank is then separated by a parting operation.

3,737,966

METHOD OF CONSTRUCTING A BLADED BLOWER WHEEL

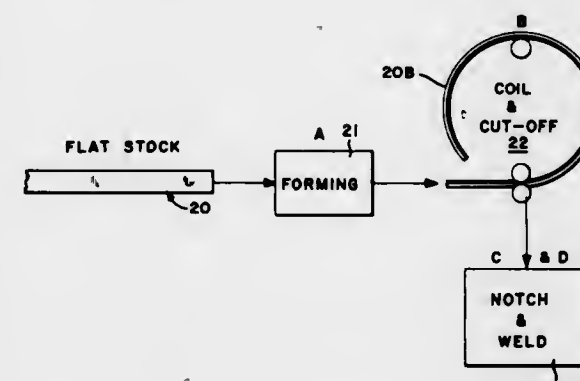
James R. Ranz, Wilmington, Ohio, assignor to Lau Incorporated, Dayton, Ohio

Filed Jan. 13, 1971, Ser. No. 106,021

Int. Cl. B23p 15/02, 15/04

U.S. Cl. 29—156.8 CF

3 Claims



An improved method of constructing a bladed blower wheel and an improved blower wheel are disclosed in which the end rings are formed from flat stock material which has been partially preformed by rolling and cut to the desired length. The center disks are stamped from sheet material which may be of a different gauge than that of the end rings and formed with peripheral notches and a U-shaped crimp to engage the inner section of each of the blades. The arrangement permits selection of center disk material without regard to end ring material, provides versatility in selecting blower wheel size and eliminates production inventory balance problems which occur when the center disk and end rings are stamped from the same material.

3,737,967

DEVICE FOR SETTING FIRE RINGS IN CYLINDER HEAD GASKETS

Pierre Pommler, Saint-Priest, France, assignor to Societe Anonyme dite: Cefilac, Paris, France

Division of Ser. No. 77,841, Oct. 5, 1970, Pat. No. 3,694,889.

This application July 13, 1972, Ser. No. 271,267

Claims priority, application France, Oct. 10, 1969, 6934752

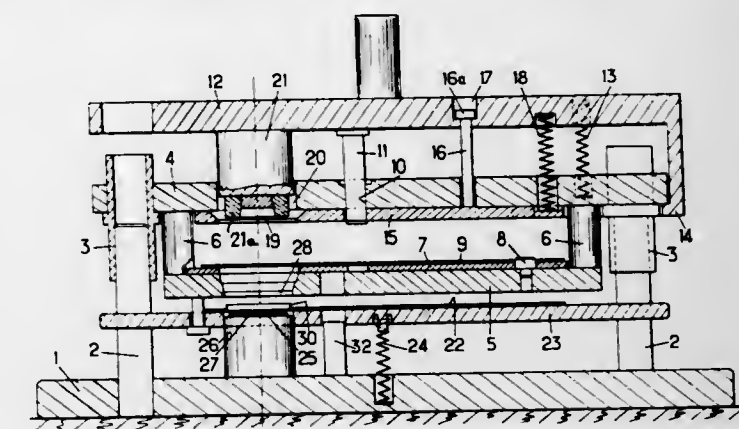
Int. Cl. B23p 19/00

U.S. Cl. 29—200 B

10 Claims

Device for setting fire rings in gaskets which comprises means for supporting a metallic sheet provided with holes having upstanding cylindrical rims dimensioned and positioned to register with holes in the gasket, means for cutting rings encircling these rims, means for locating the gasket on the rings so

that the rims project through the gasket holes, and means for pressing the rims are down against the gasket. The invention



includes a machine which carries out all but the first of these steps successively and automatically.

3,737,968

METHOD FOR JOINING A NUMBER OF REINFORCING BARS SIMULTANEOUSLY AND A TOOL FOR CARRYING OUT THIS METHOD

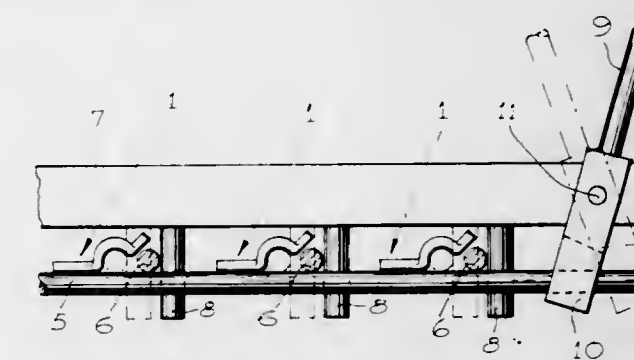
Friedrich Karl Bender, R.R. No. 4, Box 181, Starkville, Miss.

Filed Nov. 12, 1971, Ser. No. 198,259

Int. Cl. B23p 19/00, 17/00, 11/02

U.S. Cl. 29—200 R

3 Claims



A retaining member, a number of which are fastened to a concrete reinforcing bar causing recesses between said bar and said members, and a method to force a number of other reinforcing bars into said recesses simultaneously, and a tool to carry out this method.

3,737,969

CENTERING DEVICE

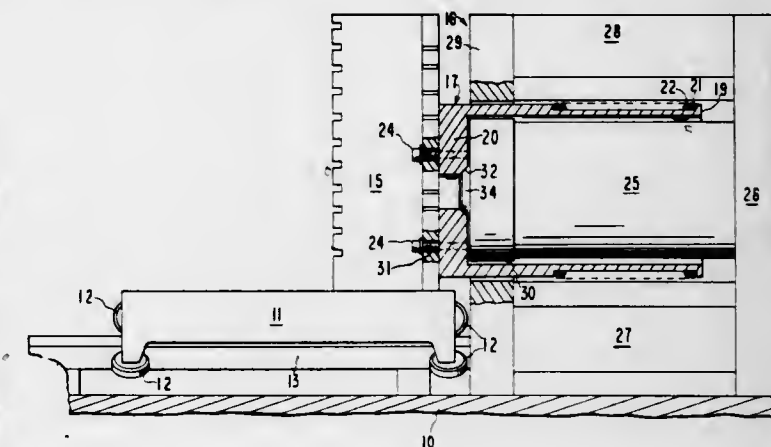
Ivan Pejcha, Santa Clara, Calif., assignor to Information Storage Systems, Inc., Cupertino, Calif.

Filed Apr. 19, 1971, Ser. No. 135,008

Int. Cl. H05k 13/00; H02k 15/00

U.S. Cl. 29—203 P

4 Claims



This disclosure relates to a centering device specifically applied to a movable coil and a magnet assembly wherein the

members can be centered relative to each other by the interaction of mating parts on the members when the members are moved into abutting position.

3,737,970

TORSION BAR ADJUSTING TOOL

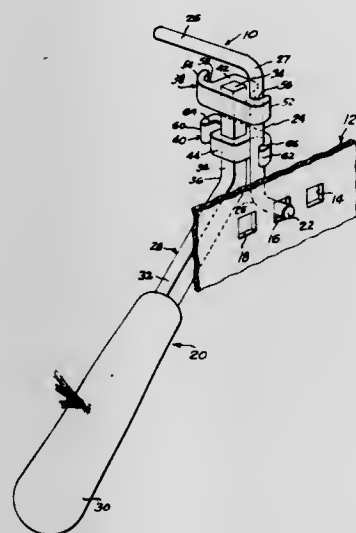
Harold G. Tracy, 14414 Minock, Detroit, Mich.
Substitute of Ser. No. 660,936, May 22, 1957

Filed Aug. 6, 1971, Ser. No. 169,856

Int. Cl. B23p 19/04

U.S. Cl. 29—225

3 Claims



This torsion bar gripping and adjusting tool has an elongated handle having a jaw-supporting shank and having first and second bar gripping jaws mounted on said shank in spaced relationship thereon. The first jaw has a first bar gripping portion with a first bar engaging recess therein facing in one direction and engageable with one side of the torsion bar whereas the second jaw has a second bar gripping portion with a second bar engaging recess therein facing in the opposite direction from the first bar engaging recess and engageable with the opposite side of the bar from the side thereof engaged by the first recess. The bar gripping portions and the bar engaging recess comprise oppositely-facing hooks which are offset laterally relative to the shank, with the recesses aligned with one another upon an axis disposed substantially parallel to the axis of the shank. One of the jaws is fixedly mounted on the shank and the other jaw is slidably mounted thereon for sliding motion toward and away from the fixedly mounted jaw. Means consisting of shank receiving bores of non-circular cross-section in both jaws fit the shank of corresponding non-circular cross-section to prevent relative rotation between the jaws and shank.

3,737,971

MACHINE FOR ASSEMBLING LAMINATIONS

John M. Macchlone, P. O. Box 1386, Haines City, Fla.

Filed July 30, 1971, Ser. No. 167,572

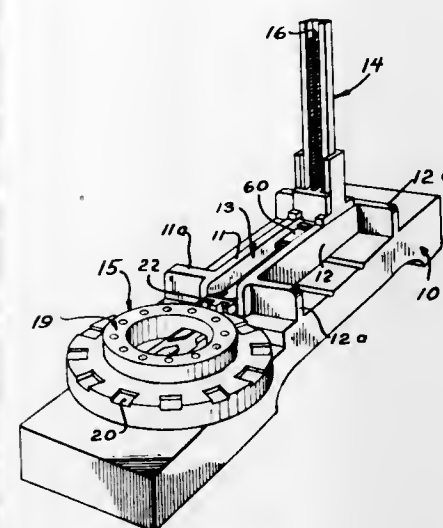
Int. Cl. H05k 13/04; B23q 7/06

U.S. Cl. 29—203 L

13 Claims

A stack of transformer laminations plates are held in a magazine, the lower end of which is provided with a gauging mechanism for admitting passage of single laminations. A layout mechanism is reciprocated beneath the magazine, and it includes a number of spaced picker stations, each provided with a picking surface for engaging the lowermost lamination plate in the magazine and a recess for receiving a selected lamination. In one forward movement, a predetermined number of plates are selected and disposed in laterally spaced relation. On the reverse movement, these plates are gathered

into a stack by a stripper member rotatably mounted in front of the gauging mechanism. The stack is seated by the stripper member on an inserter located on the forward end of the



layout mechanism. On the next forward movement of the layout mechanism, a second set of plates is selected from the magazine and the set already picked and stacked is delivered into assembled relation with a coil.

3,737,972

METHOD OF MOUNTING PLASTIC TRIM STRIP

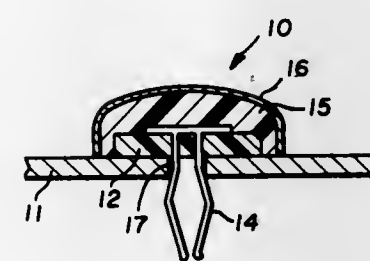
Edward H. Smoot, Holcomb, N.Y., assignor to The Schlegel Manufacturing Company, Rochester, N.Y.

Filed June 21, 1971, Ser. No. 154,738

Int. Cl. B23p 11/02

U.S. Cl. 29—453

6 Claims



A mechanical, spring clip mounting method for plastic trim strips allows plastic to be substituted for metal in trimming automobiles. A base lamina of plastic is formed and punched with holes through which spring clips are inserted, and trim lamina is secured to the base lamina to cover the spring clips which are pressed into holes to fasten the trim strip in place.

3,737,973

METHOD AND DEVICE FOR ASSEMBLING A STOPPER TO A SYRINGE BARREL

Theodore H. Stawski, Union, N.J., assignor to Becton, Dickinson and Company, East Rutherford, N.J.

Filed Oct. 20, 1970, Ser. No. 82,409

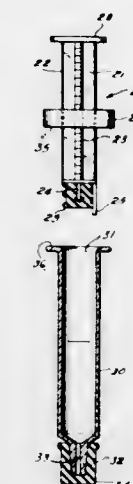
Int. Cl. B23q 17/00

U.S. Cl. 29—407

7 Claims

A device and method for assembling a stopper to a syringe barrel which includes a stopper holding means to hold the stopper as it is being inserted into the open end of the syringe barrel. Simultaneously air escape means on the device permits air within the barrel to escape from the open end of the barrel

and when the stopper has been extended within the barrel to the desired depth, the stopper holding means will release from



the stopper and may be removed from engagement with the stopper and the syringe barrel without disturbing the location of the stopper within the barrel.

3,737,974

METHOD OF REMOVING AND REPLACING RAM SEALS

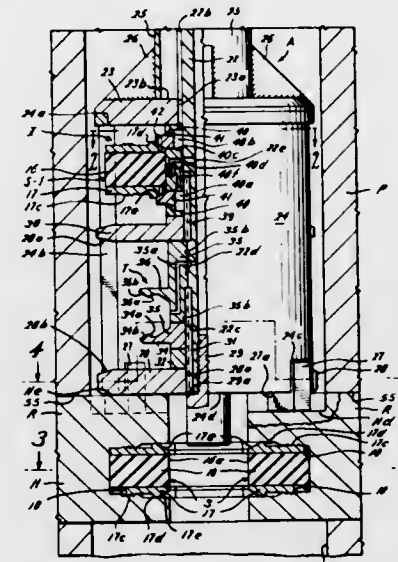
James D. Mott, Houston, Tex., assignor to Hydril Company, Houston, Tex.

Filed Mar. 25, 1971, Ser. No. 127,881

Int. Cl. B23p 7/00, 19/02

U.S. Cl. 29—401

7 Claims



Retrievable blowout preventer ram seals, and method and apparatus for removing and replacing same without removing the rams or opening the blowout preventers, wherein means are lowered in a well pipe for removing one or both of the retrievable ram seals from the rams by working on the inside of the well pipe, and wherein additional means are provided for inserting from inside of the well pipe one or more of the retrievable ram seals as a replacement for the one or more seals removed, such means being preferably on a single tool but being usable on several separate tools.

3,737,975

ARRANGEMENT FOR EXPLOSIVELY FORMED CONNECTIONS AND METHOD OF MAKING SUCH CONNECTIONS

Charles N. McKinnon, Jr., 17942 Bascom, Irvine, Calif.

Filed July 15, 1970, Ser. No. 55,154

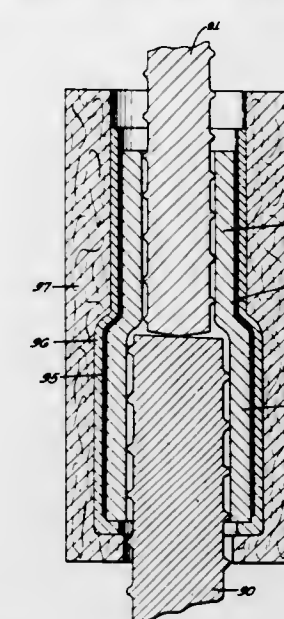
Int. Cl. B23p 17/00, 19/00

U.S. Cl. 29—421

34 Claims

An arrangement (method and apparatus) for attaching together ribbed concrete reinforcing bars or the like in which

the bar ends are inserted into a sleeve circumscribed by an explosive, such arrangement including means for confining the explosive and a damping material. The assembly is positioned in a protective shield or casing and, upon detonation,



completes the joint by deforming the sleeve inwardly to grip the ribs on the bars. Provision can be made to join bars of unequal diameters or to provide for relative movement between the bars after joining.

3,737,976

METHOD OF FORMING FILAMENT REINFORCED METALLIC SHEETS

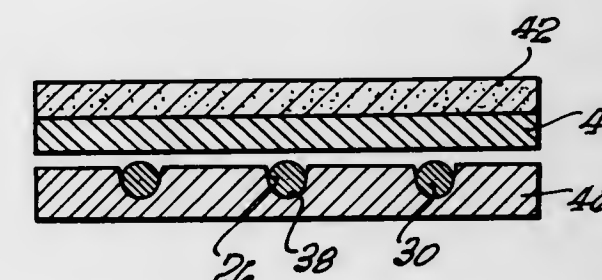
Irving Lieberman, Covina, Calif., and Robert M. Gray, Atlanta, Ga., assignors to Whittaker Corporation, Los Angeles, Calif.

Filed Apr. 15, 1971, Ser. No. 71,771

Int. Cl. B23k 21/00

U.S. Cl. 29—470.1

2 Claims



Multi-layer metallic sheet composite structures containing fragile reinforcing filaments are prepared by explosively welding two or more such metallic layers having therebetween relatively fragile reinforcing filaments, the outer surface of which filaments are in supportive contact with ductile metal.

3,737,977

METHOD OF FORMING CERAMIC-METAL SEAL

Paul J. Jorgensen, Cupertino, Calif., assignor to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 825,086, Nov. 14, 1968, Pat. No. 3,598,435, which is a continuation-in-part of Ser. No. 749,069, July 31, 1968, which is a continuation-in-part of Ser. No. 500,311, Oct. 21, 1965. This application Oct. 19, 1970, Ser. No. 82,126

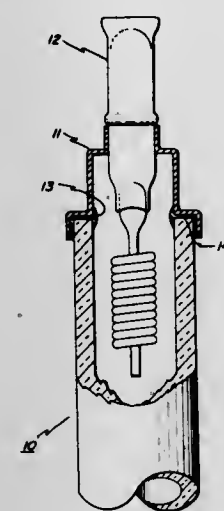
Int. Cl. B23k 31/02

U.S. Cl. 29—472.9

3 Claims

An improved seal or bond between a refractory metal body and a translucent alumina ceramic body is disclosed wherein

the metal surface to be bonded to the alumina body is comprised of zirconium, either as a metallic coating thereon, diffused therein by "metallizing," as an alloying constituent, or as the major constituent of the metal body. The bond is ef-



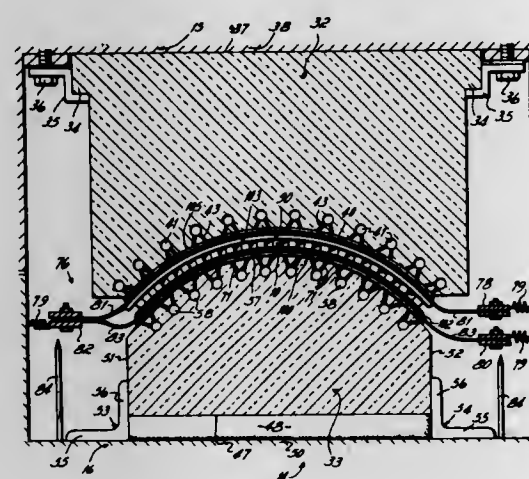
fect by means of an alumina glass between the zirconium present at the surface and the adjoining alumina ceramic surface, at least a portion of the zirconium being oxidized by the molten glass during the formation of the seal.

3,737,978 BRAZING METHOD

Robert R. Rathbun, Middletown, Ohio, assignor to Aeronca, Inc., Middletown, Ohio
Division of Ser. No. 1,234, Jan. 7, 1970, Pat. No. 3,612,387.
This application May 5, 1971, Ser. No. 140,579
Int. Cl. B23k 31/02

U.S. Cl. 29—472.3

8 Claims



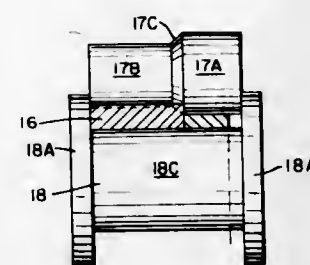
A method and apparatus are disclosed for brazing articles such as honeycomb sandwich structures. The apparatus includes a cold wall box-like housing separable into upper and lower sections. Each section carries a ceramic die member provided with passageways terminating in small ports for conducting a cooling fluid adjacent to the work. The workpiece is heated by electrical resistance heater strips passing above and below the workpiece. Means are provided for evacuating the housing and back-filling it with argon. When the workpiece is brought to brazing temperature, two expandable bags are inflated. One bag raises the lower die section to form a general fit with the upper one. The second bag is in direct contact with the upper face of the workpiece and exerts a uniform pressure normal to its surface. After brazing, the bags are deflated and chilled argon is introduced through the die passages to cool the work. Other features include localized temperature control by electron emission or cooling tubes and vapor removal by means of a cold trap.

3,737,979 METHOD OF MANUFACTURING LONGITUDINALLY WELDED STRIPS OF DIFFERENT THICKNESSES AND WIDTHS

Antone F. Rakich, Waterbury; Luis J. Lozano, Southington, and John A. Nelmes, Waterbury, all of Conn., assignors to Anaconda American Brass Company, Waterbury, Conn.
Filed Aug. 5, 1971, Ser. No. 169,203
Int. Cl. B23k 31/02

U.S. Cl. 29—480

4 Claims



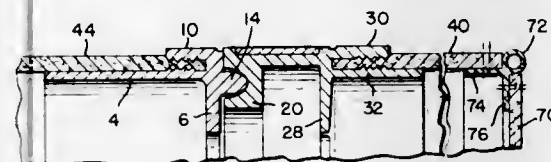
A composite flat metal strip having portions of different thicknesses is produced by welding together strips of the different thicknesses along their adjacent edges and by rolling both thicknesses of the composite welded strip to a final stepped cross-section.

3,737,980 METHOD OF MANUFACTURING LUGGAGE CASES AND THE LIKE AND PRODUCTS PRODUCED THEREBY

Henry L. Kotkins, Seattle, Wash., assignor to Skyway Luggage Company, Seattle, Wash.
Filed Feb. 8, 1971, Ser. No. 113,192
Int. Cl. B21d 39/00

U.S. Cl. 29—515

4 Claims



A method of making a luggage case including the steps of forming a pair of frame members adapted to abut in interlocking relationship, attaching the material which, together with the frame members, forms the peripheral surface of the case to said frame members while they are in a substantially linear condition, bending the framework and the material attached thereto to the required shape of the outer periphery and attaching to the resulting peripheral surface the side panels, lining and other necessary accoutrements. The luggage case resulting from the method of construction has no passage for dirt, water and the like to enter the luggage case at the place where the framework is attached.

3,737,981 PROCESS OF MANUFACTURING FORGED OR ROLLED ROD STEEL FROM LEDEBURITIC TOOL STEEL

Erwin Plockinger, and Wolfgang Holzgruber, both of Kapfenberg, Austria, assignors to Gebr. Bohler & Co. Aktiengesellschaft, Kapfenberg, Austria
Filed Oct. 12, 1971, Ser. No. 188,014
Claims priority, application Austria, Oct. 15, 1970, A/9297

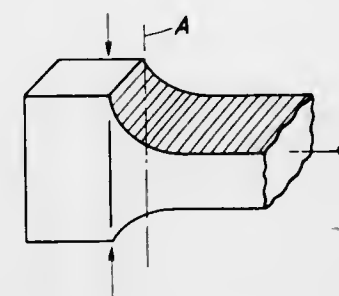
Int. Cl. B23k 19/00

U.S. Cl. 29—527.7

5 Claims

A fusible electrode is provided, which consists of ledeburitic tool steel and is suitable for use in a remelting process. Said

electrode is melted. A slab ingot is built up by solidifying the resulting melt in a water-cooled slab ingot mold. Said slab ingot is upset by a succession of forging steps in the direction of the longitudinal axis of said slab ingot to provide a semifinished product. Said semifinished product is subjected



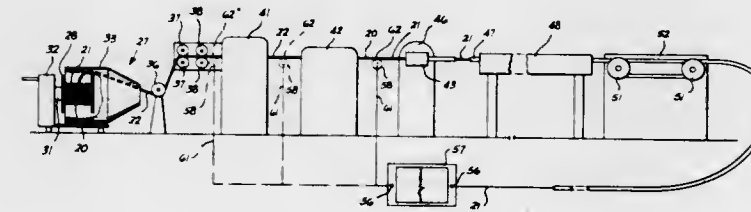
to a stretching deformation to an extent of at least two times, based on the cross-section of said semi-finished product, to form a stretched product having the cross-section desired for said rod. From said stretched product, a rod is obtained which has a fairly homogeneous carbide distribution throughout its cross-section and length.

3,737,982 METHOD OF AND APPARATUS FOR MEASURING THE TEMPERATURE OF A MOVABLE ELONGATED CONDUCTOR

John Charles Calhoun, Atlanta, Ga., and William Malcolm Flegal, Charleston, S.C., assignors to Western Electric Company, Incorporated, New York, N.Y.
Filed Nov. 15, 1971, Ser. No. 198,514
Int. Cl. B28b 19/00; G01k 7/08, 13/06; H01v 1/04

U.S. Cl. 29—573

28 Claims



The temperature variation of a movable elongated conductor, for example, a copper wire, may be determined by butting a length of dissimilar conductor, for example, a length of constantan wire, to the wire to form a thermocouple junction between the wires and connecting a potentiometric recording device across a series connection of the formed junction and a reference junction at a known temperature. Several junctions may be incorporated in a wire at spaced predetermined intervals such that one junction at a time may be passed through a process which involves the transfer of thermal energy between the wire and a processing facility, for example, an extruder head in an insulating line wherein a sheath of plastic insulation is applied to the conductor. As long as the temperatures of the remaining junctions are known, they may be utilized collectively as a reference junction to obtain the time variation in the thermoelectrically generated voltages which are directly proportional to the temperature of the junction passing through the process.

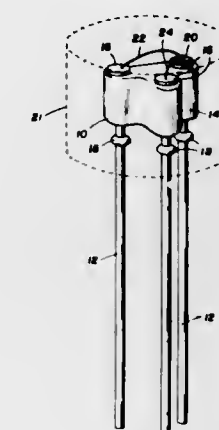
3,737,983 AUTOMATED METHOD AND SYSTEM FOR FABRICATING SEMICONDUCTOR DEVICES

Lewie C. King, Dallas; Gerald A. Yearsley, Garland; Anthony L. Adams, Dallas; Marion I. Simmons, Richardson; Eugene G. Altenburger, and Billy P. Yager, both of Dallas, all of Tex., assignors to Texas Instruments, Incorporated, Dallas, Tex.

Division of Ser. No. 837,843, June 30, 1969, Pat. No. 3,618,191. This application June 14, 1971, Ser. No. 153,064
Int. Cl. B01j 17/00

U.S. Cl. 29—574

5 Claims



An automatic method and system for packaging discrete semiconductor devices such as transistors is described. The system includes a chasis for indexing a plurality of chucks past a series of work stations. The work stations include three wire loading stations for loading flat-headed lead wires in the chucks, a glass loading station for placing a glass ring around the necks of the lead wires, a series of heaters for heating the glass rings, a pair of molding stations for molding the heated glass rings around the necks of the lead wires to form a header, an alloy station for placing the semiconductor devices in a predetermined orientation on the head of one of the lead wires, and a series of automatic bonding stations for connecting the base and emitter contacts of the semiconductor devices to the heads of the other lead wires.

The overall system is controlled by a digital computer. Stations are provided for detecting the absence of a lead wire, the absence of a glass ring, or the absence of a transistor device. The system also detects failure of any one of the bonder stations and terminates operation of the system. The computer is programmed to provide shift registers which define each index position of the chasis and logic signals are shifted through the shift register to continually locate any chuck which is defectively loaded so as to prevent the successful completion of a header assembly. The computer then disables each subsequent station as the defectively loaded chuck is positioned at the respective station.

3,737,984 BLENDING DEVICE

Alex J. Pietroski, Madison Heights, Mich., assignor to General Motors Corporation, Detroit, Mich.

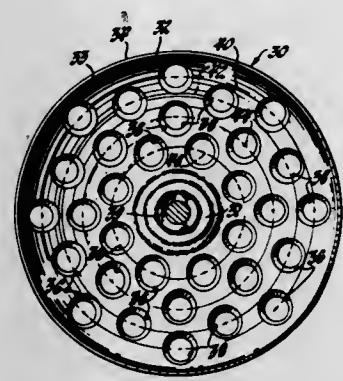
Division of Ser. No. 23,790, March 30, 1970, Pat. No. 3,678,551. This application Feb. 7, 1972, Ser. No. 224,141
Int. Cl. B23d 71/00; B26d 1/00

U.S. Cl. 29—567 R

2 Claims

A blending device for soft filler material including a support member with a plurality of continuous cutting edges thereon. One form of the device includes a harder member with a hemispherical portion having a plurality of continuous cutting

edges thereon formed by the intersection of a plurality of openings through the member. The hemispherical portion of



the member minimizes ditching or edge cutting in the surface being worked on.

3,737,985

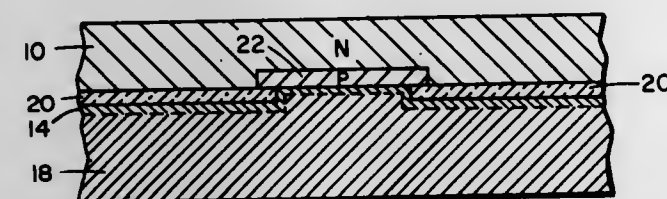
METHOD OF PRODUCING THIN LAYERS ON A SUPPORT

Demir S. Zoroglu, and William L. George, both of Scottsdale, Ariz., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Oct. 16, 1970, Ser. No. 81,333

Int. Cl. B01j 17/00

U.S. Cl. 29—578



While it is possible to diffuse P impurities into compounds of gallium and arsenic that are useful in producing light emitting PN junctions, at the present state of the art it is not possible to diffuse N type impurities thereinto whereby at the present state of the art thin layers of N type material of gallium and arsenic compounds cannot readily be obtained. The light produced by the PN junction in a light emitting diode is much more greatly absorbed by the P layer than by the N layer, whereby it is advantageous to produce a very thin N type layer in the production of the light emitting PN junctions. A method is disclosed for providing a very thin layer of N type material, the material being a compound of gallium and arsenic that may or may not include other elements that is useful in light emitting diodes.

3,737,986

EXPLOSIVE BONDING OF WORKPIECES

Benjamin Howell Cranston, Trenton, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.

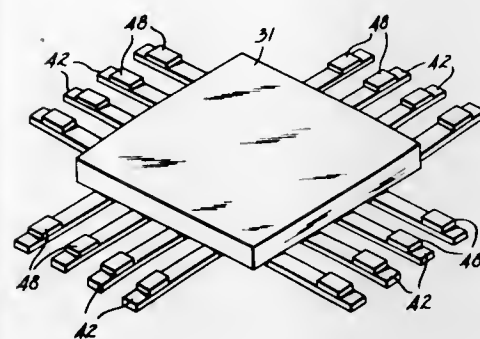
Division of Ser. No. 68,431, Aug. 31, 1970, which is a continuation-in-part of Ser. No. 6,829, Jan. 29, 1970. This application Nov. 26, 1971, Ser. No. 202,348

Int. Cl. B01j 17/00; H01f 7/02, 7/16

U.S. Cl. 29—589

First workpieces, for example, beam-leaded integrated circuits, and the like, are bonded to second workpieces, for example, metallized ceramic substrates by first depositing a quantity of primary explosive, such as lead azide, onto each beam lead and then detonating the explosive to explosively

bond the integrated circuits to the substrate. In another embodiment of the invention, the explosive bonding force is applied through a buffer sheet of plastic or metallic material which protects the surface of the substrate from contamination and which, in addition, dampens the shock of the explosion.



sion. In yet another embodiment of the invention, metal conductive paths are explosively bonded directly to a ceramic or glass substrate to form a "printed circuit pattern." The same techniques are used to manufacture resistors, capacitors, inductors, etc.

3,737,987

METHOD OF MAKING AN INSULATED ARMATURE

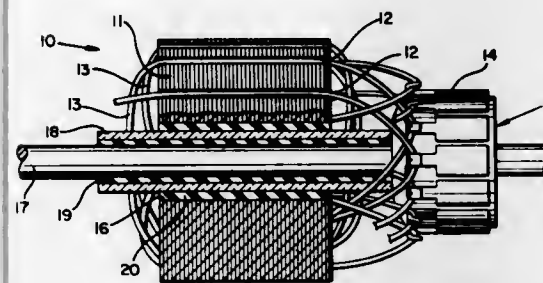
Thaddeus E. Bednarski, Timonium, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md.

Division of Ser. No. 878,825, Nov. 21, 1969, Pat. No. 3,639,789. This application May 26, 1971, Ser. No. 147,141

Int. Cl. H02k 15/00

U.S. Cl. 29—596

2 Claims



An armature including a sleeve of insulating material bonded in place between the armature shaft and the armature laminations. The insulating sleeve may extend under the commutator if desired. A method of providing this armature is also described which comprises holding the laminations, the sleeve and the shaft in their relative positions and injecting a bonding material between the sleeve and the shaft and between the sleeve and the laminations.

3,737,988

METHOD OF BONDING ARMATURE SUB-ASSEMBLIES

Thaddeus E. Bednarski, Timonium, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md.

Continuation-in-part of Ser. No. 147,141, May 26, 1971, which is a division of Ser. No. 878,825, Nov. 21, 1969, Pat. No. 3,639,789. This application Aug. 4, 1972, Ser. No. 278,052

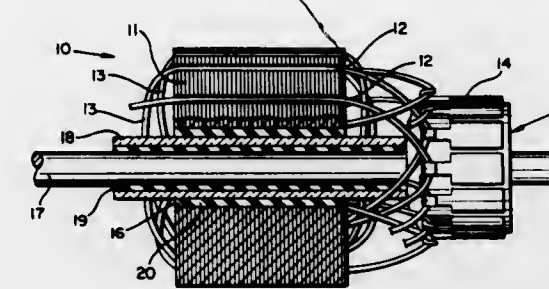
Int. Cl. H02k 15/00

U.S. Cl. 29—596

2 Claims

A method of manufacturing an armature of the type including a sleeve of insulating material bonded in place between the

armature shaft and the armature laminations is described. The method comprises positioning the laminations, the sleeve and



the shaft in appropriate relative positions and providing an anaerobic bonding material between the sleeve and the shaft, and between the sleeve and the laminations.

3,737,989

METHOD OF MANUFACTURING COMPOSITE SUPERCONDUCTOR

Norbert Schaettl, Glatbrugg, Switzerland, assignor to Maschinenfabrik Oerlikon, Zurich, Switzerland

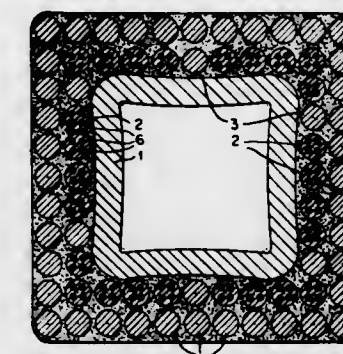
Division of Ser. No. 43,992, June 8, 1970, Pat. No. 3,643,001.

This application Nov. 19, 1971, Ser. No. 200,554

Int. Cl. H01v 11/00

U.S. Cl. 29—599

7 Claims



Sections of hollow longitudinal support tubes are joined to form a continuous fluid-tight tube to which superconductor assembly wires are first applied, then, if desired, non-superconductive wires are wrapped therearound with a direction of twist opposite to that of the superconductor wires, the wires being placed closely adjacent each other so that, upon immersion into a melt of good heat-conductive, non-magnetizable material, the fluid material will flow by capillary action in the interstices between the wires to form a composite, encapsulated whole.

3,737,990

METHOD OF MAKING A COIL FOR AN ELECTROMAGNETIC HIGH ENERGY IMPACT APPARATUS

Hendrik P. Schut, Mercer Island, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Apr. 12, 1971, Ser. No. 133,090

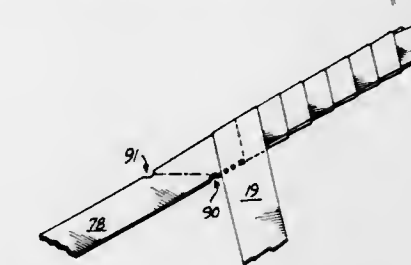
Int. Cl. H01f 7/06

U.S. Cl. 29—605

7 Claims

An apparatus utilizing electromagnetic energy for producing high impact forces by means of a ram propelled against a

work piece. A specific utilization of the apparatus is in the installation of fasteners such as rivets in structural assemblies. The apparatus described herein is the work center of an elec-



tromagnetic impact tool and comprises the following components: electromagnetic high energy pulse coil, ram means, aerostatic bearing means and connector means.

3,737,991

METHOD OF MAKING A MULTI-CHANNEL MAGNETIC HEAD

Kenichi Fujimura, Neyagawa-shi, and Takashi Tanaka, Osaka, both of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Kadoma, Osaka, Japan

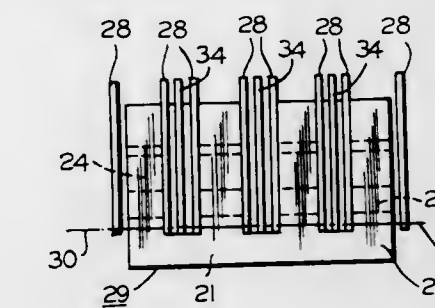
Filed Aug. 11, 1971, Ser. No. 170,875

Claims priority, application Japan, Aug. 18, 1970, 45/72589; Nov. 13, 1970, 45/100572; Nov. 16, 1970, 45/101745; Nov. 16, 1970, 45/101747; Nov. 7, 1970, 45/98580; Mar. 24, 1971, 46/17420; Nov. 12, 1970, 45/9913

Int. Cl. G11b 5/42; H01f 7/06

U.S. Cl. 29—603

11 Claims



A method of making a multi-channel magnetic head. Two blocks of magnetic material are provided, each of which has one surface smoothly polished and has one groove in the polished surface. The blocks are joined to each other with the grooved surfaces opposed to each other and a gap material between them and so that the grooves face each other. A conductive rod is inserted into the bore formed by the grooves. Slots perpendicular to and extending across the grooves are cut in the joined blocks and through the rod. Two conductive plates are inserted into each of the slots so that they are in separate electrical contact with the remaining portions of the conductive rod. The slots are filled with adhesive material. The resultant composite body is cut at a plane between the bore defined by the grooves and the bottom of the slots to form a stack of a plurality of single-turn elementary heads separated from each other by the adhesive material.

3,737,992

METHOD OF MANUFACTURING MULTIPLE TRACK, DUAL GAP MAGNETIC HEADS

Richard E. Braun, St. James, and Lionel G. Hopkins, Lake Grove, both of N.Y., assignors to Magnetic Head Corporation, Hauppauge, N.Y.

Filed June 9, 1972, Ser. No. 261,214

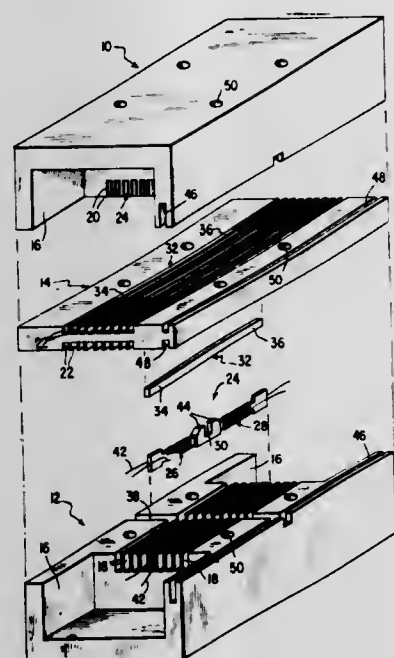
Int. Cl. G11b 5/42; H01f 7/06

U.S. Cl. 29—603

5 Claims

Three sub-assemblies, consisting of an elongate center section having elongate, compound core members assembled with opposite sides thereof and a pair of elongate housing sec-

tions having elongate, compound core members assembled therewith, are joined with the housing assemblies sandwiching the center section assembly therebetween with an opposite end portion of each elongate core member of the center section assembly forming a magnetic circuit, including an air gap,



with a corresponding end portion of an elongate core member assembled with one of the housing sections. Separation of the joined sub-assemblies substantially perpendicular to the longitudinal axes thereof at a position intermediate the opposite end portions of the elongate, compound core members results in the formation of two complete, dual gap head assemblies.

3,737,993 METHOD OF MAKING A MULTI-CHANNEL MAGNETIC HEAD

Yukihiko Yanaguchi, Osaka, Japan, assignor to Matsushita Electric Industrial Co. Ltd., Kadoma, Osaka, Japan

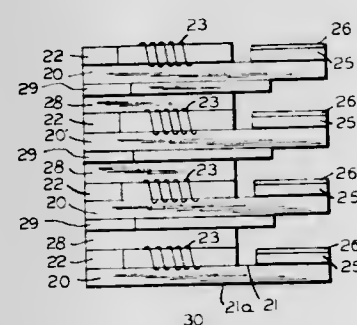
Filed Nov. 18, 1971, Ser. No. 200,078

Claims priority, application Japan, Nov. 27, 1970, 45/105259; Nov. 30, 1970, 45/106528; Dec. 2, 1970, 45/107460; Dec. 2, 1970, 45/107460; Dec. 2, 1970, 45/107460

Int. Cl. G11b 5/42; H01f 7/06

U.S. Cl. 29—603

7 Claims



A method of making a multi-channel magnetic head. Two magnetic core members having windings wound thereon are joined to each other on the flat surface of a support plate in order to make an elementary head unit. A plurality of elementary head units, separating plates and sheets are stacked so that a separating plate is sandwiched between each elementary head unit and each sheet. The body of stacked elements is cut into two halves in at least one plane which is perpendicular to the flat surfaces of the support plates and which divides

each of the magnetic cores and sheets into two parts. A plurality of the cut sheets is taken out of the cut body so as to leave a plurality of slits in the cut body. A plurality of shield plates are inserted into the slits and the two halves are rejoined at the plane of the cut with gap spacers of non-magnetic material between the two halves.

3,737,994 METHOD FOR PRODUCING A MECHANICAL STRESS DETECTING DEVICE

Kazuo Nishimura, Tokyo, Japan, assignor to Kabushiki Kaisha Meldensha, Tokyo, Japan

Division of Ser. No. 89,175, Nov. 13, 1970. This application

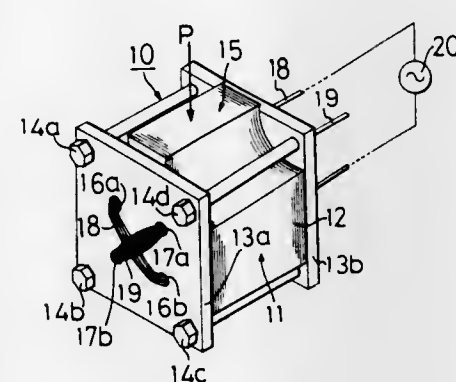
May 15, 1972, Ser. No. 253,598

Claims priority, application Japan, Dec. 3, 1969, 44/96924; Oct. 14, 1970, 45/90209

Int. Cl. H01f 7/06

U.S. Cl. 29—606

3 Claims



Herein disclosed is a method for manufacturing a mechanical stress detecting device using a block of laminated magnetic plates and a pair of non-magnetic side plates between which the block of the laminated magnetic plates is tightly interposed. The block of the magnetic plates and the side plates attached thereto have formed therein four apertures extending from one of the side plates to the other and symmetrically spaced apart from each other at an angle of about 90°, the apertures being located in a manner to have the phantom lines joining diametrically opposed pairs of the apertures are angled at about 45° to the direction in which a mechanical stress is applied to the block of the laminated magnetic plates. The detecting device is produced by heating the block of the laminated magnetic plates tightened by the side plates to the Curie point with a magnetizing coil passed through one pair of apertures in the block and cooling the block of the laminated plates through a predetermined range of temperature with the magnetizing coil kept energized, whereby a magnetic core having a monoaxial magneto-anisotropy is obtained. The magnetizing coil is then removed and a detecting coil is passed through another pair of apertures in the block.

3,737,995 METHOD FOR THE PRODUCTION OF PLASTIC

Ferdinand Utner, Regensburg, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany

Filed Nov. 18, 1971, Ser. No. 200,124

Claims priority, application Germany, Nov. 19, 1970, P 20 56 909.9

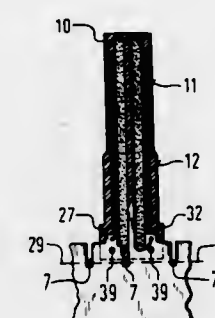
Int. Cl. H01f 7/06

U.S. Cl. 29—605

8 Claims

Plastic covered coils which are compact and easily inserted in a circuit board are efficiently and economically produced

by a continuous production method wherein a generally tubular core having a winding thereon is plugged onto a mounting rod portion of a transporting belt and has the coils ends connected to an upper portion of the belt, a coating of plastic is ap-



plied over the coil sub-assembly, the upper discontinuous portion of the band is separated from the lower continuous portion, and the contacts formed as required. An enlarged base formed by the plastic coating may contain coil control components.

3,737,996 METHOD OF MANUFACTURING THERMOCOUPLES

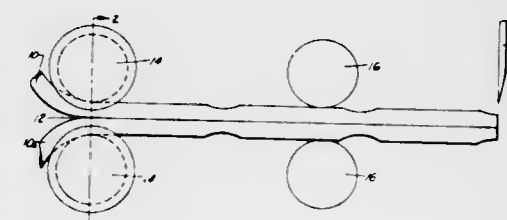
Donald H. Orts, Middletown, Ohio, assignor to Armco Steel Corporation, Middletown, Ohio

Filed Apr. 1, 1971, Ser. No. 130,266

Int. Cl. H01c 7/04

U.S. Cl. 29—612

7 Claims



The rapid production of a continuous length of parallel wires intermittently welded along the length thereof, for use in apparatus such as thermocouples. The process for this operation comprises the steps of uncoiling two continuous lengths of wire, dissimilar in composition if used for thermocouples, and bringing same together into parallel and intimate contact in a longitudinal direction by means of opposed wheel electrodes, which wheels are circumferentially grooved so as to receive and hold said wires in intimate contact for intermittent welding along the length of said dual wire. To effect a separation of the welded dual wire into one or two individual units per weld, where each unit comprises a length of each said wire joined together at one end thereof by welding, a shear may be provided following the welding to sever the dual wire within the welded section, adjacent the welds, or intermediate the weld locations. This results in not only a system for the rapid production of welded wire such as used in thermocouples, but in an inexpensive and effective method which insures a controlled area junction for the joined wires.

3,737,997 CONTINUOUS MANUFACTURE OF SHIELDED CONDUCTORS

Bayard C. Davis, Lombard, Ill., assignor to Sensor Dynamics, Inc., Addison, Ill.

Filed July 13, 1970, Ser. No. 54,405

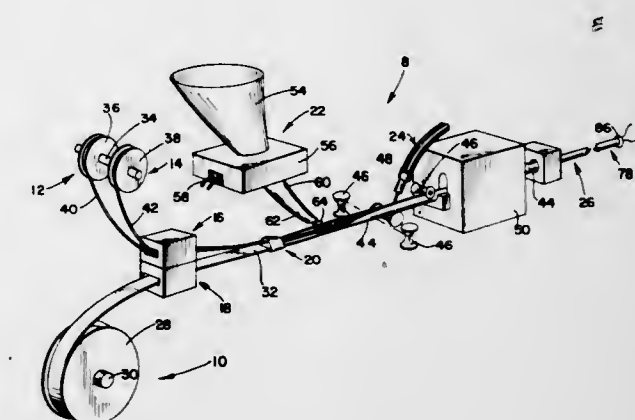
Int. Cl. H01b 13/26

U.S. Cl. 29—624

11 Claims

A method of making continuous lengths of a shielded electrical conductor having a rigid exterior sheath and at least one

conductor element held in place therein and surrounded by finely divided and compacted electrical insulation. A supply of metal strip material is continuously removed from a storage roll, and cleaned and positioned by a guide so that, as the strip is formed into a tube, the tube will surround one or more wires or conductive elements which are simultaneously being removed from a storage roll, cleaned, and positioned within the tube being formed by another portion of the guide. During one stage of the tube formation, the insulating material is cleaned and deposited continuously on the strip material from which the tube is being formed, so that the tube will enclose



the insulation, and the insulation will in turn aid in positioning the wire within the tube. After formation of the shielded conductor in this manner, the entire conductor is reduced in diameter to compact further the insulation. The formed lengths may thereafter be cut to desired lengths for use as shielded cable, electrical resistance heating elements or thermocouples for temperature detection.

Interior tube cleanliness is critical in shielded conductors; the method of the invention enables cleaning to be made more effective and consistent, and to be greatly simplified, and also permits high quality shielded conductors of virtually unlimited length to be made at low cost.

3,737,998 METHOD AND APPARATUS FOR MAKING ELECTRICAL CONNECTOR ASSEMBLIES

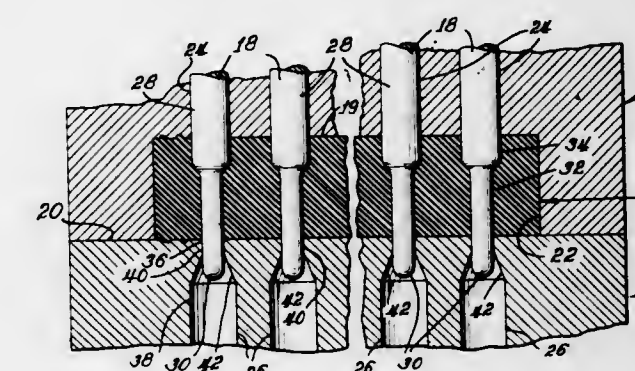
Lucid Lincoln Byrd, Mount Prospect, Ill., assignor to Carter Precision Electric Company, Skokie, Ill.

Filed Jan. 21, 1972, Ser. No. 219,622

Int. Cl. H05k 13/04, 3/28

U.S. Cl. 29—627

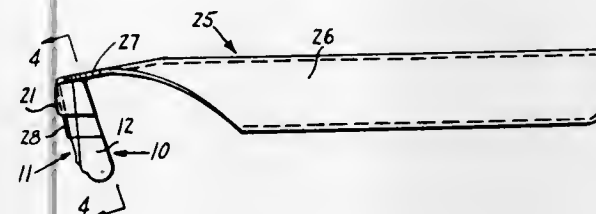
22 Claims



An insulative block is molded having a plurality of pin receiving openings with wide diameter head portions, where the cross sectional size of terminal pins is less than these head portions but greater than the remaining portion of the

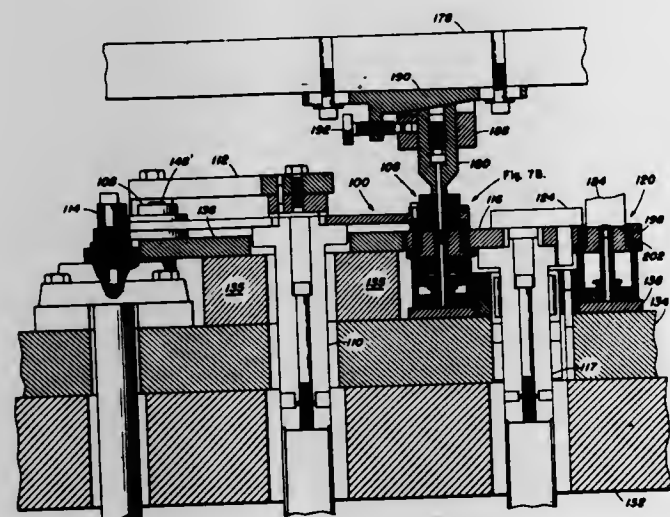
openings. A terminal pin insert machine is used to assemble the terminal pins comprising a base plate having a plurality of vertical openings formed downwardly from its upper surface, rig means for holding and aligning said terminal block on said base plate such that said pin receiving openings are in direct alignment with said vertical openings, and a guide plate assembly having a plurality of vertical passageways between its upper and lower surface, which is supported directly above the terminal block with its vertical passageways in direct alignment with the pin receiving openings. The vertical passageways of the guide plate assembly have an intermediate portion of identical cross sectional shape and slightly larger size than said terminal pins to hold said terminal pins in a perpendicular relation to said terminal block when in the loading position. Press means are provided for engaging the tops of said terminal pins and driving them down into the pin receiving openings to provide an interference fit therewith.

cement into a two-piece head engaging the blade on opposite sides and including alignment pins which extend through the



blade. A guard is integrally formed on one of the two pieces of the head and a handle is secured to the other piece.

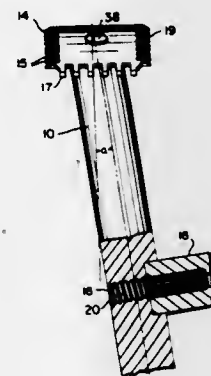
3,737,999
METHOD FOR MAKING COLD BONDED ELECTRICAL COMPOSITE CONTACTS
Childress B. Gwyn, Jr., Wethersfield, Conn., assignor to Contacts Incorporated, Wethersfield, Conn.
Division of Ser. No. 641,342, May 25, 1967, Pat. No. 3,547,330. This application Aug. 12, 1970, Ser. No. 63,333
Int. Cl. H01r
U.S. Cl. 29-630
10 Claims



This invention relates to a novel method for forming composite electrical contact elements and, more particularly, to a method for the manufacture of integrally bonded contacts, each comprising a contact working face and a contact body portion, in a rotating mechanism. The two components to be bonded are aligned in end-to-end abutting relation within a first rotating assembly and, preferably within 0.01 to 0.5 seconds after shearing such components from their wire or stock material, are transferred to a second rotating assembly and subjected to a forming blow of sufficient intensity to produce interfacial molecular bonding therebetween. Subsequent heading blows in the second assembly finally shape the contact and improve the bond. The preferred apparatus of the invention is capable of producing in excess of six hundred of such contacts per minute.

3,738,000
DISPOSABLE RAZOR
Alexander Samko, 1647 Rodman St., Hollywood, Fla.
Filed July 29, 1971, Ser. No. 167,166
Int. Cl. B26b 21/06
U.S. Cl. 30-32
A disposable razor in which the razor blade is secured with

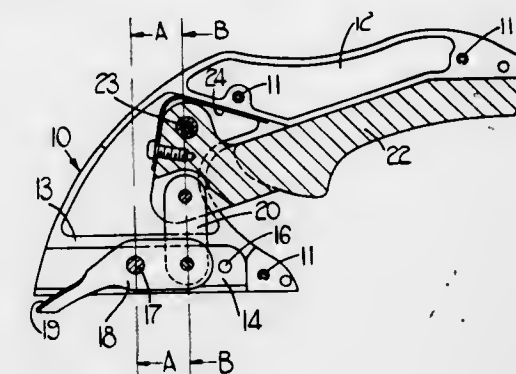
3,738,001
SCRAPING OR SCORING TOOL
Daniel F. Roche, Meriden, Conn., assignor to Carl Salka, Meriden, Conn., a part interest
Filed Jan. 21, 1971, Ser. No. 108,283
Int. Cl. B26b 3/00
U.S. Cl. 30-171
10 Claims



A scraping or scoring tool primarily for scoring the surface of wallpaper on walls to be redecorated, so that moisture can penetrate below the surface of the paper when sprayed or steamed on stripping it from the wall. The tool is provided with a curved blade which is mounted transversely at one end of a handle and has teeth along its working edge which lie in a common plane. The handle has a mounting portion which extends at an obtuse angle to the cylindrical axis of the blade so that by tilting the blade with respect to the surface of the wall as the blade is pressed against the wall and drawn across it, the amount of contact of the toothed working edge can be decreased, thereby concentrating the pressure applied to the surface being scored along a smaller portion of the working edge and facilitating the scoring of areas where it is more difficult to penetrate the paint.

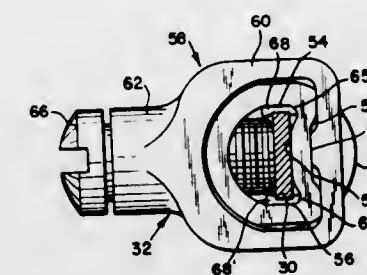
3,738,002
CUTTING DEVICES
Thomas Robb Coughtrie, Bryn Collen, Llanover, Abergavenny, England
Filed Mar. 23, 1971, Ser. No. 127,326
Int. Cl. B26b 13/26
U.S. Cl. 30-251
A cutting device for sheet material includes a first blade

portion which defines a pair of opposed spaced cutting edges, a second blade portion movable between said cutting edges



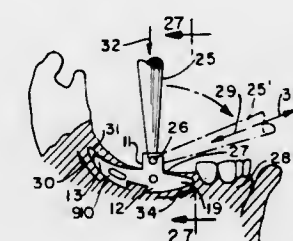
and operable upon such movement to shear sheet material disposed between the blade portions.

3,738,003
BLADE MOUNTING ASSEMBLY FOR JIG SAW
William H. Dietzen, Fayetteville, N.C.; William R. Lessig, III; Leonard U. Alsrue, both of Towson, Md., and Howard I. Younginer, Fayetteville, N.C., assignors to Black and Decker Manufacturing Company, Towson, Md.
Filed Mar. 13, 1972, Ser. No. 233,921
Int. Cl. B27b 19/08; B23b 31/12
U.S. Cl. 30-392
8 Claims



In a portable electric jig saw of the type having a reciprocating power driven shaft to which a saw blade is adapted to be secured and wherein the shaft is of hollow tubular construction having its open free end formed to provide an interiorly positioned flat surface of substantial axial length and against which the saw blade is clamped so that the blade will be positioned in substantial alignment with the axis of the tubular shaft, the latter being provided with inwardly directed and oppositely disposed lanced portions constituting positive stops for limiting axial entry of the blade into the shaft and for confining the inner blade end against lateral movement, the arrangement being such that the blade may be easily and quickly assembled to the shaft to provide a secure and rigid mounting.

3,738,004
BONE IMPLANT AND METHOD OF IMPLANTATION
Alfred E. Edelman, 2723 Federal Street, Camden, N.J.
Filed Mar. 1, 1971, Ser. No. 119,515
Int. Cl. A61c 13/00
U.S. Cl. 32-10 A
24 Claims

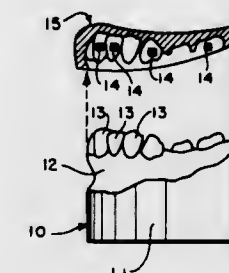


A bone implant having a thin elongated, flat, arcuate blade portion which is adapted to be implanted in a bone so as to

911 O.G.—16

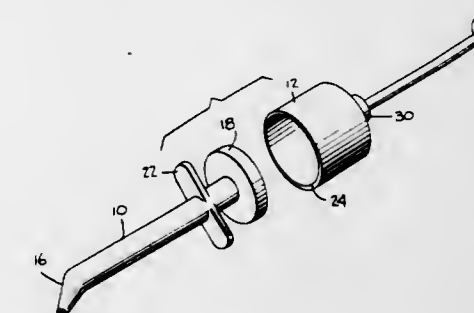
avoid unviolable physiological landmarks having at least one integral neck portion projecting from the blade portion and lying within substantially the same plane as the blade portion but adapted to extend out of the bone when the blade portion is implanted and to which various attachments may be secured. The blade portion has at least one end remote from the neck portion which end is sharpened and is adapted to incise the bone upon the application of a force to the neck portion which force has a component acting in the direction of the one end. The implant is implanted by first cutting a starting slot of a width approximate the thickness of the implant and of a length substantially less than the length of the implant, positioning the implant in the slot with the one sharpened end against one end of the slot, forcing the implant in the direction of the one end so that the one end incises the bone in an arcuate path, forcing the other end of the implant down into the slot when the other end overlies the slot, and forcing the implant in the direction of the other end until a locking projection on the implant engages uncut bone.

3,738,005
METHOD AND APPARATUS FOR APPLYING ORTHODONTIC BRACKETS AND THE LIKE
Morton Cohen, Fox Pavilion, Suite 604, Jenkintown, Pa., and Elliott Silverman, 4829 Atlantic Avenue, Ventnor, N.J.
Filed Mar. 22, 1972, Ser. No. 236,821
Int. Cl. A61c 7/00
U.S. Cl. 32-14 B
10 Claims



An orthodontic method and apparatus wherein a dental cast of a patient has detachably applied thereto at locations selected by the orthodontist a plurality of brackets, and the like, and a positioner is provided which captures the brackets in their proper position and transfers the brackets so positioned to the patient's teeth for securement thereto.

3,738,006
DENTAL IMPRESSION MATERIAL INJECTING SYRINGE
Oscar Lopez, Cliffside Park, and Juan C. Valdes, Union City, both of N.J., assignors to Oscar Lopez, Cliffside Park, N.J.
Filed June 23, 1972, Ser. No. 265,431
Int. Cl. A61c 5/04
U.S. Cl. 32-17
6 Claims



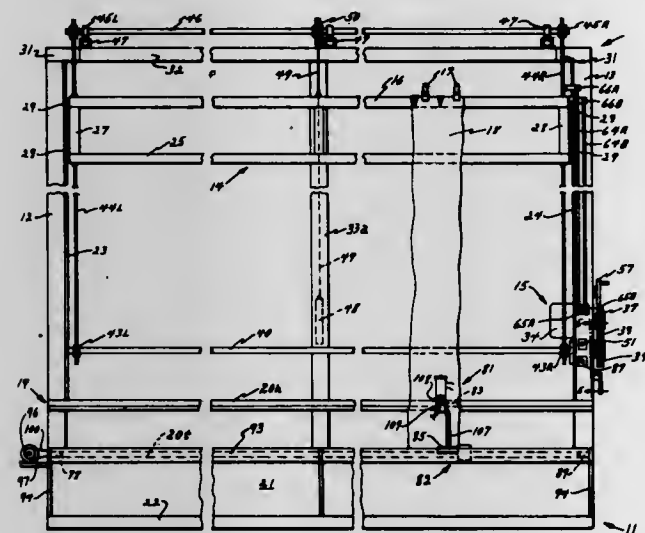
A dental syringe for elastic impression material is provided which comprises a nozzle section and plunger section. The

plunger section includes a mixing chamber adapted to receive the nozzle section. When the two sections are coupled, the impression material may be extruded through the nozzle.

3,738,007

DRAPERY MANUFACTURING DEVICE

Michael E. Tuskos, 2507 Saratoga Drive, Louisville, Ky.
Filed Jan. 28, 1972, Ser. No. 221,528
Int. Cl. B43I 13/00
U.S. Cl. 33—18 R 10 Claims



The present invention provides improvement in a drapery manufacturing device of the type including: an upstanding frame having first and second spaced, vertical plane defining, parallel guide tracks; a trolley transversely spanning the tracks and movably connected thereto for vertical movement with respect to the frame and including a transverse member; means on the transverse member of the trolley to grasp an edge of a panel to be formed into a drapery to hold the panel in a vertically extending plane on upward movement of the trolley with respect to the frame; drive means to move the trolley vertically with respect to the frame; and reference means defining a horizontal reference plane adjacent the lower end of the frame. Basically, the improvement provided by the present invention comprises combining with such a device marker means located adjacent to the lower end of its frame for movement relative to its reference means to mark a horizontal line on the drapery panel such that the panel can be subsequently removed from the device and then creased by means located remote from the device. In accordance with other aspects of the present invention, such a device is preferably additionally improved by further combining the marker means with cutting means mounted therewith on carriage means for horizontal movement relative to the lower end of its frame across the space between the vertical frame guide tracks for simultaneously trimming the panel lower edge while the folding line is also being marked thereon by the marker means.

3,738,008

EXPANSIBLE DENTAL IMPLANT

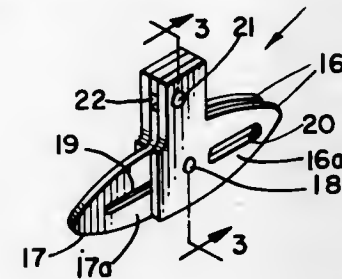
Alfred E. Edelman, 2723 Federal St., Camden, N.J.
Filed June 30, 1971, Ser. No. 158,397
Int. Cl. A61C 13/00

U.S. Cl. 32—10 A

16 Claims

A dental implant has a dental support portion and an implant portion which is adapted to be embedded in the jaw

bone. The implant consists of at least two members, at least one of which is movable relative to the other so that in an initial position the implant portion has a minimum effective



width, but in an expanded position the width of the implant portion is substantially increased for anchorage thereof in the jaw bone.

ERRATUM

For Class 33—18 sec:
Patent No. 3,738,007

3,738,009

RULE AND COMPASS DEVICE

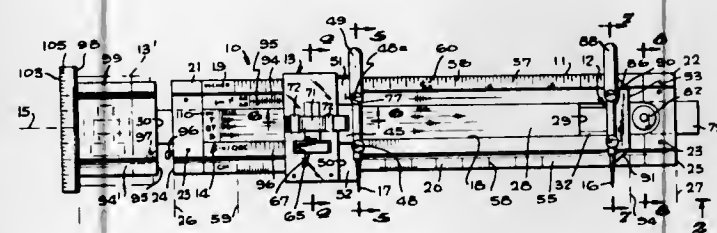
Edward A. Kuwada, 1053 South Kingsley Drive, Los Angeles, Calif.

Filed Feb. 16, 1971, Ser. No. 115,541

Int. Cl. B43I 9/04

U.S. Cl. 33—27 C

16 Claims



A drafting and calculating instrument including a rule body carrying compass points which are relatively adjustable to draw and/or measure circles of different sizes, and having also a slide rule element connected movably to the body, with slide rule scales formed thereon and on the body for effecting a calculation. An indicator having a slide rule hairline for reading the scales may also be mounted slidably to the body, and desirably carries one of the compass points.

3,738,010

STRAIGHT EDGE WITH NON-SLIP INSERTS

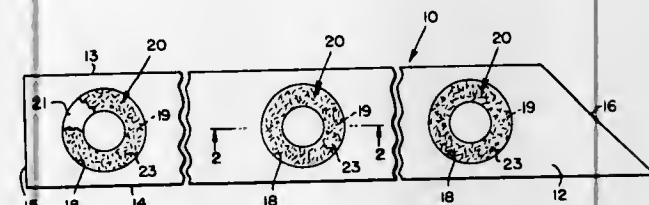
William E. Carder, Fairport, N.Y., assignor to Carder Industries, Inc., Rochester, N.Y.

Filed Aug. 7, 1972, Ser. No. 278,533

Int. Cl. B43I 7/00; G01B 3/04

U.S. Cl. 33—107

6 Claims



A flat, metal straight edge has a plurality of annular inserts releasably mounted, as by a press fit, in annular recesses formed in one side of the straight edge. Each insert has on one

end a resilient, rubber-like surface, and on its opposite end a pile surface of the type sold, for example, under the trademark "Velcro." When the straight edge is used to guide a cutting tool during the cutting of a floor covering, the inserts are disposed with their pile sides out, if the floor covering is fabric, thereby to prevent the edge from sliding on the fabric. If the floor covering is a hard-surfaced linoleum or the like, the inserts are mounted with their rubber ends facing outwardly.

3,738,011

THICKNESS-SCRATCH TESTING DEVICE

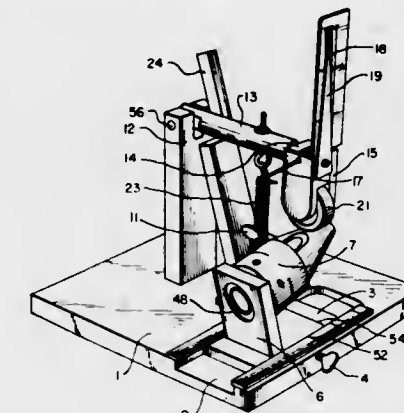
Elizabeth Anderson, Washington, D.C., and Richard E. Brown, Silver Spring, Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 23, 1971, Ser. No. 174,079

Int. Cl. G01b 5/06

U.S. Cl. 33—169 F

10 Claims



A machine for testing the thickness of a coating on an object having a curved surface at one or more predetermined locations, comprising means to support the object with the coating in a predetermined position, means for supporting a scratch film gage comprising a disc having an extended axial thickness and a circular saw mounted eccentrically of the disc with the teeth of the saw extending at different depths from the edge of the disc, said means allowing the position of the gage to be adjusted to expose different depths of the saw teeth against the surface, means to adjust the position of the disc to permit the edge to engage the curved surface of the object, means to force the gage against the surface with a predetermined force, and means to relatively rotate the curved surface and the gage about the axis of the surface in a predetermined path.

3,738,012

GAUGE FOR MEASURING ANGLES

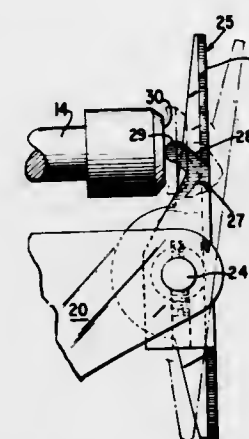
Alden O. Sherman, 85 Weston Road, Weston, Conn.

Filed Jan. 26, 1971, Ser. No. 109,797

Int. Cl. G01B 5/24

U.S. Cl. 33—172 B

3 Claims



An attachment is mounted on the support of a dial indicator having a reciprocable actuating stem, and a measuring blade is

3,738,013

HINGE BUTT TEMPLATE ASSEMBLY

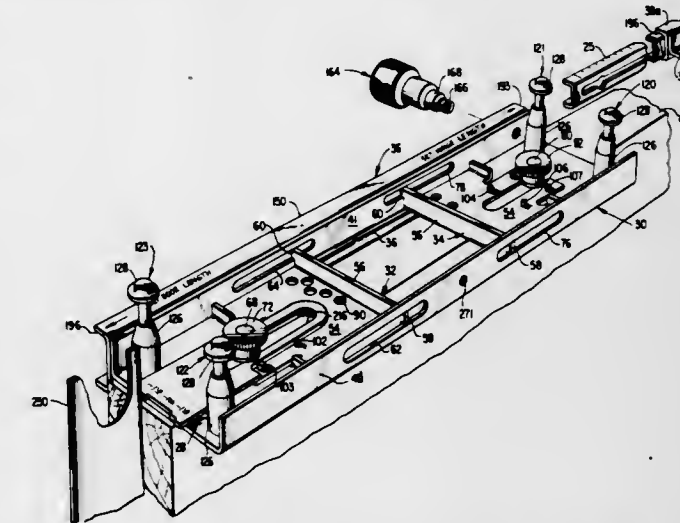
Edward G. Gregory, Reston, Va., assignor to Rockwell Manufacturing Company, Pittsburgh, Pa.

Filed Aug. 20, 1970, Ser. No. 65,444

Int. Cl. B27g 17/08

U.S. Cl. 33—197

32 Claims



A hinge butt template assembly having a plurality of template sections which are each formed with an adjustable routing opening and which are interconnected by adjustable spacer members to locate hinge butt recesses in door edges and jambs. Each template section comprises a frame defining the routing opening and a pair of hinge size plates adjustably mounted in opposed relation on the frame for selectively varying the size of the opening. A guide member fixed to one side of each frame telescopically and adjustably receives one end of an associated spacer member for spacing the routing openings. Special scales are provided for adjusting the assembly in accordance with the hinge size, door height and location of the top hinge from the door top. The template sections are interchangeable so that they may be assembled in any selected order. This invention is also directed to a special end gage feature for establishing the door top to jamb clearance as well as the spacing of the top hinge from the door top and also to a hinge butt gage which is utilized to transfer locations of preformed jamb butts to a door to be routed.

3,738,014

FOOTBALL SIGHTING AND MEASURING DEVICE

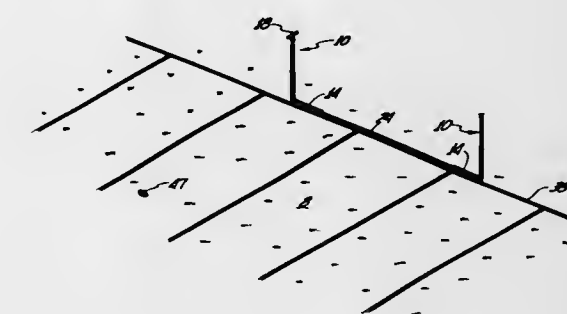
Fred C. Sproul, Sr., 12227 Ranch House Road, San Diego, Calif.

Filed Oct. 18, 1971, Ser. No. 190,229

Int. Cl. G01C 5/00

U.S. Cl. 33—289

13 Claims



A highly accurate football sighting and yardage measuring device for determining the field position of a football that

eliminates the need for the traditional "chain gang," and effects substantial time savings by comparison. Yardage marker poles are positioned with the aid of attached elongate feet and a sighting scope, and provision is made for a ground-level metal track to ensure proper alignment of both the sighting scope and the marker poles relative to the sidelines and yardage lines of the playing field.

3,738,015

SNAP-IN VIAL RETAINERS

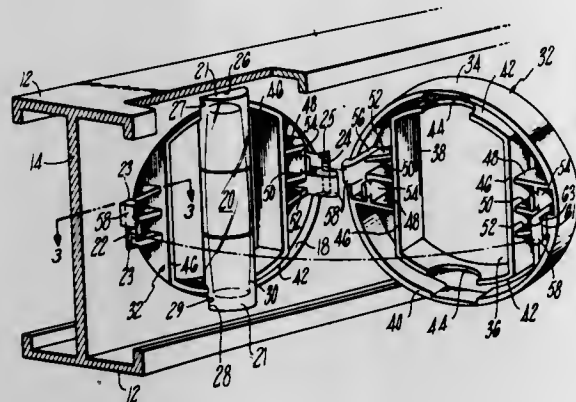
Maarten C. De Jong, Canton, Conn., assignor to The Stanley Works, New Britain, Conn.

Filed May 11, 1970, Ser. No. 36,355

Int. Cl. G01c 9/24

U.S. Cl. 33—379

7 Claims



A level having a cylindrical vial having a barrel-shaped bubble cavity is positioned in a circular aperture in the web of a level frame with its axis coincident with the central plane of the web and is retained therein by a pair of identical retainer caps snap-fitted onto the frame web. The retainer caps are each provided with a pair of hooks which engage the edge of a pair of notches of the aperture, and each of the retainer caps provides a reinforcing wall engaging the hooks of the other retainer cap to reinforce the hooks and lock them against inadvertent disassembly.

3,738,016

SEQUENTIAL DRYING SYSTEM

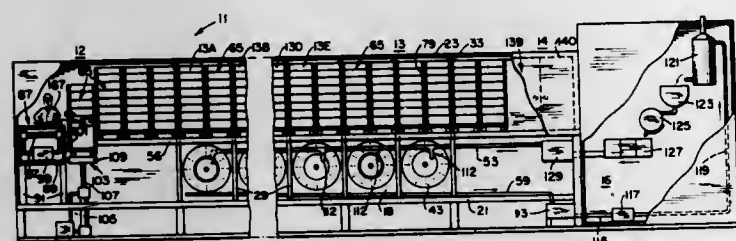
Thomas Margittai, State College, Pa., assignor to Seymour C. Yater, Westchester County, N.Y., a part interest

Filed Aug. 20, 1970, Ser. No. 65,400

Int. Cl. F26b 5/06

U.S. Cl. 34—92

19 Claims



The sequential drying system comprises a plurality of drying stations each having an upper section arranged in sequence in a tunnel. Material holders which are movable are provided for holding the material to be dried. Moving means move the material holders stepwise from an upper section of one drying station to the upper section of the next drying station through the tunnel. A separate lower section is provided for each drying station for moisture collecting means. Separating means are provided for separating the upper section of the drying sta-

tions from each other in the tunnel during the drying intervals between movements of the material holders. The separating means preferably is a vertical panel mounted at one end of a material holder so that it moves with the material holder. The atmosphere in each drying station is recirculated between its upper and lower sections in a closed path. The sequential drying system is especially useful for freeze drying since different temperatures below freezing can be maintained in different drying stations.

3,738,017

YARN HEATING APPARATUS

Josef Raschle, 9606 Buetschwil, Switzerland, assignor to Heberlein & Co. AG., Wattwil, Switzerland

Filed May 28, 1971, Ser. No. 147,855

Claims priority, application Switzerland, Jan. 6, 1971, 102/71

Int. Cl. F26b 13/00

U.S. Cl. 34—154

8 Claims



Apparatus for continuous heating of linearly advancing textile yarns by means of a tube sealed at its ends in an enclosure containing a heated fluid medium, the tube having certain physical characteristics to provide a substantially constant wall temperature.

3,738,018

DRYING ARRANGEMENT ON MACHINES FOR COATING SUPPORTING WEBS, MORE ESPECIALLY WITH PHOTOGRAPHIC EMULSIONS

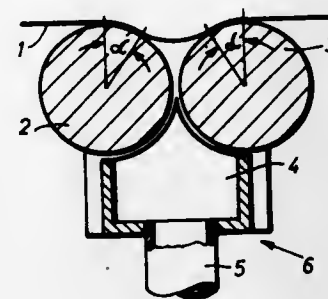
Peter Herzhoff; Hans Gref; Wolfgang Schweicher; Max Heidenreich, and Hans Frenken, all of Leverkusen, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

Continuation of Ser. No. 861,412, Sept. 26, 1969, abandoned. This application Apr. 5, 1972, Ser. No. 241,223

Int. Cl. F26b 13/00

U.S. Cl. 34—155

4 Claims



A web coated with a photographic emulsion is supported for drying in a blast of hot air on spaced sets of two-roll hollow suction devices. A suction box having an arcuately pointed section disposed closely adjacent and between the peripheries

of the rollers on the side opposite the web lowers the pressure between the web and the rollers to increase the force and area of rotation-inducing contact between the web and the rollers and to firmly guide and retain the web on the rollers regardless of its orientation. This minimizes the number of rollers needed to support the web to increase the area of contact with the hot air and facilitating drying.

3,738,019

DURABLE PRESS METHOD AND APPARATUS

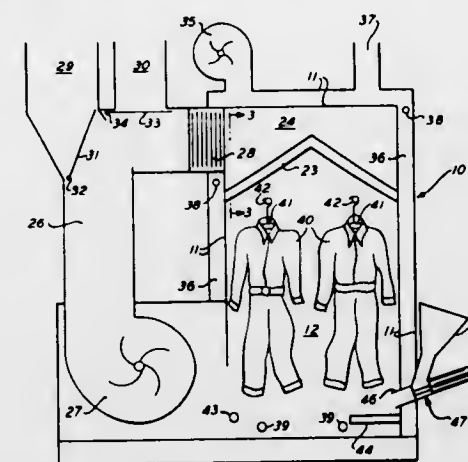
John H. Forg, and George L. Payet, both of Cincinnati, Ohio, assignors to McGraw-Edison Company, Elgin, Ill.

Filed Sept. 13, 1971, Ser. No. 179,781

Int. Cl. F26b 19/00

U.S. Cl. 34—210

5 Claims



A method and apparatus for providing fabric articles with a durable press on a commercial scale comprises an elongate treating chamber with loading and unloading doors at the ends and with a circulating conduit leading from the bottom of the chamber to an overhead manifold separated from the chamber by a specially slotted ceiling. The conduit includes a blower, exhaust and air inlet ducts with dampers for either exhaust circulation or closed-circuit circulation, and a heat exchanger. Opening into the chamber are headers for injecting steam and sulphur dioxide gas, and a device for feeding formaldehyde to be vaporized into formaldehyde gas. Cool air and water spray are injected into hollow walls of the chamber to cool the same to room temperature after each treating cycle. A step in each treating cycle after the steam is cut off comprises an exhaust heating to rid the articles of free chemicals and steam and a closed-circuit heating to raise the temperature to at least 250°F.

3,738,020

PROCESS FOR EXPANDING POLYSTYRENE

Daniel Hanton, La Neuville Roy (Oise), France, assignor to Compagnie de Saint-Gobain, Neuilly-sur-Seine, France

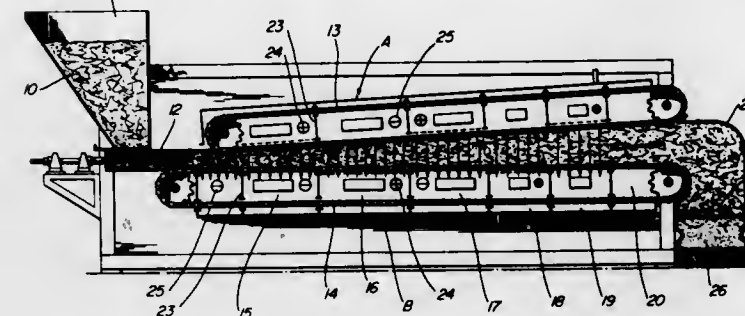
Division of Ser. No. 542,363, April 13, 1966, Pat. No. 3,598,769. This application Sept. 8, 1970, Ser. No. 69,906

Claims priority, application France, Apr. 14, 1965, 6513184

Int. Cl. F26b 19/00

U.S. Cl. 34—217

7 Claims



The present invention relates to expanded or blown polystyrene adapted for making articles such as blocks, slabs

and shaped pieces and particularly to an improved process for expanding the granules of polystyrene preparatory to the manufacture of articles therefrom.

3,738,021

SYSTEM FOR SYNCHRONIZING SOUNDS WITH LEARNING MATERIALS

Tetsuo Hino; Takao Orita; Isao Kozu; Kiyoji Fujisawa; Akio Nishiyama, and Katsutoshi Nishimura, all of Osaka-fu, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

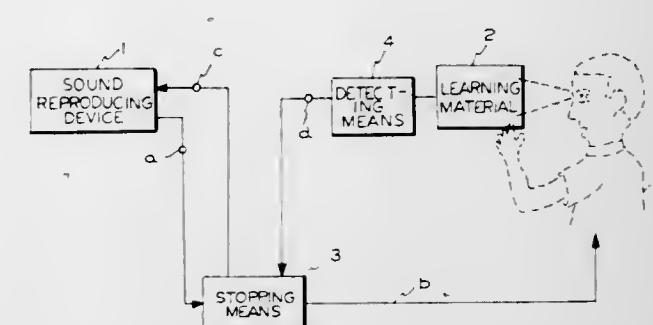
Filed Oct. 15, 1970, Ser. No. 80,918

Claims priority, application Japan, Oct. 20, 1969, 44/84390

Int. Cl. G09b 5/06

U.S. Cl. 35—8 A

5 Claims



A system for synchronizing sounds with learning materials has a sound reproducing device, learning materials, stopping means and detecting means. The sound reproducing device is stopped by means of the stopping means and is started again by the stopping means which is released from the stopped position in response to output signals of the detecting means generated by detecting a change of the next part of the learning materials.

3,738,022

MULTI-WINDOW TEACHING DEVICE

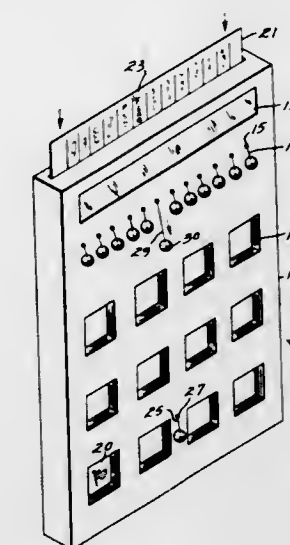
Bernard N. Kushner, 370 Central Park Avenue, Scarsdale, N.Y.

Filed Aug. 5, 1971, Ser. No. 169,445

Int. Cl. G09b 3/02

U.S. Cl. 35—9 R

8 Claims



A teaching device having multiple windows through which symbols are displayed, a display of identification words or

marks related to individual ones of the symbols, and an actuating device for selecting a desired identification word. Moving the actuating device closes the windows in front of the unrelated symbols.

3,738,023

SPLIT TETRAHEDRON WITH OPENINGS

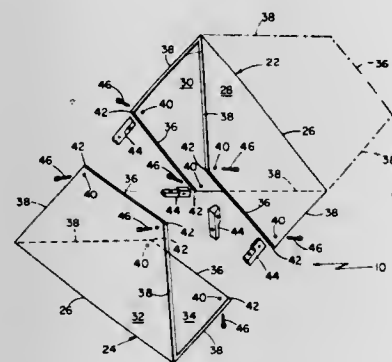
Miriam Sajkovic, 101 College Street, South Hadley, Mass.

Filed Jan. 31, 1972, Ser. No. 221,945

Int. Cl. A63h 33/04

U.S. Cl. 35-72

10 Claims



A portable structure in the form of a regular tetrahedron having an opening in each of at least three sides thereof and comprising four side panels.

3,738,024

FOOTWEAR HAVING AN ACTIVE ORNAMENT

Shinzaburo Matsuda, 15-6 Imado 2-chome, Taito-ku, Tokyo, Japan

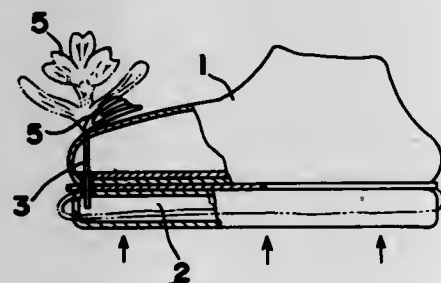
Filed June 8, 1972, Ser. No. 260,802

Claims priority, application Japan, July 15, 1971, 46/62197

Int. Cl. A43b 13/20

U.S. Cl. 36-2.5 R

6 Claims



This invention relates to footwear having an active ornament comprising a footwear body, a sealed hollow space formed in the bottom portion of said footwear body, an active ornament having resilience and elasticity provided on the upper portion of said footwear body and formed therein with a sealed hollow space, and a conduit connecting said sealed hollow space in the bottom portion of said footwear body to said sealed hollow space in said ornament.

3,738,025

SKI BOOT HAVING VARIABLE STIFFNESS

Alden B. Hanson, and Chris A. Hanson, both of Boulder, Colo., assignors to Hanson Industries Inc., Boulder, Colo.

Filed July 31, 1972, Ser. No. 276,561

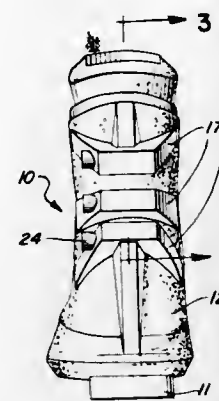
Int. Cl. A43b

U.S. Cl. 36-2.5 AL

7 Claims

A ski boot having variable stiffness is provided with a trans-

verse slot in ankle portion which narrows in response to forward lean pressure. Stiffness of boot is controlled by rotating



an oval rod positioned within the slot to limit the extent of deformation of the slot.

3,738,026

SHOE OUTSOLE UNIT

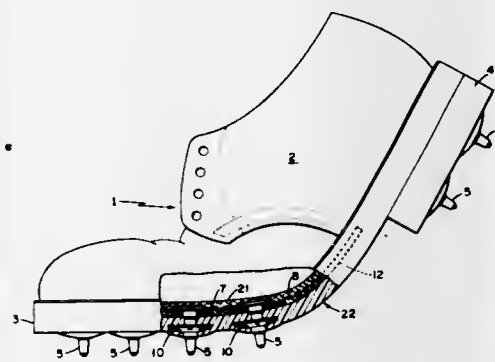
Edward H. Granger, South Yarmouth, Mass., assignor to F. C. Phillips Incorporated, Stoughton, Mass.

Filed Jan. 10, 1972, Ser. No. 216,480

Int. Cl. A43b 23/28

U.S. Cl. 36-59 R

7 Claims



A golf shoe outsole unit consisting of a moldable elastomer, such as P.V.C. or polyurethane or the like having an elongation restraining strip bonded to the upper surface of the outsole extending across a major portion of the outsole at its line of maximum flexure and extending for a substantial distance on both sides of that line. A spike anchor plate is mounted on top of the strip with golf shoe spikes extending from the lower side of the plate, through the strip and the elastomer and out beyond the lower surface of the outsole. The spikes are provided with perforated flanges sealed into the body of the elastomer.

3,738,027

CLOSURE DEVICE FOR SHOES, ESPECIALLY FOR SKI SHOES

Robert Schoch, Singen, Hohentwiel, Germany, assignor to Weimann Aktiengesellschaft, Schaffhausen, Switzerland

Filed Sept. 27, 1971, Ser. No. 184,108

Claims priority, application Germany, Sept. 23, 1970, P 20 46 890.0; Feb. 9, 1971, P 21 06 021.9; June 5, 1971, P 21 28 061.5

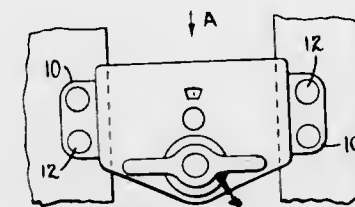
Int. Cl. A43b 11/00

U.S. Cl. 36-50

16 Claims

In a shoe having a pair of closure flaps, a closure device comprising a pair of pull members coupled each to one of the

closure flaps at one end thereof, a central member comprising a rotatably mounted disc at least partially formed as a maltese cross having leg portions with recesses formed between adjacent leg portions and groove means formed on the leg portions, a driving member disposed adjacent the disc and having pins formed thereon, the pins during rotation of the driving member engaging a predetermined one of the groove means, a cam member on the driving member having convexly shaped end portions for engagement with a predetermined one of the



recesses formed on the maltese cross shaped disc and forming a latch therewith, the cam member having concavely shaped side surfaces connecting the end surfaces for allowing unimpeded passage of the end portions of the legs of the disc during rotation of the disc by the pins, whereby a rotation of the driving element causes the associated pins entering the groove means and thereby rotating the disc, and as a result, the pull members being displaced along a straight line closing or opening the shoe flaps. The central member can be mounted on the shoe tongue and the pull members can be cables.

3,738,028

EARTH MOVING APPARATUSES AND PROCESS

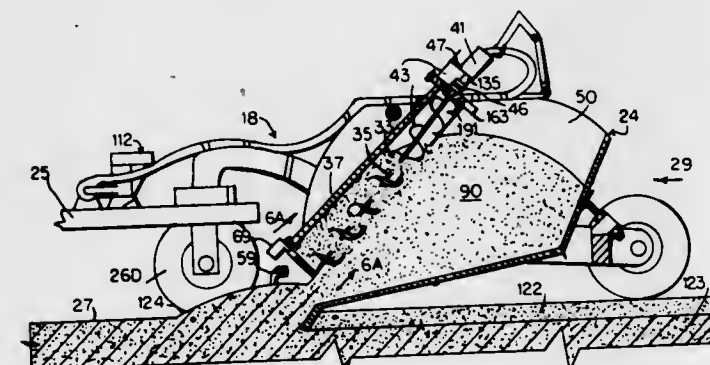
Robert L. Reinhardt, P.O. Box 2451, Lubbock, Tex.

Filed May 30, 1972, Ser. No. 257,638

Int. Cl. B60p 1/00

U.S. Cl. 37-4

6 Claims



In earth moving apparatuses dual screw conveyors are resiliently spaced from and supported by a hood thereover which hood is movably mounted at its front end in the mouth of a scoop and transport bowl to accommodate surges in feed, to fully and evenly and quietly and safely load the bowl and to smoothly unload the bowl.

3,738,029

DREDGING HEAD WITH PIVOTALLY MOUNTED MUD SHIELD

James D. Harmon, Minneapolis, Minn., assignor to Inland Service Corporation, Minneapolis, Minn.

Filed Dec. 10, 1970, Ser. No. 96,705

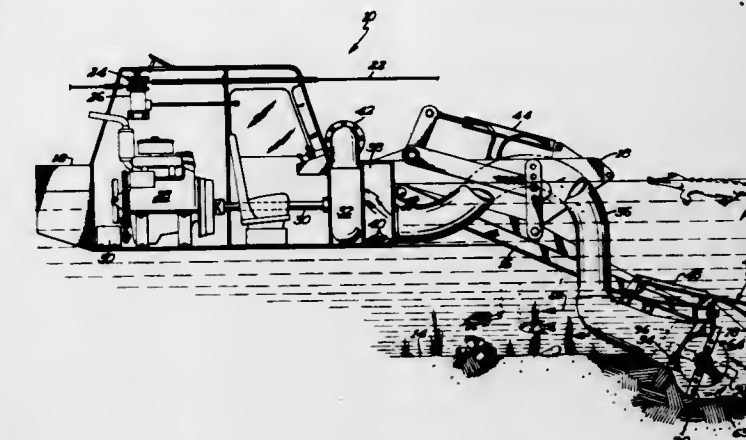
Int. Cl. E02f 3/92

U.S. Cl. 37-66

11 Claims

A dredging head with a pivotally mounted mud shield and cooperating intake assembly. A head located at the end of a

dredge boom has digging and conveying screw augers attached to a rotating shaft to loosen material such as mud, silt, and weeds from the bottom of a body of water and convey it toward an intake assembly which includes a suction intake conduit, a rotor, a stationary anvil, and an arcuate bar assembly. The mud shield confines material near the augers so the material can be conveyed by the augers to the rotor, sta-



tionary anvil, and arcuate bar assembly which cooperate to cut and shred the dredged material as it is pulled into the suction intake conduit. The arcuate bar assembly reinforces both suction intake conduit and stationary anvil and provides support for the rotor to prevent shaft deformation if collision with an underwater obstruction flexes the shaft against the arcuate bar assembly.

3,738,030

COMBINATION BULLDOZER BLADE AND BUCKET

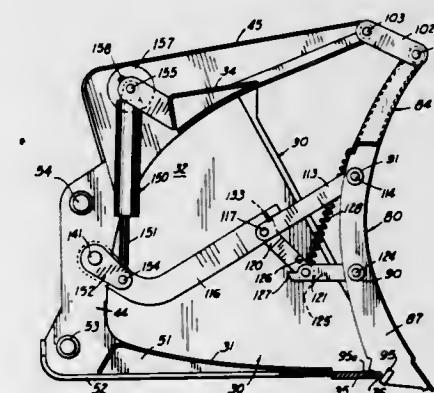
Donald Richard Olinger, Cedartown, Ga., assignor to Rome Industries, Inc., Cedartown, Ga.

Filed Nov. 23, 1971, Ser. No. 201,354

Int. Cl. E02f 3/76

U.S. Cl. 37-117.5

15 Claims



A combination bulldozer blade and bucket unit including means defining bucket means having a bulldozer blade supported thereon for movement from a first bucket forming position to a second bulldozer operation position. The bulldozer blade is operable as an ejector for removing material contained in the bucket means in response to movement of the blade from the first bucket forming position to the second bulldozer operating position. The bulldozer blade is supported on the unit whereby the blade bottom edge will be moved to a position in front of and below the leading edge of the bucket means and includes control means for effecting an automatic latching engagement between the blade and the leading edge of the bucket means in response to movement of the blade to the bulldozer operating position whereby the maximum forces developed against the blade in a bulldozing operation will be transmitted to the bucket means rather than to the blade linkage support means.

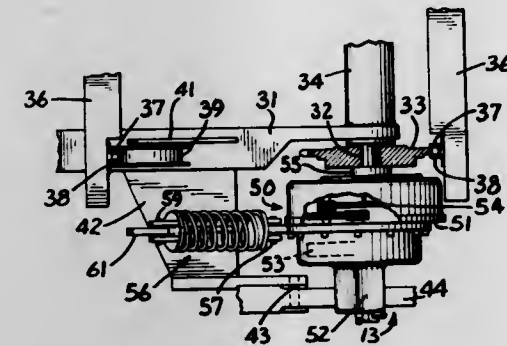
3,738,031

RESILIENTLY MOUNTED ELEVATOR DRIVE HOUSING
Walter E. Lott, Washington, Ill., assignor to Westinghouse Air Brake Company, Pittsburgh, Pa.

Filed Jan. 21, 1971, Ser. No. 108,307
Int. Cl. A01b 5/06; B65g 65/06

U.S. Cl. 37-8

1 Claim U.S. Cl. 38-77.83



A drive for an elevator in an earthmoving machine which includes an hydraulic motor, flywheel and reduction gear train mounted in a separate housing which is pivoted for rocking movement about the elevator drive shaft and which includes a spring between the housing and the frame of the vehicle to permit limited rocking in the face of reaction torque when shock loads are encountered by the elevator.

3,738,032

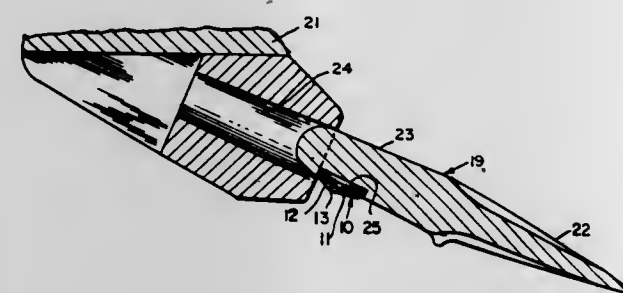
DIGGER TOOTH RETAINER

Kenneth M. White, Calgary, Alberta, Canada, assignor to Western Rock Bit Company Limited, Alberta, Canada
Filed Sept. 29, 1970, Ser. No. 76,434

Int. Cl. E02f 9/28

U.S. Cl. 37-142 A

4 Claims



A retainer for mounting a digger tooth in excavating equipment comprises a disk of resilient material, plastic, polyurethane or rubber for example, which has a convexly shaped upper side and an underside formed with a concave recess. The digger tooth has a shank portion by means of which it is mounted in an opening of a tooth mounting pocket in an excavating machine, the tooth being supported by inter-engagement of mating surfaces on the shank and the pocket opening. The retainer is received in a shallow circular recess in a surface of one of these members and is engaged against the mating surface in the other member, the convexly shaped upper portion of the retainer being displaced resiliently downwards by this engagement, and the material thus displaced filling recess on the underside of the retainer. When mounted the retainer presses in opposite directions against the tooth shank and the pocket and acts to secure the tooth in its mounting. To facilitate insertion of the tooth shank in its mounting the upper side of the retainer is defined by two sloping surfaces, the thickness of material beneath one of the surfaces being reduced to provide a place where the upper side of the retainer can buckle downwards.

3,738,033

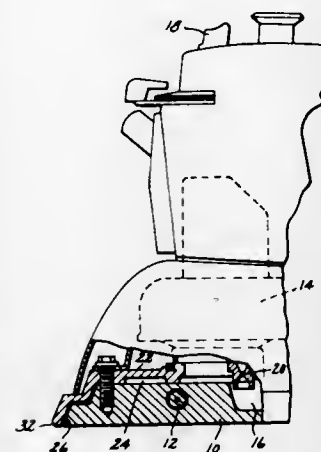
STEAM FLATIRON

Llewellyn D. Busby, Upland, Calif., assignor to General Electric Company, Bridgeport, Conn.

Filed Sept. 18, 1972, Ser. No. 289,848

Int. Cl. D06f 75/06

6 Claims



The invention herein discloses a steam flatiron with an integral and continuous smooth heated soleplate without the usual steam ports. In their place there is substituted an alternate supply of steam around the periphery of the soleplate by forming and extending the usual coverplate cup-like to extend substantially down to the ironing surface around most of the soleplate so that it is spaced from the soleplate to define peripheral groove means with the soleplate. The groove may extend along the entire sides of the iron, excluding the heel portion, or only part of the sides of the iron whereby steam exits from the iron along its periphery as a curtain of steam.

3,738,034

SPECTACLE FOR SUNGLASS AND INFORMATION TAG COMBINATION

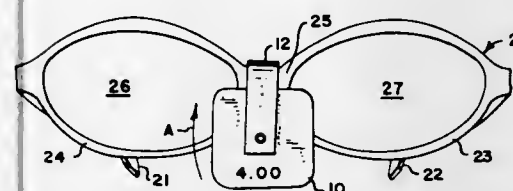
Charles W. Seaver, Needham, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Sept. 15, 1971, Ser. No. 180,704

Int. Cl. G09f 3/14

U.S. Cl. 40-21

3 Claims



The combination of spectacle or sunglass frames and a price or information tag which cannot be removed without mutilation or destruction thereof. The tag-frame combination cooperate to allow selective positioning of the tag relative to the frame.

3,738,035

LIGHTED DISPLAY

Albert W. Bricker, 845 Wilson Road, Atlanta, Ga.

Filed Jan. 25, 1971, Ser. No. 109,480

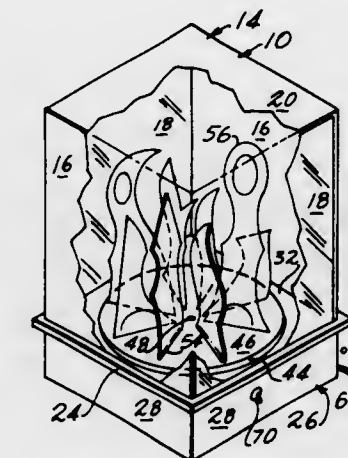
Int. Cl. F21p 03/00

U.S. Cl. 40-106.52

2 Claims

A lighted display providing a most interesting and unusual pattern of streaks of light intermittently pulsed inside an at-

tractive housing. Light appears to travel in lines and in rotation and the effect is obtained from a light bulb mounted on one side of slots and the other side of which has transparent light conductor member such as "Lucite" or "Plexiglas" plastic moving across the slot. In one form the light conducting members are in different shapes and are mounted substantially vertically from a turntable which is motor driven on an enclosed base in which is a pair of slots and respective projection lamps so that as the bottom edge of each light conducting member passes across the respective slot it receives a pulse of light momentarily which is conducted through that member at least momentarily while it continues to rotate. For additional



effect the turntable and light conducting members are contained within a plastic housing which has opaque sides, red tinted sides and blue tinted sides. In another form the light conducting members are carried by a revolving belt around cylindrical member in which is mounted a projection lamp inside a second drum in which is a slot communicating with the edge of each light conducting member of which there are several radiating from the drum. In another form the light conducting members are mounted on a slotted belt which is rotated over a transparent drum in which is mounted a second drum in which is mounted the projection lamp and there is a slot in the drum through which the light is conducted.

3,738,036

GLOBULE DISPLAY TOY

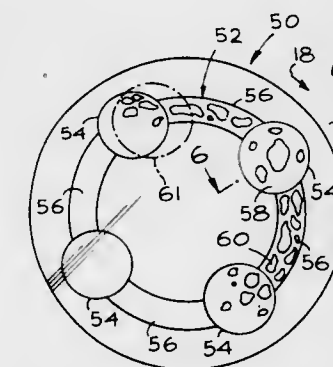
Edmund E. Landsinger, Torrance; Wilfred Nagus, Los Angeles; Prodromos Papavasiliou, Gardena, and George W. Stewart, Jr., Costa Mesa, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Feb. 19, 1971, Ser. No. 116,781

Int. Cl. G09f 13/24

U.S. Cl. 40-106.21

1 Claim



A disc having a thin chamber filled with immiscible fluids such as glycerine and air to form floating bubbles, the

chamber having barriers or chamber regions of different thicknesses to provide a sudden change in movement of the bubbles. In one disc, several barriers extend partially across the chamber so that the bubbles slither around the barrier. In another disc, the chamber includes thick regions connected by narrow tubes so that the bubbles suddenly accelerate when they enter the thick regions.

3,738,037

TUBULAR ASSEMBLY HAVING INDICIA DISPLAYING MEANS

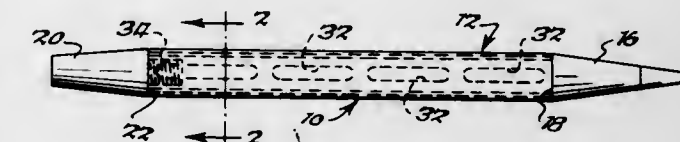
Erika Daley, 674 Ellicott Street, Buffalo, N.Y.

Filed July 22, 1971, Ser. No. 165,237

Int. Cl. G09f 11/02

U.S. Cl. 40-68

5 Claims



A tubular assembly having an inner shell provided with indicia in the form of English-Metric equivalent units of weights and measures and arranged in circumferentially spaced, longitudinal rows on the outer surface of the shell. A sleeve is mounted about the shell for rotation relative thereto and is provided with a longitudinal row of windows adapted to register with a selected row of indicia carried by the shell. Means are carried by the sleeve for magnifying the image produced by the indicia on the shell and displayed through the windows of the sleeve.

3,738,038

PERPETUAL CALENDAR AND WRITING INSTRUMENT HOLDER

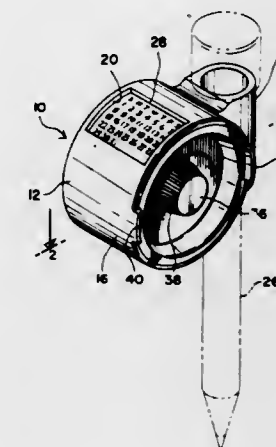
Walter C. Ganz, New York, N.Y., assignor to The Chromatic Corporation, Brooklyn, N.Y.

Filed Aug. 4, 1971, Ser. No. 168,945

Int. Cl. G09d 3/06

U.S. Cl. 40-111

8 Claims



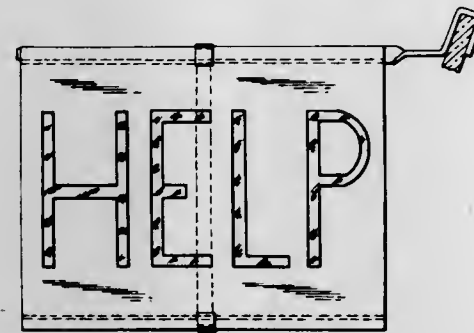
A perpetual calendar and writing instrument holder is attachable to any convenient surface, such as a telephone instrument body, and has an hollow housing with an opening in its outer peripheral surface. A protuberance extends outwardly from the peripheral surface and contains a passageway therethrough generally tangential to the housing, about 90° from the closest edge of the opening. A rotatable inset is positioned within the housing having a plurality of months disposed about its outer periphery, a selectable one of the months to be fully visible through the opening.

3,738,039 HIGHWAY SAFETY AID

Paul DeFuria, 1719 Ixora Drive West, Eau Gallie, Fla.
Filed Aug. 25, 1971, Ser. No. 178,519
Int. Cl. G09f 7/00

U.S. Cl. 40—129 C

6 Claims

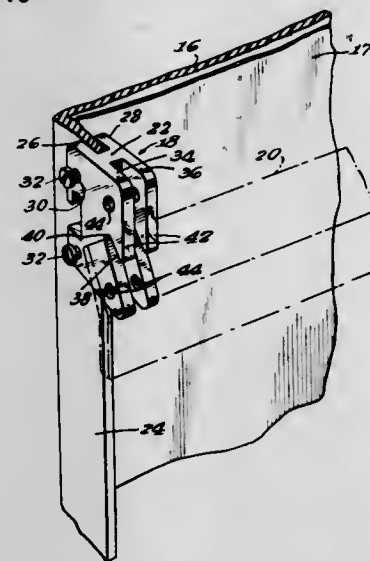


A highway safety aid for automobiles, boats, trailers and the like, having an arm and hook for fitting securely over the upper edge of a glass window or the like, the arm extending outwardly from the window and receiving a channel formed in the edge of a sheet, indicia disposed on the sheet for an emergency sign, a further channel in the opposite edge of the sheet for receiving a rod tending to hold the sheet in out-stretched relation, and a back-supporting member resiliently snapped onto the channels containing said arm and rod for holding the edges of the sign in generally parallel relation.

**3,738,040
HANGING DEVICE FOR DISPLAY ELEMENTS ON
CHANGEABLE COPYBOARDS**
Wilfrid Schubert, Bensenville, Ill., assignor to National Advertising Company, Bedford Park, Ill.
Filed Jan. 26, 1972, Ser. No. 220,868
Int. Cl. G09f 7/02

U.S. Cl. 40—140

3 Claims



A hanging device for mounting changeable display elements such as letters, characters, and other indicia, particularly pictorial display panels onto changeable copyboards including an adjustable portion, adjustably attachable to the pictorial panel and a mounting slot opposite the adjustable portion for engaging a hanger bar on the copyboard background, the position of the hanging device being adjustable on the pictorial panel for adjustably aligning the panel on the copyboard background, and fastening members at the adjustable portion for securely attaching the hanging device to the panel. A reversible hanging device in which there are provided on each respective opposite sides thereof both an adjustable portion and a hanger

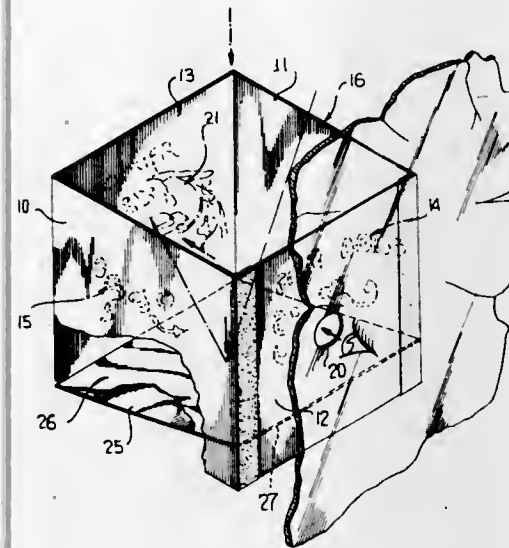
bar mounting slot, so that when in use the adjustable portion and the complementary mounting slot on opposite sides are in use, the hanging device being reversible so that if desired the other adjustable portion and its complementary mounting slot on the opposite side of the hanging device can be used in order that the panel can be hung on any one of several different types of hanger bar copyboard backgrounds corresponding relatively to one of the two mounting slots.

3,738,041 BOX

Leonard C. Rattner, 65 W. Penn Street, Long Beach, N.Y.
Filed Mar. 26, 1971, Ser. No. 128,326
Int. Cl. G09f 13/16

U.S. Cl. 40—130 C

5 Claims

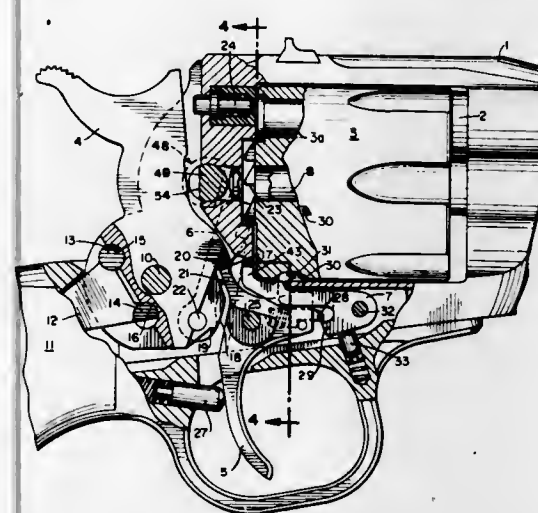


A collapsible box-like structure of paperboard having an open top, a viewing opening through the vertical front wall, a display on the forward side of the vertical back wall, and a bottom wall inner surface which is reflective, the bottom wall having a greater length front to back than the distance between the front and back walls which enables the bottom wall to be tilted upwardly back to front, thereby serving both to maintain the box-like configuration of the structure and also to reflect light toward the display.

**3,738,042
SAFETY DEVICE FOR REVOLVERS**
William B. Ruger, Southport, and Lawrence L. Larson, Bethany, both of Conn., assignors to Sturm, Ruger & Co., Southport, Conn.
Filed Aug. 25, 1971, Ser. No. 174,849
Int. Cl. F41c 17/04, 1/00

U.S. Cl. 42—66

19 Claims

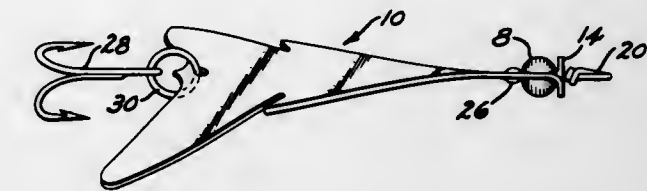


A single action revolver having a rebound hammer, trigger, cylinder, cylinder pawl, cylinder latch and cylinder loading

**3,738,045
COMBINATION FISH LURE AND SWIVEL**
Ewell J. Harris, c/o Sunset Mobile Homes, Route 3, Box 135A, Adrian, Mich.
Filed June 16, 1971, Ser. No. 153,528
Int. Cl. A01k 85/04

U.S. Cl. 43—42.12

1 Claim

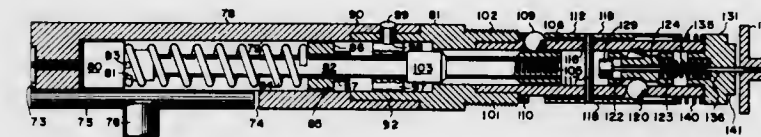


A combination fish lure and swivel combined so that a sizable portion of the swivel appears as a fish egg in the open mouth of the lure. The lure comprises a one-piece, plate-like body whose front portion contains a generally V-shaped slot, the wide end of which faces the front end of the body. The front end is bent laterally to one side, the bent portion including the wide end of the slot, with the portion of the body originally contained within the slot now extending from the other side to form an abutment, thus leaving an opening within the body. Pull means extends through the abutment and retains a bead which substantially fills the opening.

**3,738,043
ELECTRO-MECHANICAL FREE PISTOL**
Franklin C. Green, 6304 Locker Lane, San Antonio, Tex.
Division of Ser. No. 805,470, March 10, 1969, Pat. No. 3,626,624. This application Dec. 6, 1971, Ser. No. 204,942
Int. Cl. F41c 19/12

U.S. Cl. 42—69 A

8 Claims

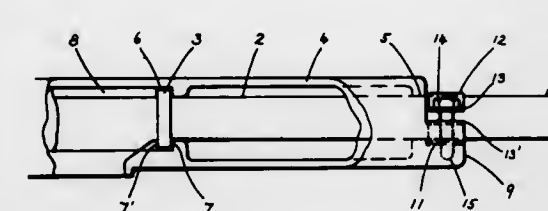


An electro-mechanical free pistol wherein the barreled action, including the firing mechanism, does not greatly exceed the outside diameter of the barrel except for the bolt handle and sights, said barreled action serves as a platform upon which the grip and trigger switch are adjustably positioned and electrically connected.

**3,738,044
ANTI SPIN-KICK FIREARM**
Russell S. Robinson, 277 Main Street 2B, Farmington, Conn.
Filed Oct. 9, 1970, Ser. No. 79,377
Int. Cl. F41c 21/00, 27/00; F41d 11/00

U.S. Cl. 42—75 B

6 Claims

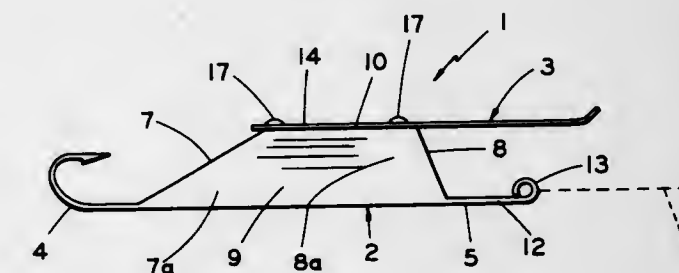


A firearm firing spin-stabilized projectiles having a barrel which can rotate or oscillate about its axis with respect to the receiver, said rotation or oscillation being constrained so that the reactive torque impacts resulting from the rapid spinning of the projectile during each discharge are smoothed out or applied to the receiver over a relatively long time in such manner that a very light weight, hand-held firearm firing automatically experiences negligible throw-off resulting from said torque impacts.

**3,738,046
ADVANCING FISH LURE**
Nels A. Johnson, 300 Shady Lane, Palatine, Ill.
Filed June 16, 1971, Ser. No. 153,593
Int. Cl. A01k 85/04, 95/00

U.S. Cl. 43—42.39

7 Claims



A fish lure having a free water floating fall glide forward in a more toward horizontal angle to the water surface and having a pulled anti-gravity rise rearward in a more steep inclination to the water surface. The lure includes a downwardly tapered longitudinally weighted V-shaped hull body having a fish hook mounted thereon and extending from the lower forward body nose end. The body also has a fish line anchor extending from the lower rearward body tail end and an overhead flat stabilizer wing mounted on top of the body rearward of the nose end. The stabilizer wing extends in overhanging relation beyond the tail end and over the line anchor and terminating rearwardly in an upturned wing portion for retarding descent of the lure in free fall glide.

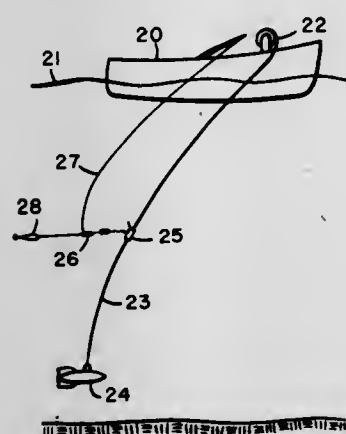
**3,738,047
FISH LINE CARRIER**
Larry T. Tozer, 4460 Keener Road, Muskegon, Mich.
Filed June 11, 1971, Ser. No. 152,091
Int. Cl. A01k 91/00, 95/00

U.S. Cl. 43—43.12

2 Claims

A line carrier for moving a fish line down a weight-suspension line in which hydrodynamic forces generated by trolling

action are utilized to provide a downward force to induce movement of the carrier downward along the weight suspen-



sion line to a predetermined depth. The fish line is releasably secured to the carrier so that a strike will pull the fish line free of the restraint of the carrier.

3,738,048 BAIT AND HOOK HOLDER

James L. Duchescher, 1916 7th Street N.W., Minot, N. Dak.
Filed May 4, 1971, Ser. No. 140,111
Int. Cl. A01k 83/06

U.S. Cl. 43-44.2

5 Claims



An angler's line attached fishing device characterized by a U-shaped bait and hook holder. One leg of the holder has a line attaching eye. The other leg constitutes, in part, a bait impaling shank. The shank has a free pointed end adapted to pierce the bait lengthwise and in such a manner that it can be impaled, positioned and retained on the shank. The pointed end fits into the bore of a detachable sleeve at one end thereof. A projecting, other end portion of the sleeve provides a socket for the shank of a conventional fishhook. Latches on the sleeve position and retain the sleeve on the shank and hold the shank portion of the attachable and detachable fishhook. Prongs are also provided to assist in holding the bait, a smelt, on the shank and sleeve.

3,738,049 FISH HOOK AND LIVE BAIT HARNESS

Benito Gonzalez Garza, 4806 Urban Street, Corpus Christi, Tex.

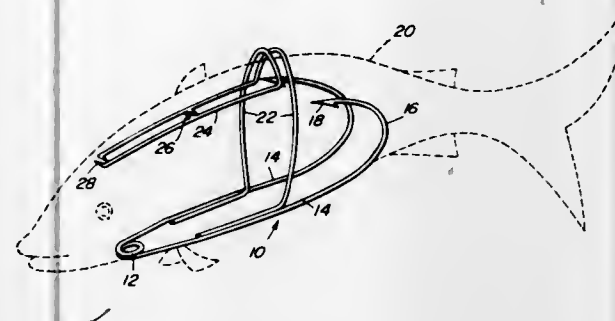
Filed Nov. 12, 1971, Ser. No. 198,107
Int. Cl. A01k 83/06

U.S. Cl. 43-44.4

9 Claims

A fish hook and live bait harness for minnows or other similar size live bait fish, and also for live shrimp bait including

a coil spring of resilient wire providing an eye for the fish line, with a pair of shanks extending rearwardly from the coil spring eye, the coil spring eye normally urging the shanks toward each other. In one form, the shanks terminate in curved barbed hooks, the barbed hooks extending forwardly toward the coil spring eye, and in another form, the shanks terminate in toes extending toward each other on which is placed the eye of a treble hook. In each case, an upwardly extending loop is secured on each shank in a plane at right angles to the plane of the shanks, the loop ends passing beyond each other and then



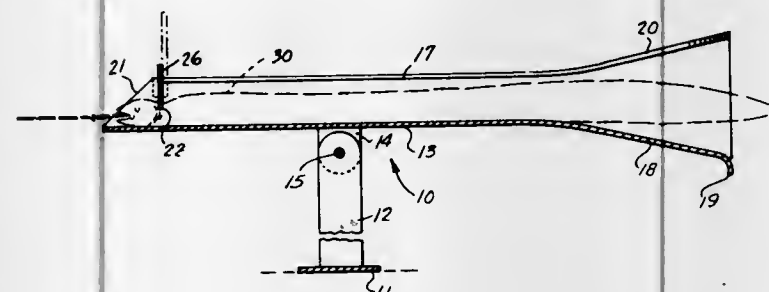
providing parallel arms extending parallel to the hook shanks providing bait securing harness extending either forwardly or backwardly. Each arm has a spur at an intermediate point and a stabilizer at the end which extend toward the spur and stabilizer on the other arm. The stabilizers are either sharp points for engaging minnows or small loops for supporting a shrimp tusk. The shank loops and arms provide a harness or saddle for holding live bait. The forwardly extending hook shanks provide head pull, and the rearwardly extending shanks provide tail pull.

3,738,050 EEL HOLDER

Willis D. Naill, 703 E. Valencia Street, Lakeland, Fla.
Filed Dec. 28, 1971, Ser. No. 213,055
Int. Cl. A01k 97/00

U.S. Cl. 43-53.5

5 Claims



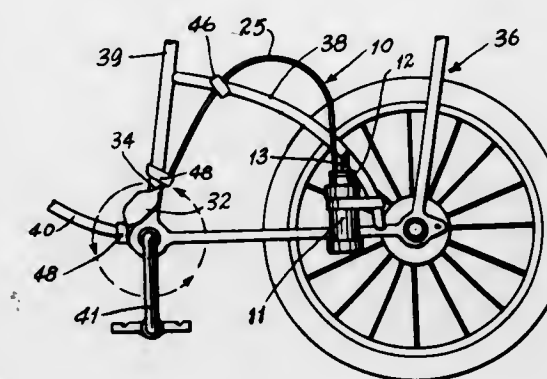
An eel holder which includes an elongate hollow tube having a flared inlet end and a longitudinal slot extending from end to end of the tube. The tube is supported on a base and has a transverse slot opening downwardly therein at the end thereof opposite the inlet end. A clamp member is pivotally secured to the tube and has a jaw member which engages through the transverse slot to clamp an eel immediately back of the head to immobilize the eel while removing the hook. A bar is secured to the tube and extends upwardly therefrom. A plurality of bores are formed in the bar to receive a securing pin extending through the clamp so as to adjustably secure the clamp in clamping to permit both hands to be used in extracting the hook from the mouth of the eel.

3,738,051 DEVICE FOR GENERATING BUBBLES IN RESPONSE TO MOVEMENT OF A VEHICLE

Dale G. Wakeem, Plad Star Route, Windyville, Mo.
Filed Dec. 28, 1971, Ser. No. 212,969
Int. Cl. A63h 33/28

U.S. Cl. 46-7

5 Claims



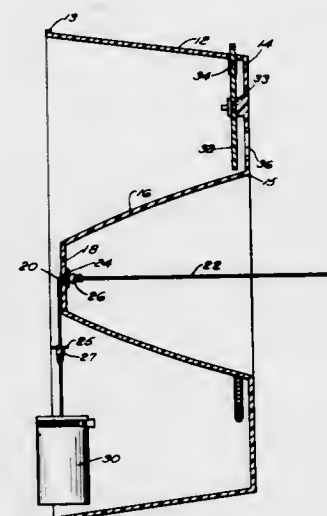
A device for generating bubbles responsive to movement of a vehicle comprising a bottle for containing a bubble solution, means for mounting the bottle to the vehicle, and means responsive to movement of the vehicle for forcing air into the bottle and producing bubbles therefrom.

3,738,052 WHEEL TOY

Gerald C. Kelly, 16 Dunmore Road, Warwick, R.I.
Filed Feb. 5, 1971, Ser. No. 112,982
Int. Cl. A63h 33/00

U.S. Cl. 46-51

5 Claims



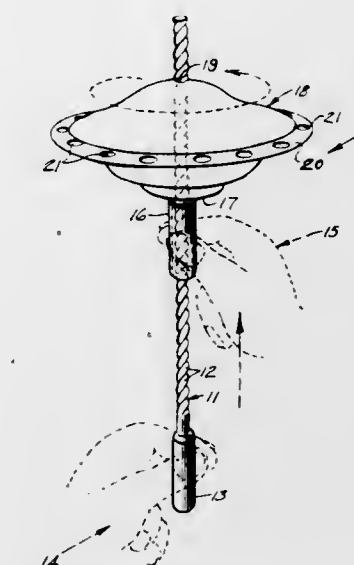
A toy whirling wheel having a shell-like configuration generally in the shape of a frusto-conical section with the diameter at the base of the wheel greater than the diameter at the top of the wheel. The top surface of the wheel has its central portion recessed downwardly with a bore therethrough located on the axis of the wheel. A rope passing through the bore acts as an axle about which the wheel turns and stops on the rope limit the axial movement of the rope back and forth through the bore. A bag in which weights may be placed is attached to the end of the rope inside the shell of the wheel. Attached to the underside of the top surface are a plurality of rotatable discs each having a chord portion extending outwardly through slots in the side annular wall of the wheel. The discs each have an identical set of symbols on their top face with the symbols being selectively viewable through windows in the top surface of the wheel.

3,738,053 FLYING SAUCER TOY

John T. Camarota, 1655 S. Taney Street, Philadelphia, Pa.
Filed Oct. 12, 1971, Ser. No. 188,154
Int. Cl. A63h 27/00

U.S. Cl. 46-74 D

1 Claim



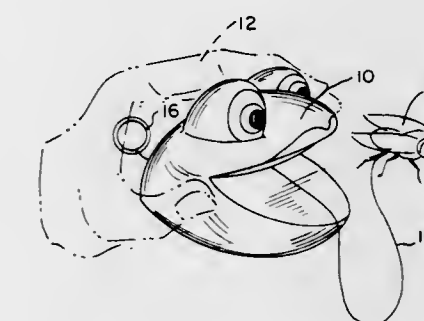
A toy device. This device includes a hand-launching element having an elevatable sleeve freely carried upon a convoluted member which when the sleeve is raised will cause a plastic toy vehicle to rotate and become air borne.

3,738,054 ANIMAL ACTION TOY

Victor Petrussek, 14611 Halsted Street, Harvey, Ill.
Filed Nov. 11, 1971, Ser. No. 197,850
Int. Cl. A63h 13/02

U.S. Cl. 46-141

3 Claims



Animal Action Toy comprising a body formed of resilient material in the shape of an animal's head which upon compression opens its mouth as if to catch a bug, nut, or other smaller animal, tethered to one end of an elastic or rubber chord, the other end being attached to the roof of the animal's mouth, whereby the bug or the like may be tossed away from the animal's head, the head compressed to open the animal's mouth, and the bug caught in the animal's mouth on rebound.

3,738,055 DOLL HAVING GRAVITY-ACTUATED CHANGEABLE EYES AND DENTURE ARRAYS

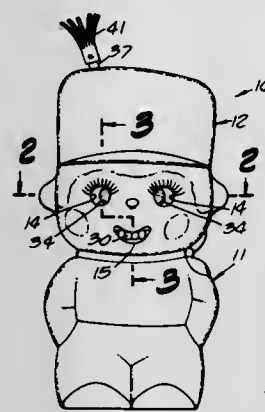
Orlin G. Marble, 1216 S. Garfield, Alhambra, Calif.
Filed Sept. 7, 1971, Ser. No. 178,009
Int. Cl. A63h 13/00

U.S. Cl. 46-135 R

9 Claims

An animated doll having a hollow body and a head with eye and mouth openings with mechanism therebehind for display-

ing different successive arrangements of eyeballs and dentures giving the doll a variety of facial expressions. The actuating mechanism can be actuated manually by an operating lever or

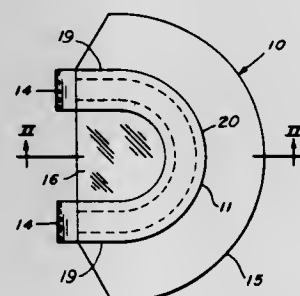


set in automated operation by gravity responsive drive mechanism including a concealed pendulum. When the removable top is detached, the unitary animating mechanism can be withdrawn as a unit.

3,738,056 TURKEY CALL

Fred R. Schultz, 3328 Havard Street, Lower Burrell, Pa.
Filed Sept. 17, 1971, Ser. No. 181,541
Int. Cl. A63h 5/00

U.S. Cl. 46—178



A simplified molded plastic turkey call which includes male and female mating frame portions and a diaphragm extending in a taut condition from the male and female mating portions.

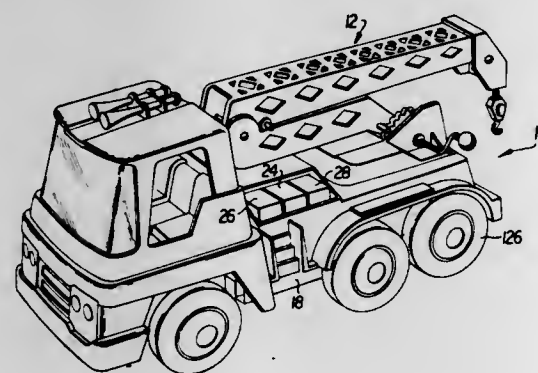
3,738,057 TOY VEHICLE

Toyotsugu Ogasawara, Tokyo, Japan, assignor to Tomy Kogyo Co., Ltd., Tokyo, Japan

Filed Nov. 17, 1971, Ser. No. 199,669
Claims priority, application Japan, Jan. 20, 1971, 46/2037;
Jan. 20, 1971, 46/2038; Jan. 20, 1971, 46/2039
Int. Cl. A63h 33/26

U.S. Cl. 46—243

8 Claims



An electric motor, switching system and gear train for driving the wheels of a toy vehicle to propel same and sequentially

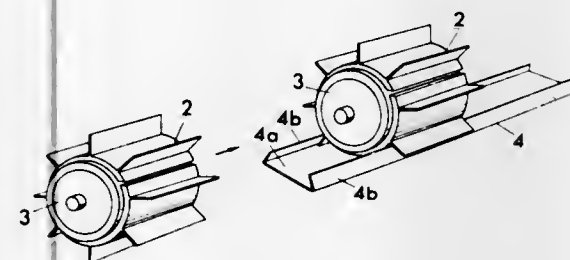
raising and lowering a working mechanism such as a crane, mixer or dumper while movement of the vehicle is stopped.

3,738,058 MODEL PLANE HAVING RADIATING MEANS

Kenichi Mabuchi, Tokyo, Japan, assignor to Mabuchi Motor Co., Ltd., Tokyo, Japan
Filed Dec. 2, 1971, Ser. No. 204,039
Claims priority, application Japan, Dec. 4, 1970, 45/120390;
Dec. 4, 1970, 45/120391

Int. Cl. A63h
U.S. Cl. 46—243 AV

2 Claims



A model plane having a means for radiating heat generated by a dry cell mounted on said model plane for a power source of a miniature electric motor by which the model plane is adapted to fly in the air, to work the dry cell at its top capacity.

3,738,059 MOBILE THERMOFORMING APPARATUS AND METHOD

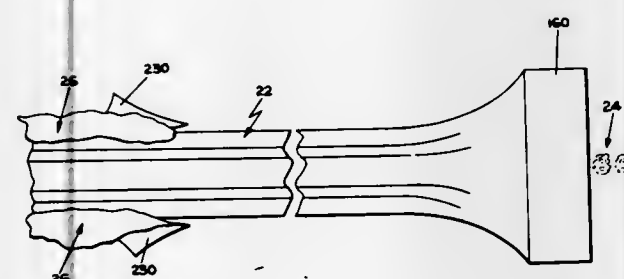
James B. Haviland, Jr., and Charles R. Balkema, both of Grand Rapids, Mich., assignors to Haviland Agricultural Chemical Company, Grand Rapids, Mich.

Division of Ser. No. 15,648, March 2, 1970, Pat. No. 3,661,481. This application Sept. 30, 1971, Ser. No. 185,252

Int. Cl. A01g 13/02

U.S. Cl. 47—26

1 Claim



Thermoforming apparatus and method for continuously thermoforming a continuous web or sheet into a self-supporting, protective crop cover, preferably hat-shaped in cross-sectional configuration. The apparatus utilizes counter-rotating forming means, specifically sets of wheels on two adjacent axles, each set having primary forming wheels fixed to the axle and cooperative idler forming wheels freely rotating thereon, each idler wheel cooperating with a primary wheel on the opposing axle. Heat is supplied to the forming means, preferably by circulation of heated fluid. Forming pressure is supplied by shifting the forming means into cooperative relationship.

Such a crop cover is continuously formed by simultaneously heating and bending the sheet or web material into the configured shape, and is continuously positioned over the row as formed, and anchored by pushing dirt onto its flanged edges.

3,738,060 PLANT SUPPORT WITH WATERING TUBE SPIRALLING THEREAROUND

Jean Jullien-Davin, Valence, France, assignor to Crouzet, Paris, France

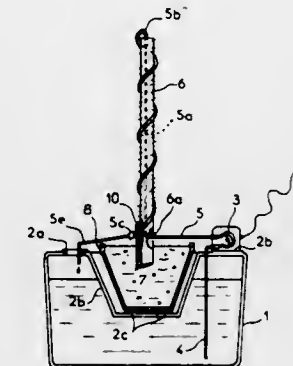
Filed Mar. 1, 1972, Ser. No. 230,819

Claims priority, application France, Mar. 5, 1971, 7108001

Int. Cl. A01g 27/00

U.S. Cl. 47—38.1

3 Claims



Device for the automatic spraying of household plants, in particular creepers along a moss-lined support which moss must be maintained in a humid condition, comprising a water tank, an electric pump with a suction tube immersed in the tank, a discharge tube connected to the pump, said discharge tube being water tight in a first ascending part rising to the top of the support, and then porous in a second descending part winding into a spiral around the support and then water tight in a third descending part returning to the tank, a textile wick being arranged along the support in contact with at least one part of said porous part of the discharge tube and extending towards the bottom of the earth in the pot.

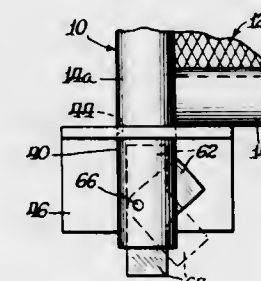
3,738,061 LATCH MEANS

Joseph Catalano, 1218 West Grand Avenue, Chicago, Ill.
Continuation-in-part of Ser. No. 793,966, Jan. 27, 1969. This application June 7, 1971, Ser. No. 150,336

Int. Cl. E06b 9/00

U.S. Cl. 49—50

1 Claim



A panel made up of an expanded metal mesh with frame members of split tubing receiving the edges of mesh and gripping it, and molded into a rigid unitary frame; and hinge means for mounting the panel on the support. The device also includes a latch for automatically locking in response to the device being put into place.

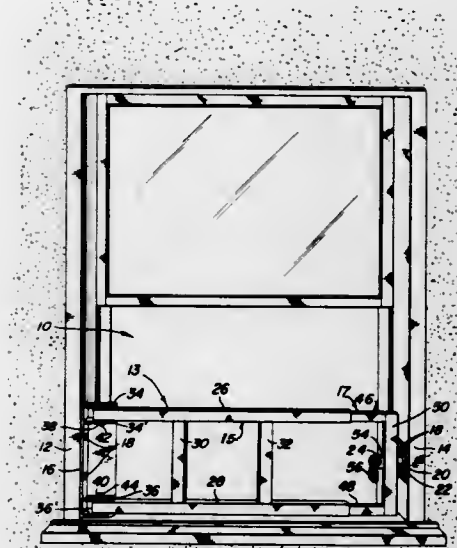
3,738,062 SECURITY AND SAFETY DEVICE FOR APERTURES IN BUILDINGS

Harry A. Ughi, Central Boulevard, New Hyde Park, N.Y.
Filed Nov. 11, 1971, Ser. No. 197,677

Int. Cl. E06b 3/68

U.S. Cl. 49—55

5 Claims



Illegal or unauthorized ingress or egress from a building through an aperture such as a window is prevented by a telescopically adjustable safety and security device mounted in the aperture which may be readily pivoted out of the way when it is not required.

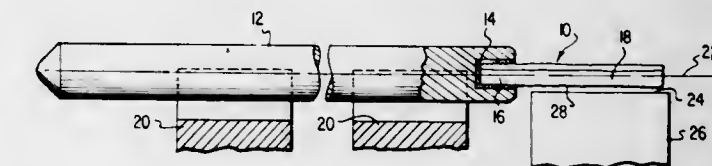
3,738,063 APPARATUS FOR MAKING SOLID DIAMOND DRILLS

John A. Cupler, II, 10 Cupler Drive, LaVale, Cumberland, Md.
Filed Feb. 5, 1971, Ser. No. 113,064

Int. Cl. B24b 3/24

U.S. Cl. 51—50 R

9 Claims



The disclosure is directed to an apparatus for machining solid diamond drills, wherein such drills are machined without regard to natural cleavage lines. The drills are machined to a desired three-dimensional configuration by providing a yieldable engagement of the diamond with an endless machining member in accordance with the surface which are to be machined.

3,738,064 LENS EDGING MACHINE

Morris Szyferblatt, Spring Valley, N.Y., assignor to Optometric Systems, Inc., Spring Valley, N.Y.

Filed Nov. 26, 1971, Ser. No. 202,147

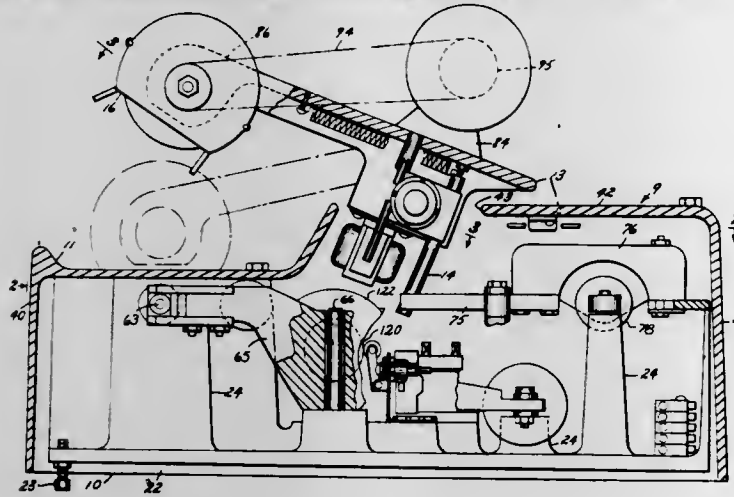
Int. Cl. B24b 5/16, 17/04

U.S. Cl. 51—93

4 Claims

A lens edging machine for grinding spectacle lenses having elements for grinding a concealed V-shaped bevel of width

less than the peripheral thickness of the lens which will follow the curvature of the peripheral edge of the lens, so that the frame in which the lens is mounted may also follow this curvature, while concealing the bevel for a more attractive appearance. The device includes a feeler member directly contacting the forward surface of the lens at a locus of points adjacent the periphery at which a grinding action is instantaneous.



ously taking place, which feeler member serves to axially position a grinding wheel as the same contacts the lens periphery. Elements are provided for adjusting the distance of the principal axis of the V-shaped bevel with respect to the forward surface of the lens, which elements may also be adjusted to provide for flat edge grinding where a V-shaped bevel is not desired.

3,738,065

MACHINE FOR TRIMMING AND BEVELLING THE EDGES OF OPHTHALMIC LENSES

Luc A. Tagnon, Saint Mandé, France, assignor to Societe des Lunetiers, Paris, France

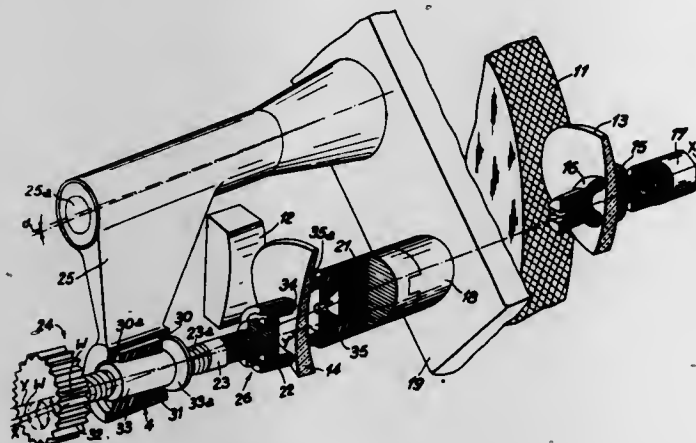
Filed Feb. 1, 1971, Ser. No. 111,503

Claims priority, application France, Feb. 3, 1970, 7003722

Int. Cl. B24b 7/00, 9/00, 41/06

U.S. Cl. 51-101 LG

11 Claims



A device designed for fastening the end of a rotatably driven spindle to an object of substantially flat configuration. The device comprises a first plate rotatably driven from a rotary spindle and a second plate adapted to clamp the object against the first plate and is rotatably mounted through the medium of an axial thrust rolling-contact bearing to the end of another axially movable spindle carried by the end of a bracket, together with means to cause the axial movement of the other spindle. A resilient sleeve is interposed between the bracket and the second spindle to enable the second spindle to perform transverse movement in relation to the axis of the first spindle while resiliently and axially urging the second spindle towards the object. The device is applicable to the clamping of a templet in a machine for trimming and/or bevelling or edge-grinding ophthalmic lenses.

3,738,066 DEVICE FOR GRINDING LONG UNDULATION WAVES OF RAILWAY RAILS

Romolo Panetti, 24, Parc Chateau Banquet, Geneva, Switzerland

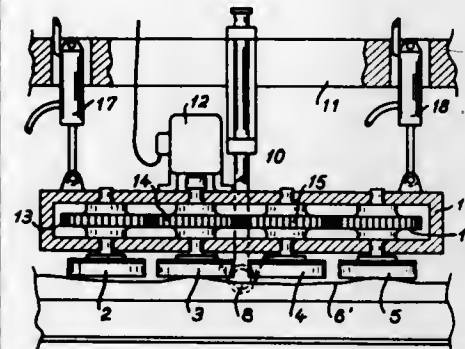
Filed Apr. 6, 1971, Ser. No. 131,668

Claims priority, application Switzerland, Sept. 14, 1970, 12235/70

Int. Cl. B24b 23/00, 7/00, 9/00

U.S. Cl. 51-178

13 Claims



A device for grinding long undulation waves of railway rails, comprises a train of rotatable grinding wheels mounted on a rigid runner of a length greater than the longest undulation to be ground and oriented in the direction of the rail. The runner is supported from a chassis rollable on the rails by means of a suspension such that the resultant of the driving force of the runner and of the force applying the grinding wheels against the rail passes substantially through the center of the active surface of the grinding wheels to avoid the development of a force tending to pivot the runner about a transverse axis.

3,738,067

JOINTER BLADE GRINDER

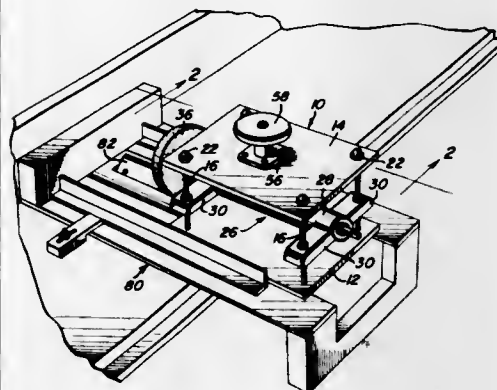
Howard J. Smith, Roswell, N. Mex., assignor to Ruby A. Miller, Roswell, Minn., a part interest

Filed Mar. 10, 1971, Ser. No. 122,680

Int. Cl. B24b 3/38

U.S. Cl. 51-249

6 Claims



A grinding tool specifically adapted for utilization in sharpening jointer blades and the like comprising an elongated shaft rotatably mounted within a housing. One end of the shaft is adapted to mount a grinding wheel, the second end of the shaft is adapted to engage with a source of power for a rotational driving of the shaft. The housing slides vertically on upstanding posts which extend between upper and lower plates. An enlarged housing engaged threaded shaft is utilized to effect a vertical adjustment of the grinding wheel.

3,738,068

CONJOINT FACIA AND WATER DAM

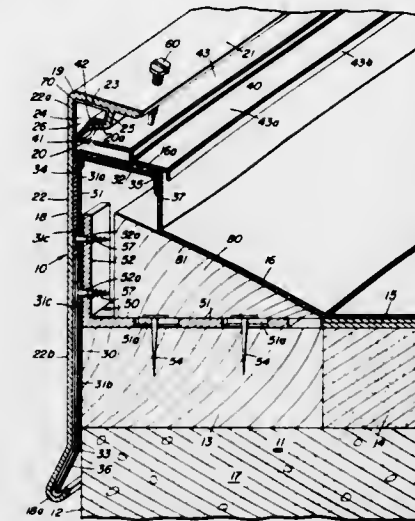
Julian J. Attaway, Tucker, Ga., assignor to Miscellaneous Manufacturing Corporation, Tucker, Ga.

Filed Oct. 31, 1972, Ser. No. 302,597

Int. Cl. E04d 13/15

U.S. Cl. 52-60

10 Claims



A conjoint fascia and water dam for use as a roof deck appurtenance is provided and as installed is characterized by having cant means include a resilient free-ended jaw secured to lead having a rearwardly and downwardly inclined portion and a projecting end of the jaw above the roof deck, there being fascia means leading frontally outside the resilient jaw and constrained against upward movement, and flashing and thrust means acting interposed between the fascia means and the resilient jaw to clamp a marginal end portion of sheet roofing against the rearwardly and downwardly inclined portion of the jaw and incidentally spring the jaw resiliently toward the fascia means and urge the fascia means in an upward and inward direction thereby stabilizing the assembly having the sheet roofing rearward of where clamped depend from the jaw and lead below the projecting end of the jaw.

3,738,069

MODULAR BUILDING CONSTRUCTION

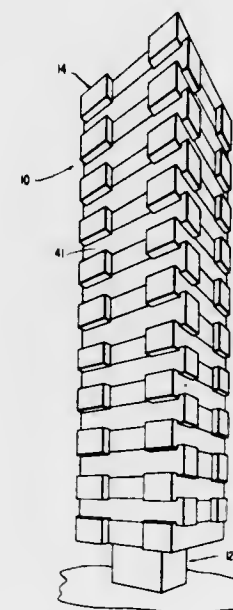
Octaviano De J. Navarrete-Kindelan, Santurce, P.R., assignor to Anthropos, Inc., San Juan, P.R.

Filed Sept. 18, 1970, Ser. No. 73,326

Int. Cl. E04b 1/348, 1/34

U.S. Cl. 52-73

20 Claims



The building construction includes a stem upstanding substantially the entire height of the building with box-like

modules supported along the height of the stem at various building levels. To elevate the individual modules to predetermined building levels, lifting lines extend from a winch adjacent the base of the stem upwardly within the stem and about a pair of pivotal sheaves and a selected pair of fixed sheaves cantilevered outwardly of the stem. The lifting lines extend vertically along and outwardly of selected sides of the stem for connection with cradles carrying the modules, the cradles and modules being transportable to adjacent the base of the stem vertically below their final position in the building. The modules are lifted vertically and, at a specified level, the inner walls of the modules are secured directly to the stem with the end portions of the modules being cantilevered from the stem. At the level next below, modules are disposed such that their end portions are cantilevered from the stem and underlie the cantilevered portions of the superposed modules. The inner walls of the underlying modules are connected directly to the tower and the cantilevered inner end wall portions of the superposed modules are connected to the underlying modules to form a cantilevered support therefor whereby underlying modules are supported both directly from the tower and from the cantilevered support of the superposed modules.

3,738,070

BURIAL VAULT

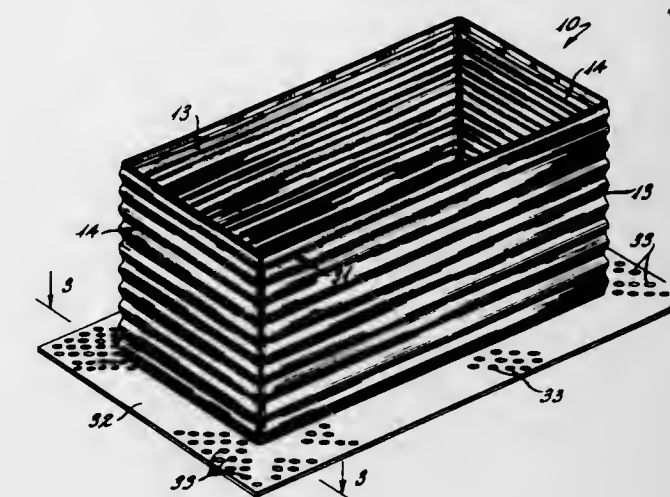
Glen A. Yarbrough, P.O. Box 126, Clarksville, Ark.

Filed Mar. 12, 1971, Ser. No. 123,647

Int. Cl. E04h 13/00; E04c 1/00

U.S. Cl. 52-130

4 Claims



A burial vault apparatus for the interment of bodies either partially or entirely below ground level. The vault is constructed of corrugated lightweight material which is airtight and moisture-proof and from which air may be evacuated, and such vault is provided with structure to resist vertical movement.

3,738,071

TENSION ELEMENT FOR CONSTRUCTING A PRESTRESSED TENSION ANCHOR IN THE GROUND

Klemens Finsterwalder, Sockling uber Starnberg, Germany, assignor to Firma Dyckerhoff & Widmann Aktiengesellschaft, Munich, Germany

Filed Aug. 11, 1971, Ser. No. 170,884

Claims priority, application Germany, Aug. 21, 1970, P 20 41 526.3

Int. Cl. E02d 5/38, 5/54

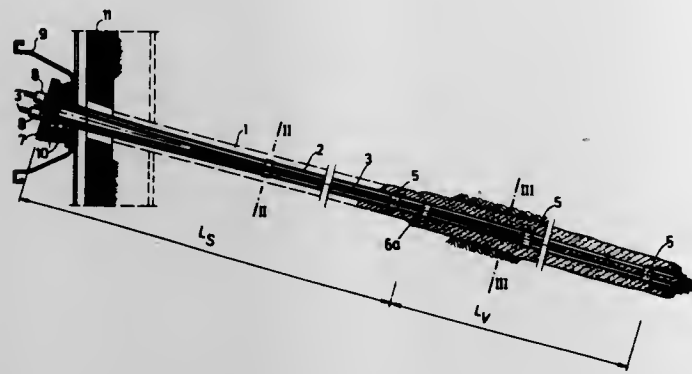
U.S. Cl. 52-155

3 Claims

Tension element for a pre-stressed tension anchor in the ground with a connection between the surface of the tension

member and the wall of a bore hole, which comprises a plurality of individual elements preferably in the form of bars extending along an anchoring stretch and a tensioning stretch and bunched together in bundle form along the anchoring

where all services such as electricity and plumbing are built in. In the prefabricated building structure according to the invention there is provided a roof section and a floor section, a series of vertically arranged wall forming panel sections held fixedly in edge-to-edge relation by generally U-shaped clamp means extending from one panel section to another, and having portions thereof embedded within slots formed in the panel sections. The panel sections are connected with a plu-



stretch of the element without an outer casing and provided along the tensioning stretch with individual casings, where the connection is in the form of an injected hardening material and the elements are tensioned individually.

3,738,072

POLE REINFORCING APPARATUS

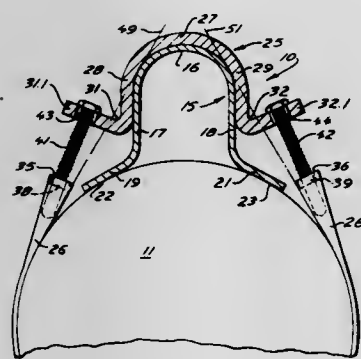
Walter Hilmer Adrian, 3350 Lefevre Road, R.R. 2, Aldergrove, B.C., Canada

Filed Apr. 7, 1972, Ser. No. 242,031

Int. Cl. E02d 37/00; E04g 23/02; E04h 12/04

U.S. Cl. 52-170

4 Claims



Pole reinforcement apparatus for reinforcing a wooden utility pole which includes a stub adapted to be driven into the ground along side the pole the stub having a body portion of substantially U-shaped cross section having side legs from which lateral flanges extend for tangential engagement with the pole. A flexible tension member extended around the pole is connected to flanges extending laterally from legs of a U-shaped cap which fits over the stub body for binding the stub to the pole.

3,738,073

PREFABRICATED BUILDING STRUCTURES

Laurent A. Boulanger, P.O. Box 1059, Geraldton, Ontario, Canada

Claims priority, application Canada, Feb. 7, 1972, 134,085

Filed Feb. 28, 1972, Ser. No. 229,762

Int. Cl. E04b 2/56

U.S. Cl. 52-282

2 Claims

The invention relates to an improved method of assembling prefabricated building structures, and is particularly applicable to structures where the wall panels are prefinished, i.e.

reality of corner posts by intermediate structural elements each of which is attached to, and extends substantially the height of a post, each element having on a face abutting a post, a plurality of vertically spaced apart transversely extending slots arranged in horizontal alignment with the slots formed in the panel sections. The panel sections are then attached to the member by a plurality of clamps extending into slots in the member and the panel section.

3,738,074

MOLDING RETAINER

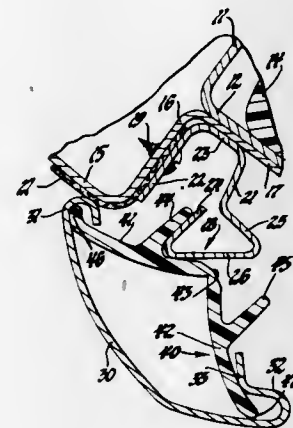
Herbert D. Tucker, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 13, 1969, Ser. No. 876,545

Int. Cl. E04f 19/02, 13/15

U.S. Cl. 52-718

6 Claims



A retainer for securing molding, such as a window garnish molding to a support panel of a vehicle body, the retainer including a pair of integrally hinged members adapted to engage the inner curved edges of a channel-shaped molding and a lateral tongue extending from each of the hinged members adapted to engage a molding support panel.

3,738,075

EXTENDIBLE BOOM WITH LATCH MEANS FOR EXTENSION AND RETRACTION

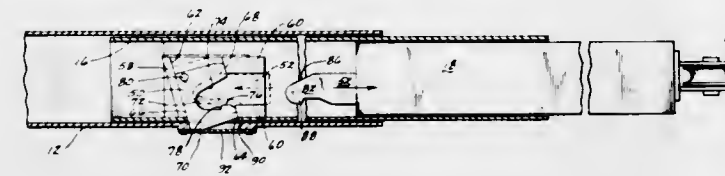
Harold K. Nansel, Waverly, Nebr., assignor to National Crane Corporation, Waverly, Nebr.

Filed June 16, 1971, Ser. No. 153,761

Int. Cl. B66c 23/04; E04h 12/34

U.S. Cl. 52-115

16 Claims



This is an improvement in an extendible boom assembly having a lower section and an upper section and an intermediate section mounted for telescopic movement with respect to one another. The boom assembly has power means connected to the lower and upper sections for extending and retracting the boom assembly. The improvement comprises latch members carried by the upper and intermediate sections. One of the latch members is movable to a latched position wherein it retentively engages the other of the latch members so as to cause the upper and intermediate sections to be locked together for movement in unison. This one latch member is movable from its latched position to a release position wherein it releases the other latch member from retentive engagement. A bearing surface slidably engages the latch member during extension of the upper and intermediate sections, and holds the latch member in its latched position until the boom assembly extends to a predetermined point at which time it permits the latch member to move to its release position. The engagement between the two latch members is such that the movable latch member is urged towards its release position whenever the upper section extends with the latch members in retentive engagement with one another.

3,738,076

NAILING CLIP FOR PLASTIC SIDING

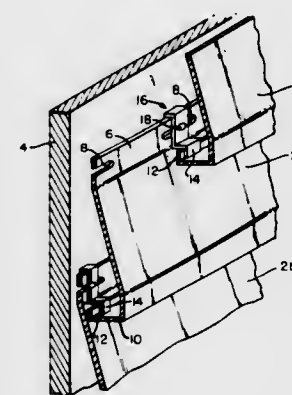
Gerald Kessler, 388 Cranberry Road, Boardman, Ohio

Filed Sept. 7, 1971, Ser. No. 177,989

Int. Cl. E04d 1/34

U.S. Cl. 52-547

4 Claims



Plastic siding made to simulate clapboards is now made with an integral top locking strip having a downward projection spaced from the body of the siding into which an upturned projecting strip, on the bottom of the next higher course of siding, can be fitted when applying the siding to a house. The

present disclosure eliminates this integral locking strip and provides instead small nailing clips of a special construction which are less expensive and which are constructed so that the siding can be nailed in place loosely, which is desirable to permit thermal expansion and contraction of the siding.

ERRATUM

For Class 52-582 see:
Patent No. 3,738,083

3,738,077

BATCH WEIGHING MACHINE

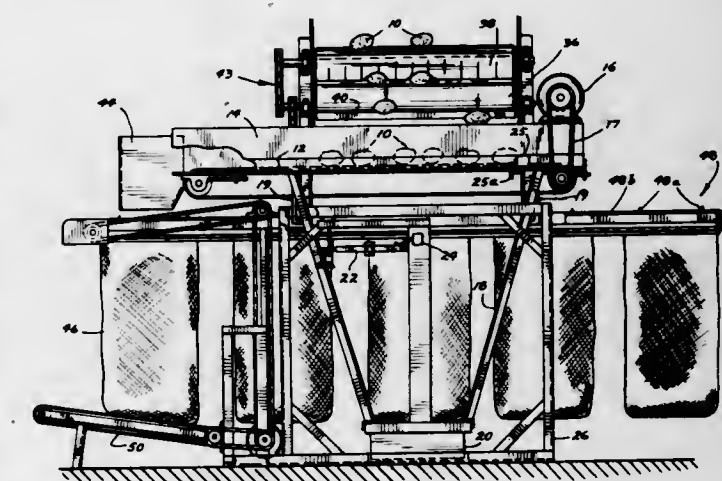
Rex J. Leach, Moorhead, Minn., assignor to Paul Horn Farms, Inc., Moorhead, Minn.

Filed Apr. 26, 1971, Ser. No. 137,529

Int. Cl. B65b 57/10

U.S. Cl. 53-59 W

5 Claims



This is a batch weighing machine which automatically weighs successive batches of material and thereafter discharges each batch into a container pre-positioned to receive the same. The weighing apparatus is particularly constructed to use a conventional scale for the weighing operation.

3,738,078

CUTTING, SORTING AND STORING DEVICE

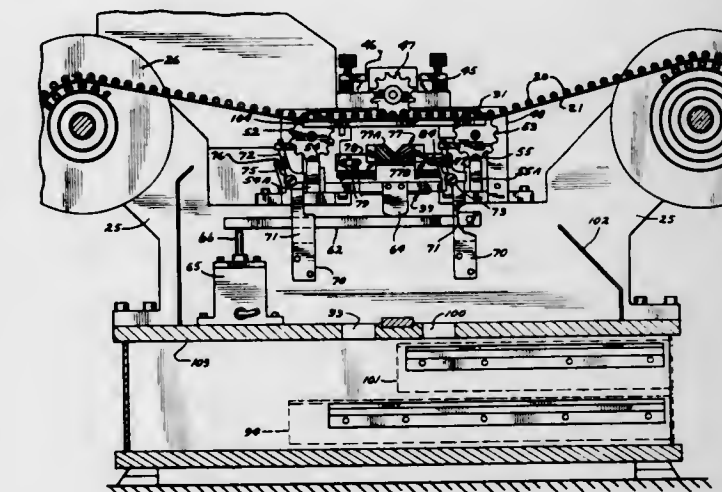
Gunther Schaaf, Fridley, Minn., assignor to Ramsey Engineering Company, St. Paul, Minn.

Filed Dec. 14, 1970, Ser. No. 97,874

Int. Cl. B65b 57/10

U.S. Cl. 53-54

14 Claims



A device for receiving plated memory wire for use in precision applications and cutting the wire into desired length, sorting out the wire lengths that are acceptable and storing the acceptable lengths into plastic tubes where they will be free from

contamination, and will not be handled by humans. The machine utilizes a bandolier of storage tubes that sequentially pass through a wire cutting station so that acceptable wires are inserted into the tubes, and the rejects are kept out of the tubes. The machine is designed for placement into a closed loop, in line plated wire system so that the wire lengths are not touched even during the storage operation.

3,738,079

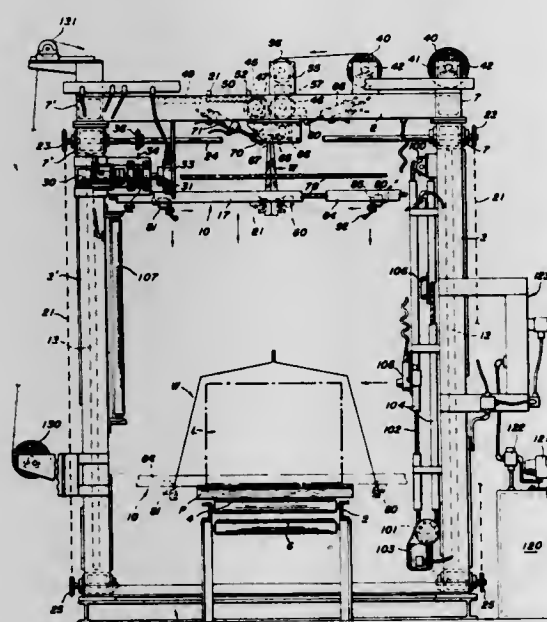
BAG TYPE SHRINK WRAPPING APPARATUS
Regis M. Rudman, Braddock, and Lawrence D. Adams, Pittsburgh, both of Pa., assignors to Auburn Engineering, Inc., Pittsburgh, Pa.

Filed Feb. 11, 1971, Ser. No. 114,637

Int. Cl. B65b 1/02, 43/30, 57/12

U.S. Cl. 53-66

7 Claims



In a machine for enclosing a palletted load in shrink-wrap film, a flattened tubular sheet of shrink-wrap film is fed downwardly between pinch rolls to a predetermined level where the leading end is in a plane disposed between two oppositely moving gripping bars that are carried on a vertically reciprocable carriage, the carriage being at its uppermost limit of travel. The two bars move toward each other and approach opposite faces of the leading end of the flattened tube. Gripping the opposite faces of the flattened tube, the bars move apart and the carriage starts its descent, opening the leading end of the film into a four-sided configuration while drawing the open end down over a load centered beneath the pinch rolls. When the required length of tube is so pulled down, the tube is sealed with a transverse seal and severed above the seal. The severed length, now a tubular bag sealed across the top continues to have its lead end, still gripped by the bars, is pulled the remainder of the distance down over the load until its lower end is below the deck of the pallet when the bars release the films and the carriage moves up to its uppermost position prepared to repeat the cycle. An electric eye mechanism is provided that determines the height of the load and determines when the transverse sealing and cut off is to take place so that the length of each successive length of film is automatically measured and cut to the height of the load.

3,738,080

PACKING MACHINE

Wilhelm Rell, Bensheim-Auerbach, Germany, assignor to Sabrefina S.A., Fribourg, Switzerland

Filed July 2, 1971, Ser. No. 159,330

Claims priority, application Sweden, July 3, 1970, 9256/70

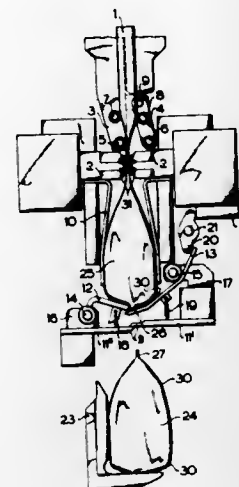
Int. Cl. B65b 9/12

U.S. Cl. 53-180

9 Claims

In a packaging machine in which an intermittently fed tube of packaging material is filled with a pourable substance and

sub-divided into individual packages by pinching the tube and transversely sealing it at intervals along its length, the combination of a pair of sealing jaws for intermittently applying a transverse sealing zone to the tube, a pair of severing blades for severing a filled and sealed leading portion of the tube by cutting through the said sealing zone to leave the then leading



tube end sealed, closure means operative intermittently to pinch the tube shut upstream of the said sealing zone and thereby intermittently interrupt the flow of pourable substance, and clamping means effective to clamp and support the leading tube end at the said sealing zone when the closure means are inoperative.

3,738,081

DEVICE FOR UNITING PARALLEL AND OPPOSITELY DISPOSED WALL PORTIONS OF A TUBE BY TRANSVERSE WELDING SEAMS

Hans Heinzer, Beringen, Switzerland, assignor to Schweizerische Industrie-Gesellschaft, Zurich, Switzerland

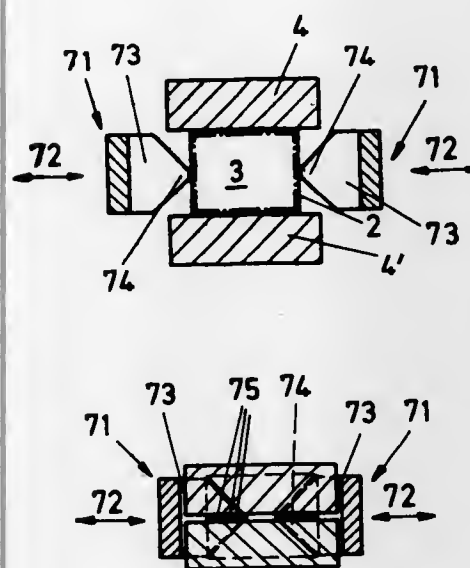
Filed June 3, 1971, Ser. No. 149,592

Claims priority, application Switzerland, Apr. 16, 1971, 5579/71; June 8, 1970, 8584/70

Int. Cl. B65b 51/30

U.S. Cl. 53-180

3 Claims



The invention relates to article packaging machines and particularly to a device for connecting oppositely disposed wall portions of a lengthwise moving flexible tube containing rather high articles in axially spaced relation by transverse

welding seams which are produced by continuously moving welding dies between each article in the tube. In addition to these welding dies the device is provided with two symmetric gusset folders which enter transversely into the space between the dies and the adjacent ends of the spaced articles during the time interval at which the dies press the oppositely disposed wall portions together for engaging the tube material and folding it smoothly against the end faces of the articles during the continuous lengthwise movement of the tube; in fact, the gusset folders do not only move transversely back and forth at right angles to the tube, but also move lengthwise with the tube.

3,738,082

PACKAGING MACHINE WITH IMPROVED SEALING HEAD

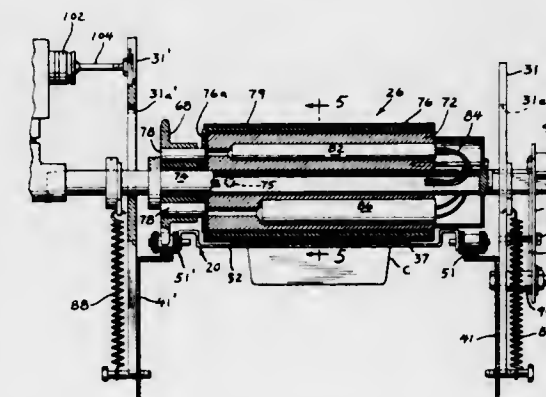
Ralph F. Anderson, 332 Calvin Park Boulevard, Rockford, Ill.

Filed Apr. 14, 1971, Ser. No. 133,872

Int. Cl. B65b 51/16

U.S. Cl. 53-329

18 Claims



The machine includes an endless conveyor and a sealing head for sealing a cover member to each container. The sealing head has a stationary core and an outer sleeve rotatably mounted on the core. A sprocket, which is connected to the sleeve, meshes with the conveyor chain to rotate the sleeve as the conveyor is advanced. The sealing head is moved to a tilted, inoperative position by lifting the end opposite the sprocket which remains meshed with the chain. The tilting also controls switching of the conveyor drive.

3,738,083

PREFABRICATED HOUSE

Takao Shimano, c/o Shimano & Company Limited, No. 18, Kita Horiedori 2-chome, Nishi-ku, Osaka, Japan

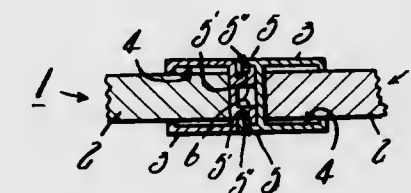
Filed Nov. 10, 1970, Ser. No. 88,256

Claims priority, application Japan, Nov. 25, 1969, 44/94812; Nov. 27, 1969, 44/113629; Dec. 28, 1969, 44/2038; Mar. 31, 1970, 45/31160

Int. Cl. E04c 3/02

U.S. Cl. 52-582

2 Claims



A prefabricated house constructed in accordance with a primary arrangement wherein a number of prefabrication unit panels peripherally provided with dovetail recesses or projections are dovetail-wise interconnected lengthwise and breadthwise; and a prefabricated house constructed in accordance with a secondary arrangement based on said primary arrangement. Other structural advantages and details will be made clear.

3,738,084

ADSORPTION PROCESS AND AN INSTALLATION THEREFOR

Guy Simonet, and Hubert Rico, both of Paris, France, assignors to L'air Liquide, Societe Anonyme Pour L'etude et L'exploitation des Procédes Georges Claude, Paris, France

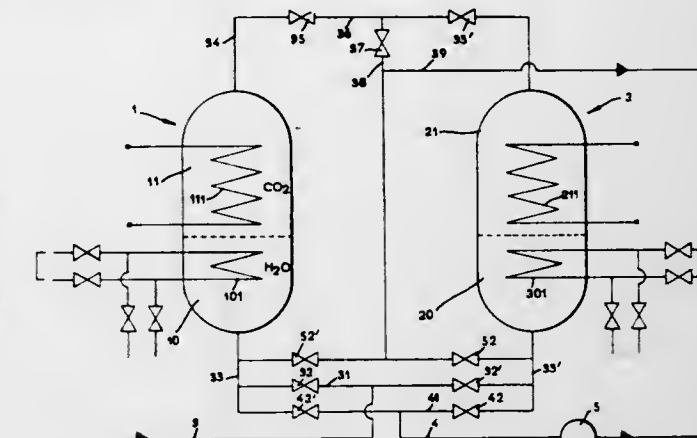
Filed Feb. 22, 1972, Ser. No. 228,116

Claims priority, application France, Feb. 24, 1971, 716216

Int. Cl. B01d 53/04

U.S. Cl. 55-31

8 Claims



An adsorption process and installation permitting at least the partial elimination of water and carbon dioxide contained in a gas to be purified, is provided. In adsorption phase, the gas is caused to flow in contact with an adsorbant substance contained in an adsorption vessel which includes in the direction of flow of the gas to be purified, a first adsorptive bed for the desiccation of said gas and a second adsorptive bed for the decarbonation of said gas. The adsorptive substance is regenerated in a regeneration phase which comprises a first stage wherein solely the second adsorptive bed is heated and the pressure of the adsorption vessel is reduced to effect desorption of the second adsorptive bed, a second stage wherein said heating is interrupted and the adsorptive substance is scavenged by a gas which has been purified at least partially of carbon dioxide and water so as to reheat the first adsorptive bed and to desorb the first adsorptive bed, and to cool the second adsorptive bed, and a third stage wherein the scavenging of the adsorptive substance is continued and solely the first adsorptive bed is cooled.

3,738,085

DEVICE FOR THE REMOVAL OF DETRIMENTAL MATTER FROM EXHAUST GASES OF INTERNAL COMBUSTION ENGINES

Tomekichi Nishinomiya, 1-11-2, Nijuku, Katsushika-ku, Tokyo, Japan

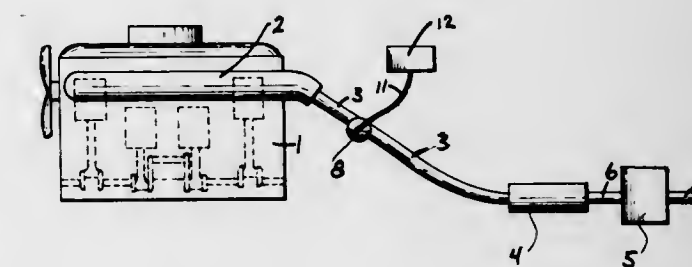
Filed Sept. 21, 1971, Ser. No. 182,355

Claims priority, application Japan, June 29, 1971, 46/47417

Int. Cl. B01d 53/02

U.S. Cl. 55-35

8 Claims



Apparatus for the removal of detrimental matter from the exhaust gases of internal combustion engines in which a cylindrical drum having a substantially tangential inlet and an

aligned substantially tangential outlet is disposed in the engine exhaust pipe for imparting a whirling motion to the exhaust gases in the drum. The drum has an orifice therein at the side opposite from the inlet and outlet. A mixing liquid is introduced into the orifice adapted to be dispersed and evaporated by the exhaust gases entering the drum from the engine manifold to thereby cool the drum and the exhaust gases and at the same time to form compounds between the vapor and the detrimental matters prior to passing to the muffler. A dehydrating device receiving the discharge of the muffler is provided for discharging substantially pure air from the dehydrating device into the atmosphere.

3,738,086

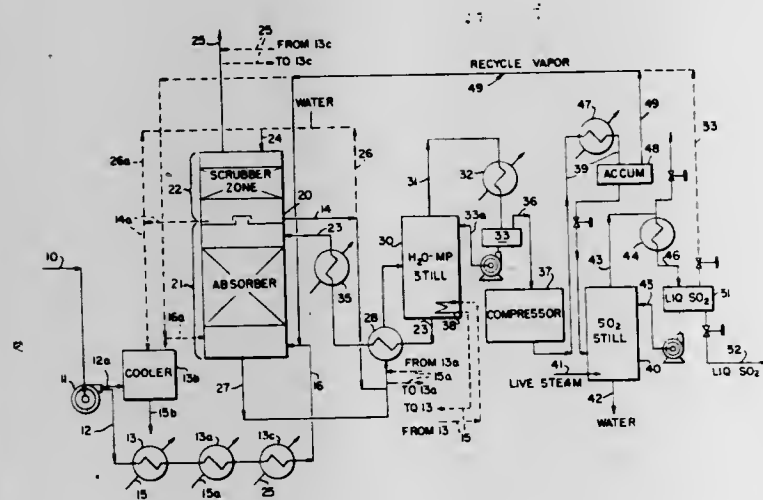
PROCESS FOR USING N-ALKYL LACTAMS FOR STRIPPING SULFUR DIOXIDE FROM GAS STREAMS

Arthur A. Bellisio, Huntington Station, N.Y.; Hippocrates G. Pyras, Berkeley Heights, and Marvin M. Fein, Westfield, both of N.J., assignors to GAF Corporation, New York, N.Y. Continuation-in-part of Ser. No. 872,775, Oct. 30, 1969. This application Apr. 17, 1972, Ser. No. 244,768

Int. Cl. B01d 53/14

U.S. Cl. 55-48

35 Claims



N-alkyl lactam is used to strip sulfur dioxide from gas streams sufficiently to permit the non-polluting discharge of said gas streams to the atmosphere with an SO_2 content of less than about 250 ppm, advantageously of less than 100 ppm or even less than 50 ppm and/or to remove at least 90 percent, desirably 95 percent or more, preferably 98 percent or more, by volume of the SO_2 content of said streams. The gas stream is passed through an absorption zone containing said N-alkyl lactam, e.g. N-lower alkyl pyrrolidone, preferably N-methyl pyrrolidone, at a gas mass flow velocity of 200-3,000 lbs/hr/ft², the absorption zone having a length of generally from about 5 to about 85 ft. The gas temperature in the absorption zone is about 0°C-75°C, preferably about 35°C-65°C. The treated gas leaving the absorption zone and having lactam vaporized or entrained therein is passed directly to a water scrubbing zone at the indicated temperature and flow rate. At least about 90 percent by weight, advantageously at least about 98 percent and preferably 99 percent or more, of the lactam contained in the treated gas stream is removed therefrom in said scrubber zone, permitting the non-polluting discharge of the gas stream to the atmosphere without unacceptable loss of lactam therein. A water stream from the scrubber zone and a lactam stream having SO_2 absorbed therein from the absorption zone are passed to a distillation zone wherein said streams are heated to 100°C-200°C to remove SO_2 and at least a part of the water content of the streams. A lactam-rich stream is recycled from the distillation zone to the absorption zone which aqueous solution of lactam is maintained, said solution generally containing up to about 25 percent by weight water. The SO_2 removed from the distil-

lation zone is readily recovered for non-polluting disposal or use. Recycle of the lactam-rich stream is advantageously at about 5 to about 40 gals of lactam per MCF of gas being treated. Water is fed to the scrubber zone at a rate of about 0.05-2.0, advantageously about 0.05-0.25, gals/MCF of gas being treated.

3,738,087

SELECTIVE ADSORPTION GAS SEPARATION PROCESS

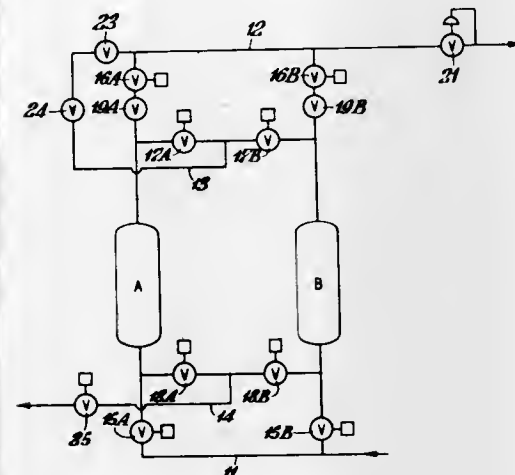
Norman R. McCombs, Tonawanda, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Filed July 1, 1971, Ser. No. 158,779

Int. Cl. B01d 53/04

U.S. Cl. 55-58

9 Claims



Gas mixtures such as air are separated in selective adsorbent beds to produce product such as oxygen by introducing compressed air to a partially repressurized bed, selectively adsorbing nitrogen and discharging oxygen, all at rates such that the bed pressure increases.

3,738,088

MOBILE AIR CLEANING APPARATUS FOR POLLUTION REMOVAL

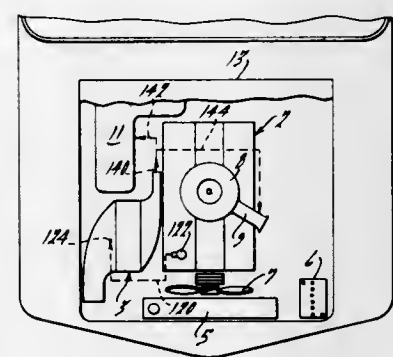
Louis E. Colosimo, 23231 Port, St. Clair Shores, Mich.

Filed June 4, 1971, Ser. No. 150,083

Int. Cl. B03c 3/66

U.S. Cl. 55-104

10 Claims



In a driven vehicle an air filtering assembly for cleaning pollution from the ambient air in the path of the vehicle by utilizing the vehicle and assembly as a mobile cleaning device.

3,738,089

EXHAUST GAS FILTER CONSTRUCTION

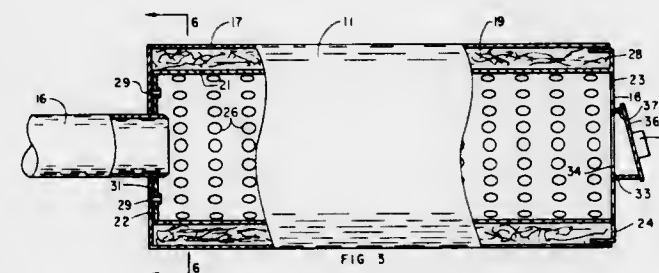
Robert Brill, 815 Noble Court, Golden, Colo.

Filed Apr. 15, 1971, Ser. No. 134,260

Int. Cl. B01d 46/30

U.S. Cl. 55-310

6 Claims



An exhaust gas filter unit for internal combustion engines which utilizes a removable filter supported by a canister and disposed within a shell. The canister and filter are removed for reorienting, cleaning and/or replacing the filter medium. Cooperative construction, interlock and support features of the shell and canister facilitate disassembly and make use of an economical fibered filter medium possible. A bypass outlet is provided, and a gravity type control allows flow therethrough under maximum exhaust flow conditions.

3,738,090

PARTICLE SEPARATION SYSTEM

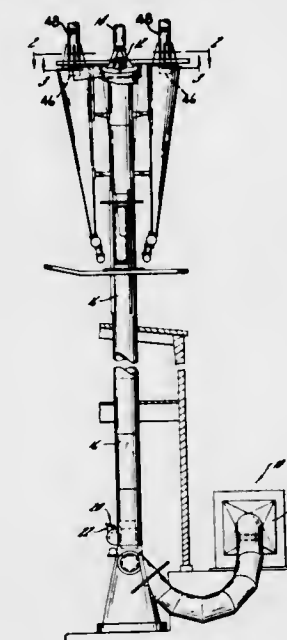
Rodolfo G. Killan, Rio Panuco 82, Mexico City, Mexico

Filed Sept. 29, 1970, Ser. No. 76,487

Int. Cl. B01d 45/12

U.S. Cl. 55-349

5 Claims



Apparatus is illustrated for separating particles from a carrier gas comprising, in combination, a centrifugal fan having impeller blades and a fan casing with the casing being radially separated from the ends of the blades and a plurality of cyclone collectors radially arranged in close proximity with respect to the fan. Conduits are positioned between the fan and the collectors with one end of the conduits opening into the fan casing and the other ends thereof opening into individual collectors. The walls of the conduits are arranged such that particles entering the conduits from the fan continue to the collectors substantially along an undisturbed trajectory and the conduits have a substantially continuously increasing cross-sectional area from the fan to the collectors.

3,738,091

VACUUM CLEANER FILTER BAG

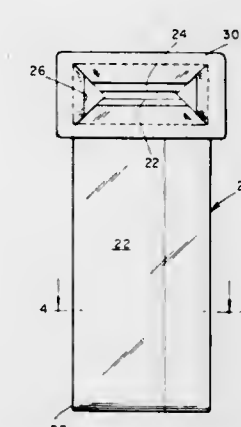
John E. Fesco, South Hempstead, N.Y., assignor to Studley Paper Company, Inc., Inwood, N.Y.

Filed May 24, 1971, Ser. No. 146,090

Int. Cl. B01d 46/02

U.S. Cl. 55-367

12 Claims



A vacuum cleaner filter bag comprising a paper-like flexible enclosure, the latter including an open-ended portion. The open-ended portion includes an end-surface in which is provided an opening, the end-surface being generally pivotally displaceable relative to adjacent portions of the enclosure. A reinforcing collar which is substantially larger both laterally and longitudinally of the extent of the end-surface is connected to the latter for permitting at least partial deformation of the end-surface from a generally undeformed planar extent to a deformed non-planar extent wherein the periphery of the opening is displaced from the planar extent of the end-surface.

3,738,092

ROTARY MOWER INCLUDING SHARPENER AND METHOD

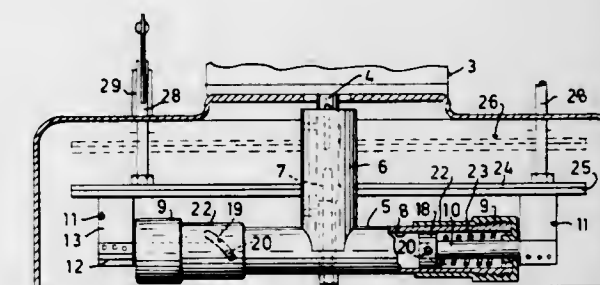
Herbert W. Spear, 1526 E. 4th St., Santa Ana, Calif.

Filed Jan. 17, 1972, Ser. No. 218,226

Int. Cl. A01d 35/26

U.S. Cl. 56-12.1

3 Claims



A mower having cutting blades revoluble in a horizontally disposed, circular annular path about, and equally spaced from, the axis of a vertical shaft operably connected with said blades for driving them in one direction in said path. A motor on said mower is connected with said shaft for driving it at a relatively slow idling speed, and a relatively high cutting speed, and a blade supporting mechanism between said blades and said shaft automatically supports said blades in cutting positions under the influence of centrifugal force at said high cutting speed with the cutting edges of said blades directed downwardly and forwardly relative to their direction of movement. At idling speed the blades automatically rotate about horizontal axes to positions with their cutting edges directed upwardly and forwardly, and a circular sharpening stone coaxial with the vertical axis of the shaft supporting said blades is spaced above said blades for lowering to engage the bevel for the cutting edges to sharpen the blades during said idling speed, which stone is then elevated above the blades and releasably held.

3,738,093

YARN GUIDE MOUNTING

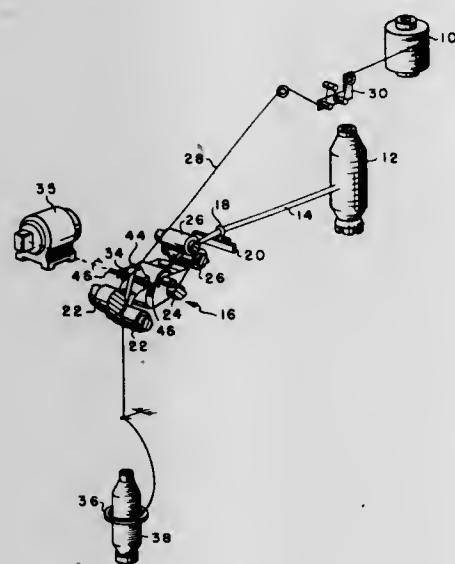
Robert M. Ingham, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

Filed Apr. 24, 1972, Ser. No. 247,088

Int. Cl. B65h 57/16; D01h 5/78; B65h 27/00

U.S. Cl. 57-36

4 Claims



A yarn guide for a spinning system which employs a spreader roll to separate the filaments of a continuous multifilament yarn to allow staple yarn to be placed among the separated elements. The yarn guide is supported in position on the roll neck of the spreader roll.

3,738,094

ROTATING RING DRIVE FOR SPINNING MACHINE

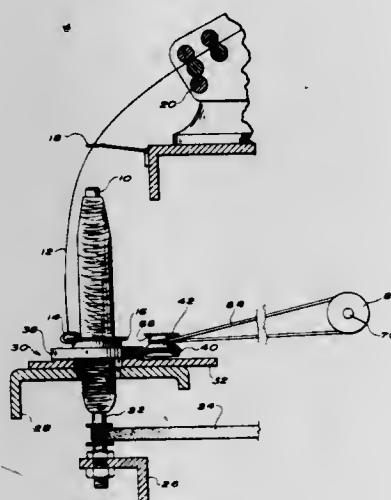
Manuel Costales, 3804-31st St., and Moustafa I. Hakki, 4003-21st St., both of Lubbock, Tex.

Filed Sept. 23, 1971, Ser. No. 183,025

Int. Cl. D01h 7/58

U.S. Cl. 57-75

7 Claims



The conventional stationary ring on the ring rail of a spinning machine is replaced with an attachment that rotates the ring by a friction drive from a disc. The disc is rotated by a belt from a horizontal longitudinal shaft.

To piece-up down ends or broken yarn upon a spinning machine having rotating rings, the ring and the bobbin are stopped, the ring by a clutch and the bobbin by a brake, and the end of the yarn from the bobbin is threaded through the traveler and then the bobbin and ring re-started to rotating and the splice between the yarn and roving made.

TEXTILE MACHINES WITH UNIFORM DECELERATION OF ITS DRIVE MOTORS

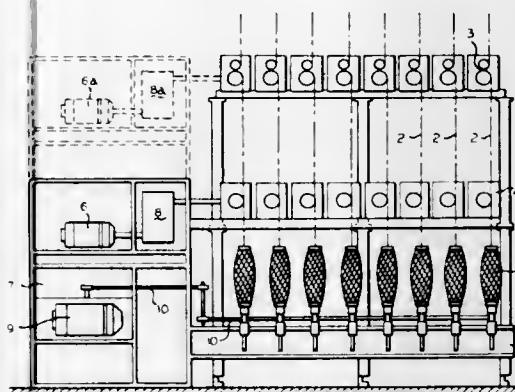
Hans Lobest, Remscheid, Germany, assignor to Barmag Barmer Maschinenfabrik Aktiengesellschaft, Wuppertal, Germany

Filed Nov. 23, 1970, Ser. No. 91,945

Int. Cl. D01h 1/20, 1/22, 1/24

U.S. Cl. 57-100

6 Claims



Textile machines, particularly stretch-twist machines, with several electric drive motors arranged in succession in thread running direction, each motor driving one or more thread treatment or handling devices, e.g., thread-feed heating or stretching godets, winding devices or the like, said devices running at predetermined, adjustable speeds, for example, in a predetermined rpm ratio, or also at a constant thread speed and a predetermined, variable rpm pattern.

3,738,096

MANUFACTURE AND CONSTRUCTION OF STRINGS

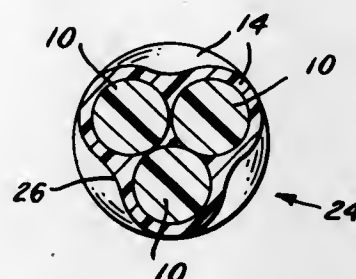
Julian T. Crandall, Ashaway, R.I., assignor to Ashaway Line & Twine Mfg. Co., Ashaway, R.I.

Filed Nov. 9, 1970, Ser. No. 87,970

Int. Cl. D02g 3/36

U.S. Cl. 57-149

4 Claims



An integrated string of the type used for tennis rackets of the type comprising a plurality of individual thermoplastic strands, each of which is individually twisted in a first hand, the strands then being twisted together in an opposite hand, the resultant string then being coated in a thermoplastic formulation and then passed through a heating chamber to become dried, said coating and drying steps being repeated a plurality of times, after which the string is stretched under heat and then again coated and dried.

3,738,097

MECHANISM FOR DRIVING AND CORRECTING A DATA DISC IN A DAY-DATE TIMEPIECE

Cyril Vuilleumier, Bienne, Switzerland, assignor to Omega, Louis Brandt & Frere S.A., Bienne, Switzerland

Filed July 10, 1972, Ser. No. 270,302

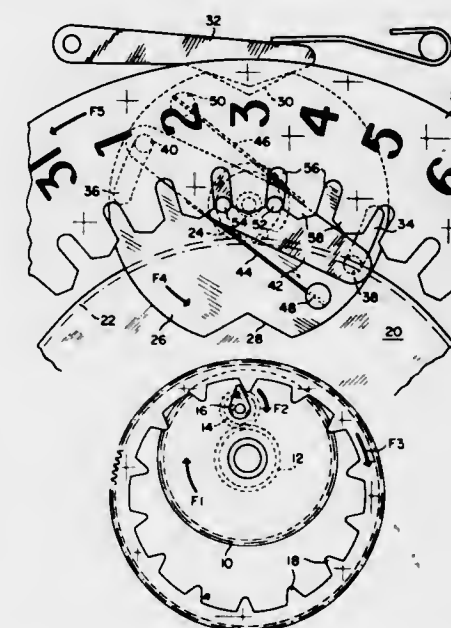
Int. Cl. G04b 19/24

U.S. Cl. 58-5

8 Claims

In a day-date timepiece, a date disc is rotated step by step once every 24 hours by a correspondingly rotated day disc. The motion of the day disc is transmitted to the date disc through a disconnectable drive mechanism whereby the date

disc can be corrected without disturbing the setting of the day disc or the time indication. The mechanism comprises a wheel solid with a pinion meshing with teeth on the outer periphery of the day disc. The wheel is rotated half a revolution at each step of the day disc. It is formed with two diametrically opposite slots down into which extend two studs of a transverse lever. A pair of springs hold the lever in a diametral position with the studs at the trailing end of the slots. Near the center



of the lever are provided a pair of pins which engage in slots between teeth formed along the inner periphery of the day disc. At each half revolution of the lever-carrying wheel in an anticlockwise direction, the pins cause the date disc to advance one step. To correct the date, the date disc is moved in an anticlockwise direction by another mechanism not shown actuated from the winding stem. In so doing, the pins are forced out of the slots in the date disc to jump the teeth of the latter against the action of the springs with the lever being caused to pivot about one of its studs.

3,738,098

ALARM CLOCK WITH HOUR AND MINUTE PRESETTING

Erich Scheer, Peterzell, Schwarzwald, Germany, assignor to Kundo (Kleninger & Obergettel), St. Georgen (Schwarzwald), Germany

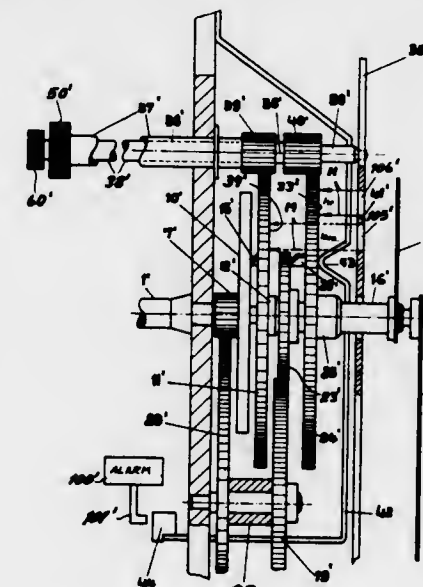
Filed Feb. 1, 1971, Ser. No. 111,585

Claims priority, application Germany, Jan. 30, 1970, P 20 04 077.1

Int. Cl. G04b 23/02; G04c 21/16

U.S. Cl. 58-22.5

7 Claims



A clock equipped with an electrical or mechanical alarm device has an hour-setting disk and a minute-setting disk

which are independently indexable in 24 and 60 different angular positions, respectively, and whose hour and minute markings are visible through a window or windows in the clock housing. Each setting disk is under axial spring pressure and bears a disk which rides on a face of an adjoining follower disk driven by the clockwork at a rate of one or two revolutions per day and one revolution per hour, respectively. Once per revolution, a notch on the face of each follower disk aligns itself with the lug of the associated setting disk to permit axial displacement of the latter; when both setting disks are simultaneously displaced in this manner, the alarm is triggered.

3,738,099

DIGITAL ELECTRONIC WATCH HAVING CALENDAR DISPLAY ARRANGEMENT

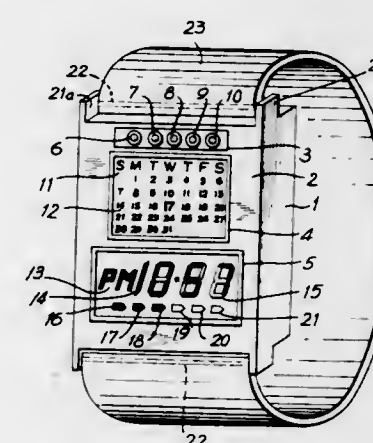
Kojiro Tanaka, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed June 7, 1972, Ser. No. 260,685

Int. Cl. G04b 19/24

U.S. Cl. 58-58

7 Claims



An electronic watch is provided with means for digitally displaying time and date and day of the week by means of liquid crystal display elements. The display provides an indication of the second, minute and hour as well as an indication of whether it is morning or afternoon. The calendar display includes a plurality of liquid crystal display elements arranged in matrix form having seven columns each representing a day of the week and five rows each representing the weeks of the month. A plate having the days and dates of the month to be displayed is mounted on said liquid crystal element matrix by suitable means.

3,738,100

WATCH MOUNTING DEVICE

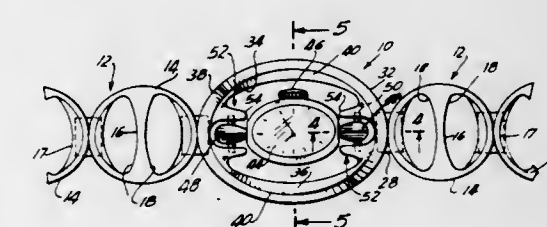
Jeffrey Hassman, New York, and Walter Luft, Forest Hills, both of N.Y., assignors to Jacoby-Bender, Inc., Woodside, N.Y.

Filed Mar. 1, 1972, Ser. No. 230,675

Int. Cl. G04b 37/00

U.S. Cl. 58-88 SC

15 Claims



A watch bracelet construction includes an enlarged watch mounting link adapted to receive a conventional watch casing

and completely engulf same, thereby to give the appearance of a watch having the size, shape and styling of the mounting link. The link is formed with a loop member and means for detachably mounting a watch casing within the loop substantially in the same plane therewith. The lower surface of the loop member is curved upwardly to at least partially laterally expose the winding and setting mechanism on the watch at the underside of the mounting link. Means are provided externally of the loop member for securing the watch mounting link to the remaining connecting links of the bracelet.

The construction herein described provides a convenient means for substantially restyling and existing watch and coordinating same with the remaining bracelet links and other jewelry.

3,738,101

TIMEPIECE ESCAPEMENT LEVER

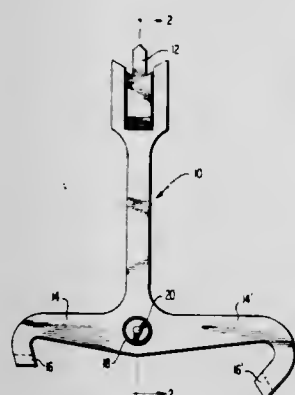
Andre Simon-Vermot, 2400 Le Locle, Switzerland, assignor to Les Fabriques d'Assortiments Reunies, Garadet, Neuchatel, Switzerland

Continuation-in-part of Ser. No. 52,093, July 2, 1970, Pat. No. 3,694,885. This application Sept. 21, 1972, Ser. No. 290,828. Claims priority, application Switzerland, July 11, 1969, 10608/69

Int. Cl. G04b 15/00

U.S. Cl. 58—116

12 Claims



An escapement lever for a timepiece comprises a lever body including at one end a pair of divergent arms each carrying a pallet or pallet pin. The body is mounted on an arbor for oscillation with the pallets or pins cooperative with a toothed escapement wheel. The pallets or the pallet pins are coated with hard metal to increase wear, reduce friction and to facilitate lubrication.

3,738,102

FUEL CONTROL FOR TURBINE TYPE POWER PLANT HAVING VARIABLE AREA GEOMETRY

Charles F. Stearns, East Longmeadow, Mass., and Louis A. Urban, Granby, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

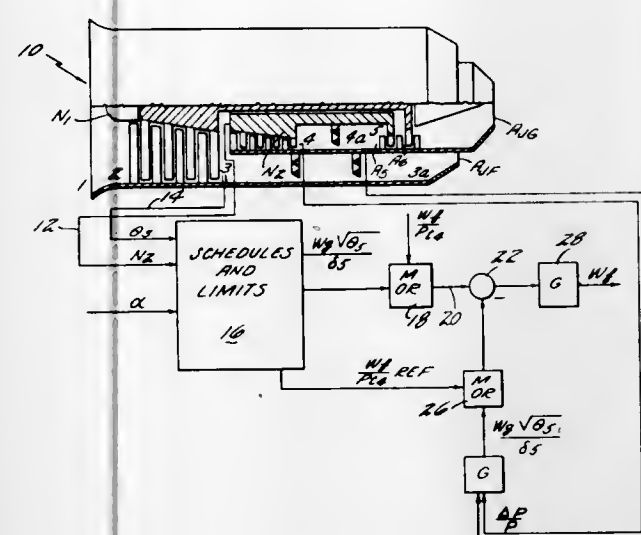
Filed May 24, 1971, Ser. No. 146,372
Int. Cl. F02c 9/08

U.S. Cl. 60—39.28 T

7 Claims

The turbine inlet temperature of a turbine type of power plant, particularly the type that includes a variable geometry, is controlled by setting a referred weight flow of the power plant working medium and closing the loop through fuel flow so that the actual referred weight flow matches the set value.

The ratio of the difference between the total pressure upstream of the burner and the static pressure downstream of the



burner to the total pressure upstream of the burner serves to produce a signal indicative of the actual weight flow of the power plant working medium.

3,738,103

POWER PLANT PROCESS

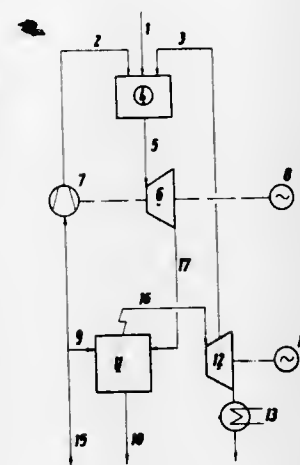
Paul Rudolph, Bad Homburg, and Ernst Kapp, Frankfurt am Main, both of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany
Filed Aug. 24, 1970, Ser. No. 66,257

Claims priority, application Germany, Sept. 1, 1969, P 19 44 307.3

Int. Cl. F01k 25/08, 23/00, 23/10, 23/14

U.S. Cl. 60—37

4 Claims



In a turbine power plant, fluid hydrocarbon fuel is first cracked with steam under pressure; the cracked compressed gas is then expanded in a gas turbine to perform work and thereafter burned in a boiler to generate steam to drive a steam turbine. The cracked, compressed gas may also be expanded to an intermediate pressure in a gas turbine to perform work, combusted under pressure, the combusted, compressed gas expanded in a second gas turbine to perform work and then fed to a boiler where the heat of the combusted gas is utilized to generate steam to drive a steam turbine. The cracked, compressed gas may also be fully expanded in a gas turbine to perform work and thereafter combusted and a portion of the hot combustion gas therefrom is fed to a boiler to generate steam to drive a steam turbine and the balance is recycled to an externally heated cracker and then to the boiler.

3,738,104

GAS TURBINE FUEL FLOW METERING CONTROL SYSTEM

Hugh E. Rosa, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

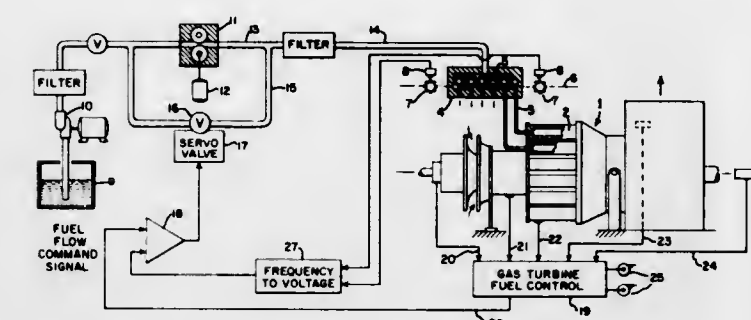
Filed July 16, 1971, Ser. No. 163,353

Int. Cl. F02c 9/08, 9/10

U.S. Cl. 60—39.28 R

8 Claims

U.S. Cl. 60—39.23



A "free-wheeling" flow divider actuated by pressure of the liquid fuel meters fuel to the separate combustion chambers of a gas turbine. The actual fuel flow rate is sensed by measuring the speed of a shaft turning several positive-displacement flow dividing elements and is compared to a desired total fuel flow command signal. The difference or error signal operates a servo mechanism to adjust fuel flow rate to the "free-wheeling" flow divider.

3,738,105

GAS TURBINE ENGINE STRUCTURE

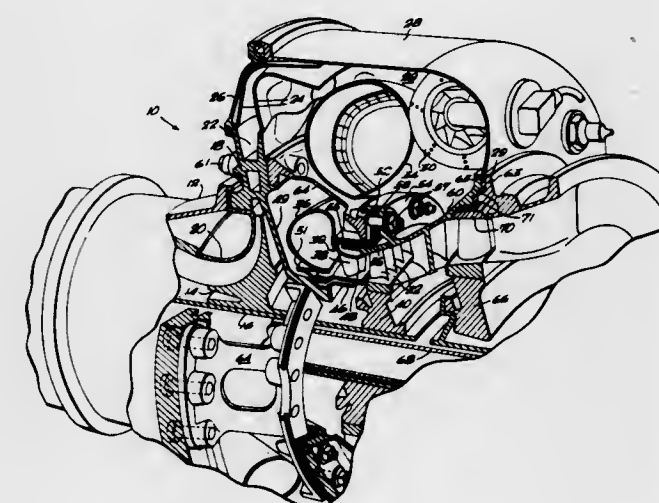
Benno E. Buchelt, 9020 Klagenfurt, Austria, assignor to Avco Corporation, Stratford, Conn.

Filed June 24, 1971, Ser. No. 156,351

Int. Cl. F02c 7/20

U.S. Cl. 60—39.31

9 Claims



The disclosure illustrates a gas turbine engine structure in which a turbine housing is structurally connected to a compressor housing by three equally spaced straight-lined struts. These struts pass in between three scroll-like ducts that carry combustion gases to an annular turbine inlet duct radially inboard of the straight-lined struts. The direct structural connection permits closer blade tip clearances and a substantial increase in efficiency. In addition it provides a lightweight design.

3,738,106

VARIABLE GEOMETRY COMBUSTORS

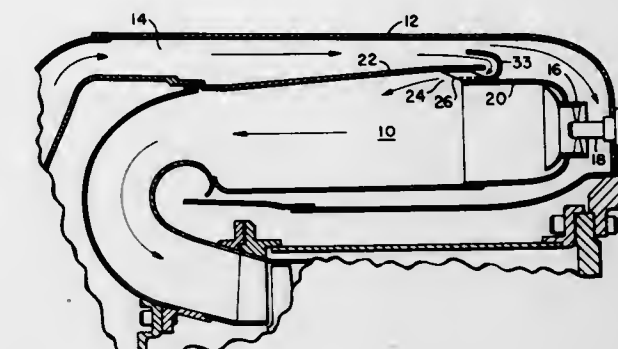
Wolfgang J. Stein, Milford, and Jerry O. Melconian, Stratford, both of Conn., assignors to Avco Corporation, Stratford, Conn.

Filed Oct. 26, 1971, Ser. No. 192,437

Int. Cl. F02c 7/18

U.S. Cl. 60—39.23

9 Claims



The combustion chamber for a gas turbine engine is constructed of a plurality of spaced telescoping sections, the gap between the sections providing an inlet for the introduction of cooling air. A flexible joint is provided between the overlapping portions of the telescoped sections permitting each section to expand and contract with low constraint. This results in a change in the size of the air inlet gap, and thus controls the amount of air introduced to the combustor under varying operating conditions. In one embodiment the joint comprises a plurality of circumferentially disposed flexible wobble strips welded at one end to one section and at the other end to the other section. In another embodiment the joint takes the form of a plurality of circumferentially disposed flexible Z-section spacers.

3,738,107

FLOW MIXING SELECTOR VALVE

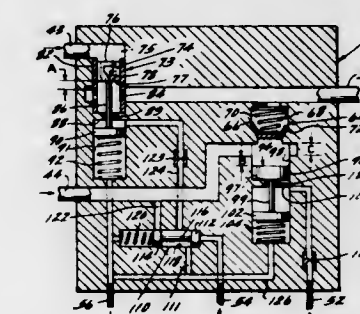
Franklin Elliott Miller, Cincinnati, Ohio, assignor to General Electric Company, Lynn, Mass.

Filed Jan. 21, 1972, Ser. No. 219,764

Int. Cl. F02k 3/10

U.S. Cl. 60—241

7 Claims



A flow mixing selector valve is provided to switch between low and high pressure fluids while maintaining a near constant flow rate of change by providing a brief transition period wherein the high pressure fluid may be gradually commingled with the low pressure fluid in ever increasing proportion until the low pressure fluid can be entirely cut off without unduly stressing components downstream of the mixing valve.

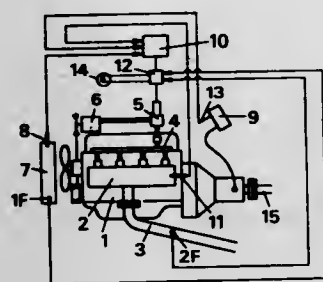
3,738,108 SAFETY DEVICE FOR AN ENGINE EQUIPPED WITH AN EXHAUST GAS PURIFIER

Kenji Goto; Norio Shibata, and Kiyohiko Mizuno, all of Sento-gun, Shizuoka Pref., Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Feb. 9, 1971, Ser. No. 113,895
Claims priority, application Japan, Oct. 14, 1970, 45/90204
Int. Cl. F02b 75/10

U.S. Cl. 60—277

20 Claims



In an internal combustion engine equipped with an exhaust gas purifier adapted to be controlled based on the values of cooling water temperature, exhaust gas temperature and vehicle speeds detected by detectors, a safety device for the engine equipped with an exhaust gas purifier. Said safety device is characterized in that means is provided at least in a part in which temperature is elevated abnormally by abnormal operation condition of said internal combustion engine for rendering inoperative control means for said exhaust gas purifier when the elevated temperature reaches a predetermined level.

3,738,109 EXHAUST GAS PURIFYING SYSTEM

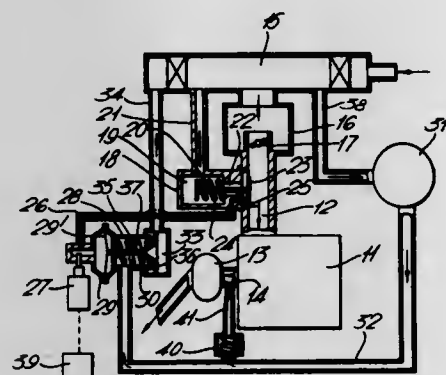
Yasuo Tatsutomi, and Shigetake Yoshimura, both of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima-ken, Japan

Filed Jan. 13, 1971, Ser. No. 106,092
Claims priority, application Japan, Jan. 14, 1970, 45/4112;
Jan. 14, 1970, 45/4113

Int. Cl. F02b 75/10

U.S. Cl. 60—290

9 Claims



A system for purifying an exhaust gas of an internal combustion engine for controlling the flow of a primary air to be supplied to an inlet manifold to give a proper air-fuel mixture ratio in accordance with the opening of the throttle valve and for controlling the flow of a secondary air to be supplied to an exhaust manifold to enable the reactor to effect the reduction of unburned compounds present in the exhaust system in ac-

cordance with the vehicle driving condition. To this end, there is provided a relief valve operable in accordance with the opening of the throttle valve and concurrently in accordance with the engine speed.

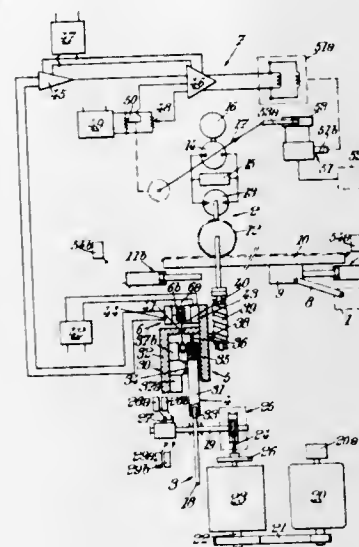
3,738,110 DEVICE FOR DRIVING A PASSIVE ELEMENT ACCORDING TO A PREDETERMINED LAW OF MOVEMENT

Albert Grosseau, Chaville, France, assignor to S. A. Automobile Citroen, Paris, France

Filed Nov. 15, 1971, Ser. No. 198,626
Claims priority, application France, Nov. 19, 1970, 7041522
Int. Cl. F15b 9/14, 9/17

U.S. Cl. 60—368

10 Claims



The device comprises drive means adapted to move the passive element; programming means adapted to apply a theoretical law of movement to the passive element; detector means for the theoretical movement and detector means of the actual motion; comparator means adapted to deliver a signal depending on the separation existing between the theoretical and real movements detected by the said detector means; and means sensitive to said signal adapted to actuate the drive means so that the latter act in such a sense that the detected separation between the theoretical and real movements has a tendency to diminish. The detector means are grouped into a single apparatus having two mechanical members capable of moving, under the effect of linking means provided for this purpose, according to laws of movement reproducing the theoretical and real laws. The comparator means are directly sensitive to the separation between the respective positions of the two mechanical members and are composed of two parts respectively fixed rigidly on each of the mechanical members.

3,738,111 VARIABLE DISPLACEMENT PUMP CONTROL SYSTEM

Edward Horton Fletcher, Waterloo, Iowa, assignor to Deere & Company, Moline, Ill.

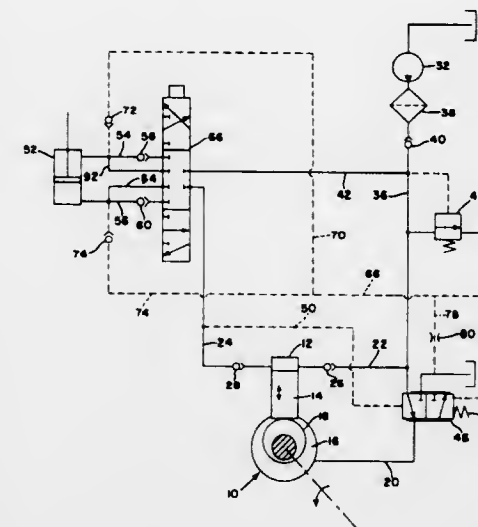
Filed Nov. 11, 1971, Ser. No. 197,699
Int. Cl. F04b 49/00

U.S. Cl. 60—452

9 Claims

A radial piston variable displacement hydraulic pump has a discharge line and an inlet line, which is connected to a fixed displacement charge pump. The pistons are returned by the fluid pressure in the inlet line, and the displacement of the pump is controlled by varying the pressure in the drive chamber of the pump, increasing pressure in the drive chamber resisting the return of the pistons to decrease the piston strokes. The pressure in the chamber is supplied by the charge pump through a pilot-operated stroke control valve,

which is biased toward a dump position, wherein it exhausts the pressurized fluid from the chamber, and is shiftable to an



alternate position wherein it connects the charge pump to the chamber in response to pressure in a pilot line connected to the pump discharge.

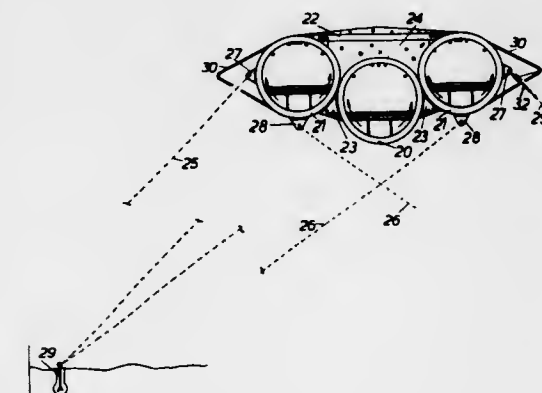
3,738,112 BRIDGING OR SPANNING OF BODIES OF WATER

Alan Barnett Grant, Coulsdon, Surrey, and Ralph Sherman, Esher, both of England, assignors to Alan Grant & Partners, Cabbam, Surrey, England

Filed Feb. 10, 1971, Ser. No. 114,319
Int. Cl. E01g 1/00

U.S. Cl. 61—43

2 Claims



A means of spanning rivers and other stretches of water is provided in which a buoyant pipe or tube assembly is employed and anchored down to the river bed. By making use of large tubes fabricated in sections and individually of a diameter sufficient to contain a motor vehicle roadway or railroad, a tunnel type road/rail link may be achieved without cutting into the river bed.

3,738,113 OFFSHORE OIL STORAGE STRUCTURE WITH SUBMERGENCE SHELL

James Victor Madary, and William A. Davis, both of Glen Ellyn, Ill., assignors to Chicago Bridge & Iron Company, Oak Brook, Ill.

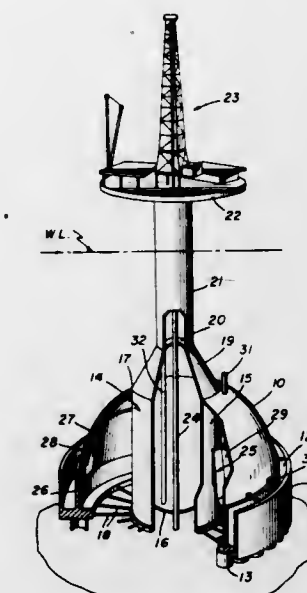
Filed Oct. 14, 1971, Ser. No. 189,227
Int. Cl. E02b 17/00; B65d 89/10

U.S. Cl. 61—46.5

14 Claims

An offshore structure floatable to a site for positioning on the floor of a body of water having a roof shell enclosing a

volume therebelow, said roof shell having a peripheral ballasting ring, a conduit to remove air from beneath the roof shell and supply the same with liquid in submerging the structure, a submergence shell joined at its bottom to the roof shell and extending upwardly spaced away from the roof shell thereby defining a material well between the submergence shell and the roof shell, a plurality of partitions dividing the material well into compartments, means to supply ballasting material



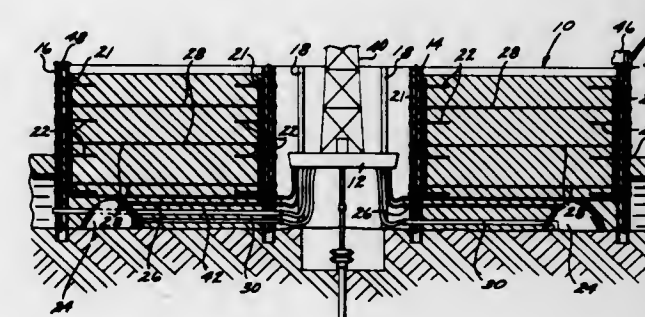
to, and remove it from, the material well, at least one hollow vessel joined to the roof shell, said hollow vessel being of such size that the buoyancy of the vessel will statically float the roof shell above the floor of a body of water partly or fully submerged at least with all air removed from beneath the roof shell and with the material well full of ballasting material and means to supply ballasting material to, and remove it from, the hollow vessel.

3,738,114 METHOD AND APPARATUS FOR FORMING ICE ISLAND FOR DRILLING OR THE LIKE

Gilbert H. Bishop, 2140 Tulane Avenue, Long Beach, Calif.
Filed Nov. 1, 1971, Ser. No. 194,125
Int. Cl. E02d 19/04, 23/08; F25d 1/00

U.S. Cl. 61—46.5

15 Claims



A method and apparatus for forming an ice island in cold geographical regions to recover resources such as oil from areas normally covered with ice, frozen muskeg or the like in the winter. In one embodiment an oil drilling barge is moved to an offshore drill site during a thaw period and allowed to be frozen in at the onset of winter. Concentric, spaced apart walls are constructed about the barge and water is pumped into the area between the walls, frozen, and the cycle repeated a number of times until the weight of built-up ice causes the walls to sink gradually through the pack ice and eventually to

the ocean bottom. The barge is next secured to the inner wall to serve as a drilling platform. Ice and water within the inner wall is removed and drilling proceeds. During seasonal thaws refrigeration equipment is utilized to keep the ice island in a frozen condition. When the ice island is to be moved to another drill site, air is introduced beneath the ice island, and the upper layers of ice are thawed, scraped away and dumped over the side during a thaw period until the lightened, buoyed island floats off the ocean bottom. It is towed to the new drill site, built up again, and sunk as before.

3,738,115

METHOD AND APPARATUS FOR PLASTIC HYDRAULIC MATERIAL

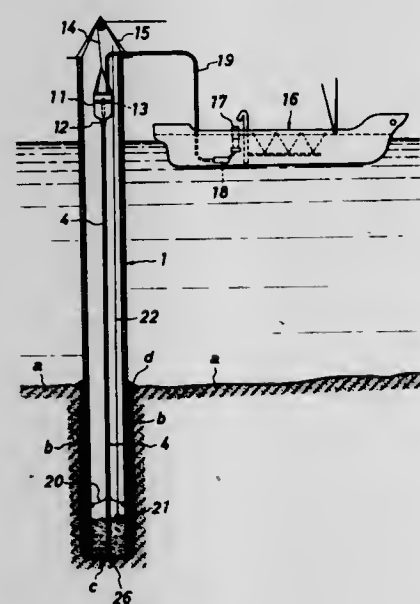
Giichi Inoue, Osaka; Naoshi Kubo, Ashiya-shi; and Shogo Hatano, Osaka, all of Japan, assignors to Osaka Cement Co., Ltd.; Naoshi Kubo and Osaka Consulting Engineers, Ltd.

Filed Mar. 28, 1972, Ser. No. 238,795

Int. Cl. E02d 5/32

U.S. Cl. 61-63

6 Claims



Method and apparatus for placing hydraulic material through watertight flexible tubes onto the bottom of a steel column, in which said apparatus consists of watertight flexible tubes for transferring said hydraulic material; supporting pipes holding said tubes therein and having apertures on the wall portions; and a steel column holding said pipes therein and receiving the transferred hydraulic material onto the bottom thereof.

3,738,116

COMPRESSOR UNLOADER INDICATOR AND REFRIGERATION SYSTEM CONTROLLED THEREBY

Edward S. Gazda, Suffield, Conn., assignor to Dunham-Bush, Inc., West Hartford, Conn.

Filed Oct. 1, 1971, Ser. No. 185,618

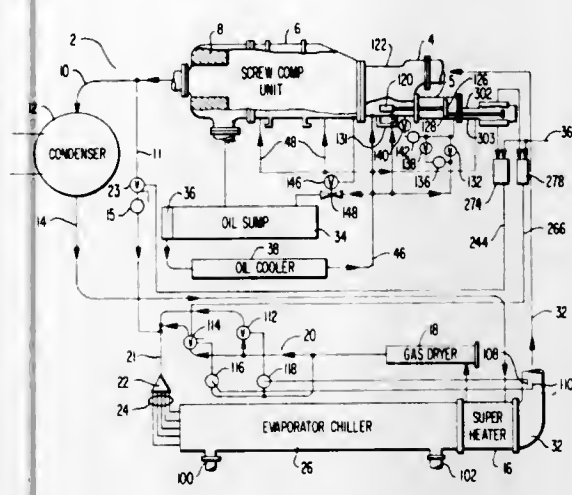
Int. Cl. F25b 49/00; G01d 13/00; H01h 3/00

U.S. Cl. 62-131

8 Claims

A fluid motor operates a reciprocating slide valve for unloading a screw type compressor. The reciprocating valve has a rod extending therefrom exterior of the motor housing which reciprocates within a cylindrical inner tube formed of non-magnetic material. A permanent magnet is affixed to the end of the rod, and a ring-shaped magnetic follower slides freely on the outside of the inner tube and follows the permanent magnet on the rod by magnetic attraction between the same. A larger diameter outer tube concentrically surrounds the inner tube and is spaced slightly therefrom. A clear transparent window on the outer tube allows viewing of the follower while a scale permanently fastened to the outer tube indicates the relative load-unload position of the compressor

slide valve. Longitudinal grooves within the outer tube carry at spaced locations multiple groups of reed switches which are electrically coupled to the refrigeration control system. These



switches are responsive to the position of the follower to control one or more valves which in turn control the refrigerant flowing through the refrigeration system.

3,738,117

AIR CONDITIONER FOR RAILROAD VEHICLES

Ignaz Engel, Vienna, Austria, assignor to Alex. Friedmann Kommanditgesellschaft, Vienna, Austria

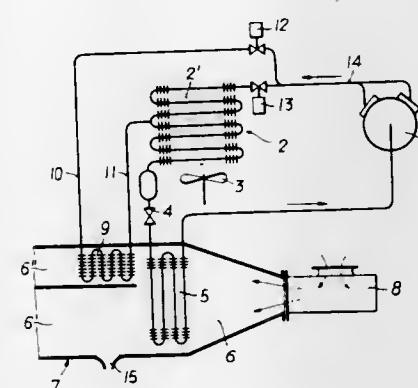
Filed Oct. 6, 1971, Ser. No. 187,096

Claims priority, application Austria, Oct. 6, 1970, 9019/70

Int. Cl. F25b 29/00

U.S. Cl. 62-173

1 Claim



An air conditioner for railroad vehicles, comprising an air-impinged heating and cooling assembly the cooling system of which includes a coolant evaporator arranged in the air current and a blower-cooled condenser, wherein an additional condenser serving as a booster heater is provided in the air current behind the evaporator in such a manner as to be insertable in the cooling system via a valve system, the additional condenser by-passing at least part of the condenser of the cooling system.

3,738,118

MEANS FOR LUBRICATING VEHICLE AIR CONDITIONING COMPRESSOR SHAFT SEALS

James W. Jacobs, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 31, 1972, Ser. No. 221,938

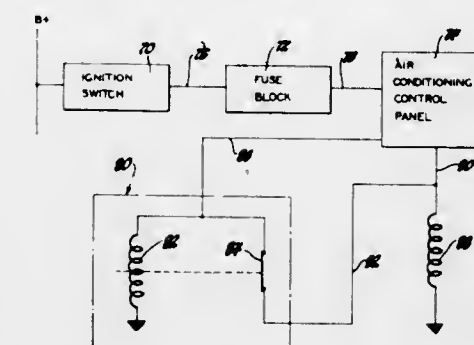
Int. Cl. B60h 3/04

U.S. Cl. 62-192

3 Claims

A vehicle air conditioning control system including means for lubricating seals such as compressor shaft seals during pro-

longed cold weather vehicle use when air conditioning is not required. A momentarily closed relay, responsive to use of the vehicle, is connected in the air conditioning electrical control circuitry in a current path independent of the normal air conditioning energizing circuit. This momentarily closed relay energizes the air conditioning compressor during each use of



the vehicle for time period sufficient for proper lubrication of compressor shaft seals but sufficiently short to prevent cooling during cold weather. Lubrication of the seals during each use maintains a thin film of lubricant between rotating and non-rotating faces of the seal preventing frictional heating of the seal faces and consequent damage that would prevent the faces from supporting the necessary sealing lubricant film.

3,738,119

HEAD PRESSURE OPERATED SUCTION THROTTLING VALVE

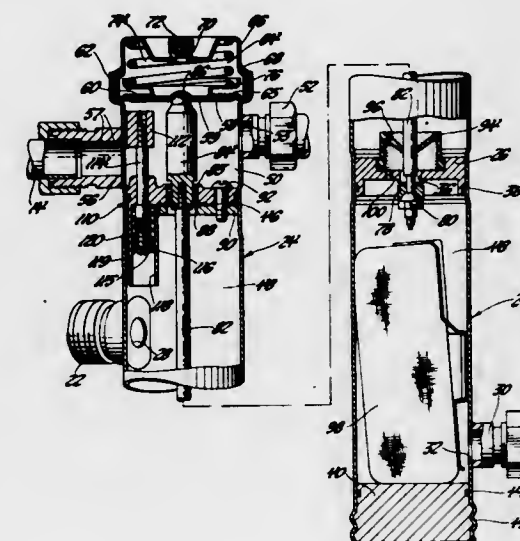
Carl A. Scherer, Clarence Center, and Dale W. Lawson, Lockport, both of N.Y., assignors to General Motors Corporation, Detroit, Mich.

Filed July 23, 1971, Ser. No. 165,535

Int. Cl. F25b 41/04

U.S. Cl. 62-217

3 Claims



Refrigerating apparatus for an automobile air conditioning system including a pressure responsive expansion valve which opens to admit refrigerant to the evaporator in response to decreasing evaporator pressure for maintaining the evaporator pressure above a minimum level to prevent frost accumulation. A flow restricting throttling valve which is normally open, moves toward a closed position in the evaporator outlet to maintain evaporator pressure when head pressure downstream from the condenser falls to a predetermined level. Because changes in head pressure are proportional to changes in ambient temperature, the restriction of the evaporator outlet with decreasing head pressure permits the system to be operated at lower ambient temperatures without evaporator pressures falling below the frost formation level.

3,738,120

AUTOMOTIVE REFRIGERANT SYSTEM

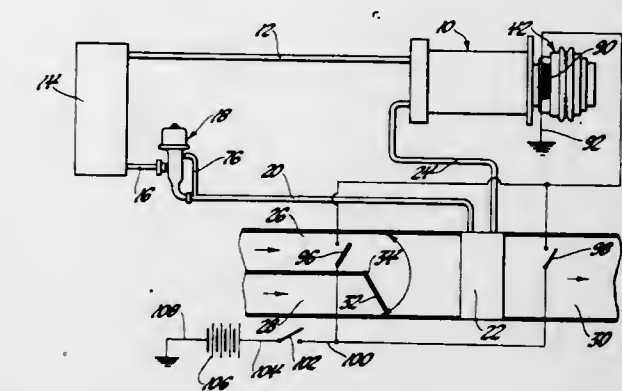
Paul K. Beatenbough, Medina, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 17, 1972, Ser. No. 227,029

Int. Cl. F25b 1/00

U.S. Cl. 62-229

3 Claims



An automobile heating and air conditioning system having a refrigerant compressor rotated by an automobile engine through an electromagnetic clutch which is controlled by an ambient temperature switch and an air outlet temperature switch downstream from the evaporator. The switches are connected in parallel between the automobile battery and the electromagnetic clutch to independently energize the clutch and initiate operation of the compressor. The ambient switch is set to close at about 65° F. while the air discharge switch closes at about 32° F. This causes the air conditioning system to be inoperative when the ambient temperature is below 32° F. and to run continuously when the ambient temperature is above 65° F. The compressor cycles off and on when the ambient temperature is between 32° F. and 65° F. to prevent frost accumulation on the evaporator.

3,738,121

TEMPERATURE MODIFYING APPARATUS USING EXPENDABLE REFRIGERANT

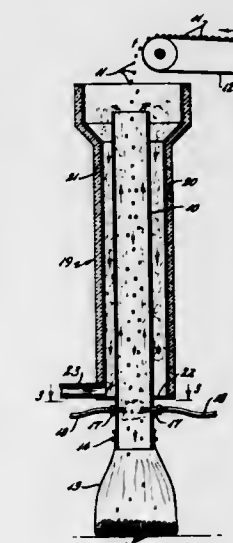
Park T. Swindell, Villa 92, Imperial Southgate, Lakeland, Fla.

Filed Nov. 12, 1971, Ser. No. 198,293

Int. Cl. F25d 25/00

U.S. Cl. 62-378

4 Claims

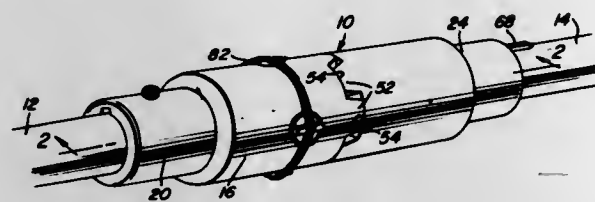


Apparatus which uses an expendable gaseous refrigerant in counterflow heat exchange relationship with a product freely falling by gravity generally axially of a refrigerating chamber for individually quick freezing the product.

3,738,122 TORQUE COUPLER

Tom E. Ricks, 4306 Durango, Odessa, Tex.
Filed Aug. 24, 1971, Ser. No. 174,367
Int. Cl. F16d 7/00
U.S. Cl. 64-29

8 Claims



A pair of telescopically engaged sleeves including concentric axially opposing cylindrical portions end edge abutted against each other. The sleeves include remote ends with one of the remote ends being adapted for stationary securement to a first shaft portion and the other of the remote ends being adapted for keying to another shaft portion generally axially aligned with the first shaft portion and for rotation with an axial shifting relative to the other shaft portion. The abutting end edges of the cylindrical portions includes circumferentially spaced coacting cam lobes for camming the opposing cylindrical portions axially apart in response to relative rotation of the sleeves and a central spring is connected between the sleeves and yieldingly biases the latter toward further telescopically engaged positions and with the opposing cylindrical portions thereof in end abutted relation.

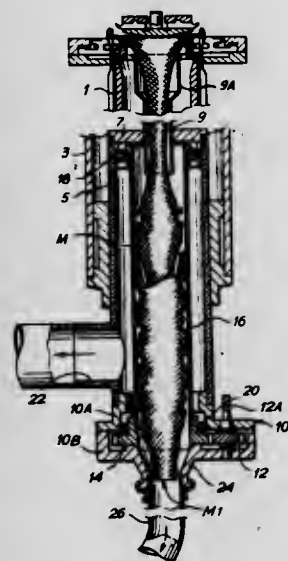
3,738,123

PNEUMATIC KNT FABRIC TENSIONING DEVICES FOR USE WITH CIRCULAR KNITTING MACHINES

Aramis Mazzi, Florence, Italy, assignor to Solis S.I.L., Firenze, Italy

Filed July 14, 1969, Ser. No. 841,418
Int. Cl. D04b 15/92

U.S. Cl. 66-149 S

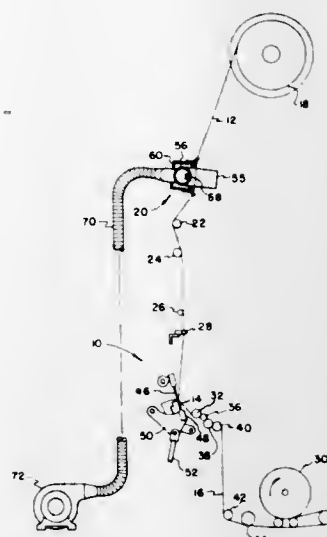


A tensioning device for use with a circular knitting machine includes a perforate duct extending below the needle cylinder and an imperforate discharge conduit extending from the lower end of the perforate duct. A control valve enables suction to be applied selectively to the exterior of the perforate duct and to the discharge conduit. In operation suction is applied initially to the discharge conduit until the leading end of a stocking enters the discharge conduit. The suction is then applied to the perforate duct and the stocking is thereby made to cling to the internal surface. When the stocking is completed suction is once again applied to the discharge conduit by the control valve.

3,738,124 KNITTING MACHINE STOP MOTION

Leslie E. Reynolds, Greenville, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.
Filed Apr. 8, 1971, Ser. No. 132,351
Int. Cl. D04b 35/12
U.S. Cl. 66-163

1 Claim



Method and apparatus to detect a yarn break in a knitting machine by blowing the broken end from the warp sheet into the view of a photoelectric detection system which will stop the knitting machine when the broken end is detected.

3,738,125

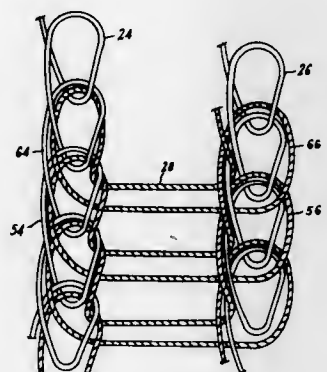
THREE-STRAND KNITTED YARN

Robert C. Blezard, Woonsocket, and William E. Millard, North Providence, both of R.I., assignors to Smithfield Fibers, Inc., Providence, R.I.

Filed Dec. 8, 1970, Ser. No. 96,059
Int. Cl. D04b 1/00

U.S. Cl. 66-170

8 Claims



A knitted yarn and a method and apparatus for knitting the yarn. The yarn comprises three strands arranged as two interlocked chains. Stitches in the first chain comprise first and second strands while stitches in the second chain comprise the second and third strands.

Stitches in the first and second strands are formed about one reciprocating latch needle and stitches in the second and third strands are formed about a second parallel reciprocating latch needle. Each needle pulls a newly formed stitch through a preceding stitch and casts-off the preceding stitch.

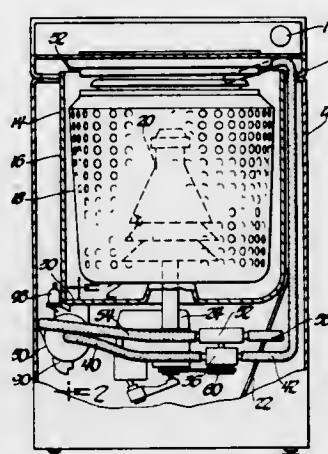
3,738,126 SELF-CLEANING LINT FILTER FOR A CLOTHES WASHER

Roy R. Smith, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 27, 1971, Ser. No. 211,970
Int. Cl. D06f 29/00; B01d 35/16

U.S. Cl. 68-18 F

4 Claims



A self-cleaning lint filter for a domestic clothes washer is connected between a water container and a pair of reversible pumps. The lint filter includes a drum-shaped housing having an inlet and two outlets. A rotatable and axially shiftable disc in the housing is covered with pointed fingers projecting from one side thereof. When the first pump operates, the disc is axially shiftable drawn in one direction to place the finger points against a wall of the housing to form a maze surrounding one of the outlets for entrapping lint from liquid pumped from this outlet. In conjunction with operation of the second pump, the disc is axially shiftable planed in the opposite direction to space the finger points from the wall. A tangential arrangement of the other of said outlets and the inlet with respect to the housing facilitates rotation of the disc as an aid in planing the disc and in centrifuging entrapped lint from the fingers thereon.

3,738,127

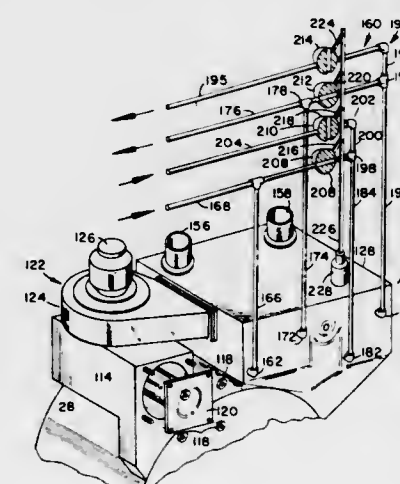
DRY CLEANING RECOVERY UNIT

Robert F. Hyams, Santa Ana, Calif., assignor to Systemation, Inc., Santa Ana, Calif.

Filed Jan. 29, 1971, Ser. No. 111,047
Int. Cl. D06f 43/08; F26b 21/12

U.S. Cl. 68-18 C

3 Claims



A dry cleaning liquid recovery unit which can be used integrally with a dry cleaning system, or as a separate stripping,

911 O.G.—17

3,738,128 APPARATUS FOR TREATING CLOTH

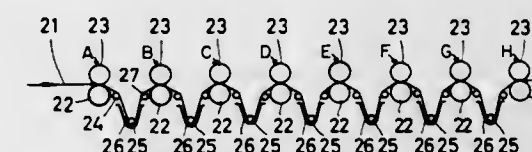
Yoshikazu Sando, and Hiroshi Ishidoshiro, both of Wakayama-ken, Japan, assignors to Sando Iron Works Co., Ltd., Wakayama-shi, Japan

Division of Ser. No. 782,890, Dec. 11, 1968, Pat. No. 3,606,772, which is a division of Ser. No. 638,971, May 16, 1967, Pat. No. 3,545,054. This application May 18, 1970, Ser. No. 48,745

Claims priority, application Japan, May 23, 1966, 41/32872; Nov. 24, 1966, 41/77123; Feb. 15, 1967, 42/9732
Int. Cl. B05c 3/178

U.S. Cl. 68-22 R

2 Claims



Apparatus for treating cloth is comprised of a pair of rollers, with at least one of the rollers having grooves formed in its circumferential periphery. The grooves may extend in parallel relationship with or transversely to the axis of the roller. Preferably, the grooved roller is formed of a hard substance and the other roller of a relatively softer substance whereby when the cloth is passed between the two, the grooves in the grooved roller exert a lateral tensioning effect on the cloth. Further, the rollers may be arranged in combination with solution tanks for passing the cloth through the tanks and concurrently laterally and longitudinally tensioning the cloth.

3,738,129

DRUM HAVING DISPLACEABLE TEXTILE WEB PARTITION MEANS

Erwin Biesinger; Lothar Kistorz, both of Rottenburg, and Karl Sohnchen, Lohmer/Siegkreis, all of Germany, assignors to Seco Maschinenbau GmbH & Co. KG., Rottenburg/Neckar, Germany

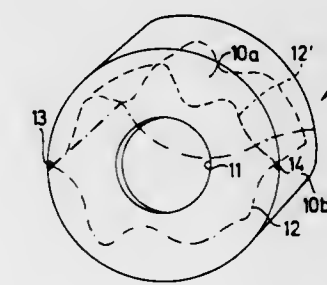
Filed Nov. 23, 1971, Ser. No. 201,478

Claims priority, application Germany, Nov. 28, 1970, P 20 58 704.6

Int. Cl. D06f 37/08; B23p 19/04

U.S. Cl. 68-145

10 Claims



A drum for washing and drycleaning machines has a circumferential wall surrounding its axis of rotation, and a pair of

axially spaced end walls one of which is provided with a central access opening. At least one partition in form of a strip of fabric, netting or the like is loosely suspended in the drum, having a length greater than the diameter of the drum and having its opposite end portions secured to the drum at transversely spaced locations at opposite sides of the axis of rotation. Additional similar partition webs may be provided each having an end portion secured to the inner side of the circumferential drum wall and another end portion secured to the first-mentioned partition web.

3,738,130

OSCILLATABLE TUB FOR WASHING MACHINE

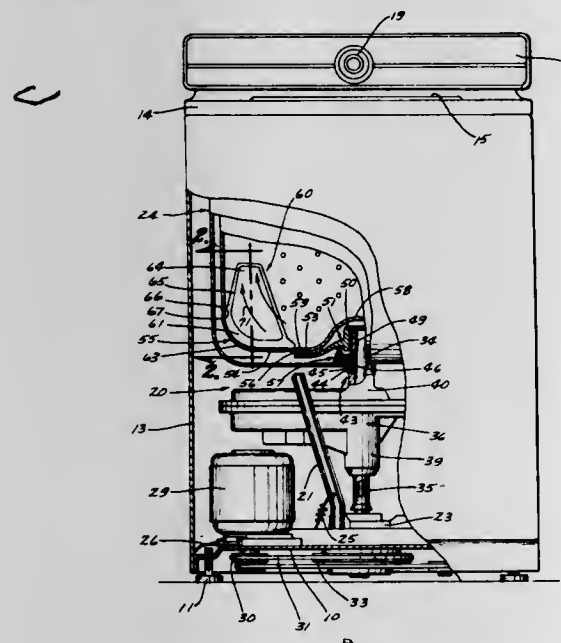
Thomas R. Smith, Newton, Iowa, assignor to The Maytag Company, Newton, Iowa

Filed Mar. 9, 1972, Ser. No. 233,155

Int. Cl. D06f 37/14

U.S. Cl. 68—154

12 Claims



An oscillatable tub for a washing machine includes a pair of blades attached eccentrically to and oscillatable with the tub for effecting a washing action. In a preferred embodiment the blades are flexible to enhance the movement of the washing fluid and articles contained therein.

3,738,131

APPARATUS FOR TREATMENT OF CLOTH

Yoshio Inomata, Gifu, and Yukiyoichi Kawaguchi, Kyoto, both of Japan, assignors to Kabushiki Kaisha Ichikin Kogyosha, Kusatsu-shi, Shiga-ken, Japan

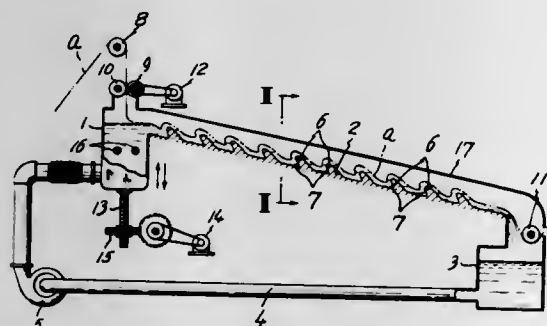
Filed Mar. 2, 1971, Ser. No. 120,163

Claims priority, application Japan, Aug. 14, 1970, 45/70796

Int. Cl. B05c 3/134

U.S. Cl. 68—177

7 Claims



An apparatus for treatment of cloth comprises an inclined trough for liquid flow with spaced ridges along the bottom thereof to provide waves in the liquid. A cloth is spread out on

the liquid and is floated downwardly on the flowing liquid under no tension and the cloth is treated by the massage action by the waves in the liquid.

3,738,132

CHAIN LOCK

Alice R. Nagel, 68-01 60th Road, Maspeth, N.Y.

Continuation-in-part of Ser. No. 842,206, July 16, 1969, Pat.

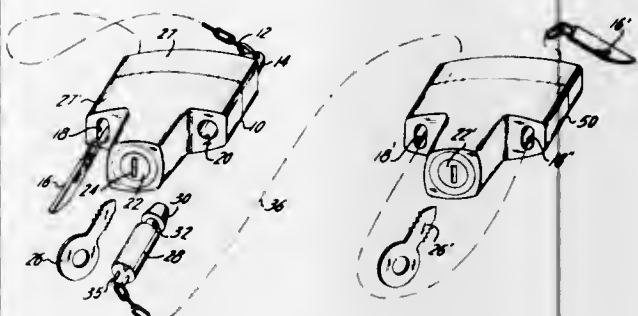
No. 3,585,823. This application June 21, 1971, Ser. No.

154,875

Int. Cl. E05b 67/18, 67/24

U.S. Cl. 70—49

5 Claims



A chain lock arrangement with a housing having either one passage for the chain or one passage for the chain and one passage for a locking plug or two passages for the chain and at least one latch bolt in the housing to automatically lock the chain in the housing upon inserting the same into the passage, or two latch bolts, one to lock the chain and the other to lock the chain or plug, and a lock cylinder in the housing, operable for unlocking the latch bolts.

3,738,133

SAFETY GATE HOOK

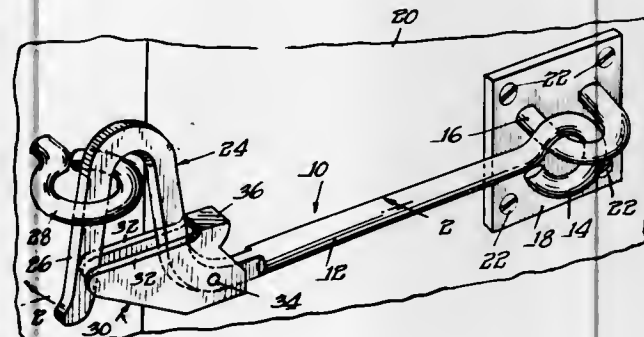
Robert L. Newlon, Tampico, Ill., assignor to Lawrence Brothers, Inc., Sterling, Ill.

Filed July 20, 1972, Ser. No. 273,432

Int. Cl. E05c 19/12

U.S. Cl. 70—108

6 Claims



The present invention relates generally to improvements in safety hook devices, and more particularly to a novel automatically operable latch mechanism for preventing inadvertent disengagement or opening of a gate hook. The embodiment of the invention disclosed herein includes an elongate shank section, a generally U-shaped hook section supported by one extremity of the shank section, the opposite extremity thereof including an attachment section adapted for pivotal coupling with a fixed fitting. A novel hook latching means is disclosed which includes a pair of spaced arms pivotally supported in the vicinity of the juncture of the hook section with the shank section. When in latching position, the spaced free extremities of the latching means superimpose the hook section. Novel abutment members limit the degree of pivotal movement of the latching means in opposite directions.

3,738,134

LOCK BOX CONSTRUCTION

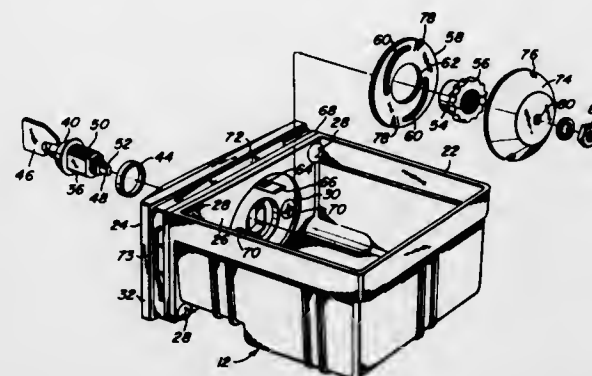
Mitchell A. Hall, Ft. Thomas, Ky., assignor to Monarch Tool & Manufacturing Company, Covington, Ky.

Filed Feb. 1, 1971, Ser. No. 111,287

Int. Cl. E05b 15/16, 65/46

U.S. Cl. 70—86

16 Claims



The lock box comprises a money receptacle upon which is detachably mounted a separate lockable face member carrying suitable bolt-work whereby the lock box may be secured within a vault opening or the like. The lockable face member is made as a universal part which is receptive of various kinds or styles of locks to control the bolt-work, and provision is made for changing or substituting locks without removing the money receptacle from the lockable face member; and further, the bolt-work is made to very simply avoid rattle or looseness of the lock box in the vault opening.

3,738,135

GATING MECHANISM FOR CYLINDER LOCK ASSEMBLY

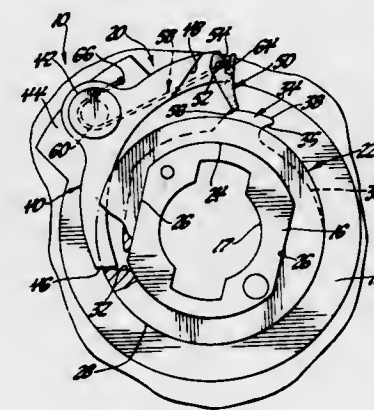
Edward H. Seidewand, Rochester, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Filed May 15, 1972, Ser. No. 253,316

Int. Cl. E05b 15/00

U.S. Cl. 70—362

3 Claims



A gating mechanism for a cylinder lock assembly adapted to positively prevent rotation of a barrel portion of the assembly beyond a predetermined position in one direction relative to a cylinder portion of the assembly except after momentary rotation of the barrel from the predetermined position in the opposite direction, the gating mechanism including a pawl pivoted on the cylinder and engageable on an abutment on the barrel to prevent rotation beyond the predetermined position, a follower pivotally supported on the pawl and biased toward a retracted position, a cam on the barrel having a lip portion for moving the follower to an extended position in which the follower pivots the pawl into a position engageable on the abutment, and a friction surface on the cam engageable on the follower for pivoting the latter back to the retracted position in response to momentary rotation of the barrel in the opposite direction.

3,738,136

SYSTEM FOR MASTER KEYING AXIAL PIN TUMBLER LOCKS

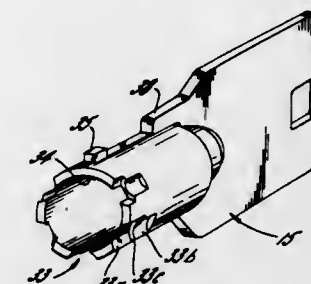
Morris Falk, Palm Springs, Calif., assignor to Fort Lock Corporation, Chicago, Ill.

Filed June 6, 1972, Ser. No. 260,162

Int. Cl. E05b 15/14, 27/08, 35/10

U.S. Cl. 70—363

8 Claims



A system for master keying axial pin tumbler locks which includes providing at least certain of the combination pins with at least two different axially spaced surfaces facing the keyway for cooperating with differently shaped notches in the end of a key advanced through the keyway. In its preferred form, the master keying combination pins are stepped so as to form a cylindrical head portion of relatively small diameter and a base portion of a larger diameter and the keys include stepped notches that permit engagement with either the head portion or the base portion of said combination pin so as to permit two different keys to operate the same pin. The system described may be adaptable to grandmaster keying, great grandmaster keying, etc., as well as master keying.

3,738,137

DOORKNOB LOCKING DEVICE

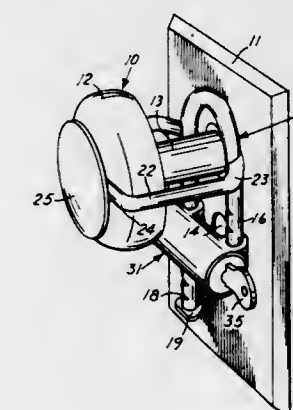
Ivan R. Jones, 1053 West Shepperd Avenue, Littleton, Colo.

Filed Apr. 21, 1971, Ser. No. 136,100

Int. Cl. E05b 17/14

U.S. Cl. 70—428

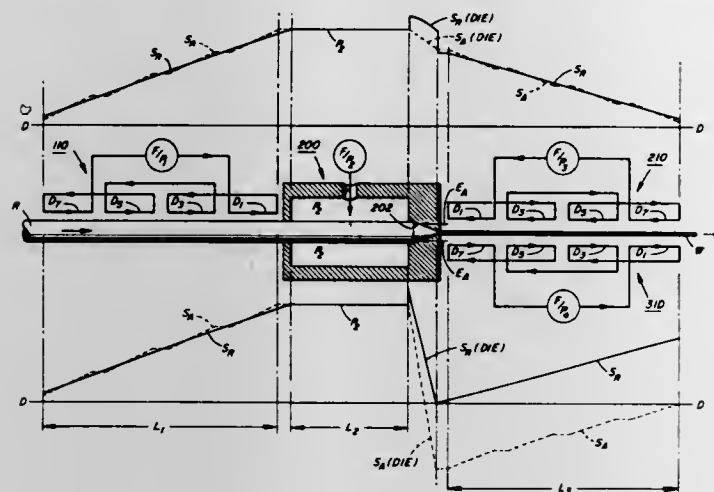
4 Claims



A locking device serves to prevent the insertion of a key into a keyhole on a doorknob and for this purpose includes a hasp which straddles the narrowed neck of the doorknob and an outer guard supported by the hasp overlies the keyhole to prevent insertion of a key. A lock member, preferably of the tumbler type, closes the open end of the hasp to keep the guard over the keyhole and prevent its removal from the doorknob and is movable along the hasp to a selected position.

3,738,138 CONTINUOUS MATERIAL FEEDING AND DEFORMATION PROCESS

Francis J. Fuchs, Jr., Princeton Junction, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.
Division of Ser. No. 876,940, Nov. 14, 1969, Pat. No. 3,667,267. This application Oct. 4, 1971, Ser. No. 186,375
Int. Cl. B21c 31/00
U.S. Cl. 72-60 11 Claims



Disclosed herein is a process in which flowing fluids are utilized to apply viscous drag forces to a rod of indefinite length and advance it continuously through an extrusion die, to produce a continuous product, for example, a wire. The flowing fluids also control the axial and radial stresses in the rod, sealing it into and out of treating environment so that undesirable rod pinch-off, bulging, or tension failure is avoided. The temperature, and hence-viscosity of the flowing fluids may be adjusted to control viscous drag forces.

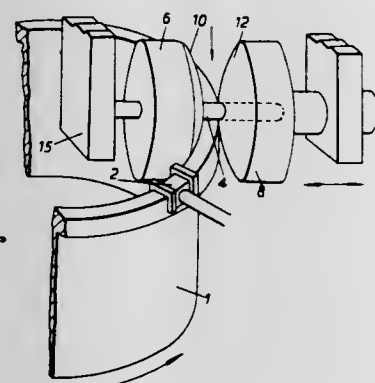
3,738,139 METAL WORKING

William Alfred Proops, and Stuart Apsley Bridges, both of Bristol, England, assignors to Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Aug. 3, 1971, Ser. No. 168,693
Claims priority, application Great Britain, Aug. 4, 1970, 37,658/70

Int. Cl. B21h 1/00

U.S. Cl. 72-69



A method of increasing the thickness of a zone of a thin-walled metal member of circular cross-section comprising: heating the metal in the zone to a temperature at which it can be plastically deformed, and applying axial force to the metal in the zone by a first surface which makes rolling engagement with the member and which moves relatively to the member around the circumference of the member, while also applying radial restraint by further surfaces which make rolling engage-

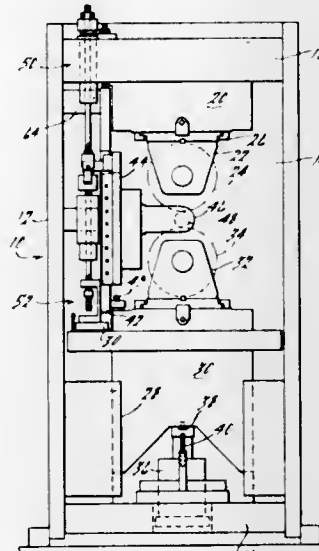
ment with the member so as to locate the thickened metal relatively to the remainder of the member.

3,738,140 GEAR ROLLING MACHINE

Carl H. Motz; Russell W. Anthony, both of Harper Woods, and George C. Peterson, Grosse Pointe Park, all of Mich., assignors to Lear Siegler, Inc., Santa Monica, Calif.
Filed July 6, 1971, Ser. No. 159,733
Int. Cl. B21h 5/02

U.S. Cl. 72-94

11 Claims



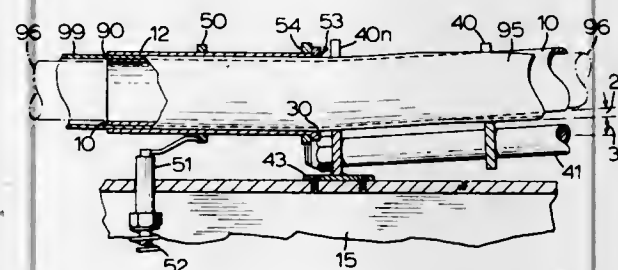
A gear rolling machine comprising a frame, a stationary die support on the frame for a gear rolling die, a work support slidable on said frame toward and away from said stationary die support, and a movable die support mounted on the frame for movement toward and away from the stationary die support and parallel to the movement provided for the work support. Yieldable means, such for example as a spring, counterweight, fluid pressure, or the like, are provided urging the work support toward the stationary die support. The movable die support is connected by lost motion means, preferably associated with yieldable means, to the work support and operates after completion of a gear rolling operation to move the work support away from the stationary die support into a clearance condition between the die and a work gear on the work support.

3,738,141 APPARATUS FOR THE FORMATION OF TUBES FROM SMOOTH TAPES

Rama Iyengar, Dorval, Quebec; Bretislav Paul Zuber, Montreal, Quebec, and Jean Raymond Boucher, Chateauguay Center, Quebec, all of Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada
Filed July 6, 1970, Ser. No. 52,434
Int. Cl. B21d 5/08

U.S. Cl. 72-176

7 Claims



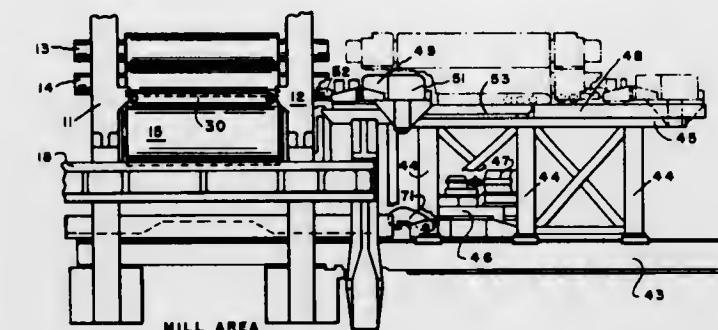
A method and apparatus for forming a tube from a continuous tape of form retaining material, in which a tape is moved longitudinally in a straight path from a flat to a transversely

3,738,142 ROLLING MILL

James Richard Adair, Pittsburgh, Pa., assignor to United Engineering and Foundry Company, Pittsburgh, Pa.
Filed May 24, 1971, Ser. No. 146,228
Int. Cl. B21b 31/08

U.S. Cl. 72-239

9 Claims



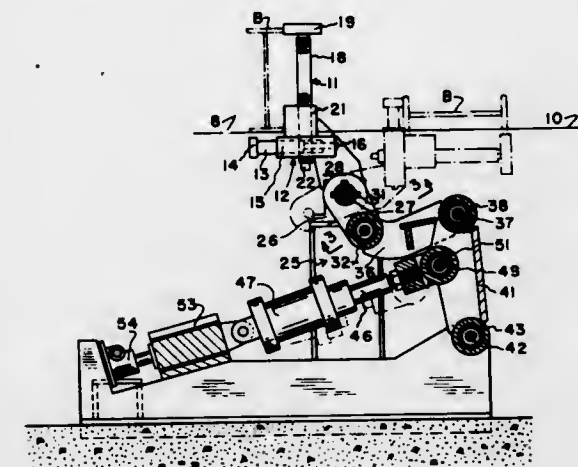
The present disclosure relates to an apparatus for allowing the rolls of a rolling mill to be quickly removed from and replaced into the mill stand. It provides a pair of bars for interconnecting the opposite bearing chocks of one of the rolls, all four elements of which are provided with wheels. The wheels are supported by two pivotal rails that extend between the housings of the mill. The rails during operation of the mill are positioned away from the bars, but, when the rolls are to be changed, they are positioned under the bars. The rolls are received in front of the mill by a side shifter having three discrete and spaced-apart support areas that support two roll-carrying platforms. Because of the spacing of the areas, the platforms have movable liners that span the spaces. A central area is movable axially of the mill for removing both the work rolls and the backup rolls from a position in front of the mill to a position remote relative thereto.

3,738,143 ADJUSTABLE BEAM TURN-UP AND BEAM TURN-DOWN ARMS FOR COOLING BED SERVICE

John A. Orris, Mars, Pa., assignor to United Engineering and Foundry Company, Pittsburgh, Pa.
Filed July 19, 1971, Ser. No. 163,846
Int. Cl. B21b 39/20

U.S. Cl. 214-1 QG

4 Claims



The disclosure of this invention relates to a beam rotating device as used in a rolling mill operation in the production of steel beams. In the illustrated form a beam to be rotated is received and supported by one of two supporting arms, which

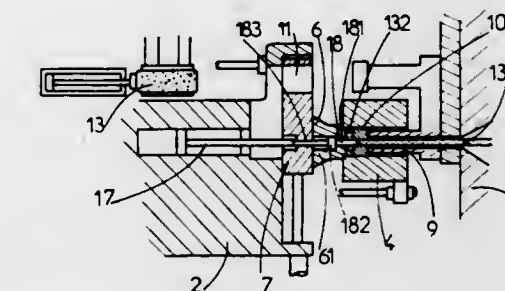
arm is located in a horizontal position. The arms are tied together so that on rotation of 90°, the beam is transferred to the second arm from the first arm. The arms are formed of threaded shafts having collared ends. By rotating the shafts the collared ends can be moved into a supporting position with supportable portions of a beam, even though the beams may vary in size, within the range of the adjustment allowed by the threaded shafts.

3,738,144 INVERSE DRAWING PRESSES

Michel Doudet, Chatillon S/Bagneux, France, assignor to SECIM, Courbevoie, France
Filed July 12, 1971, Ser. No. 161,721
Int. Cl. B21c 23/00

U.S. Cl. 72-255

2 Claims



An inverse drawing press has a movable cross-member and a fixed cross-member which carries the die. The movable cross-member carries a bottom for a container moved over the die and receiving the ingot. A punch carried by the bottom for the container separates the end of the bar in the die from the shoe and shear cuts off the shoe. A ram removes any residual metal from the container.

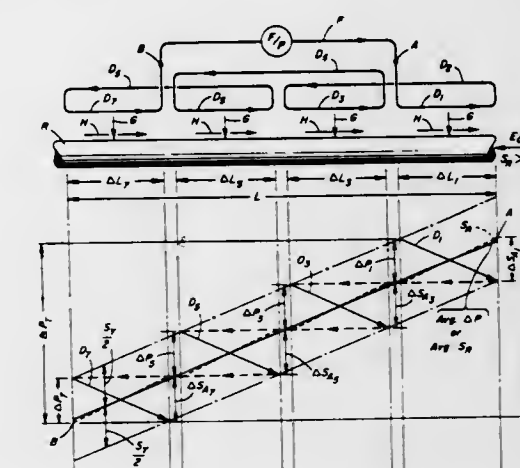
3,738,145 APPARATUS AND METHOD FOR CONTINUOUS MATERIAL FEEDING AND DEFORMATION PROCESS

Francis J. Fuchs, Jr., Princeton Junction, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.
Division of Ser. No. 876,940, Nov. 14, 1969, Pat. No. 3,667,267, and a continuation-in-part of Ser. No. 794,488, Jan. 28, 1969, abandoned. This application Mar. 1, 1971, Ser. No. 119,909

Int. Cl. B21c 33/00

U.S. Cl. 72-270

105 Claims



Disclosed herein is a process in which flowing fluids are utilized to apply viscous drag forces to a rod of indefinite length and advance it continuously through an extrusion die, to produce a continuous product, for example, a wire. The flowing fluids also control the axial and radial stresses in the rod, sealing it into and out of a treating environment so that un-

desirable rod pinch-off, bulging, or tension failure is avoided. The temperature, and hence viscosity, of the flowing fluids may be adjusted to control viscous drag forces.

3,738,146

METHOD AND APPARATUS FOR COLD WORKING SEAMLESS TUBES

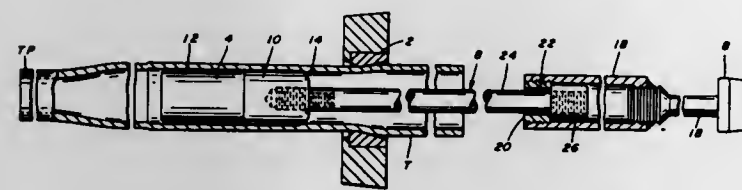
William J. Gunn, Gary, Ind., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Nov. 17, 1970, Ser. No. 90,248

Int. Cl. B21c 1/24

U.S. Cl. 72-283

3 Claims



A seamless tube is cold worked to decrease spiral internal variations by placing a floating mandrel within the tube to be worked and positioning the tube and mandrel within a die. The mandrel has a maximum external diameter substantially equal to the desired internal diameter of the finished tube and is initially positioned with its forward end within the die. The tube is then pulled through the die where its outer and inner diameters are reduced to sizes less than the outer and inner diameters of the finished tube. The initial movement of the tube causes the floating mandrel to move entirely through the die. Continued movement of the tube places the tube in tension and expands its inside diameter as it passes over the mandrel.

3,738,147

CAP MAKING MACHINES

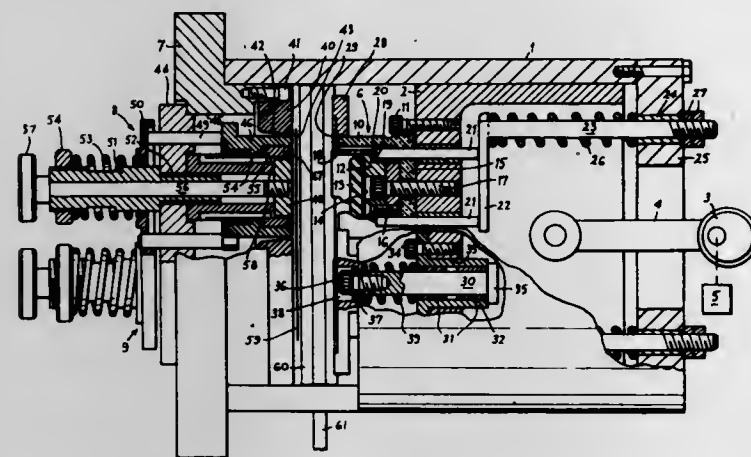
Geoffrey Ewart Ford, Bedford, and Phillip Sidney Waite, Kempston, both of England, assignors to Fords (Finsbury) Limited, Kempston, Bedford, England

Filed June 28, 1971, Ser. No. 157,317

Int. Cl. B21d 45/00

U.S. Cl. 72-344

7 Claims



A twin-tool press for a machine for making caps for bottles and other containers from metal foil includes two tool sets for blanking and forming caps from the same strip of foil arranged so that the line between their centers is inclined at an angle of about 60° to the longitudinal axis of the strip. The blanks simultaneously cut by the two tools therefore form two rows down the length of the strip. The two tool sets comprise two punch assemblies carried on a horizontally reciprocating plunger and co-operating, stationary, die assemblies. The metal foil strip is intermittently fed between the assemblies and the plunger is reciprocated so that the assemblies co-operate to effect blanking and forming operations during the

periods when the foil is stationary. The caps are retained inside the punches as the plunger retracts after a blanking and forming operation and the punch assemblies include ejector rings for ejecting the caps from within the punches. The ejector ring of the upper punch is arranged to operate subsequently to that of the lower punch so that the two caps, which are formed simultaneously, are ejected successively to reduce the risk of the caps jamming or wedging as they drop down into the mouth of a cap delivery chute.

3,738,148

DIE AND METHOD OF MAKING THE SAME

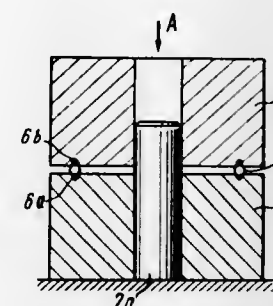
Evgeny Mikhailovich Perminov, Angarskaya, 26, Korpus I, kv. 10, Minsk, U.S.S.R.

Filed Aug. 14, 1970, Ser. No. 63,786

Int. Cl. B21j 13/02

U.S. Cl. 72-362

2 Claims



Technological tooling in which a die comprises a female die member provided with similar spherical hollows uniformly distributed along a circumference and removable balls placed into the hollows, with the balls having a radius equal to that of the hollows.

The die is made by embossing spherical hollows by means of the balls placed into prefabricated centering recesses between two coaxial blanks of the female dies which are subjected to axial squeezing in several stages, in which case the blanks are turned relative to each other through an angle between two adjacent recesses.

The die is designed primarily for making ball-type indexing devices.

3,738,149

PIPE FORMING APPARATUS AND METHOD

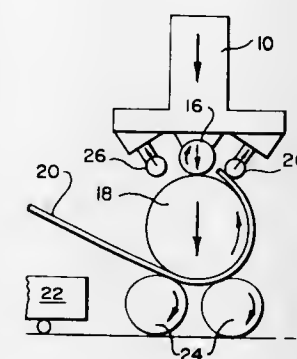
Bill Archer, Route 8, Box 275, Meridian, Miss.

Filed Oct. 1, 1971, Ser. No. 185,497

Int. Cl. B21d 5/14

U.S. Cl. 72-171

4 Claims



Apparatus and method for making completely rounded pipe cylinders of selectively different diameters and wall thicknesses, with a minimal change-over time loss. The invention includes a combination of press and cylinder roll including a floating roll, press roll, drive rolls and stabilizing rolls, so interrelated and interacting to form a complete circular pipe cylinder from flat stock. The method entails the use of various

diameter removable of floating rolls appropriate for changes in diameter of pipe cylinder, or wall thickness of pipe cylinder to be formed, with no appreciable time loss in the change-over from one end product to another.

3,738,150

TURRET HEAD ASSEMBLY

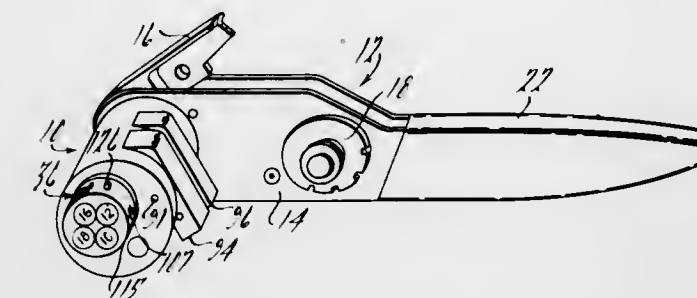
Marion B. Holmes, Drayton Plains, Mich., and Albert E. Gan-zert, Elmwood Park, Ill., assignors to Daniels Manufacturing Corp., Bloomfield Mills, Mich.

Filed May 20, 1971, Ser. No. 145,221

Int. Cl. B21d 9/08

U.S. Cl. 72-410

24 Claims



This disclosure pertains to an improved turret head assembly for use with a crimping tool for connecting an electrical contact or the like to a wire conductor. As used herein, the term "contact" is intended to include male and female contacts, connectors, terminals, and like devices adapted to be affixed to the end of a wire conductor. A plurality of contact positioners adapted to accommodate various contact sizes are provided in a selectively rotatable turret head disposed in a bore of a housing member. The turret head is further adapted to be selectively positioned axially within the bore to accommodate contacts of varying length. The positioners locate and hold the contacts so that the portion thereof to be crimped is axially and radially positioned at the desired point in line with the crimping dies to effect crimping.

3,738,151

STRIP LOAD SIMULATOR FOR SHAPE-MEASURING ROLL

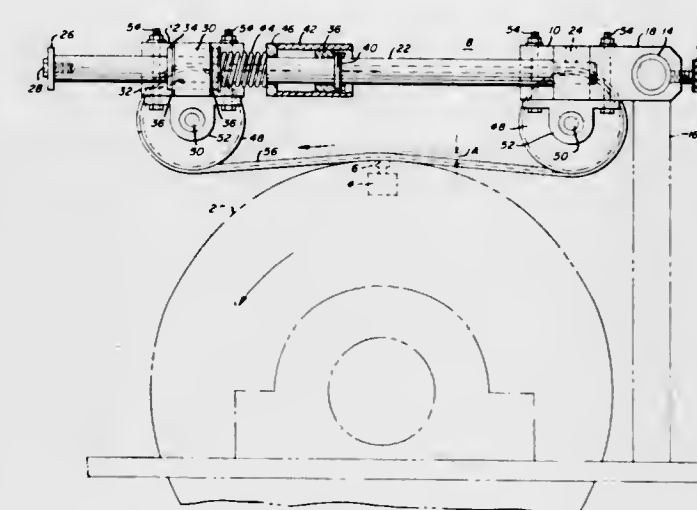
Joseph S. Giunta, Monroeville Borough; Thomas E. Nicely, Delmont, and Edward J. Patula, Monroeville Borough, all of Pa., assignors to United States Steel Corporation, Pittsburgh, Pa.

Filed May 2, 1972, Ser. No. 249,639

Int. Cl. G011 25/00

U.S. Cl. 73-1 B

5 Claims



A strip load simulator for calibration of a shape-measuring roll with load sensing devices has an endless belt tensioned between two pulleys and mounted in a frame pivoted so that

the belt rests on the roll surface. When the roll is rotated, the weight of the frame, belt and pulleys moves the belt and provides a reproducible force to calibrate the load sensing devices.

3,738,152

POINTERS, DIALS, AND METHOD OF CALIBRATING DIALS FOR MEASURING INSTRUMENTS

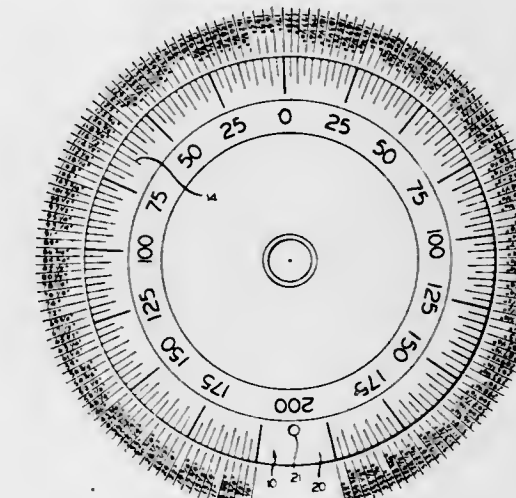
Talmage O. Green, Schaumburg, Ill., assignor to Snap-on Tools Corporation, Kenosha, Wis.

Filed Sept. 8, 1969, Ser. No. 862,615

Int. Cl. G011 25/00; G01d 18/00

U.S. Cl. 73-1 A

10 Claims



Improved mechanical dial pointers and methods of calibrating dials for precise measuring instrumentalities wherein the mechanical pointer operating linkage moving in a non-linear path, is compensated to reflect the action of their equivalent movements in a linear direction, and take into account the yield in the load applying member. The effective non-linearity of the mechanical linkage between the applied turning load in fastening or loosening fasteners and the meter operating linkage, however small, is caused by an ever increasing linkage angle of movement as such approaches the extremes of displacement around a meter dial. The compensations for the non-linear movement of the linkage are arrived at trigonometrically by resort to the mechanical secant which has a direct relationship with the equivalent arc of movement of any given angle of mechanical linkage movement from zero to their extreme angle of displacement to rotate a calibrated dial pointer within its range for any calibrated dial measuring capacity. The standard method of calibrating measuring meter dials involve uniform graduations of the entire 360° range of a complete circle, but this method is not sufficiently accurate for the state reasons. By utilizing the trigonometric functions of secants, the dial graduations will be farther apart at the full extreme dial scale than at the lower or near zero range of mechanical linkage movements with proportional secant variations between these extremes which also take into account yield in the load applying member. This more closely matches the actual values applied by trigonometrically using the mathematical secant for greater accuracy in graduating the markings around a calibrated dial to more closely interpret the linear displacement in terms of the equivalent non-linear movements of the mechanical linkage, and by measuring the angularity of the mechanical linkage at the maximum rated capacity of the measuring instrument, this reflects the yield in the load applying member.

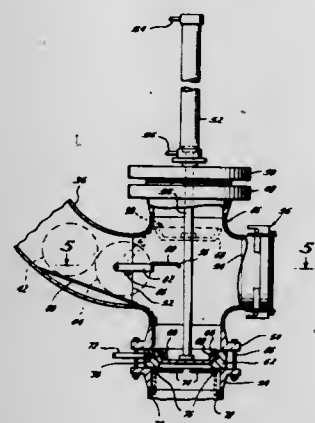
3,738,153

VALVELESS PROVER

C. R. Simmons, Pasadena, Tex., assignor to Helmerich & Payne, Inc., Houston, Tex.
Continuation-in-part of Ser. No. 81,821, Oct. 19, 1970. This application Aug. 24, 1971, Ser. No. 174,458
Int. Cl. G01f 25/00

U.S. Cl. 73-3

13 Claims



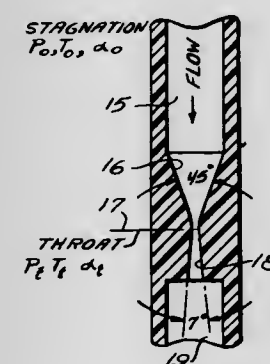
A continuous loop meter prover wherein a hydraulic cylinder operates a poppet valve which is used to force a sphere from the low pressure side to the high pressure side, the poppet valve closing off flow from the high pressure side to the low pressure side when there is no sphere in the interchange, and providing a block and a bleed seal.

3,738,154

METHOD OF MEASURING ENTRAINED GAS IN A LIQUID USING A CONVERGING-DIVERGING NOZZLE
Robert E. Henry, Western Springs, Ill., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed Oct. 20, 1971, Ser. No. 190,876
Int. Cl. G01n 7/00

U.S. Cl. 73-19

5 Claims



A choked converging-diverging nozzle is employed in a method of detecting the presence and measuring the volumetric concentration of entrained gas in a liquid. The liquid-gas mixture is accelerated through the nozzle to critical flow conditions and the pressure at the throat of the nozzle is measured. The temperature and pressure of the mixture of the stagnation region are monitored, the throat pressure of the liquid-gas mixture being a function of only the void fraction at any given stagnation temperature and pressure.

The method is employed in safety instrumentation for a liquid-cooled nuclear reactor. The throat pressure is monitored with an increase in the throat pressure indicating an undesirable increase in the concentration of entrained gas in the liquid coolant of the reactor which operates at approximate steady state conditions.

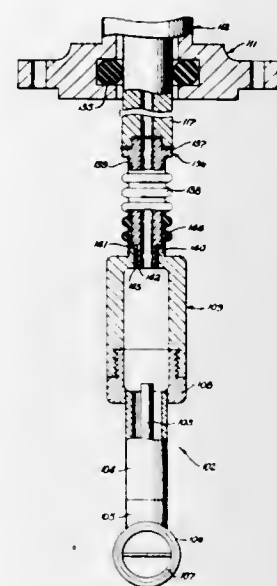
3,738,155

DENSITOMETER PROBE SUPPORT

Charles Eveleigh Miller, Boulder, Colo., assignor to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Mar. 11, 1971, Ser. No. 123,350
Int. Cl. G01n 9/00

U.S. Cl. 73-32

13 Claims



A flexible support for a retractable vibration densitometer probe including a rigid tube telescoped into the rigid housing of the probe in spaced relation thereto and a metal bellows sealed to the tube and probe in spaced relation thereto. The space between the bellows and the tube, and the space between the tube and housing are filled with a single piece of rubber bonded to all of the surfaces surrounding it.

3,738,156

METHOD USING TEST LIQUID AND ULTRASONIC LEAK DETECTOR FOR

Hendrik Bosselaar, 3 Badhuilweg, Amsterdam, Netherlands
Filed Apr. 6, 1971, Ser. No. 131,766
Claims priority, application Netherlands, Apr. 8, 1970, 7005002
Int. Cl. G01m 3/08

U.S. Cl. 73-40.5 A

5 Claims

A method for detecting leaks in pipelines that is sensitive to acoustic signals in the ultrasonic range with the detector being transported through the pipeline by fluid flow. The method comprises transporting the detector through the pipeline while maintaining the detector in a test liquid having a viscosity of 30 cS maximum and a Reid vapor pressure of 10 psi maximum while recording the ultrasonic noise level.

3,738,157

MANOMETER FOR SPHYGMOMANOMETER

Shine Sekizawa, Yamato, Japan, assignor to Tokyo Iryoki Kabushiki Kaisha, Tokyo-to, Japan
Filed Aug. 23, 1972, Ser. No. 283,229
Int. Cl. G01f 7/10

U.S. Cl. 73-420

1 Claim

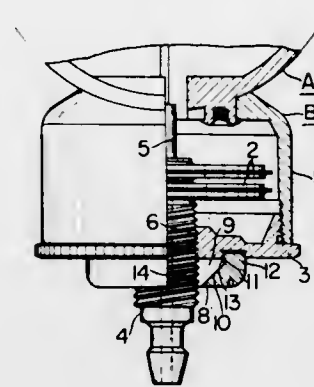
The bottom portion of a tapped hole for receiving a pipe fitting for hose connection in the bottom plate of a manometer for a sphygmomanometer is formed in and through a frustoconical boss part projecting downward from the lower surface of the bottom plate and split into divisional parts by a plurality of radial slots, and a clamping nut or locknut having an internal frusto-conical surface similarly as the chuck nut of a drill chuck is screwed onto the boss part. When this locknut

3,738,159

TESTING DEVICE FOR INSPECTING AN OBJECT
Henry Donnadieu, Le Pecq, France, assignor to Institut De Recherches De La Siderurgie Francaise, St. Germain-en-Laye, France
Filed Aug. 25, 1971, Ser. No. 174,814
Claims priority, application France, Sept. 2, 1970, 7031907
Int. Cl. G01n 29/04

U.S. Cl. 73-67.9

2 Claims



fitting accurately and positively in any adjusted position without disturbance thereof due to the tightening action.

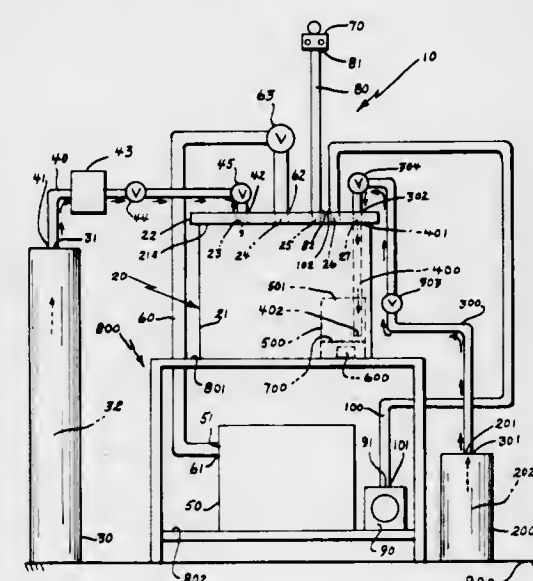
3,738,158

GROSS LEAK VACUUM AND PRESSURE CHAMBER ASSEMBLY

John P. Farrell, Utica, and Edward P. O'Connell, Rome, both of N.Y., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed Apr. 6, 1972, Ser. No. 241,549
Int. Cl. G01m 3/20

U.S. Cl. 73-40.7

5 Claims



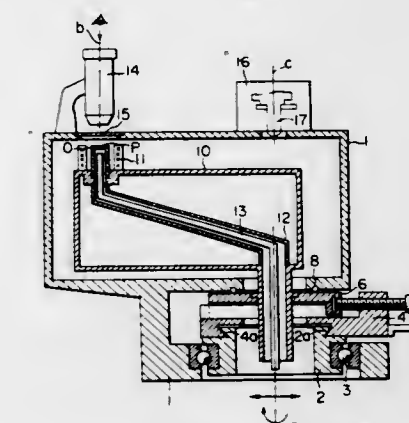
A chamber assembly for subjecting a hermetically sealed package to a vacuum, to changes in pressure and to other procedures to precondition the package prior to testing it to determine its degree of hermeticity. The assembly includes a test chamber, a receptacle which fits into the test chamber and houses the hermetically sealed package which is to be preconditioned, a source of gas under high pressure connected to the test chamber, a source of fluorocarbon liquid also connected to the test chamber, a vacuum pump likewise connected to the test chamber, and cooperative interconnected components, such as a pressure regulator, a vacuum gauge, a safety valve, and a plurality of pressure shutoff valves and of vacuum shutoff valves. The hermetically sealed package is placed within the receptacle which, in turn, is placed within the test chamber. The hermetically sealed package is then subjected to arteaccepted preconditioning procedures, including exposure to a vacuum, changes in pressure, and soaking in fluorocarbon liquid, without being exposed to ambient during the performance of the procedures.

3,738,160

HIGH-TEMPERATURE HARDNESS METER PROVIDED WITH A DEVICE FOR MOVING A SAMPLE OBJECT
Masaru Sobajima, Meguro-ku, Tokyo, Japan, assignor to Nippon Kogaku K. K., Tokyo, Japan
Filed Dec. 16, 1971, Ser. No. 208,649
Claims priority, application Japan, Dec. 24, 1970, 45/116647
Int. Cl. G01n 3/48

U.S. Cl. 73-81

4 Claims



A high-temperature hardness meter includes a microscope and pressure means mounted on top of a hermetically sealed housing, the pressure means including a pressing member. The optical axis of the microscope is vertical and the axis of the pressing member is parallel to the optical axis of the microscope. The lower wall of the housing is formed with an opening extending downwardly and having its axis equidistant from the axes of the microscope and pressing member. A rotatable bed is disposed below the opening for rotation about the axis thereof. Movable means is mounted on the rotatable bed for movement with respect to the bed in two horizontal

directions orthogonal to each other and perpendicular to the axis of the opening. Gas tight sealing means is interposed between the movable means and the housing portion adjacent to the opening. The movable means is also rotatable about the axis of the opening. An anvil for holding the sample object is fixed to the movable means and extends to a height just beneath the microscope. The opening, the rotatable bed, the movable means, the sealing means and the anvil together constitute a device for moving the sample object.

3,738,161

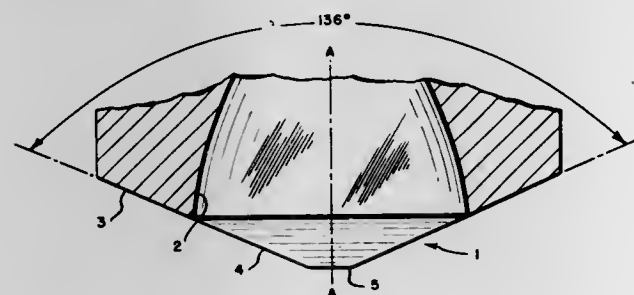
MICROFICIAL HARDNESS TESTER INDENTER
Charles H. Lucke, Jr., Stratford, and Andrew R. Fee, Trumbull, both of Conn., assignors to American Chain & Cable Company, Inc., New York, N.Y.

Filed Jan. 19, 1970, Ser. No. 4,051

Int. Cl. G01n 3/44

U.S. Cl. 73-85

2 Claims



An improved diamond indenter for measuring the hardness of thin material, the indenter having flattened sides and a flattened end for reducing the depth of penetration under the applied loads.

3,738,162

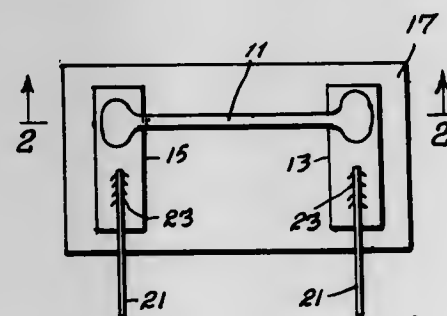
FATIGUE DAMAGE INDICATOR
James W. Dally, Silver Spring, Md., and Gustavo A. Panizza, Chicago, Ill., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sept. 10, 1971, Ser. No. 179,370

Int. Cl. G01l 5/00

U.S. Cl. 73-88.5 R

1 Claim



In a fatigue damage indicator system comprising a work piece structure, carrier and sensing means operably connected to indicator means; the improvement wherein the sensing means are composed of a conductive material dispersed in a matrix of an insulating material.

3,738,163

ANCHOR TESTER

Robert H. McEntire, Richardson, Tex., assignor to Atlantic Richfield Company, New York, N.Y.

Filed Mar. 24, 1972, Ser. No. 237,729

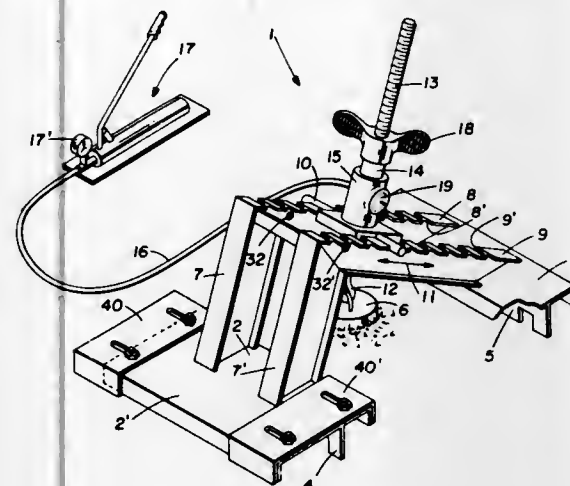
Int. Cl. G01n 3/10

U.S. Cl. 73-95

8 Claims

A device for testing anchors (dead men) embedded in the earth so that a force can be applied to the anchor at a known

and desired angle, the device employing an inclined support surface which carries a piston and cylinder means. The piston



and cylinder means can be moved and stopped at a plurality of points along the length of the support surface.

3,738,164

MEASUREMENTS PERTAINING TO OCEAN CURRENTS BY GEOMAGNETIC INDUCTION

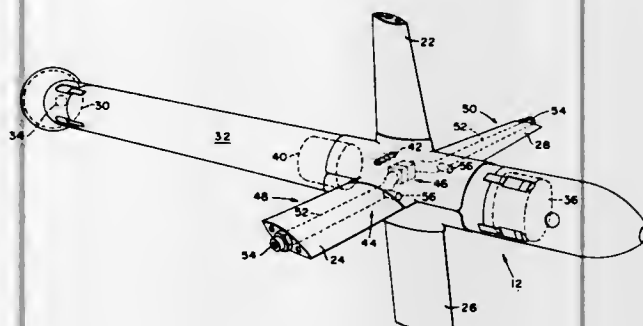
Thomas B. Sanford, West Falmouth, and Robert G. Drever, Hatchville, both of Mass., assignors to Woods Hole Oceanographic Institution, Woods Hole, Mass.

Filed May 21, 1971, Ser. No. 145,816

Int. Cl. G01n 9/08

U.S. Cl. 73-170 A

37 Claims



The variations in the magnitudes and the directions of horizontal ocean currents are measured as a function of depth. A measuring probe falls to a predetermined depth and is carried by the current. The probe has a circuit within which a varying electric potential is induced by the earth's magnetic field. This potential is a function of the velocity of the probe and the velocity of the sea water. Data derived from this potential and the related sea water temperature and pressure are used to derive detailed vertical characteristic profiles of ocean currents.

3,738,165

AIRCRAFT TAKEOFF ABORT INDICATOR

Raymond J. Hansen, P. O. Box 727, Sanger, Calif.

Filed Feb. 7, 1972, Ser. No. 224,211

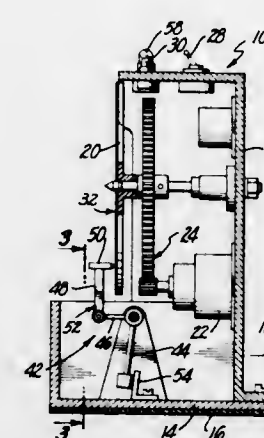
Int. Cl. G01c 21/10

U.S. Cl. 73-178 T

8 Claims

An apparatus for indicating to the pilot of an aircraft whether to abort a takeoff because of subnormal acceleration of the aircraft during the takeoff run. The apparatus includes: a chart of the normal takeoff acceleration versus takeoff time for the aircraft for a particular set of conditions; a warning indicator; and means adapted to scan the chart, and responsive to subnormal takeoff acceleration, for actuating the warning indicator. The chart is provided with a conductive area

representing the subnormal takeoff acceleration versus takeoff time relationship for the aircraft and particular set of conditions, and the actuating means for the warning indicator



includes a contact engageable with such conductive area. Each aircraft is provided with a set of charts covering different airports, different aircraft weights, different wind and barometric pressure conditions, and the like.

3,738,166

FINAL APPROACH TIMER

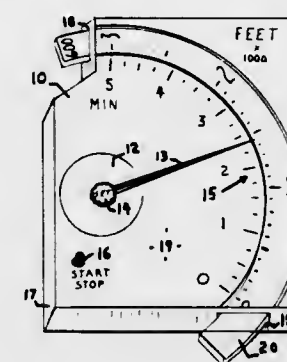
Martin Allen Fisher, 1244 S.W. 13 Court, Miami, Fla.

Filed Oct. 27, 1971, Ser. No. 192,946

Int. Cl. G01c 21/00

U.S. Cl. 73-178 T

5 Claims



A combination clock and altitude indicator arrangement incorporating a limited time stop clock settable any time to five minutes, the minute hand extending beyond the minute markers to a card insertable into a slot beside the minute markers whereby the minute hand points to the minutes remaining as well as the feet of altitude scribed on the inserted card.

3,738,167

AIRSPPEED AND ALTITUDE MEASURING DEVICE

Douglas F. White, Bedminster, N.J.; Marvin D. Scadron, Glenview, and Joseph C. Faul, Melrose Park, both of Ill., assignors to American Standard Inc., New York, N.Y.

Division of Ser. No. 737,717, June 17, 1968. This application

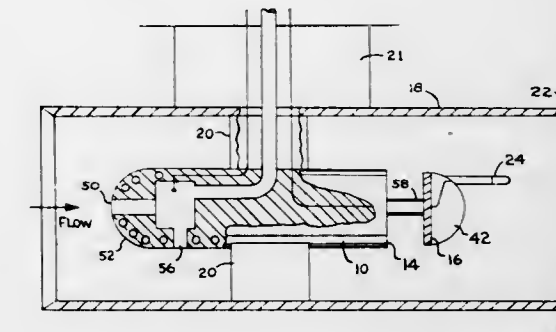
June 22, 1970, Ser. No. 59,820

Int. Cl. G01c 21/00

U.S. Cl. 73-181

1 Claim

The airspeed of an airplane is determined by means of a device which includes an upstream cylindrical member and a downstream disc-like member spaced from said cylindrical member by a predetermined distance. Oscillations are produced in the air which passes around the cylindrical and disc structures and the frequency of the oscillations are measured. The frequency of the oscillations is directly related to the velocity of the fluid thus providing a direct determination of airspeed. The altitude of the airplane is computed with



and using these quantities in standard formulas well known to those versed in the art.

3,738,168

LASER BEAM SCANNING DEVICE

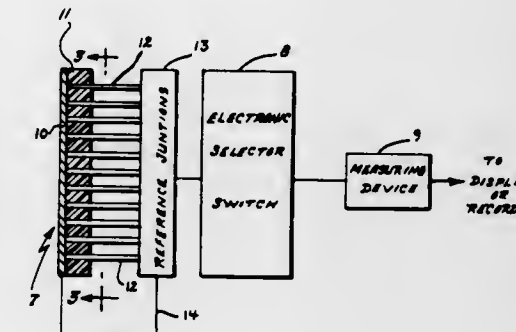
Dennis N. Mansell, Palos Verdes Peninsula, Calif., assignor to The United States of America as represented by the Secretary of the Air Force

Filed Nov. 16, 1971, Ser. No. 199,184

Int. Cl. G01k 17/00

U.S. Cl. 73-190 R

1 Claim



Scanning of a high power laser beam while it is being used is accomplished by deflecting the laser beam to its target with a polished metal mirror. Multiple thermocouple wires attached to the rear of the mirror provide temperature (and hence beam power) information at various points on the mirror. Scanning is achieved by means of a selector switch which sequentially samples the thermocouple outputs. The thermocouple output voltages are measured and recorded as a function of laser beam power.

3,738,169

ULTRASONIC FLOWMETERS

Albert Courty, Paris 16 eme, France, assignor to Thomson-CSF, Paris, France

Filed Feb. 11, 1971, Ser. No. 114,644

Claims priority, application France, Feb. 17, 1970, 7005589

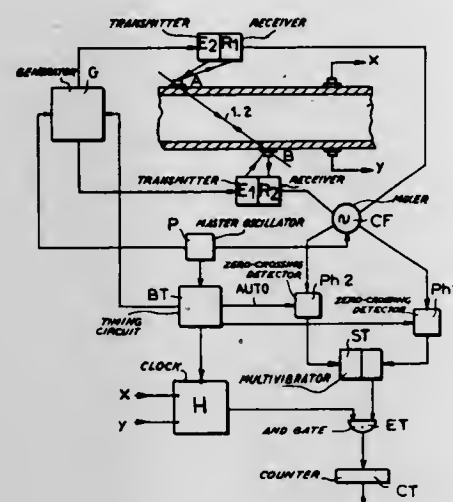
Int. Cl. G01f 1/00; G01p 5/00

U.S. Cl. 73-194 A

6 Claims

An ultrasonic flowmeter in which the flow velocity of a fluid through a pipe is measured by comparison of the propagation times of an acoustic wave over oblique trajectories, in both the upstream and downstream directions. A feedback loop comprising an additional transducer pair located on opposite sides of the pipe and transversally thereto and an amplifier delivers a pulsed signal whose repetition frequency is proportional to the velocity of sound in the fluid. An error voltage whose variations are proportional to the frequency of the pulsed signal is derived by means of a discriminator and applied to the control input of a voltage controlled oscillator through a

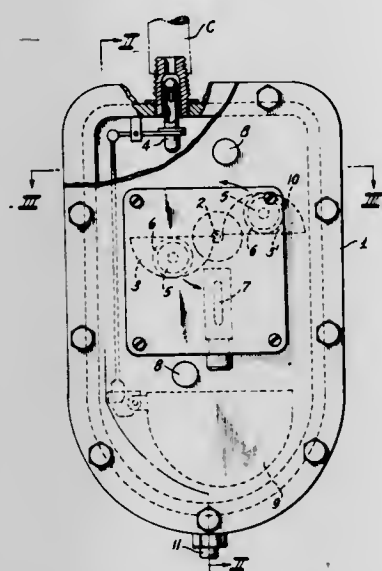
squaring circuit. Pulses derived from the oscillator are counted in a counter during a time interval corresponding to



the difference between the upstream and downstream propagation times.

3,738,170
FLOW METER FOR MEASURING SMALL QUANTITIES OF LIQUID FUEL
Sozaburo Maeshiba, 33-32 4-chome Hakatakimae, Fukuoka, Japan

Filed July 2, 1971, Ser. No. 159,300
Int. Cl. G01p 1/00
U.S. Cl. 73-217



A flow meter for measuring small quantities particularly of liquid fuels. A chamber is provided with cups mounted to rotate in a paddle wheel manner by the flow of liquid. Magnets of opposite polarity are carried by each cup. An electromagnet magnet alternately attracts and repels the cups to bring them into filling and them emptying position. A reed switch is actuated by the magnets to provide a measure of flow and reverse the polarity of the electromagnet.

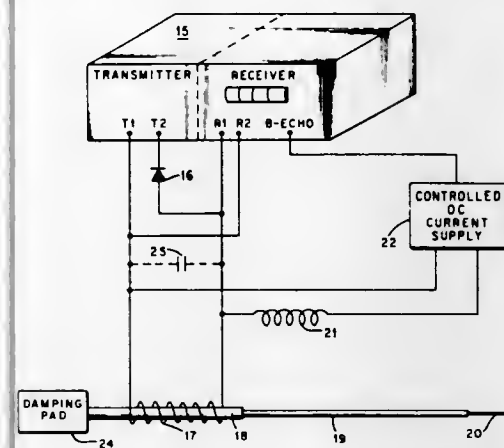
3,738,171
ATTENUATION COMPENSATION FOR ULTRASONIC THERMOMETERS
Robert L. Shepard, and Albert H. Malone, both of Oak Ridge, Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Apr. 26, 1972, Ser. No. 247,532
Int. Cl. G01k 11/24
U.S. Cl. 73-339 A

3 Claims

A current source and control circuit are used to supply a DC bias current to the driver coil of an ultrasonic thermome-

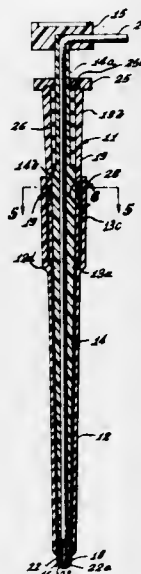
ter. The magnitude of the ultrasonic echo signal is thereby increased by more than a factor of two and the upper tempera-



3,738,172
TEMPERATURE SENSING PROBE AND DISPOSABLE PROBE COVER
Stephens N. Sato, San Diego, Calif., assignor to Ivac Corporation, San Diego, Calif.
Division of Ser. No. 28,367, April 14, 1970. This application Nov. 22, 1971, Ser. No. 200,749
Int. Cl. G01k 1/08, 1/00, 1/16

U.S. Cl. 73-343 R

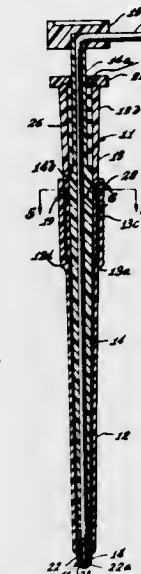
16 Claims



Thermometer apparatus including an elongated, temperature sensing probe having a combined finger grip and mounting collar at one end with a concentric shaft resiliently urged forwardly of the leading end of the collar, the end of the shaft remote from the collar having a thermistor heat sensing tip. A disposable cover in the form of a rigid, thermally insulating tube having a heat conducting shield at the tip of the cover is adapted to slide over the probe shaft and engage cover retaining means on the collar, the cover shield engaging the sensing tip and driving the probe shaft rearwardly toward the collar during cover installation prior to temperature measurement. The cover is selectively ejected after temperature measurement by manually driving the probe shaft forwardly of the mounting collar with sufficient force to disengage the cover from the retaining means.

3,738,173
TEMPERATURE SENSING PROBE AND DISPOSABLE PROBE COVER
Stephens N. Sato, San Diego, Calif., assignor to Ivac Corporation, San Diego, Calif.
Division of Ser. No. 28,367, April 14, 1970. This application Nov. 22, 1971, Ser. No. 200,748
Int. Cl. G01k 1/08, 1/00, 1/16
U.S. Cl. 73-343 R

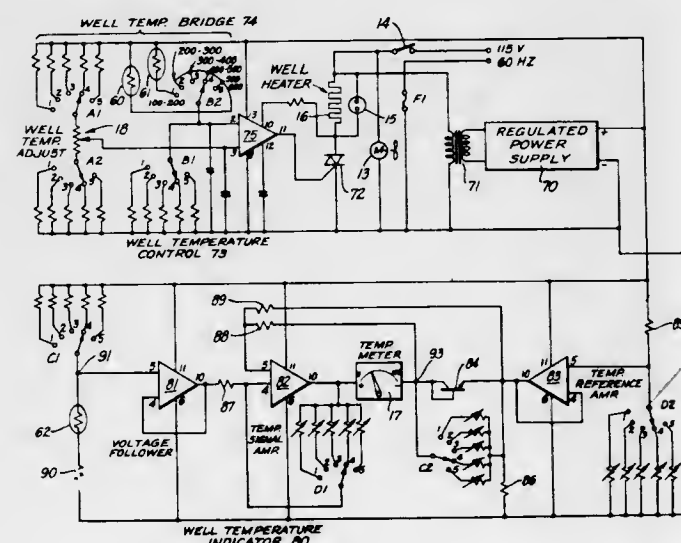
13 Claims



Thermometer apparatus including an elongated, temperature sensing probe having a combined finger grip and mounting collar at one end with a concentric shaft resiliently urged forwardly of the leading end of the collar, the end of the shaft remote from the collar having a thermistor heat sensing tip. A disposable cover in the form of a rigid, thermally insulating tube having a heat conducting shield at the tip of the cover is adapted to slide over the probe shaft and engage cover retaining means on the collar, the cover shield engaging the sensing tip and driving the probe shaft rearwardly toward the collar during cover installation prior to temperature measurement. The cover is selectively ejected after temperature measurement by manually driving the probe shaft forwardly of the mounting collar with sufficient force to disengage the cover from the retaining means.

3,738,174
TEMPERATURE CALIBRATION SYSTEM
Bradley C. Waldron, Canoga Park, Calif., assignor to King Nutronics Corporation, Van Nuys, Calif.
Filed Mar. 1, 1972, Ser. No. 230,768
Int. Cl. G01k 7/24, 15/00
U.S. Cl. 73-362 AR

7 Claims

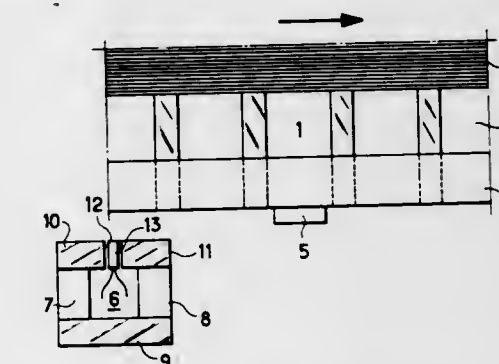


A temperature calibration system including a well for receiving a temperature sensor such as a thermometer or ther-

mocouple, and a heater for heating the well to a desired and adjustable temperature. A single well instrument providing a temperature range of 100° to 600° F. in five steps. A temperature measuring circuit for indicating the temperature of the well and including a temperature sensing element, a temperature signal amplifier, an indicating meter and series diode, and a meter zero reference amplifier, with circuitry for providing substantially linear operation with nonlinear components.

3,738,175
DEVICE FOR DETECTING THE THERMAL OVERLOADS OF A ROTATING MEMBER
Andre Linsig, Belfort, France, assignor to U N E L E C, Paris, France
Filed Oct. 4, 1971, Ser. No. 186,300
Int. Cl. G01k 5/18
U.S. Cl. 73-362 CP

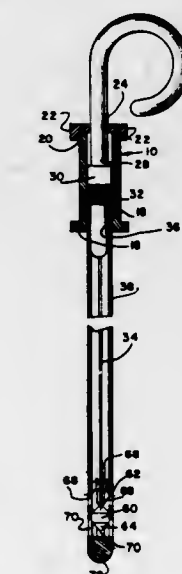
5 Claims



A device for detecting thermal overload in a rotating member includes a piece made from magnetic material having a Curie point corresponding to the temperature to be detected disposed on said rotating member so as to rotate along a path adjacent a stationary magnetic bridge consisting of two arms through which pass opposite fluxes of equal magnitude separated by an air gap in which a magnetic detector is located so that an increase in temperature of the rotating member beyond the Curie point of the magnetic piece can be detected by the magnetic detector as a reduction in signal level or a complete loss of signal.

3,738,176
TRANSPARENT LIQUID LEVEL INDICATOR
William Kerfoot, P.O. Box A, Berryville, Va.
Continuation-in-part of Ser. No. 15,244, Feb. 27, 1970, Pat. No. 3,594,906. This application July 26, 1971, Ser. No. 166,043
Int. Cl. G01n 1/10
U.S. Cl. 73-425.4 R

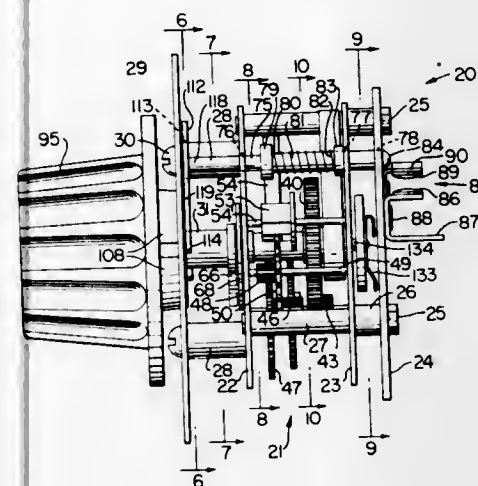
2 Claims



The present invention relates to a transparent liquid level indicator in which a transparent casing is disposed within a

tank or reservoir and is provided with a movable plunger. The transparent casing is of a tubular configuration and is made separate from a housing to which it is secured so that the tubular member can be made of various dimensions and mass-produced in an economical manner. Biasing means normally maintain a movable plunger disposed in the housing in an uppermost position, and when the handle is depressed, the plunger is provided with a piston on its lower end which moves downwardly in the tubular member below a liquid inlet port. The liquid in the tank then enters the casing, and the handle is released so the biasing means cause the handle to move back to its uppermost position to trap liquid in the transparent tubular member. The liquid trapped in the tubular member indicates the level of the liquid in the reservoir when the tubular member and housing is removed from the reservoir.

latches the timer motor while latching a plunger operator for the actuator in its actuating position in both the time operated

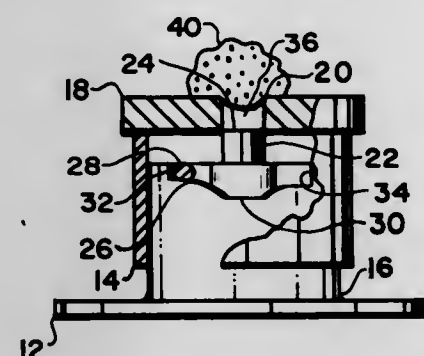


3,738,177
APPARATUS FOR DISPENSING A MEASURED VOLUME OF A DENTAL RESIN REAGENT
Robert C. McShirley, 917 Verdugo Circle Drive, Glendale, Calif.

Filed Apr. 17, 1972, Ser. No. 244,710
Int. Cl. B21j 9/00

U.S. Cl. 73-429

4 Claims



Disclosed is a device for metering measured amounts of dental restorative resin. The device includes a cylinder and a hub arranged so that rotation of the cylinder on the hub moves the members axially a known amount to create an opening in the end surface of the cylinder. After the opening is filled with the resin, the members are rotated back, which causes the hub to push the material from the opening up to the level of the end surface of the cylinder.

3,738,178
CONTROL DEVICE AND PARTS THEREFOR OR THE LIKE

Edgar E. Marquis, Newtown, and Emil Niemand, Waterbury, both of Conn., assignors to Robertshaw Control Company, Richmond, Va.

Division of Ser. No. 801,559, Feb. 24, 1969, Pat. No. 3,612,789. This application July 20, 1971, Ser. No. 164,469
Int. Cl. G05g 21/00

U.S. Cl. 74-3.5

6 Claims

A control device for actuating an actuator for a predetermined period of time by the turning of a control knob to a selected time period and, thereafter, initiating the running of the time period by depressing a push button member, or for providing a continuous actuation of the actuator by setting the control knob in a continuous on manual position thereof, or for providing momentary manual actuation of the actuator by manually depressing the push button member when the control knob is set in its off position, the control device having a latch member which in one position thereof latches the timer motor from operating and in another position thereof un-

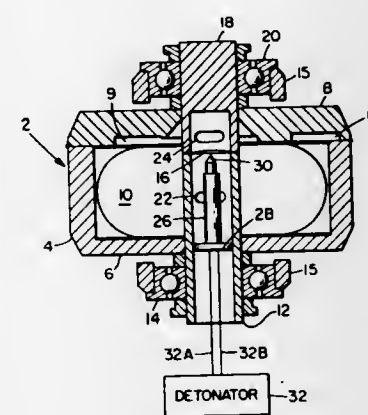
condition of the control device and the continuous on condition thereof.

3,738,179
STORED ENERGY GYRO
John M. Koltz, Saddle River, and Frank J. Scerbo, Emerson, both of N.J., assignors to The Bendix Corporation, Teterboro, N.J.

Filed Sept. 24, 1971, Ser. No. 183,314
Int. Cl. G01c 19/12

U.S. Cl. 74-5.7

3 Claims



A stored energy gyro wherein pressurized air is contained in a chamber surrounded by the gyro rotor. Rotor speed is obtained by rupturing a pressure seal in the chamber, with the escaping gas being directed through vanes in the rotor for providing the necessary spin force.

3,738,180
CONTROL DEVICES
Giuseppe Sola, Turin, Italy, assignor to Fiat Societa per Azioni, Turin, Italy

Filed May 26, 1971, Ser. No. 147,118
Claims priority, application Italy, Sept. 15, 1970, 70096 A/70

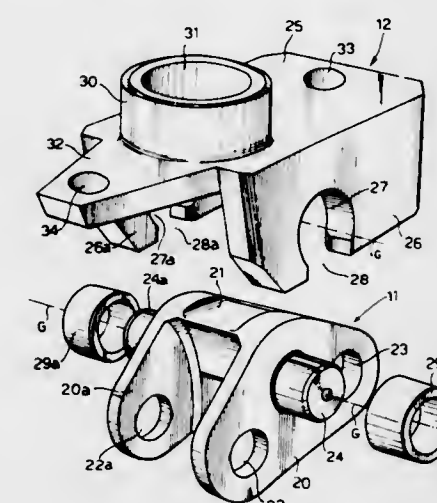
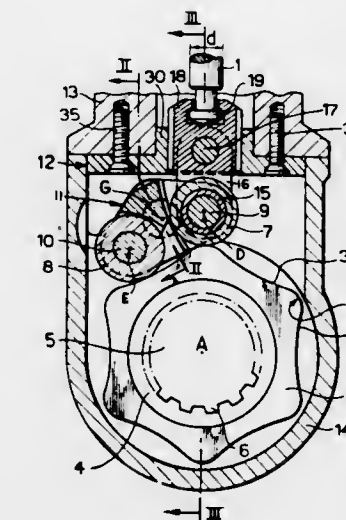
U.S. Cl. 74-53

Int. Cl. F16h 25/05

14 Claims

A control device suitable for the fuel injection pump of an internal combustion engine is shown. The device comprises a rotatable cam having a plurality of symmetrical lobes and a cam follower having two rollers which are both in contact with the cam face. The cam follower is linked to an operating member of an associated pump. The rollers of the cam follower are relatively large to withstand the forces produced at high speed and the pivot for the cam follower is arranged so

that it does not obstruct the space between the two rollers. The cam profile is so shaped that the two rollers are both al-

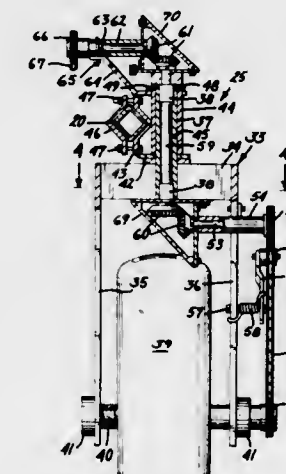


ways in contact with the surface of the cam so that there is no play in their movement.

3,738,181
ROTARY DRIVE MECHANISM
Ebenhard S. Gandrud, P. O. Box 528, Owatonna, Minn.
Filed Mar. 10, 1971, Ser. No. 122,781
Int. Cl. F16h 37/00; A01c 15/00

U.S. Cl. 74-13

10 Claims



A caster including a caster frame journaled in a mobile structure on a generally vertical axis, and a ground engaging wheel journaled in the caster frame. Transmission mechanism includes a rotary shaft disposed on the axis of turning movement of the caster frame, and driving connections between the caster wheel and the rotary shaft to rotate the shaft responsive to rotary travel of the caster wheel over the ground.

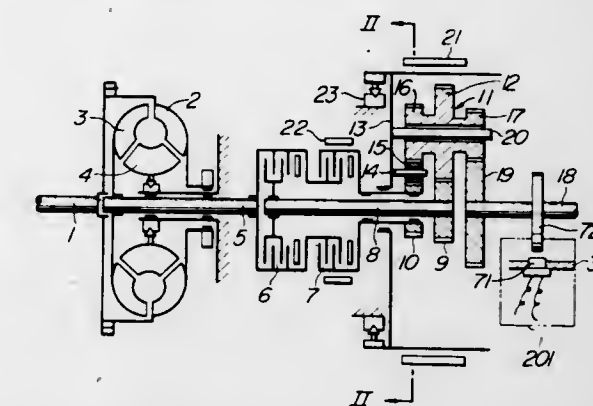
3,738,182
CONTROL SYSTEM FOR AN AUTOMATIC TRANSMISSION

Seitoku Kubo; Mashanao Hashimoto; Teruo Akashi, and Chihiro Hayashi, all of Toyota, Japan, assignors to Toyota Jidasha Kogyo Kabushiki Kaisha, Toyota-shi, Japan
Filed July 19, 1971, Ser. No. 163,838

Claims priority, application Japan, Nov. 21, 1970, 45/103094

Int. Cl. B60k 21/00; F16h 3/74
U.S. Cl. 74-866

5 Claims



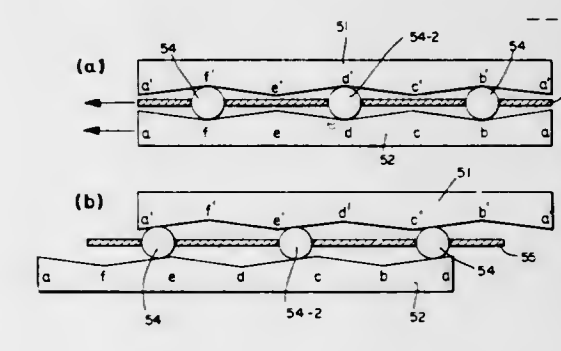
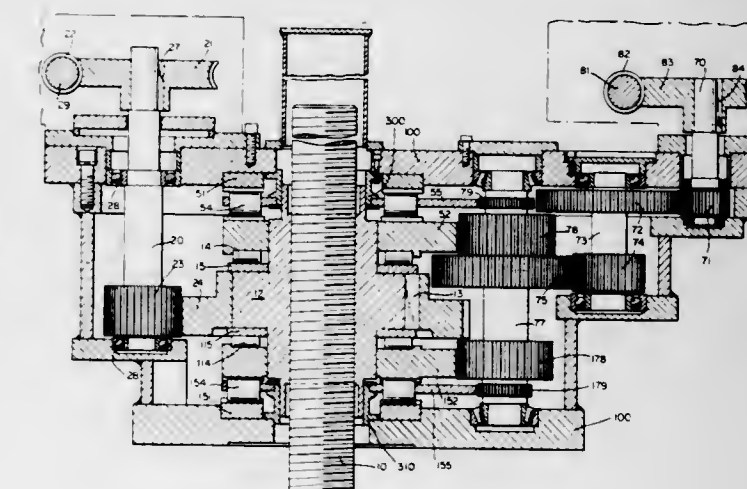
In a vehicle automatic transmission wherein shift points are set through electrical controls, a control system for relieving a shock which occurs when the transmission shift lever is shifted from the neutral N position to the reverse R position or from the parking P position to the R position.

3,738,183
COMBINATION DRIVE FOR VALVE OPERATOR
Russell C. Ball, Jr., Malvern; Walter J. Denkowski, King of Prussia, and Kenneth Wadsworth, Royersford, all of Pa., assignors to Philadelphia Gear Corporation, King of Prussia, Pa.

Filed Feb. 1, 1971, Ser. No. 111,451
Int. Cl. F16h 27/02

U.S. Cl. 74-89.15

7 Claims



A valve operator for closing a globe valve against heavy back pressure has two different types of drives. The two drives

are used in succession. A first type of drive is used for moving the valve stem lengthwise to move the globe valve between open position and an almost-closed position. A second type of drive is used to move the valve between the almost-closed and fully closed positions. The first type of drive includes a rotatable nut threaded on the valve stem, and drive means for rotating the nut. The second type of drive involves a roll-ramp assembly which, when driven rotationally, exerts an axial thrust against the nut and moves the nut without rotation thereof in the axial direction of the valve stem, moving the stem with it. The roll-ramp assembly includes a cam sector driven angularly through a part of a revolution to force a set of rollers up inclined ramps to increase the axial spacing between the rotatable cam sector and a fixed cam plate. While a typical use for the valve operator is for globe valves, the operator is equally applicable to gate valves, sluice valves, or other types of applications requiring linear movement and forces of great magnitude.

3,738,184

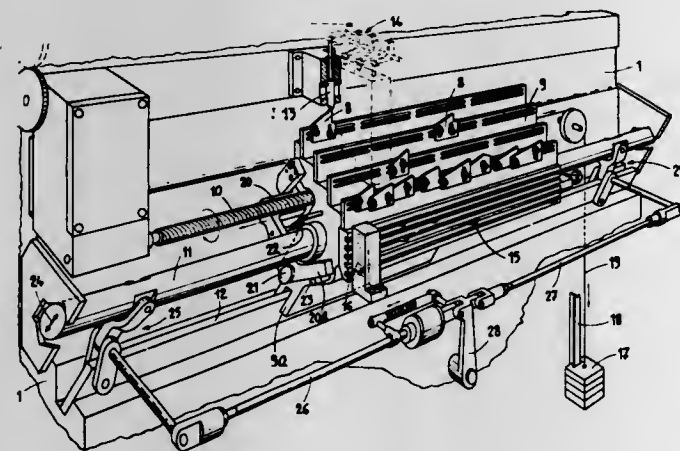
DEVICE FOR CONTROLLING THE STROKE AND THE TRAVELLING SPEED OF AT LEAST ONE OF THE MOVING PARTS OF A MACHINE-TOOL

Maurice Matthey, Versoix, Geneva, and Heinrich Imgrund, Carouge, Geneva, both of Switzerland, assignors to Manutec S.A., Fribourg, Switzerland

Filed Nov. 26, 1971, Ser. No. 202,151
Int. Cl. F16h 21/44

U.S. Cl. 74—110

6 Claims



A device for controlling the travel and travelling speed of one of the moving components of a machine-tool. It envisions a displaceable shuttle driven in synchronization with the rotation of the machine spindle and movable longitudinally relative to the machine, and an element having an operating inclined cam face and being adjustably mounted longitudinally and angularly of the shuttle for movement according to shuttle movement, and a finger operatively connected to the moving component of the machine-tool for the driving thereof and being actuated upon contact with the inclined cam face of the element, with the speed of displacement of the finger determining the travelling speed of the moving component and the stroke of the finger determining the stroke of the moving component and with the start of the travel of the moving component and the speed and stroke thereof being determined by the position of the said element and the slope of its cam face and the height of its cam face respectively.

3,738,185

SEQUENTIAL TIMER

Lee A. Wooley, Kokomo, Ind., assignor to The Scott & Fetzer Company, Kokomo, Ind.

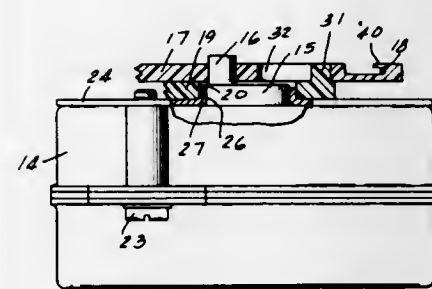
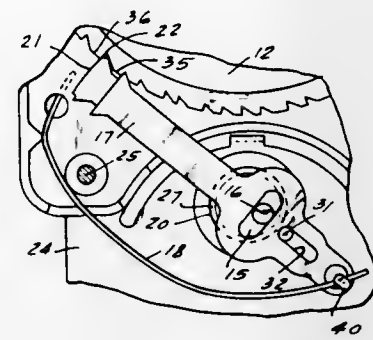
Filed Apr. 26, 1971, Ser. No. 137,138
Int. Cl. F16h 29/00

U.S. Cl. 74—116

14 Claims

A timer includes a disc-type of cam having circular tracks thereon for coaction with switches, all carried by a housing. A

motor is mounted on the housing and has an eccentric that acts through a drive pawl on a series of peripheral teeth on the cam. A stop pawl is included which is pivotally mounted for movement about the rotational axis of the eccentric. The eccentric can rotate in either direction to produce incremental



movements of the timing cam in one direction, and the pawls can be reversely mounted for use with an appropriate timing cam to produce timing cam movements in the opposite direction. The motor and eccentric can be removed without disturbing the assembled relation of the remainder of the device, such as for factory testing.

3,738,186

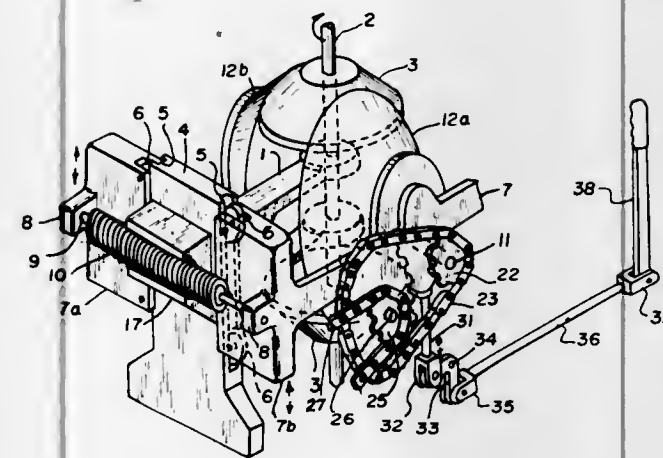
VEHICLE DRIVE ASSEMBLY

Samuel H. Deese, Bel Vernon, Pa., assignor to American Consolidated Industries, Inc., Brownsville, Pa.

Filed May 6, 1971, Ser. No. 140,875
Int. Cl. F16h 15/16

U.S. Cl. 74—191

4 Claims



This invention relates to a vehicle power transmission and differential unit having two pairs of cone drives in right angular relationship. One pair is stationarily mounted on a vertical axis and the other pair is resiliently mounted and movable along vertical tracks so as to selectively move each of the horizontally disposed cones in driving contact with either of the stationarily mounted cones so as to cause the vehicle to selectively move forwardly, rearwardly, to the right, to the left or to neutral.

3,738,187

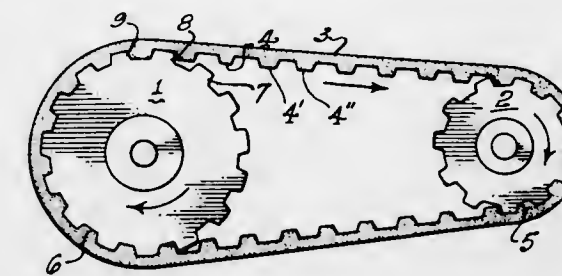
HUNTING-TOOTH TIMING BOLT

Charles A. Hisserich, 447 Cabrillo St., Costa Mesa, Calif.

Filed Oct. 14, 1971, Ser. No. 189,189
Int. Cl. F16g 1/28

U.S. Cl. 74—231 C

5 Claims



A toothed belt or timing belt in a mechanical drive system, which has a number of teeth incommensurable with the numbers of teeth on the pulleys, and preferably a prime number. With this relationship, every tooth on the belt will, during operation, engage every tooth on a pulley in a progressive repeating series, thus equalizing wear and minimizing damage to the belt from repetitive engagement with any deformed or defective pulley tooth, e.g., one having a burr. The invention is useful in drive systems which necessarily have a simple ratio, such as the 2:1 ratio between the crankshaft and camshaft of an internal combustion engine.

3,738,188

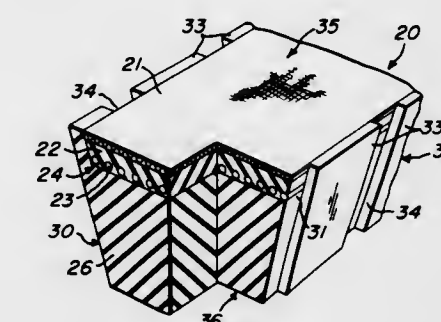
POWER TRANSMISSION BELT AND METHOD OF MAKING SAME

Robert L. Ray, Springfield, Mo., assignor to Dayco Corporation, Dayton, Ohio

Filed Mar. 1, 1971, Ser. No. 119,643
Int. Cl. F16g 5/00, 1/22; B29h 7/22

U.S. Cl. 74—234

18 Claims



An endless power transmission belt and method of making same is provided wherein the belt has a load-carrying section and a pair of opposed sides arranged adjacent opposite ends of the load-carrying section with each of the sides having raised surface portions which are adapted to engage the walls of an associated sheave to control the traction properties of the belt operating in such sheave. The belt may also be provided with raised surface portions or a tooth-like configuration on the top and/or bottom thereof to provide increased belt flexibility.

3,738,189

TENSION RELEASING DEVICE

Kun-Chao C. Chen, Plymouth, Mich., assignor to Burroughs Corporation, Detroit, Mich.

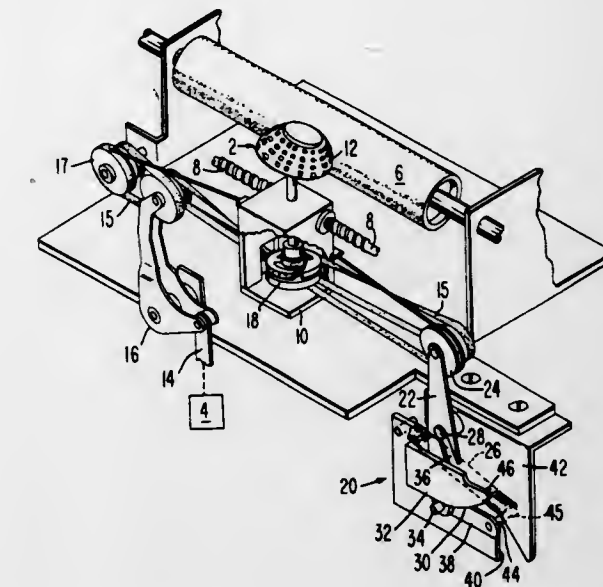
Filed June 15, 1971, Ser. No. 153,173
Int. Cl. F16h 7/12

U.S. Cl. 74—242.15 R

8 Claims

A device for releasing tension in a flexible tape or the like having a movable tape-engaging member that is guided in its displacement by a first camming surface. Excessive tension exerted in the tape causes the tape-engaging member to displace

in opposition to a biasing means along said first camming surface, the camming surface guiding the tape-engaging member



pivotal and translationally to describe a desired path of tape-slackening displacement.

3,738,190

DEVICES FOR ROTATING A BODY

Georges Henriot, Houilles, France, assignor to Engrenages et Reducteurs (Engrenages Citroen et Etablissements Robert Messiaen reunits), Villacoublay, France

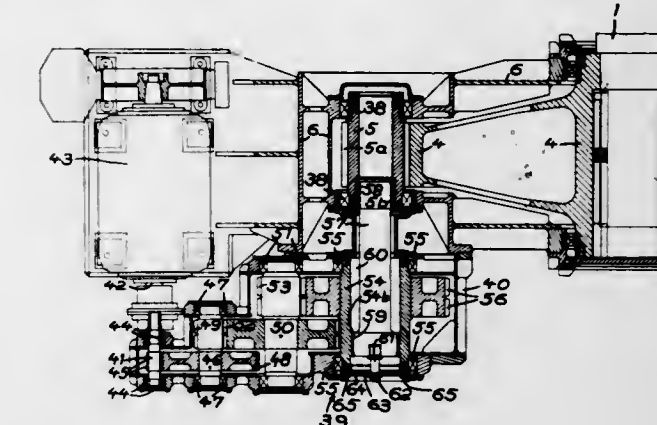
Filed Mar. 9, 1971, Ser. No. 122,323

Claims priority, application France, Mar. 11, 1970, 7008740

Int. Cl. F16h 57/00

U.S. Cl. 74—411

4 Claims



This invention relates to a device for rotating a body, constituted of a geared wheel unitary with said body, at least one pinion capable of cooperating with the geared wheel and by at least one reducer unit comprising a drive motor, whilst a coupling connects the pinion to the reducer, wherein this coupling is constituted by a member that is distinct from the reducer and dismountable separately from said reducer.

3,738,191

FRICTION BRAKE FOR A HYDRAULIC DRAFT CONTROL LEVER

Donald K. Fadden, Clarendon Hills, and Harold J. De Groot, Downers Grove, both of Ill., assignors to International Harvester Company, Chicago, Ill.

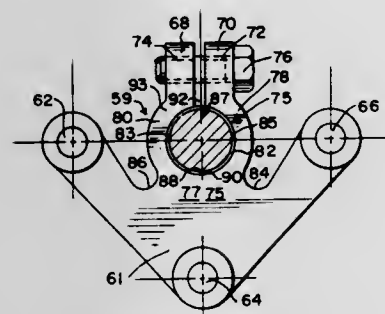
Filed Sept. 13, 1971, Ser. No. 179,886
Int. Cl. G05g 5/06

U.S. Cl. 74—531

4 Claims

A friction brake having a base member fashioned to provide a weakened portion which comprises, an annular split ring

having a closing means and a cold flowing plastic sleeve. In a relaxed position, the inner diameter of the annular split ring defines a circle, further when torqued tight around a control



lever, a second circle is defined, due to the bend characteristics of the weakened portion. Thus, compression forces are distributed equally over the surface of the control shaft prolonging the useful life of the sleeve.

3,738,192

LIMITED SLIP DIFFERENTIAL MECHANISMS

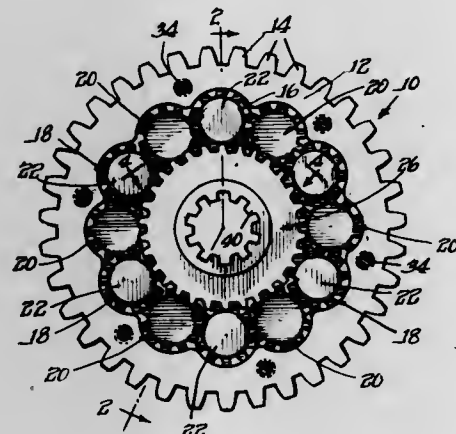
Rudolph J. Belansky, Chicago, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed June 29, 1971, Ser. No. 157,820

Int. Cl. F16h 1/44, 1/42

U.S. Cl. 74-711

9 Claims



A limited slip differential having sun and pinion gears of the spur gear type with the pinion gears having various forms of hub means wherein the hub means cooperate with the pinion gears, the sun gears and the housing to properly position all of the elements to provide effective differential action and to produce sufficient friction or reactive forces between the elements to provide limited slip action.

3,738,193

WORKING OIL PRESSURE CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION WITH TORQUE CONVERTERS

Masaharu Sumiyoshi, Toyota; Shigeru Sakakibara, Chita-gun, Aichi-ken, and Osamu Ito, Toyota, all of Japan, assignors to Nippondenso Co., Ltd., Kariya-shi, Aichi-ken and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

Continuation-in-part of Ser. No. 876,784, Nov. 14, 1969, abandoned. This application Feb. 4, 1972, Ser. No. 223,476

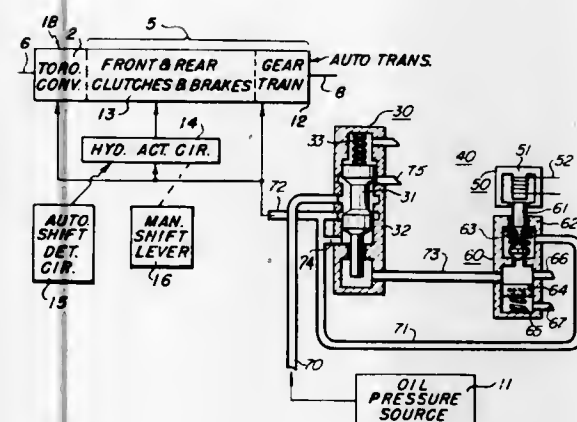
Int. Cl. F16h 47/00, 3/74; B60k 21/00

U.S. Cl. 74-731

11 Claims

A working oil pressure control system to reduce shift shock in automatic transmissions with torque converters wherein, by virtue of the fact that the torque transmitted corresponds to the slip ratio between the torque converter pump and the torque converter turbine, the working or operating oil pres-

sure applied to the friction engaging or clutch and brake means of a gear transmission is controlled so as to decrease



3,738,194

IMPROVED SPEED REDUCING TRANSMISSION

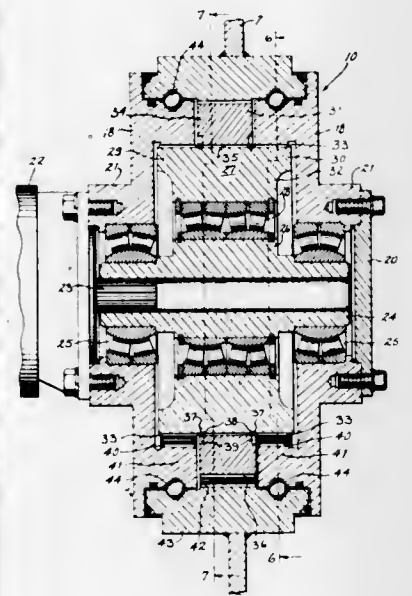
Ervin W. Lorence, Cedarburg, Wis., assignor to Lorence Manufacturing Corp., Milwaukee, Wis.

Filed Feb. 11, 1971, Ser. No. 114,558

Int. Cl. F16h 1/28; B62d 55/12

U.S. Cl. 74-805

5 Claims



An improved speed reducing transmission having particular use in driving the endless treads of heavy construction equipment. One end of the tread frame is provided with a recess or slot and the transmission is removably secured within the slot. The transmission includes a pair of fixed end plates secured to the tread frame and a motor is mounted on one of the end plates. The motor drive shaft drives an eccentric which is mounted for rotation within an opening in a floating gear unit located between the end plates. The gear unit is composed of a central large diameter gear and a pair of small diameter gears located on each side of the large diameter gear. Each of the small diameter gears is adapted to engage a fixed gear ring, while the larger central gear is adapted to engage a rotatable output member that is connected to the drive sprocket for the tread. Rotation of the eccentric acts to drive the smaller gears in the opposite direction and at a slower rate of speed to provide a first stage speed reduction and results in the output member being driven by the larger gear at a further reduced speed to provide a second stage speed reduction.

3,738,195

INDEXING APPARATUS

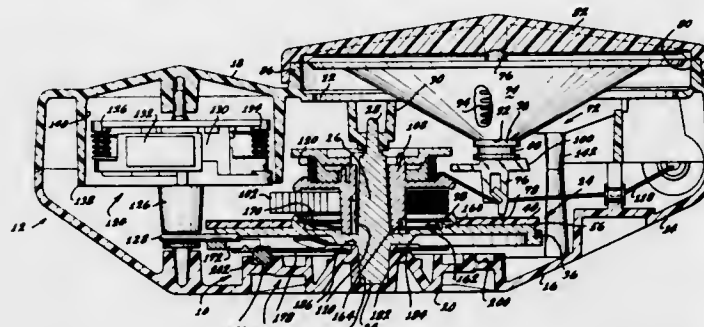
Howard R. Stern, Anaheim; James E. Marshall, Santa Ana, and Thomas E. Sloane, Jr., Rolling Hills Estates, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Oct. 5, 1971, Ser. No. 186,623

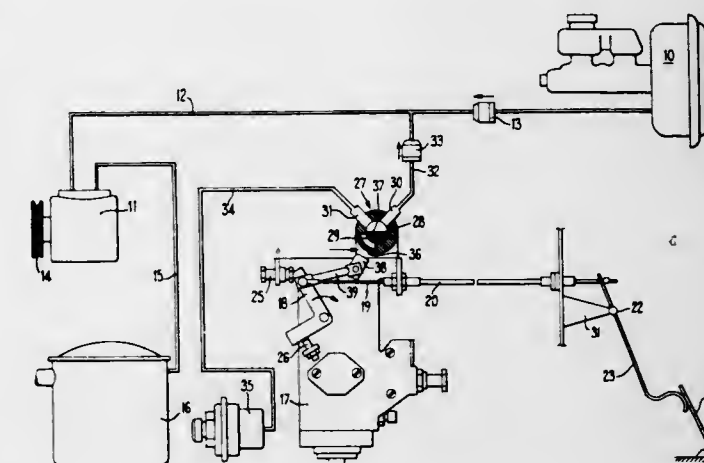
Int. Cl. B23q 17/18; F16d 41/32

U.S. Cl. 74-819

8 Claims



An indexing mechanism for playing a plurality of messages on a phonograph record sequentially by stopping the record at predetermined reversely rotated positions following playing of each message. A first stop on the record engages a third stop on a carrier frictionally coupled to the record for movement thereby during reverse rotation until a second stop interrupts movement of the carrier with the record coincident to movement of the third stop into the path of travel of the first stop. The carrier again moves with the record during forward movement thereof to move the third stop out of the path of travel of the first stop when the next message is played.



control indicative of engine speed, to proportion the vacuum output from the vacuum generator so as thereby to produce a degree of vacuum which decreases with increasing engine speed.

The vacuum generator may simultaneously serve as the power source for a vacuum brake booster of the vehicle.

3,738,198

SHIFT INHIBITORS FOR POWER TRANSMISSION

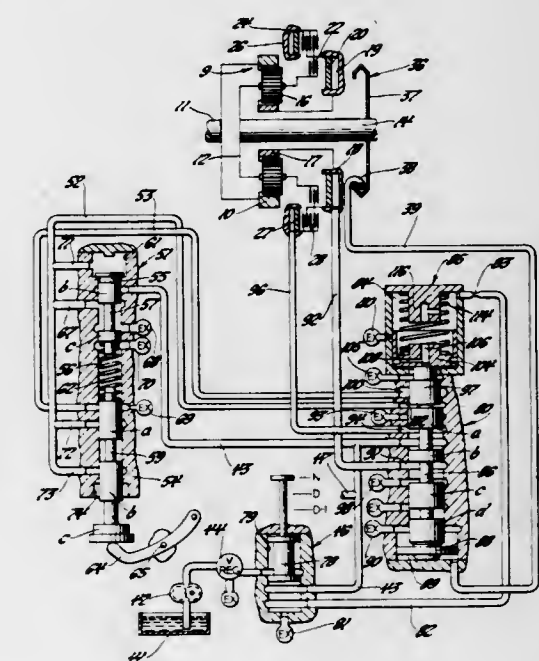
Nathaniel B. Kell, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 19, 1971, Ser. No. 173,087

Int. Cl. B60k 21/00; F16h 3/74

U.S. Cl. 74-868

5 Claims



3,738,196

CONTROL SYSTEM FOR AN AUTOMATIC TRANSMISSION

Seitoku Kubo; Mashanao Hashimoto, and Chihiro Hayashi, all of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

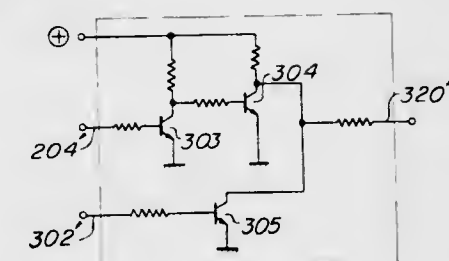
Filed July 30, 1971, Ser. No. 167,593

Claims priority, application Japan, Nov. 21, 1970, 45/103095

Int. Cl. B60k 21/00; F16h 3/74

U.S. Cl. 74-866

1 Claim



In a vehicle automatic transmission of the type which performs the setting of shift points through electrical controls, a control system designed such that the transmission starts in the third speed under low engine load conditions, while the transmission starts in the first speed under high engine load conditions.

3,738,197

TRANSMISSION MODULATOR VALVE CONTROL

Karl Brumm, Russelsheim-Königstadt; Jakob Moos, Oestrich; Rainer-Jörg Weber, Russelsheim; Helmut Drott, Wallerstadt, and Bernd Stelzig, Russelsheim, all of Germany, assignors to General Motors Corporation, Detroit, Mich.

Filed Jan. 24, 1972, Ser. No. 220,291

Claims priority, application Germany, Mar. 17, 1971, P 21 12 804.1

Int. Cl. B60k 21/02; F16k 11/02, 31/50

U.S. Cl. 74-865

7 Claims

A vacuum-control modulator arrangement for an automatic transmission of a motor vehicle, primarily for use in conjunc-

A change-speed planetary transmission for a vehicle with controls including a shift valve having a shift inhibiting control unit operatively connected thereto. The control unit provides for the selective establishment of a predetermined pressure in a control chamber by employing calibrated feed and exhaust orifices which provides a force to move the shift valve element to a downshift position when the opposing force of governor pressure is sufficiently reduced. When the valve downshifts there is an increase in pressure in the control chamber by the closing of the exhaust orifice to inhibit an upshift regardless of subsequent increased governor pressure.

3,738,199 SHIFT CONTROL SYSTEM FOR AUTOMATIC TRANSMISSIONS

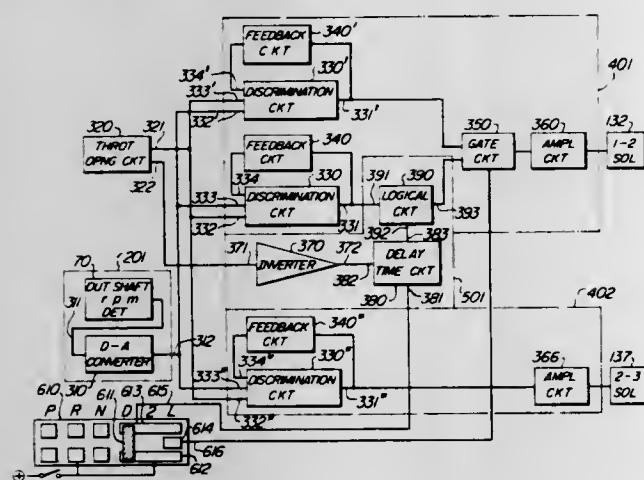
Seitoku Kubo; Takakazu Mori; Teruo Akashi, and Chihiro Hayashi, all of Toyota, Japan, assignors to Toyota Jidsha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

Filed May 26, 1971, Ser. No. 147,054

Claims priority, application Japan, May 29, 1970, 45/46519
Int. Cl. B60k 21/00

U.S. Cl. 74—869

9 Claims



In an automatic transmission including a speed change gear and friction engagement means with hydraulic servo units for accomplishing gear shifting engagements of the speed change gear, a shift control system for automatic transmission comprising shift valves for changing the oil passages to supply or exhaust oil pressures to the hydraulic servo units, shift point computing circuits for generating shift signals to control the oil passage changing operations of the shift valves, and means for controlling the shift signals produced by the shift point computing circuit in terms of time.

3,738,200 GRINDING APPARATUS AND METHOD

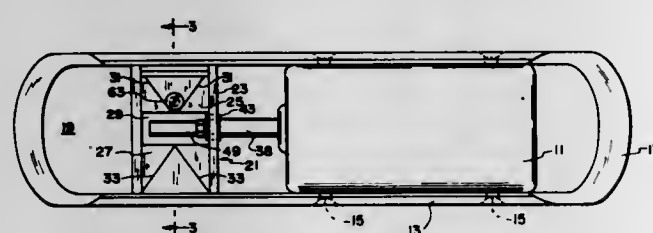
Elof Granberg, 201 Nevin Avenue, San Rafael, Calif.

Filed June 25, 1971, Ser. No. 156,859

Int. Cl. B23d 63/16

U.S. Cl. 76—25 A

4 Claims



A grinder for sharpening a saw chain which includes a motor capable of being held in one hand for rotating a grinding element. A frame portion attached to the motor and extending therefrom to a position adjacent the grinding element and including a saw chain alignment means for aligning the angle of the saw chain with respect to the grinding element, to sharpen a saw chain tooth at the proper angle.

3,738,201 METHOD AND APPARATUS FOR SHARPENING SAW BLADES

Rudolph L. Allison, Rockford, Ill., assignor to Paramount Textile Machinery Co., Chicago, Ill.

Filed Sept. 24, 1971, Ser. No. 186,520

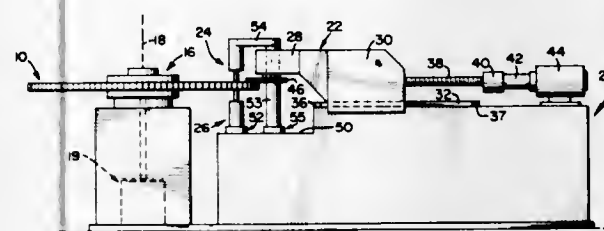
Int. Cl. B23d 63/00, 63/12; B24b 19/00

U.S. Cl. 76—112 R

5 Claims

Method and apparatus for orienting saw blades cutting teeth wherein all correspondingly oriented lateral cutting surfaces

of teeth that are abraded and/or brazed are congruently oriented with respect to any plane perpendicular to the axis of rotation of the blade body, essentially independently of any waviness in the blade body. Laterally floating clamps on op-



posite sides of the blade body operate to sense the location of that body and releasably clamp the body essentially without disturbing waviness. Abrading is carried out at essentially the same relative orientation during each successive abrading operating, while the blade is gripped.

3,738,202 LOCKED SOCKET WRENCH

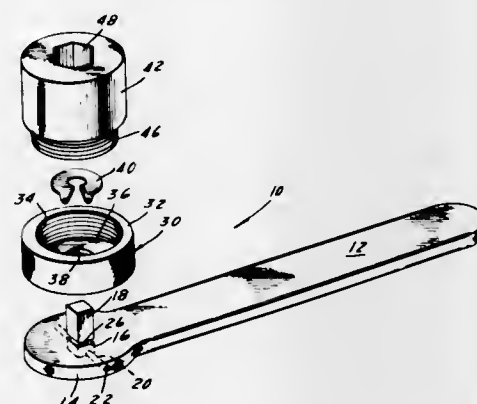
Robert J. Nielsen, 1412 Hillside Drive, Glendale, Calif.

Filed July 12, 1971, Ser. No. 161,727

Int. Cl. B25b 13/06

U.S. Cl. 81—121 B

4 Claims



There is disclosed a hand tool apparatus comprising a locking nut having a radial circular wall in which the inner face thereof is threaded, the nut being open at one end and closed at the opposite end by a wall having a central opening therein which receives a square shaft that is fixedly pinned to a wrench handle. The nut is rotatably secured about the shaft by means of a retainer ring that is received in an annular groove about the lower end of the shaft. Various sized socket fittings having external threads at their lower ends are threadably attached within the locking nut and are held from rotation by the shaft which is received within a central bore of the socket.

3,738,203 OPEN-ENDED WRENCH WITH ADJUSTABLE SOCKETS

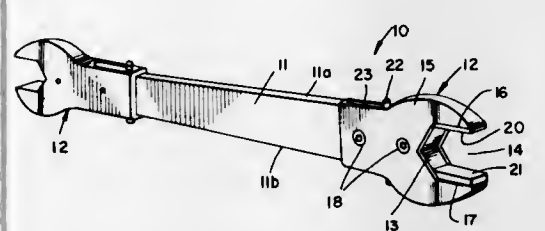
Marvin L. Cudd, 5523 Capitol St., N.E., Roanoke, Va.

Filed July 6, 1971, Ser. No. 159,702

Int. Cl. B25b 13/58

U.S. Cl. 81—185

7 Claims



An elongated wrench body is provided in its end with a V-shaped notch which defines two adjacent sides of a four-sided

open socket. A removable head is positioned on the body and projects therefrom to define two parallel opposing sides of the socket. A pair of strip-like spacers are slidably interposed between the head and the opposite side edges of the body and are projectable so that they are juxtaposed to the opposing sides of the socket for adjusting the effective span of the latter. The spacers are contained in recesses formed in the body and may be removed from the recesses upon removal of the head.

3,738,204 METHOD AND MEANS FOR MONITORING LENS MACHINING

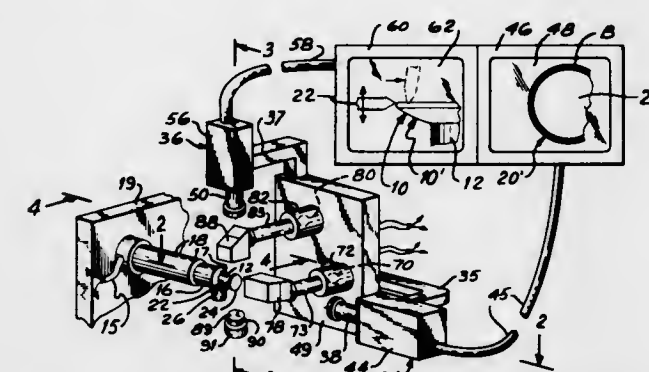
Robert G. Spriggs, East Northport, N.Y., assignor to automated Optics Inc., Northport, N.Y.

Filed Sept. 7, 1971, Ser. No. 177,955

Int. Cl. B23b 3/00, 3.28, 7/00

U.S. Cl. 82—1 C

10 Claims



A first light beam is transmitted via a beam splitting prism axially through the lens to a light reflective support behind the lens while the lens is being machined. The reflected beam is retransmitted axially through the lens and prism to a television camera connected to a television receiver having a display screen on which appears an image of the face of the lens being machined. A second light beam is transmitted via another beam splitting prism laterally through the lens to a light reflective surface positioned laterally behind the lens. The reflected beam from the reflective surface is retransmitted laterally through the lens and other prism to another television camera connected to another television receiver having a display screen on which appears an image of the side of the lens being machined. A band is developed on the projected image formed from the axially projected beam thereby displaying tool contact on the lens by reducing transparency of the lens theret.

3,738,205 SELF-CENTERING TURNABLE FOR MACHINING LARGE CIRCULAR OBJECTS

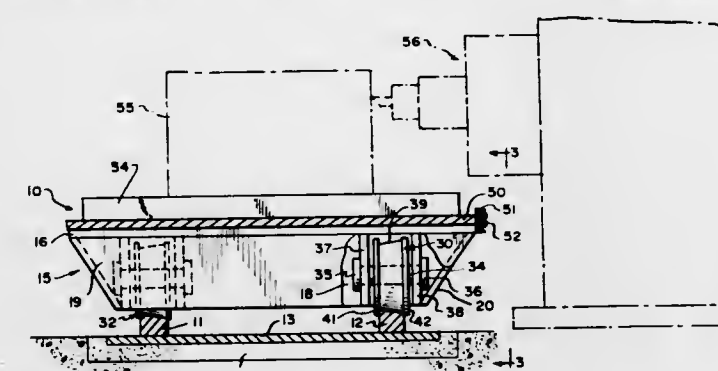
Arthur Winslow Harris, Germantown, and Robert Louis Adkins, Memphis, both of Tenn., assignors to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed May 18, 1971, Ser. No. 144,484

Int. Cl. B23b 3/22, 3/00

U.S. Cl. 82—4 R

10 Claims



A large diameter self-centering turntable for field machining having an approximately circular horizontal track, a plu-

rality of wheels riding on and spaced about the track, each wheel being mounted on an axle horizontal to the track and radial to the circle described by the track, with each wheel being axially displaceable on its axle for a predetermined distance to accommodate out of roundness of the circular track, a bearing support holding bearing means for each axle, a circular ring, means mounting the circular ring horizontally on the bearing supports, and a drive for rotating the circular ring around the track on the wheels.

3,738,206 QUICK RELEASE TOOL POST

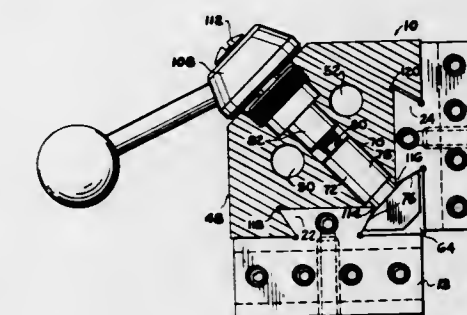
Hubert J. Parsons, Horseheads, N.Y., assignor to Hardinge Brothers, Inc., Elmira, N.Y.

Filed Mar. 22, 1971, Ser. No. 126,578

Int. Cl. B23b 29/26

U.S. Cl. 82—37

18 Claims



A quick release tool post for machine tools including a body having a pair of adjacent side faces, a recess formed in each of said adjacent faces for selectively receiving a tool holder, a clamp member at the intersection of the two adjacent faces and cooperating with the recesses for clamping a tool holder in at least one of the recesses, the clamp including a portion having a longitudinal axis substantially bisecting the angle formed by the two adjacent faces and passing through the body of the tool post, a handle associated with the clamp for imparting reciprocatory motion to the clamp along the longitudinal axis thereof, the handle being positioned for rotation about the longitudinal axis and constrained against reciprocation along the longitudinal axis. Also, a dust cover for the recesses of the tool post is disclosed.

3,738,207 TEMPLATE CONTROLLED TOOL FEED FOR MACHINE TOOLS

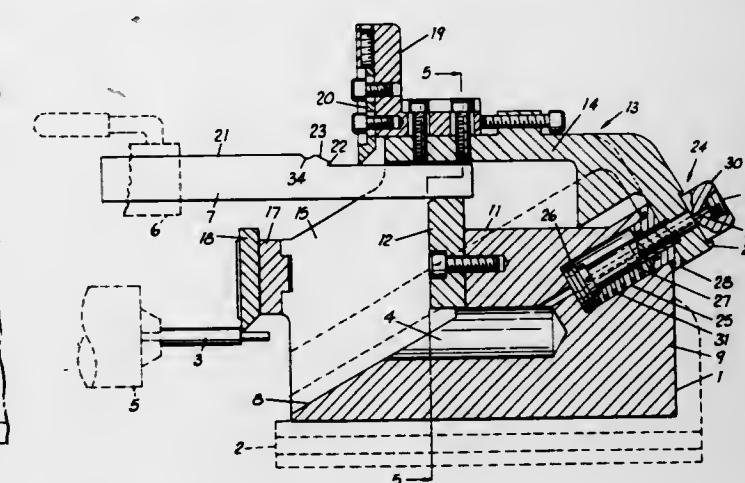
Winfred E. Yable, Albuquerque, N. Mex., assignor to Continental Machining Co. Inc., Albuquerque, N. Mex.

Filed Nov. 15, 1971, Ser. No. 198,846

Int. Cl. B23b 3/28

U.S. Cl. 82—14 R

9 Claims



A driven work holder rotates the work about an axis with a fixed template in spaced parallel relation to the axis and with

an edge contoured transversely to the axis to the desired shape of the finished work. A tool feed base mounted to advance parallel to the axis of the work has spaced slideways on opposite sides of the axis inclined outwardly away from the work. A yoke shaped tool holding member is slidable on the inclined ways and carries a cutting tool bridged across its front end. A template support on the tool feed base engages a straight lower edge on the template, while a follower on the tool holding member engages the opposite contoured edge of the template. A yieldable connection between the feed base and the tool holding member holds the two parts in fixed relation with a uniform tool feeding pressure until engagement of the follower with a non-linear contour on the template causes the holding member to slide up along the inclined ways, and move the tool transversely away from the work axis to a new working radius.

3,738,208

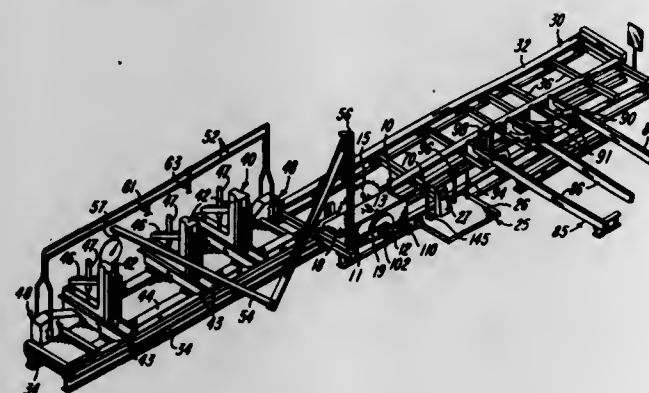
SAWMILL APPARATUS HAVING AN IMPROVED LOG CARRIAGE FEED CONTROL

James R. Hartzell, Troy, Ohio, assignor to Hartzell Industries, Inc., Piqua, Ohio

Filed Mar. 16, 1972, Ser. No. 235,160
Int. Cl. B27b 7/00

U.S. Cl. 83-76

11 Claims



A log transport carriage is supported for linear movement past a motor driven circular saw and is operated by a variable speed hydraulic motor remotely controlled by a valve actuated by a manually operated control lever. The speed of the saw is sensed by a hydraulic pump and governor unit which operates a fluid cylinder positioned adjacent the control lever for automatically and adjustably limiting the maximum speed of the carriage during the cutting of a log so that the saw rotates at a substantially constant speed for producing a precisely uniform flat surface on the log.

3,738,209

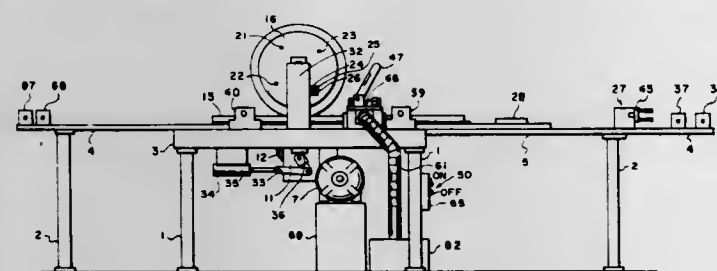
DEVICE FOR PUNCHING HOLES IN METAL TUBES

Raleigh F. Davis, 2116 S. Vernon, Dallas, Tex.

Filed Oct. 4, 1971, Ser. No. 186,293
Int. Cl. B26d 7/06

U.S. Cl. 83-98

40 Claims



In a device for cutting holes or slots in metal tubes to produce bracket or shelf standards a wheel is included having removable blades adjustably fixed along its circumference and protruding therefrom to present a multitude of cutting sur-

faces. Tube tray means are provided for carrying the metal tubes. Special flexible arbors pivotally fixed at one end to the tube tray are provided for insertion in the tubes for receiving the slugs or cut out portions. Means are provided for raising and lowering the wheel and means are provided for moving the tube tray along a slide track to rotate the lowered wheel and effect the cutting of holes along the metal tube. Indexing means on the wheel facilitate commencement of correct cutting at any selected point along the metal tube.

3,738,210

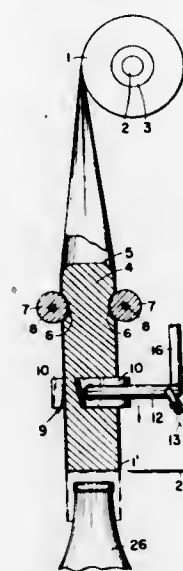
METHOD OF DILATING A FLATTENED TUBE TO A DESIRED CROSS-SECTION AND DELIVERING A PRE-DETERMINED LENGTH OF DILATED TUBE

Masaki Fujio, 3-15-8 Aoyamada, Suita, Japan

Filed Mar. 23, 1971, Ser. No. 127,119
Int. Cl. B26d 7/14

U.S. Cl. 83-175

4 Claims



The leading end of a film tube folded flat in the form of a roll is fitted over a guide element arranged to be movable in the axial direction thereby to cylindrically expand or distend the end portion, and then the external surface of this end portion is encircled by an annular hoop-like suction applying means arranged to be axially reciprocable at a constant stroke and so designed that it produces a suction force when it moves forward and that such force is eliminated when it moves back, thereby allowing the expanded tube end to project forwardly of the guide element portionwise at a constant rate.

3,738,211

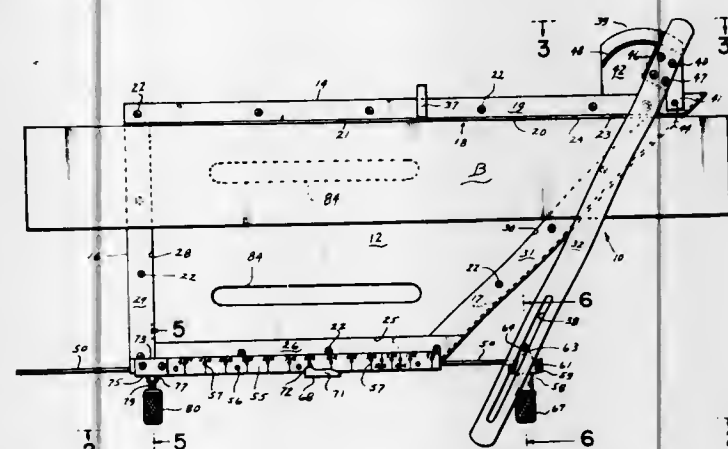
ADJUSTABLE SAW GUIDE

Arthur D. Carter, Sr., 207 Castle Ridge, Austin, Tex.

Filed Oct. 4, 1971, Ser. No. 186,099
Int. Cl. B27b

U.S. Cl. 83-522

5 Claims



An adjustable saw guide comprising a movable arm selectively secured at a predetermined angle for guiding a hand

operated power saw, means for elevating said arm to accommodate a board of any desired thickness, means for securing said arm away from the working area when not in use, and means for positioning said arm preparatory to securing the same.

3,738,212

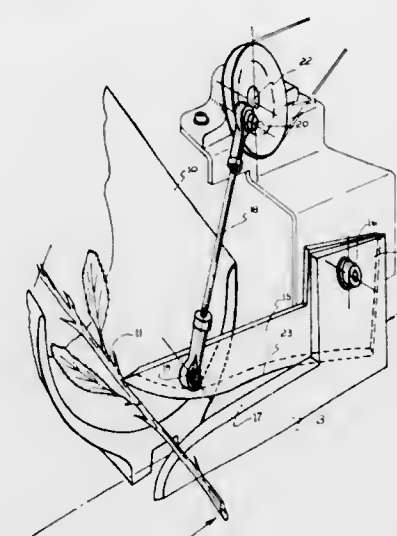
APPARATUS FOR TRIMMING THE STEMS OF CUT FLOWERS

Richard J. Goodale, P.O. Box 268, Watsonville, Calif.

Filed May 14, 1971, Ser. No. 143,495
Int. Cl. B26d 5/14

U.S. Cl. 83-602

4 Claims



An apparatus for trimming the stems of cut flowers as the cut flowers are conveyed into and past a cutting device. The cutting device is in the form of a shear employing a pair of sharp blades, one of which is movable and is supported by a pivot. The pivot is located well above the line of travel of the flower stems passing through the cutting device and the sharp edge of the movable blade is shaped so that the flower stem being cut by the cutting device is drawn into the device by the cutting action thereof simultaneously as the flower stem is conveyed through the cutting device.

3,738,213

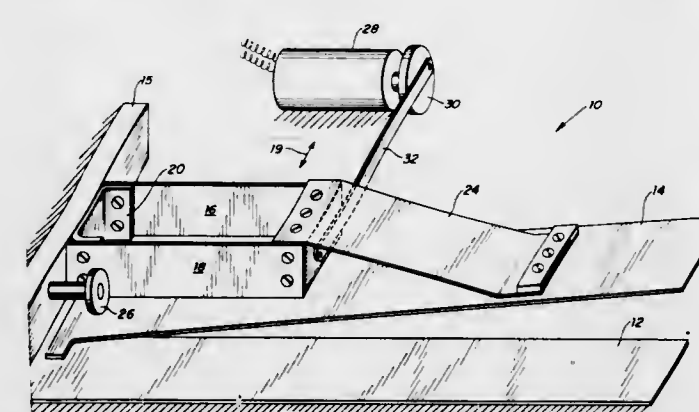
CUTTING MECHANISM

Henry N. Fairbanks, Rochester, N.Y., assignor to Itek Corporation, Lexington, Mass.

Filed Sept. 23, 1971, Ser. No. 182,992
Int. Cl. B26d 5/16

U.S. Cl. 83-589

9 Claims



A cutting mechanism for cutting photographic sheet material from a roll in photographic reproduction equipment. The cutting mechanism consists of a first fixed blade and a second movable blade. The second movable blade is supported for a lateral cutting movement relative to the first fixed blade by a pair of parallel strip springs which are mounted in a cantilever

3,738,214

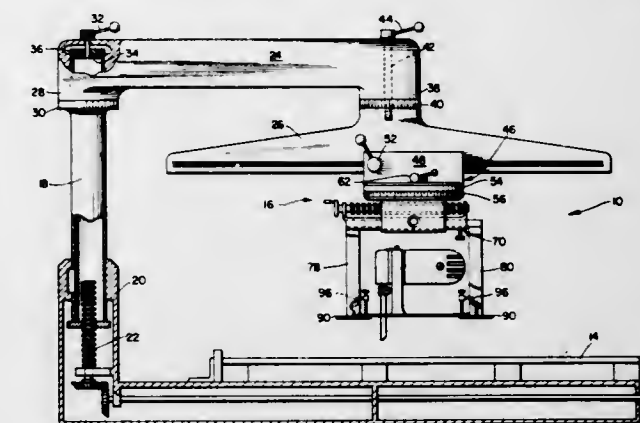
RADIAL ARM SAW

Neill R. Wilson, Box 538, Berryville, Va.

Filed May 18, 1970, Ser. No. 38,034
Int. Cl. B27b 5/20, 27/06

U.S. Cl. 83-761

19 Claims



A radial arm saw capable of use with various type portable saws such as saber saws, routers, circular saws, etc. for providing linear cuts and circular cuts of varying diameter. The radial arm saw includes a support column, a transverse arm rotatably mounted at one end on the upper column and rotatably supporting at its other end a trackway on which a carriage assembly has relatively rotatable upper and lower portions, the latter of which supports a tool holding frame adjustable in size to accommodate various type tools and provide circular cuts of varying diameters. In addition, the tool frame is linearly adjustable to the carriage assembly to provide a straight cut as desired.

3,738,215

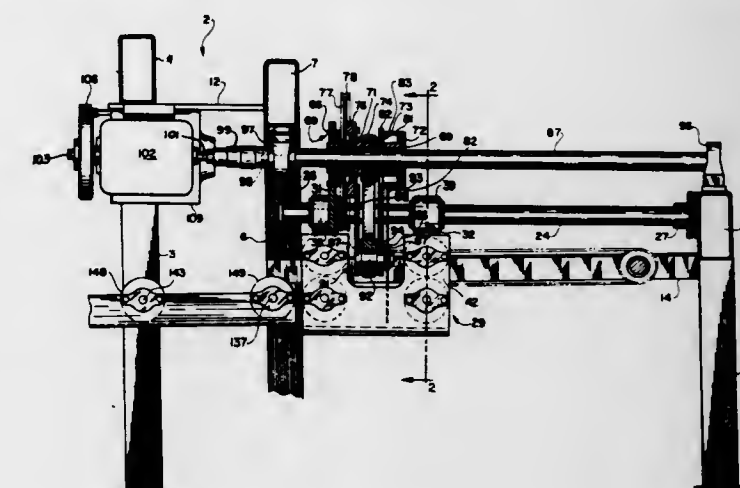
CUTOFF MECHANISM FOR STRIP MOLDING

Fred A. Craig, San Jose, and Allan M. Hudson, Mountain View, both of Calif., assignors to Thiokol Chemical Corporation, Bristol, Pa.

Filed May 28, 1971, Ser. No. 147,772
Int. Cl. B26d 1/56

U.S. Cl. 83-289

2 Claims



Presented is an automatic cutoff machine for cutting to length strip material as it is discharged in a continuous length from an automatic machine. The cutoff mechanism includes sensing means adjustable to sense a predetermined length of

strip and operable to activate a cutoff saw to cut the strip to the predetermined length. Because the strip being cut is moving, the cutoff mechanism must also move with the strip and at the same rate to preclude binding between the cutoff saw and the strip being cut.

3,738,216

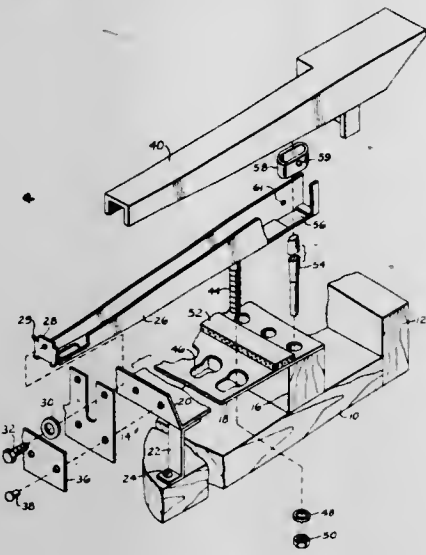
KEYBOARD FOR MUSICAL INSTRUMENTS
Mathew A. Slaats, and James E. Blessinger, both of Jasper, Ind., assignors to Jasper Electronics Manufacturing Corporation, Jasper, Ind.

Filed Oct. 28, 1970, Ser. No. 84,588

Int. Cl. G10c 3/12

U.S. Cl. 84-433

6 Claims



A keyboard structure especially for musical instruments and the like, in which an upwardly opening metal channel is supported on a leaf spring at the back to permit vertical movement of the channel while a downwardly opening plastic cap member is mounted on top of the metallic channel and projects from the front end of the channel. A chassis is provided supporting the leaf spring and also having upward and downward stop arrangements for limiting the vertical movement of the key and also includes a lateral guide for the key.

3,738,217

INSULATION HANGER

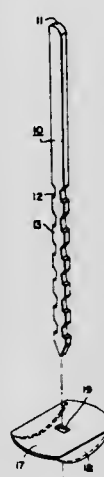
Myles C. Walker, Medford Lake, N.J., assignor to Omark Industries, Inc., Portland, Oreg.

Filed Oct. 8, 1970, Ser. No. 79,054

Int. Cl. F16b 21/16

U.S. Cl. 85-8.6

2 Claims



A hanger assembly for securing refractory linings to furnace walls which includes an elongate rectangular stud welded at

one end to a supporting wall and the opposite end extending substantially perpendicular from the wall and including therein a plurality of opposed notches cut into the opposed narrower sides. A relatively thin retaining clip formed of sheet material is provided and includes an aperture therein of complementary configuration to the rectangular stud. The clip is inserted over the stud and against the refractory lining and rotated 90° into locked position. In one species, the dimension of the opposed notches provides an interference fit with the clip as it is rotated and in a second species the opposed walls of the notches taper outwardly to permit unrestrained rotation of the clip at the narrow point of the taper but restrain the clip from rotation at the wider point of the taper.

3,738,218

DRILLING AND THREAD FORMING FASTENER

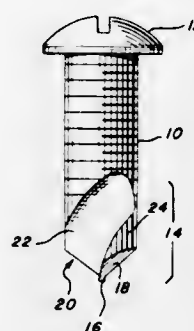
Charles E. Gutshall, Schaumburg, Ill., assignor to Elco Industries, Inc., Rockford, Ill.

Filed Oct. 6, 1971, Ser. No. 186,929

Int. Cl. F16b 25/00

U.S. Cl. 85-47

3 Claims



This improved non-walking, non-skittering drilling and thread forming fastening screw, which may be manufactured by simplified, versatile techniques, features a pair of oppositely disposed, substantially longitudinally extending flutes at the entering end, the flutes having at least one curved flute side, at least a portion of which includes the cutting edge, said curved flute side being convexly curved adjacent the cutting edge, a plane tangent to the convexly curved surface at the cutting edge being inclined at an angle to and traversing the axis of the screw at an intermediate point of the shank.

3,738,219

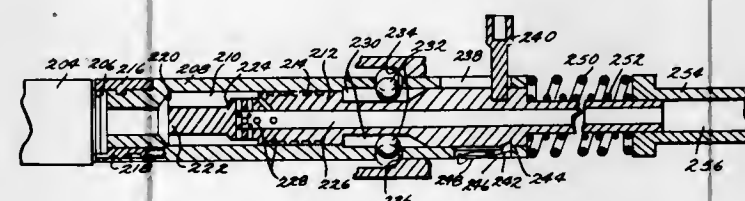
RECOILLESS FIREARM AND CARTRIDGE THEREFOR
Vasco Altuve Febres, Edificio El Convento, 78, Avenida Principal de Santa Sofia, Caracas, Venezuela

Filed Nov. 16, 1970, Ser. No. 89,660

Int. Cl. F41f 15/00

U.S. Cl. 89-1.703

9 Claims



A recoilless firearm, and round of ammunition therefore, are disclosed. The firearm has a bolt having a bore therein for

the passage of exhaust gases from the firing chamber to an exhaust tube at the rear end of the weapon. The exhaust tube contains a restricted opening, such as a venturi, to counter recoil. The round of ammunition has a single gas discharge opening in its rear end, with the ammunition casing having no apertures in the walls thereof. The use of the recoilless firearm, and round of ammunition therefor, of the present invention allows automatic and semiautomatic weapons to be extremely light while powerful ammunition propelling charges.

3,738,220

FLEXIBLE-FIXED LAUNCH AND AIMING SHOE/SELF-RELEASING ELECTRICAL AND/OR PYROTECHNIC CONNECTOR FOR ROCKETS

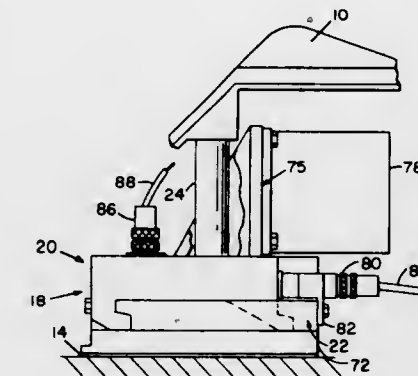
Roy C. Rogers, Jr.; Lawrence W. Howard; James C. Ketchis, and Kenneth K. Magnant, all of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 1, 1971, Ser. No. 130,119

Int. Cl. F41f 3/04

U.S. Cl. 89-1.807

7 Claims



A rocket launcher for launching a plurality of rockets from individual launch rails which are mounted on a common platform. Each rocket is provided with a rear shoe assembly including an upper and lower member. The lower member is permanently fixed to the launcher. The upper member is attached to the rocket by a flexible member so that the rocket can move, within limits, and not disturb the shoe. The upper and lower members are permanently secured together and the flexible member is sufficiently rigid so that it can break the restraints between the upper and lower members at launch. Additionally, since the launcher includes a plurality of rails which are mounted on a common platform, aiming may be accomplished by providing a gyro on the aiming surface (the upper member) instead of in the interior of the individual rockets. An electrical/pyrotechnic connector is provided which connects the rocket with an electrical source and which requires no special sequencing of ejection mechanism.

3,738,221

SAFING MEANS FOR HIGH RATE OF FIRE REVOLVING BATTERY GUN

Richard M. Tan, Burlington; Norman R. Johnson, Shelburne, and Lester F. Backus, Charlotte, all of Vt., assignors to General Electric Company, Burlington, Vt.

Filed Sept. 27, 1971, Ser. No. 183,774

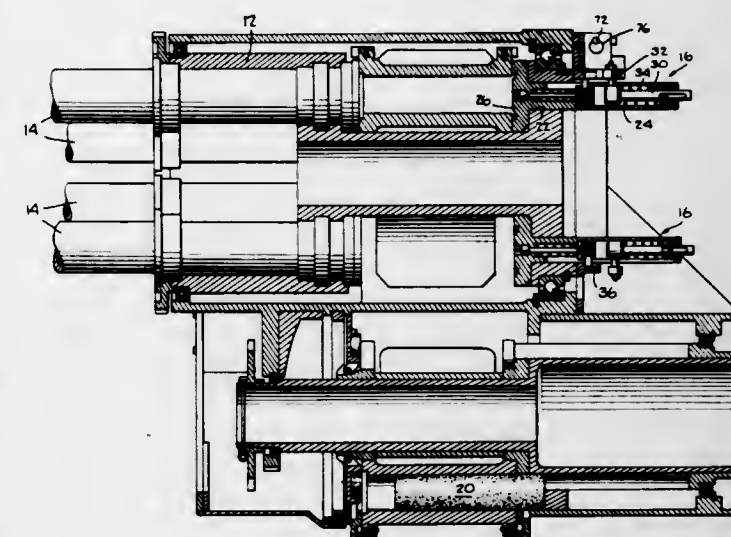
Int. Cl. F41d 7/02

U.S. Cl. 89-12

6 Claims

A revolving battery gun has a plurality of bolts with respective firing pins and mainsprings, and switchable firing pin con-

trol means having a first disposition for positively precluding



searing of each firing pin and a second disposition for positively forcing timely searing of each firing pin.

3,738,222

SAFETY PIN ASSEMBLY

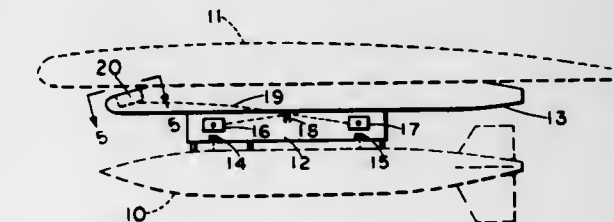
William J. Halpern, Langhorne, and Carl A. Damm, both of Upper Black Eddy, Pa., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 12, 1971, Ser. No. 142,655

Int. Cl. B64d 1/04

U.S. Cl. 89-1.5 D

9 Claims



A safety pin system for bomb racks including a pair of spring releasable pin lock and retraction assemblies interconnected via a load dividing pulley reciprocated by a push-pull cable operated by a single release latch with a contoured flag visible when the pins are lockable in the inserted position.

3,738,223

OBTURATOR-EXTRACTOR DEVICE FOR FIREARMS

John S. Post, and Frederick P. Reed, both of Davenport, Iowa, assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 23, 1971, Ser. No. 201,523

Int. Cl. F41f 11/02

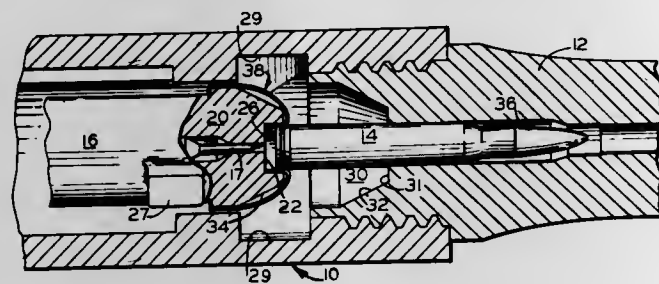
U.S. Cl. 89-26

9 Claims

An obturator-extractor provides safe firing of cartridges having cases made from lightweight materials, such as aluminum, plastics, or other non-metallic materials, in a firearm with a reciprocating bolt comprising a conoidal bolt head that is receivable by a mating chamber in the barrel breech when the bolt is in locked battery position. A single piece obturator-extractor device is mounted as a shell on the bolt head and is comprised of convexly formed surfaces which make sealing contact with the barrel chamber and a tubular section which is

receivable by a recess formed in the head to receive the rear end of the case. An extractor of cantilever configuration is provided on the tubular section of the obturator for engagement with the extractor groove in the case.

In an alternate embodiment, the obturator device includes a dish-shaped washer and a truncated conoidal sleeve which are



mounted in the front end and circumferential wall of the barrel chamber, respectively, to make resilient, obturating contact with the bolt head and the barrel chamber when the bolt is in locked battery position. The extractor is a separate split tubular member which is mounted in the head recess and which is provided with a chordal claw of torsion bar configuration.

3,738,224

OBTURATED FIREARM BREECH SAFETY DEVICE

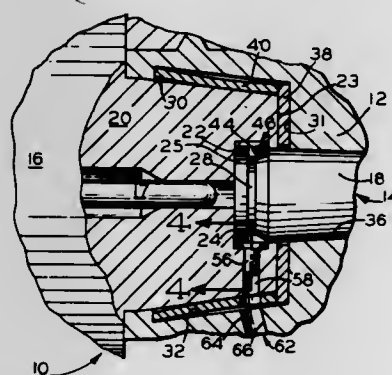
John S. Post, and Frederick P. Reed, both of Davenport, Iowa, assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 23, 1971, Ser. No. 201,524

Int. Cl. F41f 11/02

U.S. Cl. 89—26

3 Claims



In a firearm comprising a reciprocating bolt, the pin for retaining the extractor against rotation in the nose thereof is adapted to be blown radially from the firearm through a cooperating passage responsive to excessive gas pressure in the barrel for release thereof. In an alternate embodiment the tubular body of the extractor is thinned down where coincident with the inner mouth of the passageway so as to be rupturable by excessive gas pressure for release thereof through the passageway.

3,738,225

METHOD FOR MACHINING GROOVES AND GEAR TEETH

Michel Tixier, Billancourt, France, assignor to Regie Nationale Des Usines Renault, Billancourt, France

Filed June 12, 1970, Ser. No. 45,765

Claims priority, application France, June 16, 1969, 6919905; May 8, 1970, 7016903

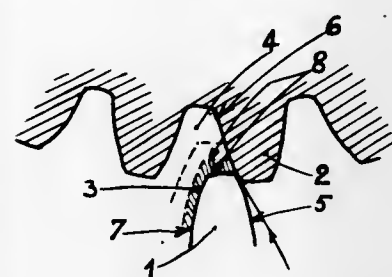
Int. Cl. B23f 9/20

U.S. Cl. 90—3

3 Claims

Method of machining grooves with shape outline by removal of material, more particularly for making gears, characterized in that the feed movement of the tool penetrating into the workpiece is so adjusted that one of the tool flanks

penetrates into the workpiece tangentially to the corresponding lateral contour to be obtained in said workpiece, only the



opposite flank and the front face of the tool being used for removing material from the workpiece.

3,738,226

THREAD CUTTING ATTACHMENT FOR LATHES

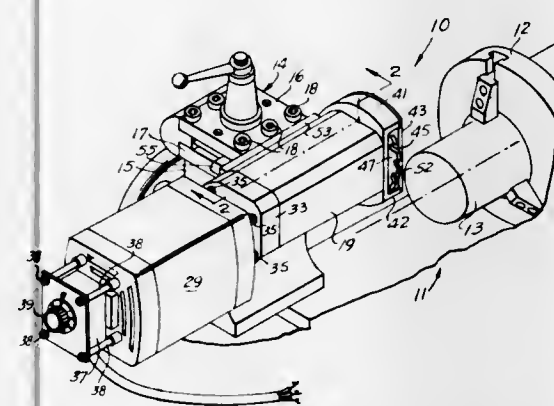
Henry F. Dickerson, Oldsmar, Fla., assignor to Tampa Brass & Aluminum Corporation, Tampa, Fla., a part interest

Filed Nov. 20, 1970, Ser. No. 91,272

Int. Cl. B23g 1/32

U.S. Cl. 90—11.64

10 Claims



A thread cutting attachment for lathes mounted in the conventional tool holder carried by the longitudinal carriage of the lathe. The attachment includes a rotary cutter driven by an electric motor having a variable speed in a range of from 50 to 10,000 RPM. The attachment is adjustable about a horizontal pivot extending perpendicularly to the axis of the cutter so that the line of cut may be aligned with the pitch of the thread. Both internal and external threads are cut with the attachment by using the thread pitch drive on the lathe carriage.

3,738,227

FLUID POSITIONABLE MEANS AND FLUID CONTROL MEANS THEREFOR

Donald L. Bitzer, Urbana; Lyle E. Bandy, Decatur; Roger L. Johnson, Monticello, and Dominic O. Skaperdas, Champaign, all of Ill., assignors to University of Illinois Foundation, Urbana, Ill.

Division of Ser. No. 850,965, Aug. 18, 1969, Pat. No.

3,641,529. This application Nov. 4, 1971, Ser. No. 195,884

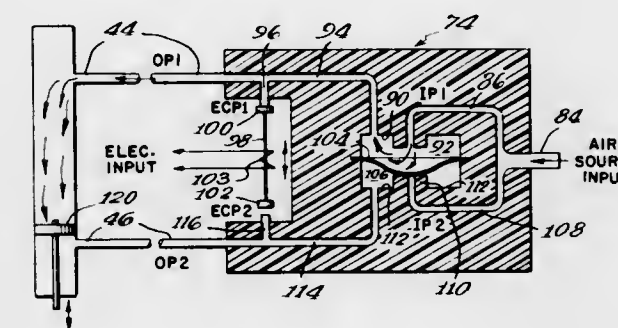
Int. Cl. F15b 11/18, 13/044

U.S. Cl. 91—167

3 Claims

Random access information retrieval apparatus for selecting a particular item from a plurality thereof including an improved pair of X—Y coordinate digitally positionable devices which are driven by a 4-way control valve. A polar coordinate random access information retrieval apparatus including a rotatable recording disc having information recorded on at least one surface thereof, a transducer for detecting said information, radial positioning means for moving said transducer radially along said disc, and angular positioning means coupled to said recording disc for incrementally rotating said disc to position desired information on said disc adjacent said transducer. An improved 4-way control valve including a valve housing having a pair of inlet ports for connection to a

pressure source and a pair of outlet ports for connection to a load, a first control chamber communicating one of said inlet ports with one of said outlet ports, a second control chamber immediately adjacent said first chamber and communicating the other of said inlet ports with the other of said outlet ports,



3,738,228

PUMP FOR HYDRAULIC STEERING UNIT

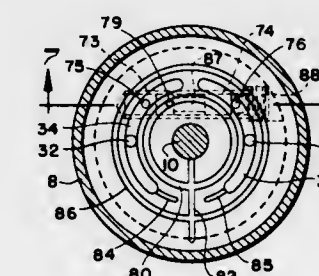
Robert R. Harrison, Elyria, Ohio, assignor to Nemo Corporation, Cleveland, Ohio

Filed Feb. 3, 1972, Ser. No. 223,242

Int. Cl. F01b 3/00; F04b 49/00

U.S. Cl. 91—499

9 Claims



3,738,229

HYDRAULICALLY OPERATED CYLINDER-PISTON UNIT

Uno Ingemar Kraft, Malmo, Sweden, assignor to Svenska Aktiebolaget Bromsregulator, Malmo, Sweden

Filed Nov. 10, 1971, Ser. No. 197,726

Claims priority, application Great Britain, Nov. 27, 1970, 56,555/70

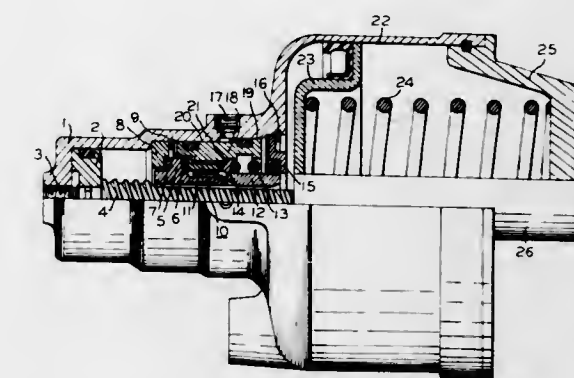
Int. Cl. F15b 15/26

U.S. Cl. 92—17

5 Claims

A hydraulically-actuated cylinder-piston unit providing a forward driving force is disclosed which can be releasably locked against a return action when the hydraulic drive terminates. The release mechanism is triggered by a small force and operates independently of the force applied by the piston

drive. This is accomplished by a non-locking rotating nut on the piston rod provided with a one-way clutch and a spring



loaded dog clutch independent of the drive train operated hydraulically as a release trigger.

3,738,230

VARIABLE STROKE MULTIPLE PUMP

Giorgio Censi, 16 Via Yser, 00198 Rome, Italy

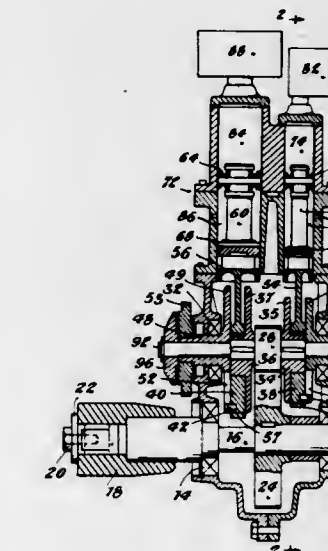
Filed Mar. 2, 1971, Ser. No. 120,282

Claims priority, application Italy, June 26, 1970, 51726 A/70

Int. Cl. F01b 31/14; F04b 23/06

U.S. Cl. 92—13.3

4 Claims



The pump comprises two cylinders with pistons actuated from a common shaft fitted with eccentrics corresponding to each piston, between each eccentric and the large end of each connecting rod being interposed a disc with an opening which receives said eccentric, said opening being offcentered with respect to said disc so that by rotating said disc with respect to said eccentric the crank radius of the connecting rod and consequently the stroke of the corresponding piston can be varied at will.

3,738,231

PISTON FOR INTERNAL COMBUSTION ENGINES

Hans-Jurgen Zurner, Nurnberg, Germany, assignor to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft, Nurnberg, Germany

Filed May 28, 1971, Ser. No. 148,082

Claims priority, application Germany, May 29, 1970, P 20 26 272.0

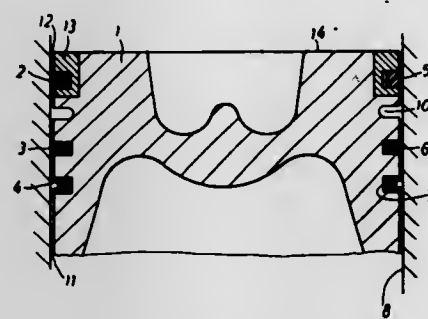
Int. Cl. F16j 1/08, 9/22

U.S. Cl. 92—159

1 Claim

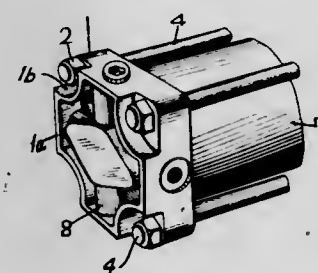
A piston for internal combustion engines, in which the peripheral surface of the piston is provided with a plurality of groove means having piston rings mounted therein, in which

between that one of the groove means which is nearest to the piston bottom and the groove means nearest to the last men-



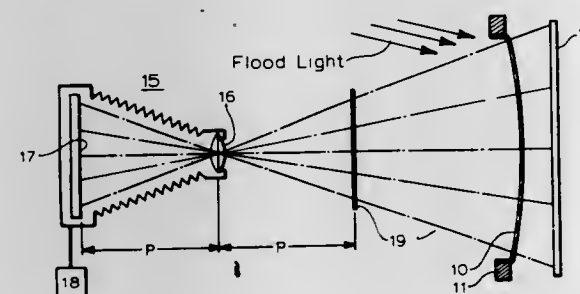
tioned one of said groove means there is provided recess means for receiving and storing lubricating oil.

3,738,232
CYLINDER COVERS FOR FLUID PRESSURE CYLINDERS
Taischi Kado, Osaka, Japan, assignor to Taisyo Iron Works Ltd., Kitaeguchi-cho, Higashiyodo-ku, Osaka, Japan
Filed June 22, 1970, Ser. No. 47,953
Claims priority, application Japan, June 20, 1969, 44/59056
Int. Cl. F01b 29/00
U.S. Cl. 92-161
7 Claims



In a fluid pressure cylinder wherein a plurality of tie-bolts are fitted through a pair of covers, attached at both ends of a cylinder body, and clamped thereto by a plurality of nuts, the covers are provided with a plurality of recesses of the corner portions for lodging therein the clamping nuts; after the cylinder body and the covers are clamped together by said nuts, a fitting plate is mounted separately on at least one of the covers, and is attached by further nuts.

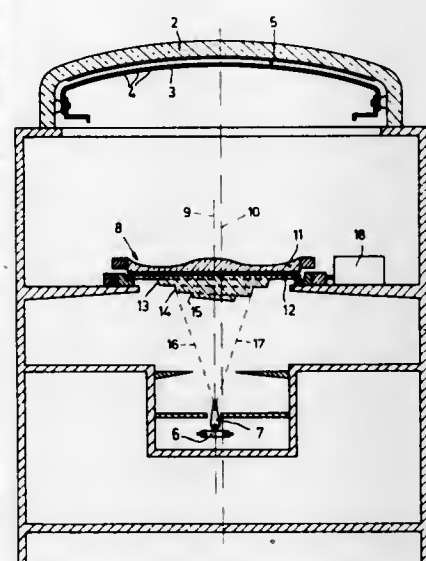
3,738,233
CAMERA PROCESS FOR COLOR TUBE SCREEN PRINTING
James W. Schwartz, Glenview, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.
Filed Jan. 17, 1972, Ser. No. 218,144
Int. Cl. G03
U.S. Cl. 95-1 R
19 Claims



A photographic replica of a shadow mask of given transmission, i.e., ratio of aperture area to mask area, is made with the transmission of the photographic replica of the mask being less than that of the shadow mask. Thereafter, the photographic replica is used in place of the mask for screening the elemental phosphor deposits on the faceplate of a color televi-

sion picture tube. In the case of a black surround type color tube, the replica is used to initially photoexpose the matrix pattern of phosphor receiving areas and subsequently used to deposit the phosphors. When the screen is fully fabricated, the shadow mask is assembled in position and the photographic replica is discarded.

3,738,234
EXPOSURE DEVICE FOR MANUFACTURING A DISPLAY SCREEN OF A COLOR TELEVISION PICTURE TUBE
Piet Gerard Joseph Barten, and Robert Richard Bathelt, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Apr. 24, 1972, Ser. No. 246,672
Claims priority, application Netherlands, May 8, 1971, 7106346
Int. Cl. G03; H01j 29/18
U.S. Cl. 95-1 R
2 Claims

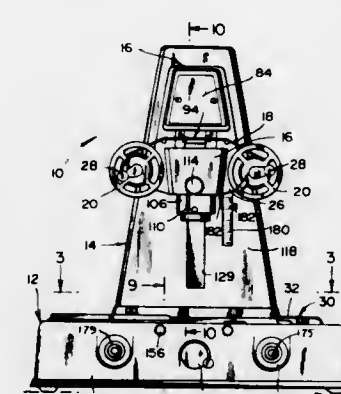


An exposure device for manufacturing a display screen of a color television picture tube. The device comprises a correction lens system provided with a lens having a stepped profile of annular zones. Adjoining annular zones are connected by an annular transition region; the surfaces of which are parallel to the light rays to prevent scattering. The correction lens system may perform a translation during the exposure so as to divide any remaining scattered light rays over the entire display screen; the center of the corrective lens system describing a path which is closed upon itself. For example a circle of 1.5 mm.

3,738,235
PHOTO-COMPOSITOR
Max Steinberg, Lake Success; Arthur Eilan, Great Neck; Louis Verrone, Pearl River, and Roger Klingenberg, Stony Point, all of N.Y., assignors to Apex Photoletter Composing, Inc., Great Neck, N.Y.
Filed June 29, 1970, Ser. No. 50,449
Int. Cl. B41b 15/08
U.S. Cl. 95-4.5
9 Claims

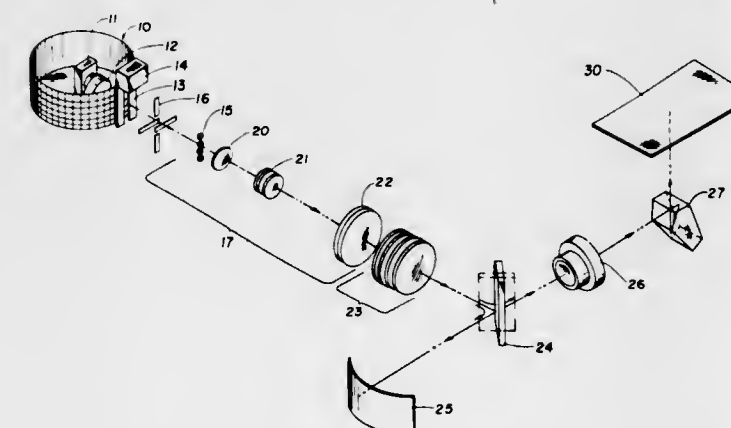
The photo-compositor includes a projection apparatus for projecting selected transparent letter characters from a strip film font on a light-sensitive photographic emulsion carried on a strip of paper. The paper is threaded along the base of the photo-compositor, and extends from a light-tight cassette through an activating station, then across an exposure station wherein the letter characters of the font are projected upon the emulsion surface to expose and develop the letter characters. Subsequently, the exposed portion of the paper is threaded through a station containing a post-developing bath. Indented wells in the base of the photo-compositor form the activating and post-developing stations and the base is of a thermoplastic material vacuum formed in one piece. The

photo-compositor also includes projection elevating means for varying the size of the exposed letter characters by varying the distance between the projection apparatus and the base. The



interior surfaces of the cassette over the flat sides of the paper strip are canted to flare toward the center of the sides of the cassette so that these interior surfaces only touch the longitudinal edges of the strip.

3,738,236
PHOTOCOMPOSING MACHINES
Wolfgang Otto Grube, Leonia, N.J.; Joel S. Harris, Valley Stream, and Uri Z. Escoll, Forest Hills, both of N.Y., assignors to Eltra Corporation, New York, N.Y.
Filed May 26, 1971, Ser. No. 146,873
Int. Cl. B41b 17/12
U.S. Cl. 95-4.5
8 Claims

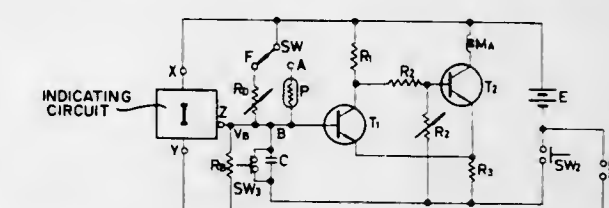


A photo-composing machine having a character drum that is stepped backwards and forwards to bring a group of character images to a photographic position; an optical system images all characters of the group at a common position and a shutter (or equivalent) mechanism selects one character of the group for imaging on a sensitized sheet. A flexible font element having characters arranged thereon in columns and rows is replaceably mounted on the character drum.

3,738,237
EXPOSURE QUANTITY CONTROL DEVICE FOR CAMERA
Takashi Uchiyama; Tadashi Ito, both of Yokohama; Mutsuhide Matsuda, Tokyo, and Mitsutoshi Ogiso, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 2, 1970, Ser. No. 86,184
Claims priority, application Japan, Nov. 5, 1969, 44/88588
Int. Cl. G03b 7/08, 7/16
U.S. Cl. 95-10 CT
22 Claims

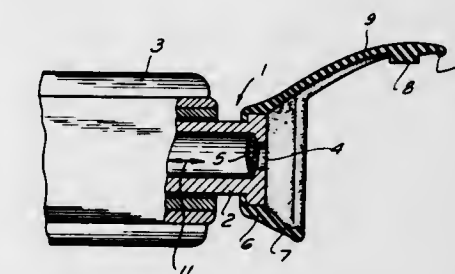
The disclosed exposure quantity control device for a camera, includes an exposure quantity determination circuit S and an indicating circuit I for indicating whether or not the camera is operating within an acceptable range. The inputs to

said S and I circuits are formed by an output signal at a voltage dividing point of an input circuit that increases photographic



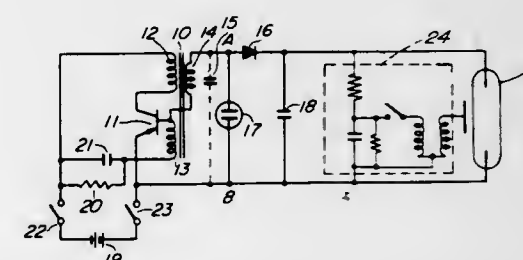
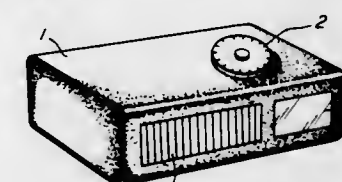
information. An indication of proper or improper exposure is obtained for both EE and flash photography by said indicating circuit.

3,738,238
PHOTOGRAPHIC APPARATUS WITH MEANS FOR OBSTRUCTING THE PASSAGE OF LIGHT THROUGH THE VIEWFINDER
Klaus Hager, Stuttgart, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart, Germany
Filed Apr. 1, 1971, Ser. No. 130,286
Claims priority, application Germany, Apr. 2, 1970, G 70 11 932.3
Int. Cl. G03b
U.S. Cl. 95-11 V
5 Claims



The eyepiece which surrounds the eyepiece of the viewfinder in a reflex camera has an elastic extension provided with a plug which can be fitted into an opening in the rear of the eyepiece to prevent entry of light into the viewfinder. The plug has a handgrip portion which can be grasped by fingers to facilitate its withdrawal from or insertion into the opening.

3,738,239
ELECTRONIC FLASH DEVICE FOR PHOTOGRAPHY
Masaru Higuchi, Suita-shi, Japan, assignor to West Electric Co., Ltd., Osaka, Japan
Filed Oct. 27, 1969, Ser. No. 869,722
Int. Cl. G03b 15/05
U.S. Cl. 95-11 R
2 Claims

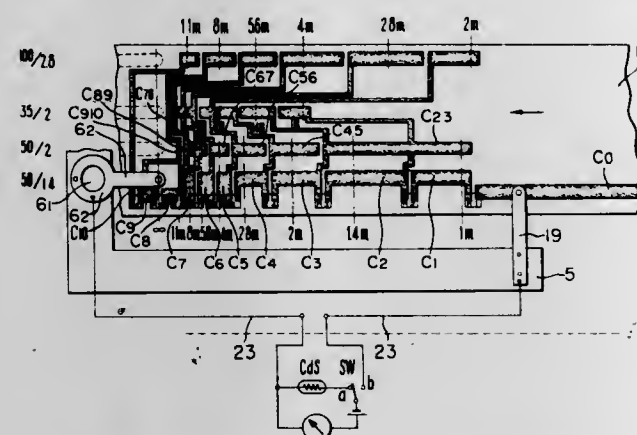


An electronic flash for photography so constructed that an electroluminescent element is connected in the AC high volt-

age generating circuit of a DC-DC converter for the electronic flash device which charges a discharge capacitor adapted to flash a flashlight discharge tube and the electroluminescent element illuminates the exposure calculating dial of the electronic flash device or the camera on which the electronic flash device is mounted.

3,738,240 LENS ATTACHMENT FOR FLASH-LIGHT PHOTOGRAPHING

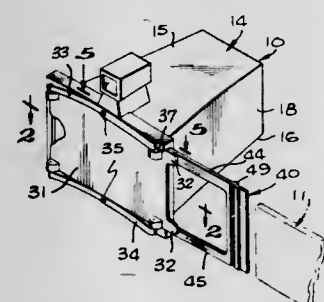
Taizo Mitani, and Takayuki Shiraishi, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Sept. 28, 1971, Ser. No. 184,351
Claims priority, application Japan, Oct. 2, 1970, 45/86939
Int. Cl. G03b 7/20, 7/16
U.S. Cl. 95-11 R 10 Claims



In an automatic flash camera having a lens with a rotatable focusing ring, a lens attachment coacts with the focusing ring to control the camera. In the attachment, a mounting arrangement detachably mounts the attachment to the end of the lens. An interconnecting arrangement, rotatably mounted on the mounting arrangement, engages the focusing ring to move therewith. A variable resistance system is mounted on the two arrangements and is varied by movement of the interconnecting arrangement relative to the mounting arrangement. The variable resistance system includes an adjustable member which is movable between a number of positions. In one position the variable resistance system exhibits one range of resistances corresponding to one type of lens when the interconnecting arrangement is moved. In other positions the variable resistance system exhibits other ranges of resistances each corresponding to lenses of other aperture ratios and focal lengths. An electrical system connected to the variable resistance system responds to the value of the resistance exhibited and controls the diaphragm of the camera for automatic flashlight photography.

3,738,241 CAMERA WITH FILM SPACER

Gerhard I. W. Bahnsen, P.O. Box 1297, South Lake Tahoe, Calif.
Filed May 18, 1970, Ser. No. 38,442
Int. Cl. G03b 19/10
U.S. Cl. 95-24 7 Claims



A film pack type camera having a spacer which is removably insertible into the camera at a location to be

received in front of the film, in a manner shifting the plane of the film slightly rearwardly relative to the camera lens, to thus correspondingly alter the subject-to-camera distance at which an image of the subject is in focus on the film, and thereby allow for easy and rapid, but precise, conversion of the camera between two different subject-to-camera distance conditions.

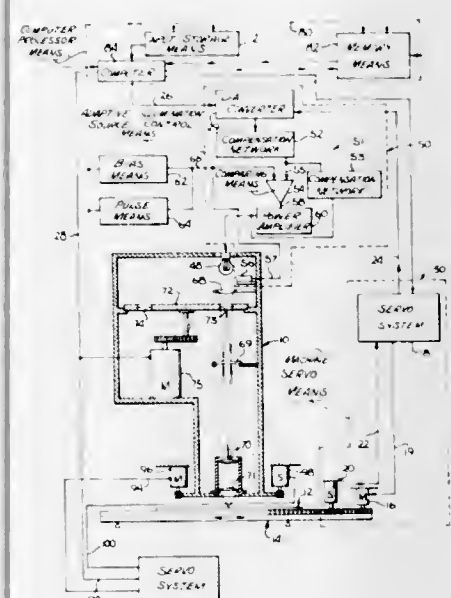
3,738,242 ADAPTIVE ILLUMINATION SOURCE INTENSITY CONTROL DEVICE

Barry T. Lee, 22715 Clarendon St., Woodland Hills, Calif.;
Gunther W. Wimmer, 19633 Goodvale Road, Saugus, Calif.,
and Gilbert P. Hyatt, 11101 Omigo Avenue, Northridge, Calif.
Filed June 11, 1971, Ser. No. 152,105
Int. Cl. G03b 29/00
U.S. Cl. 95-12 55 Claims

Filed June 11, 1971, Ser. No. 152,105
Int. Cl. G03b 29/00

U.S. Cl. 95-12

55 Claims



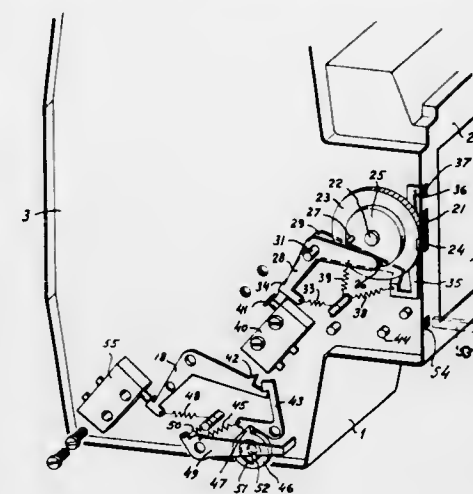
A control system is provided for precisely controlling the intensity of an illumination source which forms part of a photomechanical system. The control system enables the intensity of the illumination source to be controlled in accordance with the characteristics of the recording medium (photo material), the relative motion between the recording medium and the illumination source, the image to be formed on the recording medium, the dynamics of the system causing the relative motion between the source and the recording medium, variations in the illumination source and over their life, and the illumination source dynamics.

3,738,243 CONTROL MECHANISM AT PHOTOGRAPHIC CAMERAS FOR FILM ADVANCE IN SEPARATE FILM MAGAZINES EQUIPPED WITH A SERVOMOTOR

Kurt Ove Olsson, Goteborg, Sweden, assignor to Fritz Victor Hasselblad, Goteborg, Sweden
Filed Aug. 2, 1971, Ser. No. 168,139
Claims priority, application Sweden, Oct. 2, 1970, 13361/70
Int. Cl. G03b 19/04
U.S. Cl. 95-31 AC 7 Claims

This invention relates to photographic cameras with separate film magazines exchangeably attached to the camera housing. A cogwheel projecting out of the camera housing meshes coaxially with a corresponding cogwheel in the film

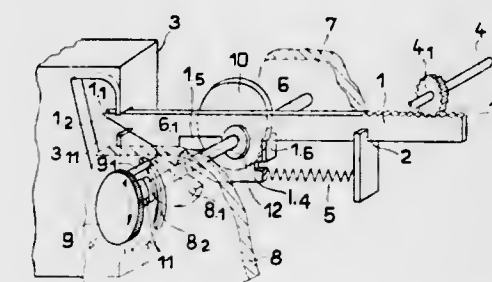
magazine for the transfer of power to advance the film. The normal driving motion of the cogwheel is utilized for con-



trolling a control mechanism in the film magazine equipped with an electric servomotor to advance the film.

3,738,244 CAMERA WITH AUTOMATICALLY OPERATING EXPOSURE MEANS

Rudolf Leistner, Munich, Germany, assignor to Braun A.G., Frankfurt (Main), Germany
Filed June 11, 1971, Ser. No. 152,281
Claims priority, application Germany, June 18, 1970, P 20 29 930.3
Int. Cl. G03b 19/04
U.S. Cl. 95-31 FS 9 Claims



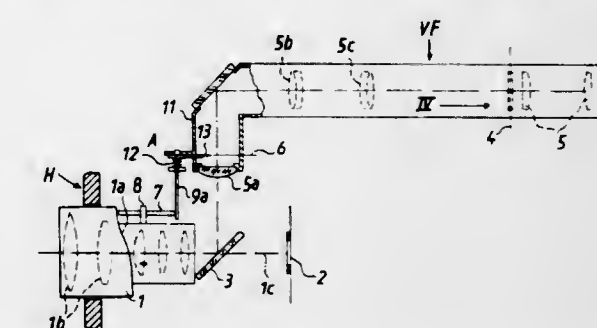
A camera comprising automatic exposure arrangement having a control device operatively connected to it and adapted to transmit to the exposure arrangement film sensitivity values determined by control marks on the picture receiving material inserted into the camera, and a manual adjusting device for moving the control device out of the plane of influence of the control marks and for moving the control device outside such plane over a range permitting the input of a predetermined range of film sensitivity values into the exposure arrangement.

3,738,245 PHOTOGRAPHIC APPARATUS WITH THROUGH-THE- LENS VIEW FINDER

Anton Theer, Munich, Germany, assignor to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed May 2, 1972, Ser. No. 249,530
Claims priority, application Germany, May 7, 1971, P 21 22 709.8
Int. Cl. G03b 19/12
U.S. Cl. 95-42 10 Claims

A motion picture camera wherein the lens mount is rotatable in the camera body to thereby move the picture taking lens lengthwise of the optical axis. A through-the-lens view finder defines two image planes and is provided with indications or symbols located in or close to that image plane which is nearer to the eyepiece and representing various distances between the lens and the subject. An index in the other image plane is

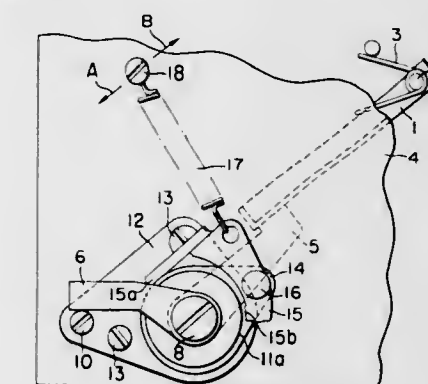
mounted on a lever which is pivotable in the camera body by a follower which tracks a cam of the lens mount so that the index pinpoints that indication or symbol which represents the selected adjustment of the lens. The lever has a first portion



which receives motion from the follower, a second portion which carries the index, and a third portion which connects the first and second portions and is deformable to allow for adjustments of the index relative to the indications independently of the lens mount.

3,738,246 MIRROR SHOCK ABSORBER DEVICE FOR A CAMERA HAVING A QUICK RETURN MIRROR

Akihiko Sato, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan
Filed July 12, 1972, Ser. No. 271,192
Claims priority, application Japan, July 15, 1971, 46/62212
Int. Cl. G03b 19/12
U.S. Cl. 95-42 5 Claims



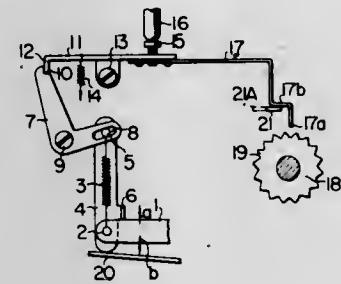
A mirror shock absorber device for use in a camera having a quick return mirror comprises limit means rotatably journaled to the body of the camera for defining a predetermined lowermost position of the mirror. A rotatable member 14 is loosely fitted coaxially with the limit means and a fixed cylinder 11 formed with a circumferential portion 11a is fixed to the body of the camera. A retainer member 15 rotatably journaled to the rotatable member has one end thereof engageable with the limit means and the other end engageable with the circumferential portion of the fixed cylinder and frictionally slidable on such portion. A return spring for biasing the limit means into a position for defining the predetermined lowermost position of the mirror is provided between the retainer member and the camera body. The downward force of the mirror may be adsorbed by the sliding friction between the other end of the retainer member and the circumferential portion of the fixed cylinder.

3,738,247 MECHANISM FOR FLASH ATTACHMENT CAMERA SHUTTER CONTROL

Hirofumi Horigome, Kawasaki, Japan, assignor to Ricoh Co. Ltd., Tokyo, Japan
Filed July 25, 1972, Ser. No. 275,105
Claims priority, application Japan, July 29, 1971, 46/56987
Int. Cl. G03b 9/08
U.S. Cl. 95-53 R 6 Claims

A mechanism for flash attachment cameras, which when the shutter speed setting means is set at a position for flashbulb

operation, moves a switch out of the path of movement of a lock means to permit the latter, upon depression of the shutter release button, to lock a rotary member, such as an escape wheel, operatively connected to the shutter closing thus holding the shutter open during flashbulb operation. When the shutter speed setting means is set at a position other than that



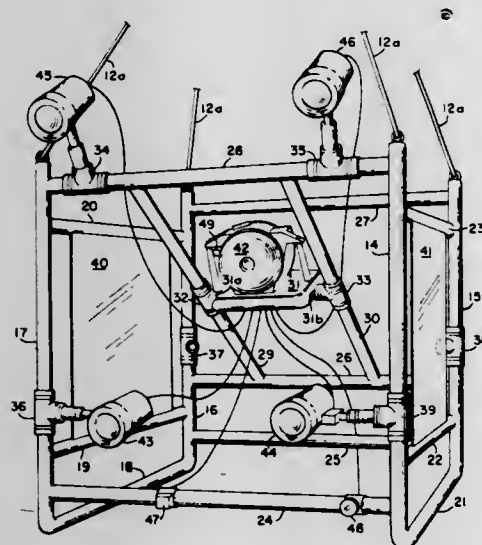
for flashbulb operation, the switch is moved into the path of movement of the lock means to prevent the latter from locking the rotary member. Resilient means is provided between the lock means and the shutter release button to permit the latter to be operated while the former is in its inoperative condition.

3,738,248 PHOTOGRAPHIC MODULE HAVING ACOUSTIC TRANSDUCER

James F. Fish, La Jolla, and Bruce C. Parks, Imperial Beach, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Feb. 18, 1972, Ser. No. 227,540
Int. Cl. G03b 15/05

U.S. Cl. 95-86

6 Claims



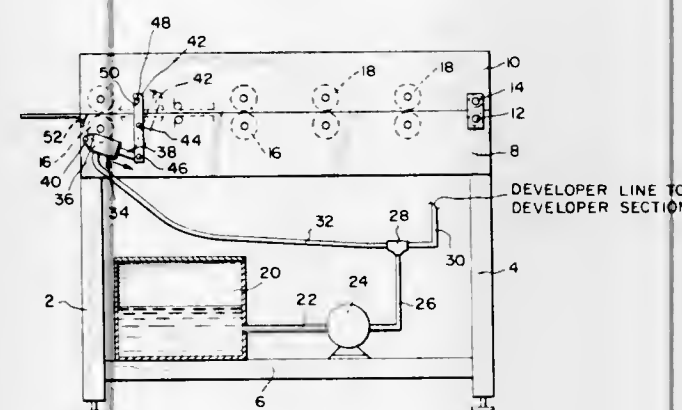
A framework supports and protects an underwater camera and several strobe lights for the nighttime taking of pictures of marine organisms. The framework-camera-and-light module is suspended from a surface vessel and readings are obtained from vertically and horizontally directed transducers to allow a precise positioning of the module. A hydrophone locates the sound making organisms and an additional transducer, carried adjacent to the camera, provides an indication of the distance from the camera to the organisms to permit placement of the camera for proper focusing. Because the transducers and hydrophone allow a precise positioning of the camera in darkness, the organism is photographed in the open and in a natural state when the strobe lights flash in synchronization with the camera shutter.

3,738,249 HOLD DOWN MECHANISM FOR PRINTING PLATE PROCESSOR

Burghard K. Schichlein, Gillette, N.J., assignor to Azoplate Corporation, Murray Hill, N.J.
Filed Oct. 21, 1971, Ser. No. 191,190
Int. Cl. G03d 3/00

U.S. Cl. 95-89 R

5 Claims



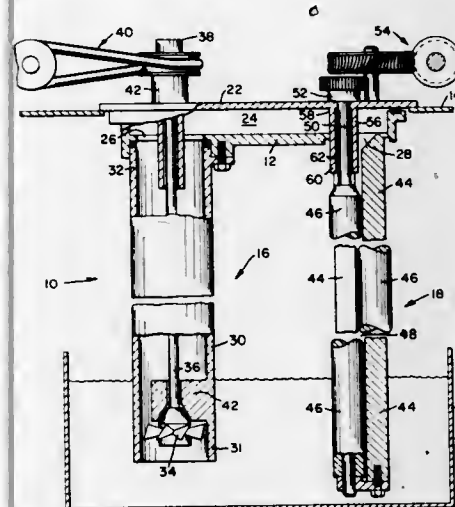
A hold-down mechanism for a printing plate processor divided into a lower fixed section and an upper pivotal section along a plane coincident with the path of travel of the plate therethrough, latch means pivotally mounted on the lower section, hydraulic cylinder means operatively connected to the latch means for pivoting the latch means into and out of locking engagement with the upper section, and pressurized fluid supply means for supplying pressurized processing fluid to the hydraulic cylinder means.

3,738,250 PHOTOGRAPHIC FILM PROCESSOR

Ronald Paul Layne, 233 Greystone Lane, Rochester, N.Y.
Filed May 26, 1972, Ser. No. 257,388
Int. Cl. G03d 3/02

U.S. Cl. 95-89 R

2 Claims



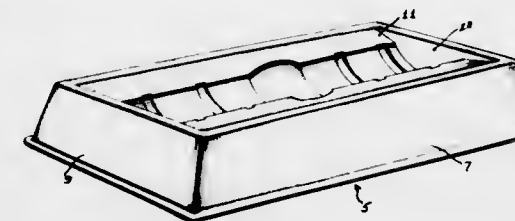
A film processor where processing liquid pumped under pressure into a plenum drains through a discharge outlet into and through a processing chamber below the plenum. Drive rollers for transporting film through the chamber have axle portions extending upwardly through the plenum. Fixed sleeve members surrounding the axle portions extend down into the region of lowered pressure produced by the falling liquid. This prevents upward leakage of pressurized fluid from the plenum around the axle portions without the need for dynamic seal members.

3,738,251 PHOTOGRAPHIC DEVELOPING TRAY

Walter L. Haaser, 3 Loma Linda Drive, El Paso County, Colo.
Filed Dec. 13, 1971, Ser. No. 207,005
Int. Cl. G03d 1/04

U.S. Cl. 95-95

1 Claim



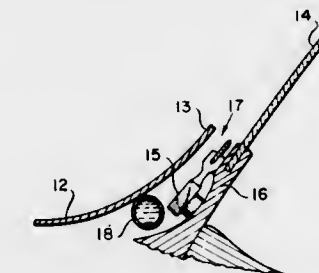
The present invention relates to photographic developing trays and more specifically to a novel tray having a parabolic shaped fluid holding recess with a central portion thereof enlarged and deepened to accommodate the fingers of one holding the print being processed and having sloping drain boards on either side of the fluid recess.

3,738,252 CONCEALED WINDSHIELD WIPER WELL HEATER

Albert J. Cardinale, 4734 Darford Avenue, Baltimore, Md.
Filed July 14, 1971, Ser. No. 162,374
Int. Cl. A42I 1/16

U.S. Cl. 98-2.1

2 Claims



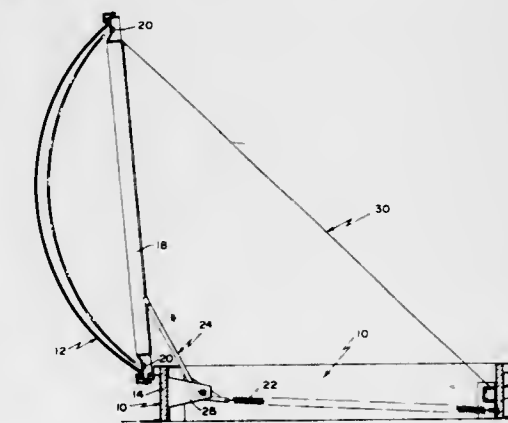
Ice, sleet, and snow accumulated or accumulating in the concealment well of an automobile windshield wiper assembly is melted away by heat from a hot water radiator located in the well and constituting part of a hot water heating system circulated from and including the water jacket of the automobile engine.

3,738,253 FIRE AND SMOKE VENTILATOR

Arthur P. Jentoft, York, Maine, assignor to Wasco Products Inc., Sanford, Maine
Filed Nov. 24, 1971, Ser. No. 201,934
Int. Cl. F24f 7/02

U.S. Cl. 98-86

9 Claims



A roof mounted fire and smoke ventilator includes a simple mechanism for maintaining the cover closed and which

911 O.G.—18

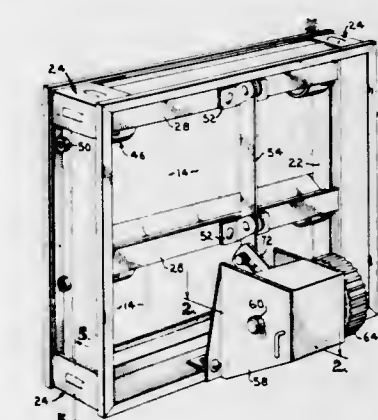
also serves as a snubbing device to cushion the opening shock of the cover when the vent snaps open. The mechanism includes a simple arrangement of cables which are connected between the curb of the vent and the free end of the cover. The cover is spring biased toward an open position but is held closed by the cables by an arrangement including a fusible link which, when melted, releases the cables and enables the vent cover to snap open. Means also are provided to release the cables without destroying the fusible link, as might be desired when testing the operation of the vent.

3,738,254 BACKDRAFT DAMPER

James R. Root, Independence, Mo., assignor to Ruskin Manufacturing Company, Grandview, Mo.
Continuation-in-part of Ser. No. 86,698, Nov. 4, 1970, abandoned. This application May 15, 1972, Ser. No. 253,324
Int. Cl. F23I 17/00

U.S. Cl. 98-119

8 Claims



A backdraft damper comprises a frame defining an air control opening and a plurality of vanes mounted on the frame for closing the opening. The frame is assembled from frame sections of lightweight material all having identical cross sections. The frame sections are joined by a corner bracket which is complementarily received and engages a large surface area of the sections. The respective sections are pulled together and locked in place as the assembled frame is placed in a jig to stake the corner bracket to the frame sections. The vanes are biased against opening by a spring which is disposed to provide a constant tension on the vanes regardless of the extent to which the blades are already open. The spring is disposed on a shaft and exerts a force tangentially of the shaft. The constant tension assures that any given change in air pressure will result in the same quantity of compensating air flow through the damper regardless of whether the pressure change occurs at near the fully closed or near the fully open position of the vanes. The spring may be wound more or less tightly on its mounting shaft to vary the tension against the vanes as required for different static pressures in different installations.

3,738,255 BROILER

Ben M. Laigo, 1217 Pine St., Seattle, Wash.
Filed Sept. 16, 1970, Ser. No. 72,662
Int. Cl. A47J 37/06

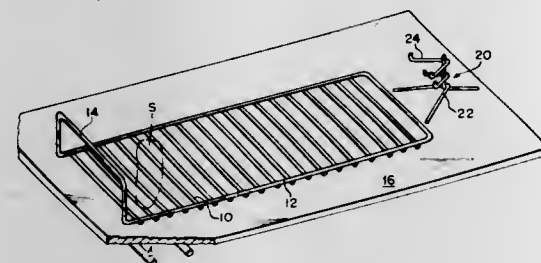
U.S. Cl. 99-450

5 Claims

Food supporting metal rods are held together by a frame with the rods resting directly on a griddle or the like. The food is thus heated directly by conduction so that distinct scoring occurs. The scoring may be in the form of a unique pattern, such as circles, letters or the like, for the purpose of placing a

distinctive brand on the food and enhancing its appearance. The rods are spaced sufficiently to allow juices from the food

mounted on a vertically reciprocating nonrotatable carriage above the turret, so that one individual operation is performed



to drip on the griddle so that the smoke may rise and flavor the food.

3,738,256

ELECTRIC GRILL TYPE COOKING DEVICE

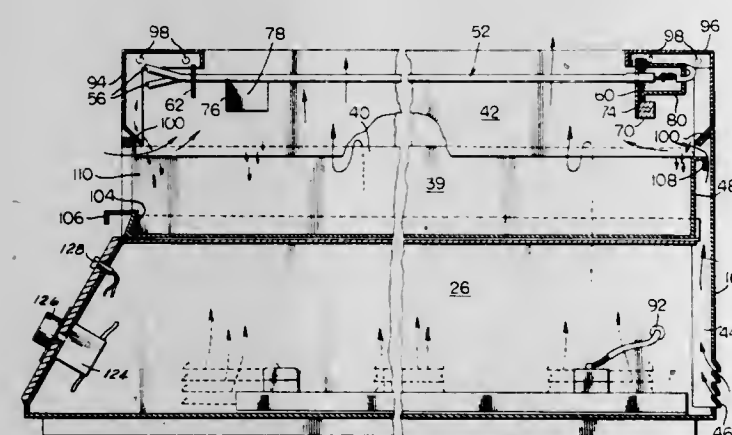
Stanley V. Joeckel, Wayne, N.J., assignor to Lincoln Manufacturing Company, Inc., Fort Wayne, Ind.

Filed May 19, 1972, Ser. No. 255,065

Int. Cl. A47j 37/08

U.S. Cl. 99—400

5 Claims



A cooking device in which a frame which is open at the top has a substantially horizontal grill, or grate, disposed therein upon which articles, including articles of foodstuff, can be placed for heating and cooking. The grate is made up of metal clad electric heating elements shaped like hairpins and in overlapped relation. The entire grate is tiltable upwardly at one end and the frame includes detachable front and back corner pieces at the top overlying the ends of the grate. Beneath the grate is a drip pan and the frame is so constructed that, together with the drip pan, it defines flue passages extending upwardly inside the walls of the frame and then inwardly over the top of the drip pan into the space beneath the grate. All electrical components are sealed in a compartment in the bottom of the frame and on which compartment the drip pan rests.

3,738,257

TURRET TYPE CORING UNIT

Ben Louis Manfre, and Peter Werner Forcella, both of San Jose, Calif., assignors to FMC Corporation, San Jose, Calif.

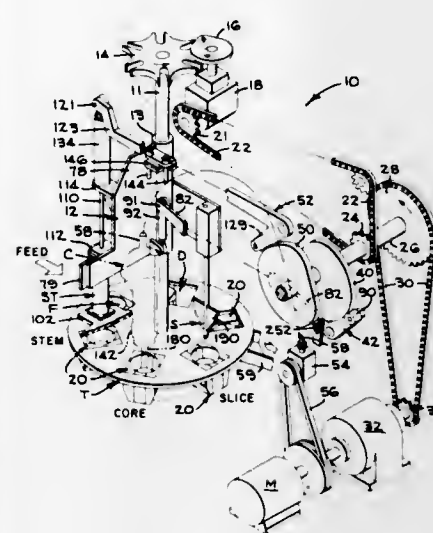
Filed June 16, 1971, Ser. No. 153,552

Int. Cl. A23n 3/08

U.S. Cl. 99—547

8 Claims

A machine for stemming, coring and slicing pears includes a horizontal plane indexing turret having six fruit cups moving to feed, stemming, coring, slicing and idle stations. The cups are pivotally supported by a discharge cam. The tools are



3,738,258

APPARATUS FOR TRIMMING THE ENDS OF VEGETABLES

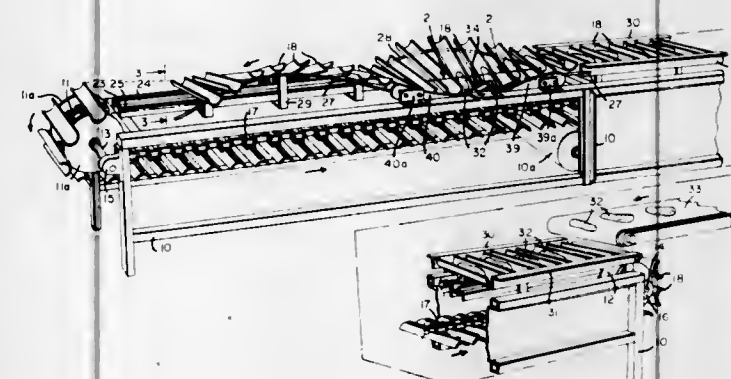
Richard J. Goodale, P.O. Box 268, Watsonville, Calif.

Filed Sept. 17, 1971, Ser. No. 181,323

Int. Cl. A23n 15/04

U.S. Cl. 99—643

1 Claim



An apparatus for trimming the ends off of vegetables such as carrots, parsnips, zucchini and the like. This apparatus employs an endless conveyor provided with trays for receiving the vegetables. The trays are attached to the conveyor by pivoting means and extend transversely to the direction of travel of the conveyor. Spaced rails are provided for holding the trays in horizontal position while they pass through the loading station at which the vegetables are placed thereon. The trays are then moved through two end trimming zones. In the first zone the guide rails tilt the trays in one direction so that the vegetables slide downward in the trays toward a cutting knife which cuts off the lower ends of the vegetables as they are moved forward. When the trays are moved into the second trimming zone the guide rails tilt the trays in the opposite direction so that the vegetables slide downward in this direction toward a cutting knife which cuts off the other ends of the vegetables. Vibrating means is provided for shaking the trays while they are passing through the trimming zones so that the vegetables slide downward in the trays toward the cutting means.

3,738,259

BOX SPRING PRESS

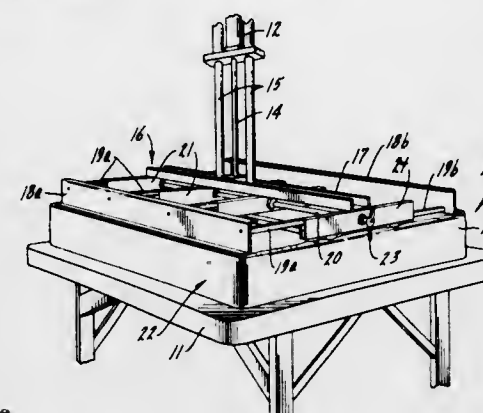
Theo Hochstatter, Etobicoke, Ontario, Canada, assignor to Sealy, Inc., Chicago, Ill.

Filed June 3, 1971, Ser. No. 149,701

Int. Cl. B30b 15/06

U.S. Cl. 100—295

3 Claims



A box spring press including a bed and a source of power to act on a shaft and reciprocally drive an adjustable platen. The adjustable platen comprises a pair of rails that move uniformly in conjunction with each other in opposite directions by the operation of a rack and pinion. A uniform compression of the box spring unit is achieved by aligning the adjustable rails with the edge members of the box spring unit. The compression of the box spring unit in this manner allows a uniform tension to result in ticking that is applied to the unit before its release.

3,738,260

ARTICLE CONTROLLED BOTTOM MARKING APPARATUS

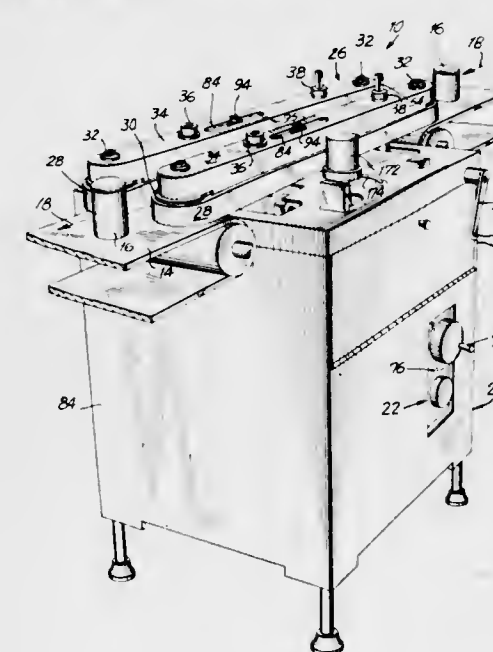
Menashe Navi, Elizabeth, N.J., and Murray N. Levy, Spring Valley, N.Y., assignors to Adolph Gottscho Inc., Union, N.J.

Filed July 2, 1971, Ser. No. 159,376

Int. Cl. B41f 17/16

U.S. Cl. 101—35

18 Claims



An apparatus for imprinting on the bottom surface of a plurality of objects carried along a path wherein said objects are carried along a portion of said path by a pair of spaced moving belt means positioned in said path. The objects are detected by sensing means selectively displaceable along said path which produce a detection signal when an object to be imprinted passes thereby. Print means positioned below and intermediate the pair of moving belt means is adapted for actuation in response to said detection signal to effect imprinting on said object bottom surface.

3,738,261

PAINT WHEEL SETTING ARRANGEMENT IN DUPLICATING PRINT DRUMS WITH PUNCH CONTROL MEANS

Gerhard Ritzerfeld, Schorlemer Allee 14, 1000 Berlin 33 (Dahlem), Germany

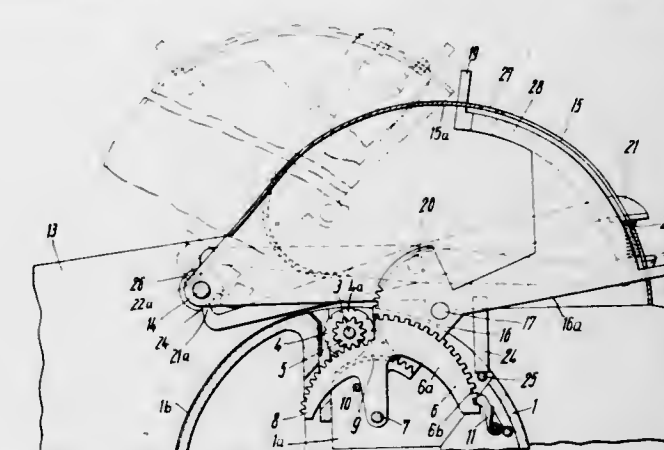
Filed Apr. 26, 1971, Ser. No. 137,404

Claims priority, application Germany, Apr. 27, 1970, P 20 21 992.5

Int. Cl. B41j 7/38, 7/00

U.S. Cl. 101—91

20 Claims



The printing drum of a duplicating machine has a cavity in which an ordinal set of stamping wheels is mounted for making additional imprints on a copy sheet. A casing, which supports a set of manual setting levers, has an operative position in which the setting levers are connected with the stamping wheels, respectively, by meshing gears in the cavity so that the small stamping wheels can be set by the conveniently large setting levers. The casing with the setting levers can be retracted from the printing drum so that the gears are separated, and printing operations can be carried out by the printing drum without obstruction by the casing and setting levers.

3,738,262

ELECTROMAGNETIC ACTUATING MEANS FOR PRINT HAMMERS

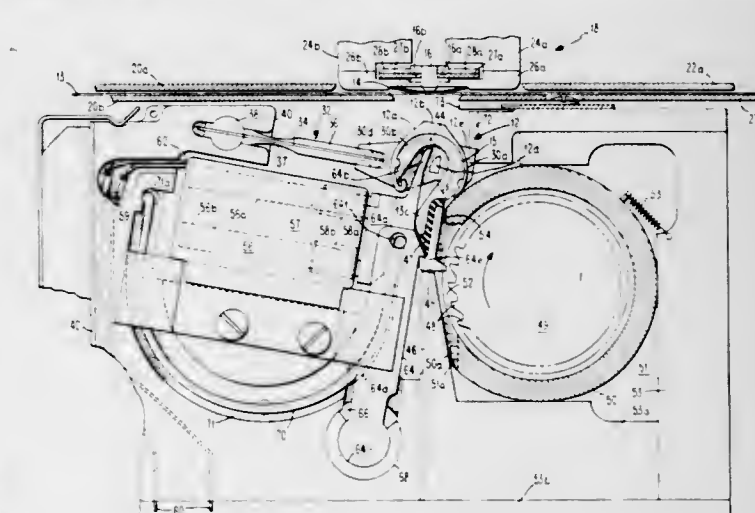
Jonas E. Dayger, Binghamton; Albert A. Dowd, Vestal, and Joseph A. Vrablic, Binghamton, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 28, 1970, Ser. No. 101,654

Int. Cl. B41j 9/38

U.S. Cl. 101—93 C

10 Claims



A print hammer is supported by a cantilever spring and carries a pawl which is actuated by electromagnetic means into the path of teeth on a continuously rotating reamer shaft to impel the hammer to impact a document and a ribbon against type characters on a type chain or the like. Movement of the print hammer resets the armature of the electromagnetic means.

3,738,263

PRINTER FOR PRINTING A COLOR BAR CODE

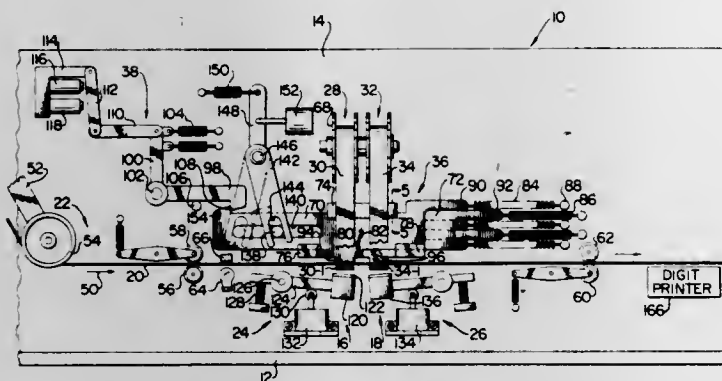
Ollah Combs, Morrow, and Bob G. Lyons, Centerville, both of Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed Feb. 22, 1972, Ser. No. 227,946

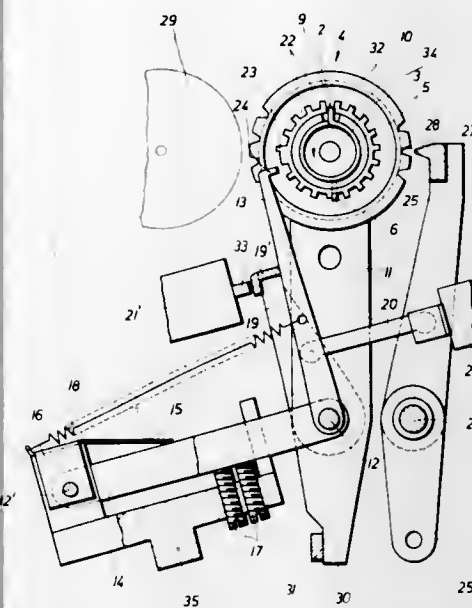
Int. Cl. B41j 9/12

U.S. Cl. 101—93 C

10 Claims



desired character. An adjustable detent mechanism is provided which is magnetically actuated by a synchronization



device to set each type carrier. A printing ledge moves the set carriers against a platen to print.

3,738,265

MULTICOLOR INTAGLIO PRINTING MACHINE WITH PIVOTABLE GATE SUPPORT FOR INKING UNITS

Johann Heinrich Sauressig, Wuellen/Ahaus, Germany, assignor to Gebr. Sauressig KG, Ahaus/Wuellen, Germany

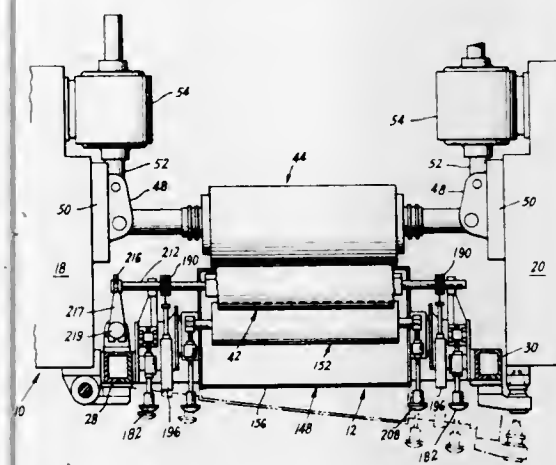
Continuation-in-part of Ser. No. 23,564, March 30, 1970, abandoned. This application Dec. 20, 1971, Ser. No. 210,064

Claims priority, application Germany, Mar. 29, 1969, P 19 16 358.8

Int. Cl. B41f 9/02, 9/10

U.S. Cl. 101—152

31 Claims



An intaglio print machine for multicolor operation has a multiplicity of pairs of cooperating intaglio rolls and back up rolls rotatably supported on the machine frame and a vertical gate member pivotally mounted on the frame with a multiplicity of inking units supported thereon in vertical spaced alignment and cooperating with the intaglio rolls. Each of the inking units includes an ink trough, an ink roll rotatable in the ink trough for coating the intaglio roll, a doctor member pivotally mounted and extending upwardly into surface contact with the lower portion of its intaglio roll inwardly of the axis of rotation and pneumatic means for pivoting the doctor member downwardly to permit passage by the intaglio roll upon pivoting of the gate member. The height of the free edge of the doctor member may be vertically adjusted and the pressure holding the doctor member against the intaglio roll may be pneumatically adjusted. Desirably, a second doctor member is employed in contact with the upper surface of the intaglio roll and the inking unit includes means for adjusting the pressure of the free edge of the second doctor member

3,738,264

TYPE CARRIER SETTING DEVICE

Dieter Sobottka, Jever I.O., and Dieter Folkens, Wilhelmshaven, both of Germany, assignors to Olympia Werke AG, Wilhelmshaven, Germany

Filed June 15, 1970, Ser. No. 46,198

Claims priority, application Germany, June 13, 1969, P 19 30 048.2

Int. Cl. B41j 1/54

U.S. Cl. 101—110

10 Claims

A setting device for type carriers having a plurality of characters in printers having a shaft and a loop spring for each type carrier arranged about the shaft. Each type carrier is mounted on a respective loop spring so that the type carrier can be moved into and arrested in a position for printing a

3,738,268

COCKING LOCK-UP

Robert Swordy, Yate, and William Peter Herring, Winterbourne, both of England, assignors to Strachan & Henshaw Limited, Speedwell, Bristol, England

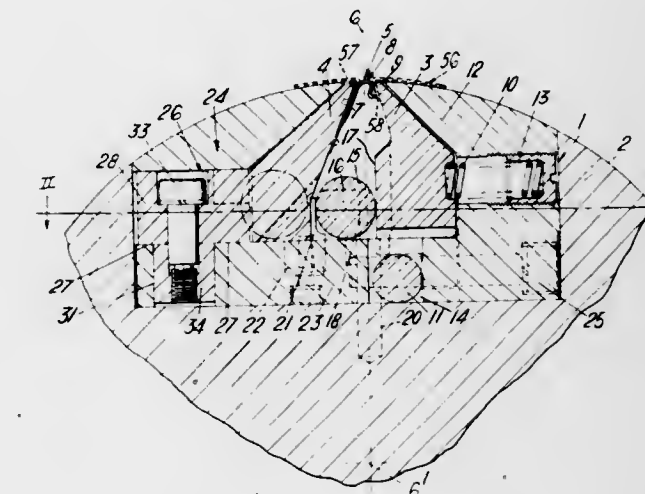
Filed June 25, 1971, Ser. No. 156,876

Claims priority, application Great Britain, July 28, 1970, 36,486/70

Int. Cl. B41f 1/28

U.S. Cl. 101—415.1

4 Claims



against the intaglio roll. The intaglio rolls are of cylindrical configuration and supported upon the frame by novel cone assemblies and by novel expandable bushings.

3,738,266

ELECTRONIC PRINTING DEVICE

Haruo Maeda, Tokyo, and Eiichi Miyazaki, Irumacho, Chofu-shi, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

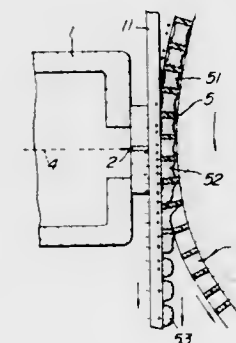
Filed July 12, 1968, Ser. No. 744,552

Claims priority, application Japan, July 25, 1967, 42/48285; July 26, 1967, 42/48544

Int. Cl. B41f 9/00

U.S. Cl. 101—153

7 Claims



An electronic printing device having an electrostatic printing tube or film penetration tube and a finely meshed screen of dielectric material. In the device, a positive charge is supplied to printing ink retained within the meshes of the screen or to a recording medium of conventional paper material, while a negative charge is supplied to the recording medium or to the printing ink according to a pattern determined by a signal so as to utilize the electrostatic force of attraction between the positive and negative charges for producing a print.

Plate cocking is achieved on a printing machine in operating condition and even when running by imposing a true slewing movement on the leading edge of a plate by a lock-up reference jaw mounted for arcuate movements about a center spaced from the jaw by an amount approximately equal to the printing length of the plate. The trailing edge jaw is a floating jaw. The change in angle of the plate leading edge is "ironed" along the plate towards its trailing edge by operation of the machine.

3,738,267

LATCHING DEVICE

James T. Zofchak, Wickliffe, and Norman R. Avery, Chesterland, both of Ohio, assignors to Addressograph-Multigraph Corporation, Cleveland, Ohio

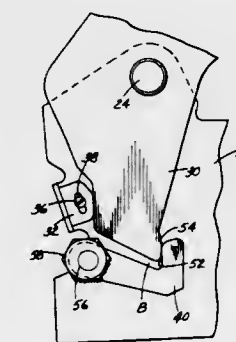
Filed Nov. 25, 1970, Ser. No. 92,754

Int. Cl. B41p 3/04

U.S. Cl. 101—269

3 Claims

U.S. Cl. 101—367



A latching device, particularly for latching a head in printing position on a bed in a data recorder. The latching device includes an adjustable stop to precisely position the head in the printing position, and cooperating latch means. The latch means include engagement surfaces and pivoted arms, which move into engagement with the engagement surfaces engaging them at a locking angle. The arms are positionable to insure clearance between the arms and the stop surfaces in the latching position.

3,738,269

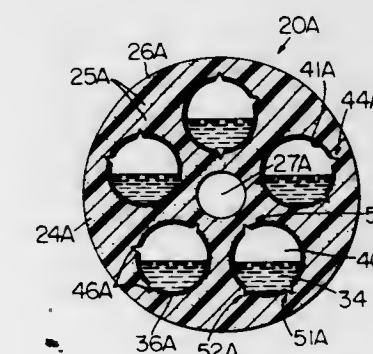
PRINTING INKING MEMBERS

William T. Wagner, 5237 Weigold Court, Dayton, Ohio

Division of Ser. No. 768,628, Oct. 18, 1968, abandoned. This application July 6, 1971, Ser. No. 159,965

Int. Cl. B41f 31/22, 31/26

1 Claim



A printing member made of a porous material and having an outer ink-applying surface and ink supply means free of separate vents whereby a printing ink in the supply means is transferred through the porous material to the ink-applying surface by capillary action.

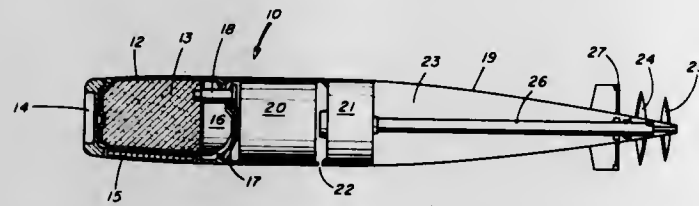
3,738,270

HOMING DEPTH BOMB FOR SEARCHING FOR AN UNDERWATER TARGET

Rochard L. Hargett, Frederick, and Samuel A. Humphrey, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of the Navy
Filed Mar. 24, 1966, Ser. No. 538,897
Int. Cl. F42b 19/00

U.S. Cl. 102-7

5 Claims



A vertically searching depth bomb-torpedo is disclosed having at least four passive, side looking hydrophones for searching each horizontal layer of water and determining the approximate direction of a target during the vertical dive of the torpedo and a set of forward-looking hydrophones for conducting a snaking search when the torpedo pulls out of its vertical dive heading generally toward the target. A hydrodynamic scheme is illustrated wherein the center of gravity of the torpedo is moved forward of the center of buoyancy to increase dynamic stability, to allow the use of small fins and control surfaces, to reduce drag and to reduce power requirements. In addition, the torpedo has a DC-operated, sea-water flooded, contra-rotating motor.

3,738,271

GRENADE ROUND WITH MEANS GIVING FORWARD MOMENTUM TO THE FIRED CASE

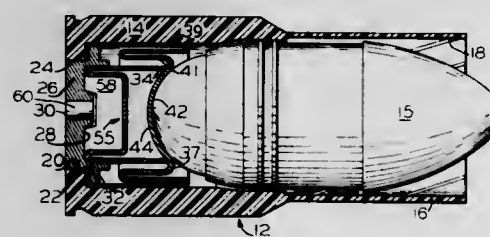
Nicholas J. La Costa, Phoenix, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 18, 1970, Ser. No. 99,698

Int. Cl. F42b 5/02

U.S. Cl. 102-38

6 Claims



A grenade round containing a case with a telescopic tubular actuator, which is extended responsive to propellant discharge therein against the forwardly disposed grenade, is provided with a propellant wad which is unrolled and then is freed for forward impact against the extended actuator by residual discharge gas pressure to give forward momentum to the case after the grenade is propelled therefrom.

3,738,272

PROJECTILE

Gregory Grosbard, New York, N.Y., assignor to Radlon Development Corporation

Filed Apr. 13, 1971, Ser. No. 133,665

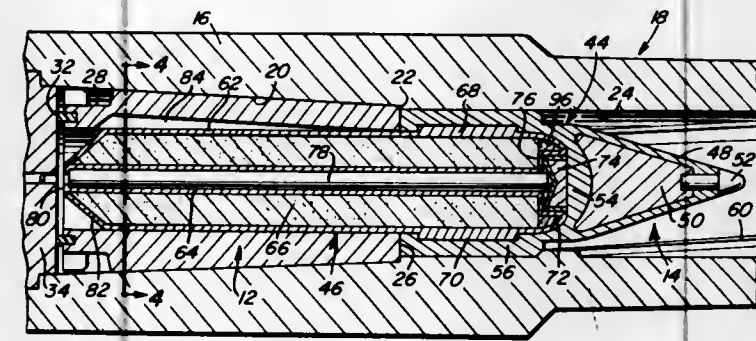
Int. Cl. F42b 9/10

U.S. Cl. 102-38

18 Claims

An ammunition round having an adapter casing retained within the breech end of a gun barrel and a projectile held within the casing. A rear tubular portion of the projectile is made of thin sheet material and double walled to enclose a

propellant charge about a firing pin extending into engagement with a primer located between the recessed nose of the



tubular portion and a partition in the forward housing portion of the projectile separating the primer from the warhead.

3,738,273

SAFETY-ARMING DEVICE

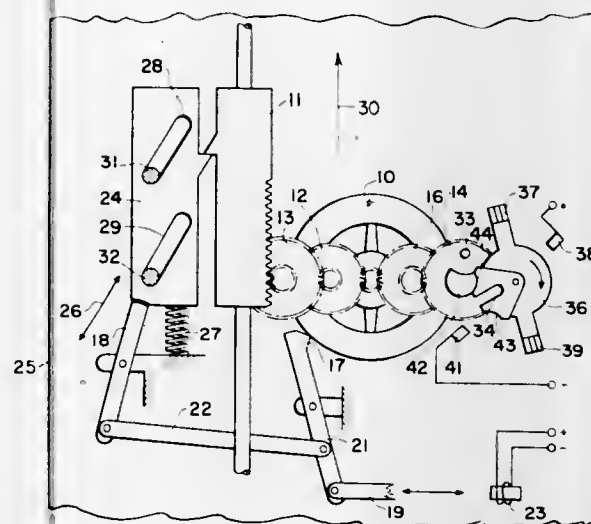
Warren R. Hoelzen, Ontario, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sept. 29, 1960, Ser. No. 59,454

Int. Cl. F42c 15/24, 9/02, 15/18

U.S. Cl. 102-70.2 R

4 Claims



1. In a switch actuating means, the combination comprising an acceleration sensitive weight displaced in proportion to an accelerating force applied to said acceleration sensitive weight, a flywheel drivingly coupled to said acceleration sensitive weight and being driven in response to motion of said acceleration weight, a normally open switch having a movable contact bearing member, gear means coupling said contact bearing member to said flywheel and being actuated to close said switch by the momentum of said flywheel after the acceleration force is no longer applied to said weight.

3,738,274

MUZZLE BURST FUZES

Jack Brothers, Succasunna, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 24, 1972, Ser. No. 219,993

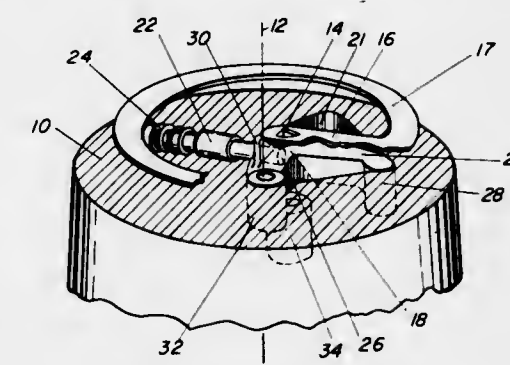
Int. Cl. F42c 15/26

U.S. Cl. 102-70

5 Claims

This invention relates to a muzzle burst inertia responsive fuze for a projectile warhead which is designed to spin about its longitudinal axis. The fuze having a cylindrical housing whose longitudinal axis is parallel to the projectile longitudinal axis, a centrally located shutter cam cavity positioned in the housing immediately adjacent to an explosive train, a shutter camming means positioned in the housing so that it is slidably responsive to the projectile spin when the projectile exits from the launcher and fixedly held motionless when the projectile is

in the launcher, a spin actuated detent means biasedly positioned in the housing for releasably holding the shutter camming means, and a firing pin means operatively held in the housing adjacent to the shutter camming means for engaging and holding the camming means in a stationary safe position



while the projectile is in the launcher, and initiating detonation of the projectile when the camming means has aligned a stab detonation over an explosive train.

The invention described herein may be manufactured, used and licensed by or for the Government for governmental purposes without the payment to me of any royalty thereon.

3,738,275

AMMUNITION TARGET DISCRIMINATOR

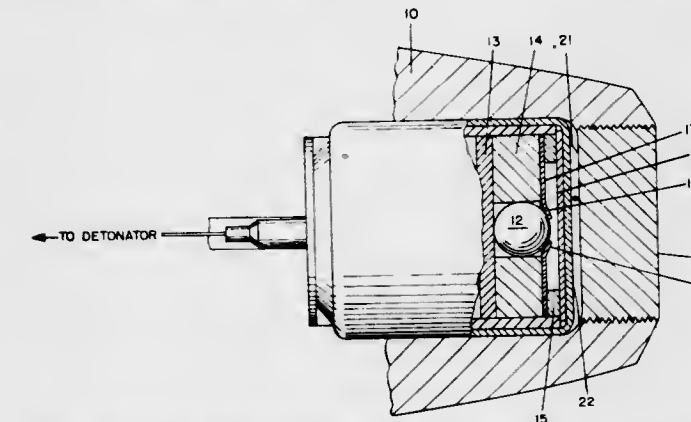
Jacob Schwartz, Rockaway, and George Rosner, Dover, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 22, 1971, Ser. No. 136,465

Int. Cl. F42b 5/08, 9/08

U.S. Cl. 102-70.2 GA

3 Claims



In a high explosive projectile which is designed to function on impact and which includes an inertially activated detonator power supply, that improvement which comprises an impact nose plug threaded into the projectile aligned with and spaced from but proximate the power supply. The plug material and the mating threads jointly providing a functioning or non-functioning of the ammunition for selected targets dependent on the shear characteristics thereof. Thus, the system can be made to function for certain targets and be non-functional for other light targets such as thin structures, tree branches, bushes, etc.

3,738,276

CONTAINER WITH CONTROLLABLY DESENSITIZED EXPLOSIVE MIXTURES

Jean P. Picard, Morristown; H. William Voigt, Jr., Stanhope, and Lawrence W. Pell, West Orange, all of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 17, 1971, Ser. No. 199,452

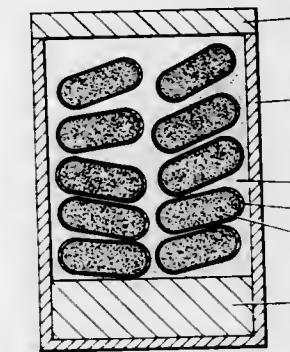
Int. Cl. F42c 1/00

U.S. Cl. 102-7.2

6 Claims

A composite semi-liquid system for thickening halogenated organic liquids, such as Freon 113 (a registered trademark of

E. I. DuPont de Nemours & Co.) to improve safety in the formulation and handling of certain highly-sensitive-to-detonation mixtures, for example, a mixture of secondary and primary explosives, or a combination of a solid sensitive oxidizer with a pyrotechnic fuel. The thickened halocarbon is used in two stages, first a selected combination of gelling agents such as Cab-O-Sil M-5 (a registered trademark of the Cabot Corporation) and Bentone 38 (a registered trademark of N. L. In-



dustries, Inc.) is incorporated into the halocarbon and the resultant slurry is then used to desensitize the explosive by admixture. The desensitized explosive is packaged in a container which is permeable to the halocarbon vapor and this package is immersed in a vessel containing a halocarbon gel obtained by selective gelation with gellants such as Alumagel (a registered trademark of Witco Chemical Co.); this second gel provides a means for preventing a rapid escape of the liquid from the vessel if a leak occurs.

3,738,277

PYROTECHNIC APPARATUS TO ASSIST IN THE TRACKING OF AIRCRAFT

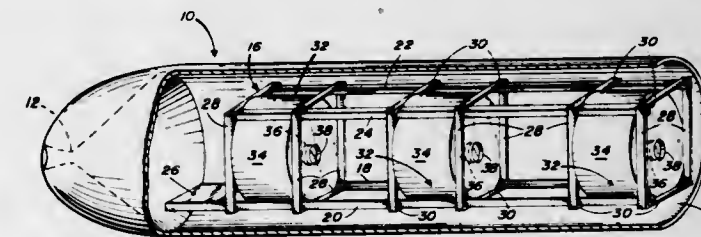
William C. Griffin, Ridgecrest; Lynn Barker, and Kenneth R. Foote, both of China Lake, all of Calif., assignors to The United States of America as represented by the Secretary of the Navy

Filed Nov. 16, 1970, Ser. No. 89,738

Int. Cl. F42b 13/34

U.S. Cl. 102-87

5 Claims



An apparatus for producing a smoke trail as an acquisition aid to operators of aircraft tracking cameras and tracking radar. A visually detectable trace is produced which enables the tracking operators to locate aircraft that they are required to track for data. The apparatus comprises a housing containing a plurality of pyrotechnic smoke devices suitably connected to a stepping relay so that on each application of a pulse of electricity by the aircraft pilot, the relay will sequentially ignite the pyrotechnic devices thereby forming a smoke trail. The smoke is formed from a mixture of hexachloroethane, zinc oxide, and aluminum.

3,738,278

COLOURED SMOKE PRODUCTION

Wayne J. Bachusky, 54 Russell St. No. 13, Kongston, Ontario, and Rodolphe J. Levesque, 3153 Doual, Quebec, Quebec, both of Canada

Filed June 7, 1971, Ser. No. 150,729

Int. Cl. F42b 13/44

U.S. Cl. 102-90

4 Claims

The invention provides a process for producing an intense, persistent coloured smoke, wherein a mixture of VOCl_3 and a

stabilizer, e.g. concentrated sodium hydroxide, which intensifies and prolongs the color of the smoke, is released into the atmosphere. Also, a packaged composition for providing such a smoke, which comprises a sealed frangible container containing a mixture of VOCl_3 and a stabilizer of said type.

3,738,279

SABOT FOR SUB-CALIBRE PROJECTILE

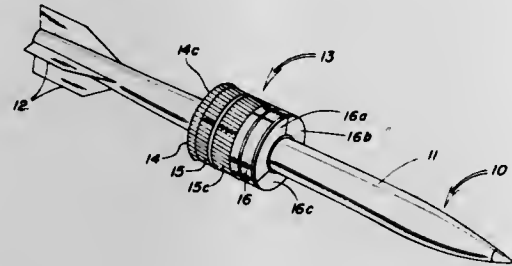
Frank W. Eyre, Montreal, Quebec, and Fergus M. Groundwater, St. Lambert, Quebec, both of Canada, assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed July 24, 1970, Ser. No. 58,027

Int. Cl. F42b 13/16

U.S. Cl. 102-94

7 Claims



A sabot for locating a finned missile in a rifled gun barrel, consisting of a rear sealing ring, an intermediate wedge unit and a front petal unit. The sealing ring and wedge unit have peripheral grooves to slidably fit a rifled barrel and the petal unit has a smooth periphery for sliding engagement with lands of the rifling. The petal unit and the wedge unit each consists of a set of separable complementary segments and the two units have complementarily frusto-conical adjacent end faces so that the wedge segments are urged outwardly and the petal segments inwardly by a forward axial force on the sealing ring.

3,738,280

BEAM-TRACK ASSEMBLY FOR AIR-LIFT OR MAGNETIC-LIFT VEHICLES

Maurice Barthalon, 78, Avenue Henri Martin, Paris, France

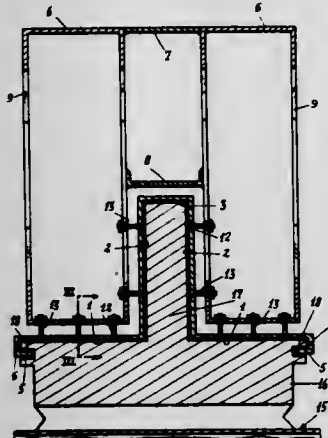
Filed June 22, 1970, Ser. No. 47,971

Claims priority, application France, July 18, 1969, 6924644

Int. Cl. B61b 13/08

U.S. Cl. 104-23 FS

5 Claims



This invention relates to an improved beam-track assembly for land vehicles of the air-lift or magnetic-lift type, wherein the track and beam constitute separate units joined together by connecting and adjusting means. Said means preferably comprise a layer of deformable material which is disposed between track and beam and is capable of working in compression and in extension.

In an advantageous embodiment of the invention, the track is tensioned at the time of erection by means of longitudinal adjusting shims so as to produce a prestress within the beam; the upper chord of said beam is maintained in compression

and the lower chord is subjected to a higher compressive stress which counteracts the oppositely-directed stresses resulting from the passing of vehicles.

3,738,281

EMERGENCY SUPPORT AND DECELERATING MECHANISM FOR MAGNETICALLY SUPPORTED VEHICLE

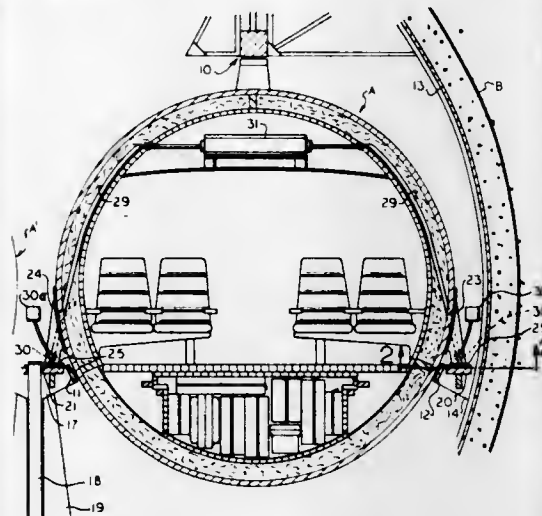
Jack P. Waidehich, Bonita, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Filed May 6, 1971, Ser. No. 140,735

Int. Cl. B60v 3/04

U.S. Cl. 104-23 FS

6 Claims



An emergency support and decelerating mechanism for a high speed, magnetically supported vehicle comprises one or more pairs of liquid-vapor bearing type shoes mounted one on each side of the vehicle, each shoe overlying, and spaced from, a support rail mounted one along each side of the path of the vehicle. In the event of loss of magnetic vehicle support, the vehicle drops by gravity to lower the shoes onto their respective rails, for sliding, vehicle supporting, movement therealong. As the shoes are thus lowered onto the rails, jets of vaporizable liquid are ejected at controlled rates through orifices provided in the soles of the shoes, which are thus lubricated and cooled.

3,738,282

METHOD AND INSTALLATION FOR BRAKING A MOVING BODY

Louis Duthion, Paris, and Claude Charles Doyotte, Le Plessis-Robinson, both of France, assignors to Bertin & Cie, Paris, France

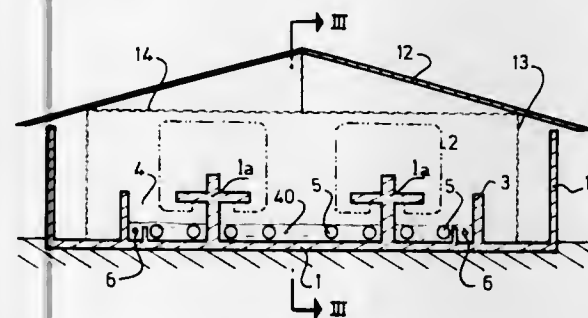
Filed Sept. 14, 1970, Ser. No. 71,676

Claims priority, application France, Sept. 12, 1969, 6931079

Int. Cl. B61k 7/00

U.S. Cl. 104-249

18 Claims



A method of braking a body which moves along a surface in an ambient medium, said method comprising forming liquid-gas foams in the path of the moving body, the density of these foams being greater than that of the ambient medium and preferably increasing in density in the direction of movement of the moving body.

3,738,283

RESILIENTLY CENTERED RAILWAY MOTOR TRUCK

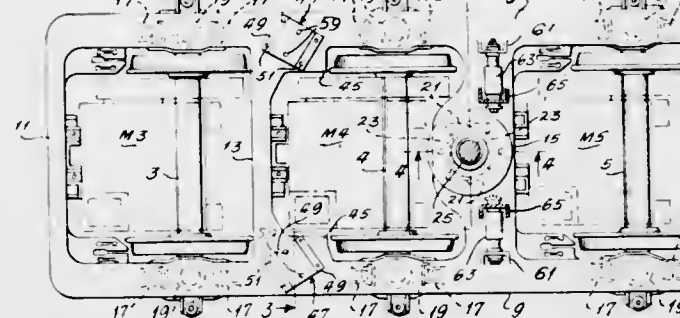
Francis Travers Burgess, Kirkwood, Mo., assignor to General Steel Industries, Inc., St. Louis, Mo.

Filed May 5, 1971, Ser. No. 140,429

Int. Cl. B61c 17/00; B61f 1/14, 3/06

U.S. Cl. 105-136

10 Claims



A resiliently centered bolsterless truck for railway locomotives has a rigid frame spring supported from the axles and is arranged to support a locomotive underframe at points spaced apart longitudinally of the truck to stabilize the truck frame against tipping longitudinally and thereby eliminate load transfer from axle to axle which would otherwise result from such tipping. The supports for the underframe from the truck frame comprise three elastomeric pad devices, one of which is annular and surrounds the truck center pin about which the truck swivels. The other two support devices are spaced lengthwise of the truck from the annular pad and are transversely aligned with respect to each other. Each pad device is held against horizontal movement with respect to the truck frame and includes means for securing it against relative horizontal movement with respect to a supported locomotive underframe, so that swivel and transverse movements of the underframe on the truck are accommodated by horizontal shear in the elastomeric pads, thus eliminating metal-to-metal frictional engagement of the underframe and truck frame.

3,738,284

LONGITUDINALLY AND TRANSVERSELY MOVABLE TRUCK

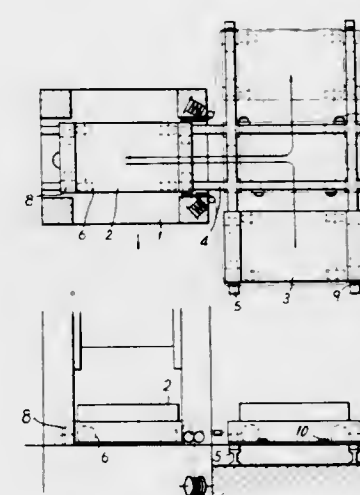
Hisayoshi Atsuta, and Yokichi Koetsuka, both of Ishikawa, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho (Komatsu Ltd.), Tokyo, Japan

Filed Apr. 23, 1971, Ser. No. 136,903

Int. Cl. B60s 13/02; B61f 13/00; B61j 1/10

U.S. Cl. 105-177

6 Claims



A longitudinally and transversely moving bolster truck is provided with two sets of wheels for use in the two different travelling directions respectively. Wheel lifting means are arranged to bring alternatively one set of wheels into contact with rails. Each of wheel lifting means comprises a wheel. The wheel is journaled in an arm pivoted on the body of the truck

so as to permit vertical oscillation. Links are pivoted at the free end of said arm so as to permit oscillation in the same direction. A screw shaft which can be rotated by means of a motor is horizontally journaled in the body of the truck. Said links reciprocally engage at the free ends thereof with said screw shaft through a female screw member.

3,738,285

CONNECTIBLE RAIL-HIGHWAY VEHICLE

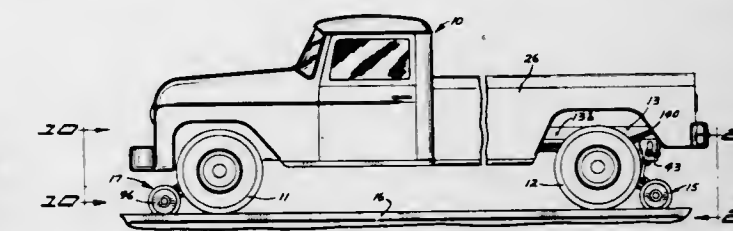
Buford W. Olson, Sr.; Eldrid Nelson, and Albin A. Davidson, all of Minneapolis, Minn., assignors to Chas. Olson & Sons, Incorporated, Minneapolis, Minn.

Filed Feb. 25, 1971, Ser. No. 118,790

Int. Cl. B61d 15/00; B61f 9/00; B62d 61/12

U.S. Cl. 105-215 C

32 Claims



Guide wheel assemblies mountable on a highway vehicle for movement between a retracted position and a rail travel position to guide the vehicle while the vehicle's flangeless wheels provide the driving power. Each assembly includes left and right guide wheels mounted for independent pivotal movement about a first axis and resiliently urged toward a datum position relative a subframe on which they are mounted, the subframe being mounted for pivotal movement on mounting members and overcenter lock mechanism for selectively moving the subframe to, and locking the subframe in a road travel position, and a rail travel position. The rear assembly includes an overcenter lock shaft mounted for limited vertical movement by the mounting members and cable mechanism connected to the vehicle rear spring mounted axle, extended over the shaft and mounted on the rear mounting members to permit the shaft to move upwardly and transmit a downward force through the lock mechanism and subframe to maintain a nearly constant pressure on the rear guide wheels in an overcenter lock position as the load on the vehicle box increases and moves the mounting members downwardly.

3,738,286

ADJUSTABLE HEIGHT TABLE

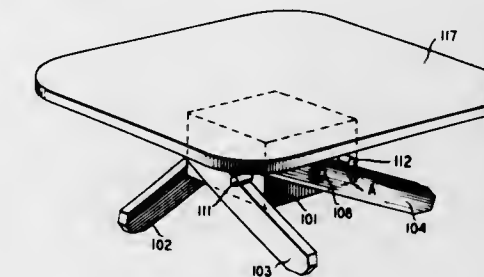
Clifford James Hoffman, 24 Burnt Mill Circle, Oceanport, N.J.

Filed Dec. 1, 1971, Ser. No. 203,650

Int. Cl. A47b 9/00

U.S. Cl. 108-144

10 Claims



In an adjustable height table, each of a plurality of legs is pivotally mounted on a respective side of a leg support structure that is in spaced relation to the table top. Although the table top rests on the tops of the legs, the entire leg assembly including the leg support structure is in effect self-supporting and in that sense independent of the table top. Each of a plurality of leg arresting pins is affixed to the leg support structure at a height that differs from the height of the corresponding leg pivot. Accordingly, table height adjustment is achieved by

simply rotating each of the legs so that the corresponding leg arresting pin bears against a different point on the leg but on the same side thereof.

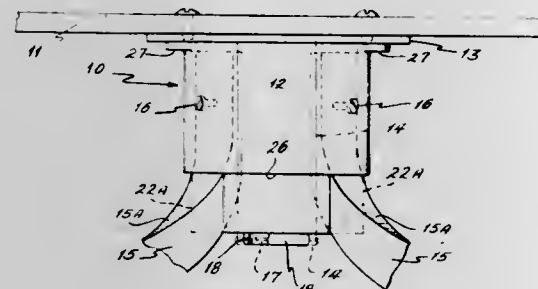
3,738,287

HUB AND LEG MOUNTING FOR PEDESTAL STANDS
Walter Gusdorf, Creve Coeur, and Charles F. Camilleri, Affton, both of Mo., assignors to Gusdorf & Sons, Inc., St. Louis, Mo.

Filed Oct. 20, 1971, Ser. No. 190,976
Int. Cl. A47b 13/02

U.S. Cl. 108-150

9 Claims



A pedestal stand for accessory appliances, such as television and radio receivers, and record players, having a mounting hub connecting the several legs in a secure manner so that the top of the stand is rendered stable and capable of swivelling for directional settings.

3,738,288
THERMIC LANCE

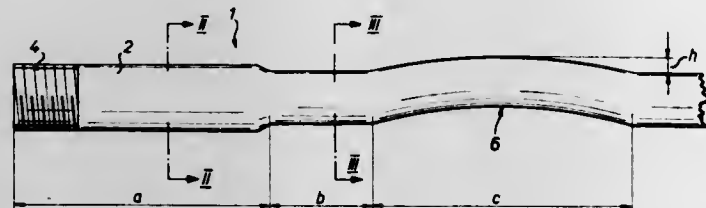
Ernst Brandenberger, Wetzikon, Switzerland, assignor to Kurbatec Kunststoff-und Bautechnik AG, Triesen, Fla., a part interest

Filed Jan. 26, 1972, Ser. No. 220,787
Claims priority, application Switzerland, Feb. 5, 1971, 1725/71

Int. Cl. F23b 7/00

U.S. Cl. 110-1 R

13 Claims



A thermic lance which is operated by gaseous combustion and serves for forming openings, cavities or grooves in hard material such as concrete, stone, building walls and the like. The lance is equipped with a steel tube packed with a plurality of steel rods. Oxygen is passed through the tube from one end and the lance is ignited at the other end to produce an intense heat source that is applied to the material to be cut. Both the tube and rods become consumed during burning out process. The enclosing tube has with the exception of its ends a cross-sectional shape which is other than circular. For securing the rods in the tube a flat arcuate divergence is provided in the tube and the rods near the gas connecting end part of the lance. Formation of the divergent zone and deformation of the tube in a non-circular cross-sectional shape is effected simultaneously by a single press operation.

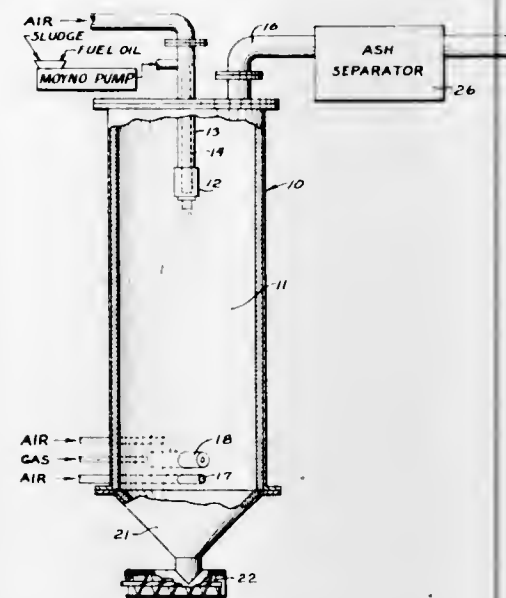
3,738,289
COUNTER-FLOW SLUDGE BURNER

John E. Hanway, Jr., Naperville, Ill., assignor to Chicago Bridge & Iron Company, Aurora, Ill.

Filed Aug. 16, 1971, Ser. No. 172,020
Int. Cl. F23g 5/12

U.S. Cl. 110-8 R

8 Claims



Waste-treatment sludge from which water has been largely removed is dispersed downwardly in an upwardly flowing atmosphere within a firebox where the temperature is maintained sufficiently high to dry and burn the sludge while it is in free falling condition, and ash and other products of combustion escaping upwardly to a gas scrubber and ash separator, with relatively clean gas being discharged to the atmosphere. The firebox is preheated by a burner at the bottom thereof. As necessary to maintain the required temperature, there is further burning of fuel at this burner or by addition to the sludge feed. Addition to fuel oil to the sludge before pumping the sludge facilitates pumping, and achieves mixing. Supplementary air is fed at bottom and somewhat tangentially, to impart rotation to the gases within the firebox.

3,738,290

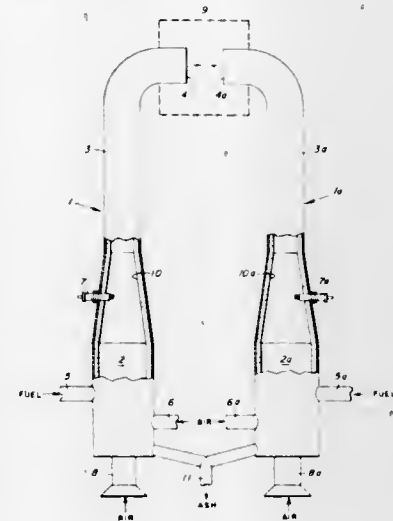
DUAL PULSE-JET SYSTEM FOR THE COMBUSTION OF HIGH ASH FUEL

John W. Belter, Grand Forks, N. Dak., assignor to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Oct. 14, 1971, Ser. No. 189,199
Int. Cl. F23g 7/00

U.S. Cl. 110-28 R

5 Claims



Coal is burned in vertically oriented, dual opposed pulse-jets. Each jet's combustion chamber upwardly discharges combustion gases through a vertical tailpipe bent at its upper

end in the direction of the pipe on the adjacent jet so as to allow combustion gases to propel back and forth between the adjacent tailpipes. Combustion air is drawn upward through the bottom of each combustion chamber through a centrally located conduit. Refractory material lines the walls of the jets so as to maintain the average gas temperature above the melting point of fuel ash. Entrained ash in the combustion gases is caught on the walls of the pipes and combustion chambers, and drains down the walls as a molten slag to the bottom of the jets.

3,738,291

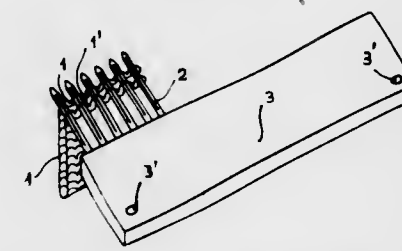
DEVICE AND METHOD FOR LINKING TUBULAR BORDERS TO A FABRIC EDGE

Romolo Spagnuolo, via Fratelli Battinoni, Treviglio, Italy

Filed Mar. 30, 1971, Ser. No. 129,538
Int. Cl. D05b 7/00

U.S. Cl. 112-25

13 Claims



A device for linking U-shaped borders produced by a straight knitting machine to the edge of a fabric in a straight linking machine. The device includes a first stationary comb for receiving stitches on the end edge of the border and a second comb movable between a plurality of positions for transferring these stitches from the stationary comb to the edge of the fabric.

3,738,292

APPARATUS FOR PRODUCING APERTURES FOR JETTED POCKETS ON CUT PARTS OF GARMENTS

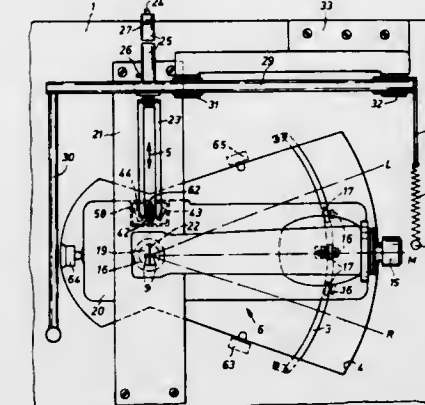
Peter Hintzen, Krickbach; Fritz Jehle, Alesborn, and Erich Willenbacher, Karlsruhe, all of Germany, assignors to Firma Pfaff Industriemaschinen GmbH, Kaiserslautern/Pfalz, Germany

Filed June 14, 1972, Ser. No. 262,604
Claims priority, application Germany, June 18, 1971, P 71 23 358.4

Int. Cl. D05b 3/12

U.S. Cl. 112-65

6 Claims



Arrangement for producing jet openings for jetted pockets in cut pieces of garments using a displaceable work piece clamp on a two-needle sewing machine having a pleat guide for the jet strip, a severing cutter for the longitudinal slit operating between the needles and cutting means for producing the angular cuts at the ends of the longitudinal slits, said machine being rotatable about a pivot axis which coincides with the axis of symmetry of the needles and which may be latched in predetermined angular positions (R, M, L), and a

number of sets of angular cutters corresponding in number to the angular positions, which sets of cutters comprise angular cutters that are individually guided.

3,738,293

TUFTING MACHINES

Ronald Parsons, Rishton, Blackburn, Lancashire, England, assignor to The Singer Company (U.K.) Limited, London, England

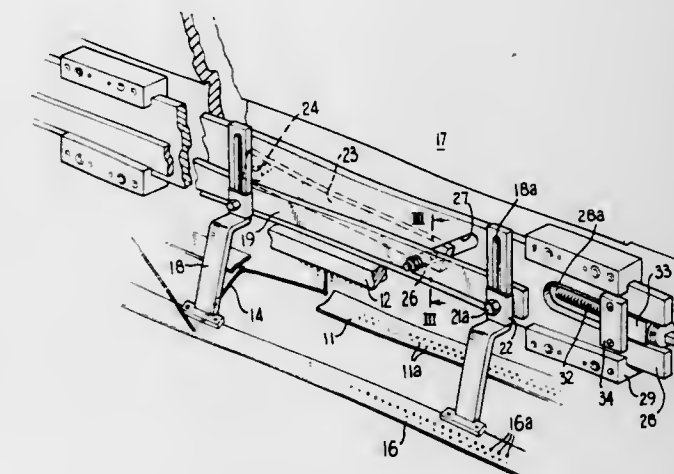
Filed Aug. 13, 1971, Ser. No. 171,663

Claims priority, application Great Britain, Aug. 22, 1970, 40,560/70

Int. Cl. D05c 15/18

U.S. Cl. 112-79 R

7 Claims



An adjustable jerker bar mechanism for a tufting machine includes first and second jerker bars secured to the machine frame and the needle bar respectively, the first such jerker bar comprising a composite structure which includes a movably mounted jerker bar supported by spaced swinging arms and an adjustment means for varying the angular position of such arms relative to a datum and thereby adjusting the relative positions of the first and second jerker bars at an extreme position thereof.

3,738,294

APPARATUS FOR CLOSING THE TOE OF A STOCKING

Bendt Andreas Christiansen, Helsingør, Denmark, assignor to Hans Christian Andersen, Kastanienbaum, Switzerland

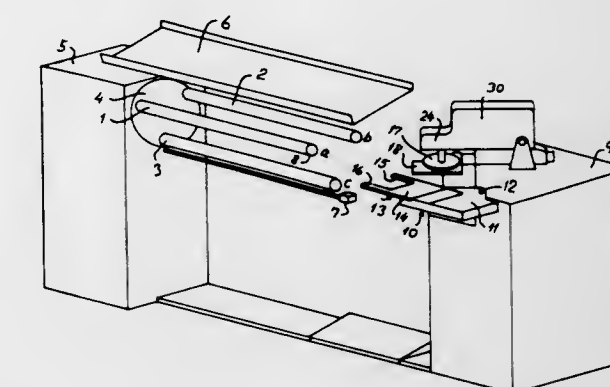
Continuation of Ser. No. 764,060, Oct. 1, 1968, abandoned.

This application Sept. 29, 1970, Ser. No. 76,604

Int. Cl. D05b 21/00

U.S. Cl. 112-121.15

12 Claims



To close the toe end of a stocking, a short length of an open-ended stocking, say 5-10 cm, is drawn on to a flat holder and is transferred by means of this holder to a position between a smooth support and a presser foot having a contour corresponding to the desired shape of the seaming line. The presser foot then moves the flat stocking end past a seaming and cutting device.

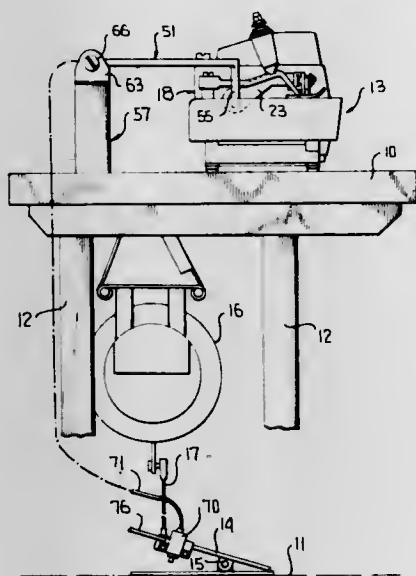
3,738,295 AUTOMATICALLY ADJUSTABLE TRIMMING MECHANISM

Farris L. Davis, Fayetteville, and Daniel D. Brown, Springdale, both of Ark., assignors to Union Special Machine Company, Chicago, Ill.

Filed Apr. 13, 1971, Ser. No. 133,683
Int. Cl. D05b 37/02

U.S. Cl. 112-126

10 Claims



This disclosure relates to an automatically adjustable trimming mechanism for use in association with sewing machines and includes a knife for trimming material being sewn with the knife being shiftable transversely of the direction of material feed for selectively varying the spacing of the trimmed edge of material from the needle of the sewing machine. A simple linkage is provided for shifting the knife and this linkage is actuated by power means which is remotely controllable. The controls for the power means may be mounted on a treadle for controlling the operation of the sewing machine wherein a single treadle may be utilized for controlling the sewing machine and the shifting of the position of the knife.

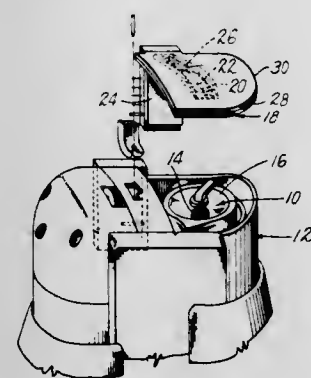
3,738,296

PHOTOELECTRIC RELATIVE MOTION DETECTOR
Fred T. MacKenzie, Beverly; Robert V. Brophy, Gloucester, and Ralph E. Karcher, Jr., Magnolia, all of Mass., assignors to USM Corporation, Boston, Mass.

Filed Sept. 21, 1971, Ser. No. 182,466
Int. Cl. D05b 69/36

U.S. Cl. 112-219 R

2 Claims



A Photoelectric Relative Motion Detector in which a light source and a photoelectric device are mounted on a plate adjacent one side of an object having portions varying in light reflectivity spaced along a path of relative motion between the detector and the object. The plate shields portions of the object along the path from ambient light and shields electrical leads connecting the device to external circuits from extraneous electrical signals.

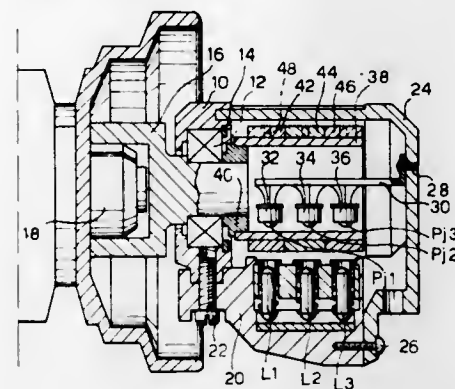
3,738,297 ELECTRONIC CONTROL ARRANGEMENT FOR THE NEEDLE AND THREADCUTTER IN AN INDUSTRIAL SEWING MACHINE

Mario Sangiorgi, Vigevano, Italy, assignor to Elettromeccanica S.A.S. Mazzini Motori Di Sangiorgi & C., Vigevano (Pavia), Italy

Claims priority, application Italy, June 21, 1971, 6912A/71
Filed June 15, 1972, Ser. No. 263,068
Int. Cl. D05b 69/22

U.S. Cl. 112-219 A

5 Claims



An improved electronic control for industrial sewing machines has first and second control switches for stopping the needle at its lower dead point and for controlling cutting of the thread while positioning the needle at its top dead point. Three transparent rings are keyed, in adjustable positions, to the needle control shaft, each ring having an opaque sector, and each being arranged to rotate between a source of light and respective transistor connected to logic circuits. When the first switch is operated a first transistor excites an electromagnetic clutch for coupling the control shaft of the needle to the low-speed motor and successively excites for a short period an electromagnetic brake which arrests the shaft at its lower dead point: when the second switch is operated the other two photo-transistors cause the electromagnetic clutch to be engaged, followed for a short period by the electromagnetic brake to bring the needle to its top dead point and at the same time energize electromagnetic actuators which advance a cutter blade and slacken a thread-tensioning device of the sewing machine and, after a predetermined delay, energize an electromagnetic actuator which withdraws the cutter blade towards a counter-blade to sever the thread.

3,738,298

**TENSION DEVICE FOR NEEDLETHREAD OF A SEWING
MACHINE**

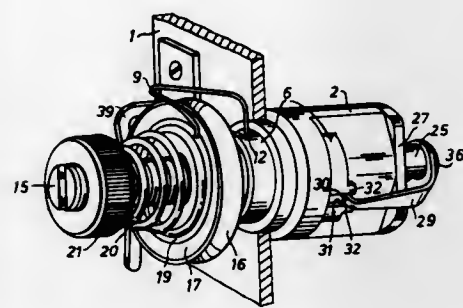
Ernst Albrecht, Hochspeyer/Pfalz, Germany, assignor to Plaff Industriemaschinen GmbH, Kaiserlautern/Pfalz, Germany

Filed Oct. 28, 1971, Ser. No. 193,279
Claims priority, application Germany, Nov. 3, 1970, G 70 40 674.5

Int. Cl. D05b 47/00

U.S. Cl. 112-254

3 Claims



The tension device disclosed is of the type which combines a pair of releasable spring-pressed tensioning disks with a torsion spring. When the pressure between the disks is released at the end of an operation, means are also provided to inactivate the device.

the torsion spring to prevent the latter from pulling the thread from the needle eye when the thread is cut or when the next operation is started.

3,738,299 EMBLEMS WHICH WILL GLOW IN THE DARK AND THE METHOD OF MAKING THEM

Mel A. Packler, 246 Locust Road, Wilmette, and Jordan Coke, 8928 Church St., Des Plaines, both of Ill.

Filed June 22, 1972, Ser. No. 265,212
Int. Cl. D05c 17/00

U.S. Cl. 112-439

12 Claims

Emblems which will glow in the dark, the same being fabricated by applying a phosphorescent material to the fabric of the emblems and then embroidering a design and/or indicia on the fabric.

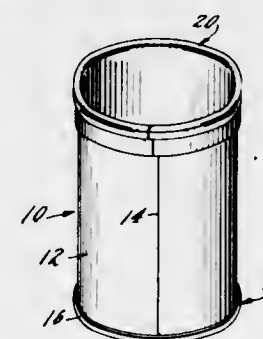
3,738,300 METHOD OF FORMING A BEAD ON A CONTAINER BODY

William Thomas Saunders, Weirton, W. Va., assignor to American Can Company, Greenwich, Conn.

Filed June 30, 1971, Ser. No. 158,189
Int. Cl. B21d 19/12

U.S. Cl. 113-120 AA

5 Claims



In forming an external, annular raised projection or bead at the end of a container body, a tool having a cutout is brought into contact with a partially down-turned flange on the container body to effect doubling back of the flange toward the container body to dispose an outer marginal edge portion of the flange against the outside surface of the container body and, simultaneously, confine and mold an inner portion of the flange, which is contiguous with the end of the container body, into the cutout of the tool to thereby form the raised projection or bead at the end of the container body.

3,738,301

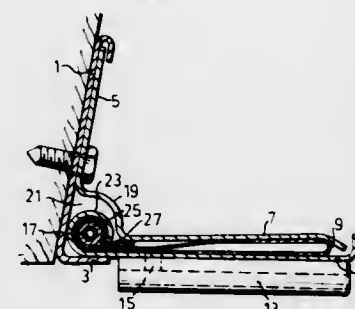
HINGE STRUCTURE FOR TRIM FLAPS
Bertil Roland Sjöo, Bromma, Sweden, assignor to Hesselman Bil-Aero AB, Hagersten, Sweden

Filed Jan. 5, 1971, Ser. No. 104,094
Claims priority, application Sweden, Jan. 12, 1970, 299/1970

Int. Cl. B63b 1/22

U.S. Cl. 114-66.5 P

4 Claims



A trim flap is hinged to a water craft by having its front edge cylindrically bent and mounted with free play in a channel

formed in a retaining bracket fastened to the craft transom. An actuator bag located between the flap and the bracket is held in place by having its front edge passed around a locking tube located inside the cylindrically bent front flap edge. A pneumatic operating line for connecting a bag opening valve with controls at the driver's seat is passed from the bag into the bag locking tube, extends in the tube to the side edge of the flap and then extends up and into the craft through a vertical locking tube preventing lateral movement of the flap in its bracket channel.

3,738,302

CARGO CONTAINER MOUNTING
Earl J. Flajole, 1135-B Bonita Drive, Encinitas, Calif.
Filed Oct. 2, 1970, Ser. No. 77,430
Int. Cl. B63b 25/00

U.S. Cl. 114-72

1 Claim



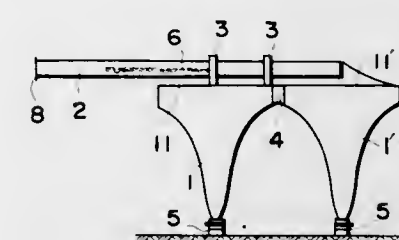
A cargo container mounting on a cargo ship having a plurality of vertically cells for the vertical stacking of cargo containers separated by bulkheads in which a plurality of vertical base channels are disposed at the container corner locations; the vertical channels containing a displaceable shock-absorbing strip such as rubber for cushioning the movement of the containers due to the pitch of the ship when underway.

3,738,303

METHOD OF BUILDING BOATS WITH TWIN HULLS
Shoichi Sakura, Shimizu, Japan, assignor to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan
Filed May 25, 1970, Ser. No. 40,152
Int. Cl. B63b 3/02

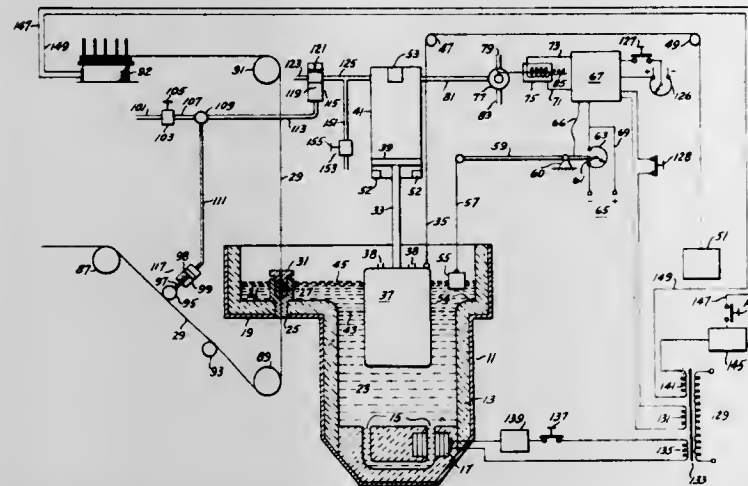
U.S. Cl. 114-77 R

9 Claims



A method of building boats of the catamaran type. Thus, during the building of a boat which will have twin hulls, a pair of single hull boats are simultaneously launched, with these boats fixed to each other in side-by-side relation. The thus-launched boats are then separated and laterally displaced one with respect to the other up to a predetermined distance therebetween, while one of the boats is guided for movement with respect to the other along a path extending in a precisely perpendicular direction horizontally across the decks of both boats. This guiding of the boats during their lateral displacement.

displacement block having thin walls not subject to spalling. receptacle containing mercury through which the filament



The hollow ceramic immersion block is associated with a bath level control system having a fail safe feature.

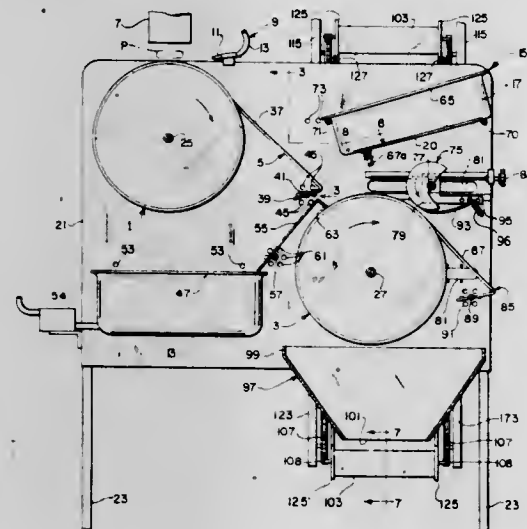
3,738,313

BREEDING APPARATUS

Leonard A. Heim, 2307 Arkansas Road, Highland, Ill.
Filed Sept. 9, 1971, Ser. No. 179,051
Int. Cl. B05c 5/00; A23p 1/00

U.S. Cl. 118-16

18 Claims



Apparatus for breeding food items, particularly meat patties, in which an item to be bred is deposited on a first rotatable cylinder and wetted with a breeding liquid. The wetted item is transferred from the first cylinder to a second rotatable cylinder via a slide which permits drainage of excess breeding liquid from the item sliding down the slide, the excess liquid being collected in a sump below the first cylinder. Breeding is fed onto the second cylinder at the top thereof for breeding the wetted item delivered to the second cylinder. Excess breeding is returned to a breeding supply. A third rotatable cylinder squeezes to a predetermined thickness the breaded item conveyed forward by the second cylinder.

3,738,314

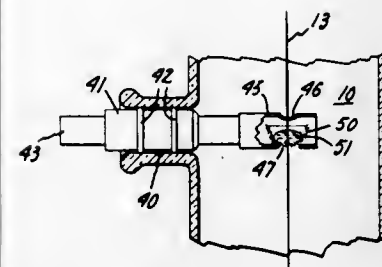
FILAMENT COATING APPARATUS INCLUDING MERCURY CONTACT HEATING MEANS

Charles R. Morelock, Ballston Spa, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Division of Ser. No. 714,853, March 21, 1968, Pat. No. 3,565,683. This application Jan. 13, 1971, Ser. No. 106,261
Int. Cl. C23c 13/10

U.S. Cl. 118-49.5

1 Claim

Heating means in a vapor deposition chamber includes a plurality of electrical contacts. Each contact is formed by a



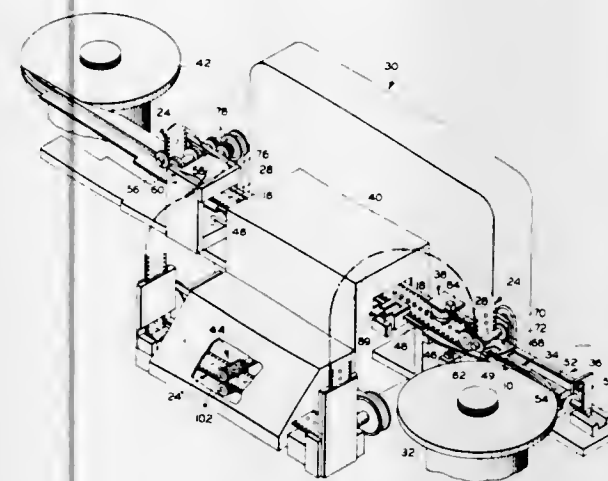
substrate passes. To facilitate threading of the filament, the receptacle bottom wall is formed from a foraminous material.

3,738,315

COATING APPARATUS INCLUDING CONVEYOR-MASK
Stanley E. Sweltzer, Laureldale, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y.
Division of Ser. No. 881,652, Dec. 3, 1969, Pat. No. 3,635,730.
This application Oct. 21, 1971, Ser. No. 191,267
Int. Cl. C23c 13/08

U.S. Cl. 118-49.5

10 Claims



Ferromagnetic articles to be selectively coated are conveyed through a coating station by a belt which also serves to mask areas of the articles where coating material is not desired. The belt is in the form of an endless tape and coating material is continuously removed from the tape so that each article to be coated is presented with clean tape mask. Automatic apparatus is provided to magnetically lift the articles into engagement with the mask and a support track in coordination with feeding and indexing devices. A step near the end of the track permits the coated articles to drop free of the mask and accumulate in a magazine.

3,738,316

BRINE SHRIMP HATCHERY

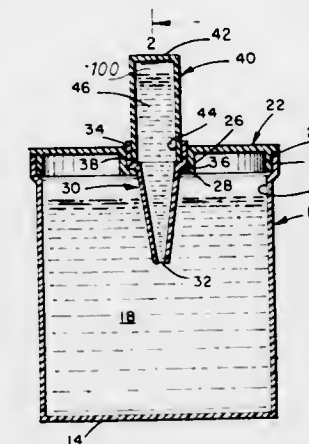
Robert Stasio, Brooklyn, N.Y., assignor to Metaframe Corporation, Maywood, N.J.
Continuation-in-part of Ser. No. 52,804, July 7, 1970, Pat. No. 3,669,074. This application Nov. 22, 1971, Ser. No. 200,954
Int. Cl. A01k 61/00

U.S. Cl. 119-2

10 Claims

A brine shrimp hatchery comprising a first receptacle for confining brine shrimp egg-laden fluid, and a second receptacle operatively associated with the first receptacle and partially submerged in the latter for entrapping brine shrimp hatched in the first receptacle. The second receptacle is inverted and includes a chamber, defined by its upper closed end, for resisting gravitational outflow of fluid confined

therein through a lower open end which is submerged in the fluid provided in the first receptacle, thus, permitting hatched base or attached to the center frame member, and each having a plurality of metal cans connected thereto for growing oysters



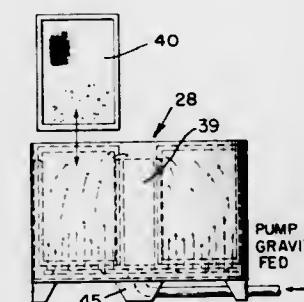
brine shrimp to pass into the inverted second receptacle from the first receptacle.

3,738,317

APPARATUS AND METHOD FOR HATCHING FISH
John D. Reynolds, 1093 Kent Road N.W., Winston-Salem, N.C.
Filed Feb. 3, 1971, Ser. No. 112,276
Int. Cl. A01k 61/00

U.S. Cl. 119-3

1 Claim



Apparatus for and method of incubating a plurality of fish eggs wherein the apparatus includes a frame holding a plurality of selectively positioned trays each supporting a quantity of fish eggs within a circulating source of aerated spring water. The water has been subjected to ultraviolet rays by appropriate means prior to its introduction to the fish eggs for purification. The method involves uniformly circulating aerated spring water about the eggs after subjecting the water to ultraviolet rays to kill inhibiting fungus while prohibiting the introduction of air to the eggs.

3,738,318

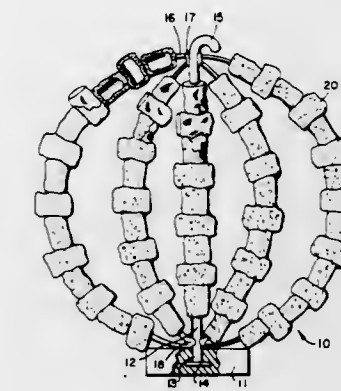
ARTIFICIAL CLUTCH FOR GROWING OYSTERS

David D. Woodbridge, and William R. Garrett, both of Melbourne, Fla., assignors to National Shellfish Processors, Inc., Melbourne, Fla.
Filed Mar. 20, 1972, Ser. No. 236,470
Int. Cl. A01k 61/00

U.S. Cl. 119-4

8 Claims

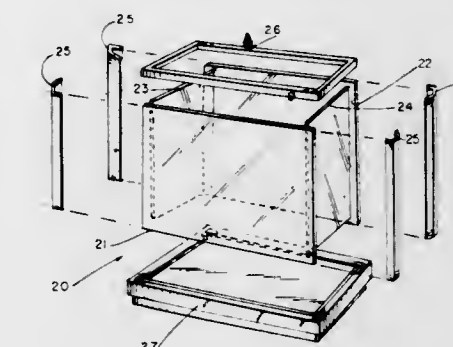
An artificial clutch apparatus for growing oysters on is provided which has a concrete base for holding the clutch beneath the water in an upright position and has a center rod embedded in the concrete and extending vertically from the base and having a hook or eye for hooking to the artificial clutch for lifting it out of the water during harvesting. A plurality of elongated rods are either embedded in the concrete

3,738,319
AQUARIUM

Albert J. Dinnerstein, Far Rockaway, N.Y., assignor to Metaframe Corporation, Maywood, N.J.
Filed Apr. 2, 1971, Ser. No. 130,599
Int. Cl. A01k 64/00

U.S. Cl. 119-5

14 Claims



An aquarium having a rectangular array of adjoining panels includes a sealant for connecting the panels to one another such that one panel intersects an adjoining panel at a point remote from each of the opposite ends of the latter panel. Corner brace members are provided for stabilizing adjoining panels at respective corners and for covering the sealant externally of the aquarium enclosure.

3,738,320

AUTOMATIC MILKING BARN

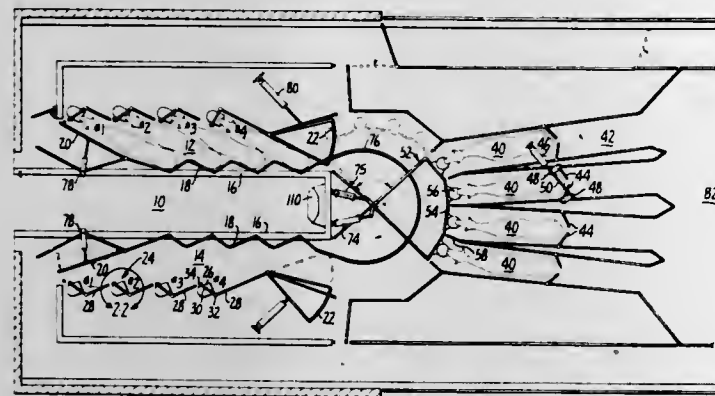
William Z. Holm, Petaluma, Calif., assignor to Ross-Holm Division, Holm Tractor & Equipment Company, Petaluma, Calif.
Division of Ser. No. 62,714, Aug. 10, 1970, Pat. No. 3,699,922, which is a continuation of Ser. No. 730,818, May 21, 1968, abandoned. This application Feb. 14, 1972, Ser. No. 226,221
Int. Cl. A01k 01/00

U.S. Cl. 119-14.03

5 Claims

A herringbone milking parlor having automatic controls for preparation and movement of milking cows, stall adjusting

means for accommodating cows of different size in a single herring-bone stall, and a swinging sector gate for transferring a group of cows in sequence from a group of preparation stalls to a herringbone milking stall.



group of cows in sequence from a group of preparation stalls to a herringbone milking stall.

3,738,321

ANIMAL MILKING APPARATUS

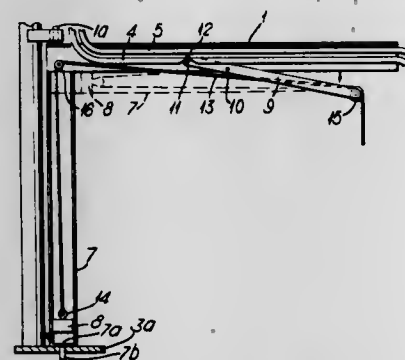
Mervyn Lance Hicks, Taranaki, New Zealand, assignor to Turn-Styles Limited, Stratford, New Zealand
Filed Apr. 23, 1971, Ser. No. 136,783

Claims priority, application New Zealand, Apr. 24, 1970, 159950

Int. Cl. A01j 09/08

U.S. Cl. 119—14.45

9 Claims



Means for supporting a teat cup assembly of milking apparatus in a position adjacent a milking stall whereby the teat cup assembly is supported above the floor of the stall and readily accessible to a milker. The support means includes a hinged arm so that the teat cup assembly may be supported at or near the outer end of such arm, and the teat cup assembly is supported in a retractable manner whereby it may immediately retract to a "home" position supported by the arm upon removal of the teat cups from a milked animal and so that the teat cup assembly cannot fall and contact the floor of the stall on removal from the animal. A vacuum supply cut-off device is associated with the retractable support means and the vacuum supply hose for the teat cup assembly to provide an arrangement whereby the vacuum supply to a teat cup assembly fitted to an animal can be cut off to permit the teat cup assembly to fall away from the animal with the result that the retractable support means immediately comes into operation to retract the teat cup assembly to the "home" and supported position without manual effort.

3,738,322

ANIMAL SHELTER

Mertie G. Smith, Route 2, Kuttawa, Ky.

Filed Apr. 5, 1971, Ser. No. 131,245

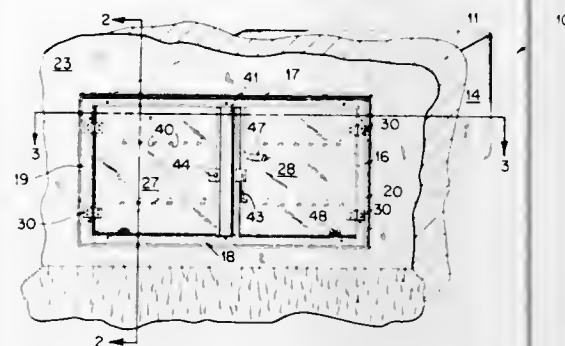
Int. Cl. A01k 1/00

U.S. Cl. 119—15

4 Claims

An animal shelter including an enclosed hollow body having a front end opening surrounded by a laterally, exteriorly projecting marginal flange for engagement with the front surface

of a wall having an opening through which the body extends rearwardly, and a pair of doors mounted in the opening upon



double-acting hinges to permit free entry and exit by an animal.

3,738,323

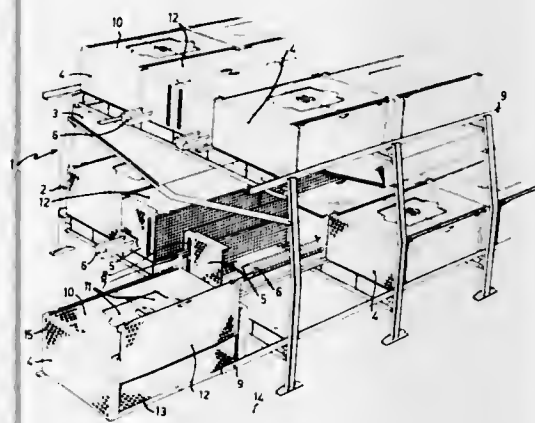
BATTERY FOR FATTENING BROIL CHICKENS

Jelle Boterweg, Kampen, Netherlands, assignor to Big Dutchman (Nederland) N.V., Wezep, Netherlands
Filed July 31, 1970, Ser. No. 60,080

Int. Cl. A01k 31/00

U.S. Cl. 119—18

14 Claims



Cage batteries for fattening broil chickens comprising a frame having at least one layer of cages, each cage layer being provided with a feed and water supply device and a dung-collecting device together with a dung discharge device. On each cage layer, at least one longitudinal row of stationary cages has a feeding and drinking device which is arranged so that the sides of the feeding and drinking device remote from the central longitudinal plane of the row of stationary cages are accessible for feeding and drinking from adjacent cages which are removable from the frame.

3,738,324

GRILL AND GUARD ARRANGEMENT FOR POULTRY FEED TROUGHS

Everett M. Keen, and Anthony J. Siciliano, both of Vineland, N.J., assignors to Diamond International Corporation, New York, N.Y.

Filed Aug. 31, 1971, Ser. No. 176,614

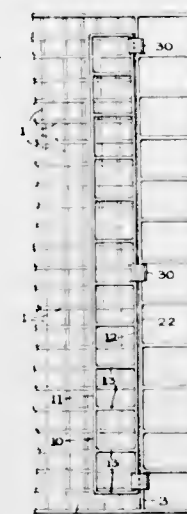
Int. Cl. A01k 05/00

U.S. Cl. 119—18

7 Claims

A grill and guard arrangement adapted to be secured over a poultry feed trough including adjustably secured grid sections one of which may be selectively positioned to effect small feed

openings over the trough to accommodate relatively young chickens and prevent their falling into the trough or to effect



somewhat larger feed openings over the trough to accommodate older chickens.

3,738,325

HUSBANDRY ACCLIMATIZING UNIT

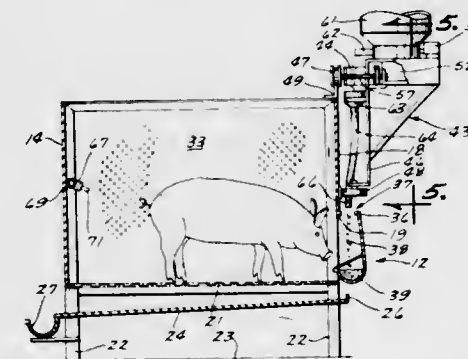
Francis A. Wittern, Des Moines, and Warren D. Woodley, Adel, both of Iowa, assignors to Fawn Engineering Corp., Des Moines, Iowa, by said Woodley

Filed Feb. 17, 1972, Ser. No. 227,690

Int. Cl. A01k 01/02

U.S. Cl. 119—18

1 Claim



A cage for holding young farm animals after they have left the nursery and before they are let out into the field, the cage opens at the top and perforated at the bottom for collection of the excreta, with a front wall comprised partially of a feed receptacle open to the interior of the cage, and a movable carriage and feed mechanism mounted on top of the cage for reciprocal movement to disperse feed into the receptacle.

3,738,326

FEEDER PEN FOR CALVES

Oscar J. Atchley, P. O. Box 147, Evansville, Ill.

Filed May 13, 1971, Ser. No. 142,889

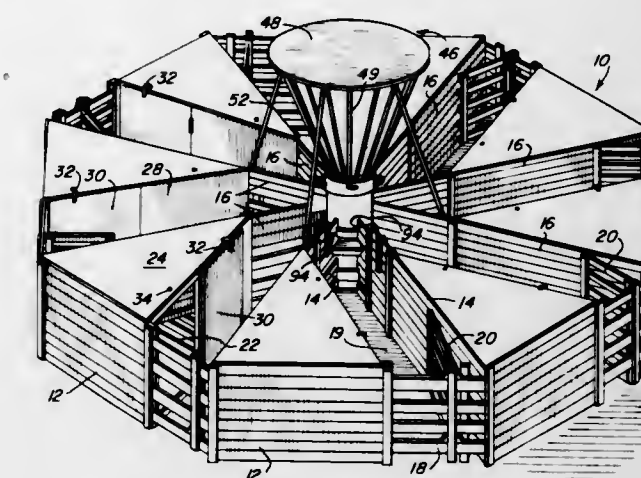
Int. Cl. A01k 01/00

U.S. Cl. 119—20

15 Claims

An enclosure for containing animals to be fed defining a plurality of generally sector shaped confinement zones spaced circumferentially about and radiating outwardly from a central feeding station in which either a dry feeder or a liquid feeder may be positioned. Each confinement zone includes a shed type enclosure occupying only a portion of the corresponding confinement zone and each shed enclosure includes a door which may be opened to afford movement of each confined animal throughout the entire confinement zone, both inside and outside his shed. The adjacent sides of the zones are separated and defined by partitions radiating outwardly from the feeding station and the radial innermost

end portions of at least two adjacent partitions may be slidably retracted generally radially outwardly of the central feeding station to allow removal of the feeder in use in a direction



generally radially of the feeder station. The outermost ends of at least some sections are hinged at one end and also have a slidably mounted, hinged gate member at their other end. The feeder is mounted below an adjustable food supply means.

3,738,327

CATTLE FEEDER

Leroy D. Stirling, R.R. No. 1, Ridgetown, Ontario, Canada

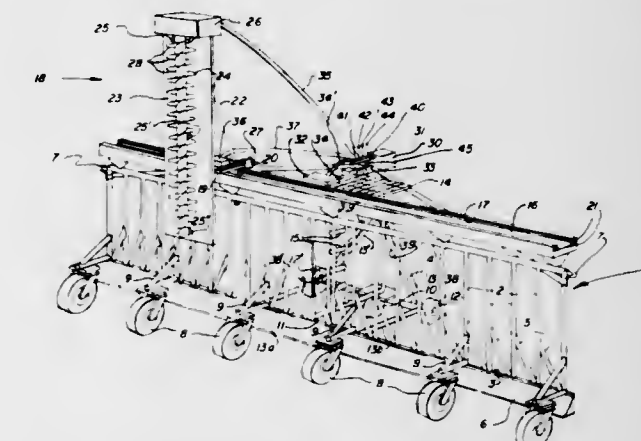
Filed Feb. 11, 1972, Ser. No. 225,584

Claims priority, application Canada, Dec. 8, 1971, 129,662

Int. Cl. A01k 05/00

U.S. Cl. 119—51 R

8 Claims



An animal feeder device, particularly suitable for use as an aid in the feeding of cattle, which incorporates a means for rearranging the feed when necessary in order to permit the animals to feed easily. The feeder comprises a frame assembly, a track disposed along the top of the frame and an auger assembly movable along the track. The auger of the auger assembly projects forwardly of the frame and is adapted to disengage feed from a feed pile situated in front of the frame, the disengaged feed falling within convenient feeding range of the animals.

3,738,328

FISH FEEDER

Steven F. Hoday, Elk Grove Village, and Jay J. Bolante, Chicago, both of Ill., assignors to Arthur I. Appleton, Northbrook, Ill.

Filed Feb. 7, 1972, Ser. No. 224,002

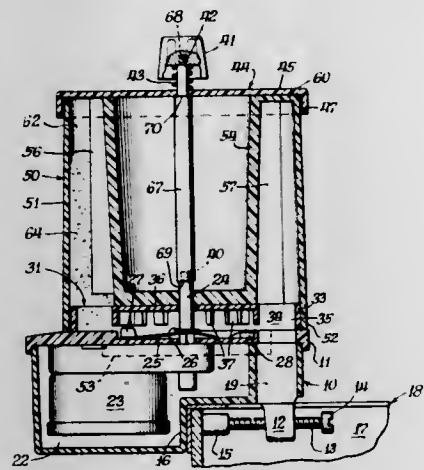
Int. Cl. A01k 5/02

U.S. Cl. 119—51.13

7 Claims

A fish feeder has a support plate adapted to be affixed to the top of an aquarium with a portion of the support plate overhanging the aquarium. The support plate has a vertical opening in that portion. An electric motor is secured to the support plate and has its driving shaft extending vertically therefrom.

Coaxial with the shaft is an annular feed carrier having a plurality of pockets which move across the support plate opening as the carrier rotates. A connection between the shaft and the feed carrier periodically indexes the feed carrier forward to move another pocket over the opening. A removable housing has its bottom surrounding the feed carrier and supported on



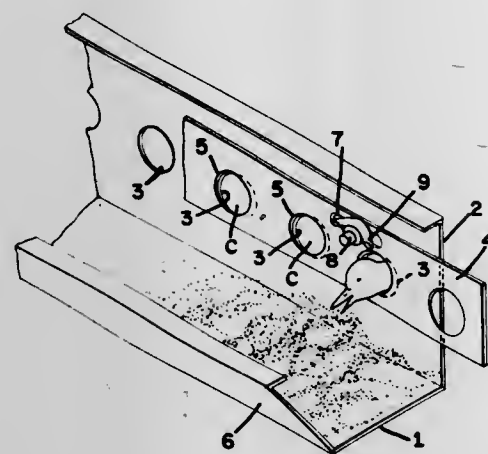
the plate. The magazine has inner and outer walls connected by ribs and which define vertical hoppers open at the bottom. Feed can be put in these hoppers to fill the pockets. The magazine covers the space over the carrier at the location above the opening so that feed in the hopper cannot fall directly through a pocket above the opening and out the opening.

3,738,329 POULTRY FEEDER

Gordon Schweitzer, R.R. No. 2, Montrose, Ontario, Canada
Filed Dec. 11, 1970, Ser. No. 97,154
Int. Cl. A01k 05/00

U.S. Cl. 119-63

8 Claims



The invention relates to a poultry feeder and, in particular, to a chick feeder. The feeder basically comprises an open-topped trough adapted to contain the feed, the trough having a bottom and at least one upstanding wall. The wall has a number of circular holes formed in it and which are spaced a predetermined amount from the bottom of the wall. The wall is also provided with a slidable member having a corresponding number of circular holes. The arrangement is such that when the holes on the slide cooperate with the holes in the wall, a number of feeding apertures for the chicks' heads are provided, the entire shape of the feeding apertures being selectively adjustable from an elliptical shape to a circular shape by movement of the slide. The shape of the feeding apertures only permits introduction of the heads of the chicks into the trough and inhibits entry of the bodies. The selective adjustability of shape of the feeding apertures also compensates for the growth of the heads of the chicks.

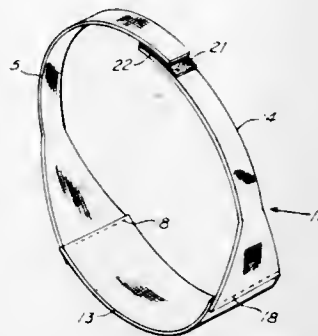
3,738,330 PROTECTIVE COVERING DEVICE FOR ANIMALS

Sylvia June Alofsin, 4110 West 98th Street, Overland Park, Kans.

Filed May 24, 1971, Ser. No. 146,244
Int. Cl. A01k 21/00

U.S. Cl. 119-143

5 Claims



A belt-like protective covering device, for an animal and specifically adapted as a training covering for a male dog, includes a cover portion suited for covering a selected area of the body of the animal includes relatively narrow straps secured to the cover portion and adapted to extend around the body of the animal and arranged to releasably fasten at the free ends to form a closed loop, the closed loop being adapted to flex with body movement of the animal while the cover portion is firmly retained in place.

3,738,331 ROTARY PISTON INTERNAL COMBUSTION ENGINE WITH EXTERNALLY CONTROLLED IGNITION BY MEANS OF A SPARK PLUG

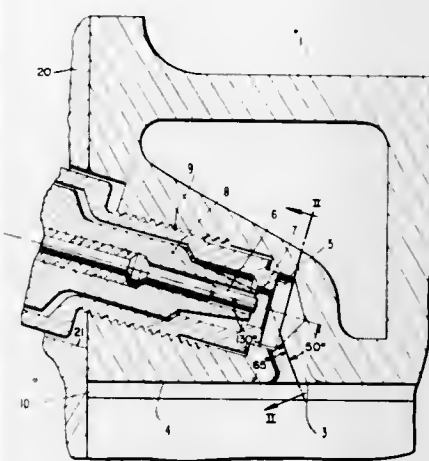
Eberhard Braun, Am Katzenbach, and Werner Brodbeck, Stuttgart, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Apr. 26, 1971, Ser. No. 137,474

Claims priority, application Germany, Apr. 24, 1970, P 20 20 007.1

Int. Cl. F02b 53/12, 23/00

U.S. Cl. 123-8.09

10 Claims



A rotary piston internal combustion engine with applied ignition by means of a spark plug within an ignition prechamber, especially of trochoidal construction, which essentially consists of a casing housing and of a polygonal piston rotating within the same which slides along a multi-arched inner casing running surface and over the orifice of a firing channel whereby a straight line extending in a cross-direction to the casing housing intersects both the center longitudinal axis of the spark plug as also the center longitudinal axis of the firing channel in the ignition prechamber in front of the center electrode of the spark plug.

3,738,332 COMPRESSION-IGNITION ENGINE

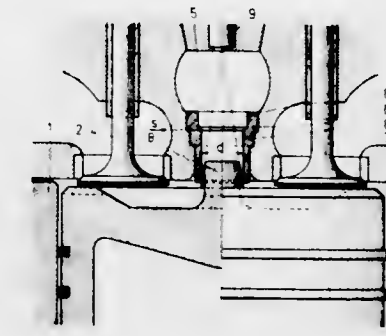
Pierre Eyzat, Vanves; Andre Ecomard, Le Peco; Claude Stephant, Boulogne, and Jean-Claude Gheris, Suresnes, all of France, assignors to Institut Français Du Pétrole Des Carburants Et Lubrifiants, Ruell-Malmaison, France
Filed Apr. 8, 1971, Ser. No. 132,381

Claims priority, application France, Apr. 15, 1970, 7013719

Int. Cl. F02b 3/00

U.S. Cl. 123-32 R

4 Claims



Compression ignition engine comprising a prechamber communicating with the cylinder through a transfer passageway whose smallest diameter is $0.6 D^{3/4}$, D being the cylinder bore diameter expressed in millimeters, a piston provided with a protrusion adapted to penetrate said transfer passageway so as to leave an annular clearance therebetween which is at most $0.05 D^{3/4}$, with D expressed in millimeters, when the piston is at the upper dead center, said protrusion being such as to leave a free passage for the gases between the protrusion and the lower edge of the transfer passageway, which passage, during the downward stroke of the piston becomes equal to the minimum section with which the transfer passageway opens into the precombustion chamber, when the crankshaft has rotated from the piston top dead center position through an angle expressed in degrees of crankshaft rotation corresponding to between one half the duration of injection at full load and the whole of said duration.

3,738,333 CYLINDER ARRANGEMENT HAVING A PRECOMBUSTION CHAMBER FOR COMBUSTION ENGINES

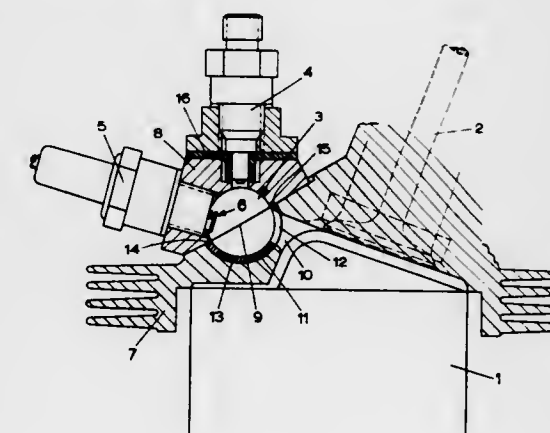
Gustav Vogelsang, Braunschweig, Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany
Filed July 9, 1971, Ser. No. 161,013

Claims priority, application Germany, July 17, 1970, P 20 35 464.7

Int. Cl. F02b 23/00

U.S. Cl. 123-32 SP

3 Claims



In a combustion engine having external ignition, a cylinder arrangement comprising a combustion chamber and a precombustion chamber in communication therewith, a fuel injection valve and a spark plug means communicating with the precombustion chamber and lying at a predetermined

angle with respect to each other, means lining the precombustion chamber to a predetermined separating point or level in said precombustion chamber and particularly lining the wall portion of the precombustion chamber which lies across the injection valve, the lining means comprising a heat resistant material having a very low heat conducting capability.

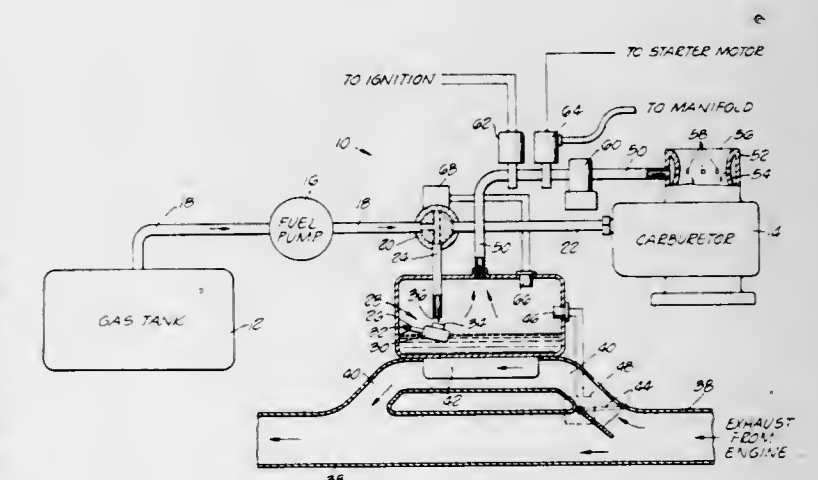
3,738,334 EMISSION REDUCTION SYSTEM

Richard S. Farr, Los Angeles, Calif., assignor to Farr Company, El Segundo, Calif.

Filed Dec. 16, 1971, Ser. No. 208,851
Int. Cl. F02m 31/18

U.S. Cl. 123-34 A

11 Claims



An emission reduction system for use with a conventional internal combustion engine which includes a pressure vessel, means for supplying the pressure vessel with gasoline fuel, means for actuating said supplying means, means for directing the engine exhaust into close proximity with the pressure vessel to vaporize the gasoline therein, a valve for controlling the engine exhaust, a fuel supply conduit for directing the gasoline vapor to the engine carburetor and means for regulating the gasoline vapor pressure.

3,738,335 PISTON FOR INTERNAL COMBUSTION ENGINES

Heinrich Hoffmann, Stuttgart-Gerokruhe, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

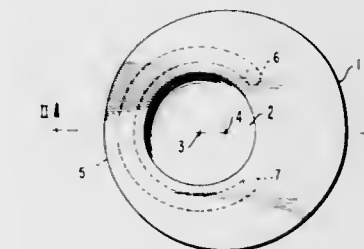
Filed Nov. 26, 1971, Ser. No. 202,530

Claims priority, application Germany, Nov. 27, 1970, P 20 58 410.5

Int. Cl. F01p 3/10

U.S. Cl. 123-41.35

2 Claims



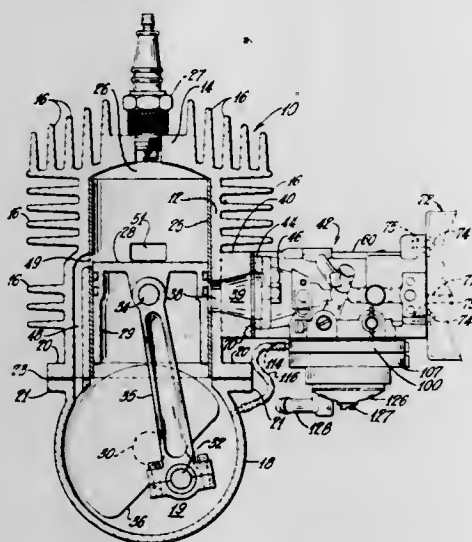
A piston for an internal combustion engine with a ring-shaped cooling space arranged in the piston top which is connected with a feed bore and with a discharge bore for the cooling medium; in particular, the piston has an eccentrically arranged combustion space recess about which the cooling space is laid as an open-ring whose ends are connected with the feed bore and the discharge bore, respectively.

3,738,336

METHOD AND ARRANGEMENT FOR CONTROLLING FUEL DELIVERY IN A CHARGE FORMING APPARATUS
Norman F. Holland, 4407 Elmhurst Road, Toledo, Ohio
Filed Apr. 19, 1971, Ser. No. 135,145
Int. Cl. F02b 33/04; F02m 7/00

U.S. Cl. 123—73 R

38 Claims



The disclosure embraces a method of and an arrangement for reducing or substantially restricting delivery of fuel into the induction system or fuel and air mixing passage of a carburetor or charge forming apparatus upon rebound or reversal of direction of flow of the mixture momentarily occurring at the periods of the closing of the mixture inlet port or ports of an internal combustion engine by reducing mixture rebound velocity and increasing the pressure adjacent the zone of delivery of fuel into the mixing passage thereby preventing appreciable enrichment of the fuel and air mixture during said rebound periods.

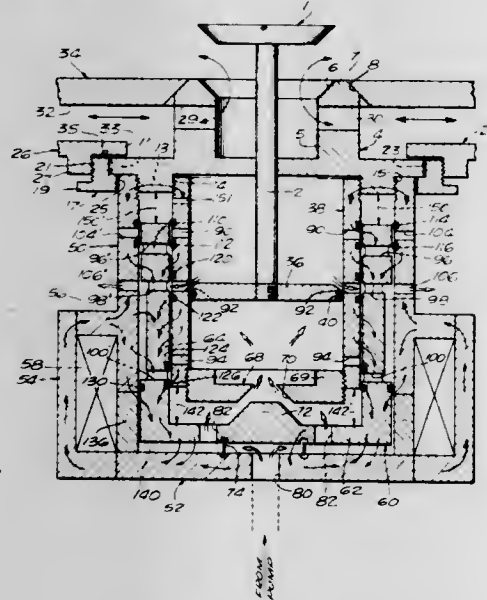
3,738,337

ELECTRICALLY OPERATED HYDRAULIC VALVE PARTICULARLY ADAPTED FOR POLLUTION-FREE ELECTRONICALLY CONTROLLED INTERNAL COMBUSTION ENGINE

Philip E. Massie, 4220 Irving Place, Culver City, Calif.
Filed Dec. 30, 1971, Ser. No. 213,881
Int. Cl. F01N 9/02, 9/04

U.S. Cl. 123—90.12

16 Claims



An electrically operated hydraulically driven valve driven by internal combustion engine lubricating oil. A ported valve sleeve is positioned between inner and outer cylinders, the inner of which is the hydraulic valve operating cylinder. All concentric members have radial ports. The electrically

operated sleeve member controls the porting controlling the inflow and outflow of hydraulic liquid. The control sleeve is moved electromagnetically by way of electromagnetic windings combined with a permanent magnet adapting the operation to pulse type of digital control adapting the valve to electronic digital control from multiple variable inputs.

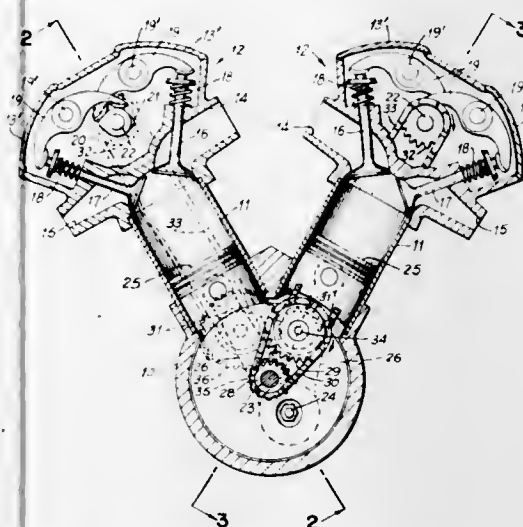
3,738,338

INTERNAL COMBUSTION ENGINES

Vernon C. Wickman, 3128 W. Juneau Avenue, Milwaukee, Wis., assignor to AMF Incorporated, White Plains, N.Y.
Filed Apr. 23, 1971, Ser. No. 136,872
Int. Cl. F02I 1/00

U.S. Cl. 123—90.27

1 Claim



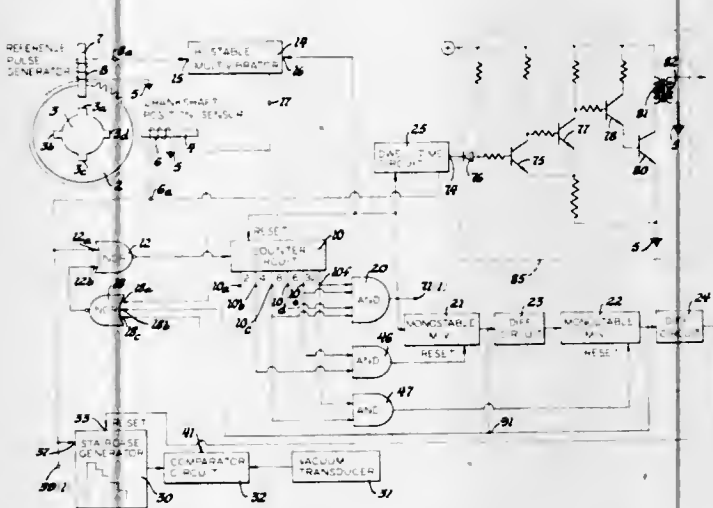
In a twin V-cylinder motorcycle engine the two cylinders and their overhead subassemblies are duplicates of each other and shifted 180° with respect to each other. Their overhead camshafts are driven off opposite ends of the crankshaft by speed reduction drive means disposed along opposite sides of the engine.

3,738,339

ELECTRONIC IGNITION SPARK ADVANCE SYSTEM
Gerald O. Huntzinger, Anderson; Leonard J. Sheldrake, Noblesville, and Byron W. Johnson, Anderson, all of Ind., assignors to General Motors Corporation, Detroit, Mich.
Filed Dec. 6, 1971, Ser. No. 205,186
Int. Cl. F02p 5/04, 1/00

U.S. Cl. 123—117 R

5 Claims



An electronic ignition spark advance system for use with internal combustion engine transistor ignition systems having an ignition coil primary winding switching transistor. A reference pulse, produced a selected number of degrees before the top dead center position of each engine piston, enables an ignition spark advance gate to gate a series of crankshaft position pulses, each indicating one degree of crankshaft rotation, to a

counter circuit. When the counter circuit has counted the number of crankshaft position pulses equal to the number of selected degrees before top dead center the reference pulses are produced, an ignition signal is produced which extinguishes the ignition coil primary winding switching transistor and operates circuitry which produces a signal which may disable the ignition spark advance gate. To provide speed ignition spark advance, however, delay circuitry responsive to each ignition signal provides two consecutive delay periods during which the disabling of the ignition spark advance gate is delayed. Consequently, the counter circuit continues to count crankshaft position pulses during the delay periods, thereby providing a speed ignition spark advance in degrees equal to the number of crankshaft position pulses counted during the delay periods at any engine speed. To provide two speed ignition spark advance limits, the first delay period is terminated with a first selected crankshaft position pulse count if it occurs before the end thereof and the second delay period is terminated with a second greater selected crankshaft position pulse count if it occurs before the end thereof. To provide vacuum ignition spark advance, a vacuum spark advance signal is provided at the conclusion of the delay periods for the number of crankshaft position pulses equal to the degrees of vacuum ignition spark advance required which enables the ignition spark advance gate to gate the crankshaft position pulses to the counter circuit after the delay periods.

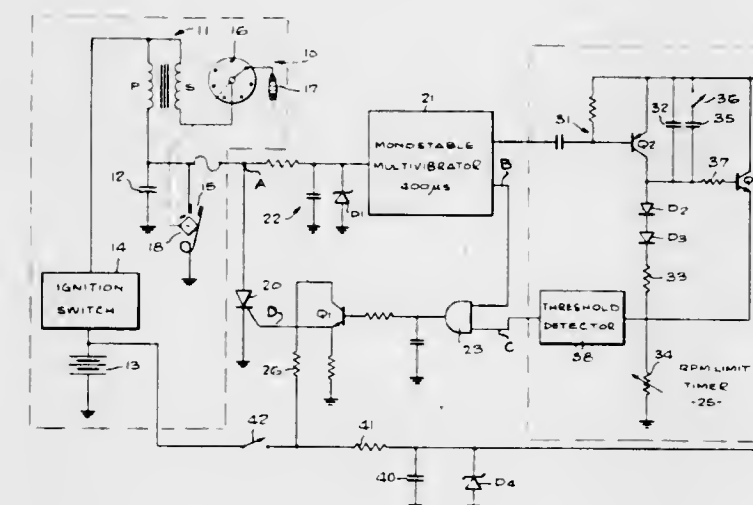
3,738,340

INTERNAL COMBUSTION ENGINE LIMITER

John M. Olson, Oxnard, Calif., assignor to Ikon Engineering, Inc., Oxnard, Calif.
Filed Jan. 10, 1972, Ser. No. 216,695
Int. Cl. F02p 9/00; F02d 11/00

U.S. Cl. 123—118

7 Claims



An RPM limiter for an internal combustion engine employs a silicon-controlled rectifier (SCR) as a switch to shunt the ignition system in response to an RPM limiting pulse from an RC timing circuit which is reset to initiate the pulse immediately upon the ignition breaker points opening. A monostable multivibrator is also set at that time to initiate the generation of a spark timing pulse of sufficient duration to allow the magnetic field of the ignition coil to break down, and thereby fire a spark plug. An inhibit gate receives both pulses and allows the SCR to be fired during the period of the RPM limiting pulse after the period of the spark timing pulse. A switch connects a second capacitor in parallel with the capacitor of the RC timing circuit to permit a potentiometer of the timing circuit to be set and tested for the desired RPM limit while operating the engine at only half of that limit when the two capacitors are of equal size.

3,738,341

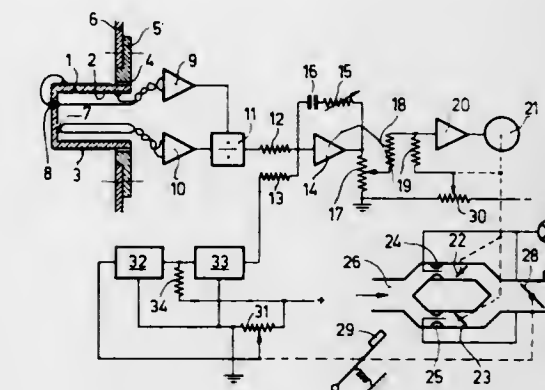
DEVICE FOR CONTROLLING THE AIR-FUEL RATIO λ IN A COMBUSTION ENGINE

Cornelis Henricus Loos, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Phillips Corporation, New York, N.Y.
Continuation of Ser. No. 19,438, March 13, 1970, abandoned.
This application May 1, 1972, Ser. No. 248,928

Claims priority, application Netherlands, Mar. 22, 1969, 6904455
Int. Cl. F02m 7/00, 13/04; G01n 31/00, 27/42

U.S. Cl. 123—119 R

8 Claims



Device for controlling the air-fuel ratio λ of the mixture supplied to a combustion engine, comprising a pick-up sensitive to the carbon monoxide content of a gas mixture and arranged in an exhaust gas duct of the engine and producing a voltage increasing with said content, a member for controlling the air-fuel ratio λ and a feedback mechanism acting upon said member so that the ratio λ is increased when the voltage produced by the pick-up increases.

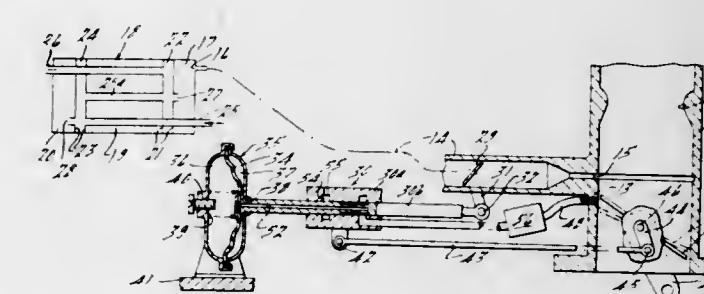
3,738,342

ENGINE EXHAUST RECIRCULATION

John Janusz Lewakowski, 3346 Winterfield, Warren, Mich.
Filed Dec. 27, 1971, Ser. No. 212,584
Int. Cl. F02m 25/00

U.S. Cl. 123—119 A

10 Claims



Automobile exhaust gases are recycled through the engine via a bypass duct connecting a cool portion of the exhaust system with the fuel-air inlet induction conduit. A servo valve is controlled by the pressure at a vacuum sensing port opening into the inlet induction conduit at the leading edge of a blade type throttle valve when the latter is at its idle position, so as to operate in response to throttle position and in turn control a recycling valve in the bypass duct to effect controlled exhaust recycling in increasing amounts as the throttle valve opens from its idle to part load positions, and to reduce the exhaust recycling at both idle and wide open throttle positions.

3,738,343

FUEL PRESSURE REGULATING SYSTEM FOR INTERNAL COMBUSTION ENGINES

Johannes Zeyns, Krauler Eibdeich, Pappelhof, D-2 Hamburg-Kirchwerder 4, and Heinz Enneking, Hegholt 32, D-2 Hamburg 71, both of Germany

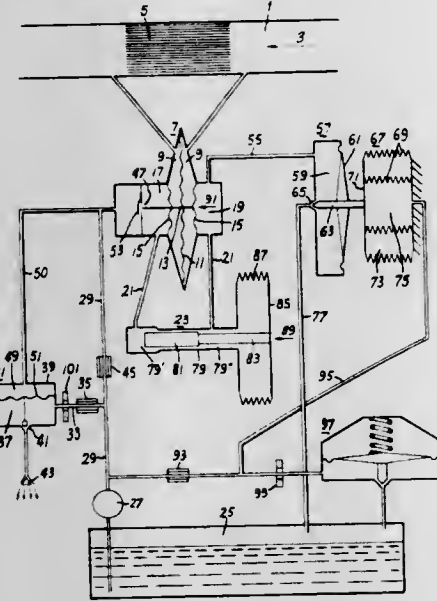
Filed Mar. 4, 1971, Ser. No. 121,037

Claims priority, application Germany, June 3, 1970, P 20 10 769.1

Int. Cl. F02b 33/00

U.S. Cl. 123—119 R

7 Claims



The invention pertains to the method for operating an internal combustion engine wherein a predetermined air-fuel mixture is maintained under all conditions of temperature and pressure. A resistance member is placed in the combustion air intake and the air pressure on each side of the resistance member is measured and sensed within a differential pressure control. The differential pressure control, by means of valves regulating the fuel pressure, causes a fluctuation in the fuel pressure dependent upon the air pressure upon opposite sides of the combustion air resistance. In addition to the fuel pressure being regulated by pressure differences occurring on opposite sides of the combustion air resistance, the fuel pressure is also regulated by means of ambient air pressure and temperature sensing valves and resistances whereby the predetermined air and fuel mixture may be maintained under all operating conditions.

3,738,344

FUEL PUMP AND METHOD OF CONTROL THEREFOR

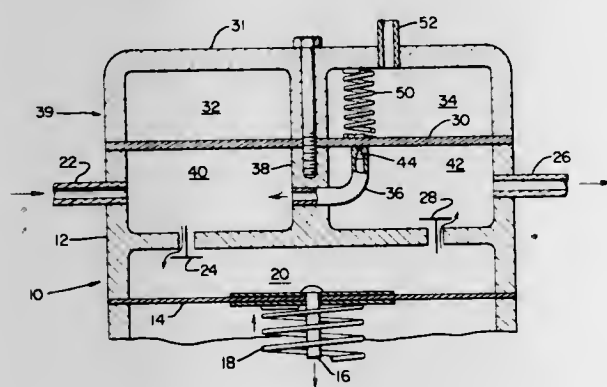
John C. Bandimere, 3740 Fenton St., Wheatridge, Colo.

Filed Sept. 5, 1969, Ser. No. 855,652

Int. Cl. F02m 69/00

U.S. Cl. 123—139 AF

1 Claim



An engine fuel pump of the type having a pulsating diaphragm operated in one direction by an engine driven member, such as an oscillating arm driven by an eccentric on

the engine cam shaft, and operated in the other direction by a spring which establishes output or pumping pressure to the needle valve of a float-type carburetor, the pump having inlet and outlet valves which operate upon demand of fuel to the carburetor and permits the diaphragm to pulsate accordingly, characterized by a by-pass valve controlled by intake manifold pressure which by-passes a metered flow of fuel from a pumping chamber to the inlet side of the inlet valve to thereby reduce pumping pressure at normal automotive speeds at which pumping pressure is in excess of that required and which results in an abnormally high fuel level in the carburetor, causing excessive consumption of fuel or flooding of the carburetor, the by-pass becoming inoperative at higher than normal speeds to permit the pumping pressure to increase to its normal designed value at such higher speeds and at which the pumping pressure will not cause the malfunctions referred to which occur at the normal automotive speeds.

3,738,345

SAFETY DEVICE FOR SMALL GASOLINE ENGINES

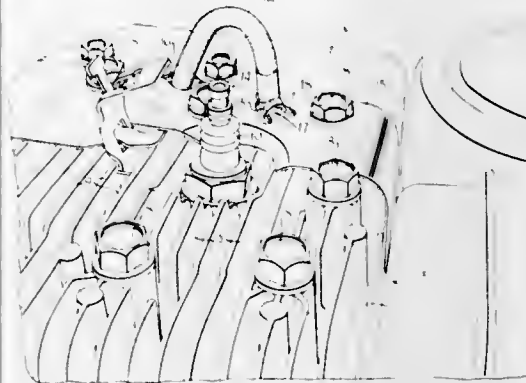
Herbert A. Guntow, Brookfield, Wis., assignor to Briggs & Stratton Corporation, Wauwatosa, Wis.

Filed May 15, 1972, Ser. No. 253,156

Int. Cl. F02p 11/00, 13/00; F02b 77/08

U.S. Cl. 123—169 R

2 Claims



In a single cylinder gasoline engine having a high tension lead which extends across a sheet metal blower shroud extension on the cylinder head and terminates in a clip normally attached to a terminal on top of the spark plug, the shroud extension has a U-shaped slot that defines a finger. When removed from the spark plug terminal the clip is engaged with the finger to be held thereby against coming near the plug terminal, preventing any possibility of inadvertent starting.

3,738,346

VEHICLE INTERNAL-COMBUSTION ENGINE FUEL CONTROL AND SIGNAL DEVICE

Johnny Goodman, East St. Louis, Ill., assignor to Joseph J. Bristow, East Carondelet, Ill.

Continuation-in-part of Ser. No. 109,392, Jan. 25, 1971, Pat. No. 3,646,513. This application Jan. 26, 1972, Ser. No. 220,800

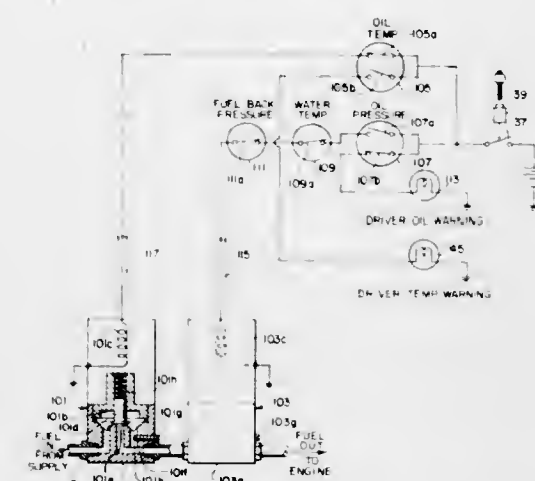
Int. Cl. F01m 1/24; B60q 1/00; F02d 35/00

U.S. Cl. 123—198 DB

13 Claims

A control for preventing damage to an internal-combustion engine from extended operation under excessive operating conditions where the engine power varies according to the flow of fuel to the engine (e.g., as in a diesel engine). The control includes a pair of fuel-limiting solenoid valves each having a plunger movable between a nonrestrictive position and a second position restricting the fuel flow to the engine. The windings of the valves, when energized, maintain the respective plungers in the nonrestrictive positions. The plunger of a first one of the valves, when in the second position, restricts the fuel flow by a preset amount causing reduction in engine power sufficient to reduce its operating temperature but permitting continued normal operation at the reduced power. The other plunger when in the second position, restricts the

fuel flow by a greater preset amount reducing engine power sufficiently to prevent continued normal operation. First switch means is connected with the first valve winding for controlling its energization and is responsive to an engine operating condition i.e., lubricant temperature) operating to deenergize the winding if the condition (e.g., low lubricant pressure) warrants engine power reduction. Second switch means is



connected with the winding of the second valve and similarly controls its energization, being responsive to another operating condition (e.g., lubricant pressure) for causing deenergization of the latter winding if discontinuing the normal operation of the engine is warranted by the operating condition (e.g., lubricant pressure too low). The control is especially useful with diesel truck engines.

3,738,347

THROTTLE PEDAL CONTROLLED PNEUMATICALLY OPERATED THROTTLE OVERRIDE

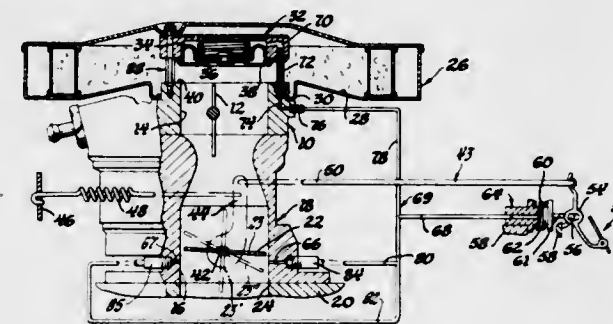
Donald D. Stoltman, Henrietta, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 14, 1972, Ser. No. 226,075

Int. Cl. F02b 77/08; F02d 11/08; B60k 27/08

U.S. Cl. 123—198 DB

7 Claims



A pneumatically operated valve is mounted on the air horn of a carburetor and is operable in a normal condition to fully open a carburetor air inlet and in an alternative throttle override condition to limit the air flowing through the inlet and thereby throttle the engine down to an idling speed. A control valve is operated by the vehicle throttle pedal to control the communication of engine vacuum to the pneumatically operated air inlet valve to normally establish the normal condition when the throttle pedal is depressed and the alternative override condition when the throttle pedal is released.

3,738,348

TAKE-DOWN ARCHERY BOW

Richard S. Karbo, Whittier, Calif., assignor to Brunswick Corporation, Chicago, Ill.

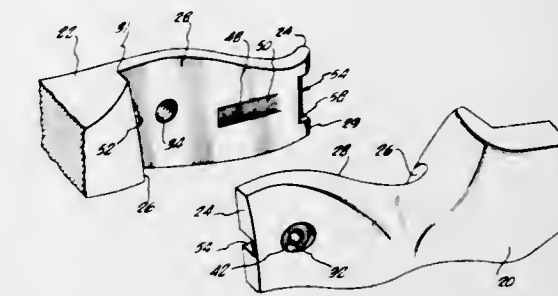
Filed Feb. 11, 1971, Ser. No. 114,567

Int. Cl. F41b 5/00

U.S. Cl. 124—24

4 Claims

A take-down archery bow having a pair of bow limbs with stepped interior ends which are adapted to be locked in the



bow limbs to draw the stepped ends of the bow limbs together as the bolt draws the lateral surfaces together. A pair of interengaging boss and cut-out portions are also provided to absorb a portion of the bending loads acting on the limbs.

3,738,349

CUTTING TABLE FOR ROCK

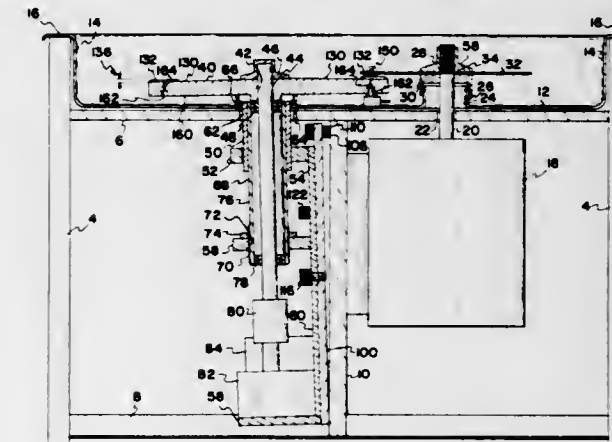
Laurence C. Cooper, 365 S. 300 W., and E. Blair Maxfield, 456 S. 300 W., both of Cedar City, Utah

Filed Aug. 3, 1971, Ser. No. 168,661

Int. Cl. B28d 1/04

U.S. Cl. 125—13 R

6 Claims



A device for slicing rock samples mounted on microscope slides including a sample table formed with a plurality of flat, radially disposed sample mounting surfaces extending at a slight angle with respect to the plane of the table, and mounting the table in a manner such that the sample mounting surfaces extend parallel to a circular disk-type saw blade at the leading edge point thereof and are moved gradually away from the plane of the saw blade as the cutting operation progresses.

3,738,350

FIBROUS CATALYST STRUCTURES FOR OVEN WALLS

Alvin B. Stiles, 1301 Grayson Road, Welshire, Wilmington, Del.

Division of Ser. No. 46,550, June 15, 1970, which is a continuation-in-part of Ser. No. 803,560, March 3, 1969, abandoned. This application May 12, 1972, Ser. No. 252,769

Int. Cl. A21b 1/00

U.S. Cl. 126—19 R

5 Claims

This invention relates to paper-like catalytic structures which are applied to oven walls to render them self-cleaning. These structures are comprised of a catalytic material uniformly distributed throughout a porous fibrous support material.

3,738,351

PORTABLE WATER HEATER

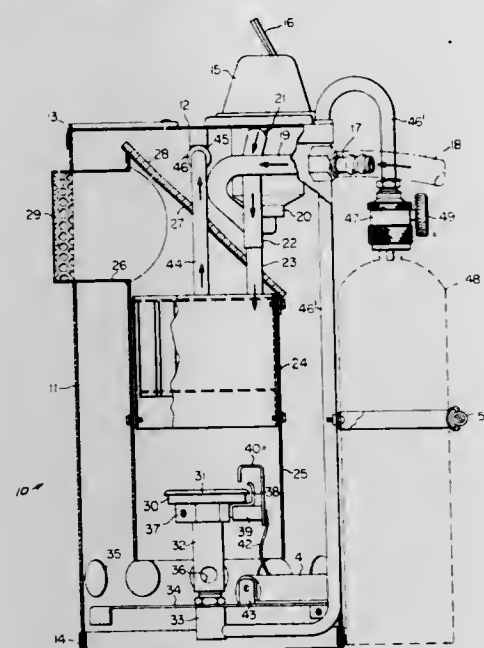
James E. Watts, Bountiful, Utah, assignor to Litton System Inc., Beverly Hills, Calif.

Filed Aug. 2, 1971, Ser. No. 167,895

Int. Cl. F24h 1/06

U.S. Cl. 126—350 R

5 Claims



A portable water heater comprising a housing supporting a pump and heat exchanger in fluid communication between an inlet and an outlet conduit. Burner means, positioned to supply heat to the heat exchanger, is connected to a control valve which is connectable to a supply of fuel. Igniter means, comprising electrodes positioned adjacent the burner means and manually operable electric potential generating means, is supported by the housing for initiating combustion of fuel by the burner means.

3,738,352

OIL-HEATED ONCE-THROUGH HEATER WITH APPARATUS FOR PRE-HEATING THE MIXING CHAMBER

Horst Reichmann, Wuppertal-Elberfeld, Germany, assignor to Joh Vaillant KG., Remscheid, Germany

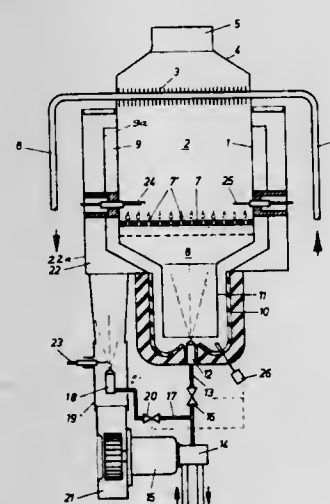
Filed June 16, 1971, Ser. No. 153,587

Claims priority, application Austria, July 6, 1970, A 6062/70

Int. Cl. F24h 1/12

U.S. Cl. 126—351

3 Claims



An oil gasification burner comprises a mixing chamber into which oil is sprayed to be vaporized by the chamber heat to produce a combustible gas. This gas, along with air moves downstream from the chamber through a plate and is burned on the downstream side of the plate to heat the heat exchanger of a once-through water heater. A blower communicates with

the chamber through a conduit for introducing air for combustion into the chamber. An auxiliary oil burner in the conduit is operated during start-up to supply heat for heating the chamber so that it will be prepared to gasify the oil subsequently sprayed into the chamber.

3,738,353

VAPORIZING APPARATUS

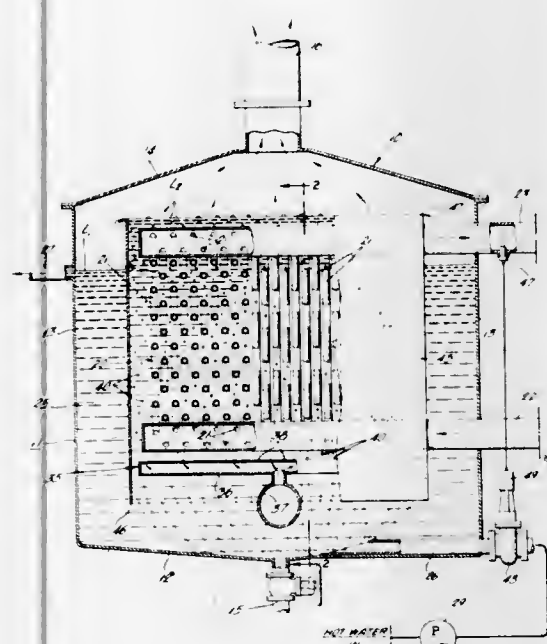
Joseph J. Santoleri, Wayne, Pa., assignor to Thermal Research & Engineering Corp., Conshohocken, Pa.

Filed May 26, 1971, Ser. No. 147,019

Int. Cl. F24h 1/20

U.S. Cl. 126—360 A

5 Claims



Apparatus is disclosed for utilizing relatively low temperature heat sources such as the waste heat of thermally-polluted water for vaporizing liquid mediums such as liquefied natural gas. The apparatus comprises a tank in which is mounted a heat exchanger surrounded by a baffle plate and through which the aforementioned water is flowed. A series of sparger pipes are mounted in the tank below the heat exchanger and within the confines of the baffle plate for discharging air bubbles in an upward direction to increase the transfer of heat from the water and to the liquefied gas flowing through the heat exchanger. Means is provided to sense the temperature of the vapor leaving the heat exchanger for actuating control means associated with a valve which is connected to an inlet pipe of the tank and which is operated to increase the flow of water through the tank in response to a decrease in the temperature of the exiting vapor and to decrease the flow of water through the tank in response to an increase in the temperature of the exiting vapor.

3,738,354

TIMER DEVICES FOR CULINARY PURPOSES

Graham John Aries, Stourbridge; Brian Scott-Smith, High Wycombe, and David Malcolm, Maidenhead, all of England, assignors to Tower Housewares Limited, Staffordshire, England

Filed Oct. 18, 1971, Ser. No. 189,985

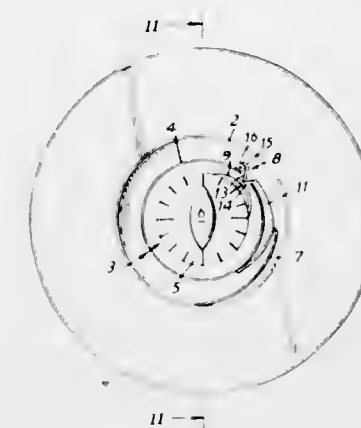
Int. Cl. A47j 27/00

U.S. Cl. 126—388

13 Claims

A culinary timer device comprising a timer mechanism of adjustable operating period incorporated in a cooking vessel or in the cover of such a vessel, a thermo-sensitive device ar-

ranged to initiate operation of the timer mechanism when the temperature of the vessel contents reaches a predetermined



3,738,355

BONE GAGE

Joseph E. Salvatore, 200 Engle St., Englewood, N.J.

Filed Aug. 5, 1971, Ser. No. 169,301

Int. Cl. A61b 5/10

U.S. Cl. 128—2 S

13 Claims



A bone gage for measuring the thickness or diameter of a bone. The bone gage comprises a body having mounted thereon extended wire hooks formed with jaws which are adapted to be extended through a hole formed in the bone structure, and which spring between open and closed position to engage and disengage the distal edge of the bone to be gaged. A measuring sleeve is operatively associated with the body so as to be freely slidable relative to the body, toward and away from the bone to be measured, when the jaws are biased opened and which is frictionally secured or locked to the body when the jaws are biased to a closed position. A scale is operatively associated with the measuring sleeve to measure the distance or displacement between the jaws and the adjacent end of the sleeve to determine the bone diameter disposed therebetween.

3,738,356

INTRAVENOUS PRESSURE MONITOR

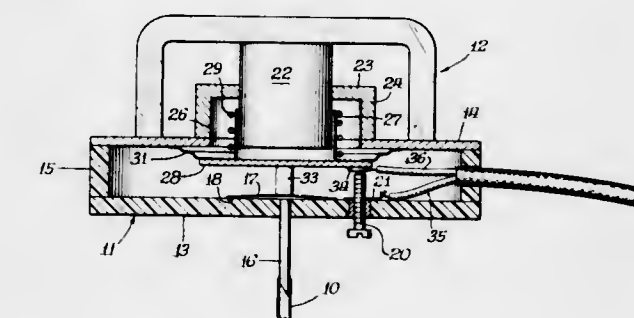
Harold W. Workman, Jackson, N.J., assignor to Iowa State University Research Foundation, Inc., Ames, Iowa

Continuation-in-part of Ser. No. 703,061, Feb. 5, 1968, abandoned. This application Jan. 22, 1971, Ser. No. 108,756

Int. Cl. A61b 5/02

U.S. Cl. 128—2.05 D

4 Claims



An air-filled catheter transmits an intravenous blood pressure to a pressure-sensing transducer having a coil connected

to a flexible membrane or diaphragm which defines one side of the catheter chamber. A digital feedback signal is generated in response to displacement of the membrane; and this feedback signal is used to energize the coil and drive the membrane back to its original position. A highly sensitive (i.e. compliant) diaphragm is used; and the high repetition rate of the feedback signal limits displacement of the diaphragm within very small tolerances to reduce the compliance error of the diaphragm. The average value of the current in the driving coil necessary to displace the diaphragm to offset the catheter pressure is a measure of the intravenous pressure.

3,738,357

CONTROL APPARATUS FOR BLOOD PRESSURE TESTING DEVICE

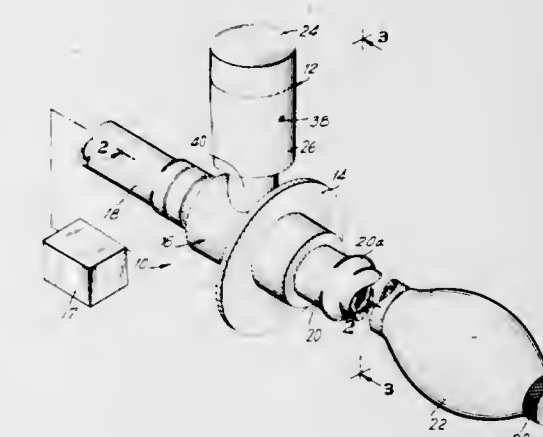
Roger Hayes, 260 Garth Road, Scarsdale, N.Y.

Filed Oct. 26, 1971, Ser. No. 192,193

Int. Cl. A61b 5/02; F16k 51/00

U.S. Cl. 128—2.05 G

22 Claims



A valve arrangement for accurately controlling the bleed rate of a sphygmomanometer. The valve includes a head mounted for movement between closed and open positions, with the open position being established by the setting of a cam element which is contacted by the head when the valve is opened. Contact between the head and the cam permits the air under pressure to escape from the sphygmomanometer either at a uniform rate (if the head-cam contact is maintained continuously) or in discrete controllable quantities (if the head is periodically brought into contact with the cam). The cam position is pre-settable to establish a range of release rates. The valve arrangement also incorporates an improved inverted conical release valve and seat.

3,738,358

SPLINT

Stanley Augustus Hallett, Hemyock Place, Wellington, Somerset, England

Filed May 10, 1971, Ser. No. 141,508

Claims priority, application Great Britain, May 15, 1970, 23,540/70

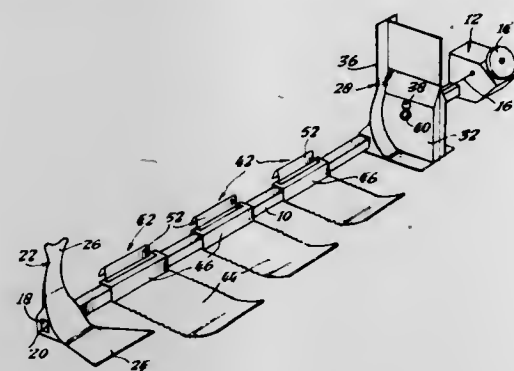
Int. Cl. A61f 5/04

U.S. Cl. 128—85

8 Claims

A splint for immobilizing and supporting a fractured limb has a rigid elongate frame member for arranging alongside the limb. A movable member is slidably mounted to the frame member for securing to the limb below the fracture, and a pressure member is mounted to the frame member for engaging the patient's body above the fracture. Traction means is provided for applying controlled movement to the movable member away from the fracture. Additional support members

may be slidably mounted to the frame member between the pressure member and movable member. All the limb engaging members are symmetrically designed so that they can be



mounted in either of two ways to the frame member for use with a right-hand limb or a left-hand limb respectively. The limb engaging parts are made from non-metallic material so that the limb can be X-rayed with the splint in position.

3,738,359

NON-SLIP INSTRUMENT PAD

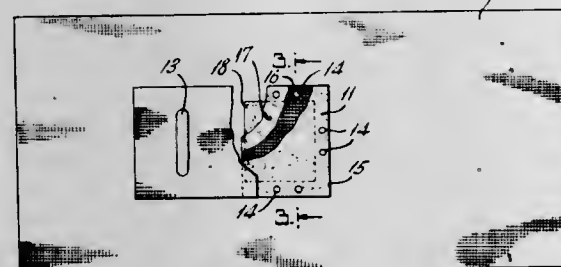
Julius A. Lindquist, Somerville, and Jay R. Sommers, East Brunswick, both of N.J., assignors to Johnson & Johnson, New Brunswick, N.J.

Filed July 19, 1971, Ser. No. 163,636

Int. Cl. A61F 13/00

U.S. Cl. 128—132 D

11 Claims



A non-slip instrument pad is disclosed, which is composed of a synthetic polymer foam material applied to a substrate. The foam material is highly absorbent, has a high coefficient of friction and a low surface resistivity. The polymers used in making the foam are either styrene butadiene polymers or carboxylated styrene butadiene polymers. The foamed polymer contains an anti-static agent.

3,738,360

UNITARY DISPOSABLE CIRCLE ABSORPTION CANISTER ASSEMBLY

Gale E. Dryden, 5835 North Tacoma Avenue, Indianapolis, Ind.

Continuation-in-part of Ser. No. 684,005, Nov. 17, 1967, abandoned, and a continuation of Ser. No. 775,761, Nov. 14, 1968, abandoned. This application Apr. 7, 1971, Ser. No. 132,082

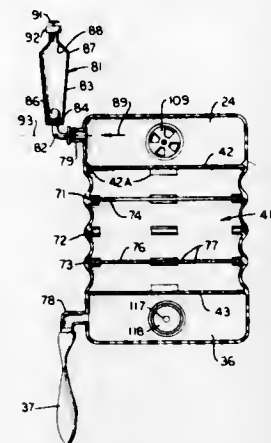
Int. Cl. A61M 17/00

U.S. Cl. 128—188

2 Claims

A circle absorption system for anesthesia, including a gas machine, a carbon dioxide absorbing canister assembly with corrugated inner wall surface, a gas supply hose thereto, rebreathing hoses and a mask connected thereto, a manometer and pressure relief valve connected thereto, an absorbing medium therein, and one-way valves mounted therein, the

canister assembly with absorbing medium and valves being disposable. A venting device, various partition mounts, and



3,738,361

CONTROL DEVICE FOR PARENTERAL LIQUID FEED APPARATUS

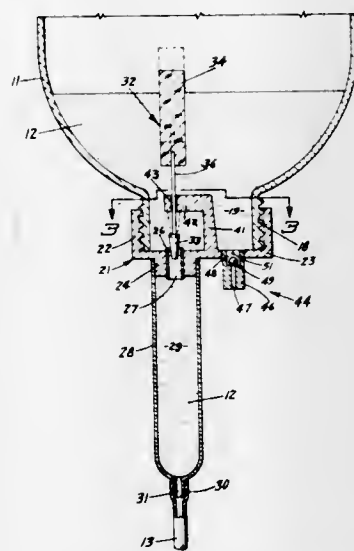
Maynard L. Price, 810 7th Street, Sturgis, S. Dak.

Filed Sept. 20, 1971, Ser. No. 181,749

Int. Cl. A61M 5/00

U.S. Cl. 128—214 E

10 Claims



A fluid flow control device for an administration set used to introduce parenteral liquids into a patient. The control device has a body releasably attached to a container storing the liquid and connected to a feeding tube for carrying the liquid to a hypodermic needle. A cone-shaped valve connected to a float controls the rate of flow of liquid through a passageway in the body. The valve and float are movably mounted on the body. When the level of liquid in the container is lowered to or reaches a point where the container is substantially empty, an amount of liquid is retained in the container so that limited flow of liquid through the passageway is continued for a period of time.

3,738,362

DISPOSABLE SANITARY LINER FOR A GARMENT

Vincent R. Snelder, 3422 Hallcrest Drive, N.E., Atlanta, Ga.

Filed Nov. 13, 1970, Ser. No. 89,239

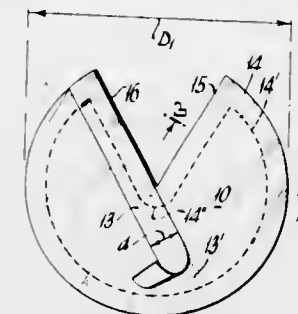
Int. Cl. A61M 1/06

U.S. Cl. 128—280

20 Claims

The invention contemplates a disposable sanitary pad in which a high absorbency fill member is retained and protected by a thin absorbent cover, both being attached to a thin flexible impermeable back member having a thickness in the order of one or a few mils. This back member, on its opposite side, is

provided with a non-toxic adhesive surface which, in its shipping and stored condition, is protected by a pull-away cover. The non-toxic adhesive, in its exposed or uncovered



condition, and the shape of the pad enable the sanitary pad to be removably attached and conformed to a concave portion of a garment such as a brassiere pocket or cup.

3,738,363

BREAST PUMP

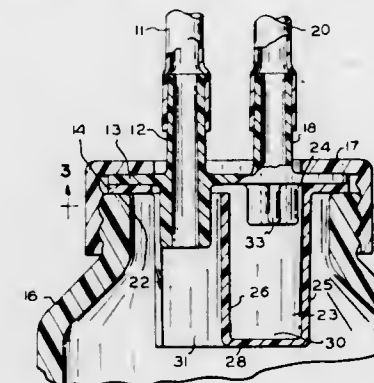
Francis J. Lunas, Sitka, Alaska; Edward E. Burroughs, Portland, and Franklin G. Smith, Portland, both of Oreg., assignors to Frances J. Lunas, Sitka, Alaska by said Burroughs and said Smith

Filed Jan. 17, 1972, Ser. No. 218,208

Int. Cl. A61M 1/06

U.S. Cl. 128—281

4 Claims



A breast pump adapted for installation in a standard nursing bottle includes a saliva trap and a combined gasket and suction tube receiving means which nest in the bottle mouth being retained therein by the annular cap when the same is threaded engaged with the exterior of the bottle.

3,738,364

COMPRESSED TAMPON WITH TAPERED TIP

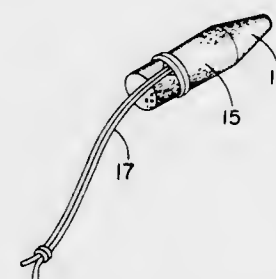
Huron C. Brien, Raymond A. Morman, and Leonard M. Kaczmarzyk, all of Neenah, Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Filed Oct. 1, 1970, Ser. No. 77,119

Int. Cl. A61F 13/20

U.S. Cl. 128—285

1 Claim



An absorbent tampon made from an elongate rectangular pledget compressed to substantially cylindrical form with a tapered generally conical forward end, in which the conical tip has been formed in a manner to provide it with only a slightly

lower density than the major cylindrical portion of the tampon, and to provide a section of the tampon taken at the base of said conical tip which is of slightly higher density than said major cylindrical portion. The method for making such a tampon is also disclosed. In this method the improved conical tip is formed without removing or cutting out material from the forward end of the starting pledget or the resulting tampon.

3,738,365

SPRING REINFORCED EXTENSIBLE CATHETER

Rudolf R. Schulte, 600 Pine Avenue, Goleta, Calif.

Continuation-in-part of Ser. No. 843,517, July 22, 1969, Pat. No. 3,623,484. This application Nov. 1, 1971, Ser. No.

194,308

Int. Cl. A61M 27/00

U.S. Cl. 128—350 R

10 Claims



An extensible catheter comprising a flexible tubular housing with a circular cylindrical passage extending therethrough. A flexible metallic helical spring having a plurality of identical turns fits in the passage in abutment with the wall. The innermost boundary of the turns forms an axial guideway for guiding a pair of heads, each disposed on a conduit section which projects beyond the tube. A retainer member makes a fluid-sealing structural fit at each end of the housing, holds the heads in the passage, and makes a sliding fluid-sealing fit with the outer wall of the respective conduit section. The relative axial lengths of the passage and of the heads are such as to permit the axial spacing apart of the heads and therefore the total length of the catheter to be varied.

3,738,366

DISPOSABLE FORCEPS

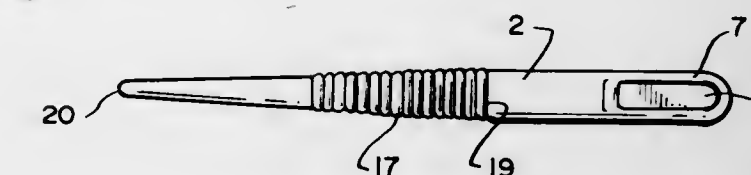
Theodore G. Blomberg, 3715 West 9th St., Winthrop Harbor, Ill.

Filed July 15, 1970, Ser. No. 55,190

Int. Cl. A61B 17/50

U.S. Cl. 128—354

5 Claims



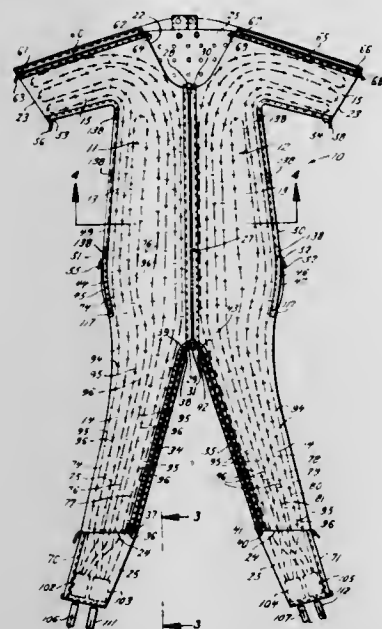
A disposable forceps constructed of a light gauge material such as metal to provide an economical instrument for use in various medical and related applications. The transverse configuration of the body of the forcep is formed with a U-shaped shape to achieve high rigidity in the instrument with the light gauge material.

3,738,367

PATIENT GARMENT WITH TEMPERATURE CONTROL
John C. Hardy, Westogue, Conn., assignor to Angelica Corporation, St. Louis, Mo.

Filed Feb. 11, 1971, Ser. No. 114,607
Int. Cl. A61f 7/00

U.S. Cl. 128-379



A hospital patient garment of lateral stretch fabric for conforming to different body shapes. Small-diameter tubes attached to the garment for conveying heating or cooling fluids circulated by a hyperthermia machine. The tubes lie longitudinally of the garment to uniformly blanket the entire surface area of the garment while permitting lateral expansion of the fabric when the garment is worn by relatively obese persons. Strategically located zippers for easy donning and doffing of the garment and for providing selective access to different areas of the body, such as for operations. Special adjustment straps spaced along the torso zippers for holding the garment in place on the body of an exceptionally obese person with the torso zippers unzipped. A resilient pad snaps to the back of the garment for improving comfort by yielding to the impressions of the fluid conveying tubes. Flaps at the back of the garment can be releasably held folded away from the lower torso area with the leg zippers partially unzipped to free the garment from interference with the use of a bed pan.

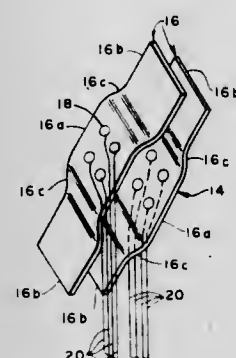
3,738,368

IMPLANTABLE ELECTRODES FOR THE STIMULATION OF THE SCIATIC NERVE

Roger E. Avery, 145 Rome St., Melville, and James S. Wepsic, 84 Prince St., Jamaica Plains, both of N.Y.

Filed Dec. 14, 1970, Ser. No. 97,987
Int. Cl. A61n 1/04

U.S. Cl. 128-418



An electrode for the stimulation of the sciatic nerve is disclosed, the electrode being comprised of a pair of physiologically inert plastic strips each of which has a plurality of contact means fixed thereto. The contact or electrode means

8 Claims

which preferably are formed of platinum comprise a plurality of buttons positioned on opposite sides the sciatic nerve and are oriented by the surgeon with respect to each other to achieve optimum pain inhibition. When properly placed, the two plastic members are suitably secured to each other. External power means that are electrically coupled to the contact buttons by conductive leads provide selective stimulation of the sciatic nerve in order to relieve pain. The conductive leads for the contact buttons that are not coupled to the source of electrical power are severed.

The aforementioned abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,738,369

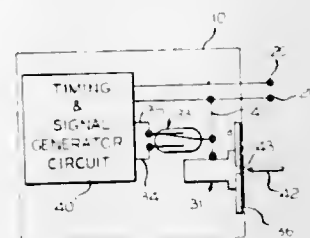
BODY ORGAN STIMULATOR FUNCTION CONTROL SWITCH

Theodore P. Adams, and David L. Bowers, both of Wauwatosa, Wis., assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 22, 1971, Ser. No. 136,329
Int. Cl. A61n 1/36

U.S. Cl. 128-419 P

11 Claims



An implantable body organ stimulator such as an electronic cardiac pacer has a magnetic reed switch and a switch operator embedded in its encapsulation. The state of the reed switch may be changed to alter any one of several functional characteristics of the stimulator with a switch operator which controls the operating state. The operator comprises a magnet which is movable between two positions in a guide tube which is adjacent the reed switch. The magnet may be urged from one position to another with a needle that enters the interior of the guide tube through an aperture in a plate that is embedded in the encapsulation. Means are provided in one embodiment for preventing restoration of the magnet to its original position.

3,738,370

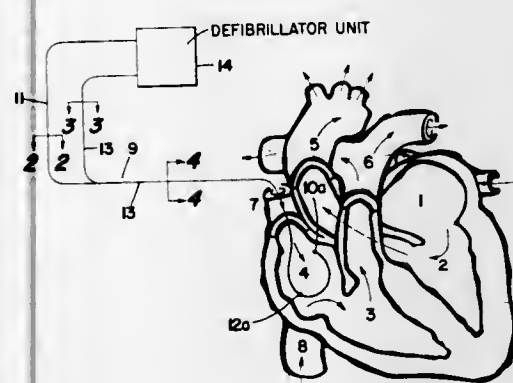
METHOD OF DEFIBRILLATION WITH ELECTRODES LOCATED IN THE ATRIUM

Bernard L. Charms, 2921 S. Park Boulevard, Shaker Heights, Ohio

Filed Jan. 18, 1971, Ser. No. 107,312
Int. Cl. A61n 1/36

U.S. Cl. 128-419 D

7 Claims



A bi-polar coaxial cable or catheter is passed transvenously into the right atrium or auricle of the heart, and the electrodes or poles of the cable are so positioned within the atrium and

3,738,373

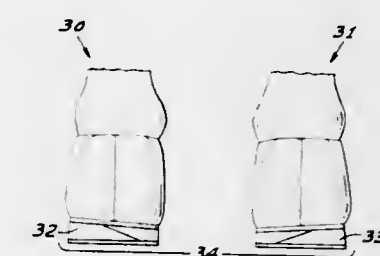
SHOE HEEL WITH CUSHION WEDGE
John J. Glancy, 6280 Dean Road, Indianapolis, Ind.

Filed Aug. 11, 1971, Ser. No. 170,815

Int. Cl. A61f 5/14

U.S. Cl. 128-585

4 Claims



A shoe heel having a wedge configured cushion. A ground engaging plate is mounted beneath the rear portion of the shoe with the cushion wedge disposed therebetween. Spacing means mounted between the shoe sole and plate extends from the edge of the heel to partially across the heel. The cushion extends from the spacing means across the remainder of the heel to a position flush with the outside edge of the heel. The cushion has a smaller thickness adjacent to the spacing means as compared to a greater thickness outwardly thereof.

3,738,374

CIGAR OR CIGARETTE HAVING SUBSTITUTE FILLER
Harry Bennett, Miami Beach, Fla., assignor to B. R. Laboratory, Miami Beach, Fla.

Filed Mar. 5, 1970, Ser. No. 16,964
Int. Cl. A24b 15/00; A24d 1/18

U.S. Cl. 131-2

1 Claim

This invention pertains to the production of cigars or cigarettes which have a tobacco substitute filler and a wrapper and which on burning produce vapors and condensates free from nicotine, and which have only a minute amount of tars. The tobacco substitute is made from carbon or graphite fibers, mat or cloth associated with an oxidizing agent. Other agents are added as needed or desired to improve texture or form, to give an improved burn, or to make the product more salable or economical to manufacture. The wrapper includes an impregnation of an ashing ingredient.

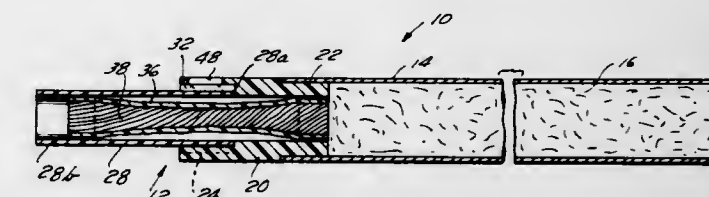
3,738,375

ADJUSTABLE TOBACCO SMOKE FILTER DEVICE
George C. Dumas, 1354 First Avenue, New York, N.Y.

Filed July 8, 1971, Ser. No. 160,833
Int. Cl. A24d 01/04; A24f 07/04

U.S. Cl. 131-10.3

5 Claims



An adjustable tobacco smoke filter device for attachment to cigarettes, cigars and the like has a filter body with an internal passage and a mouthpiece with a similar internal passage. The mouthpiece has one end disposed adjacent the filter body with the internal passages in aligned relationship. Advantageously the mouthpiece is mounted for manual rotation relative to the filter body. A filter wrapper of resilient material is provided with a compressible tobacco smoke filter material disposed therein. The resilient filter wrapper is open at opposite ends and provides a smoke passage for tobacco smoke through the filter material. The filter wrapper is disposed in the internal passages of the filter body and the mouthpiece with one end fixed to the filter body and with its opposite end fixed to the

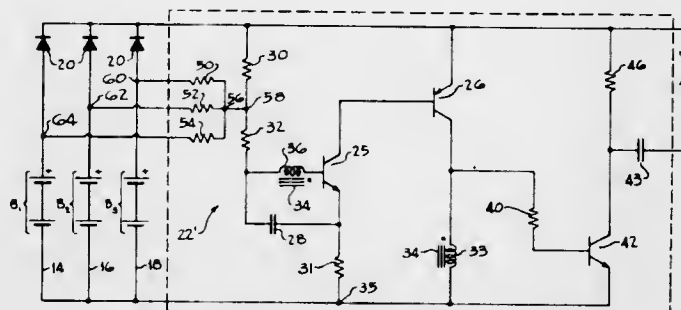
3,738,371
CARDIAC PACERS WITH SOURCE CONDITION-RESPONSIVE RATE

William J. Raddi; Robert W. Johnson, and Joseph W. Smithmyer, all of Philadelphia, Pa., assignors to ESB Incorporated, Philadelphia, Pa.

Filed Dec. 11, 1970, Ser. No. 97,254
Int. Cl. A61n 1/36

U.S. Cl. 128-419 P

7 Claims



In a pulse generating circuit, such as an implantable cardiac pacer having parallel connected batteries as its power supply, additional resistors are connected between the power supply and the pulse generating circuit of the pacer and form a part of the pulse generating circuit to indicate by a change in pulse rate when one or more cells of the batteries of the power supply fail prematurely.

3,738,372

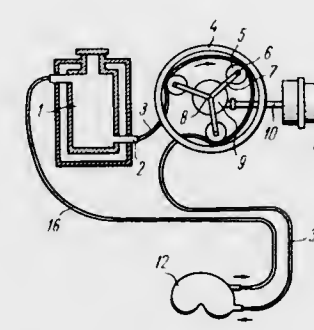
APPARATUS FOR APPLICATION OF LOCAL HYPOTHERMY TO THE KIDNEY

Tamaz Iosifovich Shiloshvili, ul. Barnova, 148, kv. 17, Tbilisi, U.S.S.R.

Filed Jan. 13, 1972, Ser. No. 217,565
Int. Cl. A61f 7/00

U.S. Cl. 128-400

2 Claims



An apparatus for the application of local hypothermy to the kidney, comprising a kidney-cooling heat exchanger made as a confined chamber whose inside surface is so shaped as to suit the renal shape. The walls of the cooling heat exchanger are made double for the refrigerant to circulate therebetween, and fabricated from an elastic material.

mouthpiece. Upon manual rotation of the mouthpiece the filter wrapper is twisted to restrict the smoke passage therethrough.

3,738,376

MANUFACTURE OF CIGARETTES AND OTHER TOBACCO-FILLED ROD-LIKE ARTICLES

Francis Auguste Maurice Labbe, Neuilly-sur-Seine, France, and Gordon Francis Wellington Powell, Deptford, London, S.E.8, England, assignors to Molins Machine Company Limited, London, England

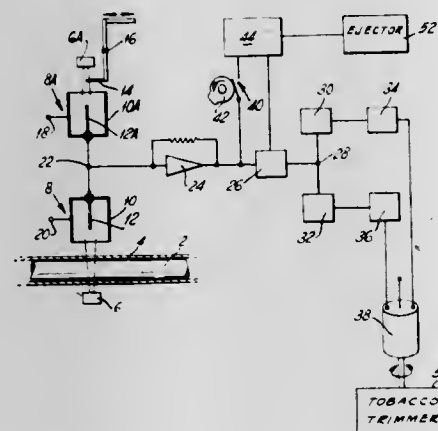
Filed Mar. 13, 1970, Ser. No. 19,286

Claims priority, application Great Britain, Mar. 14, 1969, 13,685/69

Int. Cl. A24c 05/34

U.S. Cl. 131-21 B

7 Claims



A device which scans the density of successive increments of a cigarette rod produced in a cigarette making machine, is used to control the mean weight of the tobacco in that rod with a view toward maintaining substantially constant the number of cigarettes produced having a weight falling below a preselected level. Signals produced by the scanner are used to control the quantity of excess tobacco removed from the filler stream formed therein by a trimming device, thereby controlling the quantity of tobacco placed in said rod.

3,738,377

COIN PAY-OUT MEANS FOR COIN CHANGERS

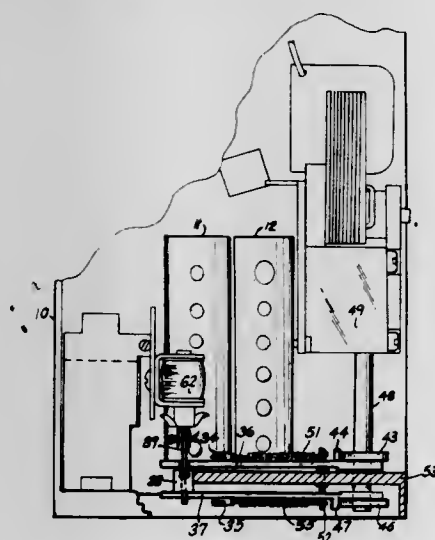
Joseph A. Lotsepich, St. Paul, Minn., assignor to Coin Acceptors, Inc., St. Louis, Mo.

Filed July 17, 1970, Ser. No. 55,855

Int. Cl. G07d 1/06

U.S. Cl. 133-2

2 Claims



A coin changer with provisions for paying out coins of different denomination has slide members for discharging the change coins singly from storage tubes. The slide members are actuated by individual cams on a common drive shaft, selec-

tively, under the control of an electromagnetic latch device that locks or releases the coin pay-out slides as determined by the amount of over-payment deposited in the changer.

3,738,378

UMBRELLA TENT

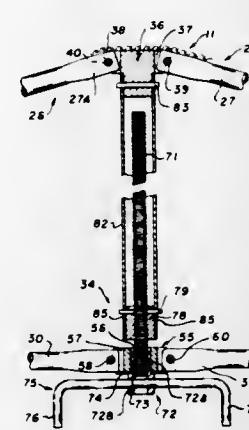
Wayne M. Williams, 7125 East Hastings Street, North, North Burnaby, British Columbia, Canada

Filed July 19, 1971, Ser. No. 163,658

Int. Cl. A45f 1/04

U.S. Cl. 135-2

2 Claims



A tent having a foldable frame provided with flexible legs which are bowed outwardly, when the frame is fully unfolded into a mutually supporting relationship with an enclosing canvas cover. A mechanical drive is provided in the frame for tensioning the legs and the canvas cover, the drive providing a positive lock against accidental collapse of the tent.

3,738,379

CONTROL VALVE WITH SEMI-AUTOMATICALLY INDEXED VALVE ELEMENT

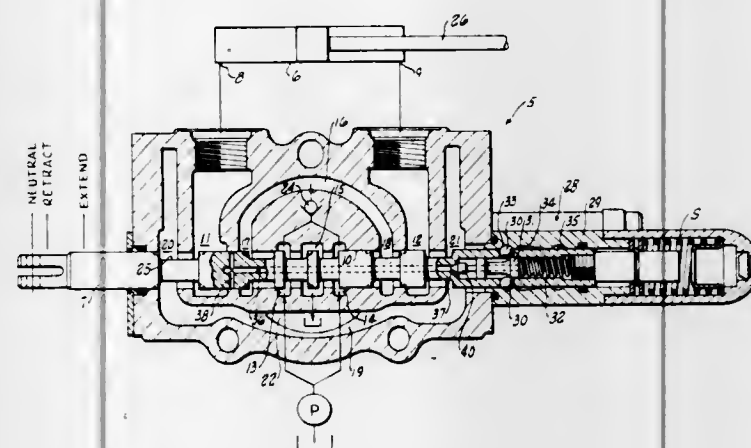
Raud A. Wilke, Milwaukee, Wis., assignor to Koehring Company, Milwaukee, Wis.

Filed Aug. 2, 1971, Ser. No. 167,926

Int. Cl. F15b 11/15

U.S. Cl. 137-106

4 Claims



A return spring yieldingly resists movement of a control valve element out of neutral to a first working position. Detent means is automatically operable to releasably hold the valve element in said first working position as well as in a flow reversing second working position between neutral and said first working position. In each working position, the valve element is released from the detent means whenever supply fluid pressure rises to a predetermined kick-out value by means of detent disabling means which is cooperable with the return spring to automatically effect stepwise return motion of the valve element from said first to said second working position thereof and then from said second working position back to neutral.

3,738,380

PRESSURE CONTROL VALVE

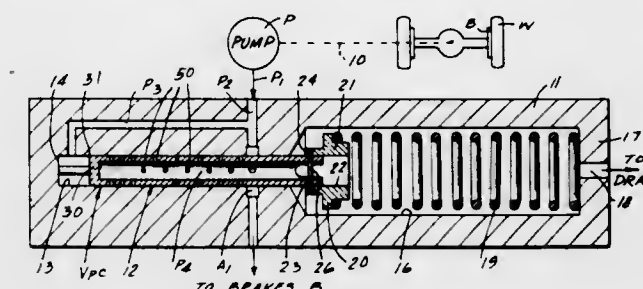
George A. Berman, Detroit, and Graydon J. Choiniski, Utica, both of Mich., assignors to TRW Inc., Cleveland, Ohio

Division of Ser. No. 878,665, Nov. 21, 1969, Pat. No. 3,597,010. This application Oct. 23, 1970, Ser. No. 83,494

Int. Cl. F16k 17/10

U.S. Cl. 137-115

6 Claims



A pressure-compensating valve wherein a cylindrical bar stock piece is machined to provide a center flow pintle cooperable with an annular scanning annulus, thereby to provide a stepped and partially infinitely variable valve which permits partial or full diameter area sections to freely be sensed in a balanced state relieving any tendency for the pressure-compensating valve to bind or otherwise develop hydraulic imbalance.

3,738,381

INVERTED FLUID COLLECTION RECEPTACLE

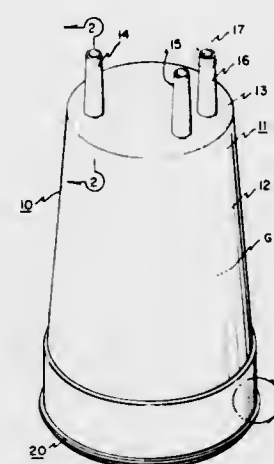
LeGrand K. Holbrook, Salt Lake City, Utah, assignor to Medical Development Corporation, Salt Lake City, Utah

Filed Dec. 16, 1970, Ser. No. 98,566

Int. Cl. F16k 45/00

U.S. Cl. 137-199

1 Claim



Reduced gaseous pressure operated, liquid receptacle structure having an enclosure member and a bottom cover. The latter is provided with an interior sealing protuberance which seals against the inner wall of the enclosure member, such seal being increased upon the application of reduced pressure of the interior of the structure. A one-piece, fixed differential valve device is disposed in a vacuum port of the enclosure member to permit the passage of air therethrough, but not the passage of liquids such as blood. The port containing the valve device is tapered or otherwise configured such that the valve will not be drawn toward the reduced pressure source. The enclosure member is constructed to have ports at its base or top such that pin means and corresponding guide apertures in the mold structure forming the enclosure may be accommodated, so as to preserve uniform wall thickness in the enclosure member during the formation thereof.

911 O.G.—19

3,738,382

METHOD FOR THE STERILIZATION OF A SYSTEM FOR PREPARATION OF A LIQUID MIXTURE

Christian Cappelen, Jr., Rikshospitalet, Oslo, and Lars Grim-srud, Norges Tekniske Hogskole, 7000 Trondheim, both of Norway

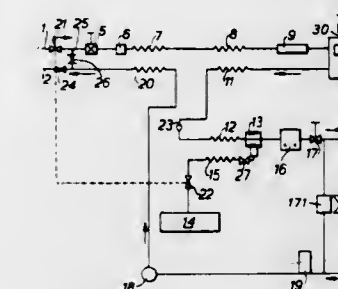
Filed Nov. 10, 1970, Ser. No. 88,419

Claims priority, application Norway, Nov. 11, 1969, 4462/69

Int. Cl. F16k 49/00

U.S. Cl. 137-340

1 Claim



A self-sterilizing liquid mixer system is provided for the preparation of a mixture of a carrier liquid and a concentrate, particularly for the production of a dialysis liquid for a dialyser, connected to the mixture outlet conduit of said system, a return conduit receiving used liquid mixture from the dialyser to be discharged from the system through a discharge outlet.

In the inlet conduit of the carrier liquid, series connected heating and outgassing means are provided normally operative to heat said carrier liquid close to its boiling point and subsequently outgassing the same through a gas outlet to the atmosphere. For the sterilizing of the system after an inoperative period the supplies of the carrier liquid and the concentrate are cut off, while said inlet conduit of the carrier liquid is connected with the discharge outlet, and said mixture outlet conduit is connected to the return conduit, simultaneously pressure dependently closing the gas outlet by means of a loaded closure.

These measures enable a closed circulation of the liquid present in the system and a heating of the circulating liquid by means of said heating means to a selected sterilizing temperature well above said boiling point and determined by the pressure dependent, loaded closure of the gas outlet.

3,738,383

STRUCTURE WITH PROTECTIVE COVERING AGAINST AMBIENT INFLUENCES

Walfried David, Maxdorf, Germany, assignor to Bopp & Reuther GmbH, Mannheim, Germany

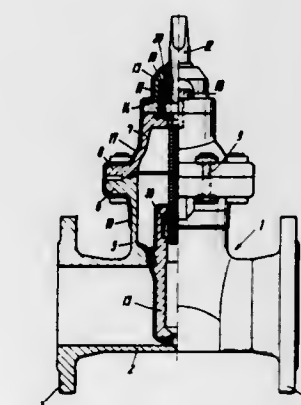
Filed Nov. 11, 1971, Ser. No. 197,807

Claims priority, application Germany, Nov. 19, 1970, P 20 56 860.9

Int. Cl. F16k 27/06

U.S. Cl. 137-381

9 Claims



A valve housing, connected pipe flanges or similar structure is surrounded by a one-piece sheath of elastically distensible

material resistance to the ambient influences against which the structure is to be protected. The hollow interior of the sheath has an interior contour which corresponds to the outer contour of the structure and the sheath tightly encases the structure in surface-to-surface relationship.

3,738,384

FIVE-WAY CONTROL VALVE AND SYSTEM

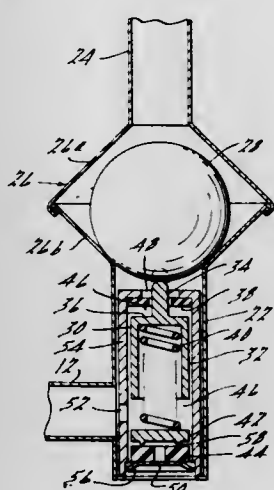
John F. Hall, Bloomfield Hills, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed Apr. 3, 1972, Ser. No. 240,503

Int. Cl. F16k 17/00; G05d 27/00

U.S. Cl. 137-493.9

3 Claims



A five-way valve which performs five functions: pressure relief, vacuum relief, rollover shut-off, overfill limiting and anti-surge control for use in the fuel evaporative control system of motor vehicles.

3,738,385

STEAM CONTROL METHOD AND APPARATUS FOR FABRIC PRESSING MACHINE

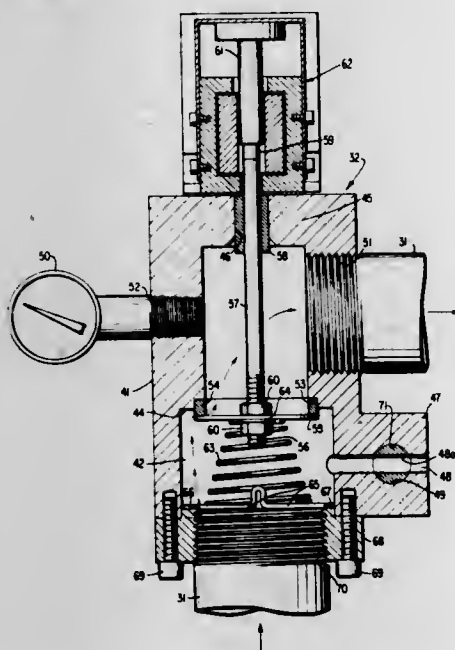
John T. Gerod, 312 N. Lincoln Avenue, Scranton, Pa.

Filed Sept. 21, 1970, Ser. No. 73,775

Int. Cl. F16k 11/10

U.S. Cl. 137-606

5 Claims



A method for selectively varying the vacuum pressure applied to the buck of a buck and swingable head type fabric pressing machine to establish the optimum vacuum pressure in accord with the weight and drying characteristics of the fabric to be pressed to assure effective drying and setting of the press in the fabric and a vacuum valve for presetting the vacuum pressure to the optimum value by adjustably venting the valve to the atmosphere. The valve is characterized by a vacuum

line coupling means that may be removed from the valve without breaking the line connection to gain access to the valve biasing spring means, the valve, and valve seat for the purpose of servicing and replacement.

3,738,386

PRESSURE-FLUID ELECTROMAGNETIC VALVES

Philippe Quemerais, Billancourt, France, assignor to Regie Nationale Des Usines Renault, Billancourt, France

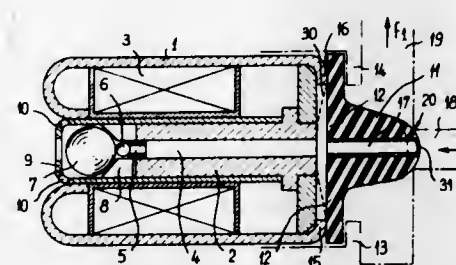
Filed Mar. 31, 1972, Ser. No. 239,882

Claims priority, application France, Apr. 9, 1971, 7112775

Int. Cl. F16k 11/02, 31/40

U.S. Cl. 137-625.64

6 Claims



This electromagnetic valve comprising a monitored valve member adapted to control the passage of a fluid under pressure from a supply duct to at least one outlet or load duct comprises in a shielding case a core surrounded by a coil winding and formed with an axial monitoring passage adapted in the energized condition of said winding to be closed by a rigid valve member responsive to the magnetic pull, said passage being connected to a variable-volume chamber of which one wall consists of one portion of a flexible valve member adapted to close an outlet orifice, said chamber being on the other hand connected to said fluid pressure supply duct.

3,738,387

CONTROL VALVES FOR HYDRAULIC FLUIDS

Brian Ingram, Balsall Common; David Anthony Harries, Solihull, and Lancelot Phoenix, Handsworth, all of England, assignors to Girling Limited, Birmingham, England

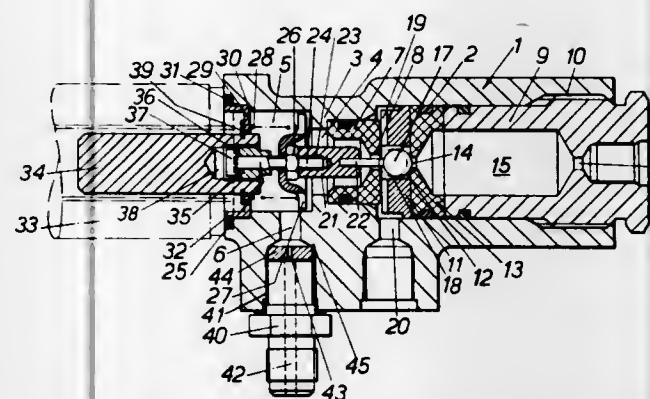
Filed Jan. 11, 1971, Ser. No. 105,356

Claims priority, application Great Britain, Feb. 28, 1970, 9769/70; Mar. 18, 1970, 13116/70

Int. Cl. F16k 11/00

U.S. Cl. 137-625.65

5 Claims



In a solenoid-operated control valve a spring loaded push-rod assembly for urging a valve member into engagement with a seating in a housing is coupled to the armature of the solenoid by a lost-motion connection permitting movement of the armature relative to the solenoid through a limited range. Movement of the armature in a direction towards the seating is arrested by a fixed abutment after the push-rod assembly has engaged with a stop limiting movement of the push-rod in a direction to urge the valve member into engagement with the seating and before the armature has moved relative to the push-rod through the said limited range.

3,738,388

VALVE SYSTEM

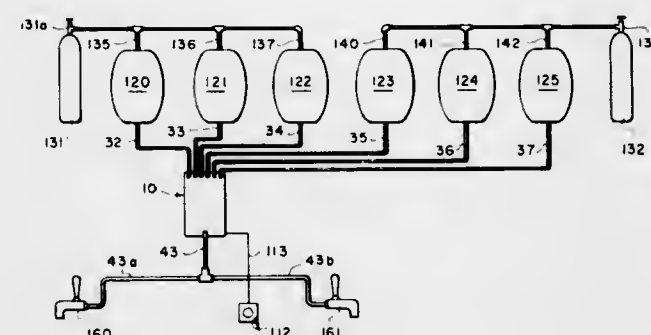
Joe B. Parker, Longmont, and Thomas A. McCasland, Evergreen, both of Colo., assignors to Colorado Valve Co., Westminster, Colo.

Filed June 23, 1971, Ser. No. 155,850

Int. Cl. F16k 19/00

U.S. Cl. 137-627

8 Claims



A valve system for selectively connecting a single dispensing tap or outlet with a selected one of a plurality of fluid supply sources. The valve system has plastic tube sections equal in number to the number of fluid sources and aligned in generally parallel relationship and connected with a manifold having a single outlet. A pivotally supported valve finger is secured over each plastic tube section and movable between positions at which the tube is open and squeezed closed. The valve fingers are actuated by a rotatable cylindrical cam having cam surfaces which hold all but one of the valve fingers at closed positions at any selected position of rotation of the cam. The cam is rotatable manually or by a remotely controlled solenoid. The valve system is useful, for example, with a plurality of beer kegs for individually communicating each of the kegs one at a time, as desired, with a single outlet tap from the system.

3,738,389

DIAPHRAGM VALVES FOR LIQUIDS

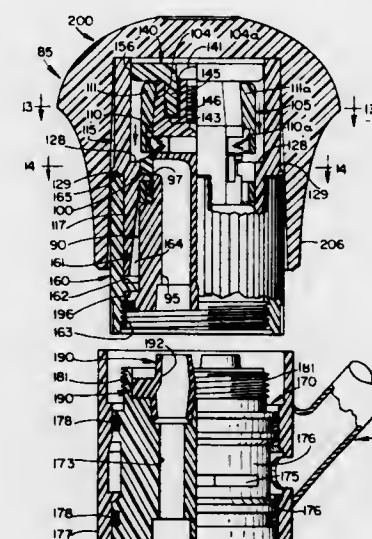
George S. Cole; Richard L. Ritzenthaler, and Don C. Arnold, all of 601 Skokie Boulevard, Northbrook, Ill.

Filed Aug. 27, 1970, Ser. No. 67,346

Int. Cl. F16k 11/14, 19/00

U.S. Cl. 137-636.1

17 Claims



Diaphragm valves for liquids wherein a valve body has a surface recess which receives a resilient valve member of rubber-type material of conforming size. An inlet port from a supply duct and an outlet port to a discharge duct are located in the valve body recess in spaced relation with the recess walls and bottom engaged by the valve member. A retainer holds the valve member in the recess and applies sufficient pressure on the marginal portion of the valve member to establish a liquid-

proof seal between the valve member and valve body which exists at least at low liquid pressure. The resilient valve member responds to liquid pressure within the valve, and the seal with the valve body is enhanced in proportion to liquid pressure, giving the valve a self-sealing characteristic over a wide range of liquid pressures. A movable actuator has a cam surface which positions the resilient valve member in relation to the inlet port, closing the port in one position, and in other positions varying the spacing between the valve member and port for varying the rate of flow through the valve. The various parts of the valve, including the actuator, are preassembled economically, and the valve is installed at the point of use as a unit, thereby avoiding any installation step, such as a conventional compression seal, which might permit leakage in the valve.

Two exemplary valves embodying the invention are disclosed. One accommodates a single supply line, while the other accommodates two supply lines (e.g. hot and cold water), and controls the rate and proportion of flow through the valve with a single actuator. In both forms of the invention the liquid handled by the valve flows from supply duct to discharge duct without traversing a region within the valve from which leakage is possible as a result of abuse or improper installation.

Valves embodying the invention easily can be installed by the user without tools of any kind, and the structure involved in installation is such that leakage at the couplings for the supply and discharge lines is virtually impossible.

3,738,390

FIRE HYDRANT

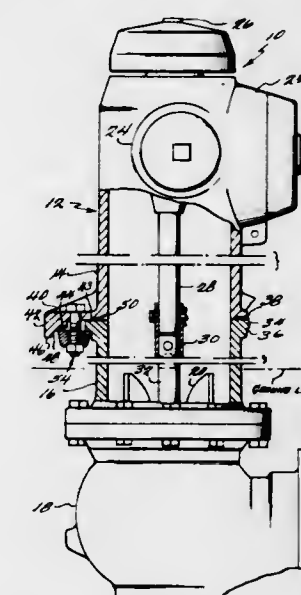
Lawrence F. Luckenbill, Decatur, Ill., assignor to Mueller Co., Decatur, Ill.

Filed Sept. 7, 1971, Ser. No. 178,242

Int. Cl. E03b 9/12; F16d 9/00

U.S. Cl. 137-797

18 Claims



A safety coupling for connecting two sections of a vertical standard-like member such as a fire hydrant, light pole, sign post, vertical post of a guard rail or similar accessories wherein the upper section is intended to move when subjected to a lateral shock from any angle without damage to the lower anchored or support section. The upper and lower sections are provided with peripheral flanges on their abutting ends and a plurality of frangible clips are angularly spaced about the standard-like member and engage the undersurface of both flanges, the clips being held in position against the flanges by bolts provided with weakening grooves which permit the bolts to bend or shear. The combined use of frangible clips and frangible bolts permits the upper section to be struck at different angles of impact such as in direct line with a bolt and clip arrangement or intermediate a pair of spaced bolt and clip arrangements and when so struck the upper section may be knocked over without damage to the lower section thereby permitting repair without replacement of the lower or anchored section.

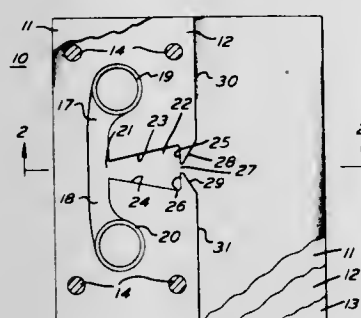
3,738,391

FLUID PRESSURE COMPARATOR

Robert B. Adams, Tredyffrin Township, Chester County, Pa., assignor to Moore Products Co., Spring House, Pa.
Continuation-in-part of Ser. No. 828,638, May 28, 1969, abandoned. This application Oct. 30, 1970, Ser. No. 85,685
Int. Cl. F15c 1/14

U.S. Cl. 137—823

11 Claims



A fluid pressure comparator is provided which imposes a minimal loading of either of the pressure signals and which at the same time provides a high degree of resolution in its output for relatively small pressure changes in the signal input. The comparator includes a chamber with a fluid inlet having a pair of delivery passageways for the fluids whose pressures are to be compared and a fluid outlet providing a resistance to flow greater than that of either of the delivery passageways. The passageways may be inclined with respect to the longitudinal axis of the chamber or opposed. The fluid exiting from fluid outlet may provide a directional signal and this signal may be utilized with a proportional diverting valve to provide a high capacity output signal. The space beyond the fluid outlet may be of such a nature that loss of sensitivity on account of dirt build up is avoided.

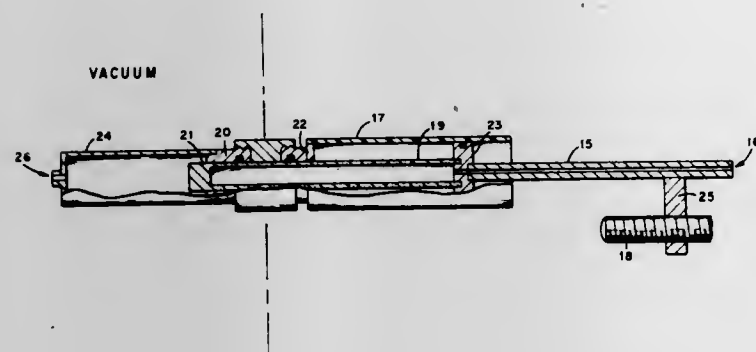
3,738,392
GAS LEAK VALVE

Allen M. Veach, and William A. Bell, Jr., both of Oak Ridge, Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Dec. 1, 1971, Ser. No. 203,747
Int. Cl. F15d 1/00

U.S. Cl. 138—46

2 Claims



A gas leak valve is provided that uses a hollow, porous-wall, closed-end tube communicating with the gas to be metered and slidable past a vacuum seal so as to expose more or less of the porous tube wall to the vacuum region and hence to controllably leak the gas through the porous wall into the vacuum system.

3,738,393

GATE FOR PIPE CONDUITS OF PNEUMATIC RABBIT CONVEYORS

Adolf Moritsovich Alexandrov, Federativny prospekt, 6, korpus 3, kv. 8, Moscow; Ippolit Davidovich Suladze, prospekt Chavchavadze, 11, kv. 41, Tbilisi; Ruben Dzhangirovich Balala, Volkovskaya ulitsa, 9, kv. 31, Ljubertsy Moskovskaya oblast; Vladimir Efimovich Aglitsky, Zatspeky val, 6/13, kv. 61, Moscow; Avtandil Semenovich Kakhnashvili, ulitsa Ellava, 37, kv. 41, Tbilisi; Ila Solomonovich Kantor, Malo-Moskovskaya ulitsa, 31, kv. 45, Moscow; Vazha Venediktovich Dzhaneldze, prospekt Plekhanova, 140, Tbilisi, and Matvel Iosifovich Rozenfeld, Borisovskaya ulitsa, 21, kv. 49, Moscow, all of U.S.S.R.

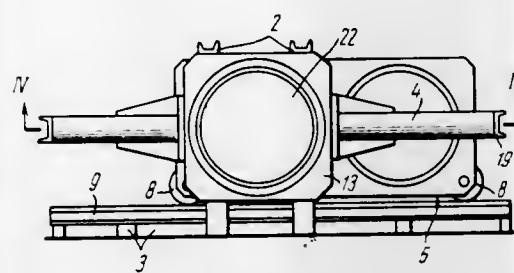
Filed Feb. 12, 1971, Ser. No. 114,867

Claims priority, application U.S.S.R., Apr. 29, 1970, 1426374

Int. Cl. F16l 55/10

U.S. Cl. 138—94.3

3 Claims



A gate for pipe conduits of pneumatic rabbit conveyors, in which two rigidly interconnected branch pipes having a diameter corresponding to that of the pipe conduit accommodate therebetween, a gate valve having an opening for the passage of rabbits and working fluid and being displaceable with the aid of a drive. The branch pipes are interconnected by means of tie pieces, while the gate valve is defined by a section of pipe, having a diameter corresponding to that of the branch pipes, and two packing supporting sides.

3,738,394

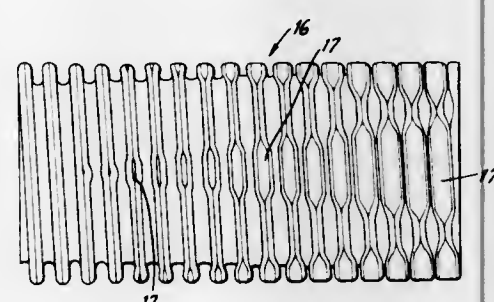
FLEXIBLE GROOVED PIPE

Leonard Westerbarkey, Gutersloh, Germany, assignor to Firma Westflexwerk L. & F., Westerbarkey, Gutersloh, Germany

Filed Jan. 29, 1971, Ser. No. 111,008
Int. Cl. F16l 9/18, 9/00

U.S. Cl. 138—122

4 Claims



A helically-corrugated flexible pipe wound from metal foil or sheet metal strips is characterized in that the grooves or ribs are upset or pressed in a gradually increasing manner toward the ends of the pipe.

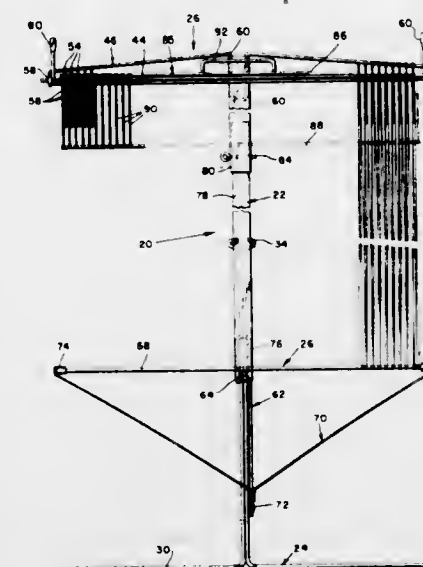
3,738,395

HAND LOOM

William K. Stars, Durham, N.C., assignor to The Craftool Company, Inc., Wood-Ridge, N.J.
Filed June 2, 1971, Ser. No. 149,236
Int. Cl. D03d 29/00

U.S. Cl. 139—29

15 Claims U.S. Cl. 139—159



A hand loom having an improved upper warp retaining assembly for substantially increasing the threads per inch supported thereby and a lower warp retaining and stringing assembly for automatically adjusting the tension applied to the warp and for facilitating stringing of the warp threads. A warp base stand supports the hand loom support frame in an upright position. Templates are adapted to be releasably secured to the beater or the upper warp retaining assembly for varying the warp thread shed combinations giving the loom the advantage of multi-harness weaving.

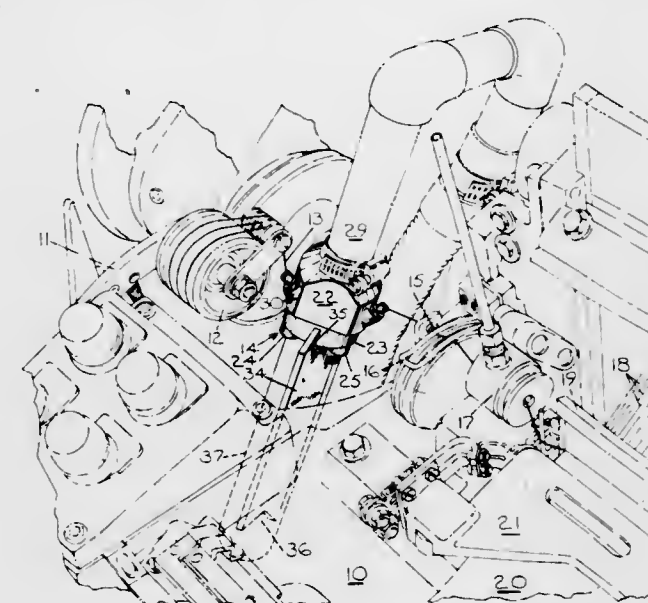
3,738,396

WEFT STORAGE DEVICE

Ephrem A. Lussier, Milford, Mass., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Mar. 27, 1972, Ser. No. 238,041
Int. Cl. D03d 47/34

U.S. Cl. 139—122

2 Claims



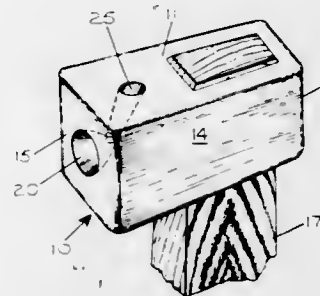
A weft storage device for shuttleless looms having a stationary weft supply which includes a diverting member for separating a source of air under pressure into two streams within which a loop of weft yarn can be formed and temporarily stored for subsequent insertion into a shed formed by cooperating warp threads.

3,738,397

LOOM PICKER

Joseph M. Budzyna, East Douglas, Mass., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed May 31, 1972, Ser. No. 258,409
Int. Cl. D03d 49/36

4 Claims



An improved picker for use in conjunction with shuttle type looms wherein a lubricant is disposed within the picker body to lubricate the tip of the shuttle when it is in the shuttle receiving recess of the picker.

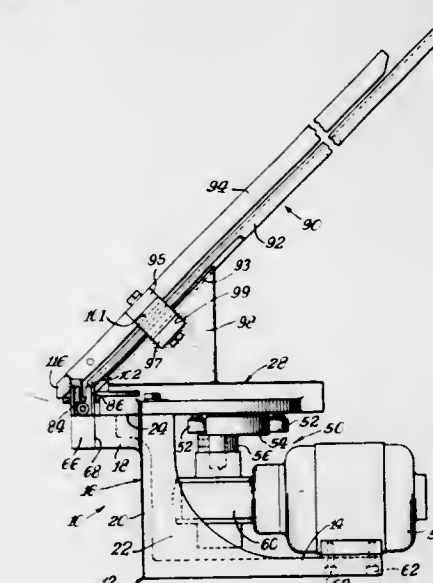
3,738,398

APPARATUS FOR CUTTING AND FORMING LEADS OF ELECTRICAL COMPONENTS

Robert K. Galloway, Oshkosh, Wis., assignor to R. A. Saranton Industries, Inc., Hoopeston, Ill.
Filed July 6, 1971, Ser. No. 159,708
Int. Cl. B21f 1/00, 11/00

U.S. Cl. 140—1

14 Claims



Apparatus for cutting and forming leads of electrical components utilizes a movable block reciprocally driven relative to a fixed block having a pair of spaced shearing surfaces that cooperate with a pair of cutters carried by the movable block to cut the ends of an electrical component supported crosswise to the cutters on a component carrying section of the movable block. The component carrying section has a stop to catch the inner ends of the component after the cutting operation and to hold the component as the component carrying section moves between a pair of opposing lead forming surfaces on the fixed block.

3,738,399

FLOW NOZZLE AND VALVE

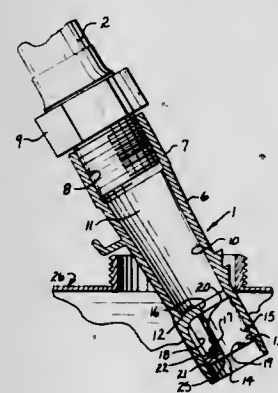
Lorraine O. Kuhlman, Monroe City, Mo., assignor to Laco Manufacturing Company, North Kansas City, Mo.
Filed June 21, 1971, Ser. No. 154,804
Int. Cl. B65b 57/00; B67c 3/00

U.S. Cl. 141—215

3 Claims

A flow nozzle and valve for use with a flow member connected to a pump operative to selectively move fluid through

the flow member and into the flow nozzle includes a tubular body member having an inlet end portion and a discharge end and a wall defining a flow passage tapering from the inlet end to a dam forming a reduced flow area and having an upper surface or crest extending transversely across the flow passage. A



valve member is positioned between the dam and the discharge end and movable between an open flow permitting position during operation of the pump and a flow interrupting position substantially restricting flow through the flow passage upon filling of a container having the flow nozzle therein.

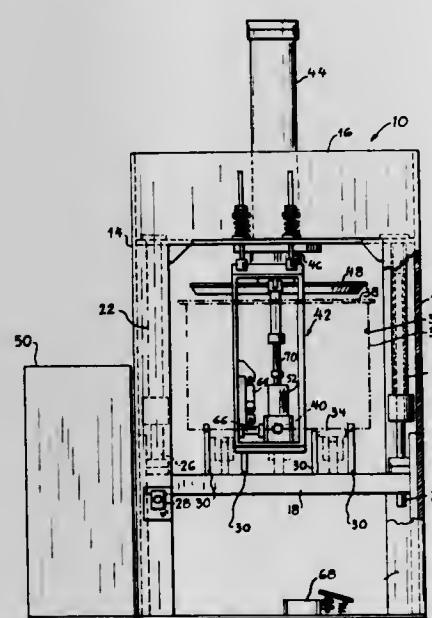
3,738,400

APPARATUS FOR FILLING A CONTAINER WITH A PRESELECTED QUANTITY OF A HIGHLY VISCOUS PASTE

Adam Well, Steimmuhle, 6201 Wicker, and Herbert Well, 623 Frankfurt-Hoechst, Markt 1, Germany
Filed Mar. 31, 1971, Ser. No. 129,891
Int. Cl. B65b 1/24, 3/12

U.S. Cl. 141—73

7 Claims



The apparatus includes a pair of vertical side members arranged in parallel spaced relation and connected to each other by a top transverse member. A platform is positioned between the side members and is movable vertically thereto by means of either telescopic members connected to the platform and the transverse top member or by means to engage a vertically movable piston rod movably connected to the top transverse member. A container is suitably supported on the platform and has an inner chamber with a generally cylindrical configuration, a top inlet opening and a bottom outlet opening. A piston head having substantially the same configuration as the container chamber is secured to the piston rod and is arranged to move downwardly within the container to extrude a highly viscous paste through the outlet opening. The piston is movable vertically relative to the container chamber by a suitable actuating mechanism. The platform with the container

thereon is arranged to be moved to a preselected elevation and stop means engage the platform at this elevation. A filling mechanism is suitably connected to the vertical side members and has an inlet opening connectable to the container outlet opening at the preselected elevation by a quick disconnect coupling. The filling mechanism includes a two-way valve to provide a flow passageway between the inlet opening and a paste transfer cylinder, and a passageway from the paste transfer cylinder to an outlet opening to which a tube or second container is arranged to be connected. A piston is positioned within the paste transfer cylinder and is connected to a piston rod that has a telescopic means to limit vertical displacement of the piston within the paste transfer cylinder. The piston rod has a second in an actuating cylinder positioned above the paste transfer cylinder. The actuating cylinder is arranged to displace the second piston and the piston rod vertically to extrude the paste through the filling mechanism outlet opening into the second container.

3,738,401

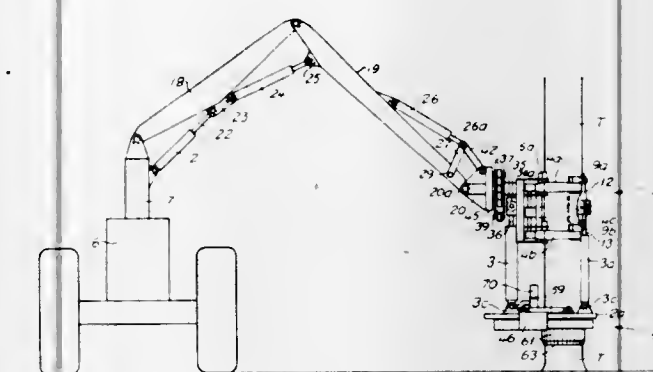
APPARATUS FOR SEVERING THE ROOT SYSTEM OF THE TREE FROM THE TRUNK DURING THE TREE-FELLING OPERATION

Per Martin Wiklund, Taby, and Johan Ingemar Palm, Oster-skar, both of Sweden, assignors to Ostbergs Fabriks AB, Alfta, Sweden

Filed Dec. 3, 1970, Ser. No. 94,731
Int. Cl. A01g 23/08

U.S. Cl. 144—34 R

2 Claims



An apparatus for severing the root system of a tree from the tree trunk during tree-felling comprising a gripping part, in operation being clamped to the trunk, and a cutting part for cutting of the roots. The cutting part includes a circular knife of interconnected knives arranged to encompass the trunk, and the cutting part is displaceable relative to the gripping part for cutting the roots, usually while pulling or pushing the tree upwards out of the ground in which part of the root system remains. Jacks or other power mechanism is used for moving the cutting part away from the gripping part fixed to the trunk. Timber is saved since no stump remains.

3,738,402

CUTTING DIE ASSEMBLY WITH REPLACEABLE BLADES

Tallyrand Cross, 4605 Farm Valley Road, Medford, Oreg.

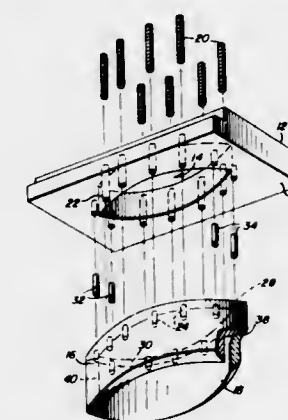
Filed Aug. 31, 1971, Ser. No. 176,537
Int. Cl. B27m 1/04

U.S. Cl. 144—197

8 Claims

A cutting die assembly comprised of male and female die structures each being of multi-piece construction including a

rigid mounting base and cutting blades together with means for convenient disassembly for replacement of the cutting



blades which have suffered damage or excessive wear, thereby permitting reuse, rather than disposal, of each mounting base.

3,738,403

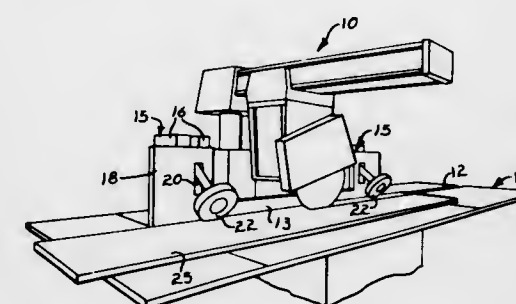
BIASING GUIDE FOR BOARDS

Elmer I. C. Schwoch, Conrad, Mont.; Richard L. Schwoch, 1440 Hargren Road, Maple Plain, Minn.; Robert O. Schwoch, 336 Riverview 6 W., Great Falls, Mont., and William E. Schwoch, 14575 Danbury Avenue W., Rosemount, Minn.

Filed May 19, 1971, Ser. No. 144,727
Int. Cl. B27b 5/06; B25d 7/06

U.S. Cl. 144—249 B

5 Claims



A board-engaging device for saws and the like, designed to laterally urge boards toward a fence or guide during ripping and similar operations where it is necessary that each board move in a straight path for accuracy. Inclined rolls at opposite sides of the rotating tool element frictionally grip the board and hold it toward a stationary guide or fence. The rolls are vertically movable, being biased toward a work table by springs or other similar biasing devices. They can be pivoted on an attachment assembly selectively mounted to the table surface of the tool, or can be alternately mounted in a permanent fashion directly upon the table.

3,738,404

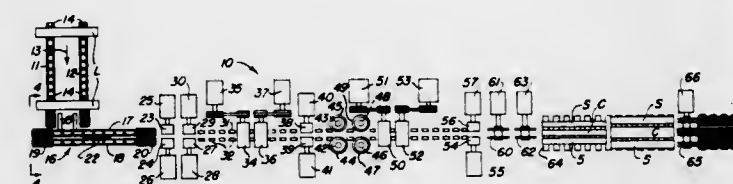
METHOD OF PRODUCING DRESSED LUMBER FROM LOGS

Willard H. Walker, 36739 Magnolia St., Newark, Calif.

Filed Feb. 22, 1971, Ser. No. 117,442
Int. Cl. B27d 1/00

U.S. Cl. 144—312

9 Claims



A log is shaped to form a stick, which is then planed along longitudinal surfaces so that vertical dimensions of the stick

are within tolerances for each size of dressed lumber to be cut therefrom while transverse horizontal dimensions of the stick equal the sum of horizontal dimensions for sizes of dressed lumber to be cut therefrom plus an allowance for each saw cut to be made, and the planed stick is sawed longitudinally with gang planer saws to produce dressed lumber.

3,738,405

MAYO STAND COVER

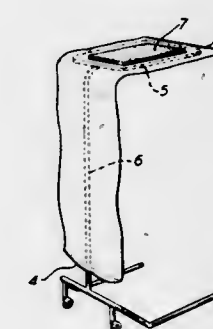
Richard E. Erickson, Keene, N.H., assignor to C. R. Bard, Inc., Murray Hill, N.J.

Filed May 25, 1971, Ser. No. 146,717

Int. Cl. B65d 65/02

U.S. Cl. 150—52 R

4 Claims



A cover for a Mayo Stand, comprising an elongated bag of woven or non-woven fabric or plastic sheeting having affixed to the bag area designed to constitute the instrument-supporting surface a sheet of "non-skid" material such as foamed plastic. The cover can be supplied initially in a folded and cuffed condition so that it may be applied to the stand with a minimum of handling so as to maintain the sterility of all exposed surfaces.

3,738,406

RETAINING CLIP

Malcolm Clarence Williams, Caerleon, Monmouthshire, Wales, assignor to Girling Limited, Birmingham, England

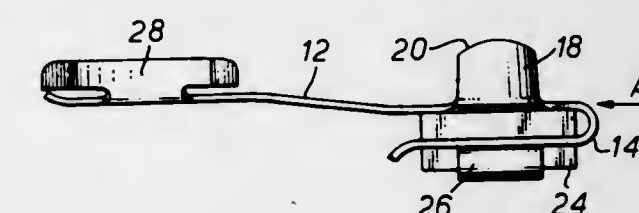
Filed Mar. 11, 1971, Ser. No. 123,260

Claims priority, application Great Britain, Mar. 12, 1970, 11,873/70

Int. Cl. F16b 39/22

U.S. Cl. 151—41.75

6 Claims



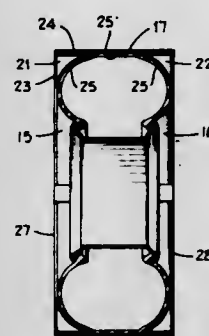
The invention concerns retaining clips capable of securing a bolt or the like and is particularly useful when used in conjunction with vehicle shoe drum brake shoes having replaceable lining components. The clip has an elongated arm carrying resilient members for locating in a slot, for example in a brake shoe web, screw engaging means to secure a bolt or screw, and a pair of opposed lugs which grip the bolt or screw and lock same against further rotation.

3,738,407 ROLLER FOR MOUNTING ON THE TIRES OF A TRACTOR

Dale I. Deckert, 1295 Pleasant St., Noblesville, Ind.
Filed Apr. 30, 1971, Ser. No. 138,909
Int. Cl. B60c 27/00

U.S. Cl. 152-175

5 Claims



A belt roller fittable onto a tractor tire for rolling of the ground. A continuous sheet extends around the tire and is in contact with the tire tread. A plurality of brackets are mounted interiorly to the sheet and project radially inward so as to grip both the tread surface and side wall of the tire to prevent relative motion between the tire and sheet.

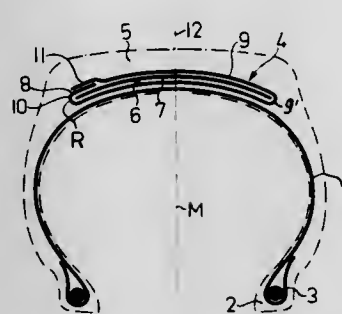
3,738,408 PNEUMATIC TIRE WITH AN ASYMMETRICAL FOLDED BELT

Heinz-Dieter Rach, and Ekkehard Grollich, Hannover, both of Germany, assignors to Continental Gummi-Werke Aktiengesellschaft, Hannover, Germany
Filed Apr. 26, 1971, Ser. No. 137,422
Claims priority, application Germany, Apr. 30, 1970, P 20 21 268.4

Int. Cl. B60c 9/18

U.S. Cl. 152-361 FP

5 Claims



A pneumatic vehicle tire with a folded belt having a layer of pull resistant strength members, which is folded over in a direction transverse to the circumferential direction of the tire so that there will be a fold on each tire side while the free end portions of said belt overlap each other, the overlapping sections being spaced from that plane of symmetry which is perpendicular to the axis of rotation of the tire and also being spaced from the adjacent fold.

3,738,409 APPARATUS FOR FLASH-CONCENTRATING VISCOUS LIQUIDS

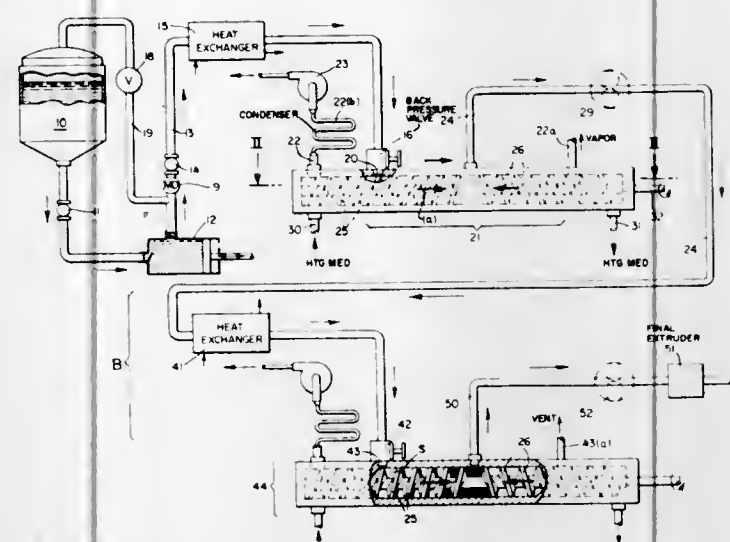
Richard H. Skidmore, Strafford, Pa., assignor to Welding Engineers, Inc., King of Prussia, Pa.
Filed Jan. 27, 1971, Ser. No. 110,160
Int. Cl. B01d 1/28; A01J 17/00

U.S. Cl. 159-2 E

1 Claim

A viscous fluid containing a volatile ingredient is subjected to evaporation by heating the liquid and supplying the heated liquid at a metered rate to a pump, which pump includes a housing and a pair of intermeshing screws arranged in close

running clearance in the housing. The pump moves the viscous liquid material forwardly while permitting the flashed vapors to proceed through the close running clearance. The vapors are collected and the liquid may be subjected to one or



more further cycles.

Gases and vapors are removed from various kinds of plastic materials in extruders through a vent containing a worm running with close working clearance in a housing which is connected into the extruder.

3,738,410 FILM EVAPORATOR PANEL

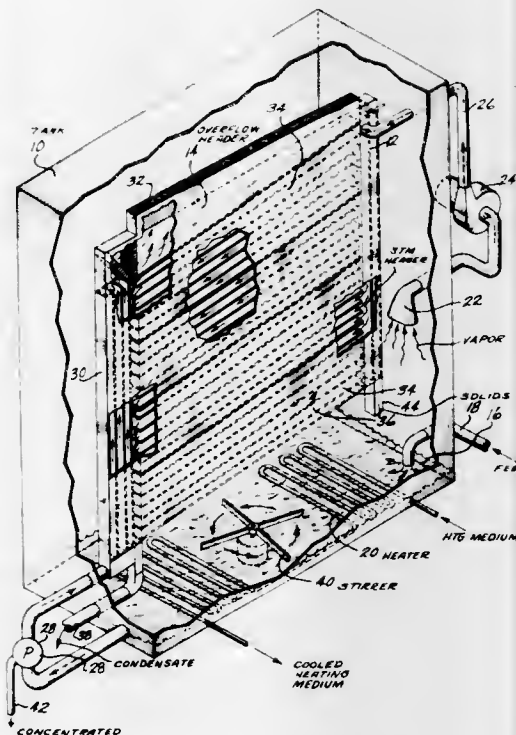
Peter M. Ricca, Bellevue; William W. Stickney, Mercer Island, and Robert W. Turner, Seattle, all of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed May 10, 1971, Ser. No. 141,859

Int. Cl. B01d 1/22, 1/00, 3/08, 3/28

U.S. Cl. 159-13 B

8 Claims



An evaporator panel having extruded sections placed one on top of another, each with a plurality of passages positioned within a pair of smooth parallel exterior walls. The passages are open at their ends, and steam headers are located on both ends of the panel to permit a uniform flow of steam throughout the passages within the panel. The passages within the panel are slightly tilted from horizontal so that steam condensate that collects within the passages flows into one of the steam headers which has thus a double function, that of sup-

3,738,411 TREATMENT OF ALUMINATE DIGESTER LIQUOR

Ferenc Lazar, Tatabanya, Hungary, assignor to Tatabanyai Szénbányak, Tatabanya, Hungary

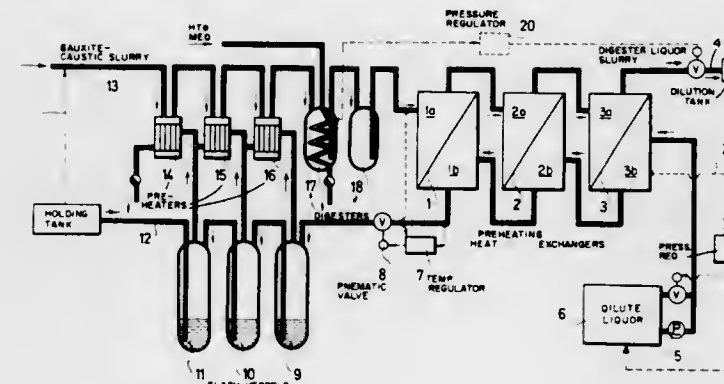
Filed July 31, 1970, Ser. No. 59,954

Claims priority, application Austria, Aug. 5, 1969, A 7521/69

Int. Cl. B01d 7/00, 9/00; F26b 3/12; B01d 3/02; C01f 7/34; B01d 11/04

U.S. Cl. 159-47 R

4 Claims



Aluminum-containing minerals, such as bauxite, are digested in sodium aluminate liquor, wherein the digestion liquor leaves the digester at a temperature above 150°C and is conducted, without flashing, in a heat exchanger in a counter-current flow with respect to the feed liquor for the digester so that the temperature difference between the two liquors is less than 10°C.

3,738,412 METHOD FOR SPRAY DRYING COFFEE WHITENER

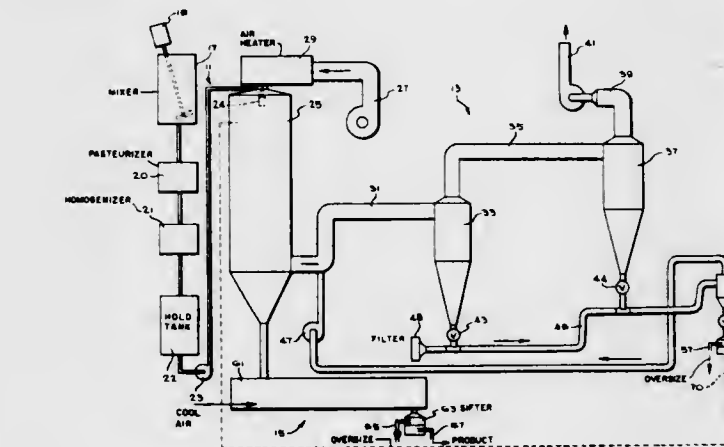
Robert L. Nezbed, Highland Park, and William H. Zamzow, Glenview, both of Ill., assignors to Kraftco Corporation, New York, N.Y.

Filed Sept. 8, 1970, Ser. No. 70,030

Int. Cl. B01d 1/16, 1/00; F26b 3/12

U.S. Cl. 159-48 R

3 Claims



Method and apparatus are provided for manufacture of dry particulate food products. In the method, particles of a fluid edible dispersion are provided in the drying chamber of the spray dryer. Circulating air is introduced into the chamber. The circulating air is of a quantity, temperature and humidity sufficient to dry the particles. A fraction of the dried particles is entrained in the circulating air and is subsequently separated to provide a first fraction of particles having a relatively high bulk density. A second fraction of particles is removed from the chamber by gravity and is simultaneously

conveyed and cooled to provide a product having relatively low bulk density and rapid sinkability and solubility.

3,738,413 RETRACTABLE BARRIER

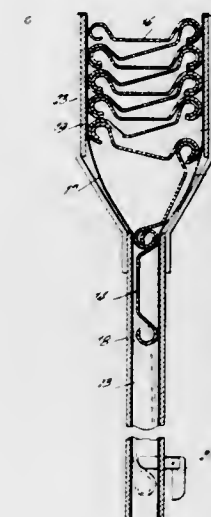
Raymond C. Frobosilo, 1260 East 55th Street, Brooklyn, N.Y., and Samuel W. Levine, 973 East 88th Street, Brooklyn, N.Y.

Filed July 1, 1971, Ser. No. 158,686

Int. Cl. E06b 9/00

U.S. Cl. 160-35

6 Claims



A retractable barrier for use in sealing doors, windows, gates, alleys and the like is provided in which a plurality of foldable interlocking slats are disposed in a frame, the frame having channels on each side with a lower section of sufficient depth to receive the unfolded slats and a deeper upper section of sufficient depth to receive the folded slats, and flexible bands disposed within the channels so as to frictionally engage the unfolded slats in the lower section and the folded slats in the upper section.

3,738,414 HOOK PLEAT DRAPERY SYSTEM

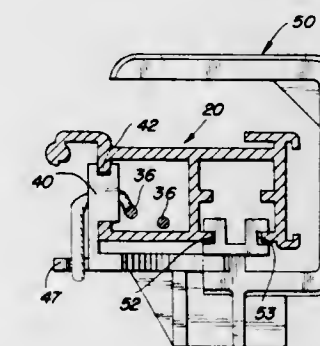
George H. Baker, Sr., Dunlap, Ill., assignor to Baker Drapery Corporation, Peoria, Ill.

Filed June 14, 1971, Ser. No. 152,571

Int. Cl. A47h 5/032

U.S. Cl. 160-345

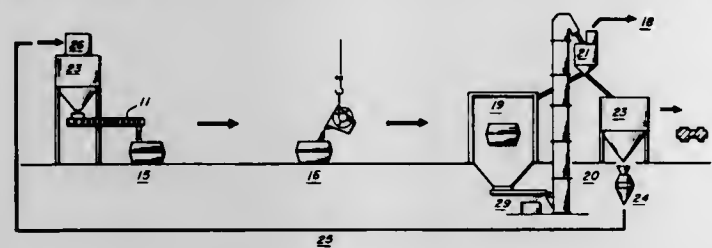
4 Claims



A simulated cafe drapery system in which draperies are supported by hooks from sliders carried by a track. The track has two longitudinally extending grooves, one carrying the master slides and the other carrying individual hook slides. A hook slide is interconnected mechanically with each master slide so that they move together. The track end fitting serves to support and house traverse cord pulleys and has a finial mounted thereon.

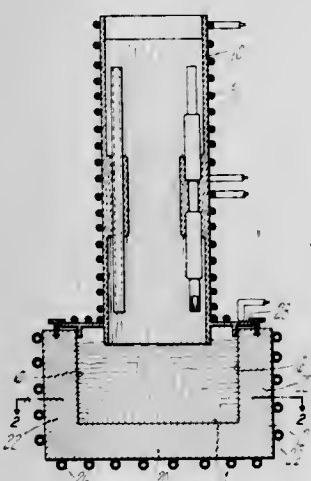
3,738,415
METHOD OF MOLDING ARTICLES AND RECLAIMING THE FOUNDRY SAND USED
 James M. Planten, Deep Brook Road, Wyckoff, N.J.

Continuation-in-part of Ser. No. 73,909, Sept. 21, 1970, abandoned. This application Dec. 23, 1971, Ser. No. 211,323
 Int. Cl. B22d 29/00; B24c 3/00
 U.S. Cl. 164-5 8 Claims



A unique method of molding articles is provided, which comprises forming a chemically bonded sand mold, casting an article therein and then subjecting the article while in the sand mold to a blasting force sufficient to remove the sand from the molded article and also essentially destroy the bond which holds the sand particles together to thereby render the sand reusable in a subsequent mold forming operation.

3,738,416
METHOD OF MAKING DOUBLE-ORIENTED SINGLE CRYSTAL CASTINGS
 Bernard H. Kear, Madison, Conn., and Larry W. Sluk, Milwaukee, Wis., assignors to United Aircraft Corporation, East Hartford, Conn.
 Division of Ser. No. 806,869, March 13, 1969, Pat. No. 3,598,176. This application Feb. 1, 1971, Ser. No. 111,638
 Int. Cl. B22d 27/06 3 Claims

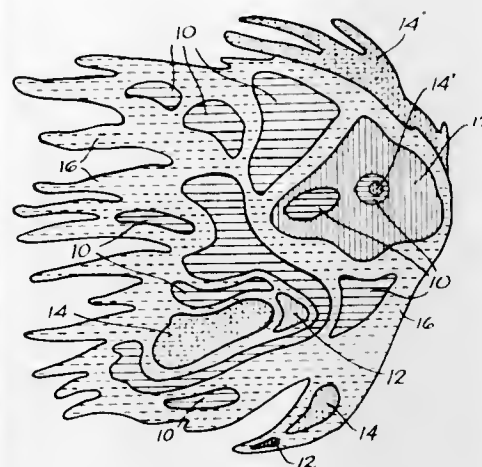


A method by which to produce single crystal parts in which the orientation of the dendrite growth in two planes at right angles to one another is described. In effect this produces an orientation in all three right angle planes of the cast article.

3,738,417
METAL ART FORMS AND METHOD FOR PRODUCING THE SAME
 Norman D. Moore, 215 East 14th, Albany, N.Y.
 Continuation of Ser. No. 816,534, April 16, 1969, abandoned.
 This application May 24, 1971, Ser. No. 146,469
 Int. Cl. B22d 13/04 3 Claims

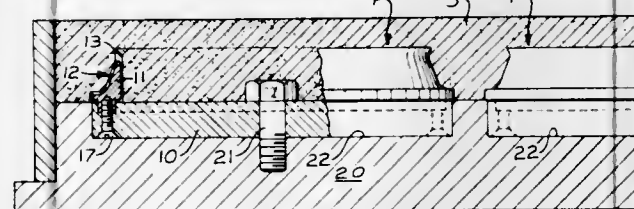
Molten metal is deposited on a movable plate in an inert atmosphere in a chamber and the plate is tilted, rotated and/or otherwise moved to distribute the molten metal to produce an art form. The metal is cooled sufficiently to solidify the art form and then various surface areas of the art form are sub-

jected at selected elevated temperatures to chemical reaction with a selected reactive gas or mixture of gases to produce



corresponding surface colorations in the various areas of the metal art form.

3,738,418
BACKDRAFT RUBBER SKIN MOLD PATTERN
 George V. Harris, Racine, Wis., assignor to Caterpillar Tractor Co., Peoria, Ill.
 Filed July 26, 1971, Ser. No. 166,201
 Int. Cl. B22c 7/00 8 Claims

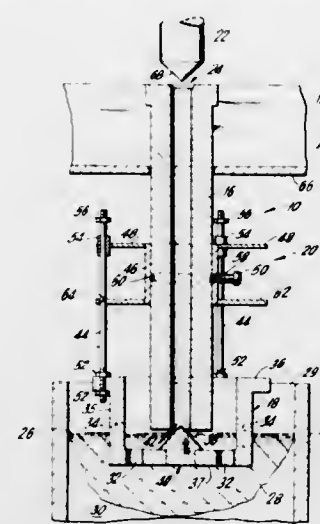


A composite metal and elastomer skin pattern for forming circular sand molds includes a circular metal sleeve which forms the basic mold portion and an elastomer skin or covering bonded thereto which includes the pattern's backdraft portion whereby the resulting pattern can be removed from a cured sand mold without damage thereto due to the elastic deformations of the pattern's surfaces and its elastomer backdraft portion.

3,738,419
MOLTEN METAL LEVEL CONTROL FOR CONTINUOUS CASTING
 George J. Hartmann, Clark, and Donald J. Nesslage, Old Bridge, both of N.J., assignors to Phelps Dodge Copper Products Corporation, New York, N.Y.
 Filed Aug. 26, 1971, Ser. No. 175,128
 Int. Cl. B22d 11/10 6 Claims

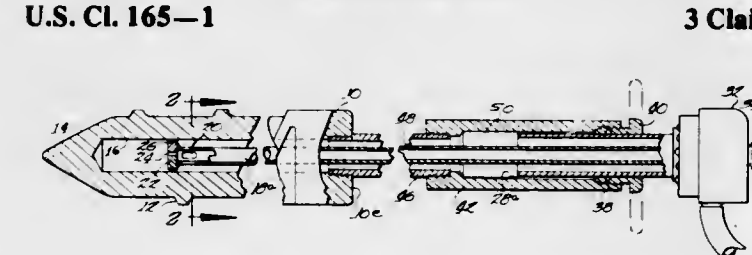
A molten metal level control includes a breakable tube for automatically feeding molten metal from a source to the mold, the tube having a first portion attached to the source and a second portion depending from the first portion. The control also includes float means mechanically coupled to said second tube portion for automatically controlling the rate at which the molten metal enters the mold from the breakable feed tube, and metering rod means positioned for coaction with said first portion of the breakable feed tube to provide unin-

interrupted regulation of the rate of flow of molten metal therethrough from the source and into the mold during emer-



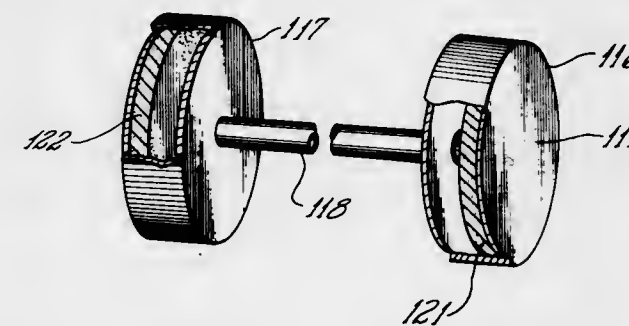
gencies when the second portion of the feed tube is broken from its first portion to eliminate automatic level control.

3,738,420
APPARATUS AND METHOD FOR CONTROLLING TEMPERATURE IN A FEED SCREW
 Robert J. Poux, and Peter R. Deutsch, both of Titusville, Pa., assignors to Phillips Petroleum Company, Bartlesville, Okla.
 Division of Ser. No. 784,007, Dec. 16, 1968, Pat. No. 3,588,956. This application Feb. 10, 1971, Ser. No. 114,362
 Int. Cl. F28f 5/06 3 Claims



A feed screw for advancing a thermoplastic resin has an interior bore through which a cooling medium is adapted to be circulated by conduits entering from an open entrance end of the bore. Adjustable means inserted into the bore forms a desired bore segment through which the cooling medium is freely circulated, thereby providing a desired temperature gradient along the screw length.

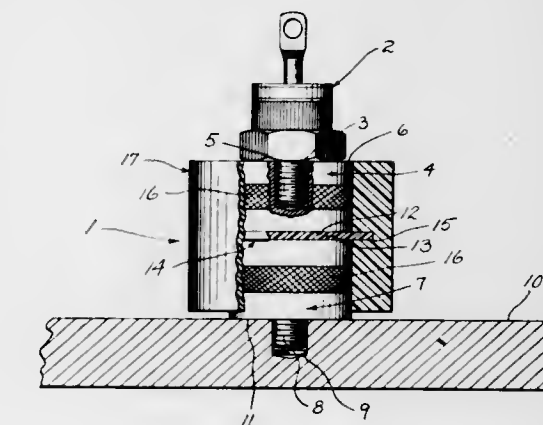
3,738,421
HEATRONIC CAPACITOR
 Robert David Moore, Jr., 817 W. Camino Real, Arcadia, Calif.
 Filed June 11, 1971, Ser. No. 152,185
 Int. Cl. G05d 23/00 10 Claims



A thermal analog of an electronic capacitor has a pair of substantially similar characters in vapor communication. Each chamber has a capillary material less than completely filled

with a capacitance liquid. The liquid comprises a vaporizable heat transfer material and a substantially non-vaporizable solute with a relative broad solubility range. Vaporization of the heat transfer material from one chamber and condensation in the other serves to "charge" or "discharge" the heatronic capacitor. The vapor pressure differences due to differences in concentration in the heat transfer liquid permit the capacitor to hold a selected heat "charge" approximately proportional to the temperature differential across it, analogous to operation of an electronic capacitor.

3,738,422
HEAT DISSIPATING INSULATING MOUNTING
 George Economos, Shorewood; David E. Ford, Jr., Milwaukee, and John A. Fillar, Waukesha, all of Wis., assignors to Allen-Bradley Company, Milwaukee, Wis.
 Filed May 4, 1971, Ser. No. 140,089
 Int. Cl. H01l 1/12 2 Claims

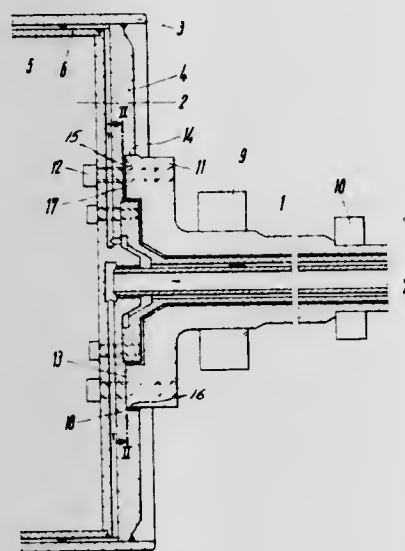


A mounting is shown for a heat generating electrical device, such as a power semiconductor, that functions to exchange heat between the heat generating device and a heat sink to which the mounting is attached. The mounting has a first metallic, heat conductive member upon which the semiconductor is supported, a second metallic, heat conductive member with means for attaching the mounting to a heat sink, a thin dielectric film sandwiched between and separating the two heat conductive members that exhibits good thermal conductivity, and an outer encapsulating jacket of resin that retains the assembly as a unitary whole.

3,738,423
GODET FOR DRAWING UNITS AND ROLLER DRYERS USED FOR TREATING MAN-MADE FIBERS
 Heinz Fleissner, Frankfurt am Main, Germany, assignor to Fleissner GmbH, Germany
 Filed Mar. 8, 1971, Ser. No. 121,890
 Claims priority, application Germany, Mar. 6, 1970, P 20 10 693.8
 Int. Cl. F28f 5/02 7 Claims

The present invention is directed to a godet for installation in drawing units and roller dryers used for treating natural and synthetic fibers, which comprises an outer and inner cylindrical jacket provided with a front wall, said outer and inner jacket defining a channel therebetween, means for introducing a forced flow of a heat transfer medium to the annular channel for heating the godet, and a bearing shaft means attached to the front wall of the godet by radial and axial fittings

and fixedly but rotatably mounted in bearing boxes associated therewith, the metal contact surfaces of the fitting areas



between the bearing shaft and the front wall of the godet being discontinuous.

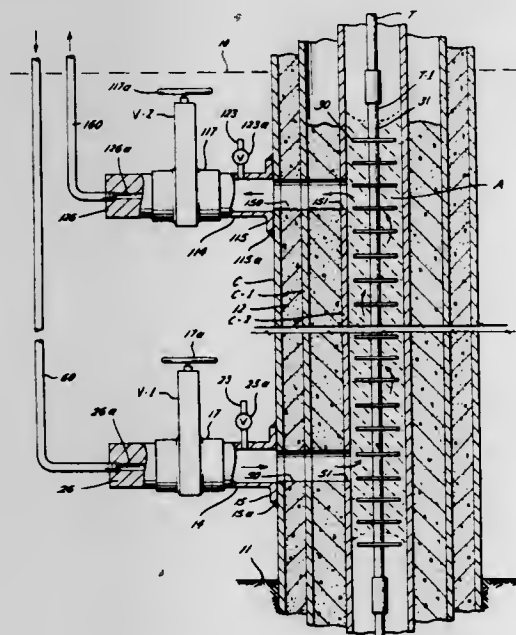
3,738,424

METHOD FOR CONTROLLING OFFSHORE PETROLEUM WELLS DURING BLOWOUT CONDITIONS
Dean W. Osmun; Charles W. Johnson, and Ray A. Plummer, all of Houston, Tex., assignors to Big Three Industries, Inc., Houston, Tex.

Filed June 14, 1971, Ser. No. 152,517
Int. Cl. E21b 29/00, 33/03

U.S. Cl. 166—298

10 Claims



Method for controlling petroleum wells, particularly those offshore, during blowout conditions, wherein special drill-through valves are externally mounted on a well casing at longitudinally spaced locations, and wherein openings are drilled or are otherwise formed through the wall of the casing at such valves to the area around or internally of the production tuning string so that various control operations may be performed, including for example, introducing liquid nitrogen and causing it to flow inwardly through one of said valves and out of the other of said valves for freezing a section of the petroleum, water and other material internally of the production string to form a temporary frozen plug which closes off fluid flow upwardly in the production string.

3,738,425
STABILIZATION OF WATER SENSITIVE CLAYS
James L. Thompson, Tulsa, Okla., assignor to The Dow Chemical Company, Midland, Mich.

Filed Aug. 4, 1971, Ser. No. 169,121
Int. Cl. E21b 33/13

U.S. Cl. 166—305 R

7 Claims

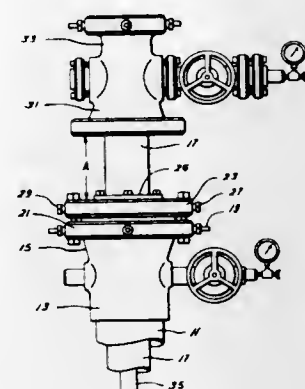
A method of treating a formation (e.g., subterranean), containing water sensitive clay minerals is provided. In this method, the formation is first treated with alcohol which will not appreciably swell or disperse the clay mineral. The formation is then contacted with phosphoric acid or phosphorous pentoxide, dispersed in a similar alcohol for a sufficient period of time to stabilize the clay mineral.

3,738,426
SUBSIDENCE WELLHEAD ASSEMBLY AND METHOD
Andre H. Drouin, Houston, Tex., assignor to Rockwell Manufacturing Company, Houston, Tex.

Filed Feb. 16, 1971, Ser. No. 115,561
Int. Cl. E21b 33/03

U.S. Cl. 166—315

12 Claims



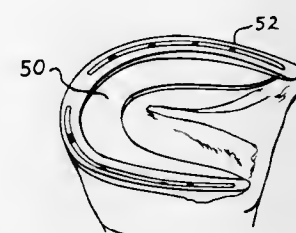
Production casing is retensioned with hydraulic jacks placed between tubing head flange and packoff flange connected to casing head flange, the production casing being screwed into tubing head and also supported in casing head by slip type casing hanger whose slips are spring biased downwardly. The packoff flange has a packing gland accessible from the top for seal replacement. The jacks are of the spring retract and fluid expand type adapted for actuation by a manual pump. A fluid pressure gage is calibrated to read in pounds of casing tension and is marked to show maximum permissible load on jacks.

3,738,427
HORSESHOEING
William A. Fryrear, Jr., 8820 St. Anthony Church Rd., Louisville, Ky., and Joseph R. Metcalf, 914 Flintlock Dr., Louisville, Ky.

Continuation-in-part of Ser. No. 869,616, Oct. 27, 1969, abandoned. This application Nov. 16, 1971, Ser. No. 199,252
Int. Cl. A011 1/00

U.S. Cl. 168—4

8 Claims



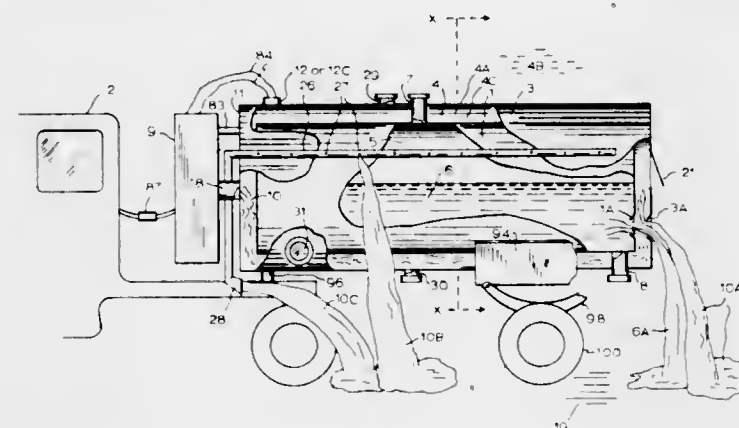
In the case of horses, particularly thoroughbreds, hoof care has not advanced along with careful breeding, scientific feeding and exercising, training methods and medical condition-

ing. A custom, and hence a perfectly fitting, horseshoe can be made. In addition the fit of conventional horseshoes can be improved, and injured portions of the sole can be protected.

3,738,428
SAFETY FUEL TANKS
Ben Ingro, 2437 North 73rd Avenue, Elmwood Park, Ill.
Filed Oct. 19, 1970, Ser. No. 81,691
Int. Cl. A62c 3/08

U.S. Cl. 169—2 A

7 Claims



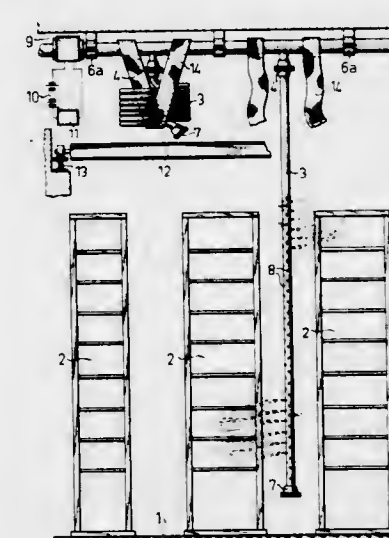
Safety system to prevent fire or explosion in fuel transporting tank trucks. The tank portion is surrounded by a pressurized system which when broken, as by impact, the altered pressure in the system automatically starts fire foam generating equipment to produce fire foam which is automatically dispensed in the immediate area of the tank. In a preferred form the pressurized system comprises a jacket which completely encompasses the fuel carrying tank, and the space between the tank and the jacket is charged with a pressure of air or inert gas which is slightly higher than atmospheric pressure.

3,738,429
FIRE EXTINGUISHING SYSTEM
Karl Heinz Heller, Northen, and Hans Joachim Fischer, Berenbostel, both of Germany, assignors to Continental Gummi-Werke Aktiengesellschaft, Hannover, Germany
Filed Mar. 4, 1971, Ser. No. 121,068
Claims priority, application Germany, Sept. 10, 1970, P 20 44 731.8

Int. Cl. A62c 3/00

U.S. Cl. 169—2 R

7 Claims



A fire extinguishing system in which branch conduit means branching off from main conduit means near the ceiling of a building, e.g., a warehouse, are in their ineffective position retracted and stored near the ceiling of the respective storage room or the like, and are released in case of fire in the vicinity

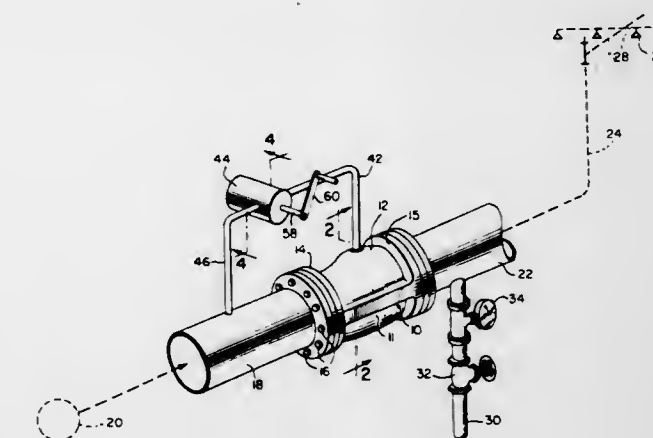
thereof so as to freely hang downwardly to a plane near the floor of the building while control means normally preventing fluid connection between said main and branch-off conduit means establish such fluid connection.

3,738,430
SYSTEM AND METHOD OF FLUID FLOW CONTROL UTILIZING A DYNAMIC SHUTOFF VALVE
William L. Livingston, Sharon, Mass., assignor to Factory Mutual Research Corporation, Boston-Providence Turnpike, Mass.

Division of Ser. No. 848,986, Aug. 11, 1969, Pat. No. 3,643,912. This application Sept. 14, 1971, Ser. No. 180,332
Int. Cl. A62c 35/00

U.S. Cl. 169—13

10 Claims

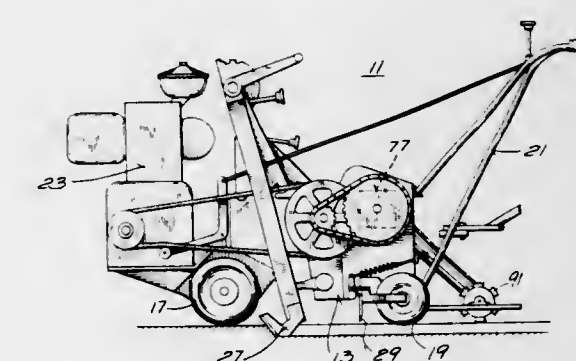


A system and method for fluid flow control in which a valve located in a main supply conduit for the fluid is biased open to permit fluid flow through the conduit. An actuator moves the valve to and maintains it in a closed position in response to a continuous dynamic energy input, the cessation of which permits the valve to move to its normal open position.

3,738,431
SOD CUTTER CUTOFF BLADE MOUNTING
Robert A. Gennow, St. Paul, Minn., assignor to Outboard Marine Corporation, Waukegan, Ill.
Filed Apr. 12, 1971, Ser. No. 133,039
Int. Cl. A01b 45/04

U.S. Cl. 172—20

7 Claims



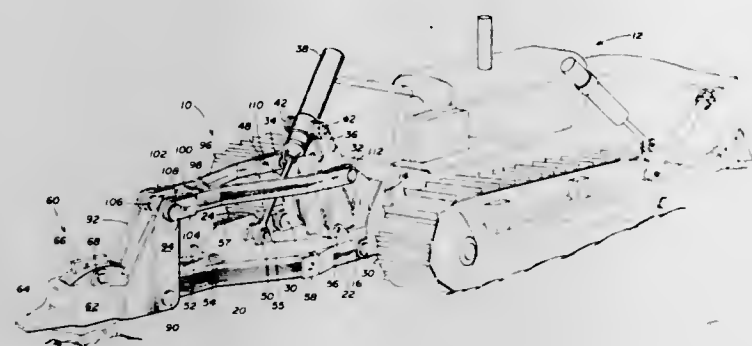
Disclosed herein is a sod cutter including a parallel linkage pivotally mounting a generally planar transverse cutoff blade on a frame such that the blade is movable into and out of the ground in response to travel of the cutter along the ground, such that the angular relation of the blade to the frame is constant during movement into and out of the ground, and such that the blade moves downwardly and rearwardly relative to the frame during movement of the blade into the ground, and such that the blade moves upwardly and forwardly relative to the frame during movement of the blade out of the ground.

3,738,432

**RIPPER PLOW ASSEMBLY FOR CONVERTING
PARALLEL LIFT TO RADIAL LIFT**
Leon O. Kelley, P. O. Box 488, Stamford, Tex.
Filed May 24, 1971, Ser. No. 146,253
Int. Cl. A01b 13/08

U.S. Cl. 172-248

20 Claims



A ripper plow assembly which includes a hitch frame for connection to the rear of a prime mover such as a tractor. A tool bar includes a pair of outwardly diverging arms each having end structure for connection to the hitch frame. A single fluid cylinder is pivotally connected to the hitch frame and includes a movable output shaft pivotally connected to the juncture of the arms of the hitch frame. A ripper shank support is connected to the rear end of the tool bar and includes a pair of upward extensions. The shank support may support either a single ripper shank or a plurality of ripper shanks arranged in a V-configuration. Two interconnected parallel linkage bars are connectable between the upper extensions of the shank support and the hitch frame to provide a parallelogram plow assembly. Alternatively, the linkage bars or a rigid plate may be connected between the upper extensions of the shank support and the tool bar to provide a radial plow assembly.

3,738,433

**HYDRAULICALLY-MOTIVATED, ROPE-OPERATED
FEED DEVICE FOR ROCK DRILLS AND THE LIKE**
Paul C. O'Leary, Post Office Box 17314, Salt Lake City, Utah
Filed Apr. 5, 1971, Ser. No. 131,133
Int. Cl. E21c 5/06

U.S. Cl. 173-147

3 Claims



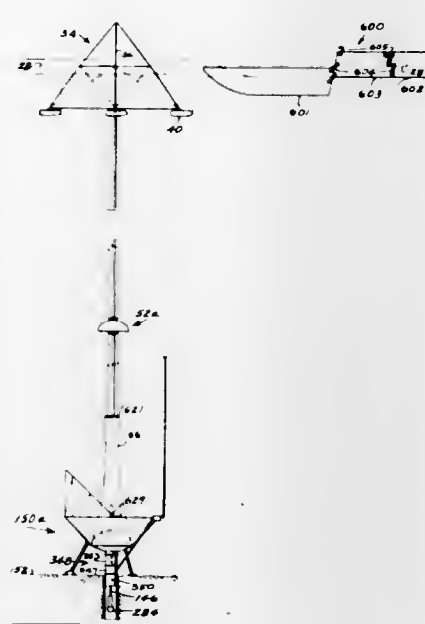
An elongate frame, preferably comprising a pair of structural channels secured together in mutually spaced, back-to-back, parallel relationship, has a trackway along a longitudinal face mounting a carriage for reciprocation. An elongate, hydraulic power cylinder unit is secured to and extends along one end portion of the frame and carries at its work stroke extension end tandem idler sheaves about which are looped respective ropes that extend to and from respective idler sheaves at opposite ends of the frame. One set of ends of such ropes are attached to opposite ends of the carriage, respectively, and the other set of ends are anchored to the frame adjacent opposite ends thereof, respectively. The cylinder of the power unit preferably has an easily removable cylinder head through which extends an elongate piston rod that carries the tandem sheaves externally of the cylinder and that is guided and supported by cooperative means secured to such rod and to the frame, respectively.

3,738,434

**THE APPARATUS AND METHOD TO ESTABLISH AND
SUSTAIN A SUBAQUEOUS STRATA DRILLING SYSTEM**
Arthur John Nelson, 3304 Shasta Dr., San Mateo, Calif.
Filed Jan. 11, 1971, Ser. No. 105,434
Int. Cl. E21b 7/12; E21c 19/00

U.S. Cl. 175-6

7 Claims



The attended drilling system comprises a vertical array of objects without the conventional conductor pipe extending from floor to surface of a body of water to encase the drill string. The principal contributing objects of the array considered in the present application comprises: a drilling station that is to be established upon the floor, a control station stably maintained at the surface and a support station adapted to function between as an elevator. These stations are transported to a site upon a barge adapted to the method of drydock handling of buoyant vessels. Means to sectionalize the drilling station to permit variations to its assembly and the relocation of the portable sections minimizes lost time. Adjusting, monitoring and control means are provided and constructed to function in a prolonged underwater environment.

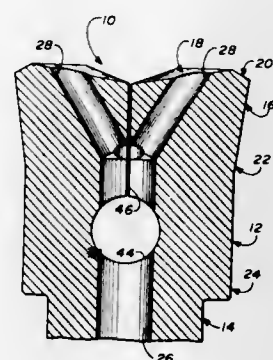
3,738,435

VIBRATING PERCUSSION BIT
Charles L. Bronson, Dallas, Tex., assignor to Vorel Manufacturing Company, Dallas, Tex.

Continuation-in-part of Ser. No. 847,484, July 7, 1969, abandoned. This application July 29, 1971, Ser. No. 167,332
Int. Cl. E21b 5/00; E21c 13/01

U.S. Cl. 175-56

16 Claims



A percussion bit for hard rock formations includes a body having a keyhole shaped slot formed through it which causes the body to vibrate laterally as a tuning fork whenever the bit is impacted. Because of the vibration of the body, hardened inserts mounted in the body form a borehole not only by verti-

3,738,437

**DRILLING PROCESS USING A SHALE PROTECTING
POLYMER DRILLING FLUID SYSTEM**
Ronald F. Scheuerman, Bellaire, Tex., assignor to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 50,990, June 29, 1970, abandoned, and a continuation-in-part of Ser. No. 50,991, June 29, 1970, abandoned. This application Feb. 28, 1972, Ser. No. 229,767
Int. Cl. E21b 21/04

U.S. Cl. 175-70

7 Claims

The cost of drilling a water sensitive shale is reduced by first enhancing drilling rate by circulating a clear drilling fluid, then avoiding borehole instability due to shale-water interaction by circulating an aqueous solution of partially hydrolyzed polyacrylamide and alkali metal halide, and avoiding borehole instability due to mechanical incompetence of earth formations by circulating a suspension of pre-hydrated bentonite in the said solution to enhance the borehole cleaning while continuing the shale stabilization.

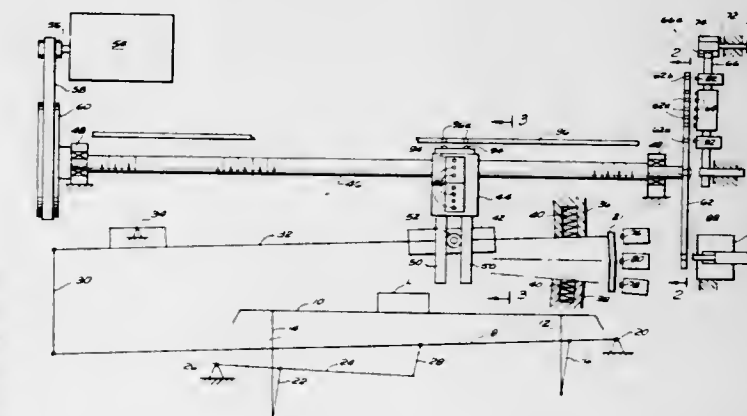
3,738,438

DIGITAL READOUT SCALE WITH ACTUATED POISE
Edwin Ellner, Oxford, Conn., assignor to Better Packages, Inc., Shelton, Conn.

Filed June 28, 1972, Ser. No. 267,193
Int. Cl. G01g 23/22, 7/00

U.S. Cl. 177-25

11 Claims



A digital readout postal scale of the platform balance type wherein the poise is moved along the balance beam by an internally threaded carriage on a lead screw extending parallel to the balance beam, the lead screw being driven by an electrical motor controlled by phototransistors which sense the position of the balance beam, energizing the motor to drive the poise in a fast forward mode when the beam is against an upper stop, in a fast reverse mode when the beam is against a lower stop and for a sufficient time after it moves up from the lower stop to allow it to pass the balance point between the two stops, and at other times in a slow forward mode, and wherein an ounce code disc bearing binary coded ounce holes is rotated by the lead screw one revolution for each pound of load, the ounce reading being made by phototransistors while the balance beam is still moving, this ounce reading being controlled by a phototransistor which senses when the balance beam reaches the balance point, this phototransistor also actuating a solenoid to stop the lead screw and controlling other phototransistors mounted on the carriage to sense binary coded pound and postage holes spaced, at intervals corresponding to one pound of load, lengthwise of pound and postage code members extending parallel to the lead screw. The postage code member may be in the form of a roll which is supported on rollers on a removable plate, the rollers being driven by an electrical motor controlled by phototransistors which sense binary coded rate group identifying holes in the roll to stop the motor when the group of rate code holes representing the postage rates for the desired combination of mode of shipment and distance zone, which has been selected by pushbutton switches, has reached the read position.

3,738,436

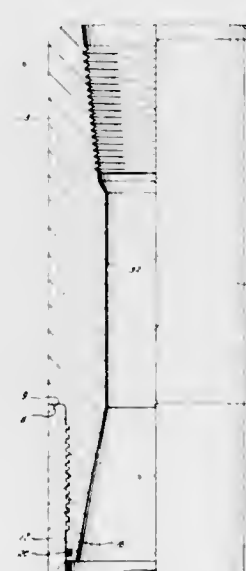
MUD SAVER VALVE AND METHOD

Mason Rawleigh Litchfield, and Floyd Logan Scott, Jr., both of Houston, Tex., assignors to Smith International Inc., Midland, Tex.

Continuation of Ser. No. 58,525, July 29, 1970. This application May 28, 1971, Ser. No. 147,964
Int. Cl. E21b 7/00

U.S. Cl. 175-65

2 Claims



A mud saver valve assembly is connected between the lower end of the kelly and uppermost joint of drill pipe, the assembly including a downwardly opening spring loaded poppet valve and an upwardly opening ball check valve. The downstream face of the poppet is shielded from line pressure by a sealed air chamber at atmospheric pressure in such a manner that the resultant force of downstream pressure on the poppet tends to open the poppet.

Before adding another joint to the drill string the mud pump is shut down and the pressure gage checked to make sure there is no pressure in the drill string, any pressure in the drill string being transmitted through the ball check valve. If there is pressure it is bled off through a bleed off valve, if possible. With pressure down, the connection between the mud saver valve assembly and drill string is broken and a connection is made between the mud saver valve assembly and a joint of pipe in the mouse hole. No mud escapes from the kelly since the hydrostatic head of mud in the kelly is not sufficient to open the poppet valve in the mud saver valve assembly. The added joint of pipe is connected to the drill string still in the hole and the mud pump is turned on, automatically opening the poppet valve to restore circulation. The new joint is checked for leaks and if okay the drill string is lowered and drilling resumed. Since the downstream side of the poppet is shielded from mud pressure the pressure drop across the valve need not equal the spring force to hold the valve open, whereby pump horsepower is not wasted and whereby rapid valve erosion is eliminated. If on opening the bleeder valve, drill string pressure is not relieved, it is possible to close the blow out preventers and reverse circulate to kill the pressure in the formation, the poppet valve being full open under well pressure thereabove in the kelly transmitted by the ball check valve, the atmospheric chamber below the poppet enabling the poppet to stay open when there is well pressure in the kelly sufficient to overcome the spring bias tending to close the poppet.

3,738,439 SCALE TESTER

Arthur J. Herbert, 45, 45th Avenue, Edmundston, New Brunswick, Canada

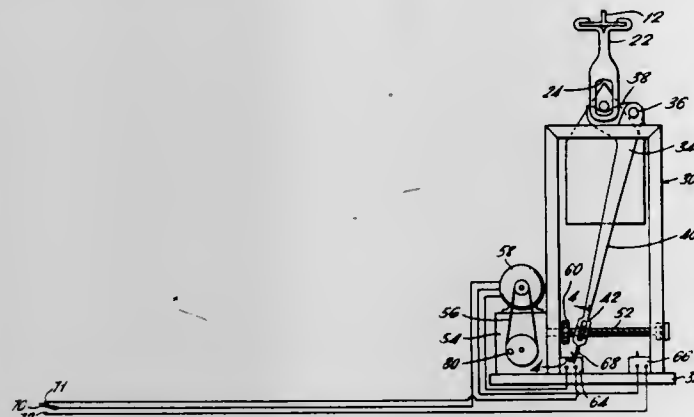
Filed Mar. 8, 1972, Ser. No. 232,875

Claims priority, application Canada, Jan. 6, 1972, 131,821

Int. Cl. G01g 19/52

U.S. Cl. 177-50

9 Claims



A platform scale is provided with a scale testing mechanism of the dead-weight type for determining the accuracy of the scale. The testing mechanism comprises a plurality of hangers fixed to the underside of the scale platform, a calibrated weight suspended from the hangers, and a lifting mechanism comprising a plurality of bell crank lever driven by jack screws in response to actuation of a reversible electric motor selectively to raise the calibrated weight out of supported engagement with the hangers or to lower the calibrated weight into engagement with the hangers.

3,738,440 ONE WHEELED FRONT DRIVE UNIT

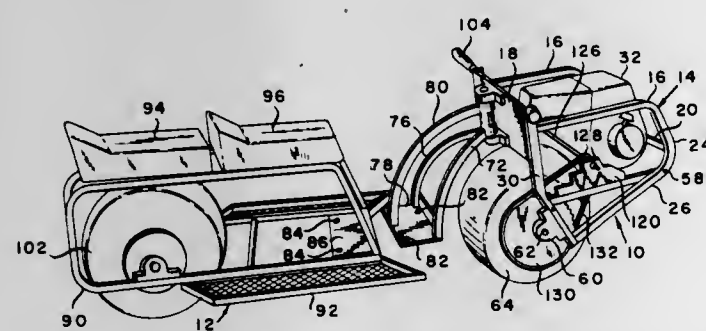
Nelson Storm, 213 Perry, Rossville, Ill.

Filed Jan. 19, 1972, Ser. No. 218,904

Int. Cl. B62m 7/10

U.S. Cl. 180-13

4 Claims



A one wheeled front drive unit adapted to pull a vehicle component removably attached thereto wherein the front drive unit includes a frame assembly pivotally mounting a motor driving a pinion drivably connected to a sprocket affixed to a wheel rotatably carried by said frame assembly. Support means are pivotally connected to the frame assembly through a bearing assembly and are provided with coupling means for removably attaching a vehicle component thereto.

3,738,441 SWIVEL CONTROL HANDLE FOR LIFT TRUCK

Mark H. Kemmer, Park Forest, Ill., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Mar. 6, 1972, Ser. No. 231,885

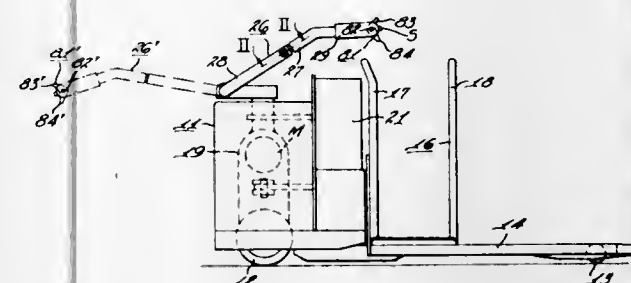
Int. Cl. B62d 51/00

U.S. Cl. 180-19 H

8 Claims

The control handle of a walkie type lift truck has an elbow part and a base part which are relatively pivotable about a lon-

gitudinal axis so as to facilitate operation of the lift truck by the operator when riding the truck. In pivoting the control



handle a switch is operated to effect an inversion of the forward-reverse controls and to bypass a safety reversing switch.

3,738,442 VEHICLE CHASSIS FRAME

Peter Eller, Langenfeld, Germany, assignor to Leo Gottwald K.G., Dusseldorf, Germany

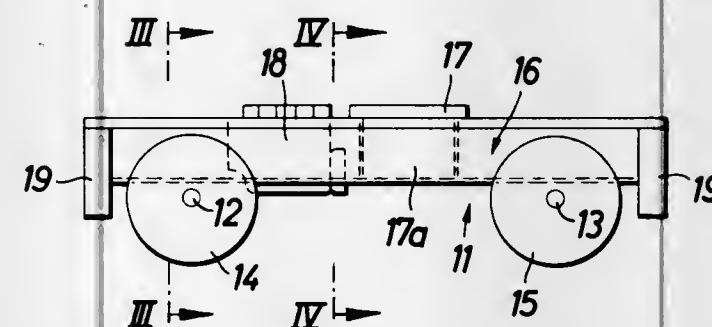
Filed Mar. 9, 1971, Ser. No. 122,423

Claims priority, application Germany, Mar. 11, 1970, P 20 11 410.7

Int. Cl. B60k 5/12

U.S. Cl. 180-64 R

6 Claims



A chassis frame for a vehicle, such as a truck crane, is formed of a pair of longitudinally extending, laterally spaced z-shaped support members. Each support member has a vertically arranged web with a lower flange extending inwardly toward the other support member and an upper flange of greater width than the lower flange extending outwardly from the web. The lower flange extends generally perpendicularly to the web while the upper flange is composed of a first portion extending angularly upwardly and outwardly to a second portion which extends outwardly normal to the web and a third portion which forms the outer longitudinal edge of the upper flange and extends angularly downwardly from the outer end of the second portion. Vertical plates are secured to the inside of the web and are supported at their lower ends on the lower flange. These plates act as supports for members mounted on the chassis frame. With this chassis frame the drive motor of the vehicle can be supported on the lower flanges between the web of the support members.

3,738,443 CONTROL SYSTEM FOR THE TRAVEL OF A GOODS TROLLEY

Moritada Kubo, 35-19-Ohyama-cho, Shibuya-ku, Tokyo, Japan

Filed Nov. 25, 1970, Ser. No. 92,800

Claims priority, application Japan, Nov. 28, 1969, 44/95028; Nov. 28, 1969, 44/112472

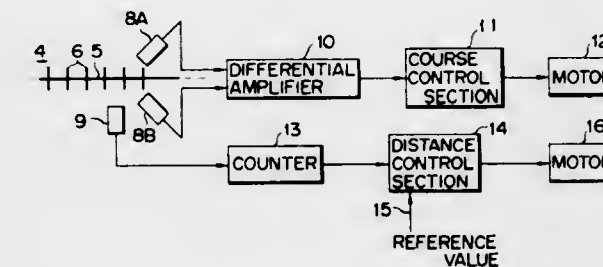
Int. Cl. B60k 27/00

U.S. Cl. 180-98

10 Claims

A control system for controlling the travel of a goods trolley comprising a first detector for control of the travelling

distance of the trolley and second and third paired detectors for control of the course of the trolley, all said detectors being mounted on the trolley and a detected member located along the trolley course for generating both analog and digital control indicia so as to cause the first detector to give a digital quantity and the second and third detectors to give an analog



quantity, wherein the output from the first detector is calculated by a counter, the output from said counter is compared with a reference value for control of the distance to be covered by the trolley, and outputs from the second and third detectors are conducted to a differential amplifier, the trolley course being controlled until output from the differential amplifier attains a prescribed value.

3,738,444 ANTI-THEFT SYSTEM FOR A VEHICLE

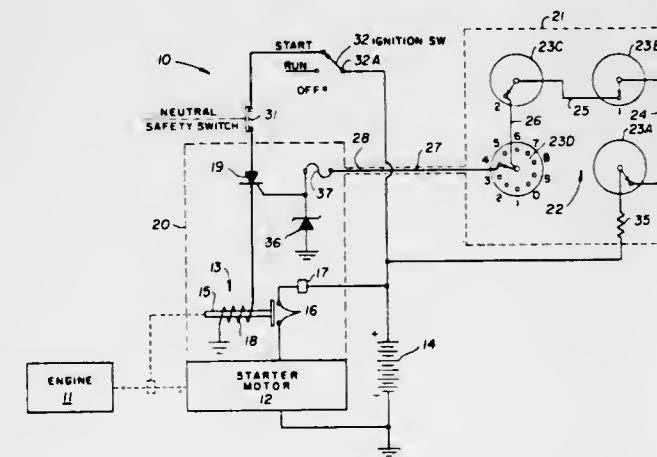
John Roby, 124 St. John's Avenue, Yonkers, N.Y.

Continuation-in-part of Ser. No. 113,369, Feb. 8, 1971, abandoned. This application July 12, 1971, Ser. No. 161,558

Int. Cl. B60r 25/00

U.S. Cl. 180-114

7 Claims



An anti-theft system for an automotive vehicle whereby the starter motor is energized through an electronic switch only when a command signal is applied thereto by setting a series of code switches into the proper switching states to establish a predetermined code state.

3,738,445 SEISMOMETER SPRING SUSPENSION SYSTEM

Ernest Wilson, 100-31 Larston, Houston, Tex., and Allen H. Mueller, 304 W. 31st St., Houston, Tex.

Filed Sept. 7, 1971, Ser. No. 178,030

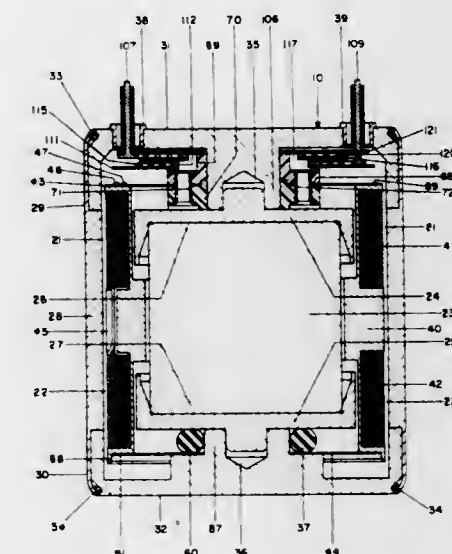
Int. Cl. G01v 13/00

U.S. Cl. 181-0.5 R

9 Claims

A spring suspension system for a seismometer for suspending one body relative to the second body including three

resilient leaf cantilever springs each including two adjacently positioned leaf arc segments extending approximately 120° with the second ends of adjacent segments connected together and the first ends of adjacent segments being connected respectively to the first and second bodies. An inner ring connected to the inner segments and an outer ring connected to



the outer segments with the inner and outer rings including portions electrically insulated from each other to provide two separate electrical conducting paths. A spiral electrical conducting spring connected to each separate electrical path, one end of which is fixed and the second end limiting rotational movement of the leaf spring.

3,738,446 UNDERWATER SIREN

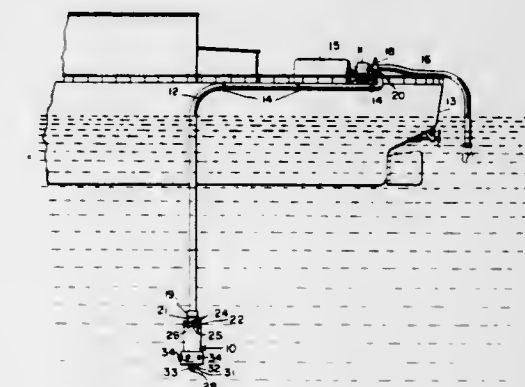
Ralph B. Nottingham, 8935 Meridian St., Cleveland, Ohio

Filed July 4, 1945, Ser. No. 603,250

Int. Cl. G10k 7/00

U.S. Cl. 181-0.5 AG

3 Claims



In an underwater siren of the character disclosed, the combination of a cylindrical member having a closed end portion and a plurality of ports radially arranged therein, means for supplying hydrostatic pressure to the interior of said cylindrical member, a cup-shaped valve member encircling an end portion of said cylindrical member and having a plurality of apertures adapted to be brought into registered engagement with said ports respectively as the cup-shaped member rotates thereby to interrupt the flow of water through the ports momentarily and repeatedly, means including a flat bearing surface for supporting said cup-shaped valve member for rotation on said cylindrical member with the bottom thereof in closely

spaced adjacency with respect to said closed end portion, means responsive to the flow of water through said ports for causing the cup-shaped member to rotate, and means including an annular recess of substantially the same diameter as the outside diameter of said cylindrical member formed in the bottom of said cup-shaped valve member and a plurality of vents in communication therewith for relieving the water pressure between the bottom of said cup-shaped member and said closed end portion of the cylindrical member thereby to reduce the friction of the cup-shaped valve member against said flat bearing surface.

3,738,447

FREE-STANDING LEAD SOUND BARRIERS

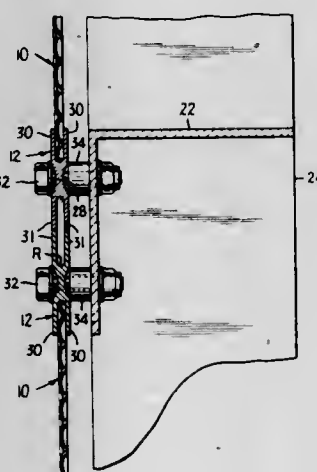
Michael V. Rose, Sewickley, Pa., assignor to St. Joseph Lead Company, New York, N.Y.

Filed Feb. 4, 1969, Ser. No. 796,376

Int. Cl. G10k 11/00; E04b 1/99

U.S. Cl. 181-33.1

12 Claims



A barrier for attenuating sound in accordance with this invention comprises a rigid frame member having a plurality of channel members, which may be made of dispersion strengthened lead, mounted on it to form a plurality of subframes. Sheets of free-standing, dispersion strengthened, creep-resistant lead are carried in the subframes by the channel members and may be embossed to add to their rigidity. One face of the sheets may be roughened in order to disperse reflected sound waves. According to another preferred embodiment of the invention, the channel members may be secured to the frame member by lead bolts in order to reduce the leakage of sound across the barrier.

3,738,448

SOUND SILENCING METHOD AND APPARATUS

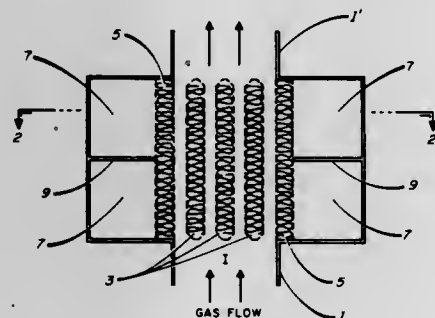
Istvan L. Ver, Arlington, and Ulrich J. Kurze, W. Roxbury, both of Mass., assignors to Bolt Beranek and Newman, Inc., Cambridge, Mass.

Filed Dec. 13, 1971, Ser. No. 207,008

Int. Cl. F01n 1/04

U.S. Cl. 181-42

6 Claims



This disclosure deals with a novel sound muffler for gas turbine engines and the like employing in the same duct section

both longitudinal baffles and outwardly transversely extending side-branch cavities.

3,738,449

SAFETY DESCENT APPARATUS

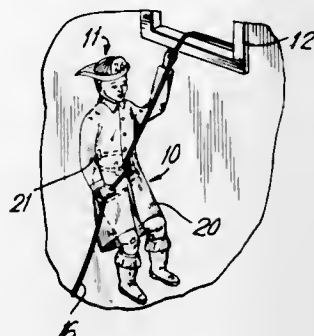
James A. Arancio, Bayside, New York, N.Y.

Continuation-in-part of Ser. No. 830,003, June 3, 1969, abandoned. This application Aug. 11, 1970, Ser. No. 62,981

Int. Cl. A62b 1/16

U.S. Cl. 182-7

17 Claims



A harness is detachably supported inside a coat, and can be detachably fastened loosely around the wearer's waist and buttocks, so that the wearer can move around when the apparatus is not in use. A hook at one end of a rope is anchored around any substantial object, and the hook snapped onto the rope. The loose end of the rope is then thrown out of a window. The user wraps the rope three or four times around a hook on the harness and lets himself out of the window, supported by the anchored rope. To stop, the rope is pulled. To descend, the rope is fed up.

3,738,450

PORTABLE EXTENSIBLE FIRE ESCAPE SLIDE

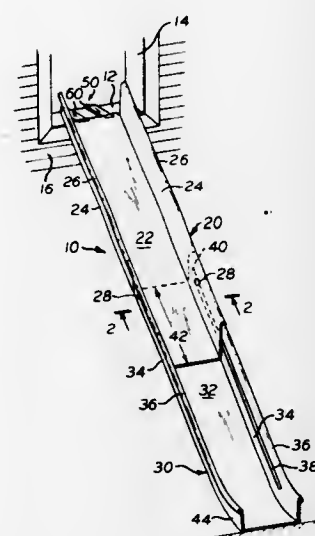
Harold A. Hessler, and Alice Hessler, both of 875 W. 181 St., New York, N.Y.

Filed July 6, 1971, Ser. No. 159,976

Int. Cl. A62b 1/20

U.S. Cl. 182-48

4 Claims



A portable fire escape comprising a plurality of generally U-shaped chute members, the outside edges of one turned outwardly over the corresponding turned edges of the next, to provide a slidably interlocked, telescopically extensible system, with stops to limit the sliding of one chute member relative to its adjacent counterpart. The upper entrance end of

the fire escape chute is pivotally connected to at least one clamping support strap for anchoring the chute to the escape window sill, with means provided for maintaining a suitable angle between the chute and the vertical wall of the building to be evacuated.

3,738,451

PORTABLE WORK SUPPORT ASSEMBLY

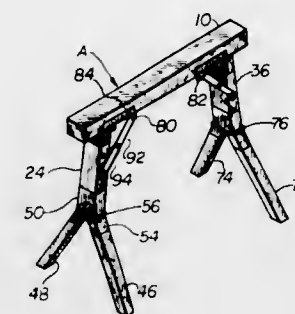
James R. Kirkpatrick, 609 Horn, Lemay, Mo.

Filed May 4, 1972, Ser. No. 250,376

Int. Cl. F16m 11/00

U.S. Cl. 182-155

13 Claims



A portable collapsible saw horse comprising an elongated support beam having a pair of leg members, each being hingedly attached to the support beam proximate each of the transverse ends thereof. The leg members are swingable from a closed position where they lie parallel to and in juxtaposition to the support beam to an open position where they extend downwardly from and are angularly located with respect to the support beam. A pair of leg elements are hingedly connected to each of the leg members. These leg elements are also shiftable from a closed position where they lie in juxtaposition to each other and are coplanar with the leg member with which they are associated to an open position where they are angularly located with respect to each other and extend outwardly from the respective leg member with which they are associated. In this way, the legs can be folded in a manner where the saw horse is collapsed for portability and opened for use in receiving work pieces in supportive engagement on the elongated support beam.

3,738,452

LUBRICATING ARRANGEMENT FOR CHANGE-SPEED TRANSMISSIONS

Otto Hausinger, Gerlingen, Germany, assignor to Dr. Ing h.c. F. Porsche KG, Stuttgart-Zuffenhausen, Germany

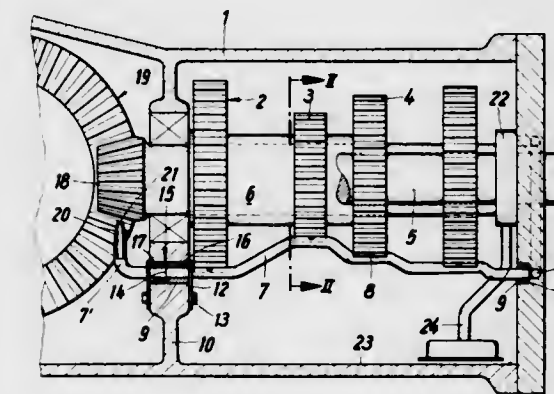
Filed Aug. 26, 1971, Ser. No. 175,211

Claims priority, application Germany, Aug. 26, 1970, P 20 42 206.4

Int. Cl. F01m 1/08

U.S. Cl. 184-6.12

6 Claims



A lubricating system for change-speed transmissions, especially of vehicles with spray nozzles connected with a pressure

line system for the gears supported in the transmission housing and the bearing places thereof, whereby one or several pipe lines are used that are installed freely along the pairs of gears between cross walls of the transmission housing and nozzle-like discharge apertures are provided in the pipe lines for each of the gear pairs which are directed against the tooth area in front of the point of tooth engagement.

3,738,453

OILING MEANS FOR PUMPS

Gordon Henry Boswell, 7, The Anchorage, Pakuranga, Auckland

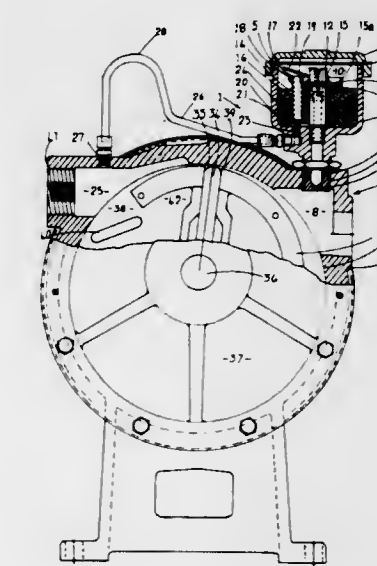
Filed Apr. 21, 1971, Ser. No. 135,890

Claims priority, application New Zealand, Apr. 23, 1970, 159934

Int. Cl. F16n 7/12

U.S. Cl. 184-6.16

6 Claims



An oiler for a pump having a delivery side and an inlet side, the delivery side being at a higher pressure than the inlet side, the oiler having a wick passing through a tube, one end of the wick lying in a dish of oil which dish is constantly being replenished from a reservoir of oil by a flow of air passing through a tube, part of which is below oil level, a flow of air passing downwardly through the tube in which the wick is placed so that oil is delivered from the wick to the air and into the fuel pipe of a pump, with the air pressure differential to create the flow being obtained by the air supply pipe being connected to the delivery side of the pump. The pump may be used under both pressurized and "vacuum" conditions.

3,738,454

JAM PROOF DOOR CLUTCH

Richard E. Atkey, Memphis, Tenn., assignor to Dover Corporation, Memphis, Tenn.

Filed July 12, 1971, Ser. No. 161,663

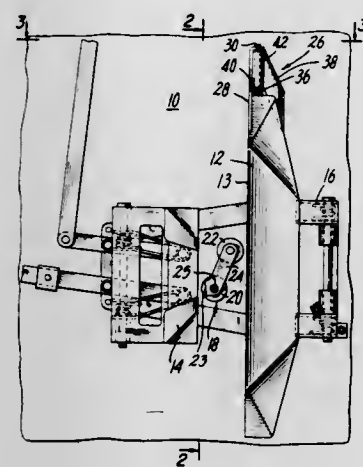
Int. Cl. B66b 13/00

U.S. Cl. 187-51

9 Claims

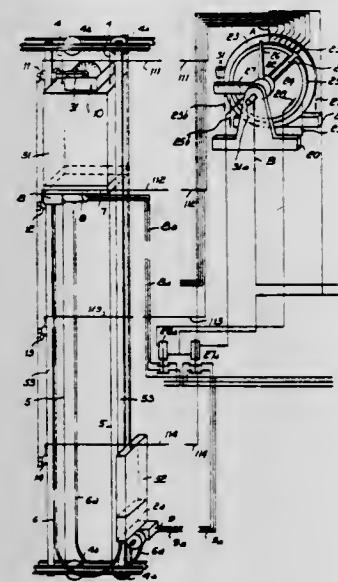
A vertically extending leaf is pivotally mounted on the end of a hoistway door operating clutch vane and spring biased to lie in the plane of the operating face of the vane. The spring exerts a force on the leaf sufficiently strong to unlock the unlocking roller of a conventional hoistway door operating

mechanism, but will yield to allow the leaf to pivot when it engages only the locked opening roller, thereby permitting the



clutch mechanism to pass and the car door to open when the car is misaligned to the extent that the unlocking roller is not engaged.

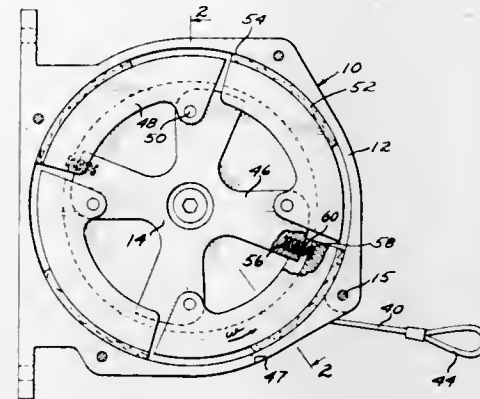
3,738,455
METHOD AND APPARATUS FOR GRAVITY-ACTUATION OF ELEVATORS
Alfonso Boguna Tintore, Calle Obispo Sinilla, 50, Barcelona, Spain
Filed Nov. 5, 1970, Ser. No. 87,173
Claims priority, application Spain, Nov. 6, 1969, 373556
Int. Cl. B66b 17/12
U.S. Cl. 187—15 10 Claims



A method and apparatus for operating elevators. The elevator is operated exclusively with gravitational forces. Accelerating and decelerating movements of the elevator are brought about by conversion of potential into kinetic energy and kinetic into potential energy in a controlled manner. The elevator and a counterweight are suspended from a cable and pulley assembly. At locations primarily beneath the elevator and counterweight, there are masses carried by the elevator and counterweight and transferred between the elevator and counterweight to bring about the application of the gravitational forces which will accelerate and decelerate the elevator as required.

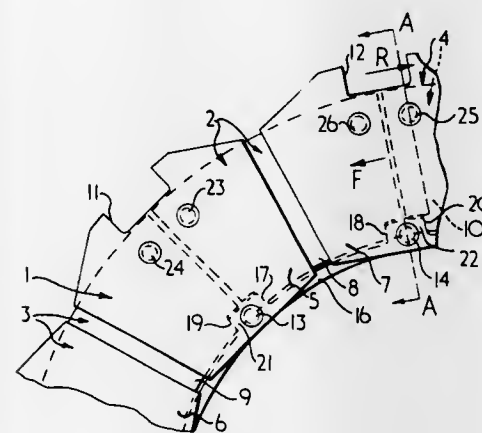
3,738,456
SPEED SENSITIVE SELF-ENERGIZING BRAKE
George K. Russell, Castle Rock; Ronald L. Criley, Evergreen, and Richard H. Frost, Littleton, all of Colo., assignors to Frost Engineering Development Corporation, Englewood, Colo.

Filed Jan. 5, 1970, Ser. No. 744
Int. Cl. F16d 59/00
U.S. Cl. 188—184 15 Claims



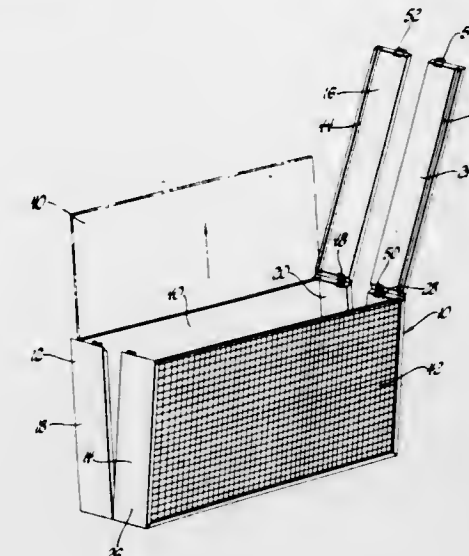
This invention relates to a self-energizing brake which is not more than from 50 to 80 percent self-energization actuated and not less than 20 percent otherwise actuated. One or more brake shoes is pivotally attached to a rotating member for movement against a stationary brake drum under the influence of centrifugal force and self-actuation.

3,738,457
FRICTION MECHANISMS
Frederick Sidney Dowell, Coventry, England, assignor to The Dunlop Company Limited, Erdington, Birmingham, England
Filed Jan. 8, 1971, Ser. No. 104,987
Claims priority, application Great Britain, Jan. 14, 1970, 1,759/70
Int. Cl. F16d 65/10
U.S. Cl. 188—218 XL 4 Claims



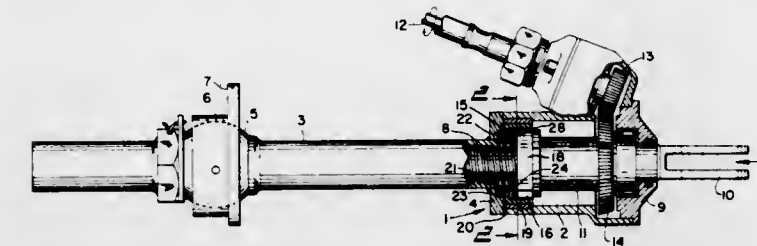
An annular friction member for use in a disc brake or like friction mechanism comprising a plurality of interconnected friction elements, each friction element being interconnected with the two circumferentially adjacent elements, operatively associated with a rotatable or non-rotatable portion of the disc brake or like friction mechanism and also secured to a retaining ring arranged to extend adjacent one of the peripheries of the elements, of which the following is a specification.

3,738,458
CARRYING CASE WITH REMOVABLE SIDE PANELS
Henry H. Yount, 4636 Bantry Drive, Orchard Lake, Mich.
Filed July 14, 1971, Ser. No. 162,463
Int. Cl. A45c 13/00
U.S. Cl. 190—49 5 Claims



A carrying case comprising two hinged shell portions each comprising a perimeter frame and a structural side panel carried within a slot extending around the inside surface of the frame. Each frame is segmented such that the side panels may be removed from the frames and replaced or reversed to change appearance.

3,738,459
DEVICE FOR CONTROLLED LOWERING OF MASS LOAD
Howard M. Geyer, Dayton, Ohio, assignor to Pneumo Dynamics Corporation, Cleveland, Ohio
Filed Apr. 26, 1971, Ser. No. 137,228
Int. Cl. F16d 87/10
U.S. Cl. 192—8 R 10 Claims

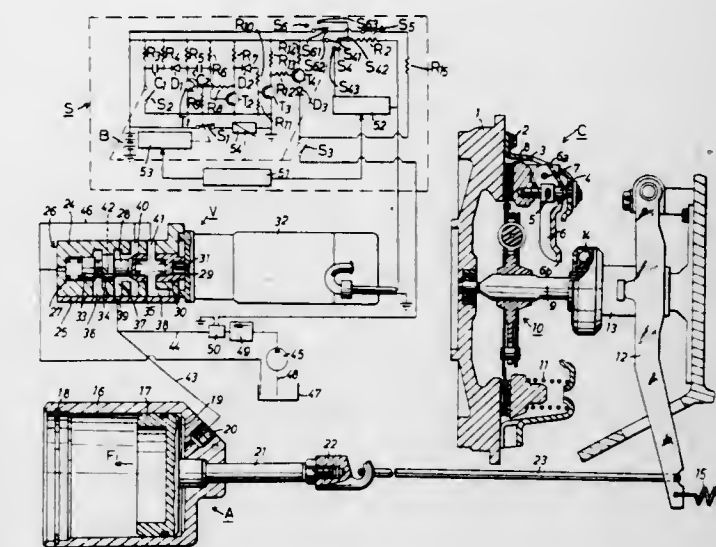


Device consists of a linear actuator having a direction sensitive clutch engageable with a load-energized friction bearing surface during movement in the load-aiding direction for eliminating back driving by the load with no decrease in the forward efficiency of the device. Bi-directional braking may also be provided for preventing back driving of the actuator in either direction.

3,738,460
HYDRAULIC RELEASED CLUTCH CONTROLLED BY ENGINE SPEED AND SHIFT SWITCHES
Noboru Murakami; Koji Nishida, and Nobuyuki Hashimoto, all of Kariya, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan
Filed June 15, 1971, Ser. No. 153,175
Claims priority, application Japan, June 17, 1970, 45/52618; June 17, 1970, 45/52619; June 17, 1970, 44/52620
Int. Cl. F16d 67/00
U.S. Cl. 192—3.58 5 Claims

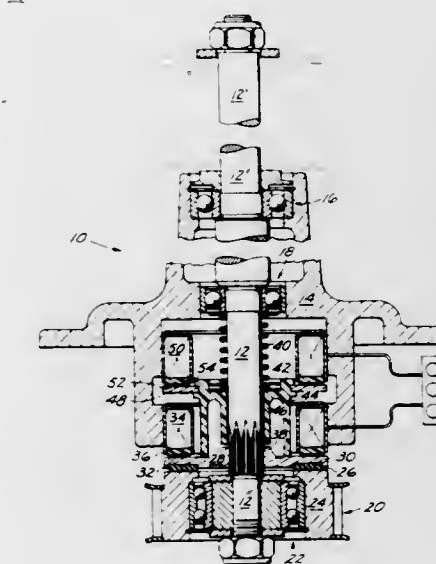
Disclosed herein is an automatic control system of a friction disc clutch for vehicles, which comprises a source of fluid

pressure, hydraulic servo means for disengaging the clutch, solenoid operated regulating valve means for controlling fluid pressure supplied to the servo means from the pressure source, an electronic control system for regulating the valve means in response to the rotation speed of the vehicle engine, and means for expediting discharge of fluid pressure from the



servo means after completion of drive power train shifting operation thereby to realize quick and smooth clutching operation. As engine speed increases above idling, the control system gradually reduces current to the solenoid valve so that it gradually opens a servo exhaust port thereby permitting the clutch to be gradually engaged by springs.

3,738,461
NEUTRAL POSITION CLUTCH FOR SPINDLE ASSEMBLY
Frank E. Brooks, Seneca, and James Waddington, Clemson, both of S.C., assignors to Maremont Corporation, Chicago, Ill.
Filed June 2, 1971, Ser. No. 149,146
Int. Cl. F16d 67/02
U.S. Cl. 192—18 B 5 Claims



In a spindle assembly employable with textile machines, such as twisters and the like, which contains an electromagnetically actuatable driving- and braking-clutch subassembly, there is disclosed an electromagnetic neutral position clutch

subassembly cooperating therewith, which latter upon actuation disengages the spindle blade shaft from its driven cooperation with a drive means and its whirl and also from the electromagnetic driving- and braking-clutch subassembly, so that the spindle blade and yarn package thereon are freely rotatable for purposes of easily withdrawing a length of yarn from the package for threading up. The neutral position electromagnetically actuable clutch sub-assembly generally comprises an axially adjustable electromagnetic coil encircling the spindle blade shaft and positioned axially outwardly of the driving- and braking-clutch subassembly and inwardly of a compression spring which normally biases driving connection between the driving-clutch subassembly clutch plate, its interconnected spindle blade shaft and the driving whirl, and also a neutral position hub armature having an armature clutch plate attractable to the coil and a hub attached thereto which encircles the spindle blade shaft and is interposed between the spring and the driving- and braking-clutch plate.

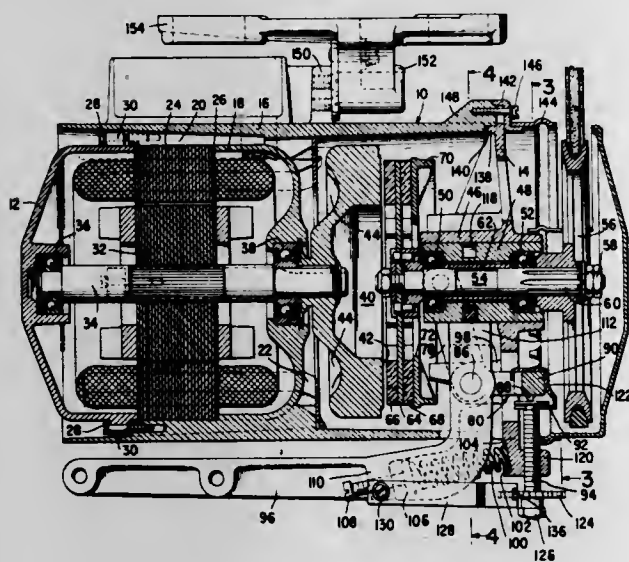
3,738,462

AUTOMATIC ADJUSTER FOR CLUTCH AND BRAKE
Joseph C. Hage, New Shrewsbury, N.J., assignor to The Singer Company, New York, N.Y.

Filed May 26, 1972, Ser. No. 257,293
Int. Cl. F16d 67/02

U.S. Cl. 192—18 R

12 Claims



A power transmitting device having an electric motor driven shaft and a clutch type flywheel mounted on one end of the shaft. A bellcrank mounted braking member is located opposite to the clutch surface of the flywheel and spaced therefrom. An adjusting screw having a ratchet wheel secured thereto varies the position of the bellcrank. A clutch disk having friction facings on each side thereof is positioned intermediate the flywheel and the braking member and is mounted on one end of a power take-off shaft slidable by means of a pivotally mounted actuating lever so as to engage selectively a first friction facing of the clutch disk with the flywheel or to engage the second friction facing of the disk with the braking member. A pawl member is secured to the actuating lever and when the actuating lever is pivoted the pawl can turn the ratchet wheel to move the braking member toward the flywheel when wear on the friction facings has caused the clearance between the flywheel and the clutch to exceed a preselected amount proportional to the pitch of the ratchet wheel teeth.

3,738,463

BRAKE OR CLUTCH LINING

Helmuth Kunst, Osterholz-Scharmbeck, and Heinrich Wasels, Altena, both of Germany, assignors to Institute für Harterel-Teechnik, Lesumer and Heinrich Wasels, Altena (Westphalia) Klusenstrasse, Germany

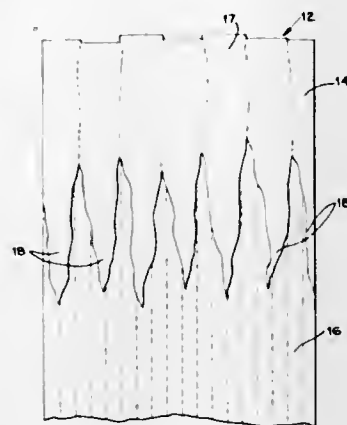
Filed Mar. 11, 1971, Ser. No. 123,222

Claims priority, application Germany, Feb. 13, 1970, P 20 06 540.1

Int. Cl. F16d 69/02

U.S. Cl. 192—107 M

4 Claims



The present invention relates to brakes or clutches having the frictional surfaces thereof boronized on one or both of the braking or clutching surfaces.

3,738,464

DROP BOOT TO PREVENT WIND LOSS OF FINELY DIVIDED FLUENT MATERIALS

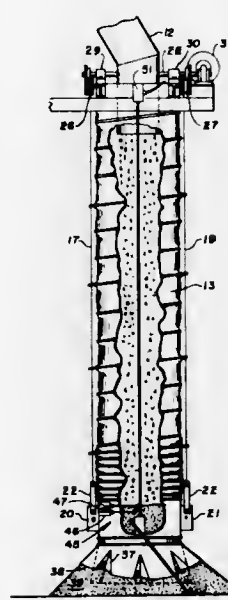
Earl W. Ortlip, 5132 Holaday Road, Hopkins, and Wallace M. Smith, 6107 Valewood Drive, Minnetonka, both of Minn.

Filed May 17, 1972, Ser. No. 254,050

Int. Cl. B65g 65/28

U.S. Cl. 193—25

7 Claims



An apparatus for controlling the delivery of particulate solids onto a surface exposed to atmosphere for avoiding wind loss, and including a closed elongated flexible conduit means having a discharge opening at the bottom thereof, and means for controlling the lateral and elevational disposition of the discharge opening. A downwardly flared flexible boot is secured to the base of the conduit and is arranged to enclose the material being delivered onto the exposed surface in an

enclosed column of material, with the perimeter of the boot and the accumulated solid column forming a seal between the atmosphere and the interior of the flexible conduit. The column of material which is accumulated within the boot is arranged to rise to a level determined by a sensing detector, and will normally remain at a level below a certain predetermined upper limit. Means are provided for intermittently elevating the conduit and the flared boot in a series of short upwardly directed strokes, with the elevating events continuing until the column drops below its upper limit, these upper and lower level limits normally being generally equal to the vertical distance defined by the difference in the extreme flare angle and relaxed flare angle of the boot so as to continuously maintain the atmospheric seal.

3,738,465

VIBRATING SORTER FOR SOILED TABLEWARE

Ralph Ettlinger, Jr., Highland Park, and Walter M. Schneider, Chicago, both of Ill., assignors to Avant Industries Inc., Wheeling, Ill.

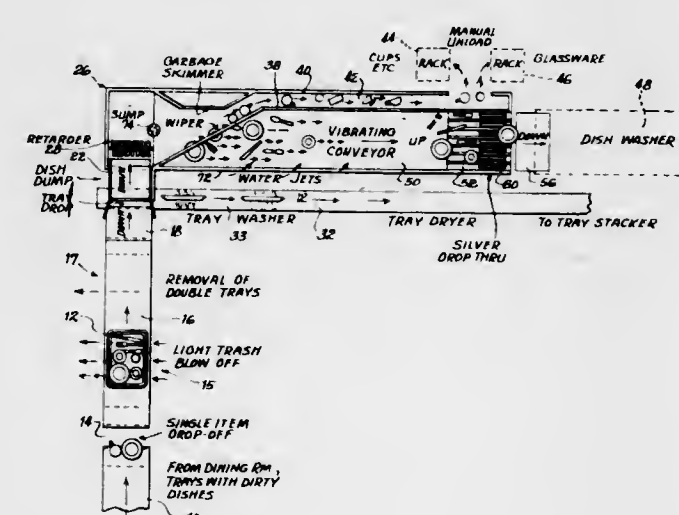
Division of Ser. No. 828,510, May 28, 1969, Pat. No.

3,605,767. This application Apr. 13, 1971, Ser. No. 133,667

Int. Cl. B65g 11/20

U.S. Cl. 193—43 B

3 Claims



A construction for handling soiled tableware so that the tableware can be automatically sorted prior to placement into holders used for supporting the tableware as it passes through a dishwashing machine. A vibrating conveyor is provided for receiving the tableware, and a barrier extends across the conveyor bed to separate flatware comprising plates and silverware from pieces of greater height such as cups and glasses. The separated tableware is delivered along separate paths to the end of the vibrating bed for placement in appropriate racks or other dishwashing equipment holding means. The flatware is divided by providing slots in a corrugated section of the bed so that the silverware is collected apart from plates. Means are also provided for separating soiled dishes from cafeteria trays where the dishes are initially delivered on such trays.

3,738,466

COIN MECHANISM FOR VENDING MACHINES

Karl Knickerbocker, 400 Baycrest Drive, Venice, Fla.

Filed Apr. 16, 1971, Ser. No. 134,686

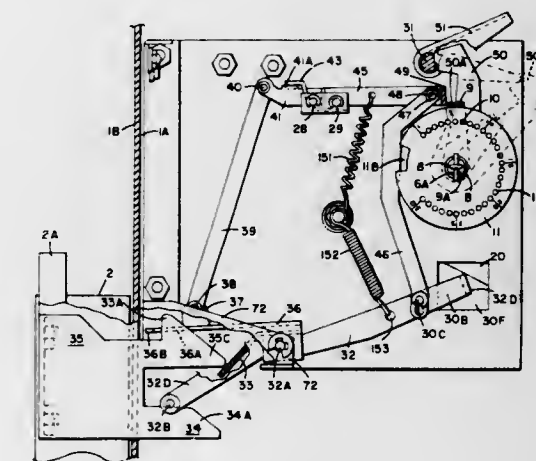
Int. Cl. G07f 5/00

U.S. Cl. 194—18

4 Claims

The coin mechanism of this invention is in reality a type of adding machine. Nickels, dimes and quarters inserted into the mechanism enter into and pass through their respective coin

chutes, as the coins travel through the chutes they actuate crank plates and linkage, that in turn cause a circular spaced ratchet plate that is rotatably mounted on the coin mechanism base plate to rotate in a limited manner, each ratchet tooth of the ratchet plate represents one nickel. When a nickel is inserted into the coin mechanism, the ratchet plate is rotated a distance of one ratchet tooth. When a dime is inserted into the coin mechanism the ratchet plate is rotated two ratchet teeth. When a quarter is inserted into the coin mechanism, the ratchet plate is rotated five ratchet teeth, each time the ratchet plate is rotated, it is locked in the furthestmost rotated position by a stationary ratchet pawl. Thus, if one nickel, one dime and one quarter are inserted progressively into the coin mechanism the ratchet plate will be rotated eight ratchet teeth past the normal position, representing a coin value of forty cents. A circular price setter plate is located adjacent to the



ratchet plate on the opposite side of the coin mechanism base plate, the price setter plate is rotatably mounted on the ratchet plate shaft that extends through the base plate, in a manner that it can be set to accommodate any one of the coin mechanism's selling prices. The price setter plate has holes pierced through the plate on a slightly smaller radius than that of the outside radius of the ratchet plate to correspond to the number and spacing of the ratchet teeth of the ratchet plate, these holes provide means for setting the plate to accommodate the various price requirements. An opening cut inwardly from the outside of the price setter plate provides means for releasing the door or other locking elements of a vending machine, when the proper amount of coins are inserted into the coin mechanism, the price setter plate can be preset in increments of one nickel to trigger the release of the door or other locking components of a vending machine at any figure from five cents to one dollar and fifty cents.

3,738,467

TIME PURCHASE WINDING MEANS FOR PARKING METERS

Bruno Zajac, 4736 North Newland Avenue, Arlington Heights, Ill., and Rinaldo Sciacero, 1115 East Rockwell, Arlington Heights, Ill.

Filed Dec. 13, 1971, Ser. No. 207,355

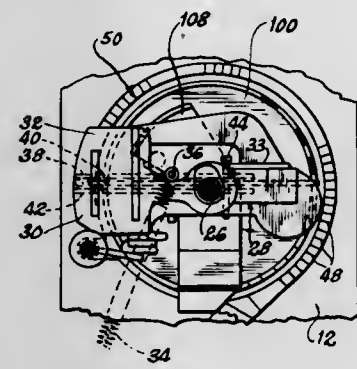
Int. Cl. G07c 1/30

U.S. Cl. 194.72

18 Claims

A meter construction wherein purchased time is obtained through engagement of pawl means with a winding means attached to a timing mechanism, the pawl means being moved into engaging position by a coin employed for purchasing time. The improvement involves the use of an auxiliary winding arm operatively connected to the winding means. A winding disc is directly tied to the winding means whereby driving engagement of the winding arm with the disc will result in the

purchase of time. The winding disc defines teeth which are moved into position after the initial purchase of time so that



the subsequent insertion of a coin results in engagement of the pawl directly with the disc for purchase of additional time.

3,738,468 COIN CHECKING DEVICE

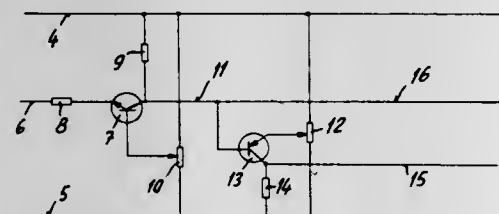
Margot Prumm, 5283 Bergneustadt, Germany
Filed Apr. 20, 1972, Ser. No. 245,976

Claims priority, application Germany, Apr. 28, 1971, P 21 20 869.5

Int. Cl. G071 3/02

U.S. Cl. 194—100 A

10 Claims



An electronic coin checking device comprising at least one window circuit for checking coin-characteristic measurement signal values caused by the movement of coins past a measuring location, wherein the window circuit arrangement possesses two window boundary circuits delimiting a window region, at least one of which window boundary circuit is constructed as an amplifier in such a manner that a portion of a measurement signal value penetrating into the window region is amplified.

3,738,469 TESTER FOR DIFFERENT TYPES OF COINS

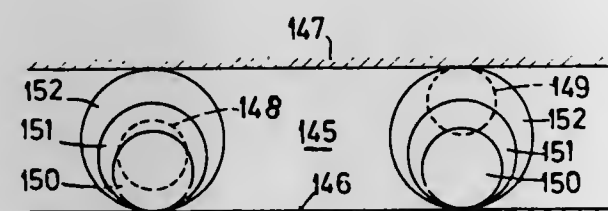
Georg Prumm, D-5282 Bergneustadt, Germany
Filed Aug. 17, 1970, Ser. No. 64,157

Claims priority, application Germany, Aug. 22, 1969, P 19 42 822.9; Sept. 18, 1969, P 19 47 238.9

Int. Cl. G071 3/02

U.S. Cl. 194—101

7 Claims



A method and apparatus for checking coins during their travel along at least one coin channel of a coin checking

device is disclosed which contemplates subjecting each coin to a damping measurement to obtain a first type of information about the coin, and also subjecting the coin to at least a second measuring operation to obtain a second type of information about the coin being checked. The invention further teaches the possibility of performing a still further damping measurement to obtain additional information about the coin different from said first type of information.

3,738,470 POWER DRIVEN TYPE ACTION IN ELECTRIC TYPEWRITER

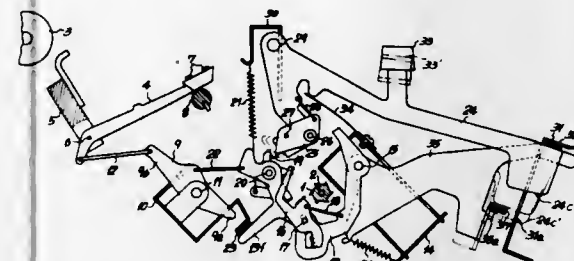
Takatoshi Osaka, Tokyo, Japan, assignor to Citizen Watch Company Limited, Shinjuku, Tokyo, Japan

Filed June 23, 1971, Ser. No. 155,884

Claims priority, application Japan, July 2, 1970, 45/57863
Int. Cl. B41j 23/08

U.S. Cl. 197—17

4 Claims



Power driven type action in electric typewriter comprising a power driven rotary toothed snatch roll continuously rotated during operation, a pivotally mounted actuating lever connected to driven members including a type bar, spring biased engage member provided to move on the actuating lever having a pawl engageable with a tooth of the snatch roll, and an intermediate lever provided on the actuating lever. Depression of a key lever causes the intermediate lever to rotate to engage the engage member with the engage member. Thereby the engage member is rotated and the pawl thereof is engaged with a tooth of the snatch roll, so that the engage member, intermediate lever and actuating lever are rotated together by the snatch roll. Thus printing operation is performed.

3,738,471 TYPE HEAD SHIFTING APPARATUS

Chien van der Werff, Carolinensiel, and Dieter Hellebrandt, Wilhelmshaven, both of Germany, assignors to Olympia Werke A G Wilhelmshaven, Germany

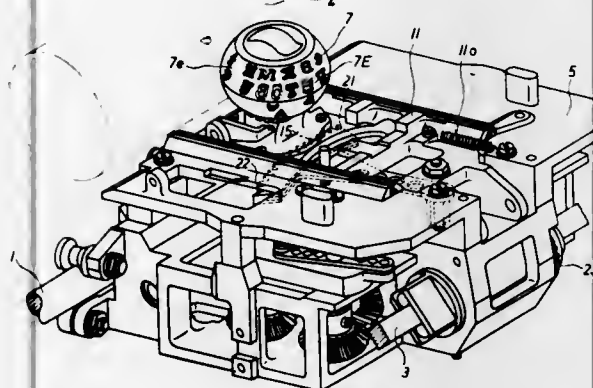
Filed Feb. 26, 1971, Ser. No. 119,307

Claims priority, application Germany, Mar. 5, 1970, P 20 10 271.0

Int. Cl. B41j 1/60

U.S. Cl. 197—52

12 Claims



A type head has two substantially hemispherical surfaces, with lower case and upper case types, respectively, arranged

in circular rows. The lower case surface is normally in an operative position for printing. The shaft of the type head is normally connected with setting means for selecting a type for printing, but is turned by shifting means under the control of a shift key to turn the type head 180° to place the upper case surface in a position for printing, and to turn the type head 180° back to the normal position after a desired type has been selected by the setting means, and printed. A clutch is operated by the shift key to connect either the setting means, or the shifting means, with the motor driven drive means of the typewriter.

3,738,472

PRINTER FOR OFF-LINE PRINTING OF SUBSCRIPT AND SUPERScript CHARACTERS AND CODED VERTICAL TAB SETTING

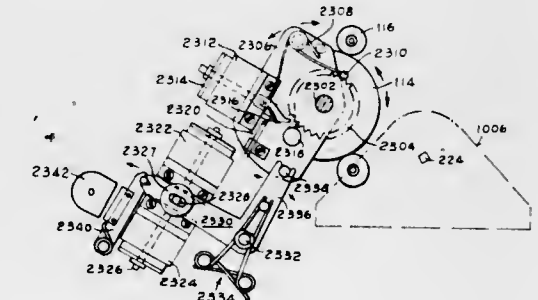
Frederick P. Willcox, 565 Oenoke Rd., New Canaan, Conn.
Division of Ser. No. 581,020, Sept. 21, 1966, Pat. No.

3,534,847. This application Sept. 2, 1970, Ser. No. 69,101

Int. Cl. B41j 25/24

U.S. Cl. 197—71

19 Claims



A printer having provision for super-script and sub-script shifting of a typewriter support without having to line-feed the paper forward or backward, and for code signal controlling of this shifting structure.

An electrically-controlled page printer having automatic page sensing and line metering combined with an adjustable vertical tab structure and incremental line-feeding, to execute appropriate desired vertical tubular increments in relation to page position in response to an electrical vertical tab input signal. Optional additions include visible indication of page position and line metering, electrical or mechanical page sensing, magnetic or photo-electric sensing of desired tab positions, and electrical code signal controlled structure for setting and un-setting the vertical tab structure.

3,738,473 CENTERING MECHANISM FOR COMPONENT SEQUENCING MACHINE

Lloyd D. Herring, Jenison, Mich., assignor to Rowe International Inc., Whippany, N.J.

Filed Mar. 22, 1972, Ser. No. 237,014

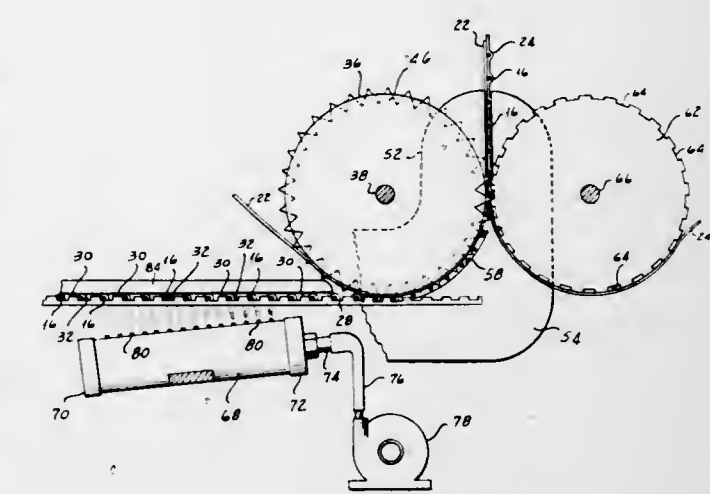
Int. Cl. B65g 47/22

U.S. Cl. 198—29

10 Claims

Apparatus for centering electrical components in the space between a pair of grooved lead-supporting conveyor belts which advance the components toward tape-applying apparatus for forming a string of components in a predetermined sequence in which an elongated manifold aligned with the center line between the conveyor belts and located therebelow and slightly inclined downwardly from the belts in a direction away from the tape-applying apparatus is formed

with longitudinally spaced nozzles and is supplied with air under pressure to create a plurality of air jets directed into the



space between the belts to produce a centering action on the components and in which retainer bars located over the belts prevent the components from being blown off the belts.

3,738,474 APPLE ORIENTOR

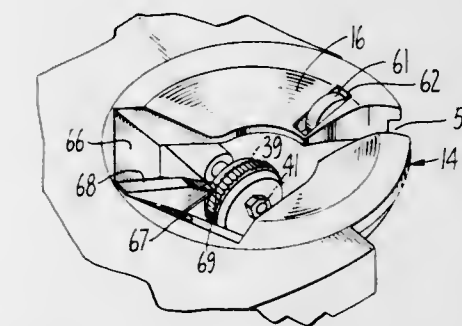
Robert G. Ellis, Richmond, Calif., assignor to Atlas Pacific Engineering Company, Emeryville, Calif.

Continuation-in-part of Ser. No. 38,402, May 18, 1970, abandoned. This application Nov. 1, 1971, Ser. No. 194,206

Int. Cl. B65g 47/24

U.S. Cl. 198—33 AA

8 Claims



This invention relates to an improved device for orienting apples, particularly those known as the Red Delicious variety and which may be relatively long as compared to their diameter. The device is also capable of orienting apples having attached stems. The device is particularly suited to orienting apples fed from a bulk supply and which are largely ungraded as to size. Such apples can vary in size from a diameter of about 2 1/4 inches to 4 1/2 inches.

3,738,475 CONVEYOR SYSTEM

Kirkwood M. Lee, Ogden, and Arlyn G. Liddell, Bountiful, both of Utah, assignors to Eaton Corporation, Cleveland, Ohio

Filed July 16, 1971, Ser. No. 163,192

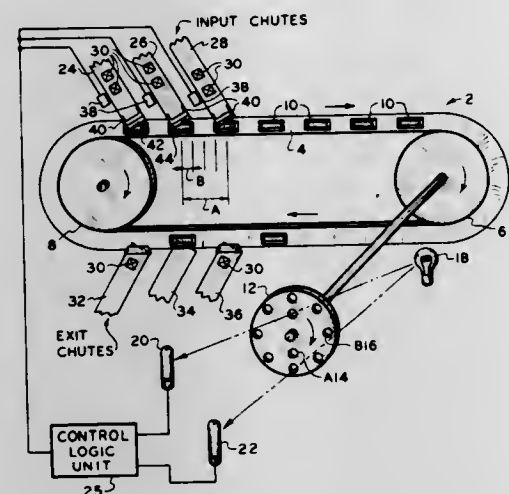
Int. Cl. B65g 43/00

U.S. Cl. 198—38

3 Claims

A conveyor system comprising a conveyor for transporting articles from any selected one of a plurality of input devices to any selected one of a plurality of output devices having conveyor position means for indicating movement of said conveyor and logic control means for selecting the input and output devices and synchronizing discharge to and from said conveyor with the movement thereof. The system comprises con-

veyor position sensor having an opaque sensor wheel driven by a drive wheel of a belt or chain conveyor. The sensor wheel is formed with a plurality of concentric, annular rows of signal means, with the signal means of each row spaced apart a rota-



tional distance corresponding to a predetermined linear distance of the conveyor belt or chain. Photoelectric and magnetic means are provided to sense passing of the signal means as the sensor wheel is rotated and the conveyor belt is moved.

3,738,476

FIBER FEEDING ARRANGEMENT

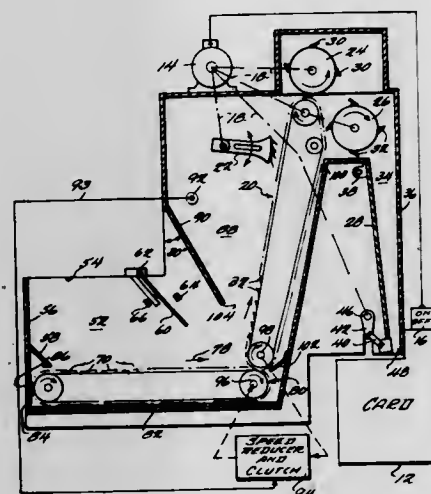
David F. Hullett, Belmont; Kenneth G. Lytton, and George J. Miller, both of Gastonia, all of N.C., assignors to Fiber Controls Corporation, Gastonia, N.C.

Filed Aug. 6, 1970, Ser. No. 61,799

Int. Cl. B65g 47/18

U.S. Cl. 198-58

7 Claims



A fiber feeding device having an uplift apron and a feed apron at its lower reach. In front of the uplift apron is an area defined at its upper level by a level control which senses the height of fibers and an sharply angularly disposed front boundary member by which a fiber roll tumbling reserve area is developed. The level control starts and stops the feed apron which is otherwise driven only concurrently with the drive of the lift apron and at a reduced speed to keep from overfeeding the lift apron and to keep the fibers in the reserve area at a substantially constant amount to effect improved fiber opening and feeding of a constant amount of fibers by the lift apron.

3,738,477
PACKING PLANT CONVEYOR TROLLEY
John L. Gename, Naperville, Ill., assignor to Omeco-St. John Co., Omaha, Nebr.

Filed Nov. 17, 1971, Ser. No. 199,423

Int. Cl. B65g 17/20

U.S. Cl. 198-177

5 Claims



The trolley hanger is formed from a cylindrical bar, the upper end of which is bent at right angles to form the axle for the trolley wheel. At the distal end of this axle is a button threadably connected to the remainder of the axle. The distal end of the axle immediately adjacent the button defines a groove. The wheel has an inwardly extending flange which projects into this groove to thereby position the wheel longitudinally of the axle. The bar is stainless steel and the wheel is an iron casting. In an alternative embodiment a supplemental member extends from the hanger at the proximal end of the axle up and over the top of the wheel to engage power driven conveyor pushers.

3,738,478

CONVEYOR CHAIN

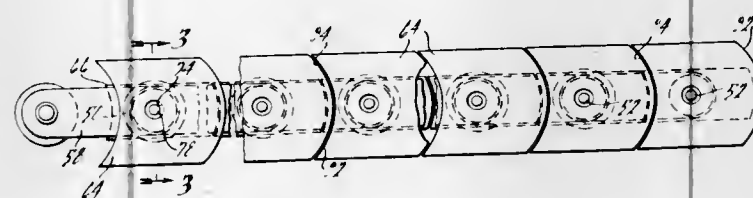
Frederick Tourtellotte, Royal Oak, Mich., assignor to The Cross Company, Fraser, Mich.

Filed Mar. 26, 1971, Ser. No. 128,263

Int. Cl. B65g 15/00

U.S. Cl. 198-181

10 Claims



A conveyor chain having top load supporting plates mounted for limited vertical rocking movement and normally occupying a slightly nose-down position but adapted to move to flat horizontal positions when work carrying pallets or the like are supported thereon.

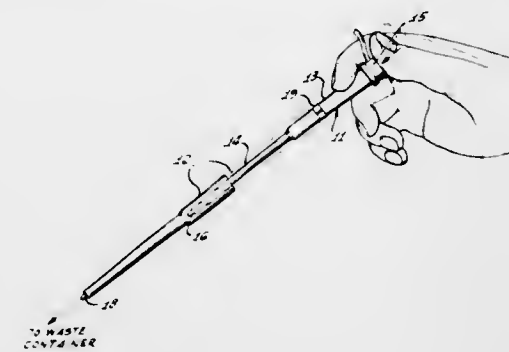
3,738,479
DISPOSABLE RIGID THERMOMETER PROBE COVER
Stephens N. Sato, 1712 Corsica, San Diego, Calif.

Filed Apr. 14, 1970, Ser. No. 28,367

Int. Cl. B65d 85/20

U.S. Cl. 206-16.5

18 Claims



A disposable cover in the form of a rigid, thermally insulating tube having a heat conducting shield at the tip of the cover is adapted to slide over a thermometer probe shaft and engage a cover retaining means on a collar portion of the probe, the cover shield engaging the sensing tip of the probe and driving the probe shaft rearwardly toward the collar during cover installation prior to temperature measurement. The cover is selectively ejected after temperature measurement by manually driving the probe shaft forwardly of the mounting collar with sufficient force to disengage the cover from the retaining means.

3,738,480

MEDICATION CONTAINER

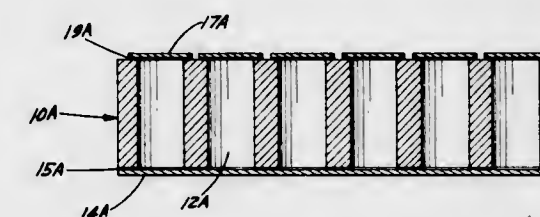
Frank G. Chesley, c/o Central Research Laboratories, Inc., Red Wing, Minn.

Filed Nov. 17, 1971, Ser. No. 199,618

Int. Cl. B65d 43/12, 83/04, 85/56

U.S. Cl. 206-42

9 Claims



A container for solid medication, such as pills, tablets and capsules, to be taken by a patient over a predetermined time

span to facilitate taking of the proper medication at the proper time interval. The container is especially adapted for use by a patient who may be taking several different medications at different time intervals. The container is characterized by having a plurality of compartments adapted to contain the medication, a common closure for all of the compartments to facilitate filling of the container by manufacturer, physician, pharmacist, nurse or patient, and an individual closure for each of the compartments to permit access to each compartment sequentially at the proper time intervals. Desirably indicia are provided identifying the compartments by the appropriate time intervals at which the medications are to be taken.

3,738,481

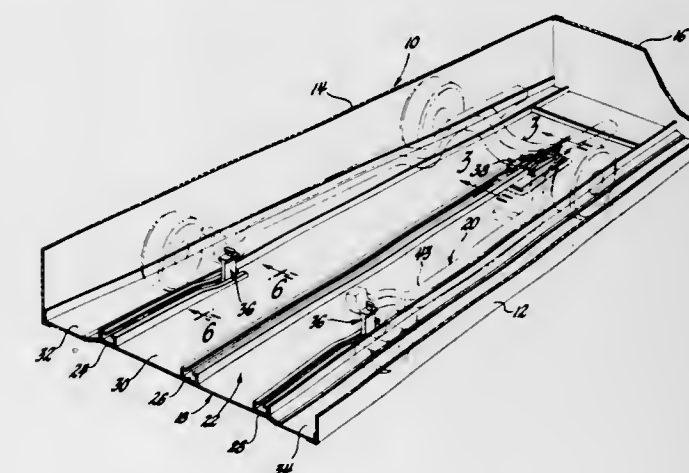
VEHICLE POSITIONING AND RESTRAINT APPARATUS
Walter Cwycyshyn, Detroit, and Elwyn L. Kitchen, Jr., Troy, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 8, 1971, Ser. No. 187,626

Int. Cl. B60p 7/08; B61d 45/00; B65d 85/00

U.S. Cl. 206-46 M

3 Claims



A vehicle positioning and restraint apparatus having a latch mechanism and parallel guide rails which slidably receive tie-down devices attached to the underside of a vehicle for holding the vehicle in a locked position during shipment by a carrier.

3,738,482

FLEXIBLE BAG PACKAGE ARTICLE

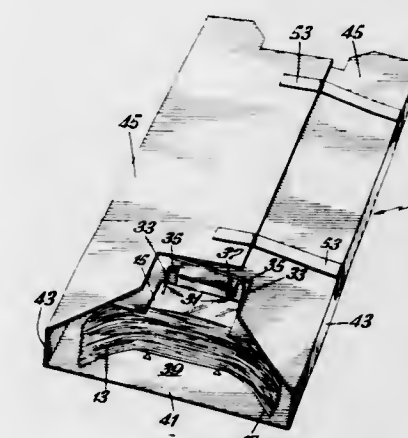
Joseph M. Cwikla, Hickory Hills, Ill., assignor to Union Carbide Corporation, New York, N.Y.

Filed Dec. 29, 1971, Ser. No. 213,755

Int. Cl. B65d 85/00

U.S. Cl. 206-57 A

8 Claims



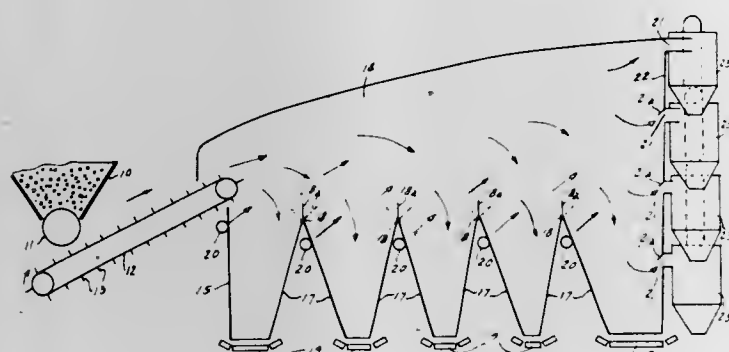
A package article of flexible packaging bags such as used in the meat packing industry in conjunction with automatic and

semiautomatic packaging apparatus is made by assembling a multiplicity of flattened stacked flexible bags on a wicket which may be canted to imbricate the bags, securing the wicket with an inner carton element and enclosing and securing the wicketed stacked bags and the inner carton element in an outer carton element.

3,738,483
METHOD OF AND MEANS FOR CLASSIFICATION OF HETEROGENEOUS SHREDDED REFUSE MATERIALS
 Harold B. MacKenzie, 724 Howard St., Wheaton, Ill.
 Filed Nov. 8, 1971, Ser. No. 196,383
 Int. Cl. B07b 15/00

U.S. Cl. 209-12

24 Claims



Heterogeneous shredded refuse materials, municipal wastes in particular, are conveyed to a delivery release point at a substantial height in the upper portion of a classifying chamber, as in a tower, and dropped or projected from such point into the chamber to travel by free fall or ballistically through a substantial space. Beyond the release point separating, flushing air is driven in generally the direction of input and through the downwardly gravitating materials to carry off the fractions capable of being airborne. Separation of the materials into classifications by weight or size may be effected by simultaneous gravitational and pneumatic forces after free fall drop into the chamber or by simultaneous ballistic and pneumatic forces after projection of the materials into the chamber. Vertical, and/or horizontal stratification of the materials during classification are provided for. To assist in separation and stratification, mechanical agitating or beater means may be provided. Classification as to those materials which are airborne and those which are not airborne, and their reclassification of materials in each of those two classes according to weight and/or size is achieved, and then collection of the materials according to weight and/or size is effected in receptacles spaced at varying distances from the release point and properly located with respect to each other to attain a significant number of classifications.

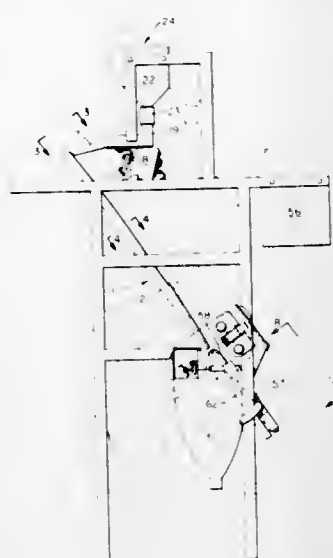
3,738,484
SORTING MACHINE
 Michael C. Hoover, and William C. Long, both of Houston, Tex., assignors to Mandrel Industries, Inc., Houston, Tex.
 Filed Mar. 15, 1971, Ser. No. 124,320
 Int. Cl. B07c 1/04, 5/342

U.S. Cl. 209-73

10 Claims

A number of steeply inclined tapered slides are arranged for gravity assisted singulation and alignment of items such as rice grains that are introduced at the top from vibrating chutes that are gently inclined in the opposite direction. The chutes extend from a common vibrating feed tray and have adjustable entrance gates to equalize the flow rates of the items. A stationary

hopper supplies the feed tray through a flexible coupling. At the bottom of each slide, a photoelectric viewer is arranged to operate an ejector for diverting grains having dark spots. A variable background is provided and is adjusted so that the signal induced thereby is identical to that of the

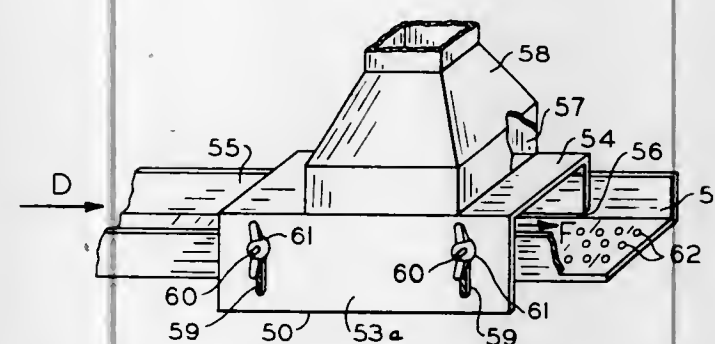


mid-portion of an acceptable grain. Light sources are positioned both above and below the photoelectric means so as to provide extra illumination for the leading and trailing ends of each grain, thus to avoid spurious signals similar to those induced by dark spots but caused by the rounded ends of acceptable grains.

3,738,485
NOVEL CAPSULE FINISHING APPARATUS
 Carl C. Garland, 15700 Kentfield, Detroit, Mich.
 Division of Ser. No. 88,053, Nov. 9, 1970, Pat. No. 3,693,320.
 This application July 17, 1972, Ser. No. 272,185
 Int. Cl. B07b 13/10

U.S. Cl. 209-74

3 Claims



Apparatus and means are provided for finishing pharmaceutical capsules under vacuum whereby any empty capsules present are disqualified and dust and other contamination are cleared from the surfaces of capsules, capsule filling machinery, etc.

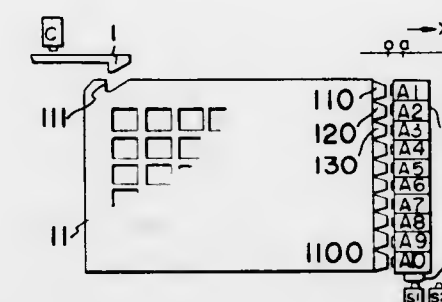
3,738,486
CARD RETRIEVAL DEVICE
 Sho Takahama; Takeshi Okano, both of Nishinomiya-shi, and Shunkichi Igarashi, Nishiazabu, Minato-ku, all of Japan, assignors to Fuji Shashin Film Kabushiki Kaisha, Ashigarakami-gun, Kanagawa-ken, Japan
 Filed May 4, 1971, Ser. No. 140,154
 Claims priority, application Japan, May 18, 1970, 45/41888
 Int. Cl. B07c 3/16

U.S. Cl. 209-80.5

6 Claims

A device for selectively drawing one of a large number of cards by means of an electromagnet in which the cards are

each provided with an iron piece of a predetermined height at the leading edges of the cards and at different positions from each other. In order to provide selective drawal of the cards,

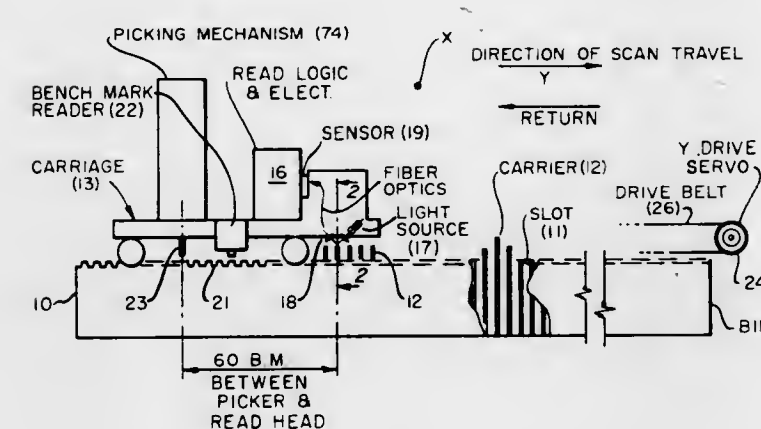


pressing means is provided for holding those cards, pressing means is provided for holding those cards which are not to be drawn. The operation of the pressing means and the electromagnet is controlled by the use of a microswitch.

3,738,487
RANDOM DOCUMENT LOCATOR
 Robert W. Way, San Jose; Gilbert F. Clifford, Los Altos Hills; Robert W. Henkel, Cupertino; Arthur W. Odell, Alhambra, and Donald F. Smith, Palo Alto, all of Calif., assignors to Varian Adco, Palo Alto, Calif.
 Filed Nov. 3, 1971, Ser. No. 195,272
 Int. Cl. B07c 3/16

U.S. Cl. 209-80.5

8 Claims



A system for sequentially reading the notched edge code on a microfiche carrier compensates for lateral misalignment of the carrier by the use of multiple banks of fiber optic code sensors. The appropriate bank is energized by use of additional sensors for a code guide formed on the carrier. A prescribed field of view also accommodates bowing of the carrier. Use of fiber optics reduces the need for complicated lenses.

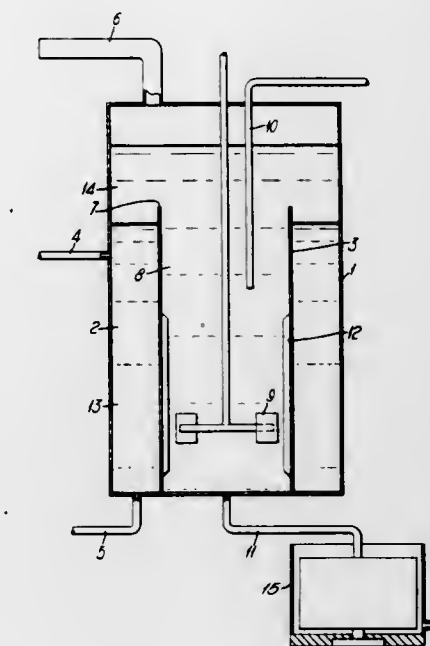
3,738,488
PROCESSES AND APPARATUS FOR THE RECOVERY OF MICRO-ORGANISMS CULTIVATED ON A HYDROCARBON SUBSTRATE
 Jean Claude Hondermark, Laverne, France, assignor to The British Petroleum Company Limited, London, England
 Filed Oct. 2, 1970, Ser. No. 77,442
 Int. Cl. B01d 21/26

U.S. Cl. 210-73

4 Claims

A process and apparatus for use in the recovery of a micro-organism cultivated on a hydrocarbon substrate. The feature

of the process and apparatus being the provision of a settling zone wherein the aerated cultivated broth containing the micro-organism undergoes a phase separation and a relatively dense fraction containing spent aqueous medium is removed. The remaining aerated fraction is then subjected, in the

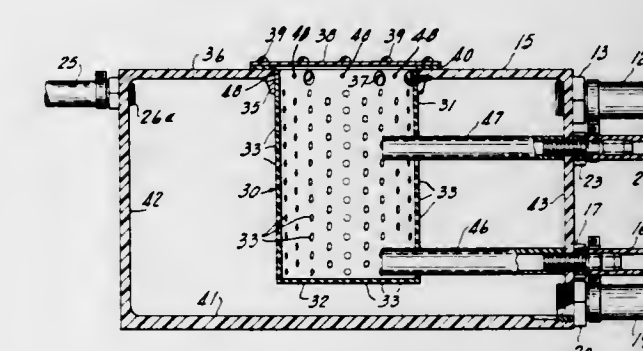


presence of a wetting agent, to foam breaking agitation, preferably provided by the action of a rotating paddle. The deaerated broth fraction thus obtained can then be centrifuged in the normal industrial centrifuges to separate a micro-organism rich product.

3,738,489
ANTI-POLLUTION RECIRCULATION TANK FOR MARINE AND SIMILAR USE
 George P. Kraemer, II, 4377 N. Marlborough Drive, Shorewood, Wis.
 Filed May 24, 1971, Ser. No. 146,264
 Int. Cl. B01d 35/02

U.S. Cl. 210-94

6 Claims



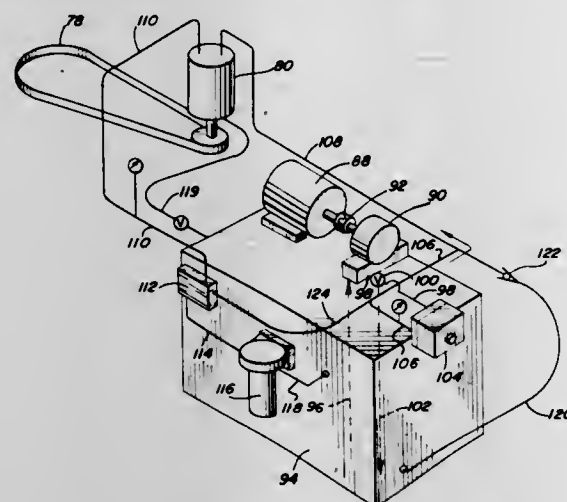
A recirculating tank suitable for receiving effluent from a marine head, or similar device, having an improved filter means comprising a filter element which is circumferentially surrounded by the holding tank primary chamber and has a bottom spaced above the bottom of the holding tank. As another feature, the improved filter construction is attached to only one wall of the holding tank and extends therein; to further extend its utility, the filter element is provided with a transparent visual inspection plate located on the exterior of the holding tank.

3,738,490
INDUSTRIAL-TYPE VARIABLE-SPEED CENTRIFUGE
 Louis Tigerman, River Hills, Wis., assignor to Globe-Union Inc., Milwaukee, Wis.

Filed June 4, 1971, Ser. No. 150,015
 Int. Cl. B04b 13/00

U.S. Cl. 210-145

23 Claims

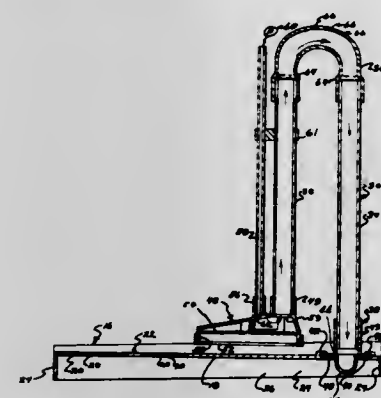


This electric-powered, variable-speed, heavy-duty centrifuge having improved operating characteristics comprises an outer shell with loading aperture, removable cover means for the aperture, support means for the load to be centrifuged rotatably mounted within said shell and drive means exterior of said shell for rotating the support means. The drive means comprises a hydraulic motor operatively connected to the support means for rotating the same, a hydraulic pump for supplying hydraulic fluid under pressure to the hydraulic motor, a dynamoelectric motor operatively connected to the hydraulic pump to drive the same, a hydraulic fluid reservoir, interconnecting hydraulic lines, an adjustable hydraulic pressure controller limiting the pressure from the hydraulic pump so as not to exceed a predetermined value, and an adjustable hydraulic flow controller controlling the flow to said hydraulic motor so as not to exceed a predetermined maximum flow rate. Bypass lines and check and adjustable throttle valves automatically convert the hydraulic system at the end of a centrifuging cycle to a dynamic braking function. The smoothness of the rapid acceleration and deceleration permits the use of a low-cost, simplified removable load holder which requires no interlocking with the rotatable support means and is held in place by gravitational friction alone.

3,738,491
UNDER-GRAVEL AQUARIUM FILTER
 Denzel J. Dockery, G-4142 Fenton Road, Flint, Mich.
 Filed Sept. 29, 1971, Ser. No. 184,870
 Int. Cl. E04h 3/20

U.S. Cl. 210-169

4 Claims



An improved means of filtering and circulating the water in an aquarium wherein gravel at the bottom of the aquarium is

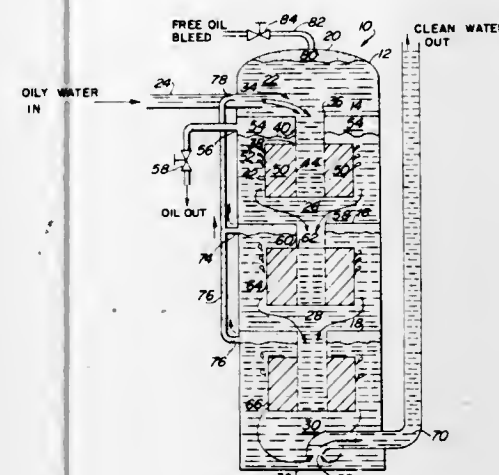
effectively employed to trap the waste material and debris so that it can be eliminated by natural decay or by backwashing of the gravel.

3,738,492
OIL-WATER SEPARATOR
 Charles H. Trillich, Morris Plains, N.J., assignor to Brunswick Corporation, Skokie, Ill.

Filed Mar. 17, 1972, Ser. No. 235,625
 Int. Cl. B01d 23/10

U.S. Cl. 210-196

8 Claims



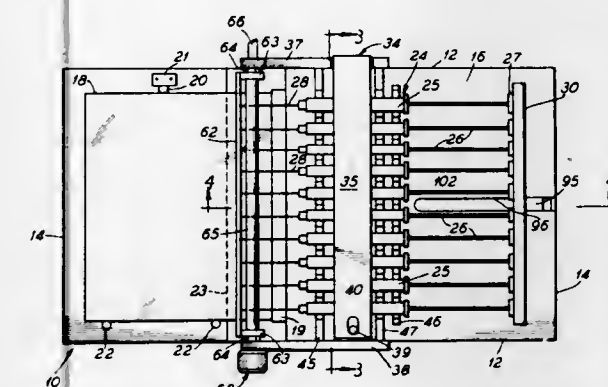
A system for separating a mixture of two liquids having different specific gravities (e.g., an oil-water emulsion) is disclosed. The illustrated embodiment comprises a plurality of vertically arranged separating tanks, the lower chambers containing coalescing filters made of oleophilic materials. Emulsion flows from inside to outside these filters and oil coalesces on the outside or downstream side of the filters where bubbles can form to float to the surface. Taps are provided outside the filters to remove coalesced oil. Means for recirculating free oil to improve separation are also taught.

3,738,493
APPARATUS FOR SIMULTANEOUS APPLICATION OF SAMPLES TO THIN LAYER CHROMATOGRAPHY PLATES
 Laurence M. Cummins, Libertyville, Ill., and Janet B. Perry, deceased, late of Evanston, Ill. (by Blanche Perry, legal representative), assignors to Analytical Instrument Specialties, Libertyville, Ill.

Filed Sept. 24, 1971, Ser. No. 183,365
 Int. Cl. B01d 15/08

U.S. Cl. 210-198 C

19 Claims



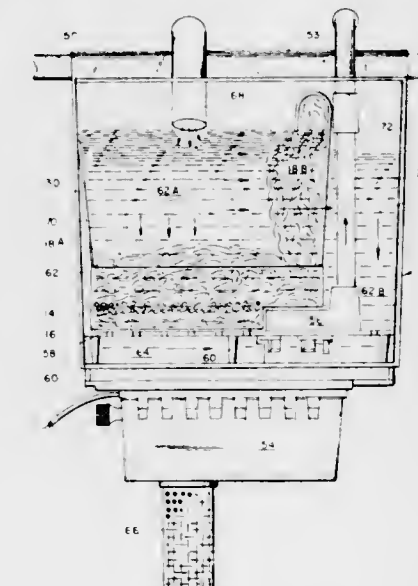
A thin layer chromatography apparatus with universal V-groove seats to support syringes and a movable arm with a resilient pad lowered and locked against the top of the syr-

inges. An adjustable needle positioning means operates to align the tips of all the needles, and then is rotated to press down on the needles to selectively lower the tips relative to the plate. A variable drive member reciprocates a pusher member for the syringes, said drive member traveling along a rotatable screw which is reversible following contact of limit switches during travel of the drive member. A controlled heating element and air jets may be used to hasten rate of solvent evaporation during application of liquid samples to thereby assist reproducibility of sample application.

3,738,494
DISPOSABLE FILTRATION CARTRIDGE
 Allan H. Willinger, New Rochelle; Albert J. Dinnerstein, Far Rockaway, both of N.Y., and Avihu Kagan, Union, N.J., assignors to Metaframe Corporation, Maywood, N.J.
 Filed Sept. 20, 1971, Ser. No. 182,050
 Int. Cl. E04h 3/20

U.S. Cl. 210-169

7 Claims

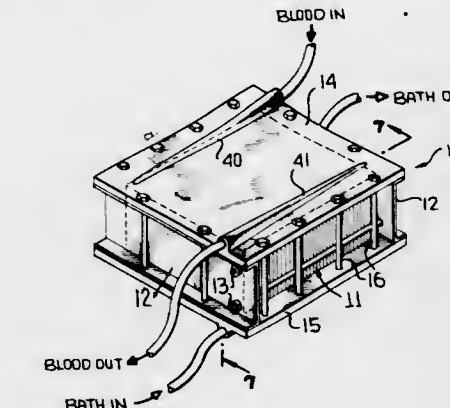


A disposable filtration cartridge comprising a casing, and filtration materials confined in the casing for cleansing debris-laden fluid. The casing includes a lid integral therewith and displaceable generally pivotally relative to the casing for exposing the filtration materials to debris-laden fluid. The casing, furthermore, includes an apertured bottom portion through which cleansed fluid may egress into a cleansed fluid chamber provided in an aquarium filtration housing.

3,738,495
EXCHANGE DEVICE
 William G. Esmond, 537 Stamford Road, Baltimore, Md.
 Filed Apr. 13, 1971, Ser. No. 133,573
 Int. Cl. B01d 31/00

U.S. Cl. 210-321

3 Claims



This disclosure relates to an exchange device, particularly one which may be utilized as an artificial kidney, which in-

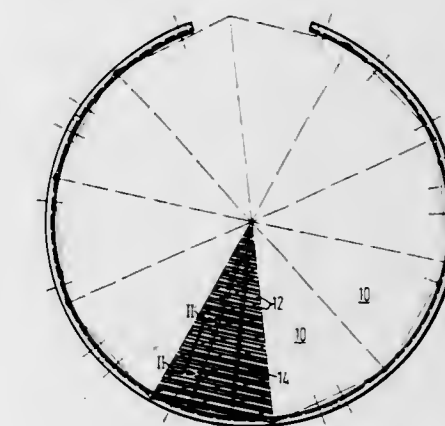
cludes first and second sets of flow plates separated by a pleated membrane. The flow plates with the pleated membrane entwined therebetween, are combined to define a stack with edges of the flow plates of one set being exposed along one side of the stack and edges of the other flow plates being exposed along the opposite side of the stack. Suitable manifold plates are clamped to opposite sides of the stack in opposition to the exposed edges and sealed relative thereto for effecting the flow of two fluids through the stack with the fluids being separated by the pleated membrane.

3,738,496
FALSE BOTTOM FOR STRAINING VATS
 Conrad Lenz, Annenbushstrasse 2, 805 Freising, Germany
 Filed July 15, 1971, Ser. No. 162,801
 Claims priority, application Germany, July 20, 1970, P 20 35 954.0

U.S. Cl. 210-488

Int. Cl. B01d 25/12

4 Claims

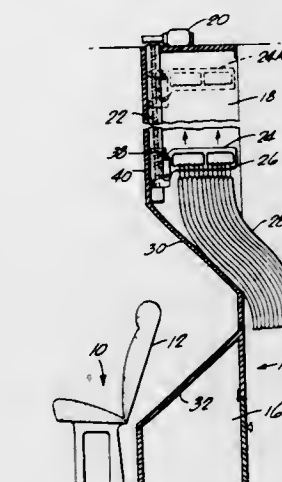


Straining vats are provided with so-called false bottoms. These false bottoms have slots. The function of a straining vat is to separate in the beer manufacture the mash into wort and draff. The wort is to pass through the slots, whereas the draff is to be retained by the false bottom.

3,738,497
SILENT DRIVE COAT HANGER RACK MECHANISM
 Edward E. Betts, Costa Mesa, and Stanley N. Kulczycki, Redondo Beach, both of Calif., assignors to McDonnell Douglas Corporation, Santa Monica, Calif.
 Filed June 1, 1971, Ser. No. 148,459
 Int. Cl. A47i 3/08

U.S. Cl. 211-1.5

8 Claims



A coat hanger rack silently elevated above passenger seats to store coats overhead and to provide more passenger room.

The elevating mechanism consists of a powered, threaded rod on which a threaded nut traverses as the rod rotates, moving the coat rack vertically. The nut moves the hanger yoke. Lateral forces are kept from the screw by transmitting them from the yoke to slipper bearing against guides. The Teflon slippers movable along the guide preclude looseness, high bearing pressure and roller noise.

3,738,498

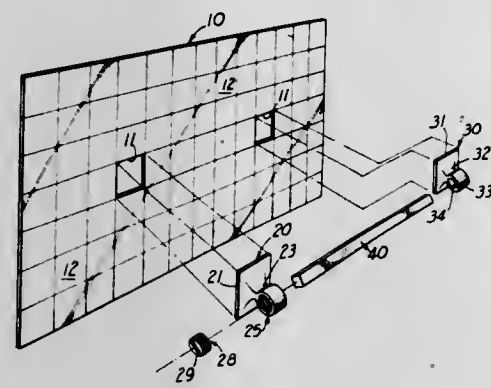
REPLACEABLE TOWEL ROD

Norman C. Handley, 5855 Pinebrook Road N.E., Atlanta, Ga.
Filed Apr. 14, 1971, Ser. No. 133,959

Int. Cl. A47h 1/02

U.S. Cl. 211-105.1

2 Claims



A support means permitting replacement of a towel support rod including a pair of bracket support means mounted in spaced relationship relative to each other to define opposed axially aligned socket means, with the socket means detailed in dimensions for receiving and supporting opposite ends of the towel rod. The bracket support means includes means operatively associated with the towel rod whereby the towel rod can be displaced therefrom. One embodiment of the bracket support means includes an opening extending through at least one of the brackets, with one end of the opening defining a socket portion for receiving and supporting one end of the towel rod and with a second portion of the opening including internal threads for releasably receiving a threaded retaining element therein, whereby the towel rod can be axially displaced through the opening provided in the bracket support means. A second embodiment includes a pair of support brackets having axially aligned supporting sockets for supporting opposite ends of the towel rod, with the supporting sockets including formed channel means permitting the towel rod to be removed from or placed within the socket retaining means.

3,738,499

PAPER HOLDER

Naboru Takamizawa, Kohhoku-ku, Kanagawa-ken, and Masao Ohsuga, Tokyo, both of Japan, assignors to ADAC Co., Ltd., Tokyo, Japan

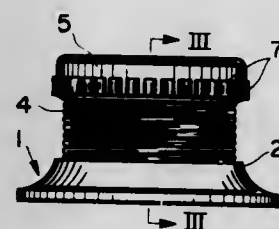
Filed May 24, 1971, Ser. No. 146,195

Claims priority, application Japan, July 13, 1970, 45/69508

Int. Cl. A47h 13/00

U.S. Cl. 211-120

1 Claim



A paper holder for tightly gripping name cards, chits, memorandum and other papers and material to be clipped.

Materials to be clipped are held fast by the resilient restoring force of a helical tension spring so that it is possible to positively hold the materials fast without damaging them.

3,738,500

ROTATABLE MOUNTING FOR BOOM TYPE LOADERS

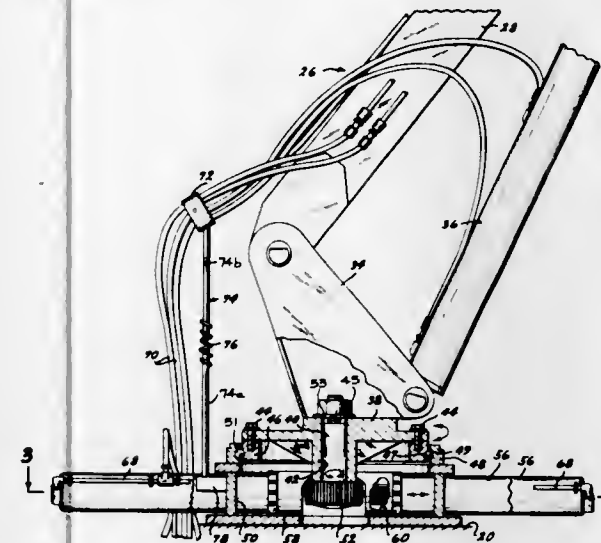
Theodore John Coleman, Raleigh; Richard Alan Jenkins, Tabor, and William Delano Ostling, Raleigh, all of N.C., assignors to Omark Industries, Inc., Portland, Oreg.

Filed Feb. 23, 1971, Ser. No. 118,007

Int. Cl. B66c 23/84

U.S. Cl. 212-66

1 Claim



A large ring providing an outer raceway for a rotatable mounting rigidly mounted to the reinforced roof of a vehicle cab. A disc having an inner raceway on its periphery is rotatably supported on ball bearings within the outer raceway. A boom is mounted to a brace which is rigidly affixed to the disc. A column depending from the disc carries a pinion gear. Cylinders containing fluid driven pistons are rigidly mounted to the cab on either side of the pinion gear. The pistons carry gear racks that are moved past the pinion gears. The gear teeth of the rack and pinion are interengaged and by driving the rack the pinion gear and disc with boom mounted thereon are rotated.

3,738,501

VARIABLE SPEED HYDRAULIC DRIVE SYSTEM

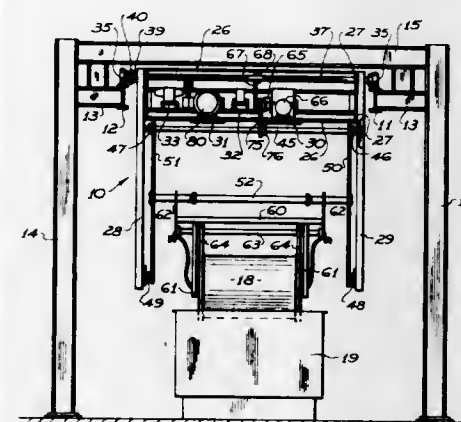
Thomas R. Gill, Cleveland, Ohio, assignor to G. S. Equipment Company, Cleveland, Ohio

Filed Jan. 4, 1971, Ser. No. 103,650

Int. Cl. B66c 19/00

U.S. Cl. 212-125

9 Claims



The disclosure pertains to a crane drive system including a fluid crane motor for imparting horizontal motion and a fluid

motor for actuating a hoist mechanism. A variable delivery pump drives the motors in a closed loop hydraulic circuit which includes control valves for starting and stopping the motors. Variable speed control of either or both motors is accomplished by varying the output of the pump.

3,738,502

FORK LIFT LEVELING CONTROL

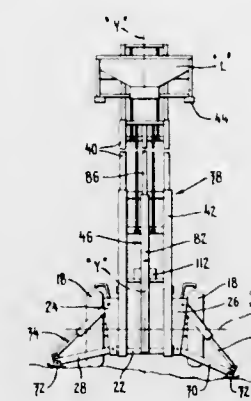
Fred W. Noller, Hudson, Ohio, assignor to Massey-Ferguson Inc., Detroit, Mich.

Filed Aug. 26, 1971, Ser. No. 175,236

Int. Cl. B66c 23/62

U.S. Cl. 212-145

2 Claims



A load-lifting mechanism for fork-lift type load handling device which is equipped with power actuated extendable links for adjustable support of the device on the ground and automatic control means including a vertical level sensing device interconnected between the load lifting mechanism of the device and the extendable links for automatic adjustment of the extendable links in response to an inclined position of the load lifting device while simultaneously interrupting movement of the load until the lifting device is brought back into level position.

ERRATUM

For Class 214-1 see:
Patent No. 3,738,143

3,738,503

SAFETY OVERLOAD DEVICE FOR TRANSFER MACHINES

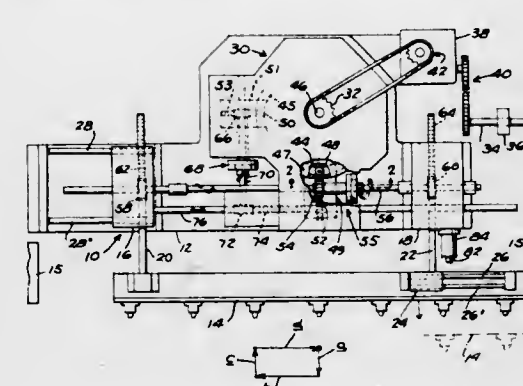
Bernard J. Wallis, 25200 Trowbridge Avenue, Dearborn, Mich.

Filed July 29, 1971, Ser. No. 167,323

Int. Cl. B65g 25/04

U.S. Cl. 214-1 BB

5 Claims



A safety overload device for a transfer machine having a rotatable drive member and a rotatable driven member. Overload protection is afforded by a yieldable driving connection provided between a face of the drive member and a cor-

responding face of the driven member by a plurality of spring-loaded bearing balls. The two members rotate over a selected angular range in unison as long as the load torque remains below a selected level as established by the spring force on the balls. A position return safety feature is provided by a pin projecting outwardly from the face of one of the two members to engage an arcuate slot in the face of the other member. The pin is positioned at one end of the slot. When the device encounters an overload during rotation in one direction, the yieldable coupling provided by the spring-loaded balls breaks the driving connection between the two members. The slot permits the drive member to continue rotating in the one direction and therefore to slip relative to the driven member, so as to traverse the remaining angular distance in the one direction while the driven member remains stationary. When the drive member rotates in the opposite direction, it slips relative to the driven member until it comes to the position where it became disconnected from the driven member. As the drive member rotates through this position, the one end of the slot forcibly abuts the pin to cause the driven member to be rotated in unison with the drive member over the final increment of movement in the latter direction.

3,738,504

BACK GAUGE POSITION FEED BACK SIGNAL GENERATION

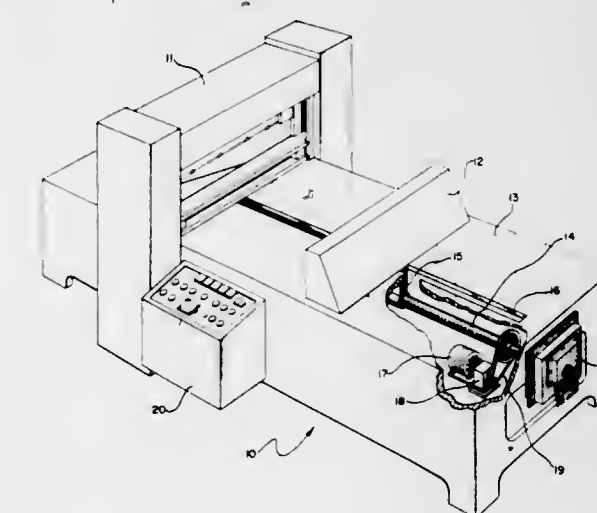
Robert W. Vail, and Joseph C. Widmont, both of Newport Beach, Calif., assignors to North American Rockwell Corporation, Pittsburgh, Pa.

Filed Nov. 22, 1971, Ser. No. 200,868

Int. Cl. B23q 5/50

U.S. Cl. 214-1.6

4 Claims



Apparatus is provided for generating position signals useful and particularly advantageous as feedback inputs to a servo control system for a paper cutting machine movable back gauge assembly. The generated feedback signals provide binary-coded position information associated only with key control positions established at selected intervals in the back gauge total traverse and pulsed counting information for incremental position changes in each interval between the key control positions.

3,738,505

MACHINE FOR LOADING STRIPS INTO BOXES

Elwyn Dean Harris, Corning, Calif., assignor to Commander Industries, Inc., Red Bluff, Calif.

Filed Sept. 20, 1971, Ser. No. 181,722

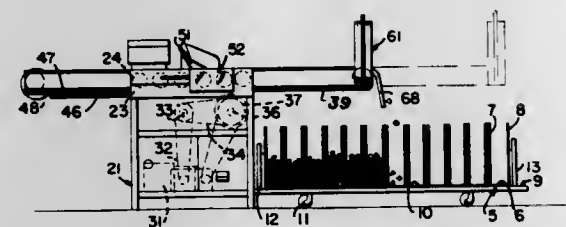
Int. Cl. B65g 57/03

U.S. Cl. 214-6 D

8 Claims

Long molding strips are dropped into parallel boxes from the edge of a carriage initially receiving the strips and across

which the strips are moved laterally by conveyor belts. The moving strips are counted into groups. For each group the carriage advances from one box to the next. After the final box is loaded the carriage returns to start position for a subsequent cycle.



3,738,506

AUTOMATIC STORAGE SYSTEM

Arthur S. Cornford, 561 Bobolink Rd., and Charles S. Charon, 1607 Watersedge Road, both of Clarkson, Ontario, Canada

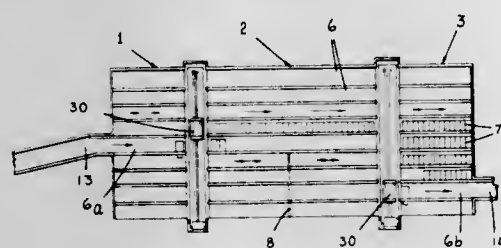
Filed May 6, 1971, Ser. No. 140,839

Claims priority, application Great Britain, Nov. 6, 1970, 52957/70

Int. Cl. B65g 1/06

U.S. Cl. 214—16.4 C

11 Claims



In a storage system of the kind comprising a racking structure which provides one or more storage sections, each storage section consisting of a honeycomb array of longitudinally extending storage cells the entrances to which are disposed in rows and columns and defining one side of an aisle from which access to the cells is gained for loading and/or unloading the cells, items are conveyed to and from selected cells by a conveyance mechanism comprising, for each aisle: a self-propelled main transporter adapted to run on tracks extending along the aisle, the main transporter being movable along the tracks to and from a selected column of cell entrances, or exits, an elevator carried by the main transporter, the elevator including an elevator platform which is movable to and from a selected cell entrance, or exit, of the selected column, a self-propelled satellite transporter for carrying an item to be stored, the satellite transporter being normally carried by the elevator platform and being adapted to run on tracks in the selected cell, and automatic means for controlling the movements of the satellite transporter to and from the elevator platform.

3,738,507

BIN FOR ACCUMULATING SPHERICAL ARTICLES

Clarence N. Livingston, Claremont, Calif., assignor to Sunkist Growers, Inc., Sherman Oaks, Calif.

Filed Sept. 13, 1971, Ser. No. 179,738

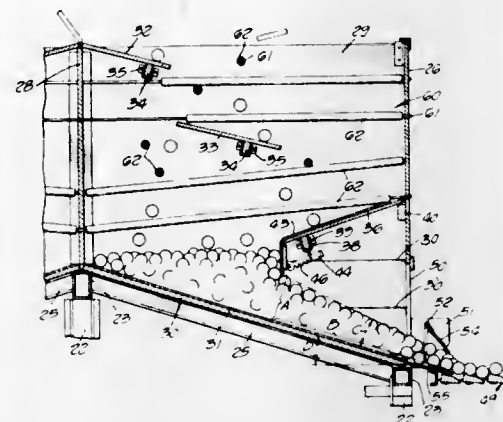
Int. Cl. B65g 65/40

U.S. Cl. 214—16 R

8 Claims

An accumulator bin for substantially spherical articles which spaces the bin delivery gate from the point of applica-

tion of the accumulated articles to utilize the natural angle of repose of the articles to deliver a single layer of articles at the point of application. Bridging at the delivery gate is retarded



3,738,508

AUTOMATIC LOADING AND UNLOADING APPARATUS FOR WASHERS, STERILIZERS AND LIKE VESSELS

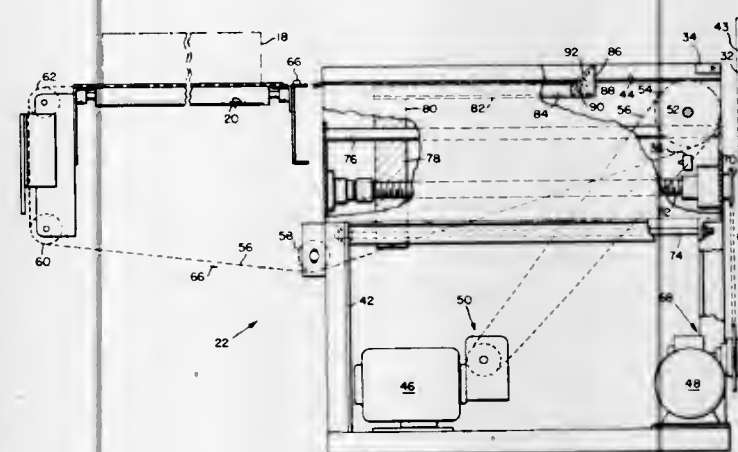
Alfred C. Lawson, Fairport, N.Y., assignor to Sybron Corporation, Rochester, N.Y.

Filed Apr. 14, 1971, Ser. No. 133,897

Int. Cl. B65g 25/10

U.S. Cl. 214—23

2 Claims



The invention concerns a washer, sterilizer or like vessel and apparatus for automatically loading and unloading articles from the vessel. The apparatus includes a conveyor for bringing articles to the vessel, a transfer mechanism for moving the articles between the conveyor and vessel opening and a boom arranged to move the articles into or out of the vessel.

3,738,509

DIRECTIONAL CONTROL APPARATUS FOR A BALE THROWER

George E. Yacilla, and James H. Hollyday, both of New Holland, Pa., assignors to Sperry Rand Corporation, New Holland, Pa.

Filed Oct. 6, 1971, Ser. No. 186,882

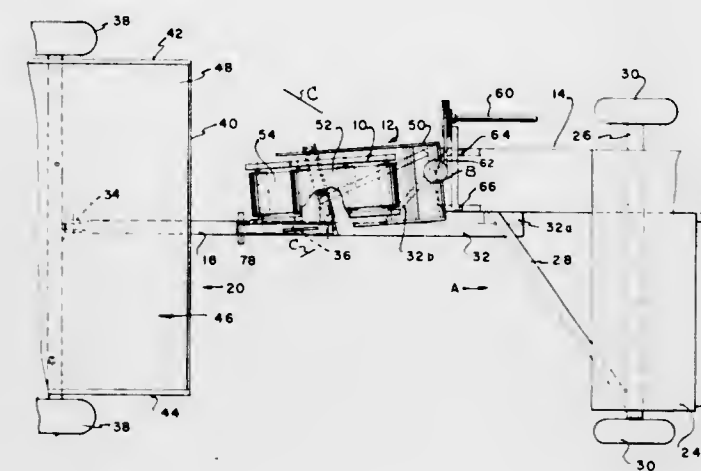
Int. Cl. B65g 67/22

U.S. Cl. 214—42 A

12 Claims

A bale thrower directional control apparatus has a pivotal linkage system connecting a trailing wagon tongue and a bale

thrower pivotally mounted on a bale case that is stiff over the limited arc of movement of the bale thrower and yieldable over the extended arc of movement of the tongue. The linkage system has a main frame with an elongated guide, a slide slideably mounted on said guide and a spring applying a force on the slide away from the pivotal mounting and has a rod



pivotally connected to the bale thrower and to the slide to extend in a generally transverse direction to the slide over the limited arc of movement of the bale thrower and pivoting to apply a substantial force component along the slide against the spring to permit the tongue to continue to swing in a greater arc as the bale thrower remains at the end of the limited arc.

3,738,510

STICKER PLACER APPARATUS FOR PLACING STICKS

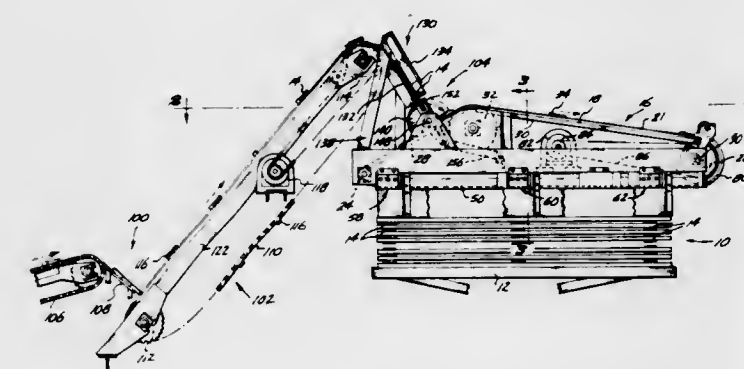
Howard C. Mason, Oregon City, Oreg., assignor to H. C. Mason & Associates, Inc., Oregon City, Oreg.

Filed May 20, 1971, Ser. No. 145,229

Int. Cl. B65g 57/26

U.S. Cl. 214—6 DK

3 Claims



Apparatus for placing sticks on a forming stack of lumber. Sticks are received in a depository in a scrambled condition. An unscrambling conveyor moving through the depository picks up sticks, one at a time, with such in a given oriented position. The sticks are fed to a collector, and are transferred one at a time from the collector onto a stick placement conveyor belt with lugs distributed therealong functioning to establish a laterally spaced relation of the sticks on such belt. A lower run of such belt extends over a support for the forming stack. Restraining means holding sticks in the laterally spaced relation against such lower run is operated to release the sticks whereby they fall onto the stack in properly spaced relation.

3,738,511

CONVERTIBLE RAILWAY HOPPER CAR

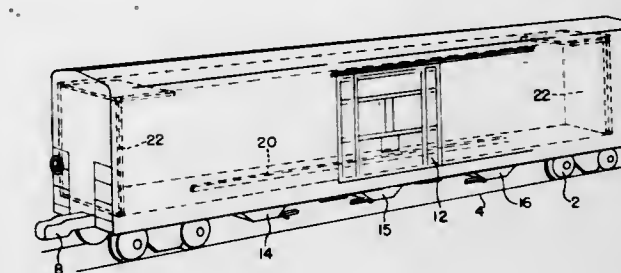
Lucien W. Lemon, Renton, and Kristjan H. Palsson, Seattle, both of Wash., assignors to Pacific Car and Foundry Company, Bellevue, Wash.

Filed Mar. 12, 1971, Ser. No. 123,692

Int. Cl. B60d 1/56; B61d 3/06, 7/32

U.S. Cl. 214—82

10 Claims



This invention relates to a container such as a railroad car or a truck having bottom hoppers for the discharge of loose bulk cargo which is equally usable for loose bulk cargo or pre-packaged stackable cargo. The conversion of the car from a form suitable for packaged cargo to one suitable for bulk cargo is accomplished through the incorporation of self-storing slope sheets or secondary floors for use with loose cargo and the incorporation of hinged covers for use over the hoppers when the car is being used for packaged bulk cargo. The self-storing slope sheets are secured in position against an end wall or adjacent the ceiling during the hauling of packaged cargo and are against an end wall for the hauling of loose cargo. The slope sheets are moved to a position where they form a continuous sloped floor to the hopper during the unloading of the loose bulk cargo sweeping the contents to the hopper. The use of the self-storing slope sheets enables the car to be filled to its entirety when both packaged and loose cargo is being transported.

3,738,512

MATERIAL HANDLING EQUIPMENT

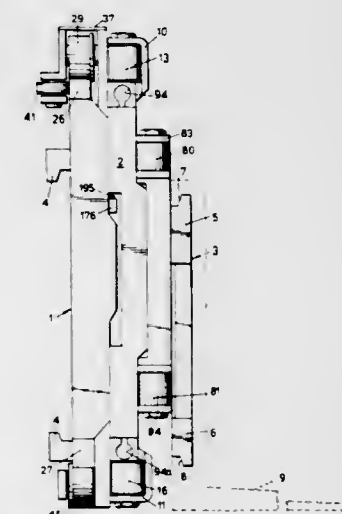
Geoffrey Marsden, Ackworth, Pontefract, Yorkshire, England, assignor to R. E. Barker & Co., Limited, Featherstone, Yorkshire, England

Filed Feb. 3, 1972, Ser. No. 223,224

Int. Cl. B66f 9/14

U.S. Cl. 214—730

15 Claims



An attachment for a lifting vehicle, particularly a fork lift truck, comprising a rear frame having means for attachment

to a vehicle; a mid-frame; a first hinge between the rear frame and mid-frame; means for opening the first hinge to pivot the mid-frame away from and towards a first lateral side of the attachment, and for closing the first hinge; means for moving the first hinge laterally back and forth across the rear frame; a front plate having attachment points for one or more material handling members; a second hinge between the mid-frame and the front plate; means for opening the second hinge to pivot the front plate away from the mid-frame and towards a second lateral side of the attachment, and for closing the second hinge; and means for moving the second hinge laterally back and forth across the mid-frame. The load handling member may thus be moved to work in a straight-ahead position or a position pointing to either side of a vehicle to which the attachment is fitted.

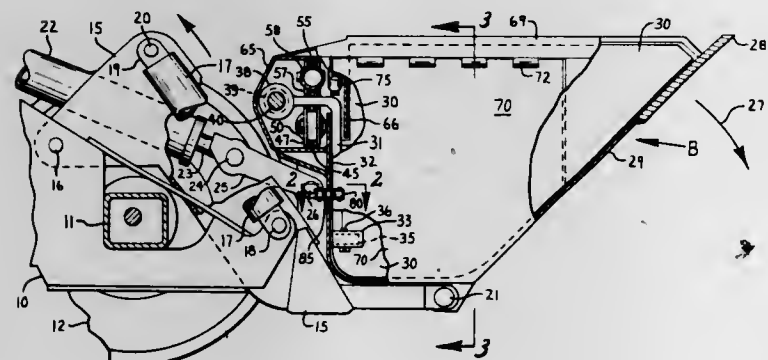
3,738,513

SIDE DUMP LOADER BUCKET

Eddie B. Wagner, Portland, Oreg., assignor to Wagner Mining Equipment, Inc., Portland, Oreg.
Filed May 3, 1971, Ser. No. 139,670
Int. Cl. E02f 3/70

U.S. Cl. 214—146 E

8 Claims



The bucket contains an ejector plate movable from side to side to discharge a load from either side of the bucket. Both sides of the bucket are equipped with doors which are opened and closed by double acting hydraulic cylinders and the doors are held closed and released by latch devices actuated by double acting hydraulic cylinders. The ejector plate is actuated by a pair of hydraulic cylinders arranged to move the ejector plate the entire width of the bucket. When a load is to be dumped from the right side of the bucket, the ejector plate is shifted to the left side before the bucket is loaded and when a load is to be dumped from the left side of the bucket, the ejector plate is shifted to the right side before the bucket is loaded. This arrangement allows the bucket to discharge from either side without tilting the bucket laterally.

3,738,514

METHOD FOR HANDLING AND STACKING ARTICLES

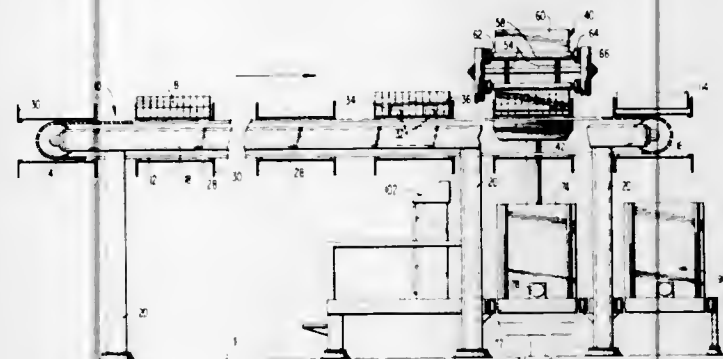
Robert E. Jones, 15 S. Oak Forest Drive, Asheville, N.C.
Filed June 16, 1971, Ser. No. 153,577
Int. Cl. B65g 57/26

U.S. Cl. 214—152

12 Claims

Articles such as bricks are loaded on one end of a horizontal endless loading conveyor in predetermined groups governed by trays fixed on the endless member of the conveyor. When the groups of articles reach a discharge station along the conveyor, they are sequentially discharged transversely of the conveyor onto a horizontal temporary support plate by paddle plates moved by an endless conveyor transversely overlying the first conveyor such that the articles are pushed by the paddle plates onto the temporary support plate. The temporary support plate overlies a vertical elevator and is retractable from below the discharged articles resting thereon to deposit

the same on preceding articles stacked on the elevator. The elevator is then lowered a predetermined amount to make space for the next group of articles to be discharged after which the temporary support plate is moved back to its position overlying the elevator to receive the next group of articles to be discharged. When the elevator reaches its lower-most position, having received a full stack of articles, a push-off mechanism including a vertical pusher plate pushes the stacked articles from the elevator to an adjacent shuttle car which then is moved adjacent a further handling station such as a strapping station where a second push-off mechanism is actuated to push the stacked articles from the shuttle car into a strapping mechanism. The shuttle car then returns adjacent



the elevator which then may be raised to a level below the temporary support plate for starting the next stacking operation. The entire system is hydraulically operated under the control of limit switches and timers. An interlocking arrangement of switches and timers ensures that the operation proceeds only when the various components of the system are in proper position. Where the articles are bricks for example and it is desired to form the stack of articles with voids therein for receiving the tines of a fork lift truck, certain trays on the loading conveyor are provided with fixed blocks signifying the position of the voids to the loader. Certain trays may be used for receiving articles which are defective and are discharged at the end of the loading conveyor separately from the normal discharge.

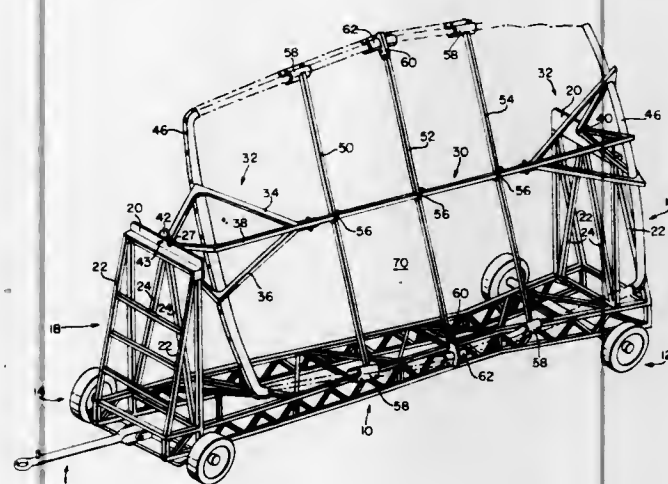
3,738,515

TRAILER FOR TRANSPORTING ONE PIECE SWIMMING POOL SHELLS

Gordon A. Monten, Seattle, Wash., assignor to San Juan Products, Inc., Seattle, Wash.
Filed July 16, 1971, Ser. No. 163,238
Int. Cl. B60p 3/00

U.S. Cl. 214—152

7 Claims



One piece swimming pool shells of glass fiber reinforced construction are transferred from a manufacturing site to an

installation site by a trailer which allows the pool shell secured to a support structure to be loaded onto the trailer in a horizontal position and then rotated to a substantially vertical position for transport. At the installation site the pool shell is returned to the horizontal position, lifted from the trailer and set in place in the excavation. The support structure is then removed.

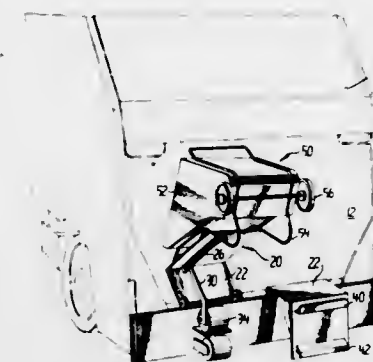
3,738,516

CONTAINER LIFTING MECHANISM

Leon W. Wells, P. O. Box 362, Winter Haven, Fla.
Filed July 31, 1972, Ser. No. 276,417
Int. Cl. B65f 3/02

U.S. Cl. 214—302

3 Claims



A double handle attachment hinged semi-fixed to a refuse sink as described, whereby a container may be inverted so that its contents may be spilled into the sink, and the refuse container secured against falling.

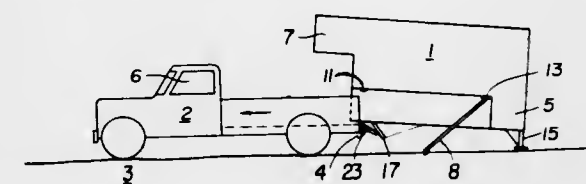
3,738,517

PICKUP CAMPER LOADING ARRANGEMENT

Joe R. Luse, 107 E. Washington St., Centerville, Iowa
Filed Mar. 27, 1972, Ser. No. 238,294
Int. Cl. B60p 1/64

U.S. Cl. 214—515

4 Claims



Push rod mounting means on the sides of a camper near the front thereof mount a pair of push rods for loading the camper in a truck and push rod mounting means on the sides of the camper near the back thereof mount the push rods for unloading the camper from the truck. The push rods provide a force at the camper contrary to the direction of movement of the truck in loading and unloading. Fixed back support members at the bottom of the camper at the back thereof support the camper at a determined distance above the ground. A movably mounted front bracing member at the bottom of the camper is biased to extend at an angle slightly less than 90° from the camper when free and held at substantially 0° relative to the camper when the camper is loaded on the truck. Guide means on the truck guide the camper relative to the truck in a manner whereby when the push rods are mounted on the push rod mounting means at the back of the camper at an acute angle with the length of the camper in the direction of the front thereof and the truck is moved forward, the camper unloads from the truck, and when the push rods are mounted on the push rod mounting means at the front of the camper at an acute angle with the length of the camper in the direction of the back thereof and the truck is moved backward under the front of the camper, the camper is loaded on the truck.

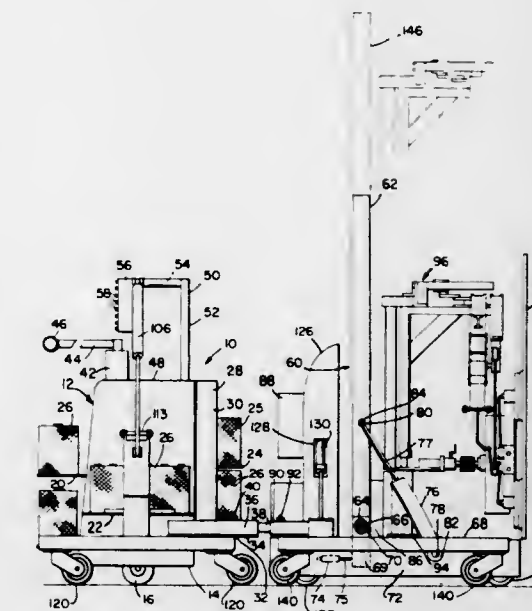
3,738,518

POWER UNIT FOR PLATE GLASS HANDLING APPARATUS

Arthur C. Outsen, Jr., 581 Darien Way, San Francisco, Calif.
Filed Apr. 29, 1971, Ser. No. 138,745
Int. Cl. B66c 1/02

U.S. Cl. 214—650 SG

7 Claims



A multiunit apparatus is provided which is readily assembled and disassembled for easy movement from floor to floor within a building. The apparatus provides an acceptable floor load per unit area, while providing mechanical stability, when heavy loads are extended significant distances upwardly and away from the center of gravity of the assembled apparatus, creating severe torsional stresses. The assembled apparatus is extended longitudinally so as to have the load moving unit at one end, and the drive unit at the other end.

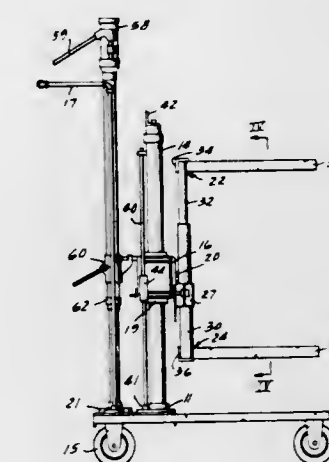
3,738,519

APPARATUS FOR LOADING AND UNLOADING PRINTING MACHINES

James D. Edwards, 116 S. Highway 65, Dumas, Ark.
Filed Oct. 8, 1971, Ser. No. 187,619
Int. Cl. B66f 9/18

U.S. Cl. 214—652

4 Claims



This invention provides an apparatus for loading, unloading and turning over from one side to another, a stack of paper for printing machines and the like. The apparatus comprises a movable horizontal base, a support rod mounted on the base and extending vertically upward therefrom, the rod having a sleeve slidably mounted thereon, a turning head rotatably con-

nected to the sleeve of the support rod, the turning head being arranged to rotate clockwise and counterclockwise, a rack connected to the turning head, the rack being arranged to securely hold a stack of paper and to rotate in the same manner as the turning head, means for raising and lowering the rack and for compressing the stack of paper held by the rack, and locking means arranged to allow the rack to rotate and to hold the rack stationary before and after being rotated.

3,738,520

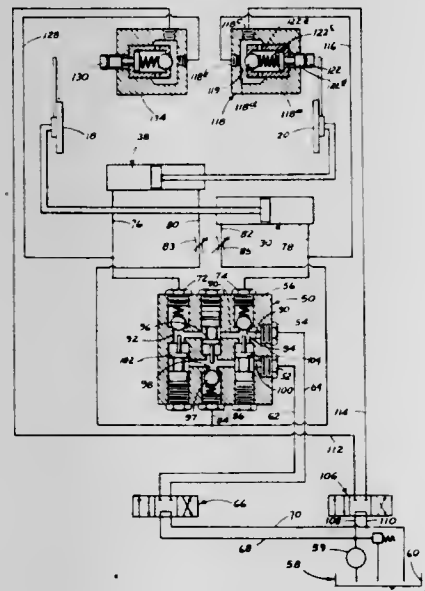
CLAMP MECHANISM WITH TRAILING ARM CONTROL
Stuart R. Diddel, Gresham, and Harlan D. Olson, Portland, both of Oreg., assignors to Cascade Corporation, Portland, Oreg.

Filed Aug. 13, 1971, Ser. No. 171,451

Int. Cl. B66f 9/14

U.S. Cl. 214—653

4 Claims



Clamp mechanism including a pair of opposed clamp members movably mounted on a frame. The clamp members are movable toward and away from each other to effect clamping and release of a load, and are movable in the same direction on the frame, to one or the other side, for the purpose of side shifting a load. A fluid-pressure operated ram is connected to each clamp member to move it under power. Hydraulic circuit means connects a source of fluid under pressure with the rams, this circuit means on side shifting connecting the rams in series with one dumping into the other. The hydraulic circuit means includes a pair of valves, one associated with each clamping member. One valve is actuated by the clamp member which is trailing on side shifting in one direction to stop the supply of pressure fluid to the rams prior to the ram for the trailing clamp member reaching the end of its stroke. A valve associated with the other clamp member performs a similar function with the other clamp member moving as a trailing member on side shifting.

3,738,521

WORK HANDLING APPARATUS

William W. Long, III, Hagerstown, Md., assignor to The Carborundum Company, Niagara Falls, N.Y.

Filed Jan. 3, 1972, Ser. No. 214,667

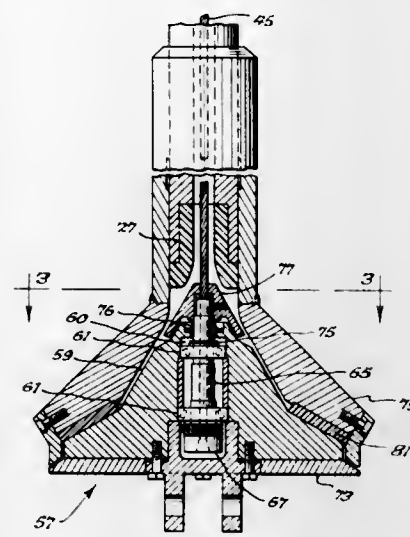
Int. Cl. B65h 5/12

U.S. Cl. 214—658

10 Claims

In a work handling apparatus, a work engaging member which holds the workpiece is raised or lowered by means such as a cable hoist. Rotational movement of the work engaging

member is effected by raising the work engaging member to engage a means for transmitting rotational movement such as



a tubular shaft mounted for rotation. The work engaging member is rotatably mounted on the cable so that the tubular shaft can be turned without twisting the cable.

3,738,522

AUTOMATIC SCOOP POSITIONING DEVICE FOR MECHANICAL SHOVEL

Carlo Cecchi, Turin, Italy, assignor to Fiat Societa per Azioni, Turin, Italy

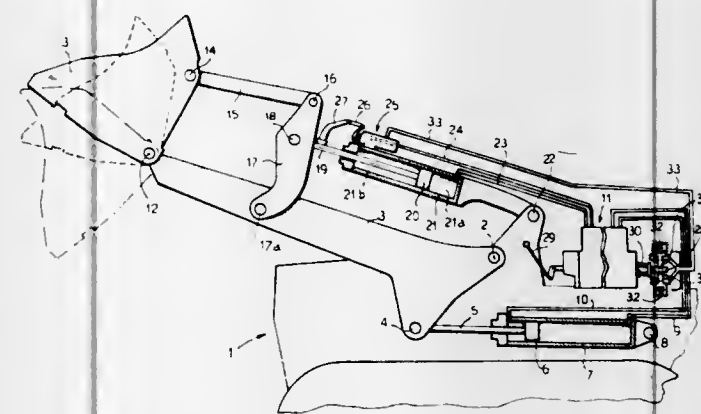
Filed July 21, 1971, Ser. No. 165,245

Claims priority, application Italy, July 30, 1970, 69632 A/70

Int. Cl. E02f 3/87

U.S. Cl. 214—764

4 Claims



A mechanical shovel having an automatic scoop positioning device is disclosed. The scoop of a mechanical shovel must, for many operations, be positioned in one of two operational positions when returning from a tipping position. An auxiliary distributor is positioned hydraulically between a scoop control ram and a main distributor and feeds the ram when in a first position. Latching means hold the appropriate valve of the main distributor in the return position when it is moved to that position and the auxiliary distributor is set up to sense when the scoop reaches the predetermined operating position and thereupon to divert the hydraulic fluid to lock open the latching means thereby releasing the valve of the main distributor and shutting off the flow of fluid to the scoop control ram. The distributor holds the latching means open, so that the movement of the scoop is unrestricted, until a further emptying operation is performed, whereupon the latching means is released and reset for a subsequent operating cycle.

3,738,523

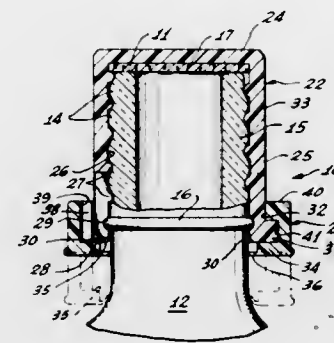
SAFETY CLOSURE CAP

Robert P. Linkletter, 875 Comstock Ave., Los Angeles, Calif.
Continuation-in-part of Ser. No. 27,268, April 10, 1970, abandoned. This application Jan. 10, 1972, Ser. No. 216,712

Int. Cl. A61j 1/00

U.S. Cl. 215—9

17 Claims



A container safety closure cap having a closure member formed of a generally rigid material which can be locked in place on the container by a locking ring. The closure member has a peripheral lip which fits under a bead on the container, and the locking ring engages the closure member to hold the peripheral lip under the bead. Cooperating projections and grooves are carried by the closure member and locking ring to securely lock the locking ring to the closure member and prevent the closure member from being removed from the container without first unlocking the two members.

3,738,524

PLASTIC COVERED GLASS CONTAINER

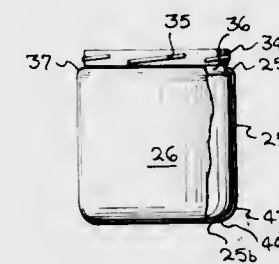
Carlton A. Richle, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Mar. 31, 1971, Ser. No. 129,691

Int. Cl. B65d 41/04

U.S. Cl. 215—12 R

1 Claim



The invention disclosed relates to a plastic coated glass container. A wide variety of glass bottles or jars have a covering of shrinkable plastic material shrunk over a selected region of the glass wall. The covering may be first pre-decorated or pre-printed while in a flat form. The covering may be a seamless tube or a sheet wrapped on a mandrel cylinder to a continuous (endless) sleeve form that is telescopically inserted over the bottle encircling the area to be covered. The lower marginal end thereof will overhang the bottom end of the bottle. The sleeve may be of a pre-foamed or non-foamed plastic material, opaque, pigmented or transparent. It is shrunk in situ by heat so that it fits snugly on the bottle surface and conforms to the container wall about its shoulder, body, heel and its bearing surface at the bottom end of the bottle to provide: (1) a body covering protecting the glass against surface damage, (2) a pre-printed label or decoration for the bottle, and (3) a plastic covering on the lower end bearing surface protecting those areas from damage; and further providing sufficient protection for the glass to eliminate carton partitions, dividers or the like currently used.

3,738,525

SALAD SERVING COMBINATION INCLUDING CONTAINER FOR SALAD INGREDIENTS AND CUPS FOR DRESSINGS OR GARNISHES REMOVABLY SUPPORTED THEREBY

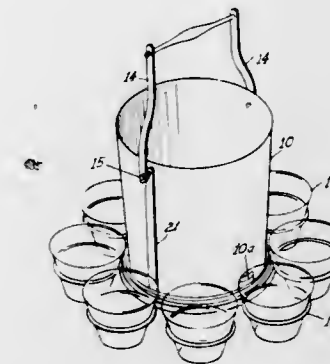
Robert E. Knapp, 1489 Ardwick Road, Columbus, Ohio

Filed June 7, 1971, Ser. No. 150,527

Int. Cl. B65d 21/02; A47g 19/32, 23/08

U.S. Cl. 220—23.4

6 Claims



A salad serving combination including a main container for the salad ingredients, such as fresh vegetables or fruits, preferably of bucket-like form. The combination also includes carrier means removably supported from the container but normally removably supporting a plurality of cups for various dressings and/or garnishes around the exterior of the bucket for ease in selection for use with a serving of the salad ingredients taken from the container.

3,738,526

CONTAINER WITH PERMANENTLY ATTACHED TEAR STRIP AND TAB

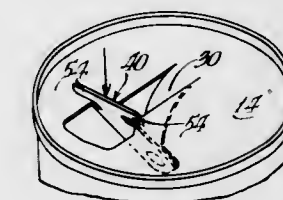
Arthur P. Zundel; Leon M. Patarini; Warren A. Nickel, and Frank Kratochvil, all of Chicago, Ill., assignors to National Can Corporation, Chicago, Ill.

Filed Jan. 27, 1972, Ser. No. 221,214

Int. Cl. B65d 17/20

U.S. Cl. 220—54

21 Claims



A container top is formed with a tear strip that has a base end permanently connected to the container wall and a pull tab connected to the tear strip for manual severance of the major portion of the tear strip from the container wall. The pull tab has guide means for receiving severed edges of the container wall so that a major portion of the tab is located within the container when the tear strip and tab are in the fully opened position.

3,738,527

METHOD OF MANUFACTURING AND LINER FOR LIQUID STORAGE TANK

Joseph W. Townsend, 54 Union Street, Pennsville, N.J.

Filed Nov. 18, 1970, Ser. No. 90,729

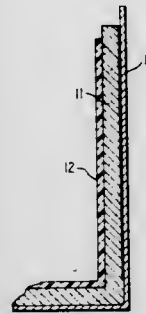
Int. Cl. B65d 5/56

U.S. Cl. 220—63 R

1 Claim

A vessel is provided having a substrate bonded to the interior thereof and an inner facing layer bonded to the substrate.

the substrate providing a distortable mat of a closed-cell material which acts as a resilient spring means to absorb distortion of the flexible impervious inner facing layer thereby inhibiting rupture and facilitating non-destructive movement of the liner.



A chemical reactor or storage tank is provided having on its internal surfaces a closed-cell foamed synthetic resin and on the interior thereof a corrosion-resistant plastic material, the two layers being intimately bonded together and to the exterior shell of the tank or reactor.

3,738,528

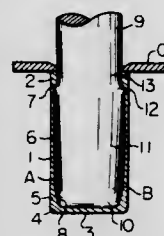
CONTAINER AND A METHOD FOR PRODUCING SAME
Takayoshi Kagami, Tokyo, Japan, assignor to Daiwa Can Company Ltd., Tokyo, Japan

Filed July 29, 1971, Ser. No. 167,250

Claims priority, application Japan, Apr. 3, 1971, 46/20072
Int. Cl. B65d 7/42

U.S. Cl. 220-72

1 Claim



A method for producing a tinplate cylindrical container with a bottom end having a thick walled upper portion by drawing and ironing in which the wall of the main part of the container body near the bottom end is made thick while the wall thereof near the upper portion is made thin, and in which the gradient angle or taper representing the variation of the wall thickness of the container main body part is made smaller than that of the punch core of the ironing means so as to make it possible to readily strip said container from said punch core. There is also provided a container of that kind in which the upper portion of said container is not subjected to the final ironing so that the hardness thereof is lower than that of the middle part of the body of the container to prevent the cracking of the flange which would otherwise be encountered.

3,738,529

INSULATING CONTAINER COVER

Billy L. Rose, 1632 Oakview, Kensington, Calif.
Filed Apr. 30, 1971, Ser. No. 138,878

Int. Cl. B65d 25/00

U.S. Cl. 220-85 H

3 Claims

An insulating container cover to encompass a pop top beverage can to keep the contents of the can cool after

removal from the refrigerator. The insulating cover is formed of flexible styrofoam plastic and has the same general cylindrical shape as the container it is to cover. The cover has an opening formed in the upper portion of its side wall and its top wall to give access to the drink opening in the beverage container so that the insulating cover can be left on the container



while drinking the beverage therefrom. The cover is open at the bottom to permit it to be slipped easily over the beverage container and has a series of inwardly extending bosses for engaging under the bottom edge of the beverage container to secure the cover to the container. After the container has been emptied the cover is slipped off for reuse and the container is discarded in the usual fashion.

3,738,530

SEEDER DEVICE

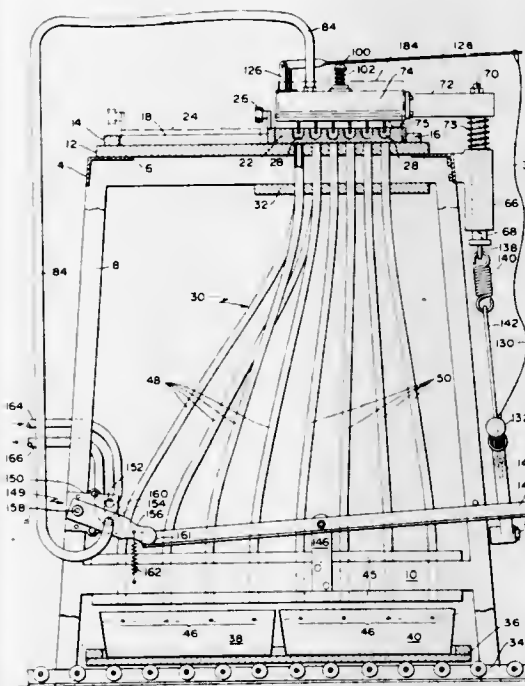
Hyman M. Fine, 245 Smith Street, and James L. McKearney,
10 Reynolds Street, both of Attleboro, Mass.

Filed July 26, 1971, Ser. No. 165,932

Int. Cl. A01c 5/00

U.S. Cl. 221-211

10 Claims



A device for planting seeds in an orderly array which has a plurality of suction needles adapted to be positioned over a seed-carrying tray, an air supply for first pulling air through the needles to removably attach a seed to the end of each needle and then blowing air through the needles to expel seeds,

transfer means for separating the needles from the tray so that the needles will be in a position where discharge of the seeds from the end of the needles will cause them to fall in an ordered array on an area to be seeded, additional means for making sure the seeds do not stick to the ends of the needles, and valve means for changing the flow of air through said needles.

3,738,531

LIQUID PUMPING SYSTEM

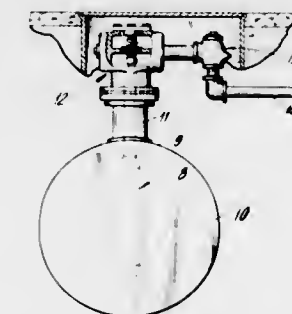
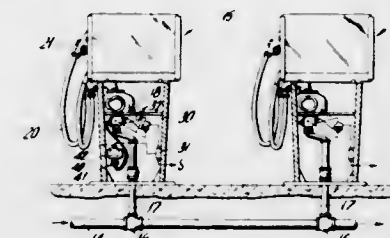
Thomas O. Mitchell, Muskegon, Mich., assignor to Bennett Pump Incorporated, Muskegon, Mich.

Filed Feb. 10, 1971, Ser. No. 114,288

Int. Cl. B67d 5/34

U.S. Cl. 222-52

10 Claims U.S. Cl. 222-102



A control system for the dispensing of gasoline includes leak detector means disposed in the main supply line, and a switch means responsive to the attitude of the leak detector means and operative to control the discharge of fluid from the dispenser nozzle valve. By this arrangement, the switch means insures that the leak detector means is in its fully opened position, prior to discharge of fluid from the dispenser nozzle valve.

3,738,532

APPARATUS FOR AUTOMATICALLY DISTRIBUTING LIQUID FEED RATIONS

Serge Fimbault, Dordogne, Saint Hilaire D'Estissac, France

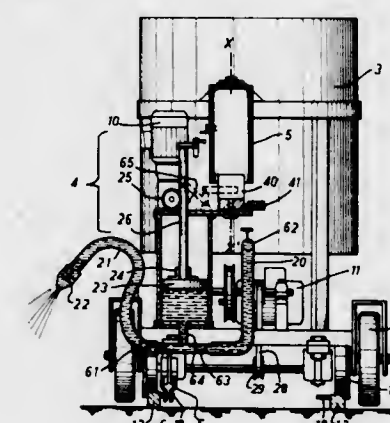
Filed Mar. 8, 1972, Ser. No. 232,776

Claims priority, application France, Mar. 10, 1971,
7108592; Nov. 8, 1971, 7139907

Int. Cl. B67d 5/08

U.S. Cl. 222-63

4 Claims



Apparatus for automatically distributing liquid, or semi-liquid, feed to the feed boxes of a series of animals includes a

3,738,533

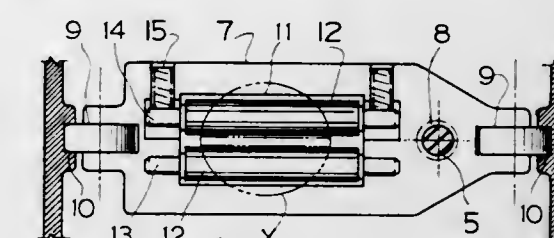
MOTORIZED COLLAPSIBLE TUBE DISPENSER

James G. Bertrand, 933 Josephine Street, Windsor, Ontario, Canada

Filed Sept. 7, 1971, Ser. No. 178,295

Int. Cl. B65d 35/28

1 Claim



This invention consists of an electrically operated collapsible tube dispenser suitable for the dispensing of such products as tooth paste, shaving cream, etc. It comprises an enclosure in which the said tube is suspended by its base and its contents being discharged at the bottom of the enclosure. The squeezing pressure upon the tube is provided by a pair of rollers which travel downward on both sides of the tube, and which are activated by means of an electric motor.

3,738,534

APPARATUS FOR DISPERSING PARTICULATE MATERIALS

John Abbott, Burton-on-Trent, England, assignor to Coal Industry (Patents) Limited, London, England

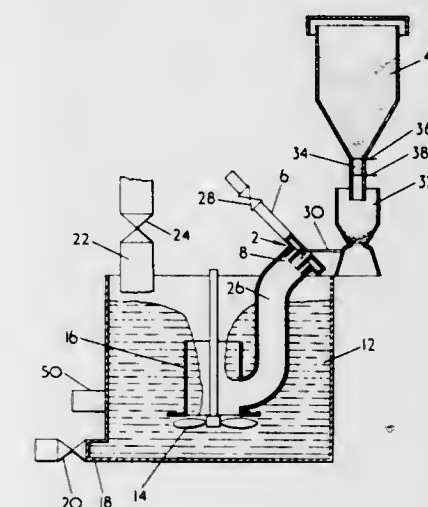
Filed Dec. 9, 1970, Ser. No. 96,507

Claims priority, application Great Britain, Dec. 23, 1969,
62,655/69

Int. Cl. B67d 5/56

U.S. Cl. 222-129

5 Claims



A method of, and apparatus for, dispersing particulate materials in fluids, particularly for dispersing materials e.g. polyacrylamide having particles which, if in contact on becoming wetted, agglomerate to form a non-dispersible mass. A vortex chamber is used to provide a hollow cylindrical rapidly flowing film of fluid onto the inner surface of which the material is introduced.

3,738,535

MIXING AND PROPORTIONING SYRINGE

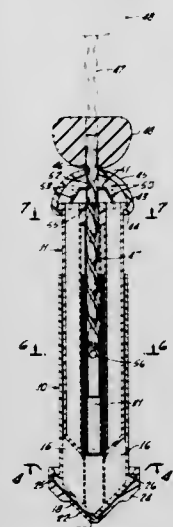
Augustus H. Nicholls, 1170 Longfellow Drive, Manhattan Beach, Calif.

Filed Oct. 26, 1970, Ser. No. 84,058

Int. Cl. B67d 5/52

U.S. Cl. 222-137

15 Claims



A mixing syringe including a cylindrical barrel having a transverse web dividing it into two chambers to receive components to be mixed, the barrel having a conical end wall having outlet openings from each chamber, a conical end cap fitting over the end wall and rotatable relative to it for receiving and mixing materials discharged from the barrel and ejecting them from an aperture in the cap, a plunger having two sections, one received in each barrel chamber and movable axially to discharge the materials in the chambers, and a ratchet drive for engaging a transverse wall of the plunger and simultaneously imposing a longitudinal and rotational force on the plunger for causing the plunger to move for ejecting materials and at the same time rotating the barrel relative to the end cap.

3,738,536

CHILD PROOF PROTECTIVE OVERCAP FOR AN AEROSOL CAN

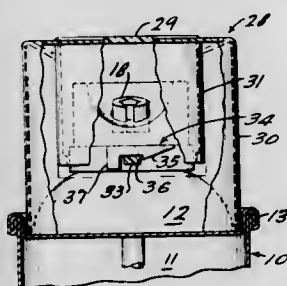
Peter P. Gach, Evansville, Ind., assignor to Sunbeam Plastics Corporation, Evansville, Ind.

Continuation-in-part of Ser. No. 72,917, Sept. 17, 1970, abandoned. This application June 28, 1971, Ser. No. 157,423

Int. Cl. B67b 5/00

U.S. Cl. 222-153

8 Claims



A child-proof protective overcap for an aerosol can. The can has a valve stem cap and an actuator nozzle centered therein, the valve stem cap being retained on the can by frictional engagement thereof with an annular lip on the valve mounting seam at the top of the breast portion of the can. The overcap has an inverted cup-shape with a circular, stiffly resilient top and two concentric skirts depending therefrom. The inner skirt extends circumjacent to the valve stem cap and the outer skirt extends into the annular groove at the seam between the body and breast portion of the can. The inner skirt and the valve stem cap have interfitting locking means.

The resilient top biases the interfitting means into locking engagement and the locking means are disengageable by flexure of the top of the overcap and axial movement of the inner skirt followed by rotation of the overcap. In the preferred embodiment the interfitting means are bayonet-type lugs and ramps.

3,738,537

SAFETY CLOSURE FOR AEROSOL CAN

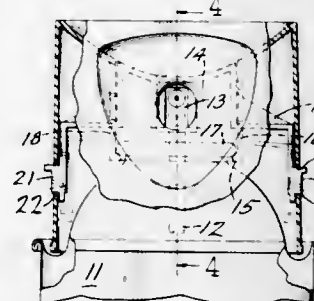
Peter P. Gach, Evansville, Ind., assignor to Sunbeam Plastics Corporation, Evansville, Ind.

Filed Dec. 7, 1971, Ser. No. 205,650

Int. Cl. B67b 5/00

U.S. Cl. 222-153

2 Claims



A safety closure for an aerosol can having a top central valve and spray button. The closure comprises an inverted, cup-shaped actuator surrounding the valve stem and spray button. An inverted cup-shaped overcap encloses the actuator and the upper end of the can. The actuator and overcap have cooperating disengageable locking means which prevent the movement of the actuator to effect discharge of the contents of the aerosol can. The locking means are disengageable by depression thereof with the hand. The cap is so constructed that a small child's hand cannot grip and disengage the locking means while an adult-sized hand can so disengage the locking means.

3,738,538

DISPENSER FOR FLOWABLE SUBSTANCES

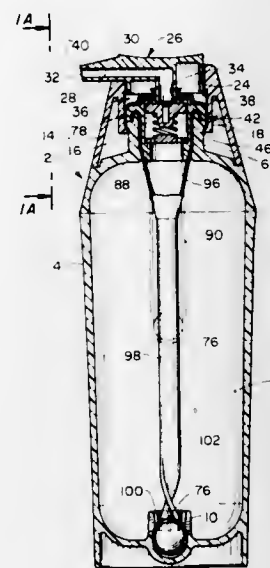
William H. Roper, Los Angeles, and Robert N. Ross, Fountain Valley, both of Calif., assignors to Plant Industries, Inc., Anaheim, Calif.

Filed Feb. 11, 1971, Ser. No. 114,485

Int. Cl. B67d 5/06

U.S. Cl. 222-183

26 Claims



A viscous fluid dispenser using an expandable member or bladder wherein longitudinal and radial stress is imparted to the material making up the expandable member, and wherein the expandable member is extendible substantially the entire length of the interior cavity of the container whereby substantially complete dispensing of the fluid retained within the expandable member is obtained. A unique assemblage of valve components of low cost and relatively easy fabrication permits

assembly of containers of the expansible bladder type in an efficacious manner thereby providing low cost containers.

3,738,539

SYRINGE WITH SELF-RETURNABLE PLUNGER

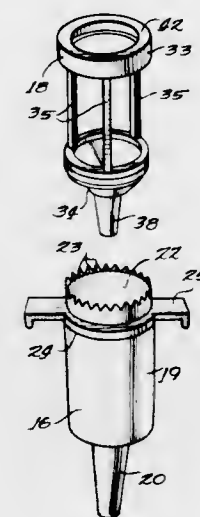
Frank R. Belch, Wilmette, Ill., assignor to American Hospital Supply Corporation, Evanston, Ill.

Continuation-in-part of Ser. No. 35,846, May 8, 1970, Pat. No. 3,661,152. This application June 3, 1971, Ser. No. 149,486

Int. Cl. A61m 5/00

U.S. Cl. 222-341

8 Claims



A plunger-type syringe is provided in which the plunger returns after it is depressed. The syringe includes an elastic membrane which is received by the tubular barrel and interposed between the barrel and the plunger. The open rear end of the barrel is provided with a plurality of circumferentially spaced rearwardly extending pointed projections, and a portion of the membrane extends over the projections and is secured against longitudinal movement thereby. Another portion of the membrane is engaged by the plunger for longitudinal movement with the plunger within the barrel, and as the plunger is depressed, the membrane is stretched and provides a force tending to return the plunger to its original position. When the plunger is released, the elastic membrane returns the plunger.

3,738,540

CONTAINER FOR CORROSIVE PRODUCTS TO BE STORED UNDER PRESSURE

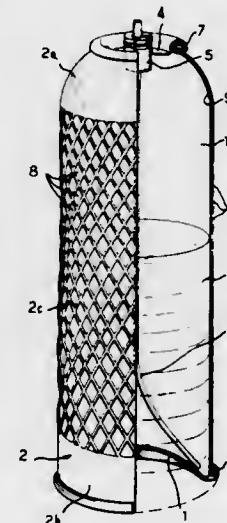
Bruno P. Morane, Paris, France, assignor to L'Oreal, Paris, France

Filed June 1, 1971, Ser. No. 148,396

Int. Cl. B65d 83/14

U.S. Cl. 222-397

4 Claims



Container for corrosive fluids to be stored under pressure comprises a strong, rigid, perforate can carrying a filling and

3,738,541

SPRA-MATE OVERCAP

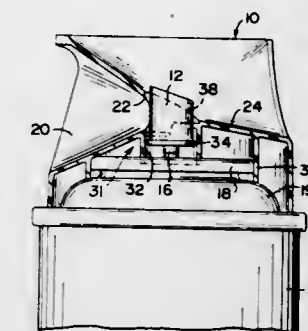
James E. Greenebaum, II, Highland Park, Ill., assignor to Seaquist Valve Company, Cary, Ill.

Filed Aug. 5, 1971, Ser. No. 169,256

Int. Cl. B65d 83/14

U.S. Cl. 222-402.1

4 Claims



A self-aligning aerosol overcap wherein the central button-receiving orifice includes a Z-shaped step or protrusion formed on the internal wall to control vertical actuation of the button and to avoid "hang-up" of the button on the spray orifice in the overcap. A key on the wall of the receiving orifice projects into a vertical groove in the button to provide automatic orientation of the terminal orifice of the button and the spray orifice in the overcap. This is accomplished by placing the overcap over the button such that the key rests on the top slanted surface of the button. By gravity, the overcap will thereafter slide and rotate relative to the button until the key drops into the vertical groove formed in the button.

3,738,542

VALVE FOR DELIVERING METERED AMOUNTS OF AEROSOL MATERIAL FROM CONTAINERS THEREFOR

Tomaso Ruscitti, Milan, Italy, assignor to Coster Tecnologie Speciali S.p.A., Milan, Italy

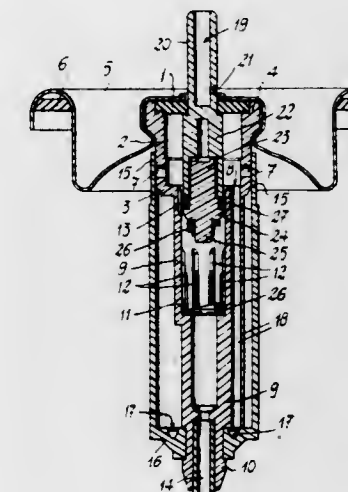
Filed Apr. 13, 1971, Ser. No. 133,526

Claims priority, application Italy, May 2, 1970, 24095 A/70

Int. Cl. B65d 83/14; B65b 3/04

U.S. Cl. 222-402.16

6 Claims



Valve for delivering metered amounts of aerosol materials from containers therefor. The valve comprises two bodies fast with each other and defining two distinct chambers communicating with each other. One of the chambers is connected to

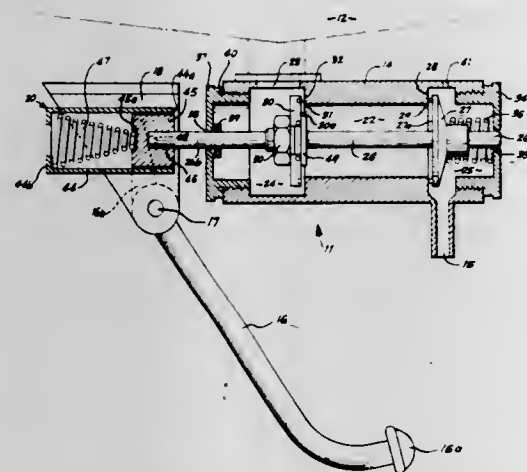
the container for the material to be delivered by a conduit, in which a piston is movably accommodated and fast with the valve stem, and allowing or inhibiting the communication between said conduit and the chamber connected thereto whether the stem is at rest, or is pressed for the material delivery.

3,738,543
MEASURING VALVE HAVING SPRING-LOADED ACTUATING MECHANISM

Peter J. A. Aperlo, 15952 Maracalbo, Hacienda Heights, Calif.
Filed June 1, 1971, Ser. No. 148,600
Int. Cl. G01f 1/16

U.S. Cl. 222-453

15 Claims



A valve for dispensing a measured volume of liquid includes a spring-loaded actuating mechanism. A measuring chamber is closed at either end by respective valve discs supported by a valve stem. The valve stem and discs are biased to open the inlet end and close the outlet end, thereby permitting liquid to fill the measuring chamber. When the valve stem is displaced by the actuating mechanism, the discs close the inlet end and open the outlet end to dispense a measured volume of liquid.

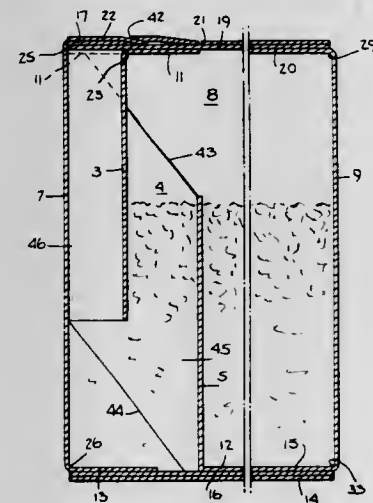
To insure rapid opening of the measuring valve, an actuating mechanism includes a piston slidingly disposed in a cylinder and attached to the valve stem. A pivotally mounted control lever moves the cylinder so as to compress against the piston a spring contained within the cylinder. When the compressed spring force exceeds the bias on the valve stem, the spring rapidly displaces the piston, valve stem and discs to the liquid dispensing position.

3,738,544
DISPENSING CARTON

Randolph F. Brown, Hempstead, N.Y., assignor to Owen W. Coleman Associates, Inc., New York, N.Y.
Filed July 26, 1971, Ser. No. 166,199
Int. Cl. G01f 1/26

U.S. Cl. 222-454

6 Claims



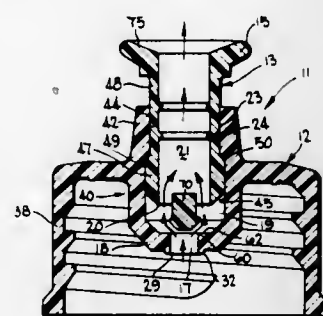
A carton provided with a plurality of chambers for dispensing predetermined measured quantities, which carton

includes a member providing both structural support and separation for the chambers.

3,738,545
SLIDING PLUNGER DISPENSING CLOSURE
Gerald L. Roy, Lancaster, Pa., assignor to Kerr Glass Manufacturing Corporation, Los Angeles, Calif.
Filed Mar. 12, 1971, Ser. No. 123,610
Int. Cl. B65d 4/28

U.S. Cl. 222-525

1 Claim



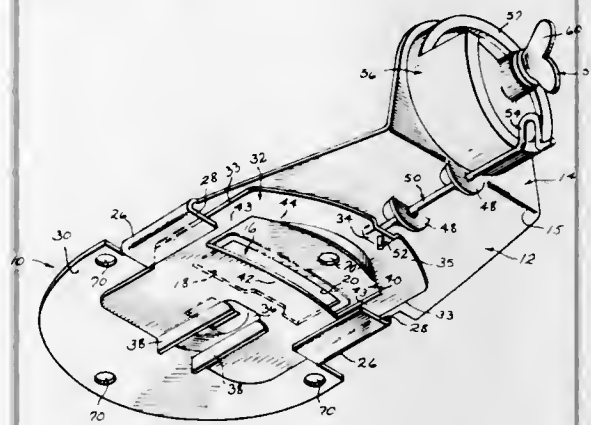
To prevent large increases in the force required to pull a sliding plunger of a dispenser closure to its open position and to prevent cold flowing of an enlarged annular sealing surface on the plunger, the annular sealing surface is located within the confines of a smaller diameter aperture when the plunger is in its closed position and blocking fluid flow. Preferably, the plunger is positively retained against popping up to the open position by a sealing ring which is deflected radially outwardly with insertion of the annular sealing surface therein and which, when deflected, exerts a gripping force on the annular sealing surface of the plunger.

3,738,546
METERING DEVICE FOR SECUREMENT TO THE HOPPER OR CONTAINER OF A DISTRIBUTOR OF SEEDS AND OTHER FLUENT MATERIAL

Paul L. Speicher, North Manchester, Ind., assignor to The Cyclone Seeder Company, Urbana, Ind.
Filed May 10, 1971, Ser. No. 141,550
Int. Cl. B67d 3/00

U.S. Cl. 222-561

1 Claim

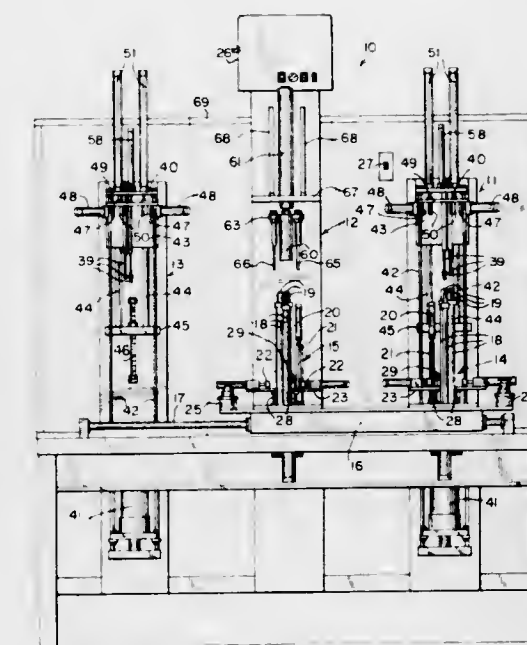


A device which can be secured to the hopper or container of a seed or other fluent material distributor and which serves to regulate the amount of seed or other material which passes from the container to the spreader or broadcaster of the distributor. The metering device includes a mounting plate which is securable to the bottom wall of the fluent material container and which has a discharge opening formed therein. A shiftable door plate is carried by the mounting plate and can be made to selectively cover a portion of the discharge opening in the mounting plate and thus regulate the effective area of the discharge opening.

3,738,547
GLOVE TURNING MACHINE
Travis Horton, Kewanee, Ill., assignor to Boss Manufacturing Company, Kewanee, Ill.
Filed Feb. 12, 1972, Ser. No. 243,236
Int. Cl. A41b 43/00

U.S. Cl. 223-40

11 Claims U.S. Cl. 223-85

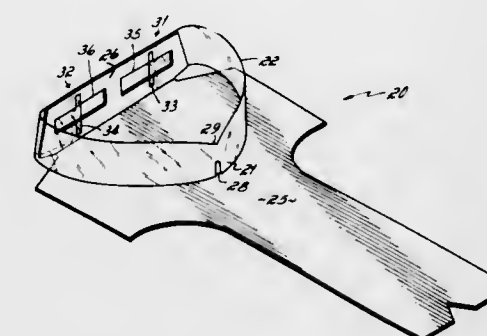


A semi-automatic machine to turn leather gloves or leather palm gloves right side out after sewing with the inner side out, which fully turns the leather finger tips fully and properly every time and which performs the turning operation completely and rapidly and avoids the necessity for specially poking the fingers out one finger at a time.

3,738,548
SELF-ADJUSTING SHIRT COLLAR SUPPORT
Robert I. Lojinger, 6405 Shadyglen, Cincinnati, Ohio
Filed May 25, 1972, Ser. No. 256,706
Int. Cl. D06c 15/00

U.S. Cl. 223-83

9 Claims

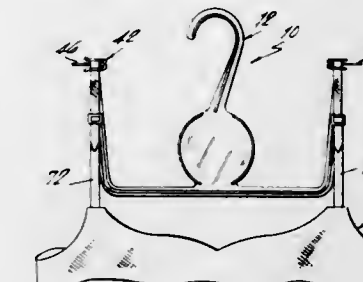


A paper shirt board around which a shirt is folded is provided with an upwardly folded flap to which is adjustably attached a transparent plastic shirt collar support. The collar support is inserted beneath the collar of a shirt and is provided with tabs which slide in slots in the flap of the board so that the support may assume the size of the collar of the shirt folded about the board. In another embodiment, elongated tabs are provided on the flap which insert into slots at the ends of the collar support. The collar support and shirt board are symmetrically designed, and a support centers on the front collar button of the shirt.

3,738,549
BRASSIERE HANGER AND DISPLAY SYSTEM
Walter Driscoll, Bridgeport, Conn., assignor to Warnaco Inc., Bridgeport, Conn.
Filed Nov. 1, 1971, Ser. No. 194,637
Int. Cl. A47j 51/094

U.S. Cl. 223-85

5 Claims



A brassiere hanger includes hanger arms arranged and constructed to receive the shoulder straps of a brassiere for displaying the brassiere in a dependent relation from said brassiere hanger. The brassiere hanger is so constructed that a plurality of brassiere hangers and the respective brassieres associated therewith may be stored in stacked relationship with the brassiere hangers one atop each other at the bottom of the stack and the respective brassieres one atop each other at the top of the stack.

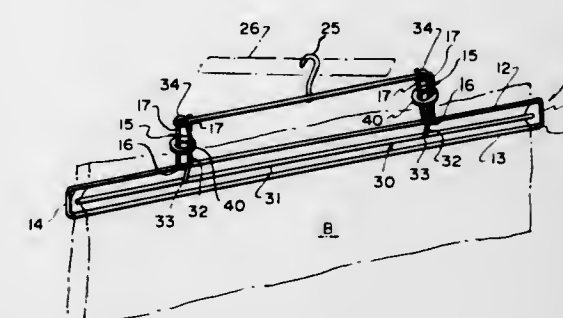
3,738,550
FABRIC HANGER
David Van Etta, Spring Grove, and Robert J. Ballenger, Highland Park, both of Ill., assignors to Central Specialties Co., Chicago, Ill.

Filed May 27, 1971, Ser. No. 147,501

Int. Cl. A47j 51/14

U.S. Cl. 223-85

9 Claims



A hanger assembly for bulky fabrics and the like, comprising an elongated closed loop member, a pair of upstanding members disposed on the upper edge of the closed loop member in opposed relationship with respect to one another, a crossbar interconnecting the upstanding members, a hook mounted on the crossbar for hanging the assembly from a rack or the like, and a clamping member pivotally mounted on the crossbar and constructed to be swivable throughout an arc transverse to the plane of the closed loop member thereby to grasp and firmly hold bulky fabrics between an edge of the clamping bar and the side edges of the closed loop member.

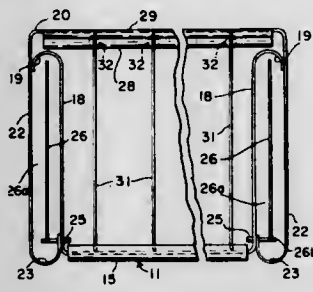
3,738,551
ARTICLE HOLDING DEVICE
Helmut Dieter, P.O. Box 1408, New Port Richey, Fla.
Filed Oct. 5, 1971, Ser. No. 186,711
Int. Cl. A45c 1/04

U.S. Cl. 224-26 R

5 Claims

A device for securing articles in place which includes two casing units. One casing unit supports resilient members for

holding articles inserted into the watch against a wall member of the other casing unit. The two casing units are movable from one tooth position to the next. A second control means in the form of a tape controls, inter alia, the selection of the



away from each other against a restraining force exerted by biasing members disposed therebetween to accommodate articles of different sizes.

3,778,552

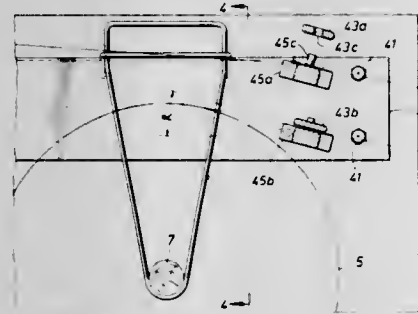
CUTTING MEANS FOR ROLLED SHEET MATERIAL

Richard C. Roeder, 8111 Bromley, Houston, Tex.
Filed Mar. 11, 1971, Ser. No. 123,292

Int. Cl. B26f 3/02

U.S. Cl. 225-34

11 Claims



A cutting means for rolled sheet material such as wrapping paper and the like in which one or more rolls of wrapping paper are mounted on a sliding channel which is, in itself, supported by a rolling track. Both the channel and the track are adapted to telescope one another so as to enable movement of the roll out from under a wrapping counter so as to thereby facilitate loading and unloading of the roll to and from the cutter means. Hanger means are easily and detachably mounted to the sliding channel and are adapted to support the axle of the rolled sheet material. Separate cutting means are provided for each material roll as are cutting weights which are intended to bear upon the material surface and preclude ragged edges as the material is being severed by the cutting means.

3,738,553

MACHINE FOR THE PREPARATION OF PATTERN CARRIERS FOR CIRCULAR KNITTING MACHINES

Dennis Gell, Leicester, and Jan Hogbart Hvidsten, Ashby de la Zouch, both of England, assignors to Stibbe-Monk Developments Limited, Leicester, England

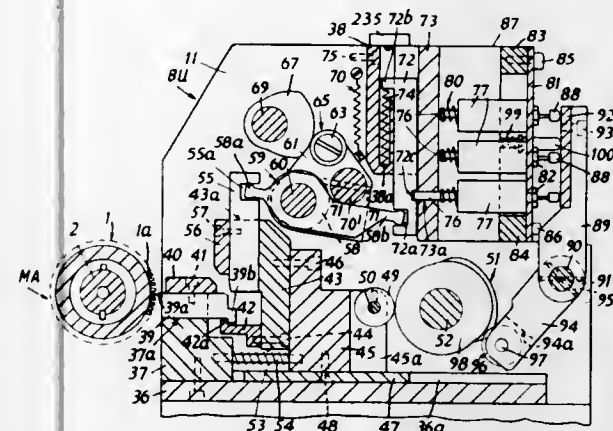
Filed Feb. 22, 1972, Ser. No. 228,030

Int. Cl. B26f 3/00

U.S. Cl. 225-97

20 Claims

A machine for breaking off peripheral teeth from pattern discs used on knitting machines. The machine has a mandrel for holding the discs. The mandrel is operated from a first control means comprising both a gear box arrangement including gear and camming mechanism for imparting intermittent relative longitudinal movement between the mandrel and teeth breaking-off tools, and also an electrically controlled incremental drive means for intermittently rotating the mandrel



breaking-off tools. The first and second control means are caused at the dictates of a third control means to function strictly in unison with one another.

3,738,554

CONTINUOUS AUTOMATIC FRANKFURTER UNLOADER

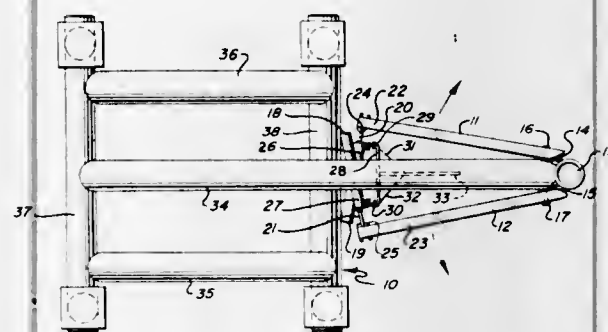
W. H. Neubeck, Jr., Chicago, and Anthony J. Kloska, Chicago Heights, both of Ill., assignors to The Griffith Laboratories, Inc., Chicago, Ill.

Filed June 30, 1972, Ser. No. 268,151

Int. Cl. B65h 17/42

U.S. Cl. 226-104

8 Claims



Apparatus for unloading festoons of tubed edible material, such as sausage, depending from hangers moving along a predetermined path. The apparatus includes a dislodger, responsive to the movement of the hangers, which urges the festoons of sausage laterally off of the hangers.

3,738,555

APPARATUS FOR MOVING WIRE

Donovan Karnes, and Marlon F. Centlivier, both of Troy, Ohio, assignors to Hobart Brothers Company, Troy, Ohio

Division of Ser. No. 40,189, May 25, 1970, abandoned. This application July 7, 1972, Ser. No. 269,721

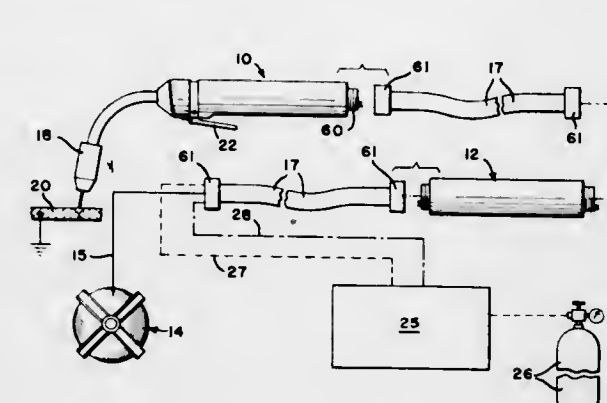
Int. Cl. B65h 17/24

U.S. Cl. 226-168

8 Claims

An apparatus for moving cylindrical members, particularly welding wire, includes a rotary to linear actuator having an axially extending opening through which wire is fed, at least a pair of opposed rollers mounted on the actuator body, the axis of each being skewed or inclined relative to the direction of wire feed, which rotate with the body to impart a component of force to the wire to move it linearly through the actuator.

Each roller is carried by an arm pivotally mounted on the actuator body and each arm includes a centrifugal weight which forces the roller against the wire as the actuator is rotated. Biasing means, such as torsion bars or small springs assist in



holding the rollers against the wire at low rotational speeds. The actuator may be rotated by a motor having an axially extending opening through its armature through which the wire may be fed to the actuator.

3,738,556

APPARATUS FOR GUIDING A FOIL WEB

Ludwig Grebe, Wallau/Lahn, Germany, assignor to Kramer & Grebe KG Maschinen und Modellfabrik, Wallau/Lahn, Germany

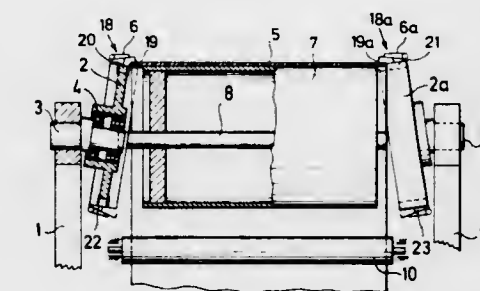
Filed May 10, 1972, Ser. No. 251,915

Claims priority, application Germany, May 11, 1971, P 21 23 133.4

Int. Cl. B65h 17/34

U.S. Cl. 226-173

2 Claims



A foil web of indefinite length is advanced in a taut condition along one part of its path of travel by a series of jaws clamped along both lateral edges of the web. The jaws are attached to the links of two endless chains disposed at either side of the web. Those terminal sprockets of the two chains that are at the run-in location of the web are slightly inclined to one another, so that the distance between the two said sprockets at the run-in side of the chains is slightly larger than at the run-off side. Between the two said sprockets there is rotatably held a web guiding drum which positions the running web at the height of the jaws as they run off the sprockets at the run-in side of the web.

3,738,557

TRANSFER DEVICE ON METAL PEELING MACHINES

Karl Gustav Weck, Solingen-Wald, Germany, assignor to Th. Kieserling & Albrecht Company, Solingen, Germany

Filed Nov. 15, 1971, Ser. No. 198,893

Claims priority, application Germany, Nov. 13, 1970, P 20 55 888.7

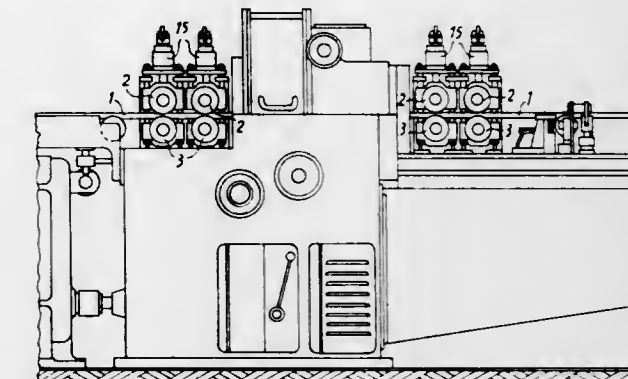
Int. Cl. B65h 17/22

U.S. Cl. 226-177

4 Claims

A workpiece transfer device on metal peeling machines, having pairs of driven rolls adapted for rotating opposite to

each other and for adjustable radial movement in relation to the workpiece by means of double acting pistons. The rolls are



frame mounted and the latter are connected together by mechanical coupling elements.

3,738,558

THIN LAMINATED GASKET

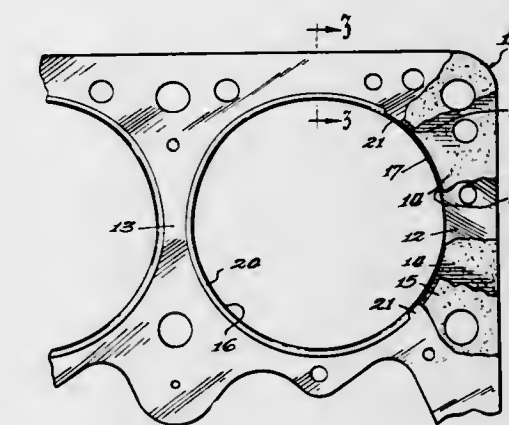
Otha Leroy Colwell, Mount Prospect, Ill., assignor to Felt Products Mfg. Co., Skokie, Ill.

Continuation-in-part of Ser. No. 756,908, Sept. 3, 1968, abandoned, which is a continuation-in-part of Ser. No. 458,833, May 17, 1965, abandoned, which is a continuation-in-part of Ser. No. 385,747, July 28, 1964, abandoned. This application Sept. 2, 1970, Ser. No. 68,935

Int. Cl. F16j 15/06

U.S. Cl. 277-235 B

5 Claims



A thin gasket for high compression engines comprises two outer metal sheets of uniform thickness within a range of from 0.0055 to 0.0085 inch and a filler having a compressible section with a total thickness no greater than 0.015 inch. The compressible section of the filler may comprise one or two sheets of impregnated fibers, and if only one sheet is used, the filler may also include a thin metal shim of the same thickness as one of the outer sheets and is positioned between the upper surface of the filler sheet and the upper outer sheet. The bottom sheet has flanges bent over the outer edges of the upper sheet and they are compressed to provide a gasket of uniform thickness totaling less than 0.030 inch.

3,738,559

FLASH CUBE ASSEMBLY SYSTEM

William B. Tyndale, Waverly, Pa., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed July 23, 1971, Ser. No. 165,565

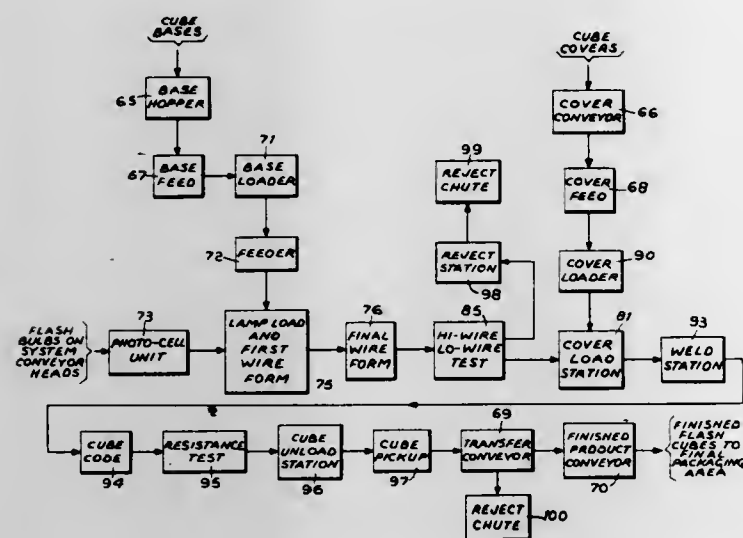
Int. Cl. B23k 1/06

U.S. Cl. 228-1

7 Claims

This disclosure relates to a fully automated, electro-mechanical system designed to apply a plastic coating to in-

dividual flash bulbs and then assemble them into fully tested flash cube assemblies, each containing four bulbs. The system essentially is made up of separate subsystems: fluid transfer,



coating, and cube module. These subsystems are mounted on a system conveyor chassis which also contains monitoring devices to check conditions of the flash bulbs.

3,738,560

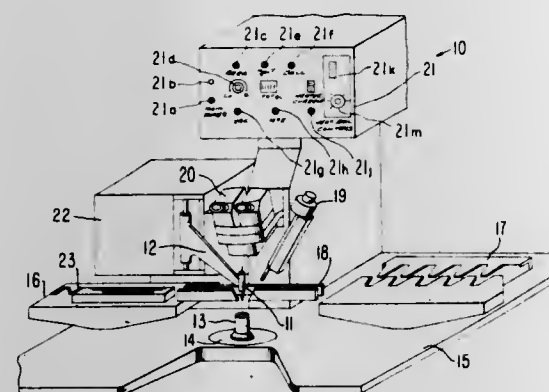
SEMICONDUCTOR DIE BONDER

Frederick W. Kulicke, Jr., and John J. Lepone, both of Philadelphia, Pa., assignors to Kulicke and Soffa Industries, Inc., Fort Washington, Pa.

Filed Dec. 8, 1970, Ser. No. 96,213
Int. Cl. B23k 1/14

U.S. Cl. 228-10

13 Claims



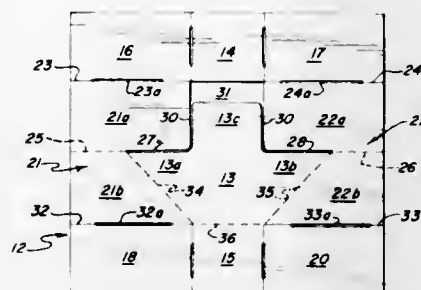
In a die bonder for use in bonding semiconductor dice to bonding pads, a plurality of dice to be bonded to bonding pads are placed in a first horizontal plane on a movable pedestal beneath a second horizontal plane in which the bonding pads are located. A die is picked up and transferred from a holding tray on the pedestal in the first horizontal plane to a bonding pad properly positioned in the second horizontal plane. The die to be picked up is properly located by placing it in a light beam from a spotlight. The bonding pad is contained on a support structure — typically a lead frame strip — which is automatically indexed along a heating rail such that once each cycle of machine operation a bonding pad is properly positioned to receive a die. The structure for picking up and transferring the die and the structure for moving the support structure along the heating rail are powered through five cams mounted on a single shaft which in turn is driven by a motor. The motor is shut off twice each bonding cycle for a selected but variable period of time to allow the bonding rate of the machine to be adjusted to operator proficiency.

3,738,561
SPACE DIVIDER
Terrill L. Nederveld, Neffsville, Pa., assignor to Packaging Corporation of America, Evanston, Ill.

Filed May 12, 1972, Ser. No. 252,600
Int. Cl. B65d 5/48

U.S. Cl. 229-15

10 Claims



A space divider is provided which is formed from a single blank of sheet material. The divider is adapted to be used in combination with a container wherein the interior thereof is formed into a plurality of contiguous compartments. The divider will be automatically set up for disposition within the container by a simple folding manipulation.

3,738,562

STACKING BOX FOR TRANSPORTATION AND STORAGE OF FRUIT

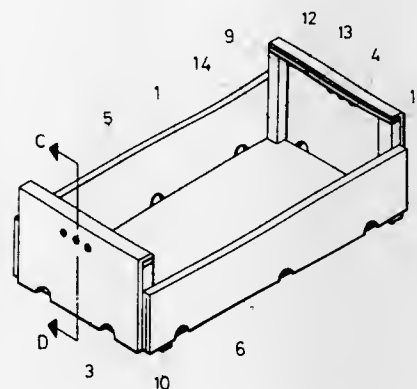
Shlomo Jacques Schwarz, Sangre 9, Valencia, Spain
Filed June 7, 1971, Ser. No. 150,528

Claims priority, application Spain, July 16, 1970, 160,378; Oct. 6, 1970, 162,207; Oct. 7, 1970, 162,244

Int. Cl. B65d 13/00, 19/06

U.S. Cl. 229-23 C

6 Claims

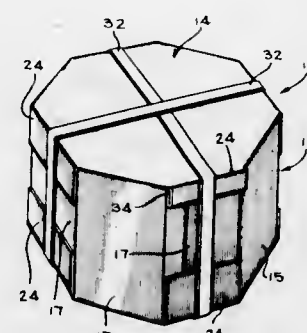


Stacking box for transporting and storing fruit made from sheets of cardboard or the like having reinforced sides with the stiffened front and back higher than the sides. Centering means for stacking are provided made from two rectangular shaped sheets transversely divided into three parts each crossing each other in assembly so that their respective middle zones which are of equal dimensions, are superimposed and folded in such a way that their ends are vertically located and related to each other by the stiffening bars in front and back. The superimposition of the middle parts is effected so that the part whose extremes are prolonged on the front and back remains on top. The stiffening bars in front and back may be prismatic slats whose bases are shaped in isosceles rectangle triangles which are joined by one of their faces defined between legs to the longitudinal borders of the ends which constitute the front and back, having the other face defined between legs facing outward.

3,738,563
CONTAINER
Stephen L. Eifrid, 641 61st Place, La Grange, Ill.
Filed Aug. 3, 1970, Ser. No. 60,431
Int. Cl. B65d 13/00

U.S. Cl. 229-23 BT

6 Claims



A container having a hollow tubular section of polygonal cross section with two end closure members each having a flat center section of the same shape and approximate size as the cross section of the tube and a plurality of tabs projecting from the periphery of the central section and interlocking with the end portions of the tube. In a method of assembling the container, some of the flaps of one end closure are inserted between portions of the contents prior to enclosure of the contents by the tube.

3,738,564

HEXAGONAL PACKAGE UNIT

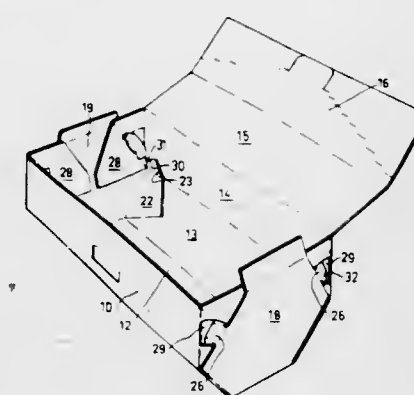
Karl Rune Persson, Halmstad, Sweden, assignor to Sprinter Pack AB, Halmstad, Sweden
Filed Apr. 7, 1971, Ser. No. 132,089

Claims priority, application Sweden, Apr. 14, 1970, 5055/70

Int. Cl. B65d 5/26

U.S. Cl. 229-36

3 Claims



A hexagonal carton has six side panels and two end panels. One side panel forms a closure panel and the two panels adjacent thereto are connected with the end walls through a lost motion connection enabling said two panels to be raised to a position in which they are substantially parallel with each other when the closure panel is open.

3,738,565

FREE STANDING BAG

Kenneth E. Ackley, Pittsford, and William L. Courtney, Palmyra, both of N.Y., assignors to Mobil Oil Corporation, New York, N.Y.

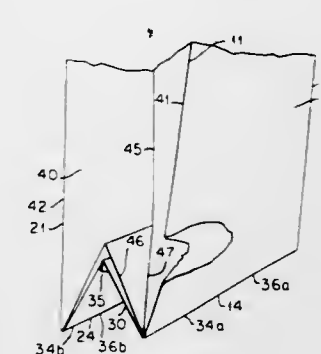
Filed Aug. 10, 1970, Ser. No. 62,460
Int. Cl. B65d 33/10, 33/02

U.S. Cl. 229-55

18 Claims

To provide a free standing bag of plastic material so that it will be useful as a grocery bag, a bag is formed folded with a triangular bottom insert to form a flat bottom having a central crease, the crease lines being pre-formed in the bag so that it

can be erected and will have side walls completely free of creases; the side walls of the bags themselves are preferably embossed, striated, or quilted of double strength material, with embossing or quilted lines extending, preferably, in two



vectorial directions with respect to the height of the bag so that the bag will have stiff, self-supporting free standing side walls and can be filled from the top without requiring any additional holders or supports.

3,738,566

FLEXIBLE PACKAGES

Norman Foster, Millbank, London S.W. 1, England, assignor to British-American Tobacco Company Limited, London, England

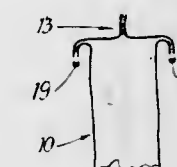
Filed Oct. 14, 1971, Ser. No. 189,147

Claims priority, application Great Britain, Oct. 19, 1970, 49,565/70

Int. Cl. B65d 33/16

U.S. Cl. 229-62

4 Claims



A flexible pouch having an openable closure comprising a closure element arranged to close an opening in the pouch, at least one edge part of the opening being folded relative to the remainder of the body, and a seal for detachably sealing said one edge part of the opening by adhesion to at least one overlapping edge part of said closure element, the seal being produced by coating at least one of the surfaces where the seal is to be provided with an adhesive which is reactivatable by the application of heat and/or pressure.

3,738,567

DRAW BAND CLOSURE BAG

Raymond J. Ruda, Chicago, Ill., assignor to Bagcraft Corporation of America, Chicago, Ill.

Filed Jan. 19, 1970, Ser. No. 3,761

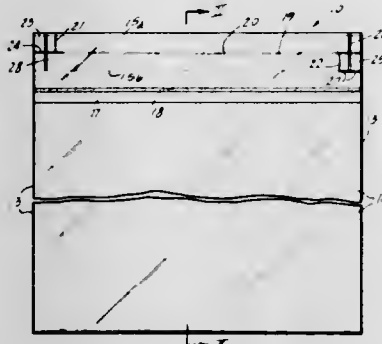
Int. Cl. B65d 33/16

U.S. Cl. 229-62

17 Claims

A bag made from pliable sheet material has about its mouth a flat, folded, tubular lip tunnel with a flat draw band therein comprising only flexible sheet material. The draw band is

adapted to be grasped at a tunnel opening to pull the draw band partially through the opening and to draw the tunnel



area into puckered mouth-closing relation on that portion of the draw band which remains in the puckered area.

3,738,568

BAG WITH DRAW BAND SEPARABLY INTEGRAL WITH BAG BODY

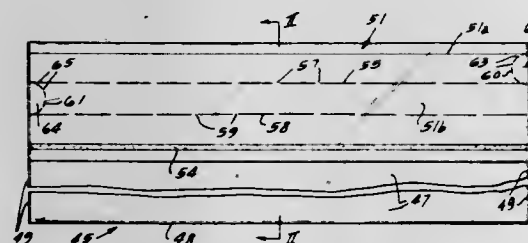
Raymond J. Ruda, Chicago, Ill., assignor to Bagcraft Corporation of America, Chicago, Ill.

Filed Jan. 6, 1971, Ser. No. 104,414

Int. Cl. B65d 33/16

U.S. Cl. 229-62

16 Claims



A draw band closure bag constructed from pliable sheet material has about its mouth a flat, folded, tubular lip tunnel with a flat draw band therein comprising partially separated material of the body of the bag enclosed within the tunnel and separable from the bag body by pulling the band from the tunnel while puckering the material of the tunnel into mouth-closing relation on that portion of the draw band which remains in the puckered area.

3,738,569

PUNCH PRESS

John S. Killaly, Sr., Apt. J-4, Jamestown Village Apt., Willow Grove, Pa.

Filed Nov. 30, 1970, Ser. No. 93,612

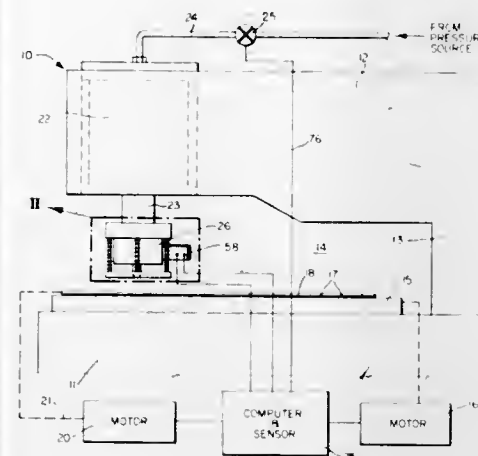
Int. Cl. B26f 1/04

U.S. Cl. 234-43

14 Claims

A punch press is provided, wherein the punch cylinder head carries a plurality of punches, such that, as the cylinder head is moved downwardly toward the workplate or table, to engage the work, all of the punches descend with the cylinder head, but with only one of the punches being normally actuated to perform a punching operation, with the remaining punches carried by the cylinder head being retractable upon engaging the workpiece. A solenoid may be used to actuate a punch that is to work, by moving a "key" or "gag" into position behind the punch that is to be used. The punch that is to be fixed against retraction may be automatically operated, as by being programmed from a computer, which selects a given punch to perform a given operation, depending upon cards or tapes that are programmed into the computer to control the same, with the computer or similar control device also controlling the movement of the workpiece, and by controlling the movement of the worktable or workplate. For more complex operations, in which many different types of holes would be desired in a

given workpiece for example, a plurality of cylinder heads (for example six or more), may be utilized in a bank, each with a plurality of punches carried thereby and operated in the manner discussed above. However, this latter system generally utilizes a two-stage selection device, whereby one selection is operative by actuating hydraulic valves or the like for controlling the downward movement of one of the six or more



cylinder heads, with the other stage comprising the actuation of one of the punches carried by the cylinder head to be utilized, by moving a "key" or "gag" behind the punch as aforesaid. In the two-stage device of this invention, the computer will usually effect both selections, as well as the workplate motion, generally based upon such parameters as minimizing workpiece motion and the like.

3,738,570

NUMERICAL COUNTER WITH COAXIAL DISPLAY DRUMS

Paul Vogt, 2208 Les Hauts-Geneveys, Switzerland, assignor to Ebauches Electroniques S.A., Neuchatel, Switzerland

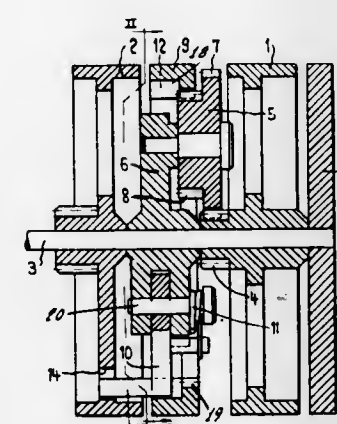
Filed June 21, 1971, Ser. No. 155,447

Claims priority, application Switzerland, July 7, 1970, 10263/70

Int. Cl. G06c 15/26

U.S. Cl. 235-133 R

7 Claims



A numerical counter having coaxial drums, wherein a driving drum entrains a planet wheel pivoted on a planet wheel carrier and rolling inside a fixed sun wheel, the device being such that when the driving drum turns in a predetermined direction it turns the planet wheel carrier, a resilient member is primed gradually and then abruptly drives a subsequent drum.

3,738,571

WAX CAPSULE VALVES

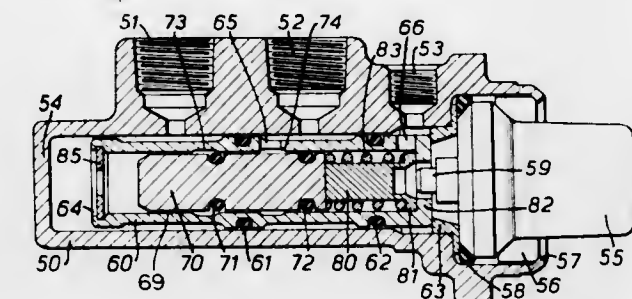
Arthur Ernest Henry Elmer, Painswick, England, assignor to Dynair Limited, Nailsworth, Gloucestershire, Great Britain

Filed May 21, 1971, Ser. No. 145,846

Int. Cl. G05d 23/275

U.S. Cl. 236-100

3 Claims



A thermostatic valve in a pneumatic control for a clutch in a cooling fan drive has a sliding spool and two inner valve plungers to connect an actuating ram in the fan hub either to pressure or relief, the clutch being normally engaged by spring pressure. If the supply pressure falls the valve automatically shuts off the pressure to the fan and the fan clutch engages positively by the spring action.

3,738,572

AIR FLOW CONTROL SYSTEM

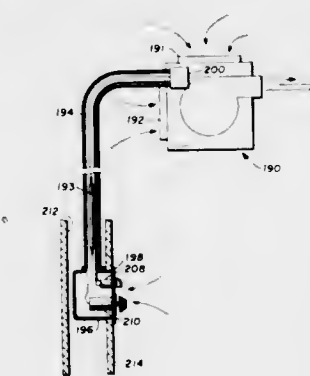
William K. Hall, Jr., 4539 Bobblitt, Dallas, Tex.

Continuation-in-part of Ser. No. 636,748, May 8, 1967, Pat. No. 3,669,349, which is a continuation-in-part of Ser. No. 577,298, Sept. 6, 1966, abandoned. This application Dec. 30, 1971, Ser. No. 214,350

Int. Cl. F24f 11/00

U.S. Cl. 236-49

8 Claims



Environmental temperatures are controlled by selectively proportioning air flow from a pair of air flow paths by generation of a force proportional to temperature and dependent solely upon temperature for oppositely and proportionally changing registration of small openings in pairs of perforated plates laterally disposed in the air flow paths. A direct-acting, expandable-material, temperature-sensitive device is located adjacent those perforated plates and is used to generate that force; and a remote-control system permits the set point of that temperature-sensitive device to be adjusted.

3,738,573

EXPANSION VALVE

John T. Eschbaugh, Chesterland, and Darwin R. Grahl, Novelty, both of Ohio, assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Feb. 18, 1971, Ser. No. 116,551

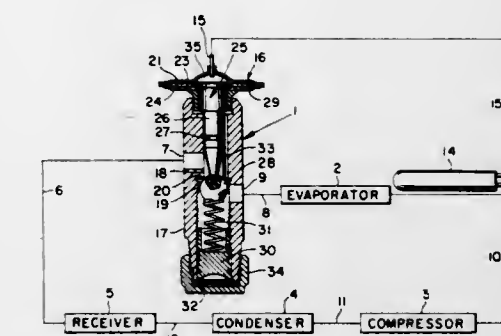
Int. Cl. F25b 41/04

U.S. Cl. 236-92 B

4 Claims

An expansion valve for a compression refrigerating system characterized in that the valve member thereof which controls the flow of refrigerant from the condenser to the evaporator

has a stem portion on the inlet side of the seat which pressure balances the refrigerant pressure in the inlet port of the valve



3,738,574

APPARATUS FOR ATOMIZING FLUIDS WITH A PIEZOELECTRICALLY STIMULATED OSCILLATOR SYSTEM

Max Guntersdorfer, Munich, and Walter Heywang, Neukirch, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

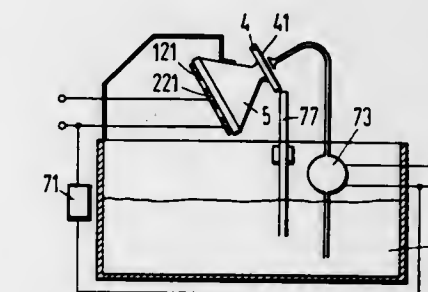
Filed June 30, 1971, Ser. No. 158,473

Claims priority, application Germany, June 15, 1971, P 21 29 665.1

Int. Cl. B05b 3/14

U.S. Cl. 239-102

8 Claims



Apparatus for atomizing liquids having a piezoelectric oscillator system which includes an AC voltage stimulated piezoelectric transducer mechanically coupled to a vibrator plate for inducing bending vibrations therein, a fluid tank and a pump for delivering fluid to the vibrating plate which is disposed at an oblique angle with respect to the force of gravity above the tank, a wick extending from the tank with one end thereof in proximity to the lower edge of the vibrating plate to aid in diverting excess liquid from the plate, and means for controlling operation of the fluid delivery system for deactivating the same during periods when the oscillator system is inactive.

3,738,575

AUTOMATIC WINDSHIELD WASHER RESERVOIR FILLING AND MIXING MEANS

Albert Somer, 124 North 7th Street, New Hyde Park, N.Y.

Filed Nov. 22, 1971, Ser. No. 200,887

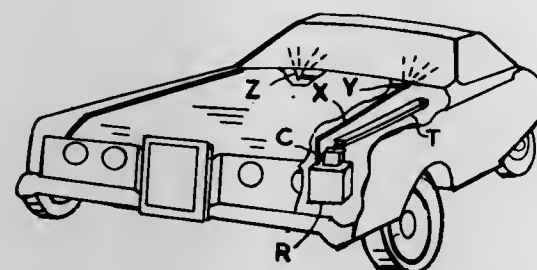
Int. Cl. B60s 1/50

U.S. Cl. 239-284

1 Claim

Automatic windshield washer means for a vehicle of the type having a reservoir and spray nozzles. Means are provided to collect rain water and car wash water from the outer surface of said vehicle and means to feed said collected water to

said reservoir. Control valve means are connected to said cup shape with downwardly dished top wall for cooling purposes; the rim of the cup being anchored to a base plate by lanced and struck-in portions of a flange.



means to trap sediment and add cleaning agents to the collected water.

3,738,576

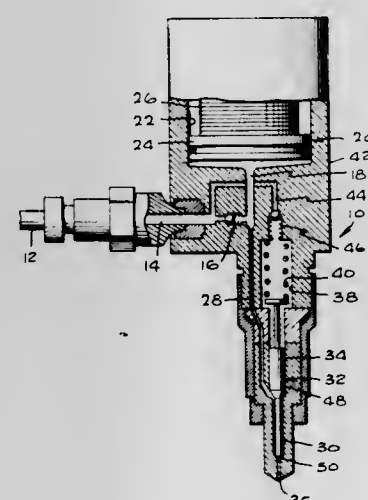
INJECTION NOZZLE FOR DIRECT INJECTION ENGINE
Cormac G. O'Neill, Lafayette, Calif., assignor to Physics International Company, San Leandro, Calif.

Filed Apr. 21, 1971, Ser. No. 135,930

Int. Cl. F04b 7/04

U.S. Cl. 239—533

5 Claims



An improved needle valve spring apparatus for a fuel injection assembly of the type wherein pressured fuel from a supply conduit is pumped at each cycle to a needle valve which opens to allow the pumped fuel to enter the combustion cylinder. The spring chamber that supplies spring force to the needle valve member to normally keep it closed, and that heretofore contained only a coil spring, is filled with pressured fuel that acts as a spring. The spring chamber is sealed against the outflow of fuel therefrom, and a passage with a check valve therein connects the pressurized fuel supply line to the spring chamber to fill the spring chamber with pressurized fuel when the engine is started.

3,738,577

BURNER STRUCTURE

Eugene J. Blanz, and Donald E. Duperow, both of Bloomfield Hills, Mich., assignors to Lincoln Brass Works, Inc., Detroit, Mich.

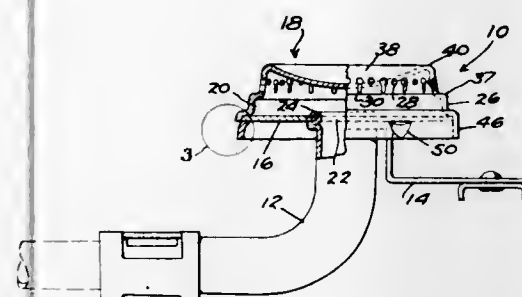
Filed July 19, 1971, Ser. No. 163,620

Int. Cl. B05b 1/14

U.S. Cl. 239—568

12 Claims

Burner for domestic gas ranges has alternate small burner ports and larger key-hole shaped burner ports; has inverted



poses; the rim of the cup being anchored to a base plate by lanced and struck-in portions of a flange.

3,738,578

PERMANENT MAGNET ARMATURE VALVE

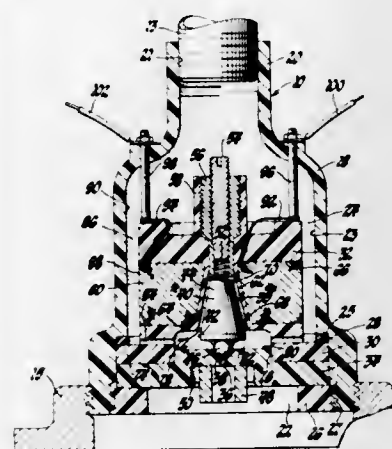
John M. Farrell, Detroit, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 4, 1971, Ser. No. 186,177

Int. Cl. B05b 1/32

U.S. Cl. 239—585

3 Claims



A solenoid-type valve for use in a fuel injection system has a non-magnetic valve body and a coil with an axially extending non-magnetic core, a portion of which is tapered. Translatable within the core is valve means including a permanent magnet armature, the pole regions of which are spaced generally proximate the pole regions of opposite polarity of the coil. The coil upon energization provides a magnetic field that builds up rapidly in the core. This field has a density which increases axially from one pole region at the wide end of the core to a pole region of opposite polarity at the small end. The valve means is normally biased to a closed position when the coil is deenergized, and the field of the coil when energized cooperates with the permanent magnet armature to immediately effect a force to translate the valve means in the direction of increasing field density to an open position.

3,738,579

COMBINATION MANURE LOADER AND SPREADER

Robert E. Bretz, R. R. No. 2, Coggon, Iowa

Continuation of Ser. No. 73,434, Sept. 18, 1970, abandoned.

This application Dec. 13, 1971, Ser. No. 207,241

Int. Cl. A01c 3/06, 7/08

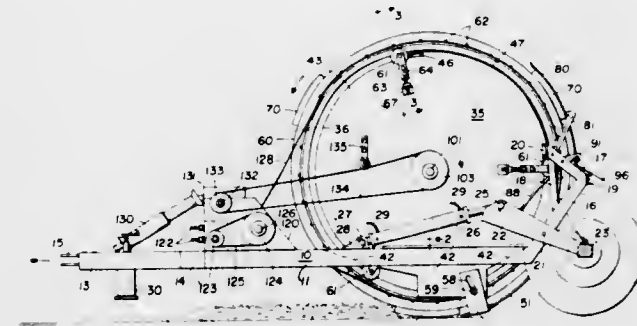
U.S. Cl. 239—651

22 Claims

A combination manure loading and spreading machine employs a drum-shaped container, horizontally mounted transversely of the direction of travel of the machine, on a tractor drawn wheeled frame. The drum is movable between lower and upper positions relative to the ground. When in its lower position, a scoop beneath the drum picks up the manure as the machine travels and an assembly of blades revolving concentrically about the drum carries the manure up from the scoop and dumps it into the drum through an upper opening therein.

When the drum is later raised to its upper position and the machine driven off to a field, a flail assembly in the drum unloads the manure, both the blade and the flail assemblies being alternately power driven from the tractor.

The flail assembly itself is improved by the provision of a pair of discs adjacent individual flails and spaced inboard from the ends of the flail drive shaft one quarter the length of the



latter. The discs are provided with a pair of large notches in their rims and a pair of rigid arms is pivoted adjacent the rim of each disc at diametrically opposite locations, the arms being fitted with short lengths of chain flail. The discs, arms and short flails cut initial paths through the manure in the drum so that the other flails get into operation more quickly and easily.

3,738,580

METHODS OF PROCESSING UNCURED RUBBER AND LIKE RAW MATERIALS, AND ARTICLE THEREFOR

Wilbur E. Harris, Indianapolis, Ind., assignor to Uniroyal, Inc., New York, N.Y.

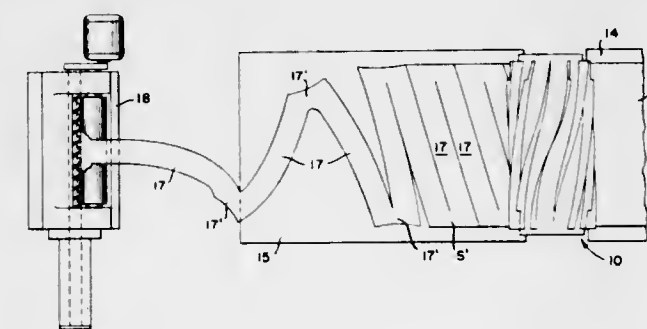
Division of Ser. No. 65,673, Aug. 20, 1970, which is a continuation of Ser. No. 537,474, March 25, 1966, abandoned.

This application Feb. 24, 1972, Ser. No. 229,072

Int. Cl. B02c 23/02

U.S. Cl. 241—30

10 Claims



The processing of uncured rubber or like raw material, which is normally produced, stored and shipped in sheet form but which is to be subjected to a continuous and uniform strip feeding into an extruder, mill or like treating apparatus, is disclosed. For this purpose, there is provided in a sheet of such material a plurality of slits extending across the sheet and spaced from each other longitudinally of the sheet, the slits in an alternating sequence starting at the opposite side edges of the sheet and each terminating short of the respective other side edge of the sheet. When one end portion of the slit sheet is introduced into the bite of the apparatus, the sheet is subjected to a pulling force and separates along the slits into a continuous zig-zag strip. Apparatus for slitting the sheet in the indicated manner is also disclosed. This abstract is not to be taken either as a complete exposition or as a limitation of the present invention, however, the full nature and extent of the invention being discernible only by reference to and from the entire disclosure.

3,738,581

MACERATING PUMP WITH MEANS FOR PREVENTING BLOCKAGES

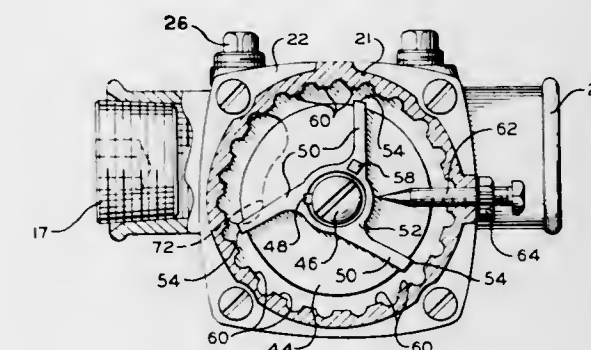
Alfred P. Gallaresi, Solvay, and Walter V. Kurgan, Manlius, both of N.Y., assignors to Oberdorfer Foundries, Inc., Syracuse, N.Y.

Filed Oct. 12, 1971, Ser. No. 188,048

Int. Cl. B02c 18/40

U.S. Cl. 241—46.02

14 Claims



A pump including means at the inlet for grinding maceratable solids into a pumpable slurry. One or more stripper picks or sharp projections extend radially inward adjacent the inlet side of a rotating grinder wheel having a sharp edged boss projecting outwardly to rotate in close proximity to the stationary point of the pick, thereby preventing rotational blockage by sewage masses entwining on the rotating wheel or stationary blockage to flow in advance of the wheel.

3,738,582

APPARATUS FOR COMMINUTING, SEPARATING, MANIPULATING AND PUMPING MATERIALS

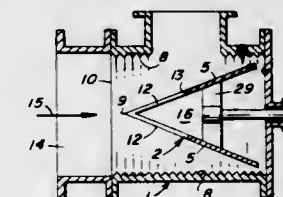
Georg Neidl, IM Bisch 664, Schaan, Liechtenstein

Filed Nov. 18, 1971, Ser. No. 199,964

Int. Cl. B02c 13/10

U.S. Cl. 241—46.11

22 Claims



Apparatus for pumping and comminuting, and otherwise treating viscous and semi-solid materials includes a housing having an axial inlet and tangential outlet and a rotor in the housing having at least one semi-cylindrical blade disposed at an angle to the axis of rotation, the straight edge of the blade facing the inlet and having a medially disposed recessed cut out portion to prevent back-up and jamming of materials.

3,738,583

APPARATUS FOR MIXING, BLENDING, LIQUIFYING OR CHOPPING

Abram Berland, and Moises Berland, both of Rua Barra do Tibagi, 258 - Bom Retiro, Sao Paulo, Brazil

Filed Feb. 22, 1971, Ser. No. 117,427

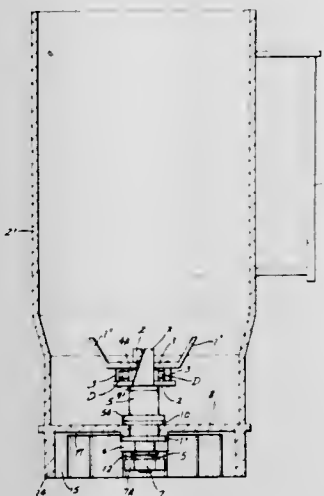
Int. Cl. A47J 43; B02c 18/12

U.S. Cl. 241—46.17

8 Claims

An improved apparatus for liquefying, mixing and blending material, particularly foods, including a cup-shaped receptacle adapted to be mounted on a base containing a drive motor therein. The bottom wall of the receptacle has an opening therein, and a drive shaft extends through the opening and is sealingly engaged with the bottom wall. The lower end of the drive shaft is adapted to be releasably coupled to the drive motor. The upper end of the shaft has a blade set non-rotatably but removably connected thereto and positioned within the in-

terior of the receptacle. The blade set includes two vertically spaced blades connected by pins. The drive shaft has radially



extending projections adapted to drivingly engage the connecting pins of the blade set.

3,738,584

DEVICE IN STRIKING CUTTERS

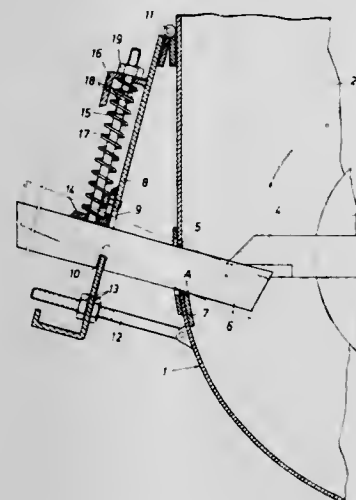
Sven Jorgen Gerhard Gronberg, Ottum L6, Kvanum, Sweden
Filed Oct. 16, 1970, Ser. No. 81,414

Claims priority, application Sweden, Oct. 17, 1969, 14248/69

Int. Cl. B02c 13/06

U.S. Cl. 241—190

5 Claims



A striking cutter for disintegrating crops or the like in which a rotor having radially projecting knife arms which, during rotation, pass between a plurality of counterknives detachably arranged in a row on a holder, with the holder being pivotably suspended in the rotor housing and the counterknives being pivotably journaled and supported by a rest thereby enabling the counterknives to be partly or totally disengaged from the knife arms of the rotor.

3,738,585

CHOPPER FOR MEAT AND OTHER FOODS

Abram Berland, and Moises Berland, both of Rua Barra do Tibagi, 258-Bom Retiro, Sao Paulo, Brazil

Filed Apr. 5, 1971, Ser. No. 131,127

Claims priority, application Brazil, Apr. 6, 1970, 218,032

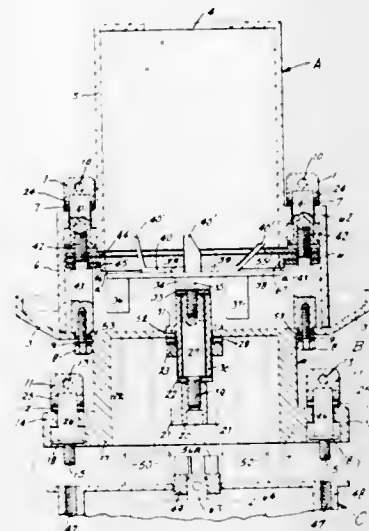
Int. Cl. B02c 18/02

U.S. Cl. 241—186 R

12 Claims

An improved apparatus particularly for grinding or chopping food products, such as meat, coffee and the like. The apparatus includes a vertically extending receptacle open at its upper end for permitting material to be deposited therein. A rotatable knife assembly is disposed within the receptacle and cooperates with a replaceable control ring

which surrounds the knife assembly for defining a narrow annular flow passage therebetween. The width of the flow passage can be varied by using different control rings to permit variation in the size of the ground or crushed material. The



knife assembly has pushing blades extending downwardly therefrom for permitting the crushed material to be pushed into a discharge chute. In a variation of the invention, a double knife assembly can be utilized for permitting grinding or chopping in two separate stages.

3,738,586

IMPROVED HAMMER FOR HAMMER MILLS

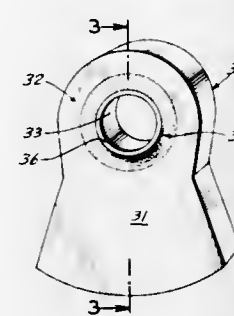
Herman A. Fabert, Jr., Homewood, Ill., assignor to Abex Corporation, New York, N.Y.

Filed July 14, 1971, Ser. No. 162,358

Int. Cl. B02c 13/28

U.S. Cl. 241—195

2 Claims



A hammer for a hammer mill, cast from austenitic manganese steel, is cast with a pad of extra metal surrounding the eye, the extra metal being work hardened to inhibit stretching of the eye when the hammer is revolved with its supporting rod which fits the eye diameter.

3,738,587

APPARATUS FOR FEEDING AND SPLICING TAPE-SHAPED MATERIALS

Athos Cristiani, Bologna, Italy, assignor to AMF Incorporated, White Plains, N.Y.

Filed May 4, 1971, Ser. No. 140,197

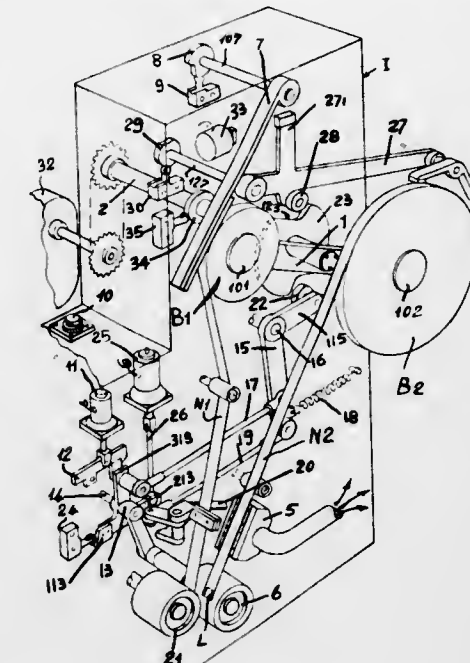
Int. Cl. B65h 19/18, 19/08

U.S. Cl. 242—58.1

1 Claim

Apparatus for providing a continuous feed of taped shaped material, which comprises a first bobbin having tape thereon for unwinding, a second bobbin having tape thereon for unwinding, means for monitoring the tape remaining on the first bobbin as it is unwound, means for severing the tape being unwound from the first bobbin after the sensing of a predeter-

mined tape level on the first bobbin by the monitoring means, and means for joining the leading end of the tape from the



second bobbin to the tape from the first bobbin at a point forward of the point of severance thereof.

3,738,588

CALIBRATED TENSION ARBOR

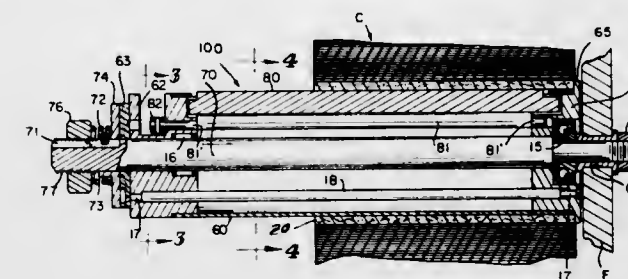
Clifton E. Ayers, New Whiteland, Ind., assignor to P. R. Malloy & Co., Inc., Indianapolis, Ind.

Filed Aug. 13, 1971, Ser. No. 171,531

Int. Cl. B65h 19/02, 75/34, 23/08

U.S. Cl. 242—68.3

10 Claims



A tension arbor is provided with a shaft fixedly maintained into a support. A shell arbor is rotatable mounted thereon having a flange member engaging a coil to be unwound to insure accurate alignment. A cam rod forces a gripper member through an opening to engage the spindle of sheet material to be unwound. A coiled spring urges a friction plate to engage a face plate so that repeatable tension is achieved during each unwinding. The amount of tension can be dialed for ease in operation.

3,738,589

REEL FOR WATER SKIING

Theron R. Brayman, 1796 Ascott Road, Juno Isles, Fla.

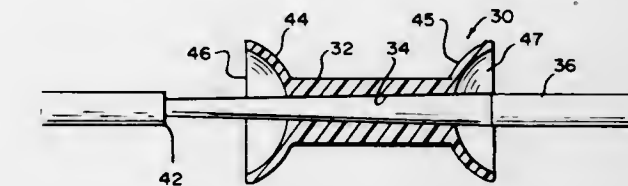
Filed Sept. 10, 1971, Ser. No. 179,301

Int. Cl. B65h 75/40

U.S. Cl. 242—96

3 Claims

A reel for winding, storing and paying out a tow line used for water skiing includes a handle integrally molded to a spool. The handle extends outwardly from one of first and second flanges molded to a central body to form the spool. Each flange portion includes a portion which tapers from the maximum diameter of the flange to the central body portion thereby providing means for evenly winding the line on the spool. In another embodiment the spool has a tapered bore that cooperates with a tapered handle on which the spool is



position the spool is free to rotate on the handle for paying out the line.

3,738,590

ADAPTER FOR FITTING OVERSIZED SPOOLS OF THREAD ON A SPOOL MOUNT

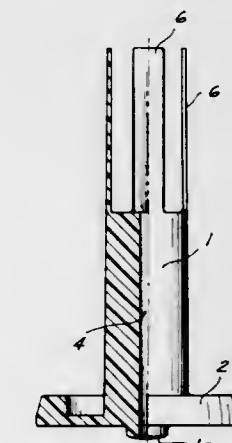
Salvatore Granati, 48 17th Avenue, Ronkonkoma, N.Y.

Filed Sept. 23, 1971, Ser. No. 183,062

Int. Cl. B65h 49/02; D03j 5/08

U.S. Cl. 242—130

3 Claims



An adapter for large-sized spools of thread having a correspondingly large center hole permits attachment of such spools to a spool pin the diameter of which is too small for receiving such spools and satisfactorily guiding the same. The adapter has a center hole dimensioned to coax with the spool pin as generally provided on domestic sewing machines and an outer configuration capable of accommodating the center hole of industrial spools and other similarly sized spools and of retaining such spools with a tight fit.

3,738,591

TEXTILE BOWL AND THE LIKE

Anthony George Melliush, Green Crawley, Sussex, England, assignor to Langley London Limited, Crawley, Sussex, England

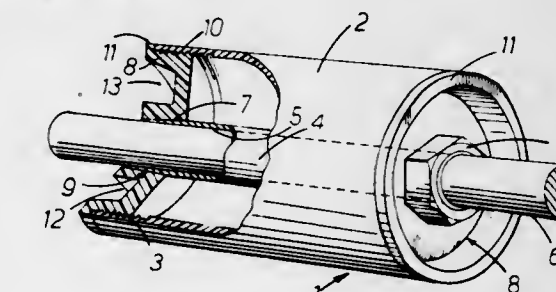
Filed Nov. 11, 1971, Ser. No. 197,727

Claims priority, application Great Britain, June 4, 1971, 19,015/71

Int. Cl. B65h 54/46

U.S. Cl. 242—18 DD

11 Claims



A textile bowl is clamped onto a carrier shaft by a sleeve secured within the bowl and which is a sliding fit on the shaft. An end-cap has a conical bore, the wider end of which

receives a deformable end of the inner sleeve. Screwing home the end-cap onto the textile bowl causes the deformable end to be urged inwards thereby clamping it around the shaft, by the conical bore. This arrangement may be provided at both ends of the textile bowl, the frictional engagement of the end-caps with the ends of the inner sleeve ensuring that the inner sleeve is fixed with respect to the textile bowl.

3,738,592

LOOSE DOCUMENT RETRIEVAL FOR PNEUMATIC CARRIER BANK TELLER SYSTEM

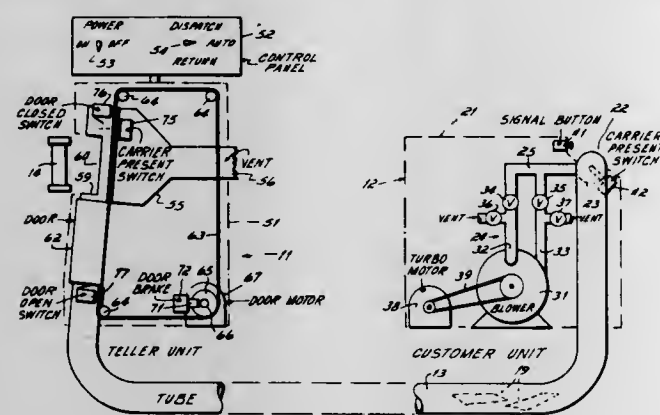
Douglas G. Smith, Pompton Lakes; Zoltan Gagy, Bloomfield, and Donald Ross, Hawthorne, all of N.J., assignors to The Mosler Safe Company, Hamilton, Ohio

Filed Oct. 7, 1971, Ser. No. 187,315

Int. Cl. B65g 51/32

U.S. Cl. 243-19

12 Claims



Pneumatic conveyor bank teller systems are usually provided with a safety door to protect the teller from an arriving document carrier. Automatic controls release the door only when the carrier has arrived at the teller station or prevent operation of the system when the door is opened. The invention provides for the blowing back toward the teller of loose documents, inadvertently deposited in the tube by a customer, through an alternative mode of operation which functions with the carrier absent from the system and with the teller door opened. The specific embodiment minimizes the chance of teller injury through inadvertent use of the alternative mode with the carrier in the system.

3,738,593

SECTOR DEFENSE SYSTEM

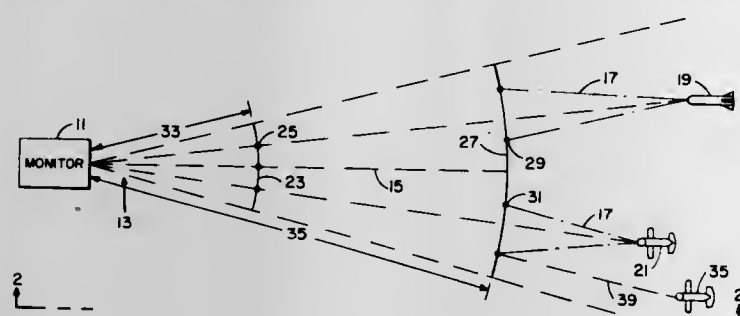
Francis W. Duvall, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed July 16, 1971, Ser. No. 163,491

Int. Cl. F41g 7/00

U.S. Cl. 244-3.14

3 Claims



A system for defense of a sector of terrain having targets therein disposed to emit rays including friendly targets disposed to transmit IFF signals and hostile targets. The system includes a monitor for sweeping the atmosphere of the sector with rays for reflection from targets and stations for receiving the emitted rays and the reflection for computation

of triangulation and doppler information and the IFF signals and for transmitting appropriate signals for monitor selection of and transmission to the launchers of signals for firing the corresponding missiles to intercept the hostile targets.

3,738,594

LIFT CONTROL MECHANISM

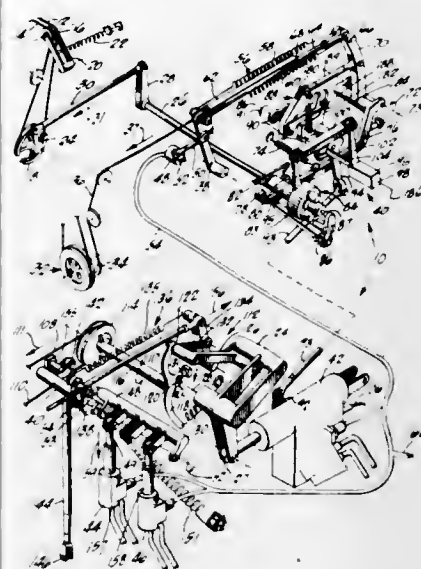
Bradford P. Donovan, and Lorin A. Wood, both of Lakewood, Calif., assignors to McDonnell Douglas Corporation, Santa Monica, Calif.

Filed Aug. 16, 1971, Ser. No. 171,989

Int. Cl. B64c 13/18, 13/30

U.S. Cl. 244-76 R

14 Claims



A controlling mechanism for a direct lift control system which is utilized primarily during the landing phase of aircraft flight to reduce the response time of the aircraft to longitudinal or pitch commands. The system incorporates modulated spoilers to effectuate augmented vertical control of the flight path of the aircraft without necessarily changing the pitch attitude thereof. When the aircraft is preparing to land and the flaps are placed at the desired landing flap angle, the mechanism raises the spoilers on each wing symmetrically to a predetermined bias position. The mechanism thereafter causes the spoilers to operate up and down from this bias position in response to elevator commands generated either manually by the pilot or automatically by the autopilot. The mechanism also includes means to disengage the system automatically during stalls, go-arounds, landing rollout, or manually whenever the pilot desires.

3,738,595

DELTA-WING AIRCRAFT

Joseph Bouchnik, Mashay Mismere, Gush Tel-Mond, Israel

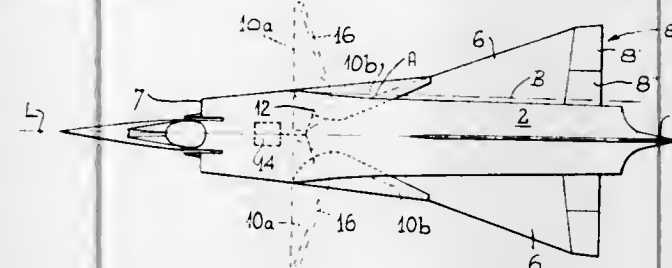
Filed Oct. 12, 1970, Ser. No. 79,740

Claims priority, application Italy, Oct. 14, 1969, 33185/69

Int. Cl. B64c 3/56

U.S. Cl. 244-43

4 Claims



A delta-wing aircraft comprises a pair of auxiliary wings pivotably mounted forwardly of the leading edge of the delta-wing from a deployed position at lower speeds wherein they increase lift and also act as horizontal stabilizers, to a retracted drag-decreasing position at cruising speeds. In one

described embodiment, the auxiliary wings are pivotable about a vertical axis of the aircraft from a deployed position wherein their leading edges are about 90° to the longitudinal axis of the aircraft, to a retracted position wherein they form the apex of the delta-wing; in both positions, the mean aerodynamic chord of the auxiliary wings is aligned with that of the delta-wing. In a second described embodiment, the pair of auxiliary wings are pivoted about a horizontal axis of the aircraft, from a deployed position substantially perpendicular to the longitudinal axis of the aircraft, to a retracted position substantially flush with the aircraft fuselage.

3,738,596

APPARATUS FOR BREAKING UP A DEHYDRATED FOOD MASS

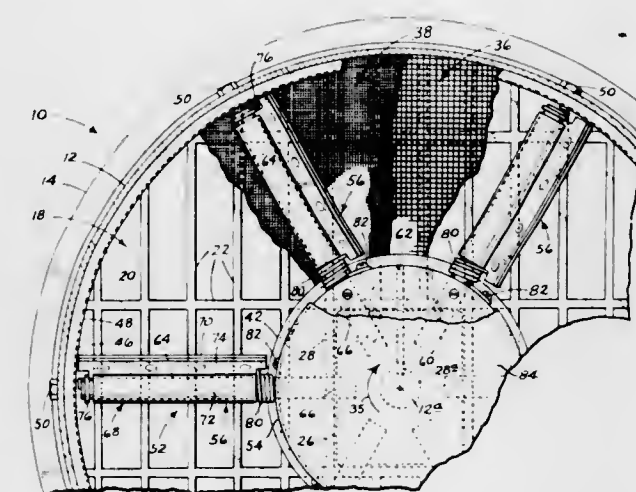
Thomas R. Miles, Portland, Oreg., assignor to Foam Foods Corp., Corvallis, Oreg.

Filed Dec. 23, 1971, Ser. No. 211,270

Int. Cl. B02c 23/00

U.S. Cl. 241-95

7 Claims



Apparatus for breaking up a mass of a dehydrated food product into smaller, substantially uniformly sized particles. The apparatus includes a screen on which such a mass is deposited, and an elongated resilient power-driven wiper blade which wipes over the surface of the screen to engage any mass thereon, and to press it through the screen.

3,738,597

AIRCRAFT UNDERCARRIAGE

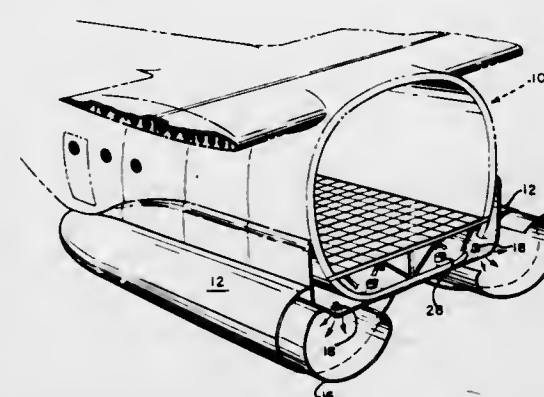
T. Desmond Earl, Buffalo, and Vincent B. Paxhia, Kenmore, both of N.Y., assignors to Textron Inc., Providence, R.I.

Filed Jan. 4, 1971, Ser. No. 103,756

Int. Cl. B64c 25/00; B60v 3/08

U.S. Cl. 244-102 R

7 Claims



A pressure-air activated type undercarriage system for aircraft such as shown in U.S. Reissue Pat. No. 26,812, comprising in combination; an inflatable trunk member carried under the aircraft fuselage, and a source of compressed air (or other fluid) in conjunction therewith; the trunk being jet-apertured along the footprint area thereof to provide a fluid-film

lubricated undercarriage system when operating in one mode; and a secondary load supporting, fluid-tight, variably inflatable bladder or bladders disposed interiorly of the trunk and selectively inflatable to various degrees independently of inflation of the trunk member. Thus the aircraft is capable of being "parked" on a solid or fluid "airport" surface; or it may be caused to "kneel" or "squat" in any preferred attitude or elevation relative to the surface, so as to facilitate passenger/cargo loading/unloading operations while requiring no continuing compressed fluid supply to the undercarriage system. Adjunctively, the inner bladder may be pilot-inflated to any desired degree, and then maintained in such inflated condition by simply closing an appropriate valve in the control system; whereby the airplane undercarriage is then operable in floatation mode although the compressed air supply engine(s) of the craft may be shut down.

3,738,598

AMPHIBIOUS APPARATUS FOR CONVENTIONAL LAND AIRCRAFT

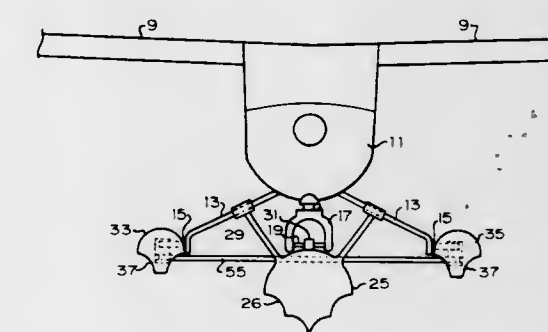
Wallace K. Larkin, 74 Hollins Drive, Santa Cruz, Calif.

Filed Apr. 10, 1972, Ser. No. 242,417

Int. Cl. B64c 25/54

U.S. Cl. 244-105

8 Claims



An improved float assembly is adapted to conveniently attach to the existing landing gear of a conventional land-type aircraft and includes a centrally positioned primary float structure which attaches to the existing landing gear struts and includes secondary or stabilizing float structures which attach to the existing axles for the ground-engaging wheels of the landing gear. Directional control for steerage while waterborne is aided by a water rudder on the primary float which is operated from the steering mechanism of the conventional landing gear.

3,738,599

AIRCRAFT BARRIER NET

Leif Mathias Borehag, Norrköping, Sweden, assignor to Borgs Fabrics AB, Norrköping, Sweden

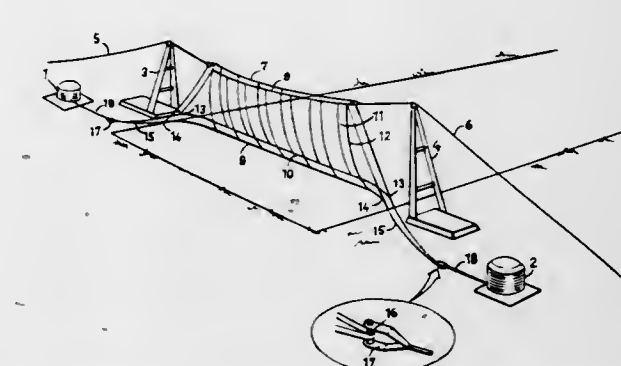
Filed Oct. 23, 1970, Ser. No. 83,438

Claims priority, application Sweden, Nov. 14, 1969, 15625/69

Int. Cl. B64f 1/02

U.S. Cl. 244-110 C

4 Claims



An aircraft arresting means comprising a barrier net composed of horizontal bands joined by a plurality of vertical

bands, the net having band ends which include loops that pass around pins forming part of a coupling to brakes to which ends of the bands are connected. The loops sliding around the pins cause adjustment of the net, when contacted by an aircraft so that a uniformly distributed load is obtained on all of the activated bands of the net.

3,738,600

UNIVERSAL MOUNTING BRACKET

Bruce Melvin Harper, 213 Arbor Valley Center, San Jose, Calif.
Filed Apr. 30, 1971, Ser. No. 139,036
Int. Cl. B62b 1/02

U.S. Cl. 248-121

1 Claim



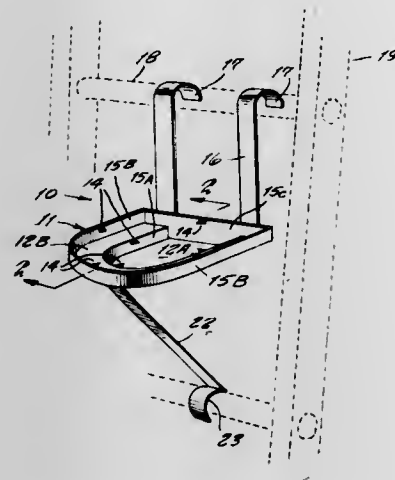
A self-adjusting bracket that mounts a variety of plastic baby carry seats of varying dimensions onto a portable, lightweight stroller.

3,738,601
PAINT POT HOLDER

Lyle P. Gehringer, 1010 Spencer Street, Longmont, Colo.
Filed Feb. 28, 1972, Ser. No. 229,639
Int. Cl. E06c 7/14

U.S. Cl. 248-210

1 Claim

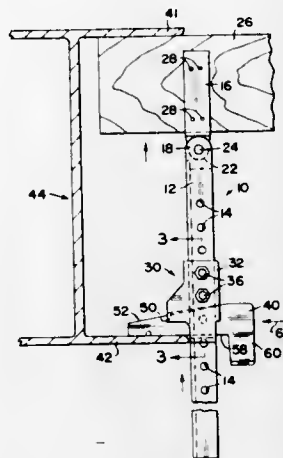


A bracket unit attachable to a ladder for supporting a paint pot in a convenient and secure manner during a painting operation; the device consisting of a tray with a central depression in which a quart size paint pot is placed, a peripheral depression around the central depression for receiving a gallon size paint pot, a pair of upstanding hooks attachable around a ladder upper rung and a detachable angularly downward brace attachable on a ladder lower rung.

3,738,602
JOIST SUPPORTING DEVICE

Alan P. Arnett, 3050 Ravenwood Road, Fort Lauderdale, Fla.
Filed June 30, 1971, Ser. No. 158,155
Int. Cl. E04g 3/00; A47g 29/02
U.S. Cl. 248-228

10 Claims

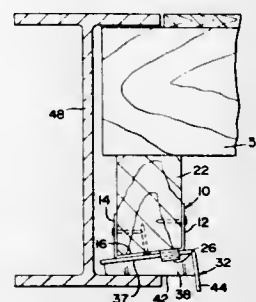


A device for supporting a joist in weight supporting relation relative to a beam member, wherein the device includes a support arm having a bracket adjustably positioned thereon such that the device may be readily adapted to any size beam member. An adjusting means in the form of a wedge member is arranged to movably engage both the bracket and the beam so as to force the joist into locking engagement with the beam thereby properly positioning it in weight supporting relation. Bracket positioning means locks the bracket in a desired position on the support arm and may take the form of a spring biased stop member wherein the positioning means, when operatively positioned, serves to maintain both the bracket and wedge means in locked position relative to the support arm and beam member respectively.

3,738,603
JOIST SUPPORTING DEVICE

Alan P. Arnett, 3050 Ravenswood Road, Fort Lauderdale, Fla.
Continuation-in-part of Ser. No. 99,003, Dec. 17, 1970, abandoned. This application Aug. 4, 1971, Ser. No. 168,890
Int. Cl. E04g 3/00; A47g 29/02
U.S. Cl. 248-228

8 Claims



A device used to position the joist in weight supporting relation relative to a concrete pour or slab and comprising a shoe which engages the lower extremity of a supporting leg which in turn engages and positions the joist in weight supporting relation. A wedge member is movably positioned in supporting engagement with the bottom of the shoe and is maintained in movable engagement therewith by means of a bracket integrally formed on the shoe. Positioning the wedge in a sandwich-like fashion between the shoe and a lower flange of a supporting beam or the like serves to maintain the leg in proper position relative to the joist.

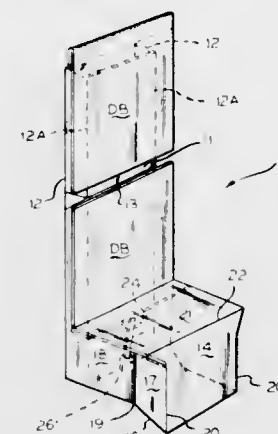
3,738,604

FOLDABLE SUPPORT STRUCTURE

Robert J. Howlett, Elizabeth, and Ronald H. Miller, Somerville, both of N.J., assignors to Container Corporation of America, Chicago, Ill.
Filed Apr. 24, 1972, Ser. No. 246,943
Int. Cl. A47b 97/00

U.S. Cl. 248-459

1 Claim



A self-supporting foldable support structure comprises a vertical standard having a main panel and a pair of stiffener ribs extending longitudinally in planes generally normal to the plane of the vertical standard and in the nature of an easel. Structure is provided for causing the stiffener ribs to move to stiffening position in the nature of a platform for the display of articles in front of the vertical standard. Said structure comprises a front wall spaced from the vertical standard with a foldable wall extending from each end of the front wall and toward the vertical standard. Each foldable wall consists of hingedly connected wall portions, one of same being secured to a correlative stiffener rib and the other being hingedly connected to a correlative end of the front wall. The platform panel is hingedly connected to the front wall, and resilient means are connected between the platform panel and the vertical standard and are arranged to bias the platform panel to a position resting upon the tops of the foldable walls and tending to straighten the line of fold between the wall portions and thereby move the stiffener ribs to stiffening position.

3,738,605

MINE ROOF SUPPORTS

David Beaumont Smith, Wakefield, Yorkshire, England, assignor to Fletcher Sutcliffe Wild Limited, England
Filed Oct. 27, 1971, Ser. No. 193,046
Claims priority, application Great Britain, Oct. 2, 1970, 46,858/70

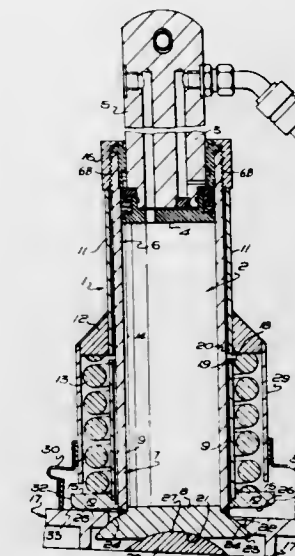
Int. Cl. E21b 15/30

U.S. Cl. 248-354 H

15 Claims

An hydraulically powered chock leg adapted to support or to form part of a support means for a mine roof accommodates the natural tendency for relative movement between the roof and floor of the mine working by being movable from a predetermined position to a position of maximum allowed movement, and is biased towards the predetermined position by a co-axial coil spring surrounding a lower portion of a cylinder of a cylinder and piston arrangement, a first annulus on which said coil spring bears, a first guide sleeve co-axial with said cylinder, surrounding said lower portion thereof and attached to said first annulus, a base plate assembly engaged by said first annulus, the first guide sleeve and its annulus being displaceable with respect to said cylinder, a second annulus on which said coil spring also bears, a second guide sleeve also co-axial with said cylinder, surrounding said upper portion thereof and attached to said second annulus, the second guide sleeve and its annulus also being displaceable with respect to said cylinder, said first guide sleeve being movable towards the second guide sleeve up to an amount

determined by the closing of an initial axial gap, a closure cap screwed on to said cylinder, and a support member in said



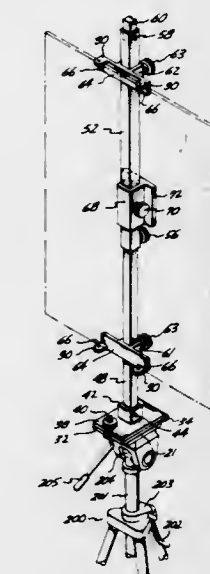
3,738,606

WORK HOLDER

Harold R. Millen, 502 21st S. E., No. 9, Auburn, Wash.
Filed July 1, 1971, Ser. No. 158,857
Int. Cl. A47b 97/08

U.S. Cl. 248-449

13 Claims



A portable work holder apparatus for planar materials such as artist's canvases, drawing boards, lecturer's pads, chalk boards and the like is disclosed having movable, opposed work-engaging jaw means disposed upon a substantially rigid frame apparatus. The work holder is adapted to engage a support means such as a photographic pan head carried by a tripod or other suitable support means. When the work holder is secured to the support means an indexing means may be provided to prevent relative rotation therebetween. Two mounting locations on the work holder are provided, one at the extreme lower end of the frame apparatus and the other oriented perpendicular to the first mounting location and slidable along the length of at least a portion of the frame apparatus. The frame apparatus is extendable to permit gripping of various sized workpieces by the work engaging jaw means on slider-gripper devices movably mounted upon the frame apparatus.

3,738,607

SOLENOID-OPERATED, TWO-WAY, TWO-POSITION VALVE WITH BIDIRECTIONAL FLOW

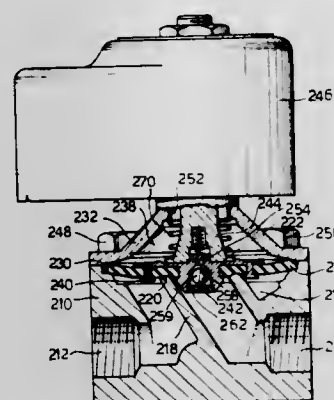
Marco Perugia, Turin, Italy, assignor to Fiat Societa per Azioni, Turin, Italy

Filed July 26, 1971, Ser. No. 166,154

Claims priority, application Italy, Feb. 26, 1971, 67678 A/71

Int. Cl. F16k 31/385, 31/06
U.S. Cl. 251-30

3 Claims



A two-way two position solenoid-operated valve has a valve member movable between open and closed positions, and having a central large orifice and a further, smaller, orifice communicating the valve inlet and outlet ports respectively with a chamber on the remote side of the valve member. The central orifice is fitted with a non-return ball valve which closes in response to pressure at the outlet port to effectively open the valve to unobstructed bidirectional flow when opened by its solenoid actuator.

3,738,608

CHARGE FORMING METHOD AND APPARATUS WITH OVERSPEED GOVERNOR

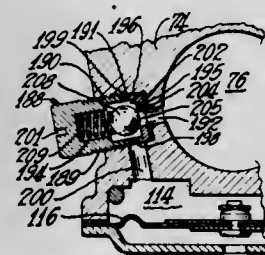
Warren D. Nutton, Grafton, Wis., and Bernard C. Phillips, Toledo, Ohio, assignors to Borg-Warner Corporation, Chicago, Ill.

Division of Ser. No. 766,580, Oct. 10, 1968, abandoned. This application Sept. 23, 1970, Ser. No. 74,812

Int. Cl. F02d 31/00, 39/00; F16k 31/44

U.S. Cl. 251-76

7 Claims



The invention disclosed embraces a charge forming method of and apparatus embodying an instrumentality responsive to engine vibrations or disturbances brought into operation when the engine reaches a predetermined speed to automatically deliver excess fuel to the engine thereby momentarily providing a nonignitable mixture preventing overspeeding of the engine.

3,738,609

TEMPERATURE COMPENSATED PNEUMATIC CONTROL SYSTEM

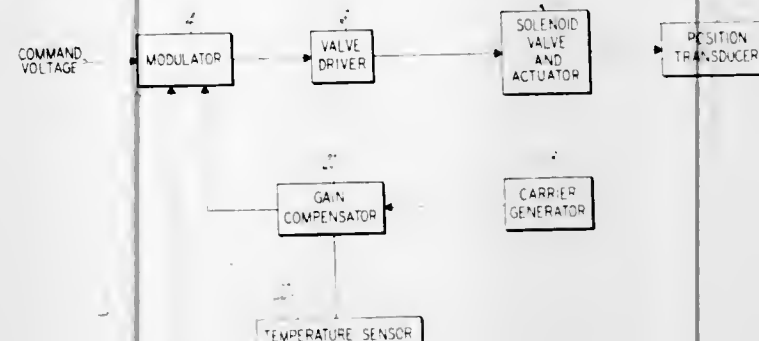
Albert J. Divigard, Waterbury, Conn., assignor to Chandler Evans Inc., West Hartford, Conn.

Filed June 14, 1971, Ser. No. 152,898

Int. Cl. F15b 13/16; F16k 31/02

U.S. Cl. 251-129

5 Claims



A pneumatic actuator system including compensation for variations in ambient temperature. Compensation is achieved by varying a position error signal in accordance with temperature before application to a valve actuator.

3,738,610

SEAL ASSEMBLY FOR GOGGLE VALVES

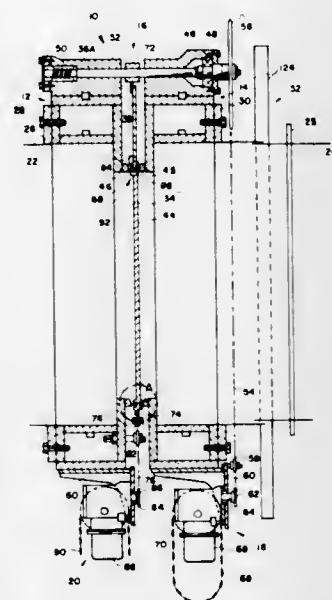
Elden A. Hale, Sr., Pittsburgh, Pa., assignor to Koppers Company Inc., Pittsburgh, Pa.

Filed Aug. 5, 1971, Ser. No. 169,262

Int. Cl. F16k 25/00

U.S. Cl. 251-167

6 Claims



An improved seal assembly for goggle valves of the type including valve bodies connected to the ends of adjoining gas mains with a planar opening between the bodies normal to the flow of gas in the mains and a two-position valve closure in the opening for closing the mains against the flow of gas when the closure is in one position and opening the mains when it is in the other position. The seal assembly includes an inner rigid primary seal and an outer flexible secondary seal between both valve bodies and the portion of the valve closure in the planar opening to prevent the escape of gas between the valve bodies and the valve closure. Preferably, the rigid seal comprises abutting planar sealing surfaces between the valve closure and valve bodies and the flexible seal comprises flexible sealing surfaces, such as silicone rubber, on the valve closure abutting rigid non-planar sealing surfaces on the valve bodies.

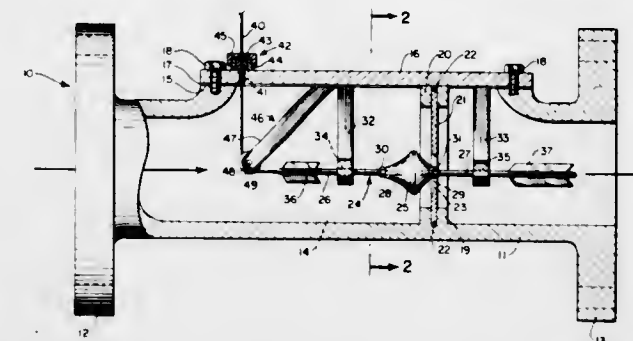
3,738,611

FLOW CONTROL VALVE MEANSCalvin M. Winders, 2704 Sells Street, Metairie, La.
Filed Nov. 24, 1971, Ser. No. 201,766

Int. Cl. F16k 51/00, 47/00

U.S. Cl. 251-294

4 Claims



The present invention pertains to flow control valves as employed in a standard piping system. More specifically, the present invention provides a flow control valve offering features which makes it inexpensive to manufacture and especially to maintain. The present flow control valve means basically comprises a main valve portion having a central opening to which a valve cover plate is operably attached and upon which cover plate all of the working parts, including the valve seat, plug, plug guides, plug or valve stem, and plug actuating means are operably mounted whereby the entire flow control assembly can be readily removed from the valve body in a very efficacious manner while employing conventional tools and without requiring any particular expertise. The present invention also provides a flow control valve of a design which minimizes the extent of wear realized in most present day control valves due to the influence of the normal dynamic forces encountered.

3,738,612

ADVANCING AND RETRACTING MECHANISM

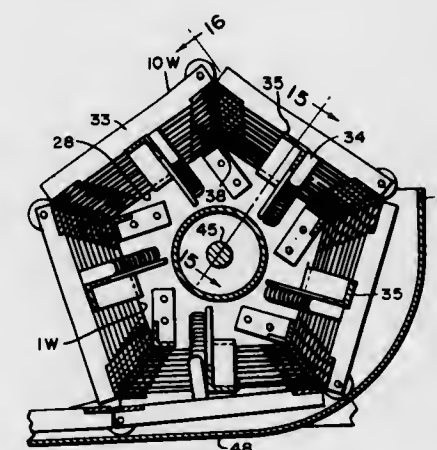
Arlin P. Hartman, Champaign, Ill., assignor to American Seating Company, Grand Rapids, Mich.

Filed May 4, 1971, Ser. No. 140,115

Int. Cl. B66f 3/02, 1/00

U.S. Cl. 254-1

18 Claims



A power system for folding and unfolding bleachers and chair platforms utilizes a pentagon-shaped drum-sprocket for advancing and retracting chain wraps, each wrap consisting of five links of the same length and width but with the wraps varying progressively in width and length whereby the wraps are wound in close-nested relation about the drum-sprocket and are advanced from the drum-sprocket by rotation thereof through the interaction of a sprocket bar on the drum-sprocket and wedge-shaped lugs carried by the links. By employing driving force on the outer extremities of the links, a squaring effect is achieved which translates into straight-line tracking of the chain and sections.

3,738,613

JACK CONSTRUCTION FOR TRAILERS AND THE LIKE

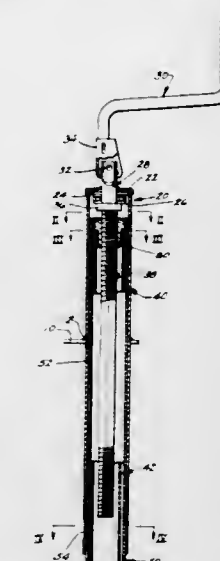
Russell E. Hollis, Jr., Xenia, Ohio, assignor to General Processing Corporation, Crossville, Tenn.

Filed Dec. 30, 1970, Ser. No. 102,836

Int. Cl. B60s 9/02; B66f 3/08

U.S. Cl. 254-86 R

8 Claims



A jack construction having a telescoping inner tubular element guided for longitudinal movement with respect to an outer tubular element wherein the inner element is characterized by two telescoped and closely interfitting tubes of relatively thin-walled construction, such as ordinary hot-rolled, seam welded tubes, secured to one another.

3,738,614

HOISTING APPARATUS EMPLOYING UNITARY CLUTCH AND BRAKE ASSEMBLY

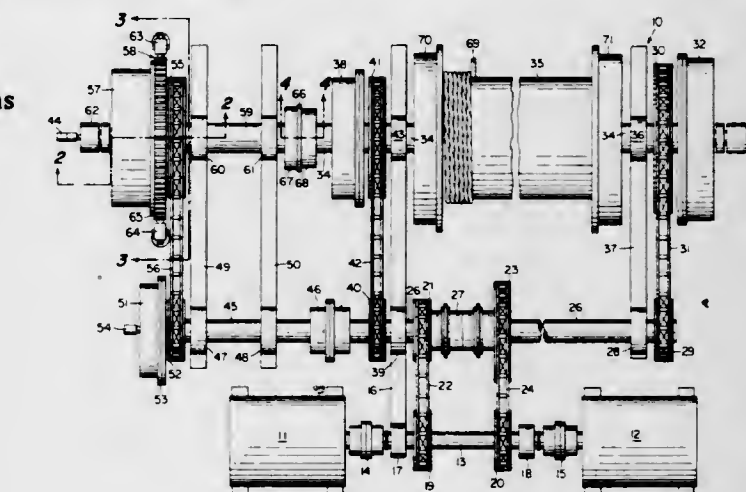
Earl A. Peterson, 4111 Chestnut Avenue, Long Beach, Calif.

Filed May 13, 1971, Ser. No. 143,141

Int. Cl. B66d 1/00

U.S. Cl. 254-187

11 Claims



In combination with a drawworks hoist, a continuously slipping clutch is employed with apparatus for applying controlled torque or braking to the drawworks hoist. A drawworks hoist is used to provide in-haul and overhaul action to a coupled drum, the drum being wound with appropriate cabling. A continuously slipping clutch will drive the drawworks shafts in an in-haul direction through an overrunning clutch when it is desired to maintain a controlled tension on the cable irrespective of vertical movement of the drawworks hoist assembly. The continuously slipping clutch will be disengaged from the drawworks hoist shaft when the drawworks is reeling the cable in an in-haul direction. When the cable is being payed out, the continuously slipping clutch provides supplemental braking by securing the driving member of the continuously slipping clutch to the fixed frame of reference.

3,738,615

INTERFACIAL SURFACE GENERATOR

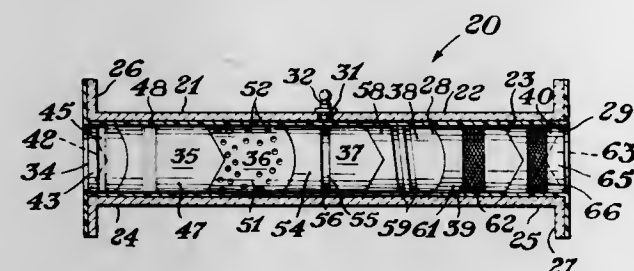
William C. Brasie, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Nov. 8, 1971, Ser. No. 196,352

Int. Cl. B01f 15/02

U.S. Cl. 259-4

8 Claims



Mixing or flow diverting elements are maintained within a plastic lined pipe by introducing a fluid under pressure between the casing of the pipe and the plastic lining.

3,738,616

MOTOR DRIVEN APPLIANCE

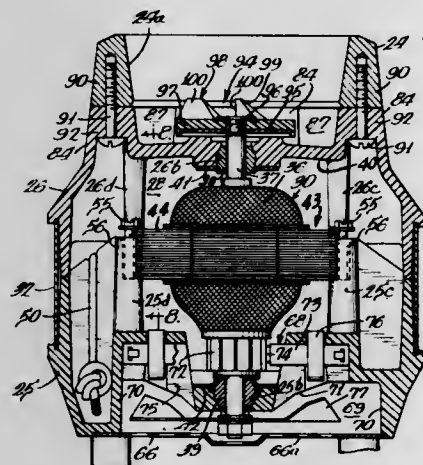
William M. Copeland, Villa Park, and Worthy L. Chambers, Lombard, both of Ill., assignors to Sunbeam Corporation, Chicago, Ill.

Filed Oct. 30, 1969, Ser. No. 872,556

Int. Cl. A47j 43/046; H03j 1/02

U.S. Cl. 259-108

5 Claims



A motor operated electric appliance having the elements of the motor supported directly on the plastic housing members. The motor field is positioned between two housing members and serves to align the housing members which also support the armature bearings. Air conduit means formed directly in the plastic housing members directs the motor cooling air into the interior of the housing and across the motor for cooling purposes.

3,738,617

DOUGH CONDITIONING APPARATUS

Anthony F. Madonia, 19 Middlebury Lane, Buffalo, N.Y.

Filed Oct. 23, 1970, Ser. No. 83,339

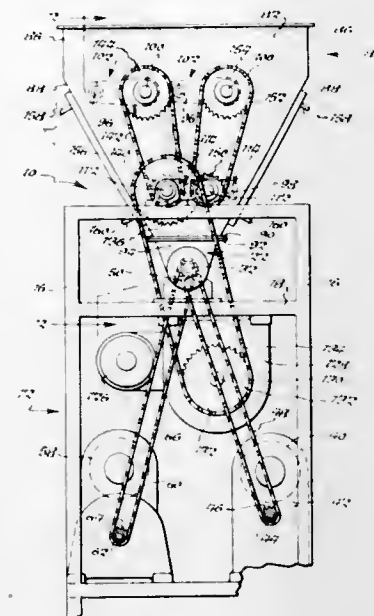
Int. Cl. A21c 1/00; A23g 1/00, 1/10

U.S. Cl. 259-185

6 Claims

A hopper for receiving a dough mixture and gravity feeding the same to a degassing apparatus. A plurality of agitator rods mounted in the hopper stretch and work the dough mixture to dispel some of the gases retained therein and to fragment

large, unequal sized, gas pockets and bubbles formed in the mixture into smaller, uniform sized pockets rendering the mix-



ture soft, pliable and of a uniform texture and consistency prior to the admission of the mixture into the degassing apparatus.

3,738,618

INJECTION UNIT FOR AN INJECTION MOLDING MACHINE

Karl Hehl, 183 Siedlung, D-7291 Lossburg, Wurttemberg, Germany

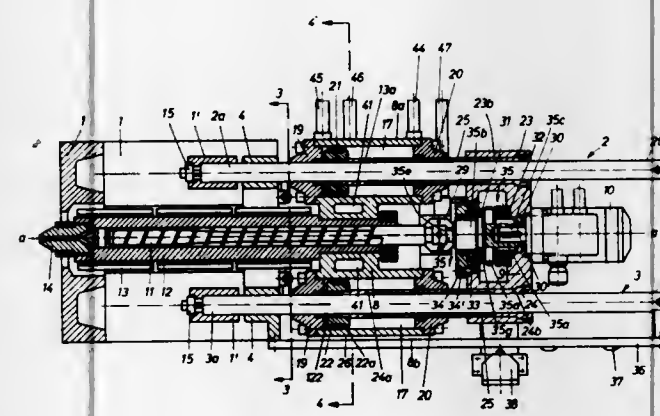
Filed Oct. 5, 1971, Ser. No. 186,674

Claims priority, application Germany, Oct. 5, 1970, P 20 48 796.1; Mar. 18, 1970, P 21 12 996.4

Int. Cl. B01f 7/24

U.S. Cl. 259-191

21 Claims



An injection unit for an injection molding machine, supported on struts and including a plasticizing cylinder within which a conveying worm is displaceable, hydraulic cylinders for driving the conveying worm and one or a pair of cylinders for driving the injection unit relative to the injection molding machine, and means for controlling the hydraulic cylinders. Sleeves are provided in conjunction with those hydraulic cylinders which effect the movement of the conveying worm and are concentrically arranged with respect to the struts and support the pistons for the hydraulic cylinders. These sleeves are provided with recesses for accommodating a lubricating medium which lubricates the struts during the movement of the conveying worm.

3,738,619

METHOD AND DEVICE FOR PREPARING HOMEMADE ICE CREAM

Nobuo Shirae, Nishinomiya, Japan; assignor to Tiger Vacuum Bottle Industrial Company Limited, Kadoma, Osaka Prefecture, Japan

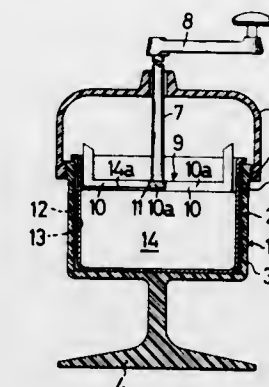
Filed May 5, 1970, Ser. No. 34,739

Claims priority, application Japan, May 8, 1969, 44/35959; July 3, 1969, 44/63408

Int. Cl. B01f 7/16

U.S. Cl. 259-108

5 Claims



A device comprises a freezer cup, a body for holding the freezer cup, a hand-driven stem adapted to be moved down in the cup, a scraper and a kneader both fixed to the lower end of the stem and extending radially of the center of the freezer cup. A mixture comprising milk, sweetening, cream and flavoring is poured into the freezer cup to about one third the volume of the cup and placed in a household refrigerator. After thorough freezing, the cup is taken out of the refrigerator and mounted on the device. The frozen mixture is flaked into small pieces by the scraper and the flakes of mixture are immediately subjected to overrun by the kneader while the stem is being pushed down under a small pressure. Ice cream ready for serving is obtained.

3,738,620

AQUARIUM AERATOR

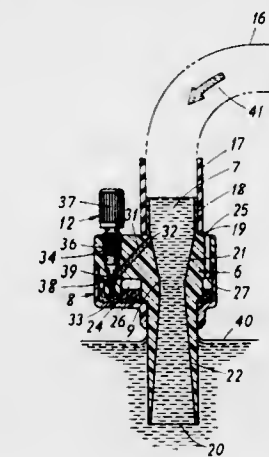
Bobby G. Ennis, 40975 Chiltern Drive, Fremont, Calif.

Filed Aug. 4, 1971, Ser. No. 168,808

Int. Cl. B01f 3/04

U.S. Cl. 261-6

6 Claims



An aerator for an aquarium which includes a venturi tube in the recirculating system at the water return side, air and water reservoirs located adjacent the venturi tube, a small passage carrying controlled amounts of air in the upper portion of the passage from the air reservoir and controlled amounts of water in the lower portion of the passage from the water reservoir, the passage having a discharge port opening to the restricted section of the venturi where the air enters the water forming tiny bubbles, and a manually adjustable control for adjusting the air/water ratio flow through the passage. The

passage being dimensioned such that the water meniscus in the passage covers a substantial portion of the passage.

3,738,621

EVAPORATIVE COOLER

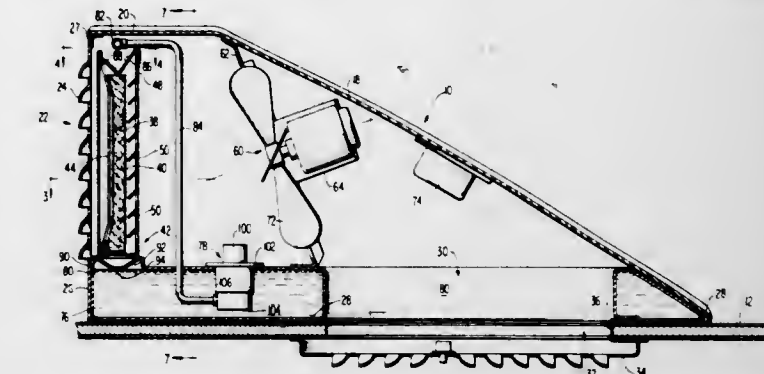
Les Anderson, Las Vegas, Nev., assignor to Everkool, Inc., Las Vegas, Nev.

Continuation-in-part of Ser. No. 875,084, Nov. 10, 1969, Pat. No. 3,606,982. This application Sept. 17, 1971, Ser. No. 181,341

Int. Cl. B01f 3/04

U.S. Cl. 261-29

14 Claims



This disclosure relates to a rooftop evaporative cooler for cooling the interior of vehicles, such as campers and trailers, whether the vehicle is moving or stationary. The unit includes a rear-facing streamlined housing disposed over a rooftop register. The forward surface of the housing slopes upwardly from the vehicle roof to a horizontal rear portion adjacent a rear-opening, louvered entrance port. A suction fan is disposed within the housing between the entrance port and the register for pulling air into the housing through an evaporative pad and for expelling cooled air, guided by the configuration of the housing, through the register into the vehicle. The cooling medium is pumped from a supply tank contained within the housing to a distributor over the pad and collected after it passes through the pad for recirculation. The supply tank is substantially toroidal and is disposed within the lower portion of the housing, surrounding the rooftop register. The pad is constructed of a suitable porous material and the cooling medium is typically water.

3,738,622

VAPOR-FREE CARBURETOR

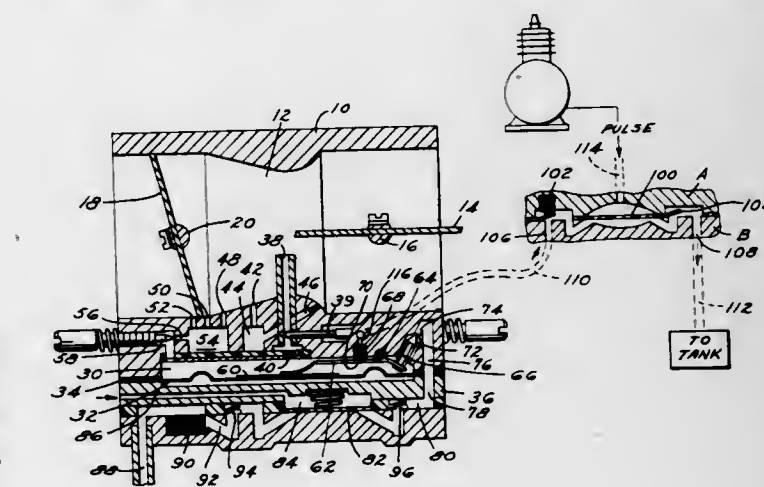
Charles H. Tuckey, Cass City, Mich., assignor to Walbro Corporation, Cass City, Mich.

Filed Jan. 13, 1971, Ser. No. 106,174

Int. Cl. F02m 17/04

U.S. Cl. 261-35

1 Claim



A diaphragm-controlled carburetor having a fuel inlet valve and a diaphragm chamber particularly for location on small engines where the carburetor is subject to high vibration and

close confinement so that there is a possibility of heat build-up and the provision of a vapor pump in the carburetor for removal of vapor from a high point in the metering diaphragm chamber where vapor can collect to prevent vapor lock and other malfunctioning of the carburetor.

3,738,623

DIAPHRAGM CARBURETOR

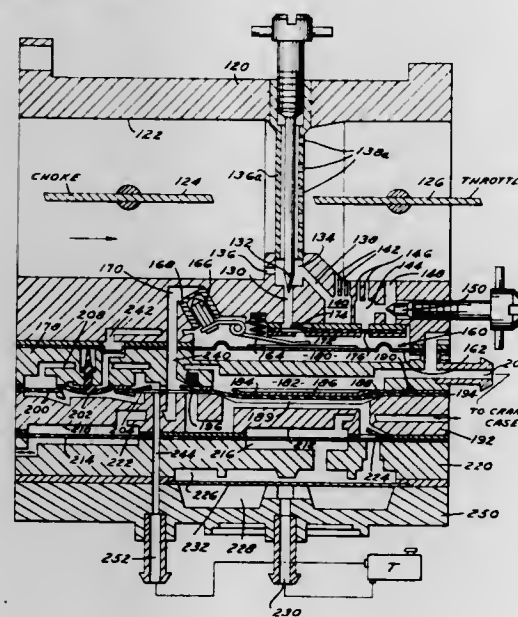
Charles H. Tuckey, Cass City, Mich., assignor to Walbro Corporation, Cass City, Mich.

Filed Jan. 13, 1971, Ser. No. 106,178

Int. Cl. F02m 17/04

U.S. Cl. 261—35

2 Claims



A diaphragm-controlled carburetor having a pressure pump actuated by engine pulses wherein a pump diaphragm is supported by a pan-shaped side mount spring to assist pressure pulses of the engine in a manner to improve the pump efficiency at both low speed and high speed conditions.

3,738,624

GAS SCRUBBER

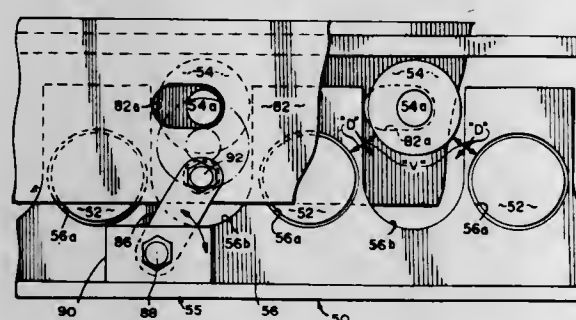
Robert L. McIlvaine, Glencoe, Ill., assignor to Enviroengineering, Inc., Skokie, Ill.

Filed Oct. 26, 1971, Ser. No. 192,489

Int. Cl. B01d 47/06

U.S. Cl. 261—44 R

12 Claims



A gas scrubber for removing contaminants from gas including constricting flow passage means for said gas, a plurality of elongated filter elements in parallel extended transversely across said flow passage means and defining therebetween a plurality of smaller, separate, discrete flow paths for high velocity gas flow. The first set of said elements is mounted in fixed relation relative to said flow passage and a second set of elements comprising alternate ones between adjacent elements in said first set is supported for movement relative to said elements in the first set to vary the size of said discrete flow paths therebetween. Means is provided for adjusting and holding the relative position of the elements in the first and

second sets, thereby defining a selected total flow area for accommodating a given rate of gas flow.

3,738,625

PUMPLESS FUEL SYSTEM FOR SMALL ENGINES

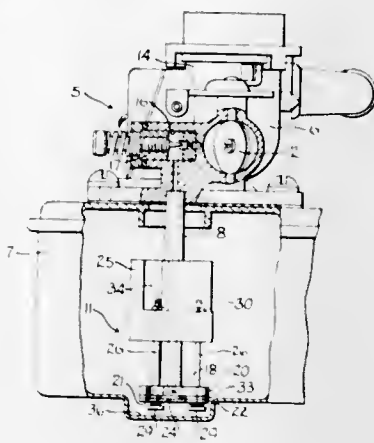
Robert G. Thompson, Milwaukee, Wis., assignor to Briggs & Stratton Corporation, Wauwatosa, Wis.

Filed Dec. 10, 1970, Ser. No. 96,879

Int. Cl. F02m 7/20

U.S. Cl. 261—68

3 Claims



In a pumpless fuel system for a small engine, having a suction tube extending down into a fuel tank from a carburetor venturi, a fuel inlet in the suction tube is large enough to provide the desired fuel flow rate when fuel in the tank is low, but a rich fuel-air mixture at high fuel levels. At high levels the inlet is restricted, to afford the desired flow rate, by a restriction valve element then maintained in operative position by an annular float surrounding and guided by the suction tube.

3,738,626

DEVICE IN CONTACT BODIES FOR LIQUID AND GAS

Per Gunnar Norback, Lidings, Sweden, assignor to Aktiebolaget Carl Munters, Sollentuna, Sweden

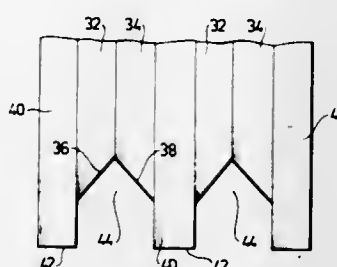
Filed Mar. 24, 1971, Ser. No. 127,663

Claims priority, application Sweden, Mar. 26, 1970, 4253/70

Int. Cl. B01f 3/04

U.S. Cl. 261—112

1 Claim



The invention relates to a contact body for liquid and gas, primarily for cooling towers and composed of corrugated layers with the corrugations in adjacent layers forming an angle relative each other and extending at an inclined angle towards a lower liquid discharge edge formed with means to counteract collection of liquid resulting from the combined effect of surface tension in the liquid and the upwardly streaming gas. To improve the discharge flow of the liquid two adjacent layers of the contact body are in pairs at their edges cut obliquely so as together to form an inverted V, viewed in the surface extension of said layers. Between each such pair of layers a third layer having a transversely cut lower edge is provided and formed with a prolongation terminating in said transversely cut lower edge and extending for a distance below the layers formed with the obliquely cut edges.

3,738,627

CONTROLLER AND CONTROL SYSTEM

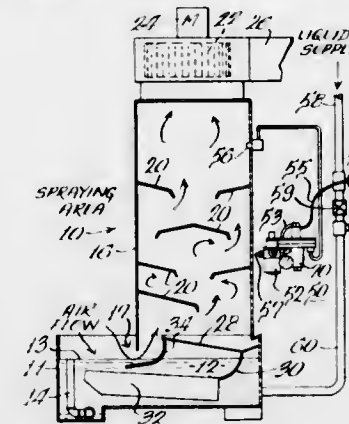
Ronald R. Scotchmur, Schiller Park, Ill., assignor to Binks Manufacturing Company, Franklin Park, Ill.

Filed Mar. 22, 1971, Ser. No. 126,566

Int. Cl. B01f 3/04

U.S. Cl. 261—119 R

4 Claims



A vacuum responsive controller and control system is disclosed for safely controlling the water level in paint spray booths of the type employing a high velocity air-current to entrain water from a reservoir and thereby aid in removing airborne paint particles. The controller and system sample and signal the vacuum in the booth as an index of the dynamic conditions of water level and air velocity, and for vacuums below a threshold value, automatically raise the reservoir water level to achieve proper entrainment. The controller automatically responds to a lower vacuum to not supply water. Thus a failure of the air impeller will not result in water flowing to the reservoir. The controller includes a diaphragm moving in response to the pressure difference between vacuum and atmospheric inlets and valve means responsive to the diaphragm's flexing over a range to not feed, feed, and again not feed an air pressure signal to a command signal output which controls a water supply valve. Adjustable mechanical biasing on the diaphragm allows for changing the operation point of the controller.

3,738,628

REMOVABLE DEEP TANK GAS DIFFUSING APPARATUS

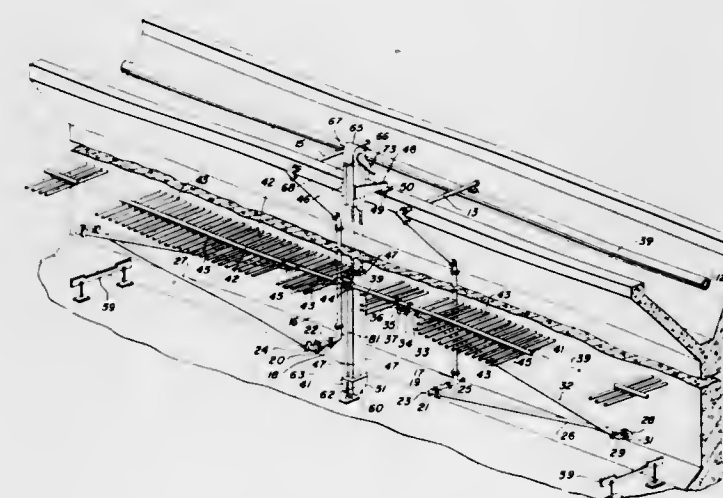
Leonard M. Nechae, Highland Park, Ill., assignor to FMC Corporation, Chicago, Ill.

Filed Feb. 22, 1971, Ser. No. 117,567

Int. Cl. B01f 3/04

U.S. Cl. 261—122

2 Claims



An apparatus for diffusing gas in tanks containing liquid mediums that is elevatable out of the tank for servicing which comprises a guide member supported from the tank top and extending downwardly to a point in the vicinity of the bottom of the tank, a traveler support member associated with said

guide member, a gas diffuser header secured to said traveler support member, means for actuating said traveler for upward and downward movement, at least one stationary gas duct connected to a gas supply line and extending vertically downwardly to a point in the vicinity of the tank bottom, a first air pipe pivotally secured to the lower end of said stationary gas duct, a second air pipe pivotally secured at its other end to said gas diffuser header, a plurality of diffusers secured to the tubular header and spaced supports in contact with the tank bottom and the header when said header is in its lowermost position.

3,738,629

BAR QUENCH FIXTURE

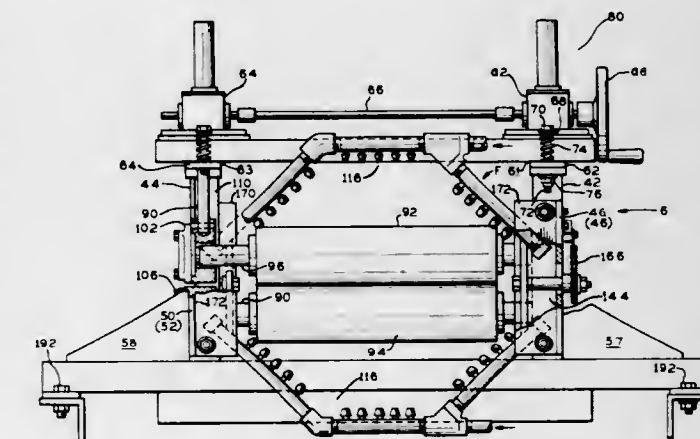
Vincent R. Coleman, Aurora, Ohio, assignor to The Van Dorn Company, Cleveland, Ohio

Filed Mar. 4, 1971, Ser. No. 120,898

Int. Cl. C21d 1/62

U.S. Cl. 266—6 S

15 Claims



A quenching apparatus for quenching elongated bar-type workpieces wherein a plurality of interchangeable roll stands comprised of generally horizontal and vertical roll pairs define an elongated workpiece pass. At least one of the rolls of each roll pair is moveable towards and away from its associated roll normal to the workpiece pass in order to accommodate workpieces of various dimensions. Each horizontal roll pair includes a quenching fluid manifold on each side of the roll pair which transversely surrounds the pass and includes a plurality of fluid outlet nozzles directed inwardly towards the pass area. Each manifold is interconnected with the moveable horizontal roll so as to be moved one half the distance of movement of the moveable horizontal roll to facilitate a symmetrical quenching fluid spray pattern to the workpiece pass irrespective of workpiece dimensions.

3,738,630

LOW SPEED HIGH TORQUE ROTARY DRIVE FOR TURNING A FURNACE VESSEL OR THE LIKE

Milton C. Stafford, 624 South Michigan Avenue, Tinley Park, Ill.

Filed Feb. 22, 1971, Ser. No. 117,234

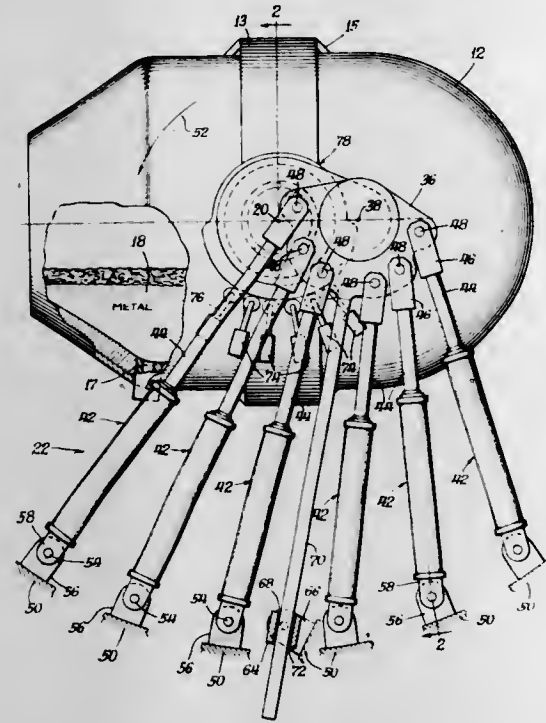
Int. Cl. C21c 5/50

U.S. Cl. 266—36 P

3 Claims

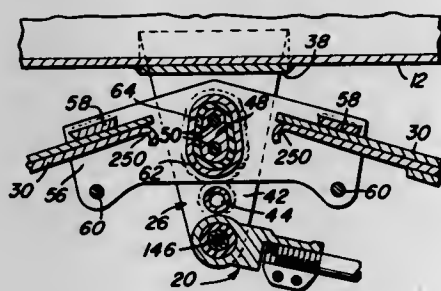
A high output torque for low speed rotation of a heavily laden furnace vessel or the like is provided by a fluid energizing rotary drive in which a plurality of actuating cylinders are connected with a driving crank by a common eccentric connector rotatably stabilized and journaled on the crank. Energization of the actuating cylinders by fluid under pressure is automatically synchronized with rotation of the driving crank so that the cylinders all work together to urge the driving crank in the same rotary direction. A fluid energizing system operates, on stored energy if necessary, under the control of a

master control valve to effect rotation of the drive in either direction and to forcefully but progressively decelerate the



drive to a standstill where it is held, all by means of the actuating cylinders.

3,738,631
SPRING HANGER BRACKET AND LEAF SPRING INTERMEDIATE SUPPORT
Richard L. Haley, 2523 North Jefferson Ext., New Castle, Pa.
Division of Ser. No. 833,325, June 16, 1969, Pat. No. 3,591,197. This application June 24, 1971, Ser. No. 156,231
Int. Cl. B60g 11/10
U.S. Cl. 267-52 9 Claims

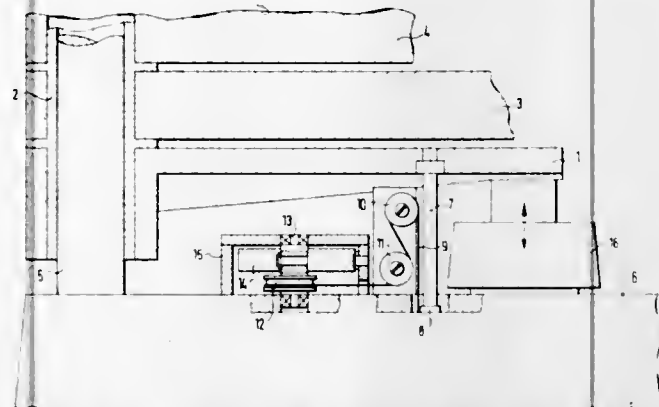


A suspension assembly for tandem axles including an equalizer beam pivot axis defining assembly including (1) a rubber bushed pivot shaft of noncircular configuration and designed to be maintained under compression, rather than being placed under shear stresses, by vertical loading as well as during oscillation of the beam, (2) spring hanger and mounting brackets designed for ease in installation on vehicle frames and axles with maximum strength, (3) substantially stationarily spaced spring bearing surfaces and (4) improved spring-to-axle mounting serving to reduce the length of the static mounted spring mid-portions.

3,738,632
WEIGHT-BALANCING ARRANGEMENT AT VERTICALLY DISPLACEABLE INSTRUMENT TABLES FOR OPHTHALMOLOGICAL APPARATUS OR THE LIKE
Franz Mayerhofer, Munich, Germany, assignor to Optische Werke G. Rodenstock, Munich, Germany
Filed Mar. 5, 1971, Ser. No. 121,365
Claims priority, application Germany, Mar. 5, 1970, P 20 10 386.0
Int. Cl. F16f 1/12
U.S. Cl. 267-135 16 Claims

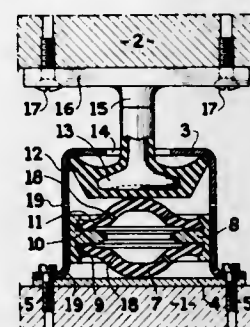
A weight-balancing arrangement on essentially vertically displaceable instrument tables for ophthalmological apparatus

or the like which includes a pull rope connected with a spring and engaging at the apparatus support approximately in the centroidal axis thereof to counteract the weight; the drawing direction of the spring extends in an approximately horizontal



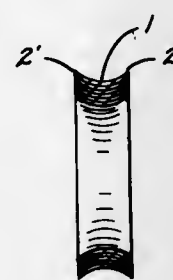
plane while the rope is connected at one end with a downward extension of the apparatus support and over a section thereof is guided by way of reversing rollers in the direction of movement of the apparatus support.

3,738,633
SHOCK AND VIBRATION DAMPER
Andre Lucien Pineau, 12 Rue de Bearn, 92 Saint-Cloud, France
Filed Jan. 26, 1971, Ser. No. 109,833
Claims priority, application France, Mar. 3, 1970, 7003679
Int. Cl. F16f 7/12
U.S. Cl. 267-141 11 Claims



Damper for damping shocks and vibrations between elements comprising an elastically yieldable supporting membrane bearing on the base wall of a housing, an elastically yieldable opposing membrane and a piston cooperating with the two membranes and adapted to be connected to another of the elements. At least one additional elastically yieldable membrane having a stiffened periphery is mounted in the housing to slide therein between the supporting membrane and the opposing membrane.

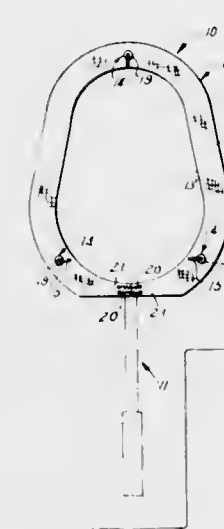
3,738,634
COMPOUND CURVED SPRING
Edwin E. Foster, P.O. Box 714, 1801 Camp Craft Road, Austin, Tex.
Filed July 13, 1971, Ser. No. 162,185
Int. Cl. F16g 1/06
U.S. Cl. 267-156 14 Claims



A spring formed from an unstressed ribbon having an applied cross curvature with the center portion under compression

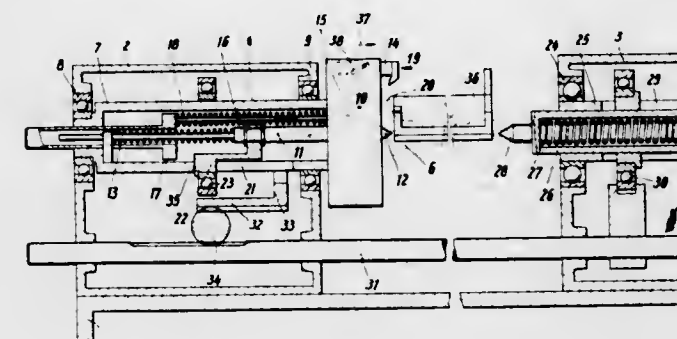
sion; said spring being formed into a normal coiled state and being stress relieved whereby upon movement of said spring from its state of repose to wound condition the same will retain a cross curvature throughout its extent.

3,738,635
PARTS AND TOOL CATCHING DEVICE FOR OUTBOARD MOTORS
Norman J. Ebert, West Shore Road, Ithaca, N.Y.
Filed Mar. 15, 1971, Ser. No. 123,989
Int. Cl. B23g 3/00
U.S. Cl. 269-15 1 Claim



A device for catching parts and tools when working on an outboard motor attached to a boat. This device consists of a sheet of material which is placed under the housing of the outboard motor and includes hold-down clamps for securing it thereto. The device also has tension springs so that it will be adaptable to motors having no rail or ledge for fastening the device.

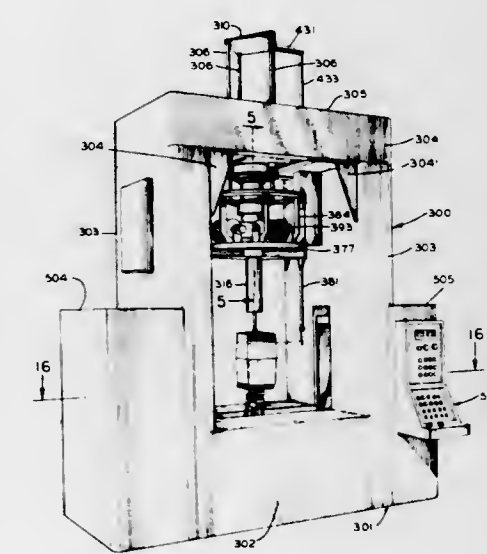
3,738,636
APPARATUS FOR GRIPPING AND HOLDING ELONGATED WORKPIECES PARTICULARLY IN INDUCTION HARDENING MACHINES
Friedhelm Reinke, Remscheid, and Edgar Stengel, Wuppertal-Hahnerberg, both of Germany, assignors to AEG-Elotherm GmbH, Remscheid-Hasten, Germany
Filed May 24, 1971, Ser. No. 146,190
Claims priority, application Germany, May 23, 1970, P 20 25 227.1
Int. Cl. B23q 3/06
U.S. Cl. 269-49 10 Claims



Apparatus for chucking and holding an elongated workpiece, for example, for an induction heating device, so that a workpiece reference surface bears against a fixed abutment and is always located at the same place. In the embodiment described below, two opposed clamps mounted in a frame are

urged toward one another by compression springs to hold a workpiece axially. To release a workpiece, one of the clamps is moved away from the other which follows as urged by its compression spring. An intermediate member is mechanically linked to the first mentioned clamp by two racks and a pinion so that the member moves in the opposite direction and, after a predetermined travel, engages the second mentioned clamp to cause it to also move away from the first mentioned clamp and release the workpiece. A chuck having jaws which pivotally close over the edges of a flange is preferably associated with the second mentioned clamp and either the flange surface held by the jaws or the opposite surface can serve as the reference surface.

3,738,637
METHOD AND APPARATUS FOR FILAMENT WINDING ABOUT THREE AXES OF A MANDREL AND PRODUCTS PRODUCED THEREBY
William B. Goldsworthy, Palos Verdes Estates, and John A. Bunnell, South Laguna, both of Calif., assignors to Goldsworthy Engineering, Inc., Torrance, Calif.
Division of Ser. No. 709,676, March 1, 1968, Pat. No. 3,701,489, which is a continuation-in-part of Ser. No. 591,387, Oct. 18, 1968, abandoned, which is a continuation of Ser. No. 156,563, Nov. 29, 1961, This application Apr. 23, 1970, Ser. No. 43,311
Int. Cl. B23q 3/18
U.S. Cl. 269-61 8 Claims

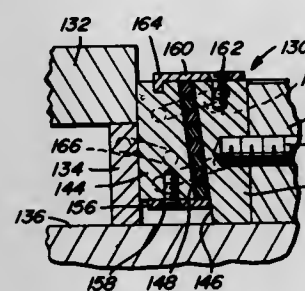


A mandrel supporting apparatus for use in filament winding systems and the like, which apparatus comprises a shiftable carriage mechanism having a plurality of mandrel-supporting shafts mounted thereon. Each of the shafts have their central axis disposed in perpendicular relationship with respect to each other and at their outer ends, each carry a mandrel-supporting table. Extendable arms provided with mandrel engaging clamping members are mounted on the underside of the table and a rack and pinion gear mechanism operable by a fluid power mechanism permits extension of these arms and actuation of the clamping members. The carriage and hence the mandrel-supporting tables are movable in a relatively vertically located arc so that the tables can be shifted from a supporting position where they are in a location to support a work element such as a mandrel to a remote position where they are not in engagement with the mandrel. Furthermore, during the shifting movement of the respective mandrel-supporting tables with the carriage, a mandrel can be shifted from one of the tables to the other so that work in the form of filament winding may be performed with respect to the mandrel.

3,738,638
WORKPIECE SUPPORTING CLIP ON PARALLELS AND
ROLLER BEARING TYPE HOLD-DOWN JAWS
 Carl O. Lassy, c/o Lassy Tool Company, Bristol, Conn.
 Division of Ser. No. 589,269, Oct. 25, 1966, Pat. No.
 3,514,092. This application May 22, 1970, Ser. No. 39,652
 Int. Cl. B23q 3/02

U.S. Cl. 269-136

11 Claims



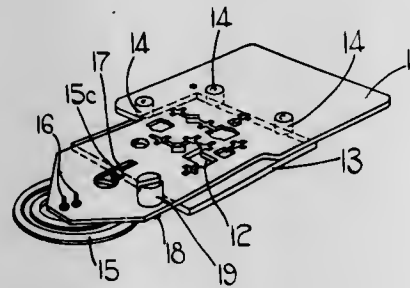
A workpiece holder including a bed and a pair of upstanding opposed jaws mounted thereon with at least one jaw being movable in relation to the other. Clip-on parallels are provided for positioning between the bed and a workpiece and attached to the jaw so that it will not be displaced when the workpiece is inserted into or taken out of the holder. At least one jaw is provided with means exerting a downward force on the workpiece when the jaws are moved toward each other into clamping engagement with the workpiece with such means being in the form of a roller bearing attachment having inclined surfaces engaging the roller bearing.

3,738,639
MASKS FOR USE IN THE MANUFACTURE OF CIRCUIT
BOARDS
 Ronald Cory Berlyn, Edgbaston, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
 Filed Apr. 23, 1971, Ser. No. 136,835
 Claims priority, application Great Britain, June 9, 1970, 27,808/70

U.S. Cl. 269-317

Int. Cl. B23q 3/18

2 Claims



A mask for use in the manufacture of a circuit board has a base with a plurality of apertures therein arranged to receive components and/or connectors which are to be connected to each other and/or to a substrate associated with the mask. The base carries resilient means which urges the substrate against a fixed stop on the base to hold the substrate in position relative to the base.

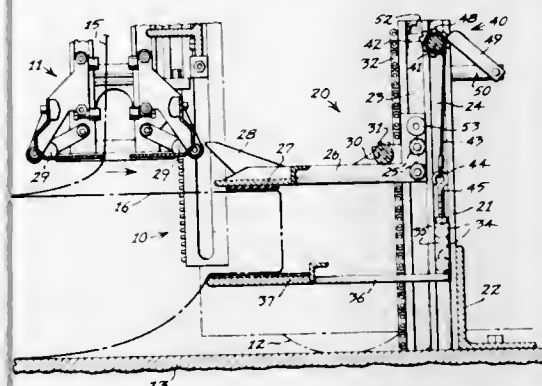
3,738,640
CATCHER MECHANISM FOR THE SPREADING OF
QUILTING MATERIAL
 Cecil S. Frederick, Nashville, Tenn., assignor to Cutters Machine Company, Inc., Nashville, Tenn.
 Filed Jan. 20, 1971, Ser. No. 107,896
 Int. Cl. B65h 29/46

U.S. Cl. 270-31

4 Claims

A catcher mechanism to be used in cooperation with a cloth spreading machine, particularly for the spreading of quilting

material. The catcher mechanism supports an upper catcher bar, adapted to be automatically raised by cooperation with the spreading machine, for resting upon the top of the end portions of the spread layers of material. A lower catcher bar

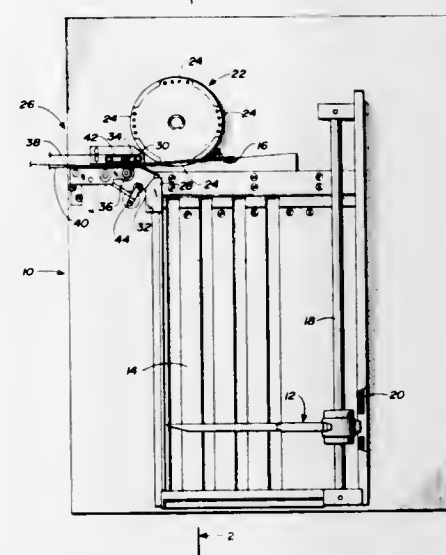


is also supported on the catcher mechanism below the upper catcher bar and is provided with windlass means for raising the lower catcher bar to hold up the crushed end portions of the layers of quilting material.

3,738,641
DOCUMENT FEEDER
 Edward Lewis Noah, Dallas, Tex., assignor to Recognition Equipment Incorporated, Dallas, Tex.
 Continuation of Ser. No. 846,746, Aug. 1, 1969, abandoned.
 This application Aug. 23, 1971, Ser. No. 174,206
 Int. Cl. B65h 3/10

U.S. Cl. 271-94

4 Claims



A document feeder includes a rotating head for moving individual documents from a stack of documents to document receiving rollers. Four vacuum ports are formed in the head at spaced points about its periphery. The ports are connected to apertures positioned in a circle on the bottom of the head. A duct extends from a vacuum source to a point adjacent the circle. As the head rotates, the apertures cooperate with the duct to connect each port to the vacuum source during the movement of the port between the stack of documents and the rollers.

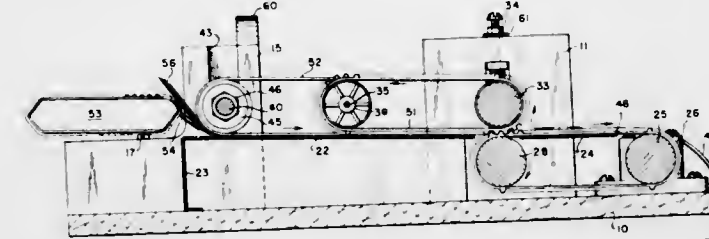
3,738,642
SEPARATOR FOR NEW PAPER MONEY
 Pete Blaire, Greenville, Pa., assignor to Michael Halliday and Samuel J. Orr, IV, Greenville, Pa., part interest to each
 Filed June 8, 1971, Ser. No. 150,977
 Int. Cl. B65h 3/04, 5/02

U.S. Cl. 271-10

5 Claims

New paper money in stacks or packages is fed along two spaced lower resilient corrugated belts driven by a motor. The

corrugations of these belts engage corrugations in the lower runs of similar belts disposed above the lower belts. The upper belts feed bills from the stack or package of bills into the nips

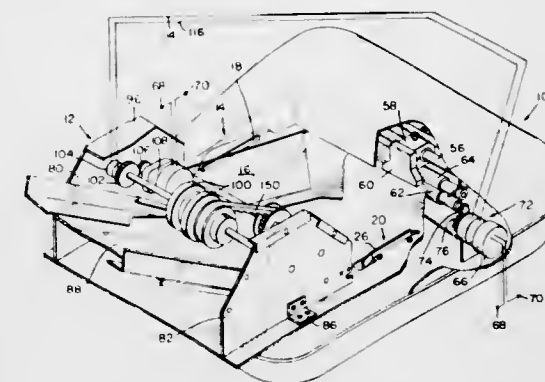


between the pairs of belts and slightly corrugate the bills to separate them and to prevent the bills from sticking together when again stacked or packaged.

3,738,643
PAPER FEEDER
 Ronald I. Bell, Fort Lauderdale; David E. Snyder, Hollywood, and Donald Carl Hendrickson, Lauderhill, all of Fla., assignors to Datatype Corporation, Miami, Fla.
 Filed Oct. 12, 1971, Ser. No. 188,239
 Int. Cl. B65h 7/10, 9/16

U.S. Cl. 271-52

30 Claims



A paper feed and alignment mechanism comprising a device for moving sheets of paper longitudinally forwardly and a cooperating guide system, the guide system including a longitudinally extending alignment reference for engaging one side edge portion of such sheets and a device for urging such sheets against the reference. The moving device includes wheels which are proportioned and designed intermittently to engage such sheets and urge them forwardly as the wheels rotate. The alignment mechanism acts on the sheets to align them with the reference during the periods of disengagement by the wheels.

3,738,644
APPARATUS FOR SEPARATING A ROW OF TIERLIKE
SUPERPOSED FLAT ARTICLES, PARTICULARLY
NEWSPAPERS
 Willi Kluge, and Reinhard Kluge, both of D-63 Griessen, Kugelberg, 55, Germany
 Filed June 2, 1971, Ser. No. 149,204
 Claims priority, application Germany, June 4, 1970, P 20 27 422.0

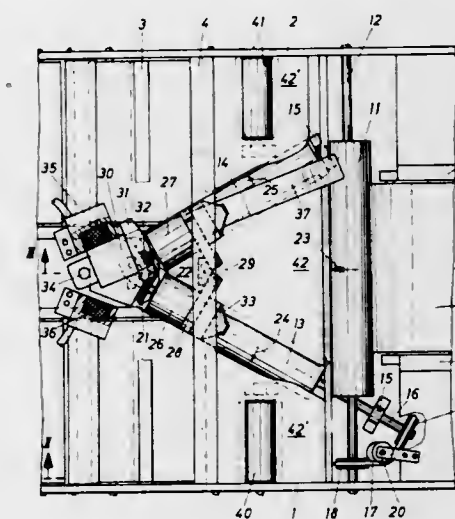
U.S. Cl. 271-64

Int. Cl. B65h 29/60

13 Claims

An apparatus for deviding a row of tierlike superposed flat articles, particularly newspapers, which row rests on a main conveyor belt, into two dividing rows. The apparatus is characterized by at least one swordlike slide having an operating mechanism for insertion of the slide between two articles lying one on top of the other. In addition, two rollers (dividing rollers) are provided having a friction coating thereon and are

arranged below a table and extend with their upper sides through slots in the table. The upper sides of the rollers are positioned lower than the transporting surface of the conveyor belt and the axes of which are arranged parallel to the direction of movement of the main conveyor belt or V-shaped in such a manner that the dividing rollers at an increasing distance from the main conveyor belt approach one another. A movable roller cover is provided which is interchangeably associated with the one or the other of the dividing rollers for

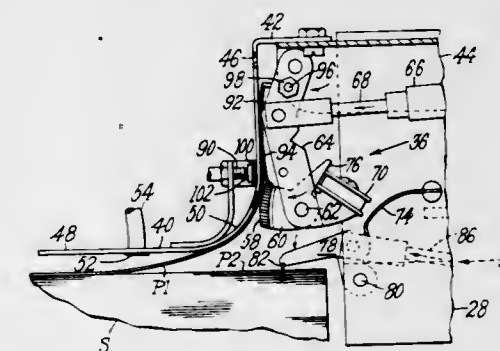


covering same. Conveyor belts (divided flow conveyor belts) are connected after the dividing rollers and a counting device is provided for the articles conveyed by the main conveyor belt or the divided flow conveyor belts. A control and operating mechanism is provided for periodically moving the slide and the roller cover in such a manner that the roller cover is changed over to a different dividing roller when the slide holds the papers away from the dividing rollers after a predetermined number of articles have been conveyed.

3,738,645
TOP SHEET SEPARATING, HOLD-BACK-DOWN
MECHANISM
 Richard W. Gray, Marblehead; Paul G. Rumball, Beverly, and Oliver C. Brett, Jr., West Buxford, all of Mass., assignors to USM Corporation, Boston, Mass.
 Filed Nov. 26, 1971, Ser. No. 202,145
 Int. Cl. B65h 3/14

U.S. Cl. 271-26 R

10 Claims



A sheet folding machine, especially one adapted to pick off and transfer successive fabric plies from a stack, is provided with improved sheet restraining means. It comprises a pneumatic separating means and a pair of cooperative, hold-back and hold-down devices for insuring that only single work pieces are cyclically removed from the stack.

3,738,646

PIN FEED TRAY

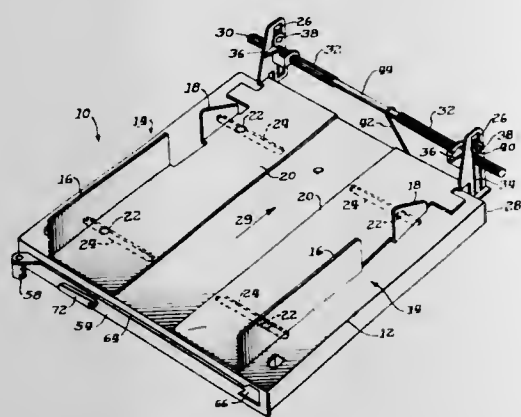
Casimir S. Samczyk, Franklin Park, Ill., assignor to Bell and Howell Company, Chicago, Ill.

Filed July 6, 1971, Ser. No. 159,859

Int. Cl. B65h 1/04

U.S. Cl. 271-170

8 Claims



An improved pin feed tray in which pin separators are mounted on a horizontal rod which has splines engaging teeth formed in vertical guide slots. The side guides are self-centering and apparatus is provided to raise the pins and separate the side guides.

3,738,647

GAME WITH SWINGABLY SUPPORTED IMPACT MEMBER

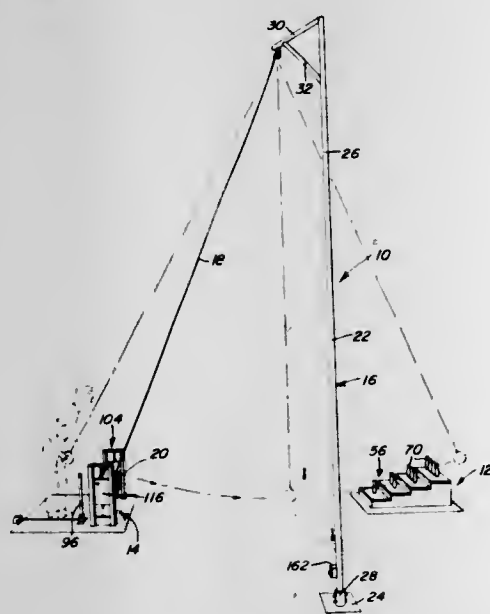
Myron C. Morrill, 295 Outer Drive, Venice, Fla.

Filed Aug. 27, 1971, Ser. No. 175,614

Int. Cl. A63d 7/00

U.S. Cl. 273-40

6 Claims



A pair of bases for stationary positioning in horizontally spaced apart relation and a support member for support in elevated position above the level of the bases and in an upright plane generally normal to a line extending between the bases and centrally intermediate the latter. An upstanding elongated tension member has its upper end attached to the support and a weighted impact member is carried by its other end with the tension member and the weight supported therefrom being swingable in pendulum fashion between the bases. At least one target member is supported on one of the bases for impact therewith by the impact member. The player stands on the other of the bases and releases the impact member for pendulum-like swinging movement toward the target member. As the tension member moves past vertical switches are actuated thereby to control solenoid actuated latches on the player's base. Actuation of the latches allows an upwardly biased assembly to move upwardly. Disposed on the assembly are one-way gate members which, when the assembly is in its raised position, allow the impact member to move therepast toward the player but prevent the impact member from moving back toward the target member. The assembly also includes a horizontally disposed bar positioned between the gate members and the player in such manner as to prevent the impact member from hitting the player.

position, allow the impact member to move therepast toward the player but prevent the impact member from moving back toward the target member. The assembly also includes a horizontally disposed bar positioned between the gate members and the player in such manner as to prevent the impact member from hitting the player.

3,738,648

BOWLING PIN SETTING DEVICE

George Paul Strickland, 26 Patricia Drive, St. Catharines, Ontario, Canada

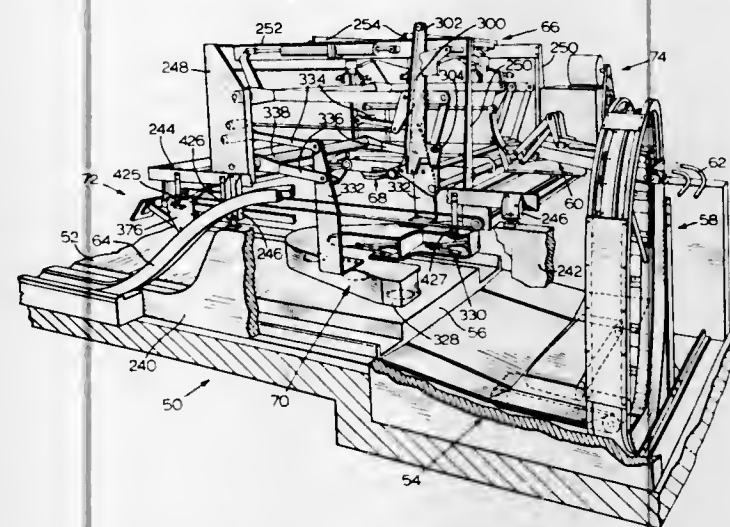
Filed May 20, 1971, Ser. No. 145,456

Claims priority, application Canada, May 22, 1970, 83824

Int. Cl. A63d 5/09

U.S. Cl. 273-43 A

28 Claims



A pin setting device for placing bowling pins on a playing surface in bowling array. The device includes an elevator for lifting bowling pins upwardly, a distributor feeding system for receiving bowling pins from the elevator and moving the bowling pins forwardly to a distributor. An indexing mechanism drives the distributor incrementally about a vertical axis and the distributor includes pick-up mechanisms to grip pins off the distributor feeding system. A guide plate combines with the pick-up mechanisms to position the pins in bowling array as the rotor turns. Separate and distinct setting and clearing mechanisms are provided to respectively strip pins off the distributor and place the pins on the playing surface, and to raise pins off the playing surface while the surface is swept to remove fallen pins.

3,738,649

COMBINED CHAIR AND EXERCISING DEVICE

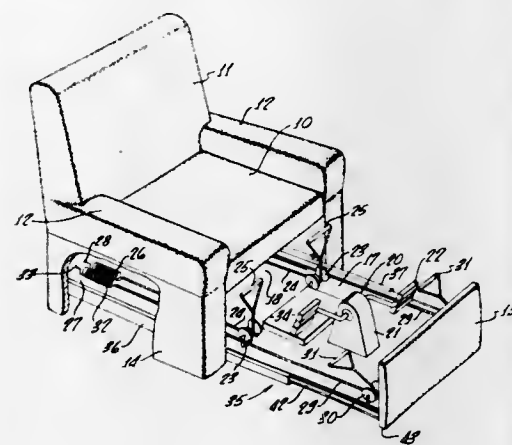
Eddie Miller, 21724 Western, Torrance, Calif.

Filed Nov. 16, 1970, Ser. No. 89,765

Int. Cl. A63b 21/00, 21/02, 23/04

U.S. Cl. 272-58

3 Claims



An exercising arrangement including a chair having a space beneath the seat portion, with the exercising devices being positioned beneath the seat portion.

ERRATA

For Classes 273-40 and 273-43 see:
Patents Nos. 3,738,647 and 3,738,648

3,738,652

AUTOMATIC BOWLING SCORE COMPUTING AND DISPLAY DEVICE

Eugene E. Reynolds, Richmond, Calif., assignor to Brunswick Corporation, Chicago, Ill.

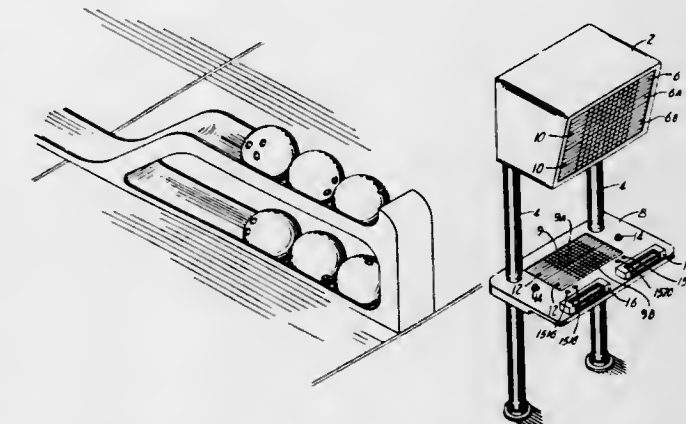
Continuation of Ser. No. 697,632, Nov. 20, 1957, abandoned.

This application May 16, 1962, Ser. No. 196,039

Int. Cl. A63d 5/04

U.S. Cl. 273-54 C

269 Claims



A bowling score computer having either manual keyboard or automatic pinfall sensing input. The computer is operative to record mark counts, totalize and display team scores, allow entry of handicap scores and automatically record pace-setter scores. First and second pinfall values for each frame are recorded and the scoring cycle is modified in accordance with first and second ball pinfall. In a first embodiment the frame scores are printed on individual tablets which are thereafter manipulated to display positions. In a second embodiment, the scores are printed on a moveably disposed scoresheet. A device is provided for projecting the scores.

3,738,651

FINGER, HAND AND FOREARM DEVELOPER

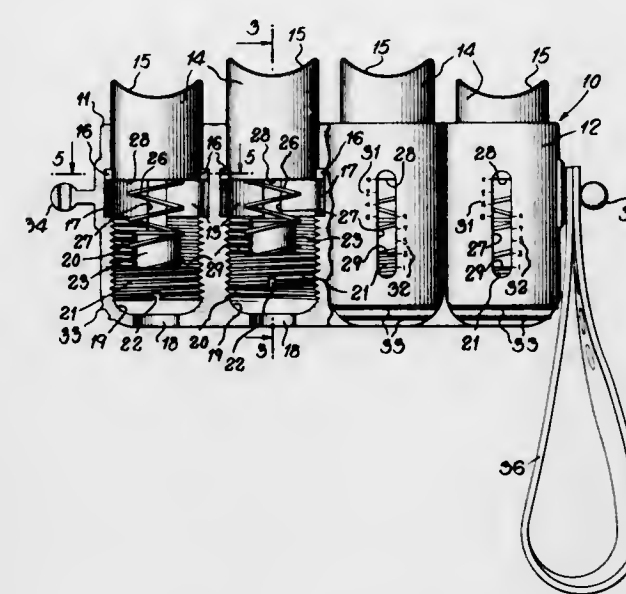
Donald Norman, 2340 Linwood Avenue, Fort Lee, and Samuel Cherba, 735 Totowa Road, Totowa, both of N.J.

Filed Dec. 6, 1971, Ser. No. 205,029

Int. Cl. A63b 11/08

U.S. Cl. 272-67

4 Claims



A hand exercising device having four independently adjustable spring actuated plungers within a casing for compression thereof by four fingers of a hand in which the compression impressed upon each plunger is adjustable to an indicated amount in accordance with the requirement of each finger.

3,738,653

TABLE TENNIS GAME WITH SLOPING PERIPHERAL BOUNDARY

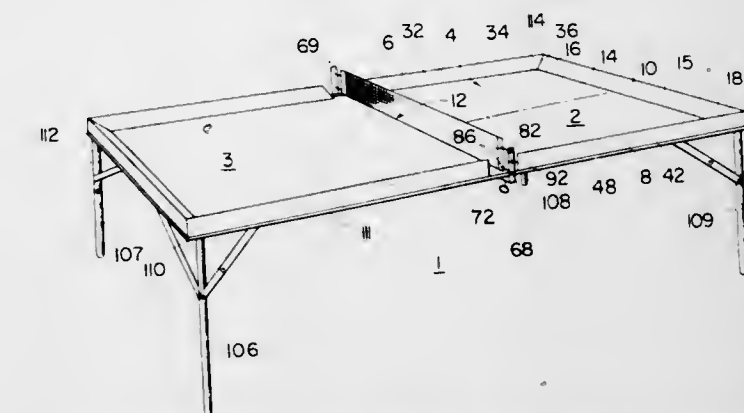
Warren O. Simpson, 1276 Chalmero Drive, Battlecreek, Mich.

Filed May 18, 1970, Ser. No. 37,943

Int. Cl. A63b 39/00

U.S. Cl. 273-30

6 Claims



A game device for use with a ball and paddles comprising a game board having a playing surface having a recessed central portion and upstanding side portions adjacent to the periphery of said recessed portion. The upstanding side portions have a triangular cross section and are sloped downwardly and inwardly toward the playing surface. A layer of felt material is secured to the playing surface for providing a degree of friction to a ball bounced thereagainst and for reducing the coefficient of restitution of the surface in a specific embodiment.

3,738,654 ATHLETIC AID

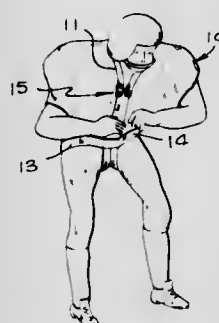
Robert C. Whaley, Jr., Pasadena, Calif., assignor to J. Thornton Posey, Pasadena, Calif.

Filed July 23, 1971, Ser. No. 165,044

Int. Cl. A63b 67/00

U.S. Cl. 273-55 R

2 Claims



A body restraining device is disclosed herein for use in athletics which includes a neck strap and a pair of thigh loop straps that are joined together by a resilient body trunk strap. Attachment fasteners are provided for detachably coupling the neck strap to the body trunk strap whereby the resiliency thereof places a yieldable constricting load forcibly urging the wearer's upper torso downwards. The straps may be composed of elastic material or the neck and thigh straps may be composed of fabric webbing while the body trunk strap may be a shock cord or the like.

3,738,655 MAGNETIC POOL BALL

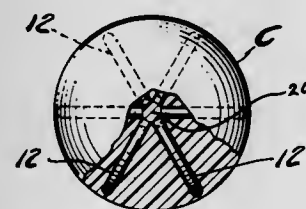
Earl W. Feddick, and Gustane Wassman, both of Bay City, Mich., assignors to Victor Comptometer Corporation, Chicago, Ill.

Division of Ser. No. 696,344, Jan. 8, 1968, Pat. No. 3,547,439, which is a division of Ser. No. 207,694, July 5, 1962, Pat. No. 3,362,910. This application Aug. 17, 1970, Ser. No. 64,272

Int. Cl. A63b 37/00

U.S. Cl. 273-59 A

1 Claim



A pool ball comprising a spherical body of non-magnetic material and circumferentially extending loops of magnetic material embedded in the body inwardly of the outer surface of the non-magnetic material but outwardly of a portion of the non-magnetic material, the body having its center of mass located at its geometric center.

3,738,656 PINSETTER MASKING

Albert M. Rockwood, North Muskegon; Robert W. Lemieux, Spring Lake; Allen Lutz, Muskegon, all of Mich., and Ralph M. Lazar, Skokie, Ill., assignors to The Brunswick Corporation, Skokie, Ill.

Filed Sept. 23, 1971, Ser. No. 183,132

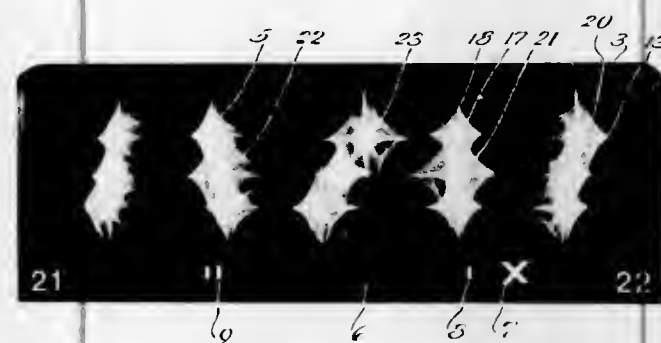
Int. Cl. A63d 5/04

U.S. Cl. 273-54 R

8 Claims

A bowling lane pinsetter masking unit including a transparent panel having a prismatic pattern impressed thereon and

light sources positioned at varying distances therebehind, the character of the prism pattern and the location of the light



sources being such as to create a unique and attractive light pattern.

3,738,657 EXPANDABLE HUNTING ARROW

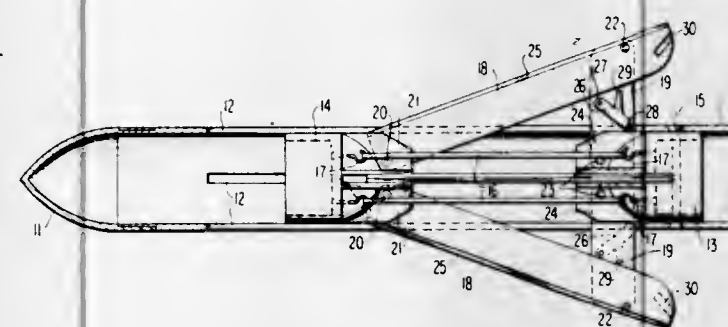
Ernest P. Cox, Box 154, Lola, Mont.

Filed May 9, 1972, Ser. No. 251,647

Int. Cl. F41b 5/02

U.S. Cl. 273-106.5 B

10 Claims



A hunting arrow has a tubular leading end portion provided with radially positioned, longitudinally extending slots. Mounted within the tubular portion are a rearwardly positioned fixed block and a forwardly positioned movable block. Blade elements comprising pivotally connected long and short sections extend between the blocks in alignment with the slots and are pivoted to the blocks, the long section being pivoted to the movable block and the short section being pivoted to the fixed block. Elastic bands are stretched between the two blocks and urge the movable block toward the fixed block. The blade elements while in longitudinal alignment tend to keep the movable block from moving. A release element is pivotally mounted to the short blade section and engages a slot in the longer blade section to keep the blade sections locked in longitudinal alignment. A projection on the release element projects outwardly of the tubular section and when engaged by the flesh of an animal upon arrow penetration releases the blade elements to be pivoted outwardly of the tubular section as the movable block moves rearwardly under the urging of the elastic bands.

3,738,658 DISK ROTATING GAME

Robert E. Smith, 2429 Lyndale Avenue, Minneapolis, Minn.

Filed Sept. 17, 1971, Ser. No. 181,420

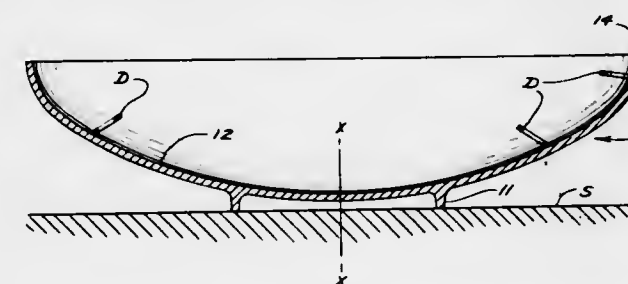
Int. Cl. A63b 67/08

U.S. Cl. 273-109

1 Claim

A game for individual use comprising an imperforate bowl adapted to be held in the hands of the user with the upper interior surface forming an upwardly opening concave annular track for rotating one or more disk-shaped objects of the size of coins by the user giving gyratory motion to the bowl, the radial curvature of the track gradually increasing from the

near horizontal at its center axis to the near vertical at its outer portion enabling the user to rotate several disks simultane-



ously upon the surface along paths spaced at varying distances from the axis, the bowl having a base adapted to support the bowl in upright position on a flat surface.

3,738,659 AUTO RACING BOARD GAME APPARATUS

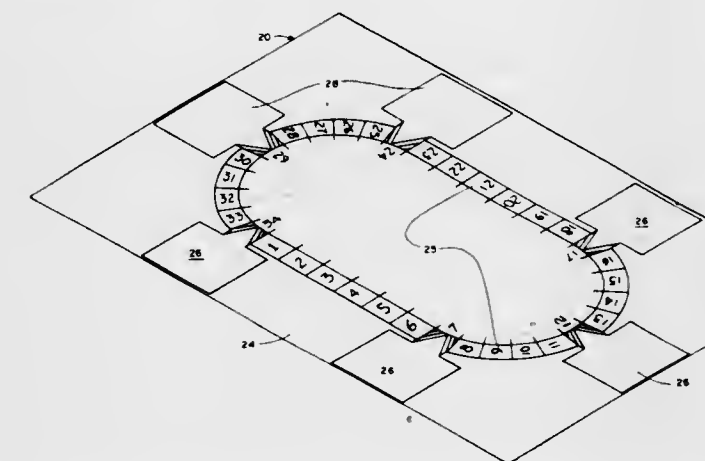
Mildred F. Partridge, Route Box 62 BB, Montesano, Wash.

Filed Apr. 19, 1971, Ser. No. 135,173

Int. Cl. A63f 3/00

U.S. Cl. 273-134 AG

3 Claims



Game apparatus providing racing cars assembleable from plural elements, a game box containing the elements in a concealed manner, a game board over which the assembled cars move, and play determining elements including randomly distributable monetary units and play directing cards. The game box has sets of part storage bins with opaque covers, each cover being provided with identification indicia. Play of the game proceeds by assembling the car playing elements by purchase with a random distribution of monetary units and thereafter moving the assembled elements about the playing board under certain pre-determined conditions in response to further random play of monetary units.

3,738,660 GOLF PRACTICING APPARATUS

Weldon K. Branz, Arlington; John C. Pennington, Dallas, and Leslie E. Terpening, Irving, all of Tex., assignors to Lectron Industries, Inc., Dallas, Tex.

Filed Feb. 16, 1971, Ser. No. 115,305

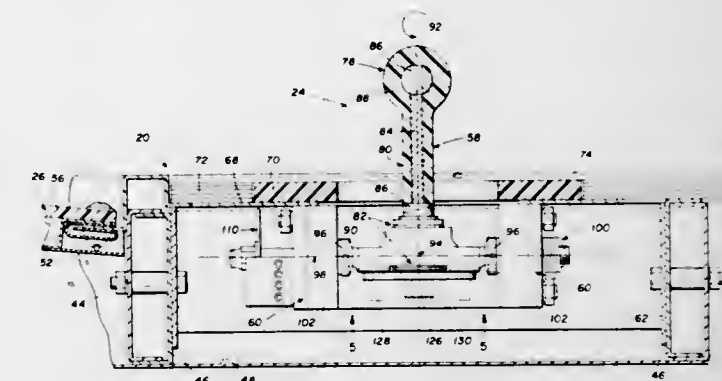
Int. Cl. A63b 69/36

U.S. Cl. 273-185 D

29 Claims

A golf practicing apparatus includes a platform; a target mounted on the platform for receiving practice of golf shots; a display panel for indicating distance information, hook-slice information, and push-pull information; and electronic circuitry responsive to movement of the target for actuating the display panel. The target comprises a simulated golf ball and a stem which are supported for rotation about a first axis extending through the ball and the stem, a second axis extending perpendicularly to the first axis, and a third axis extending perpendicularly to the second axis and in the plane of the first

axis. In operation, the speed of rotation of the target about the second axis is sensed to provide distance information, the direction and amount of rotation of the target about the first axis is sensed to provide hook-slice information, and the direction and amount of rotation of the target about the third axis is sensed to provide push-pull information. Rotation of the ball and stem about the first axis is detected by an assembly including a cam and conventional automobile breaker



point assemblies. Rotation about the second axis is detected by a system including a lamp assembly, a phototransistor, and a rotatable opaque shutter including two spaced apart holes which permit two sequential light pulses to reach the phototransistor. Rotation about the third axis is detected by a system including a lamp assembly and a rotatable opaque shutter which uncovers one or more phototransistors arranged in a V-shaped array.

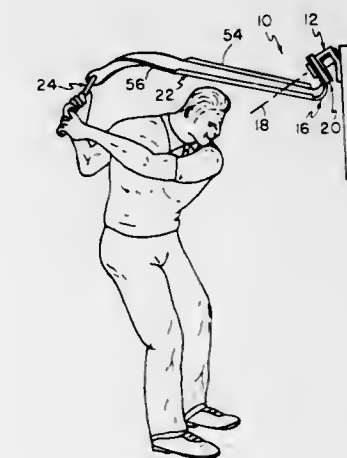
3,738,661 GOLF EXERCISING DEVICE

Bynum W. Moller, P. O. Box 688, Kerr County, Tex.
Continuation of Ser. No. 53,535, July 9, 1970, abandoned.
This application Nov. 22, 1971, Ser. No. 201,222

Int. Cl. A63b 69/36

U.S. Cl. 273-191 R

22 Claims



A golf exercising device is disclosed comprising an arm mounted for rotation and braked during at least the downswing part of the golfer's swing. A golf club handle is mounted on the lower end of the arm. The arm comprises an upper rigid section and a lower section which is flexible in torsion, flexible for movement toward and away from the golfer and rigid in the path of rotation of the arm to transmit force applied by the golfer to the brake. The flexible part of the arm provides a simple and convenient means of accommodating variations in the swing of the golfer. The arm is braked either by an adjustable friction arrangement of parts or by a hydraulic system wherein the flow of fluid through apertures is controlled to provide braking resistance only during the downswing.

3,738,662

AUTOMATIC GOLF BALL TEEING DEVICE

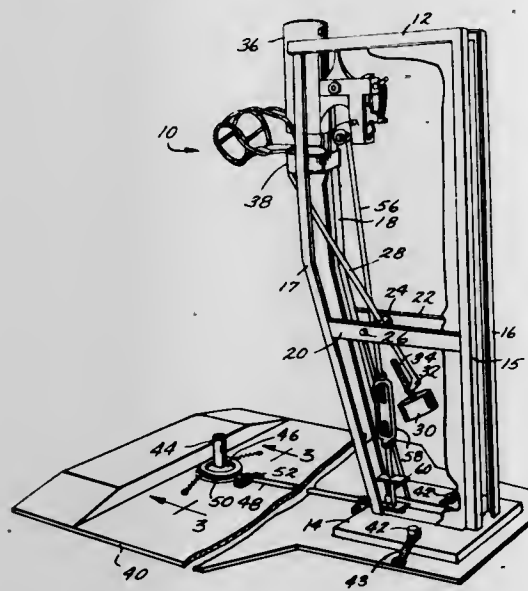
Charles L. Hodgkin, 1402 South Seventh Street, Tucumcari, N. Mex.

Filed July 7, 1971, Ser. No. 160,492

Int. Cl. A63b 57/00

U.S. Cl. 273-201

2 Claims



An automatic golf ball teeing device is provided having a frame and a ball guide tube mounted on the frame to which a portable ball storage rack may be attached to feed golf balls to the guide tube; a cup is attached to a pivotally movable transfer arm having a counter-weight at its end opposite the cup; when the transfer arm is in a raised position the cup will receive a ball discharged from the guide tube which will cause the transfer arm to pivot downwardly to discharge the ball through an adjustable wire guide track on to a golf tee; the golf tee is supported on a member which will pivot about a horizontal axis when the tee is struck by a golf club; a rod is pivotally mounted on a support and is rigidly attached to the pivoting member and extends to the base of the frame; a star wheel feeder is rotatably mounted adjacent the ball guide tube with the spokes of the wheels projecting into the tube; a spring biased hook latch controls rotation of the star wheel and a mechanical linkage is provided to disengage the latch hook from the star wheel in response to pivoting of the rod connected to the golf ball tee supporting member so that one ball at a time can be discharged from the ball guide tube into the cup.

3,738,663

DIGITAL CONTROLLED GOLF BALL TEEING APPARATUS

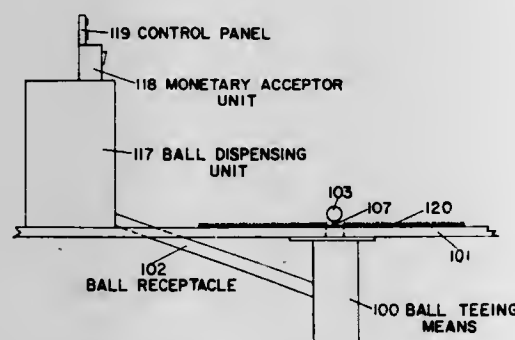
Joseph A. Gentiluomo, 1456 Belmont Avenue, Schenectady, N.Y.

Filed Mar. 29, 1971, Ser. No. 129,001

Int. Cl. A63b 57/00

U.S. Cl. 273-201

12 Claims



An automatic golf ball teeing apparatus functional in providing either golf practice or golf game mode of operation

through use of digital control to yield multi-position tee elevation, thus enabling the golfer to perform both tee and fairway shots from the same tee. The control system consists basically of a stepping actuator to elevate the tee, a translator to convert input drive pulses to predetermined sequential commands for driving the stepping actuator, a pulse source to provide pulsed signals to the translator, counter modules to monitor the number of pulses fed to the stepping actuator to assure proper tee height positioning, a counter module to monitor the number of balls to be supplied to the ball teeing means per vend, and control means including a punched-tape programmer for inciting tee height positional commands.

3,738,664

GOLF PRACTICE RANGE

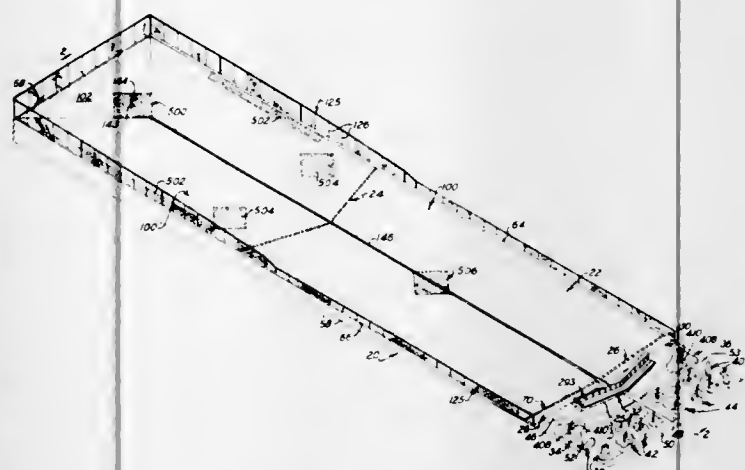
Maurice E. Peeples, P.O. Box 235, Kingsland, Ga.

Filed Oct. 21, 1970, Ser. No. 82,559

Int. Cl. A63b 67/02; B65g 25/08

U.S. Cl. 273-176 K

46 Claims



A golf practice range construction including a gravity operated ball return system, and an electro-mechanically operated reciprocable ball drag for recovering balls from a driving range for transfer to the aforementioned system.

3,738,665

HYDRAULIC SEALS

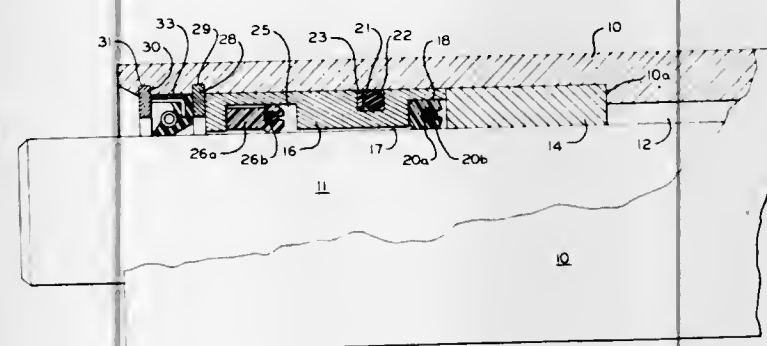
Arthur Bilco, Greene, N.Y., assignor to The Raymond Corporation, Greene, N.Y.

Filed Jan. 3, 1972, Ser. No. 215,043

Int. Cl. F16j 15/32

U.S. Cl. 277-3

8 Claims



A tandem hydraulic seal assembly includes a graphite-filled Teflon inner seal and a molybdenum disulfide-filled polyurethane outer seal. The pressure drop across the inner seal limits the pressure on the outer seal to values low enough to prevent high friction. The outer seal compresses axially when pressure is applied to it to admit fluid to its grooved seat, and expansion of the outer seal when pressure is relieved pumps fluid back past the inner seal to the pressure chamber.

3,738,666

VALVE STEM SEAL ASSEMBLY

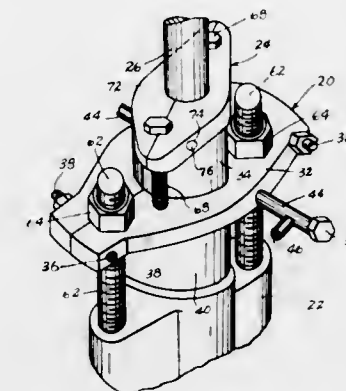
Harold R. Adams, R.R. 1, St. Francisville, Ill.

Filed May 15, 1972, Ser. No. 253,624

Int. Cl. F16j 15/40

U.S. Cl. 277-58

9 Claims



A valve stem seal assembly to prevent and stop leakage around a valve stem by encircling the valve stem at a bolted gland. The seal assembly is fitted on top of the bonnet to enclose the valve stem and a sealant compound is forced through an inlet opening into the seal assembly fitting into sealant channels around the valve stem to provide primary sealing around the stem and a secondary sealing at the bottom of the assembly housing fitting into the bonnet. The packing gland fits on top of the valve stem seal assembly and provides a secondary seal around the valve stem at the top of the valve stem seal assembly. The inlet fitting to provide for the conduction of the sealant into the valve stem seal assembly is provided with a T-fitting in order that sealant can be injected under pressure. A threaded bolt valve is adapted to close the T-fitting while the sealant is under pressure to provide for closure and increase in the sealant pressure in the closing operation. Besides use on valves the gland may also be used on all types of pumps such as piston pumps, also the steam cut off rods on steam pumps and electrical centrifugal pumps. The same procedure would apply as repacking a valve while under pressure.

3,738,667

SELF-ENERGIZING FACE SEALS

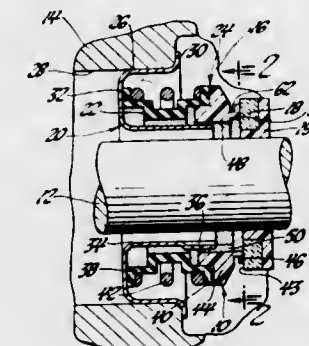
James D. Symons, Southfield, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 25, 1971, Ser. No. 109,450

Int. Cl. F16j 15/34, 15/54

U.S. Cl. 277-96

2 Claims



A face seal is provided with an annular groove on its fluid side adjacent the sealing contact surface for reducing the torsional rigidity of the latter under dynamic conditions such that the minute waves which are inherent in the contact surface are increasingly helically inclined by viscous shear forces in the direction of prevailing relative rotation to thereby provide increased hydrodynamic pumping action at the sealing interface.

3,738,668

OIL SCRAPING PISTON RING

Hiroshi Minegishi, Kawagoe, Japan, assignor to Nippon Piston Ring Co., Ltd., Tokyo, Japan

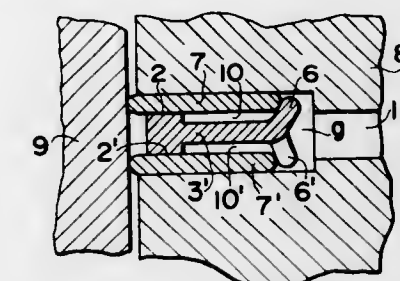
Filed Dec. 29, 1970, Ser. No. 102,491

Claims priority, application Japan, Dec. 29, 1969, 45/1545

Int. Cl. F16j 9/06

U.S. Cl. 277-141

1 Claim



An oil scraping piston ring which has a steel sheet strip having opposite projections formed longitudinally at one side thereof and projecting flatly at both sides and also having a plurality of slots formed equidistantly from each other at the same side and having the same shape. A plurality of slots are equidistantly formed at the other side of said ring and alternatively with respect to the opposing slots, and also having a plurality of curved edges which are alternatively bent in opposite directions. This piston ring is to be inserted into a piston groove for scraping oil and for readily removing to pass the oil.

3,738,669

HALF SEAL UNITS

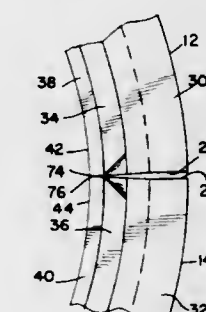
Kare Andersen, Elgin; Kenneth F. Gabrys, Steamwood, and Tyrone B. Ingo, Glen Ellyn, all of Ill., assignors to Chicago Rawhide Manufacturing Company, Chicago, Ill.

Filed Apr. 26, 1971, Ser. No. 137,156

Int. Cl. F16j 15/32

U.S. Cl. 277-199

17 Claims



A segmented seal such as a half seal or other component of a so-called split seal. The individual segments are intended for subsequent assembly with other similar segments to form a complete annular seal having a so-called split line formed between the two segments where end faces thereof meet in opposed relation. Each end face has a configuration designed to provide a fluid tight connection at this so-called split line when two half seals, for example, are assembled and installed in a position of use within an engine or otherwise disposed so as to surround a relatively movable part. The seal at the split line is significantly improved without sacrificing the effectiveness of the primary and secondary seals formed respectively by the primary or wet lip and the radially outwardly directed mounting portion of the seal. Preferably, this is accomplished by a half seal in which each individual end face is comprised of radially outer and radially inner portions joined to each other along a line parallel to the shaft center line, with one end face portion lying in a first plane coincident with a true radial line extending outwardly from the seal center and the other end face portion lying in a plane slightly inclined with respect to

the first plane, with the included angle between the two planes being just less than 180°. The two planes preferably meet radially outwardly from the center substantially the same distance therefrom as does the outwardly facing part of the seal which will form the secondary seal. Prior to installation the portions of the end faces adjacent the lip lie short of an ultimate intended radial plane of contact between adjacent seal segment faces.

3,738,670

SECTIONAL GASKET

Jerry G. Jelinek, La Habra, and Charles R. McNamee, Los Angeles, both of Calif., assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Sept. 27, 1971, Ser. No. 183,975

Int. Cl. F16j 15/00, 9/16

U.S. Cl. 277-199

22 Claims



A gasket of joined sections, each section having a tongue and recess with the tongue of one section receivable in the recess of another section, the tongues and recesses having engageable side walls of resilient material for preventing leakage through the joint, the recess side walls being parallel so as to be sealingly engaged by the tongue side walls regardless of the distance that the tongue is entered into the recess, and opposed faces of each section having raised resilient lips along the edges thereof with lip portions along the edges of the tongues and recesses being deformable into sealing engagement with each other.

3,738,671

RIDER-ACTUATED TOY

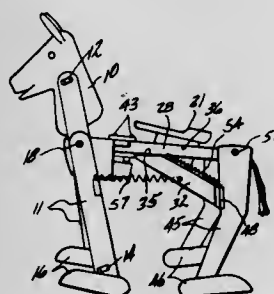
Edward F. Czepiga, Prospect Court, Woodbridge, Conn.

Filed Sept. 13, 1971, Ser. No. 179,715

Int. Cl. A63g 17/00

U.S. Cl. 280-1.183

2 Claims



Versatile equestrian toy, for the provision of exercise, development of coordination, and entertainment, is adapted to be actuated by the rider, through the agency of fore and aft members pivotally attached to a body member, for galloping movements in either a forward or rearward direction. Movement of the mounted toy is effected by the properly timed forward and rearward leaning of the rider, controlling the position of tiltable seat means, coordinated with the application of pressure hand (bridle) and foot (stirrup) bars. Steering is accomplished by the pivotal movement of the fore or aft members in raised position; more limited rider action permits the use of the toy as a rocking horse. The structural and functioning parts are sturdy and uncomplicated, and are readily assembled to provide a durable and useful toy.

3,738,672

DOLLY FOR MOVING VEHICLES

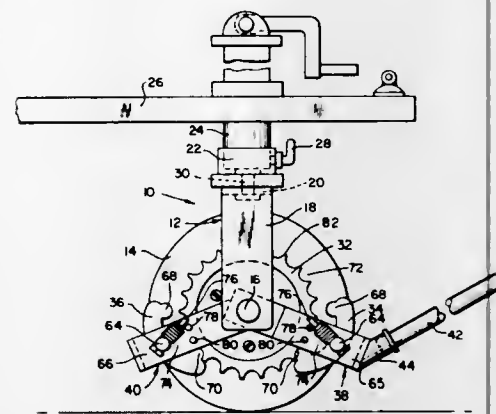
Virgil D. Dalton, 2311 Burgener Boulevard, San Diego, Calif.

Filed Sept. 20, 1971, Ser. No. 181,871

Int. Cl. B60k 27/00

U.S. Cl. 280-3

12 Claims



A dolly type device for manually moving house and boat trailers, aircraft and other vehicles has a single ground-engaging wheel mounted in a supporting frame adapted to be swivelly connected to the vehicle to be moved, the wheel and the supporting frame having mounted thereon elements of a pawl and ratchet type mechanism for driving the dolly either forwardly or rearwardly by means of a manually actuated jacking handle which also serves to steer the dolly. The driving mechanism also permits the dolly to freewheel in the selected direction of movement while preventing roll-back, and can be so adjusted as to prevent movement in either direction.

3,738,673

ROLLER SKATE CONSTRUCTION

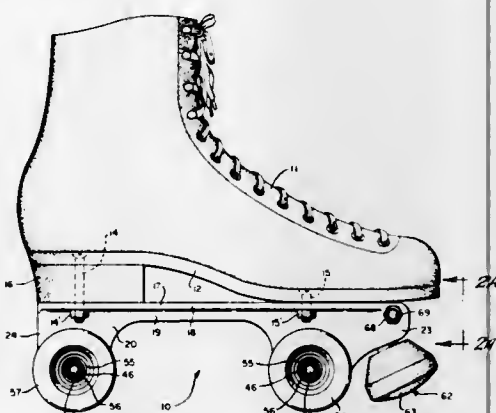
Richard W. Iseman, Buffalo, N.Y., assignor to Micro-Star Skate Company, Inc., Lakeville, Conn.

Filed May 17, 1971, Ser. No. 143,950

Int. Cl. A63c 17/02

U.S. Cl. 280-11.28

12 Claims



A roller skate construction comprising a first embodiment having a cast body member having first and second spaced bores therethrough, a pair of axles mounted in said bores with each of said axles being mounted on pins inclined to the vertical in opposite directions with ball bearings securing central portions of the axles on the pins, and rubber bushings on opposite sides of the axle and interposed between the body member and the wheels for providing resistance to turning of the axle in response to plate lean. A second embodiment journals the axle in a truck which is supported relative to the plate by a ball having its center on a line extending through the point of contact between the wheel and the floor and the center of the axle. A third embodiment mounts the axle on a truck which is connected to the plate body by a pair of spaced ball connections fore and aft of the axle with the resistance provided by the ball connections being such that lateral forces

applied to the wheels at the floor cannot cause more turning of the wheel than corresponds to the plate lean then being effected. The skate construction also includes, as a modification, a plug insertable in the body member for mounting the pins for the axles of the first embodiment described above so that the angle which the pins make can be adjusted by rotating the position of the plug in the skate body member. The roller skate construction also includes an improved toe stop in which the bumper is mounted on a threaded shaft which is mounted into a split sleeve which is received into a split portion of the housing which can be clamped around the toe stop, with the sleeve always abutting a predetermined shoulder in the body member so that the toe stop can be removed and replaced quickly while maintaining the desired adjustments.

3,738,674

SKI EQUIPPED CRUTCH

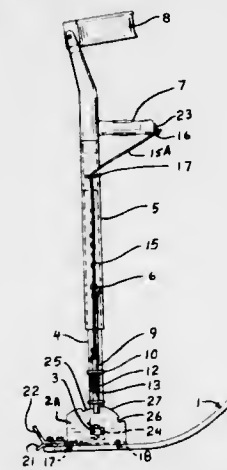
Edward A. Pauls, Rte. 1, Box 615P, Excelsior, Minn.

Filed Dec. 3, 1971, Ser. No. 204,598

Int. Cl. A63c 11/22

U.S. Cl. 280-11.37 B

7 Claims



A ski equipped forearm crutch that converts from a downhill skiing aid to a walking aid by rotating the ski from a horizontal (skiing) position to a vertical (walking) position. A latch controlled remotely from the hand grip locks the short ski in the vertical position enabling the user to support his weight upon the rear end of the ski. A skid resistant member is attached at the rear of the ski to further aid walking on slippery surfaces such as packed snow or ice. A claw-like member, also fixed to the rear of the ski is employed as a means of acting as a brake to slow down a moving skier by rotating the ski to a position in which only the rear of the ski contacts the snow surface thereby causing the claw to dig into the snow surface and cause a retarding force.

3,738,675

SKI CORE OF PLASTIC FOAM MATERIAL

Osamu Hashimoto, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Japan

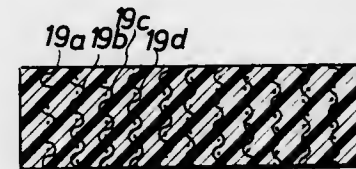
Filed Dec. 23, 1970, Ser. No. 101,075

Claims priority, application Japan, Dec. 28, 1969, 44/123785; Feb. 2, 1970, 45/10139; Feb. 10, 1970, 45/12673

Int. Cl. A63c 5/12

U.S. Cl. 280-11.13 L

3 Claims



A ski core comprises an elongated core body of plastic foam material, and a screw-holding plate embedded in the core

body at an intermediate portion along the length of the core body. The screw-holding plate tightly receives screws fastening a shoe-clamping device to the ski core and may be made of wood, aluminum, or wire netting. The screw-holding plate also serves for the formation of rigid skin layers of the core body around the plate when the core body is molded with the plate contained within the mold cavity.

3,738,676

SLED SKI

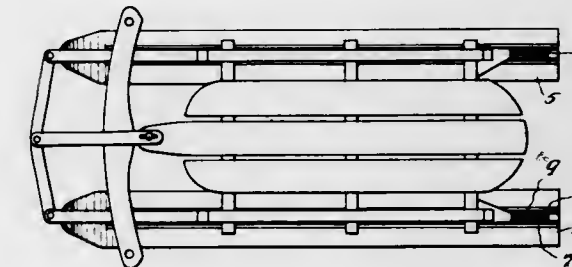
Albert E. Hand, 320 Camp Street, Plainville, Conn.

Filed Dec. 30, 1968, Ser. No. 787,830

Int. Cl. B62b 17/02

U.S. Cl. 280-22

4 Claims



A sled ski which can be easily attached to the flexible runners of conventional sleds for use on snow and which will permit flexing of the runners for steering. Said ski being also adapted to bank with the steering of the sled.

3,738,677

CONVERTIBLE GOLF CART

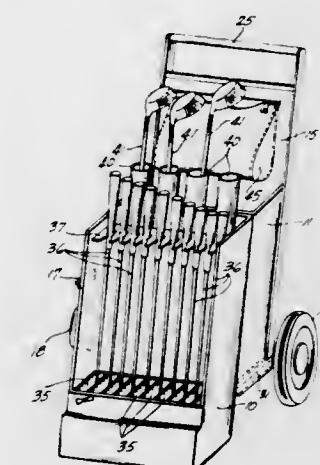
James Renock, 3625 W. Ruskin Avenue, Milwaukee, Wis.

Filed May 27, 1971, Ser. No. 147,412

Int. Cl. B62b 1/04

U.S. Cl. 280-37

7 Claims



A wheeled golf cart which can be manually pulled over a golf course for transporting the golfing equipment. The entire cart can be converted into a closed container for the golfing equipment for storage. A hinged door serves as a closure for storage purposes and as a handle for manipulating the golf cart when it is transporting equipment over a golf course.

3,738,678

FLOOR FRAME STRUCTURE

Roger A. King, and Keith O. Burton, both of Elkhart, Ind., assignors to Bur Kin Homes Corp., White Pigeon, Mich.

Filed July 8, 1971, Ser. No. 160,603

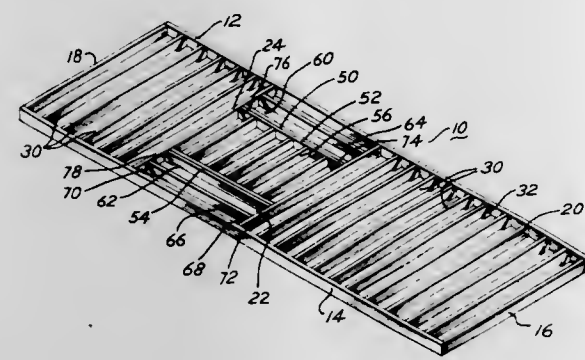
Int. Cl. B62d 21/00

U.S. Cl. 280-106

8 Claims

A floor frame structure for mobile or modular homes, trailers, and similar buildings, having a section constructed of

steel perimeter side members and front and rear cross members and intermediate cross members. The perimeter and intermediate cross members contain hangers for receiving



wooden joists inserted in the steel frame section when the building structure is constructed. The members between said cross members are so positioned as to form pockets for wheels of the vehicle.

3,738,679

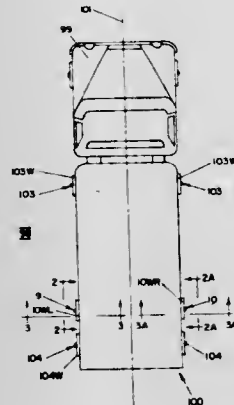
AUXILIARY RETRACTION ASSEMBLY FOR PNEUMATICALLY SUSPENDED TANDEM-AXLE TYPES
William E. Jackson, 3726 Ernst Street, Omaha, Nebr.

Filed May 15, 1972, Ser. No. 253,291

Int. Cl. B60g 11/46

U.S. Cl. 280—124 R

8 Claims



For overland drayage vehicles having one or more pneumatically suspended tandem-axes (traditionally comprising a fulcrum supported beam and air-bellows), there is provided an auxiliary retraction assembly that automatically raises the tandem-axle wheels from the underlying substrate whenever the vehicle operator (during periods of reduced cargo) purposely reduces the air-bellows pressure. Preferred embodiments of the auxiliary retraction assembly comprise: an elongate leaf-spring including a restrained-length portion maintained as through a novel bracket at constant elevation and also including a flexural-length portion terminating remote from the restrained-length between the beam fulcrum and the air-bellows, and an upright connector such as a novel pivotal link actuatedly extending from the leaf-spring flexural-length to the tandem-axle whereby the leaf-spring flexural-length becomes progressively lower as the air-bellows is inflated and becomes progressively higher as the air-bellows is purposely deflated whereupon a finite spatial gap is created between the tandem-axle wheels and the underlying substrate.

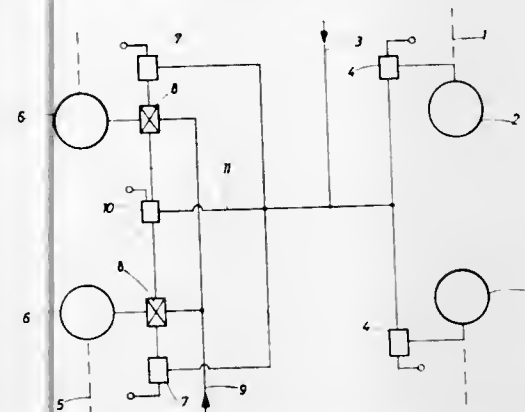
3,738,680
PNEUMATIC SUSPENSION SYSTEM FOR VEHICLES
Hans Pollinger, Munich; Alfred Pöhla, Neufahrn, and Hans Kirchlechner, Munich, all of Germany, assignors to Knorr-Bremse GmbH, Munich, Germany

Filed Apr. 7, 1971, Ser. No. 131,938
Claims priority, application Germany, Apr. 9, 1970, P 20 16 959.9

Int. Cl. B60g 17/04

U.S. Cl. 280—124 F

7 Claims



A vehicle is supported by two pneumatic bellows at each end thereof to form a four-point suspension in which each of the bellows is individually controlled by its own control valve. Switching valves are connected to two of the bellows and their respective control valves so that these two bellows may be operated together jointly whereby the entire vehicle is then supported by a three-point suspension. The switching means may be actuated in response to the speed of the vehicle.

3,738,681

DEVICE FOR REGULATING PRESSURE IN THE INSIDE OF A CAR

Akihiro Wada, Aichi, and Yuichi Sorimachi, Toyota, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Aichi-ken, Japan

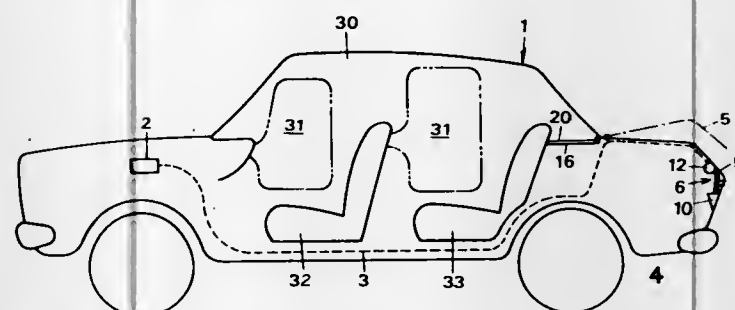
Filed July 9, 1971, Ser. No. 161,217

Claims priority, application Japan, Oct. 14, 1970, 45/90203

Int. Cl. B60r 21/08

U.S. Cl. 280—150 AB

3 Claims



A device for regulating pressure in the inside of a car comprising means for unlocking the door of the trunk of the car upon receipt of a signal from collision sensing means or collision predicting means, and communication means for establishing communication between the inside of the car and the trunk.

3,738,682

CLOSE COUPLED PULLING HITCH ASSEMBLY
Orville A. Ritter, 1401 Oklahoma Boulevard, Alva, Okla.

Filed Nov. 30, 1971, Ser. No. 203,269

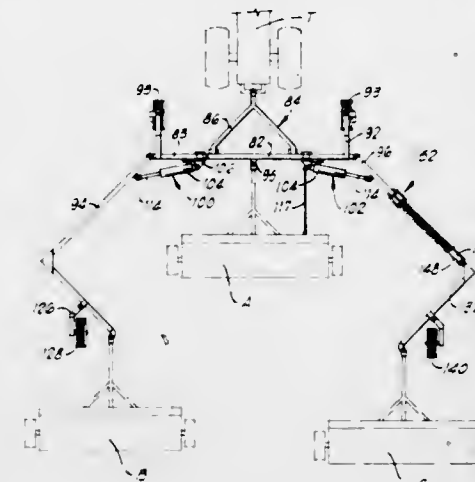
Int. Cl. B62d 53/00

U.S. Cl. 280—413

19 Claims

A close coupled pulling hitch assembly including a horizontally extending, transverse draw bar, hitch means on one side

of the draw bar for connecting a self-propelled vehicle thereto and coupling means on the opposite side of the draw bar for connecting a first agricultural implement to the draw bar. Pivotal connection to one or both end portions of the transverse draw bar is at least one side bar which is connected for pivotation about a substantially horizontal axis. A generally horizontally extending coupling bar is connected to each of the side bars, and is horizontally spaced from the transverse draw bar to accommodate the first described agricultural im-



plement. Coupling means is provided on each coupling bar for coupling thereto, an agricultural implement disposed on the opposite side of the respective coupling bar from the transverse draw bar. Means is provided for pivoting each side bar and its associated coupling bar about a substantially vertical axis and relative to the transverse draw bar to laterally displace the agricultural implements coupled to the coupling bars relative to the agricultural implement coupled to the draw bar. Ground engaging wheels are mounted on at least one of the described bars.

3,738,683

AN EXTENDIBLE RETRACTABLE VEHICULAR HITCH ASSEMBLY

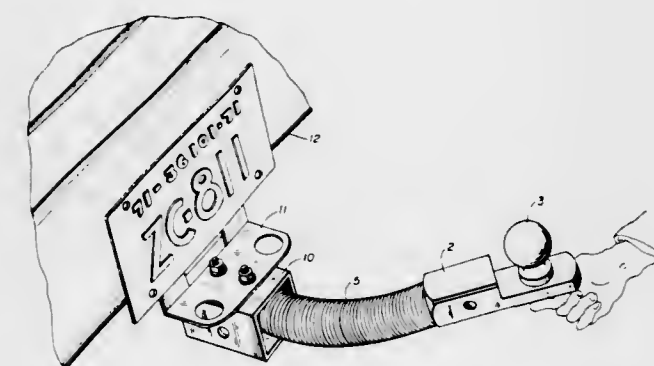
James E. Tate, 926 Regency Drive, Richardson, Tex.

Filed July 28, 1971, Ser. No. 166,869

Int. Cl. B60d 1/06

U.S. Cl. 280—478 R

4 Claims



An extendible retractable vehicular hitch assembly with means to extend the vehicular hitch in multi-directions, the said extendible vehicular hitch having mounting support means and means to hold it in a retracted position.

3,738,684

TRANSPORTABLE VEHICLE

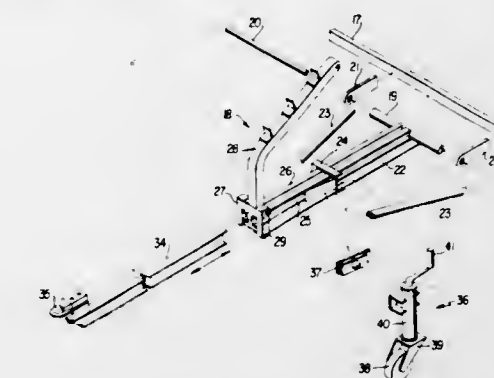
Grady L. Lusk, Route 6, Canton, Ga.

Filed Sept. 17, 1971, Ser. No. 181,462

Int. Cl. B60d 1/14

U.S. Cl. 280—491 R

3 Claims



This disclosure relates to a transportable vehicle comprising a vehicle body and a trailer frame assembly. The trailer frame assembly includes an extensible draft bar that may be pivoted from a generally horizontal position where it is adapted to be connected to a draft vehicle, to an inclined position folded-up against the vehicle body so that it is out of the way when so desired.

3,738,685

NOTE PAD DEVICE USING PAPER ROLLS

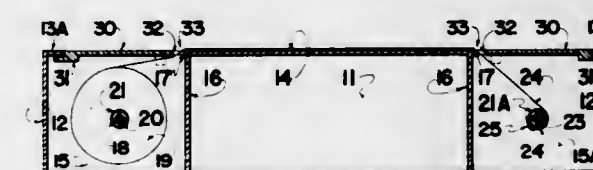
David Penner, 508 Ash St., Winnipeg, Manitoba, Canada

Filed Oct. 21, 1971, Ser. No. 191,261

Int. Cl. B42f 17/28; B65h 17/00

U.S. Cl. 281—8

4 Claims



A casing contains a pair of rollers one at each end and a roll of paper is placed on one roller, extends across the top panel of the casing which acts as a writing surface, and is then wound upon the other roll. Removable end panels and detachable rollers facilitate the replacement of the paper roll.

3,738,686

COMBINATIONAL BOOK FOR BOTH NORMAL READING AND PANORAMIC DISPLAY

Douglas C. Morse, Southern Boulevard, Newbury, Mass.

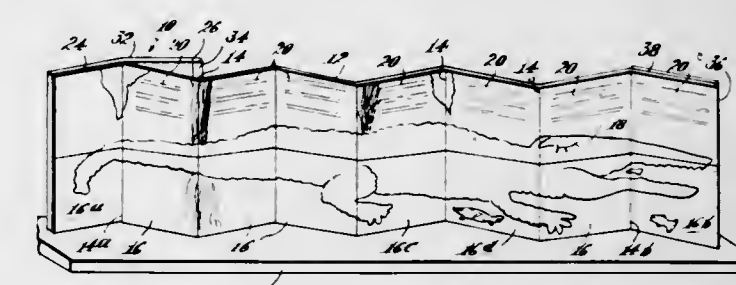
Continuation-in-part of Ser. No. 831,616, June 9, 1969,

abandoned. This application Mar. 26, 1971, Ser. No. 128,489

Int. Cl. B42d 15/00; A47b 23/00

U.S. Cl. 283—63

9 Claims



A book construction having a spine foldably joining front and back covers. A plurality of leaves are foldably joined

together to form an elongated accordion-foldable strip. A continuous panoramic illustration and text relating to the panoramic illustration are applied to the leaves of the strip. The first leaf of the strip is fixedly or detachably engaged to the front cover. The last leaf is detachably engaged to the back cover for conventional, leaf by leaf reading of the book with the leaves held between the covers. Means are provided for stiffening the strip transversely of the strip whereby when pulled out of said covers and substantially fully extended said leaves are free standing for continuous viewing of said panoramic illustration. In a modified form of the invention, the first leaf is detachably engaged to the front cover, and a second panoramic illustration is printed on the back side of the strip.

3,738,687

FLEXIBLE JOINTS FOR AN OVERHEAD IRRIGATION SYSTEM

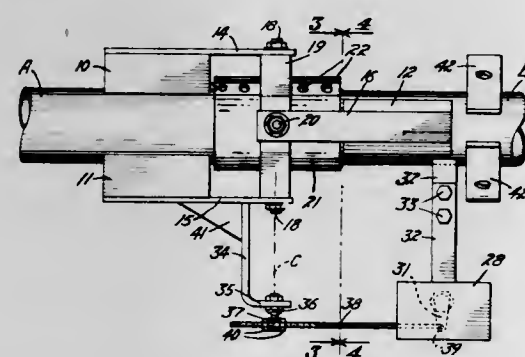
Arthur L. Zimmerer; Bernard J. Zimmerer, and Paul B. Zimmerer, all of Lindsay, Nebr.

Filed Nov. 23, 1970, Ser. No. 92,089

Int. Cl. F16I 55/00

U.S. Cl. 285—5

13 Claims



The adjacent extremities of two similar lengths of irrigation pipe are axially aligned in spaced relation within a longitudinally-split bolt-closed coupler sleeve, of larger diameter than the pipes, containing a sealing gasket for each pipe extremity which resiliently seal the extremities within the sleeve. An open gimbal ring medially surrounds the coupler sleeve in diametrically-spaced relation therewith. Bracket members are mounted on the opposite sides of each pipe extremity in longitudinally spaced relation to the coupler sleeve and a pair of arms extend from each bracket member to opposite pivotal connections with the gimbal ring, the axes of the pivotal connections on one pair being circumferentially spaced on said gimbal ring at 90° from the pivotal connections of the other pair to enable the pipe lengths to freely, relatively and accurately swing in any desired direction. A signal device is trained between the extremities of the pipe lengths to give a signal relative to the arc of swing between said extremities.

3,738,688

QUICK MOUNT FITTING

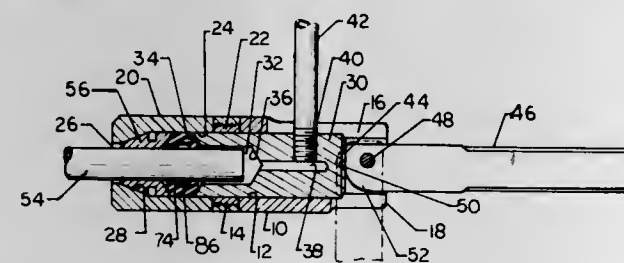
William H. Racine, Lakeside, Mich., assignor to Test Tools, Inc., Stevensville, Mich.

Filed May 10, 1971, Ser. No. 141,480

Int. Cl. F16I 37/18

U.S. Cl. 285—312

2 Claims



A fitting to be quickly mounted to smooth wall tubes, said fitting having an entry for the tube end, an annular seal within

said body, and a ram element within said body which is translated to sealing and release positions by a quick operating actuating means. The fitting may be provided as a dead head or may be coupled to a second conduit for conveying fluids therethrough; and the fitting may be adapted for high pressure fluid conveyance by including within the body a split collet member cooperating with said seal to enhance sealing action under high pressure.

3,738,689

FITTING FOR ASBESTOS CEMENT PIPE

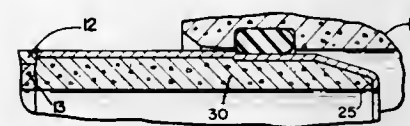
Jay S. Forni, 1101 Leema Drive, Danville, Calif.

Filed July 6, 1970, Ser. No. 52,470

Int. Cl. F16I 9/08, 21/02

U.S. Cl. 285—55

5 Claims



Fittings for asbestos cement pipe are made utilizing cement-lined iron pipe sections, by welding to each end of each section a generally cylindrical sleeve of sheet metal having a portion of the same diameter as the iron pipe succeeded by a spin-formed section of smaller diameter meeting the other one at a step-gasket shoulder, the spin-forming providing increased tensile strength to hold the portion in round, this portion being succeeded by a spin-formed tapered terminal portion ending in a radial lip. After the sleeves are welded to the iron pipe section, they are interiorly lined with cement, using the lips to help hold the cement in place at each end. Then a coupler of asbestos cement having a pair of interior annular grooves, each with a gasket, is placed over the sleeve, and one of the gaskets is abutted against the shoulder.

3,738,690

SPLICABLE STRUCTURAL MEMBER

James C. White, P.O. Box 5496 Station B, Greenville, S.C.

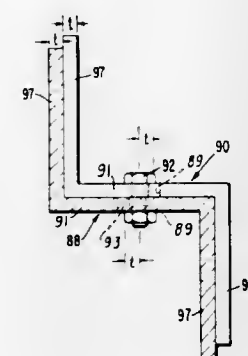
Continuation of Ser. No. 847,179, Aug. 4, 1969. This

application July 7, 1971, Ser. No. 160,519

Int. Cl. F16b 7/18

U.S. Cl. 287—189.36 F

1 Claim



A string of nested, overlapping structural members for supporting strand elements by joining successive members lying in parallel planes. All members are provided with a series of holes for receiving fasteners, each series of holes comprising an outer set and an alternate inner set disposed along laterally spaced centerlines such that the inner holes of an upper member are registrable with the outer holes of an underlying member. In this way, any member may be selected for either disposition to obtain the desired relation within a string.

3,738,691

SPLIT CONTRACTIBLE BUSHING

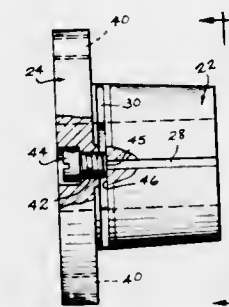
David Firth, 1441 E. Jefferson Boulevard, South Bend, Ind.

Filed Sept. 22, 1971, Ser. No. 182,579

Int. Cl. F16d 1/06

U.S. Cl. 287—52.06

3 Claims



A bushing comprising part of a shaft-mountable unit which is adapted to be fitted within a hub having a tapered bore. The bushing includes a shank having a flange at one end thereof. A longitudinal slot is formed within that shank and extends from adjacent the flange to the opposite end of the shank. A transverse, part-circumferential slot is formed in the shank adjacent the flange in communication with the longitudinal slot.

3,738,692

PRE-TIED NAIL KNOT

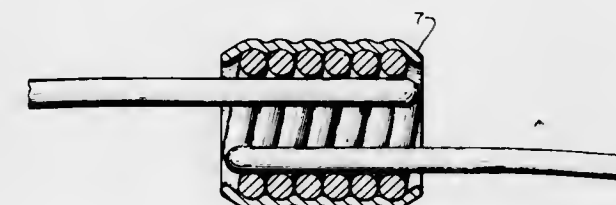
Leon L. Martuch, and Donald L. Schmidt, both of Midland, Mich., assignors to Scientific Anglers, Inc., Midland, Mich.

Filed July 16, 1971, Ser. No. 163,357

Int. Cl. D04g 5/00

U.S. Cl. 289—1.2

12 Claims



A pre-tied, untightened, fisherman's nail knot supported by (1) an external coating around and between the surface of the loops of the knot; (2) an external support consisting of a tubing shrunk so as to contact the outer surfaces of the loops of the knot; (3) an internal support consisting of a rigid tube or bar within the loops of the knot; (4) an internal support consisting of a flexible tube within the loops of the knot; or (5) a combination of external and internal support.

3,738,693

APARATUS FOR SELECTIVE ENGAGEMENT AND DISENGAGEMENT BETWEEN A TRACTION MEANS AND A MECHANICAL UNIT

Pierre Loustalet, Tarbes, France, assignor to Etat Francais represente par le Ministre Charge de la Defense Nationale Delegation Ministerielle pour l'Armement, Paris, France

Filed June 16, 1971, Ser. No. 153,711

Claims priority, application France, June 17, 1970, 7022291

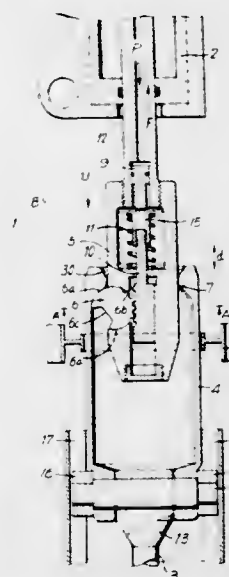
Int. Cl. F16b 7/00

U.S. Cl. 287—119 R

14 Claims

A locking head is secured to a traction means and permits coupling and uncoupling of the traction means to a guide housing secured to a mechanical unit. The locking head comprises a body provided with rotatable friction rolls automati-

cally placed in locked position when the head is inserted into the housing, whereby the traction means and mechanical unit



3,738,694

CHAIN DOOR FASTENER

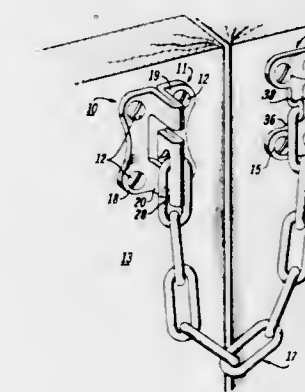
George Banse, Rock Falls, Ill., assignor to National Manufacturing Co., Sterling, Ill.

Filed Aug. 16, 1971, Ser. No. 171,977

Int. Cl. E05c 17/36

U.S. Cl. 292—264

10 Claims



A chain door fastener includes a door mounted bracket slotted to receive a link of a link chain fixed to a jamb mounted bracket, the slot being so configured as to prevent simple lifting of the link out of the slot and to prevent removal of the link from the slot while the chain is under tension.

3,738,695

REMOVABLE SIDE CAR BUMPER

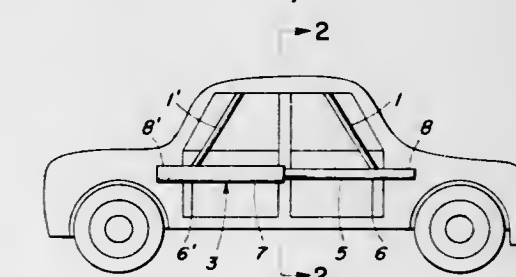
Robert B. McBee, c/o Briones Co., Inc. 5760 Broadway, Roslyn Heights, N.Y.

Filed Oct. 19, 1971, Ser. No. 190,596

Int. Cl. B60J 11/00; B60r 19/08, 27/00

U.S. Cl. 293—1

7 Claims



A vehicle impact protection device including an outer tube having a predetermined internal diameter and at least one

inner tube having an external diameter of less than that of the outer tube. The inner tube or tubes are operative to be moved into and out from their respective outer tubes thereby forming telescopic means. There are at least two suspension means each being attached by an end thereof to the outer tube while an opposite free end thereof serves to secure the entire device to the vehicle.

3,738,696

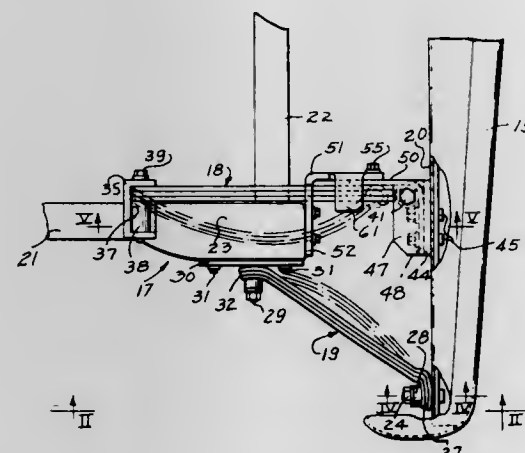
BUCKLING COLUMN BUMPER SYSTEM WITH VERTICAL DISPLACEMENT-PREVENTING MEANS
John McLaughlan, Royal Oak, Mich., assignor to Houdaille Industries, Inc., Buffalo, N.Y.

Filed Apr. 30, 1971, Ser. No. 138,879

Int. Cl. B60r 19/06

U.S. Cl. 293—70

22 Claims



A horizontal bumper is supported in relation to a support such as a vehicle frame directly by means of resilient buckling column bars for impact energy storing during displacement of the bumper relative to the frame as permitted by the bars, whereafter the bars return the bumper system to normal position. Jacking and anti-roll support for the bars, as well as stress limiting means, and frictional energy absorption are provided.

3,738,697

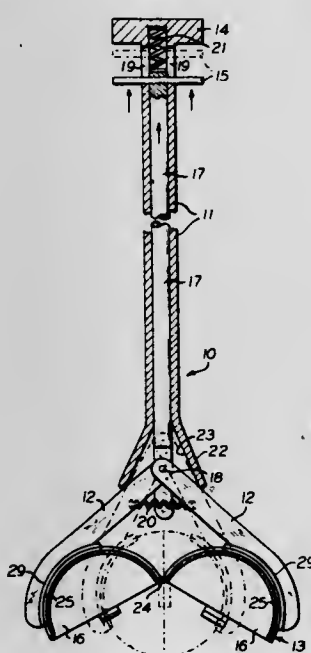
PORTABLE COLLECTOR APPARATUS
Edward Kahan, 8 Alderwood Lane, Syosset, N.Y.

Filed June 18, 1971, Ser. No. 154,471

Int. Cl. A47f 13/06

U.S. Cl. 294—19 R

6 Claims



A portable collector apparatus having a disposable container with hingedly connected halves releasably supported by

tongs at the end of an extended handle. A slide rod operable from the other end of the handle effects pivoting of the tongs to swing the container halves from an opened configuration to a closed, self-locking configuration for receiving and enclosing matter to be collected.

3,738,698

FINGER HOLD DETAIL FOR ARTICLE GROUP CARRIERS AND METHOD AND APPARATUS FOR FORMING SAME

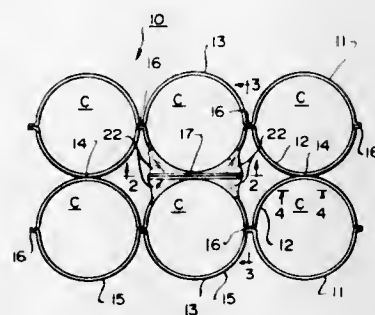
Charles Robert Helms, Barto, Pa., assignor to Container Corporation of America, Chicago, Ill.

Filed Feb. 8, 1971, Ser. No. 113,544

Int. Cl. B65d 71/00

U.S. Cl. 294—87.2

2 Claims



An article group carrier formed from webs connected to define a plurality of single article supporting loops arranging the articles in a pair of side-by-side rows. The centermost of the side-by-side loops have the webs forming the same partly slitted transversely, and also have such loops joined along a length thereof, so that upon tensioning of the side-by-side loops about the centermost of the article, elements are presented which enable the digits of the hand to extend in contact therewith in what may be considered an operation akin to grappling to transport the article group.

The invention herein also comprehends an improved method and apparatus for forming carriers of the kind described in the foregoing abstract, such method resulting in a carrier having finger holds as described.

3,738,699

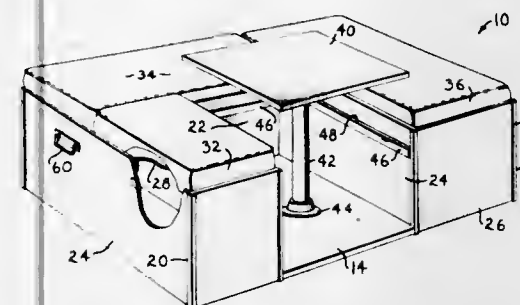
MODULAR CAMPING UNIT FOR VEHICLES
Robert P. Fain, Kansas City, Mo., assignor to Coming Enterprises, Kansas City, Mo.

Filed July 23, 1971, Ser. No. 165,524

Int. Cl. B60p 3/32

U.S. Cl. 296—23 R

8 Claims



A modular multipurpose camping unit permits conversion of a conventional truck type vehicle into a camper vehicle. A planar base member is adapted to be disposed on the floor of the vehicle and has rigidly secured thereto support structure which rises above the base member to present a seat. The structure is formed in a U-shaped configuration with a pair of opposed legs and an interconnecting bight portion. In the cutaway section between the legs a planar component is disposed which can either be placed in raised relationship to the seat to present a table or moved into planar alignment with the seat whereby to cooperate with the latter and present a platform surface. The surface is covered with a cushion material which serves as a bed or as a play area for children.

3,738,700

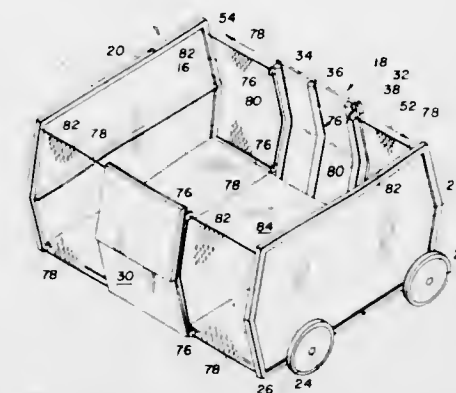
COMBINATION BABY CARRIAGE AND PLAYPEN
Stephen Terry, 1170 Ocean Parkway, Brooklyn, N.Y.

Filed Sept. 1, 1971, Ser. No. 176,931

Int. Cl. B60p 3/34

U.S. Cl. 296—27

3 Claims



A baby carriage which converts into a playpen by lateral movement of the opposite sides thereof, and including crossing support members beneath the main or medial body section that are spring-biased to assist in said lateral movement of the sides. Said crossing support members are also advantageously located in supporting relation to the bottom wall of the main body section.

3,738,701

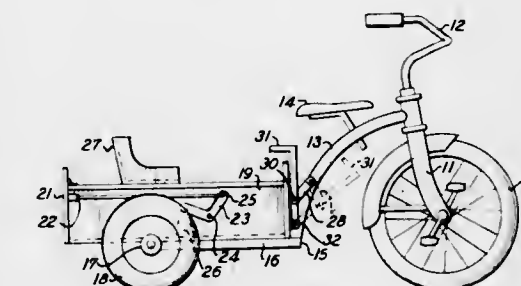
VELOCIPED EQUIPPED WITH DUMP BODY
Joseph Marion Holloway, 311 W. 9th St., Sedalia, Mo.

Filed July 2, 1971, Ser. No. 159,422

Int. Cl. B60p 1/12, 1/28

U.S. Cl. 298—19 R

4 Claims



A tricycle is provided with a depressed rear frame portion for the support of a pivoted dumping body including a tailgate. A simplified manual linkage on the tricycle frame in ready reach of the rider enables the dump body and tailgate to be operated by the rider while on the seat of the tricycle or velocipede.

3,738,702

MEANS FOR COOLING AND HEATING A SEAT STRUCTURE

James W. Jacobs, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 15, 1972, Ser. No. 234,908

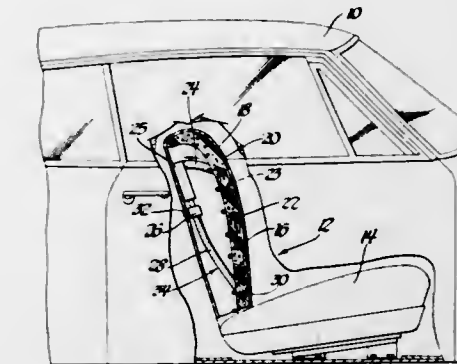
Int. Cl. A47c 7/74

U.S. Cl. 297—180

3 Claims

A seat structure such as a vehicle seat or a portable pad capable of being placed upon a seat structure including a heat pipe assembly having an elevated portion responsive to body heat of an occupant in the area where the body engages the seat or pad thereby heating and cycling a volatile fluid in the heat pipe to the elevated portion which is in thermal communication with the ambient environment for continuously cooling the seat or pad area engaged by the occupant. A selective-

ly energized heater can be disposed within or near the volatile fluid for activating the heat pipe cycle and continuously warming the body engaged surfaces of the seat or pad as desired.



The heat pipe can be formed as an integral part of the pad or the seat structure by incorporating a sealed impermeable plastic passage containing the appropriate volatile fluid.

3,738,703

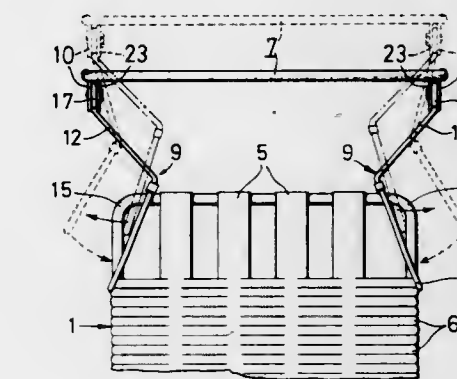
SUNSHADE FOR FOLDABLE CHAIR OR BED
Takateru Kunimatsu, Osaka, Japan, assignor to Kunimatsu Sangyo Co. Ltd., Osaka, Japan

Filed Dec. 30, 1971, Ser. No. 213,897

Int. Cl. A47c 7/10, 29/00

U.S. Cl. 297—184

1 Claim



A sunshade to be mounted on the back-rest member of a foldable chair or bed such as a three-fold chair primarily for an outdoor use. The sunshade comprises an awning sheet frame and a pair of support legs pivoted to one end thereof to support the frame shiftably in accordance with the reclination of the back-rest member and the direction of the striking sunlight. The support legs are formed at their lower parts with elongated ringlike portions in facing relation to each other for clamping the opposite shoulders of the back-rest member. The distance between a pair of the opposing support legs is smaller at their intermediate portions than the width of the back-rest member, whereby the support legs are resiliently urged inward about the pivoted portions when clamping the shoulders of the back-rest member from outside.

3,738,704

AUXILIARY BICYCLE SEAT
Lloyd H. Smith, P. O. Box 1092, and John H. Hughes, 6111 Central Park Drive, both of Aberdeen, Wash.

Filed July 26, 1971, Ser. No. 165,974

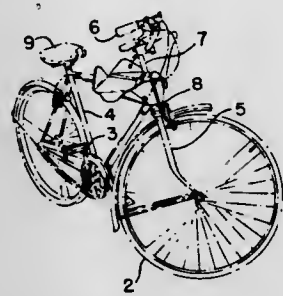
Int. Cl. B62j 1/00

U.S. Cl. 297—195

10 Claims

An auxiliary seat for use on either a male or female bicycle which receives its vertical support from the neck of the bicycle. The seat, which may be fabricated of one piece, slips over

the neck of the bicycle and is clamped in place. The fact that the bicycle need not be altered in any way and further none of back centrally thereof and engaged by a pinion in a gearhead secured to the lower back frame to drive the headrest up or



the structural elements of the bicycle need be removed or even unloosened allows rapid and easy removal and replacement of the seat.

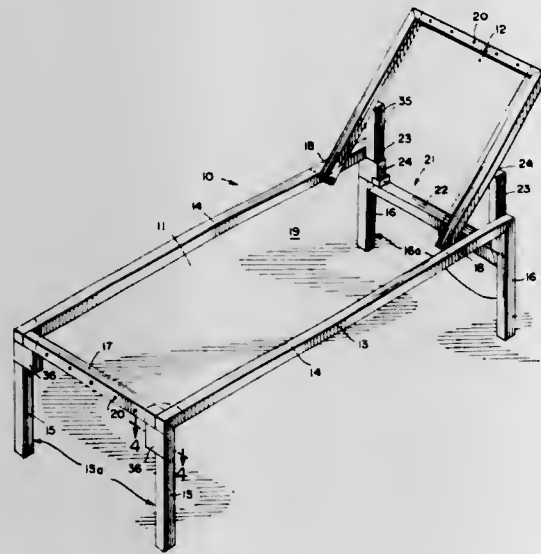
3,738,705 CONVERTIBLE BUNK BED AND LOUNGE CHAIR ASSEMBLY

Max Lee Hill, Somerset, Pa., assignor to The Coleman Company Inc., Wichita, Kans.

Filed Aug. 11, 1972, Ser. No. 279,965
Int. Cl. A47c 4/02, 1/024

U.S. Cl. 297—377

3 Claims



In a convertible bed and lounge chair having a generally horizontal bed portion with an adjustable head-rest connected thereto, an improved headrest support assembly which comprises a U-shaped member adapted to be slidably received between the rearward pair of legs of the bed portion, the cross-piece of the member abutting each of the rearward legs to hold them in a spaced-apart relation, each arm of the U-shaped member extending upwardly to support the backrest and to selectively pivot it to desired angles relative to bed portion as the U-shaped member is vertically adjusted.

3,738,706 MOTOR DRIVEN HEADREST AND BACK FOR RECLINER CHAIR

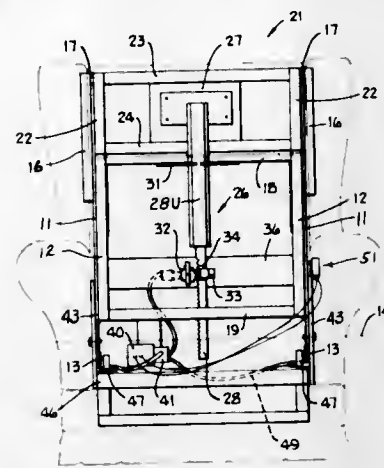
Daniel F. Caldemeyer, 4300 Jennings Lane, Evansville, Ind.

Filed Aug. 30, 1971, Ser. No. 175,997
Int. Cl. A47c 7/36

U.S. Cl. 297—410

26 Claims

A chairback has adapter plates pivotally attached to each side thereof and readily securable to a chair base or seat mount structure. Sector gears on the chairback engage pinions in gearheads mounted to the adapter plates for motor driven tilting of the chairback. A headrest linearly movable vertically in the chairback has a gear rack post extending into the chair-



down. Widely spaced slides on the headrest serve as guides and supports therefor. One embodiment includes a chairback cushion vertically movable in response to headrest extension.

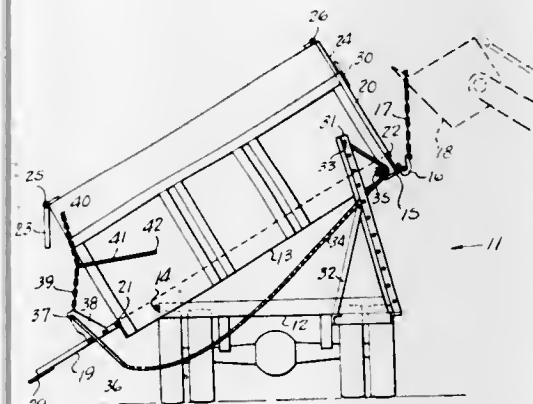
3,738,707 DEVICE FOR DUMPING BEET BOXES

George Bleber, Route 2, P.O. Box 116, Fairview, Mont.

Filed Dec. 29, 1970, Ser. No. 102,449
Int. Cl. B65g 9/00

U.S. Cl. 298—18

3 Claims



A dump truck for sugar beets consisting of a vehicle having a longitudinally hinged body with a swingable hinged side gate which can swing open by gravity when the opposite side of the body is raised. Sprocket chains connect the gate to the top ends of upstanding fixed bars on the truck frame adjacent the liftable side of the body, the chains passing around rollers journaled on the hinged body outwardly adjacent the fixed bars and being so arranged as to develop tension in the chains and to swing the side gate to vertical closed position when the hinged body is lowered to its normal position.

ERRATUM

For Class 298—19 see:
Patent No. 3,738,701

3,738,708 BRAKE PRESSURE CONTROL VALVE

Hiroshi Kawaguchi, and Ryujiro Furukawa, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Aichi-ken, Japan

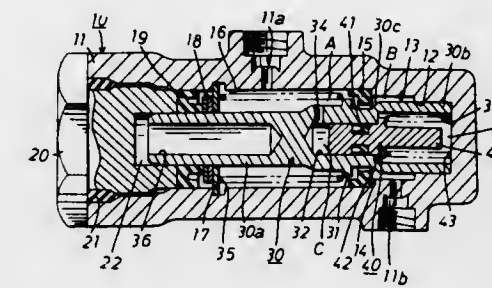
Filed Mar. 13, 1972, Ser. No. 233,975
Claims priority, application Japan, Oct. 11, 1971, 46/80053
Int. Cl. B60t 13/00

U.S. Cl. 303—6 C

9 Claims

A brake pressure control valve for a vehicle brake system which comprises a cylinder, a differential piston slidably

disposed within the cylinder to subdivide the cylinder interior into first and second chambers facing piston surfaces of different areas and connected respectively to a master cylinder and to rear-wheel brake cylinders, a valve cooperable with the piston to control the intercommunication between the two chambers by way of hydraulic pressure differences produced by the piston, and a first spring biasing the piston to keep the valve normally open. The brake pressure control valve further



comprises an assistant plunger slidably engaged within the piston to subdivide the piston interior into third and fourth chambers, the third chamber being in open communication with the first chamber and the fourth chamber being connected to the second chamber, and a second spring normally biasing the plunger in a direction to axially unite the plunger with the piston, the urging force of the second spring being smaller than that of the first spring.

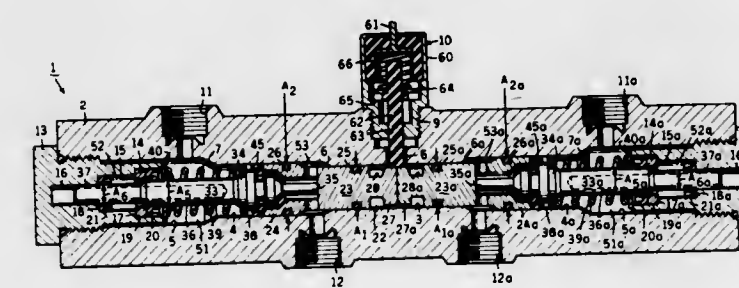
3,738,709 CONTROL VALVE

Stanley L. Stokes, Florissant, Mo., assignor to Wagner Electric Corporation, Newark, N.J.

Division of Ser. No. 8,480, Feb. 4, 1970, Pat. No. 3,627,385.
This application Sept. 8, 1971, Ser. No. 178,715
Int. Cl. B60t 8/26

U.S. Cl. 303—6 C

14 Claims



A control valve for use in a split braking system having an indicating member movable from a normal position to a translated position in the event of the failure of one of the separately supplied fluid pressures acting thereon. A proportioning member is biased toward the indicating member and movable in response to a predetermined value of the other supplied fluid pressure toward metering engagement with the indicating member in its normal position to thereafter effect a metered applied fluid pressure in a predetermined ratio with the other supplied fluid pressure. The proportioning member is provided with a pair of opposed areas respectively subjected to the other supplied and applied fluid pressures to effect the predetermined ratio, and a third area is also provided on said proportioning member for subjection to the other supplied fluid pressure and additive to one of the opposed areas to alter the predetermined value of the other supplied fluid pressure at which the proportioning member is actuated to effect metering engagement with the indicating member in its translated position.

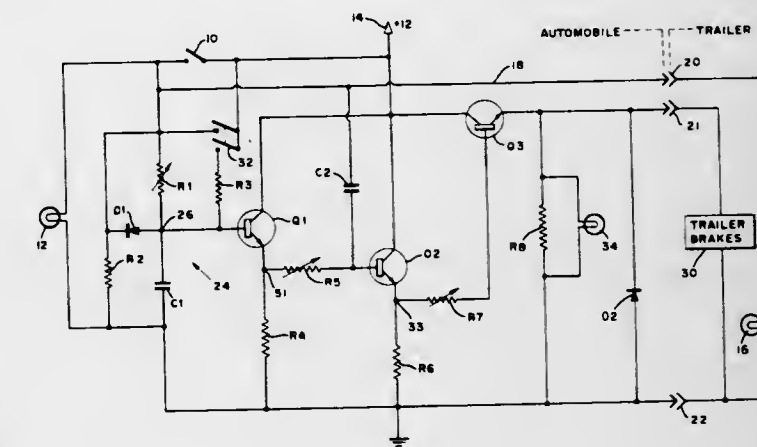
3,738,710 ELECTRONIC TRAILER BRAKE ACTUATOR

Jordan J. Pokrinchak, Shelton, and Charles J. Corris, Bridgeport, both of Conn., assignors to Jordan Research Corporation, Shelton, Conn.

Filed Feb. 25, 1971, Ser. No. 118,883
Int. Cl. B60t 13/74

U.S. Cl. 303—20

10 Claims



A trailer brake actuator is normally signaled into operation upon energization of the brake light circuit in the towing vehicle. Closure of the brake light switch supplies charging current to a capacitor, and the increasing voltage developed thereacross is amplified and used to control the conductance of a series current regulator connected in an energizing circuit for the trailer brakes. A separate switch permits more rapid charging of the capacitor and actuation of the trailer brakes independently of the vehicle brakes.

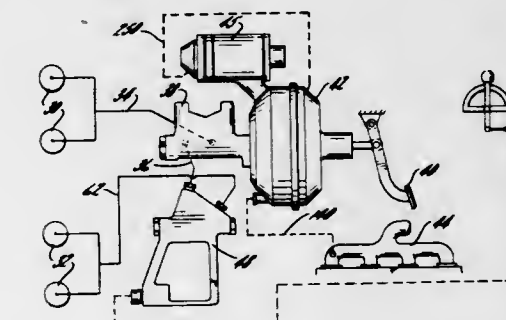
3,738,711 ANTI-SKID BRAKE SYSTEM

Edward A. Rockwell, 167 Ashdale Place, Los Angeles, and Harvison C. Holland, 230 22nd St., Santa Monica, both of Calif.

Filed Oct. 26, 1970, Ser. No. 83,732
Int. Cl. B60t 8/12

U.S. Cl. 303—21 A

17 Claims



A power braking system is disclosed for vehicles producing a maximum stopping force for any given road condition while preventing the vehicle from skidding. A pressure proportioning device varies the ratio of pressures between the front and rear brake lines of the vehicle as braking increases to achieve maximum stopping force for any given road condition at both the front and rear wheels. When increasing brake line pressure produces braking forces which exceed the maximum achievable stopping forces as determined by tire-road coefficient of friction, and the wheels start to lock-up, the resulting reduction in deceleration is detected by deceleration responsive control apparatus which operates the power booster of the power brake system to momentarily reduce the brake line pressures both front and rear which allows the wheels of the vehicle to resume turning, and then reapplies the brake line pressure, the cycle being repeated. The attendant result is the modulation of the braking force about the maximum for both front and rear wheels at the same time.

3,738,712

ANTI-LOCK BRAKE SYSTEM

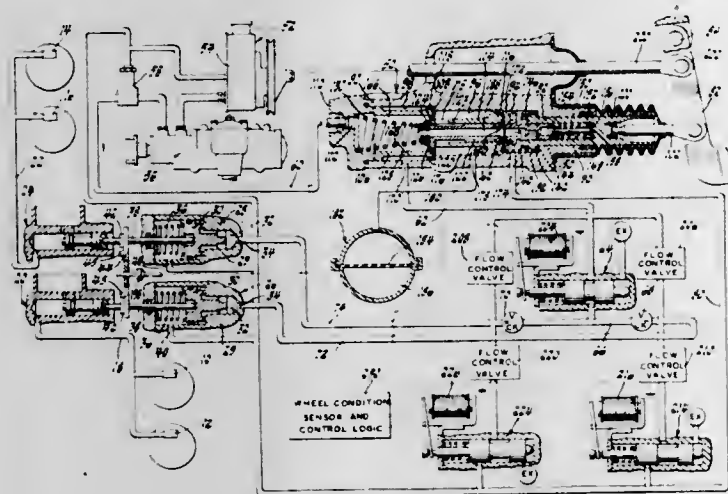
Donald M. Flory, Arcanum, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed May 7, 1971, Ser. No. 141,131

Int. Cl. B60t 8/12

U.S. Cl. 303—21 F

5 Claims



An anti-lock brake system includes separate hydraulically boosted master cylinders for each wheel brake or set of wheel brakes to be controlled, an operated actuated brake control valve assembly functioning to channel pump generated fluid pressure to the plurality of hydraulic boosters for simultaneous actuation thereof and including valve means functioning to charge an accumulator with fluid pressure and then discharge the accumulator pressure for booster actuation in the event of a loss of pump generated pressure, a fail safe anti-lock control valve circuit controlling the brakes by releasing and reapplying the hydraulic pressure to the hydraulic boosters in response to the sensed wheel condition, and auxiliary mechanical actuating means for brake actuation subsequent to loss of pump generated fluid pressure and dissipation of the accumulator pressure.

3,738,713

VEHICLE ANTI-SKID BRAKING APPARATUS

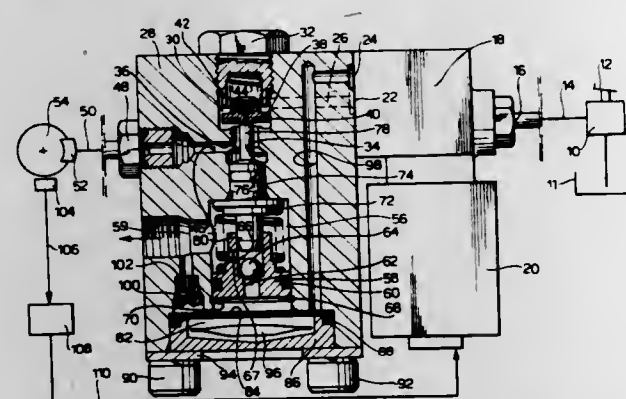
Marco Perugia, Turin, Italy, assignor to FIAT Societa per Azioni, Turin, Italy

Filed June 8, 1972, Ser. No. 260,867

Int. Cl. B60t 8/12

U.S. Cl. 303—21 F

3 Claims



A distributor for an hydraulic braking system having an anti-skid device is disclosed. The distributor operates to route the hydraulic braking fluid through different paths, so that the device has two different modes of operation, in dependence on whether a vehicle to which the braking system is fitted is travelling over wet or dry ground; this is detected by the different braking pressures which are required to cause the wheels to reach an incipient skid state. The distributor comprises three chambers two of which communicate through a ball valve and the third of which is connected to the brake actuators of the system and to an electrovalve which is controlled by an antiskid control device to connect the said third

chamber to the master cylinder, which acts as source of braking pressure, under normal braking conditions, and to one of the two communicating chambers when an incipient skid is detected. The other of the two communicating chambers is connected to a reservoir and the communication between these two chambers is controlled by a ball valve under the action of a piston which is moved to close the ball valve when the pressure in the third chamber, and thus the braking pressure, exceeds a predetermined threshold value. In this case the braking pressure is discharged slowly through a restrictor throttle when an incipient skid is detected whereas if the braking pressure is below the threshold when an incipient skid occurs, indicating wet or slippery ground, the ball valve is open and the braking pressure is released rapidly through the ball valve to the reservoir.

3,738,714

TREAD FOR MOTOR DRIVEN VEHICLES

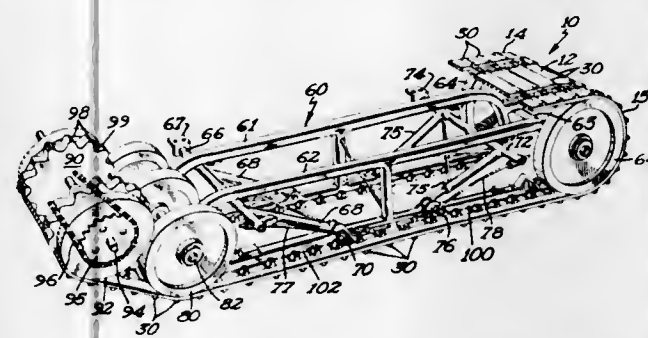
William G. Ness, Thief River Falls, Minn., assignor to Arctic Enterprises, Inc., Thief River Falls, Minn.

Continuation-in-part of Ser. No. 63,626, Aug. 13, 1970, abandoned. This application Feb. 19, 1971, Ser. No. 116,949

Int. Cl. B62d 55/12; B62m 27/00

U.S. Cl. 305—24

10 Claims



A tread for motor driven vehicles, such as snowmobiles, in the form of an endless belt having rows of spaced sprocket wheel receiving elements integral therewith and with slide pads positioned on the belt on either side of the elements to support the sprocket wheel and guide rails of the suspension system of the tread. The slide pads are made of a low coefficient of friction material to reduce wear and heat problems, with the guide pads having notched surfaces therein for positive guiding of the sprocket teeth and rails of the suspension system, and including clips secured to, or pockets formed in, the endless belt.

3,738,715

CLEAT PLATE STRUCTURES FOR CATERPILLAR BELTS

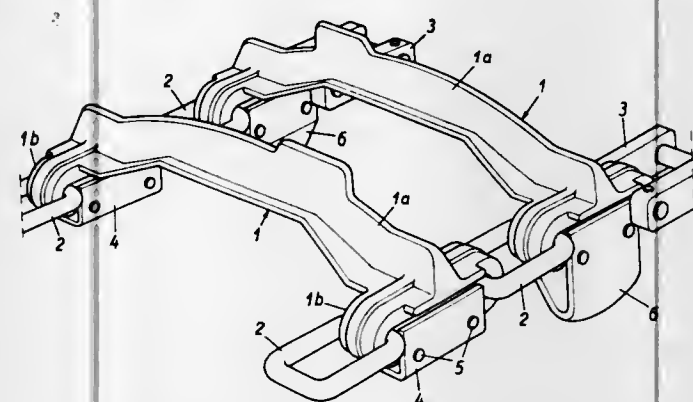
Erik Herbert Carlsson, Overum, Sweden, assignor to Aktiebolaget Overum Bruk, Overum, Sweden

Filed May 24, 1971, Ser. No. 146,278

Int. Cl. B62d 55/28

U.S. Cl. 305—56

6 Claims



The present invention relates to endless belts or chains for rubber-wheeled vehicles and provides a cleat plate structure

for such belts or chains comprising very few different parts and lacking threaded bolt connections needing supervision and recurrent tightening, such bolt connections being replaced by plain bolts having a friction fit in the parts to be joined thereby.

3,738,716

ANTI-CREEP BALL BEARING RETAINER FOR A DRAWER SLIDE

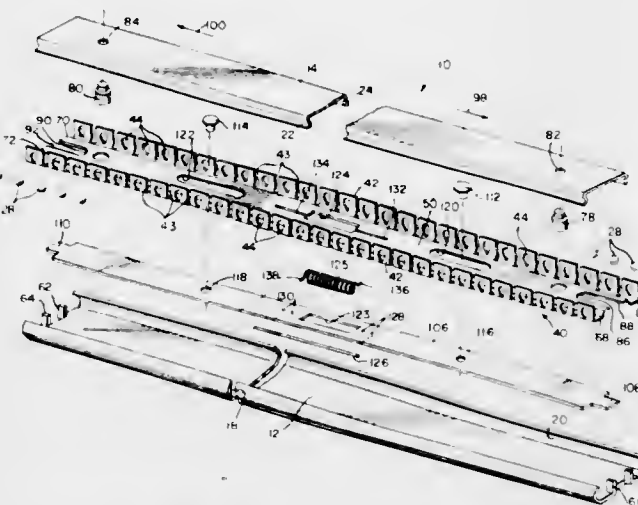
Ronald D. Lambert, Indianapolis, Ind., assignor to Herbert S. Fall, Indianapolis, Ind.

Filed June 1, 1972, Ser. No. 258,738

Int. Cl. F16c 29/00

U.S. Cl. 308—3.8

18 Claims



A drawer slide assembly comprising an elongated first track member, an elongated second track member, load bearing anti-friction elements such as ball bearings movably supporting the second member for longitudinal movement on the first member, a longitudinally extending retainer for such bearings, and an energy-storing spring arrangement for urging the retainer in the direction of movement of the second member.

3,738,717

FLEXIBLE PAD JOURNAL BEARING

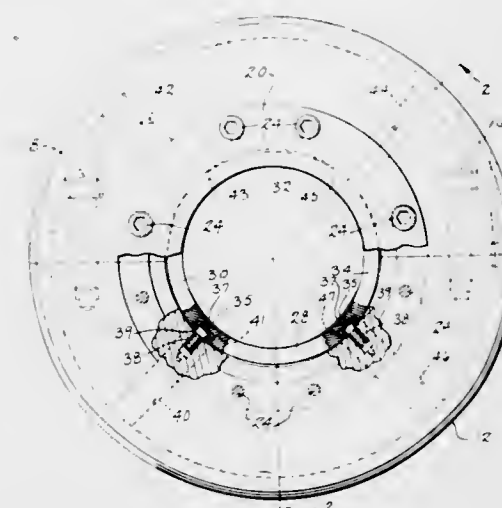
Willis W. Gardner, Waukesha, Wis., assignor to Waukesha Bearings Corporation, Waukesha, Wis.

Filed Sept. 27, 1971, Ser. No. 184,073

Int. Cl. F16c 17/02

U.S. Cl. 308—122

6 Claims



A pad type journal bearing that provides both flexibility and damping for the control of vibrations of a relatively high speed shaft. The flexible pads are arcuate in shape and are spaced in endwise relationship around the shaft within a circular channel in an annular bearing shell or housing. The radius of curva-

ture of the bore of the pads is slightly larger than the radius of the shaft and the radius of the outer surface of the pads is slightly larger than the radius of the channel in which the pads are seated. The radial thickness of the pads is less than the radial distance between the shaft and the channel bottom. Vibrations of the shaft are transmitted as dynamic loads through the hydrodynamic oil film to the pads. Due to the pad construction and beam-type support, the pads deflect in the central portion when subjected to a load as from the rotor (shaft) weight and/or dynamic loads as from shaft vibration.

Dynamic deflections (vibrations) of the pads alternately squeeze and expand the oil in the space between the pad outer surface and the housing bore. Thus, this bearing design uniquely provides both support flexibility and squeeze film damping necessary for the control of vibrations of high speed rotors.

3,738,718

COMPACT ROLLER BEARING

Werner Jacob, Frankfurt, and Arpad Toth, Herzogenaurach, both of Germany, assignors to Industriewerk Schaeffler OHG, Herzogenaurach, Germany

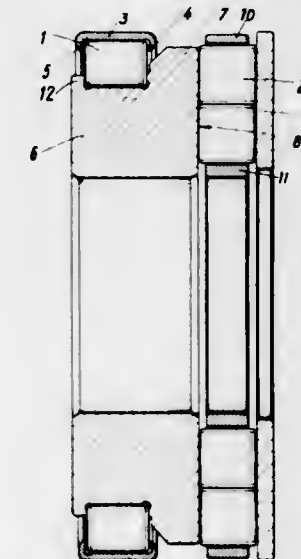
Filed Oct. 18, 1971, Ser. No. 189,940

Claims priority, application Germany, Nov. 4, 1970, P 20 54 112.2

Int. Cl. F16c 19/22

U.S. Cl. 308—174

6 Claims



A compact roller bearing assembly for the reception of radial and axial loads comprises a radial roller bearing in combination with an axial roller bearing; the radial roller bearing comprising a series of radial roller bodies between a thin-walled drawn outer ring and a massive inner ring; said massive inner ring having on one side thereof a first flange extending radially outwardly to the radially outer area of the radial roller bearing; said first flange of the massive inner ring having a face acting as a raceway for the axial roller bearing; said axial roller bearing having an outer diameter only slightly smaller than the outer diameter of the thin-walled outer ring of the radial roller bearing.

3,738,719

BALL BEARING

Gerhard Langner, Sammarie-les-Lys, France, assignor to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, Paris, France

Filed Oct. 13, 1971, Ser. No. 188,818

Claims priority, application France, Oct. 27, 1970, 7028702

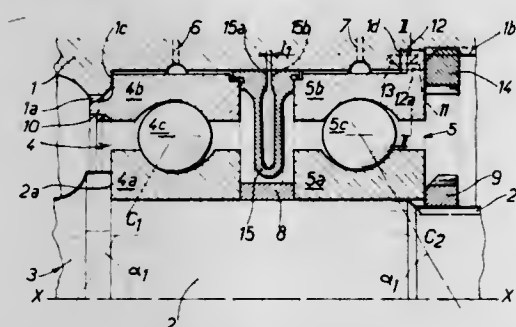
Int. Cl. F16c 33/00

U.S. Cl. 308—189 A

2 Claims

A bearing assembly for a rotating part liable to be subjected to an axial load of variable magnitude and direction, the bear-

ing comprising two coaxial bearing sets each consisting of balls, an inner race and an outer race, the latter being mounted to slide axially, the two sliding races being resiliently urged towards respective abutment means, and the sliding mo-



tion of one of the such rings, in opposition to the action of the resilient impulsion, being limited by a second abutment means to an extent equal to the internal axial clearance of the other bearing.

3,738,720

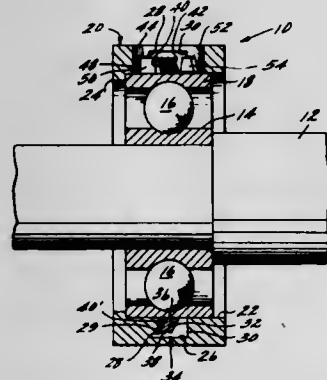
BEARING LOCKING MEANS

Max Joseph Loehle, Lynn, Mass., assignor to General Electric Company, Lynn, Mass.

Filed Aug. 24, 1971, Ser. No. 174,410
Int. Cl. F16c 33/30

U.S. Cl. 308-236

11 Claims



A bearing locking means is provided to accommodate insertion of a bearing assembly within a mounting member in cases where a spring clutch type coil cannot be unwound by rotating the outer ring of the bearing assembly. Insertion of the bearing assembly within the coil is accommodated by diametrically expanding the coil prior to bearing insertion and by flaring the sides of each convolution of the coil so that a portion of the axial force of bearing insertion is directed radially outward to further diametrically expand the coil.

3,738,721

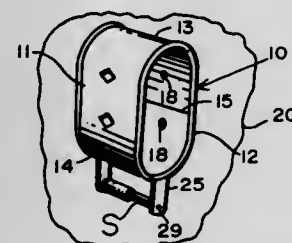
COMBINED TOILET TISSUE STORAGE AND DISPENSING DEVICE

Adrian M. Maschek, 1710 5th St., and Henry Pace, 600 Maria St., both of Kenner, La.

Filed June 23, 1971, Ser. No. 155,833
Int. Cl. B65h 19/00

U.S. Cl. 312-39

1 Claim



The invention consists of a device mountable on a wall for storing two rolls of toilet tissue and having a third roll of toilet

tissue in position for being dispensed. The device consists of a sheet of metal shaped to form a chamber for the storage of two rolls of toilet tissue with a bracket depending from the lower portion of the device for dispensing the third roll.

3,738,722

DEVICE OF THE SELF-LEVELING TYPE FOR STORING AND DISPENSING A STACK OF ARTICLES

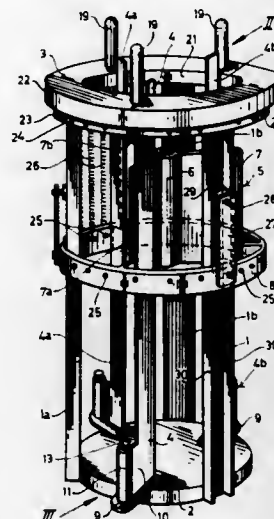
Pieter L. Koolman, Dordrecht, Netherlands, assignor to Algemene Scandinavische Import Steel Maatschappij (A. S. T. Staal) N.V., Zwijndrecht, Netherlands

Filed Dec. 1, 1971, Ser. No. 203,558
Claims priority, application Netherlands, Dec. 4, 1970, 7017786

Int. Cl. A471 1/00

U.S. Cl. 312-71

6 Claims



A self-leveling device for storing and dispensing a stack of articles, such as plates, including a carrier for the stack of articles adapted to move up and down in a tubular member, and means for always presenting the uppermost article of the stack at a predetermined level. The carrier is suspended from a top brace by several springs removably secured and distributed along the circumference of the top brace and the carrier. Means are provided to balance the weight of the carrier proper.

3,738,723

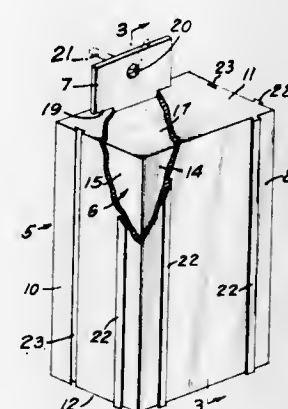
CONVERTIBLE CAPSULE CONTAINER

Gerald A. Rudolph, 3521 W. Beverly Boulevard, Montebello, Calif., and James S. Howard, 12740 Woodcliff Circle, Riverside, Calif.

Filed May 5, 1972, Ser. No. 250,668
Int. Cl. F16b 12/00

U.S. Cl. 312-111

8 Claims



A container for capsules that is formed of an outer transparent parallelepiped-shaped enclosure open at one end and closed at the other, the closed end comprising a wall having a

slot therein, and of an article-holding tray or drawer slidably fitted in said enclosure, one end wall of the tray being provided with a tab. Said container being convertible to have two operative positions — one position with the tray disposed in the enclosure and the tab thereof extending through said slot in the closed end of the enclosure, the tab being adapted to be engaged with a hanger and the container thereby suspended for display of its contents — and the other position with the tray reversed end-for-end in the enclosure with the tab extending from the open end of the enclosure and serving as a drawer handle for the tray. Such containers by reason of their parallelepiped form, being adapted to be arranged in side-by-side stacks in file-case arrangement so the trays may be selectively withdrawn from the enclosures partly or entirely, as desired. Interlocking tongues and grooves retain the containers in stacked relation, and the stacks in desired position.

3,738,724

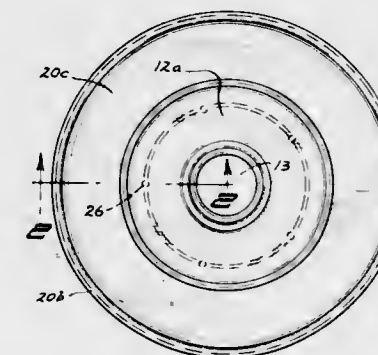
COMBINATION EATING COUNTER AND SELF-CONTAINED GARBAGE RECEPTACLE UNIT

John G. Rauma, Minneapolis, Minn., assignor to Griswold and Rauma, Architects, Inc., Minneapolis, Minn.

Filed Mar. 15, 1971, Ser. No. 124,335
Int. Cl. A47b 96/18; A471 9/00; A47b 81/00

U.S. Cl. 312-140.1

8 Claims



This is a combination eating counter and garbage receptacle unit in which at least a portion of the counter top is removable to provide access to the garbage receptacle area thereunder.

3,738,725

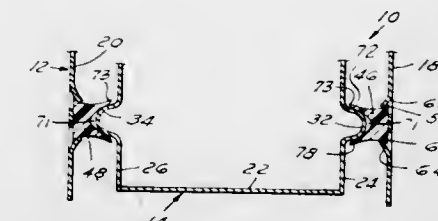
ASH RECEIVER

John G. Visser, Grand Rapids, Mich., assignor to F. L. Jacobs Co., Detroit, Mich.

Filed Aug. 19, 1970, Ser. No. 65,013
Int. Cl. F16c 29/00; A47b 88/00; B60n 3/08

U.S. Cl. 312-246

2 Claims



The ash receiver of the invention is of the type adapted for installation on the dashboard of an automobile. It includes a housing for fastening to the vehicle dashboard and a drawer slidably received in the housing. The drawer has elongated projections on each sidewall thereof which are received in concave grooves of elongated plastic guide elements secured to the sidewalls of the housing. The guide elements are fabricated from a resilient plastic material such as nylon or ABS resin. The guide elements include lip portions which exert spring-like pressure on the projections. The interior wall surfaces of the concave recesses converge to form an ever-narrowing recess to thereby permit reception of projections which may vary in dimension.

3,738,726

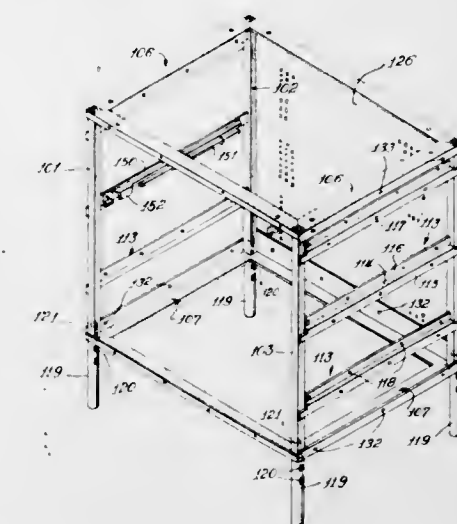
METAL-WOOD FURNITURE

Francis J. Burst, and Donald W. Turner, both of Batesville, Ind., assignors to Hill-Rom Company, Inc., Batesville, Ind.

Filed June 30, 1971, Ser. No. 158,460
Int. Cl. A47b 47/02

U.S. Cl. 312-257 SK

8 Claims



A metallic framework to which wooden panels are attached, to form furniture for general use and use in a patient's room in a hospital, which furniture may consist of bedside cabinets, dressers and the like.

3,738,727

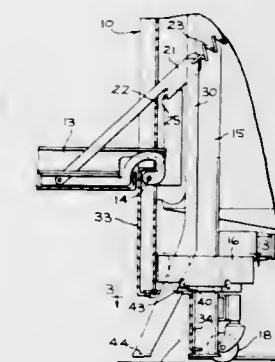
APPLIANCE ANTI-TIP DEVICE

Martin L. Race, Elm Grove, and Leonard J. Martiniak, Waukesha, both of Wis., assignors to General Electric Company, Louisville, Ky.

Filed Dec. 17, 1971, Ser. No. 209,202
Int. Cl. A47b 81/02

U.S. Cl. 312-276

8 Claims



A free-standing appliance cabinet of the type having a door hinged to swing outwardly to provide access to the inside of the cabinet has an anti-tip arm supported within the cabinet for movement of the cabinet to a tip-preventing position. The anti-tip arm is interconnected with the door so that it is moved outwardly to its tip-preventing position when the door is opened and is refracted when the door is closed. The anti-tip arm is adapted to provide support to the cabinet whereby tipping of the cabinet, in a forwardly direction in response to force downwardly on the open door surface, is prevented. The anti-tip arm has means therewith operable to lock the arm to the cabinet in the event that a tipping force is exerted on some part of the other than the open door, such as downwardly against an outwardly extended upper rack, to further prevent tilting or upsetting of the cabinet.

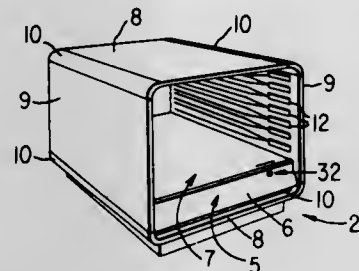
3,738,728

REMOVABLE LOCK PANEL FOR CABINET AND FURNITURE

Robert Lewis Eckard, Hickory, N.C., assignor to Champion International Corporation, Hamilton, Ohio
 Filed Nov. 22, 1971, Ser. No. 200,915
 Int. Cl. A47b 88/16

U.S. Cl. 312-330

10 Claims



A removable lock panel has two springs extending out of it which engage the drawer guides in a cabinet whereby the panel can be inserted in the cabinet, the springs will engage drawer guide notches therein, and a drawer can then be placed adjacent thereto and locked. So long as the drawer is locked there is no access to the springs or other means to remove the panel. This panel construction along with its associated cabinet and drawer parts permits adding a lockable drawer or tray to an existing cabinet with a minimum amount of cabinet alterations and actually without the necessity of using fasteners (nails, screws, adhesives).

3,738,729

PRODUCTION OF TUNGSTEN HALOGEN LAMPS

George Eric Coxon, and John Michael Rees, both of London, England, assignors to Thorn Electrical Industries Limited, London, England

Filed Aug. 10, 1971, Ser. No. 170,627

Claims priority, application Great Britain, Aug. 11, 1970, 38,719/70

Int. Cl. H01j 9/38

U.S. Cl. 316-3

4 Claims

A method of making a tungsten halogen incandescent lamp in which iodine is introduced into the lamp envelope in the form of an iodide or hydroiodide of an element of Group IV of the Periodic Table which is an involatile solid at room temperature.

3,738,730

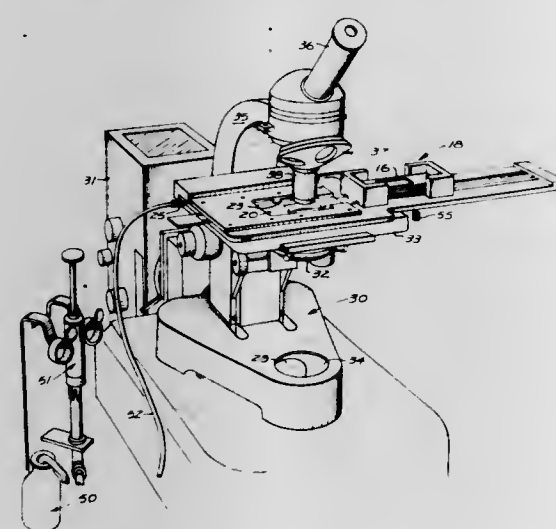
MICROSCOPE ATTACHMENT

Gerald F. Binnings, Arcadia; Theodore N. Meyer, Westminster, and Mel J. Riley, Covina, all of Calif., assignors to Aerojet-General Corporation, El Monte, Calif.
 Continuation of Ser. No. 858,992, Sept. 18, 1969, abandoned.
 This application July 6, 1971, Ser. No. 160,050

Int. Cl. G02b 21/26

U.S. Cl. 350-90

4 Claims



Disclosed herein is an assembly for cooperating with the viewing stage of microscope, which assembly provides a

supply bin for a plurality of laboratory slides and sequential positioning thereof in approximate focus between the objective and substage lenses of the microscope. Included are spring biasing means arranged to hold the specimen-carrying surface of a slide in the reference focal plane and an integral feed for injecting optical fluid between the substage lens and the specimen.

3,738,731

VARYING AREA OPTICAL PROCESSING FOURIER ANALYZER

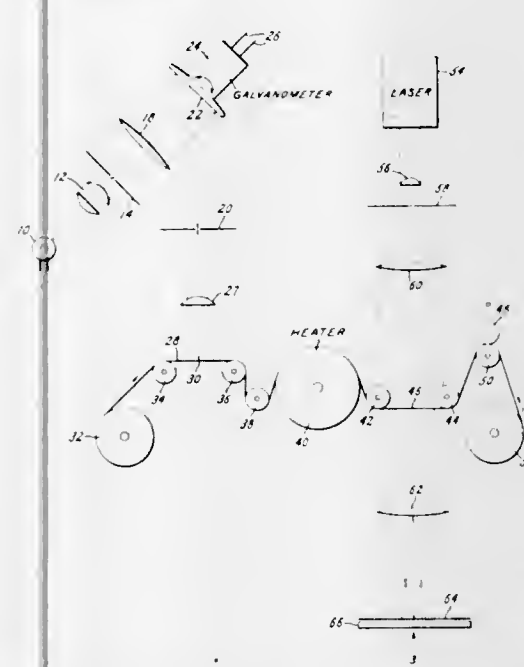
Subhash Chandra, Pennsburg, and Raymond H. Lambert, Eaglesville, both of Pa., assignors to General Electric Company, New York, N.Y.

Filed Aug. 25, 1971, Ser. No. 174,783

Int. Cl. G11b 7/00; G06k 11/00

U.S. Cl. 350-162 SF

1 Claim



Signal to be analyzed for frequency content is recorded as variable-width track on film. This image is transformed by conventional coherent optics, and real frequency components appear along the real axis, extraneous components caused by variable-width record being off this axis and so readily excluded from consideration.

3,738,732

MULTI-LAYER ANTIREFLECTION COATING

Hideo Ikeda, Kamakura, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

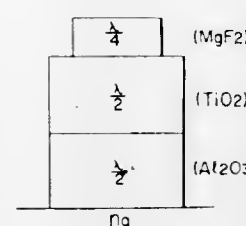
Filed Oct. 6, 1970, Ser. No. 78,389

Claims priority, application Japan, Oct. 9, 1969, 44/80371

Int. Cl. G02b 1/10

U.S. Cl. 350-164

7 Claims



A quasi-symmetrical three-layer coating of a desired equivalent refractive index N having a wide dispersion effect in the regions adjacent to the visible region is presented. The coating consists of various substances deposited in vacuum in a stable manner. One layer of a quasi-symmetrical three-layer coating is substituted by a glass to be coated. When the glass to be coated has not the refractive index of 1.52 or 1.74, a suitable layer $\lambda/4$ in thickness is coated over said glass.

3,738,733

OPTICAL DISPLAY SYSTEMS

Alexander Pettit, Rhyl, North Wales, assignor to Pilkington P.E. Limited, St. Helens, Lancashire, England

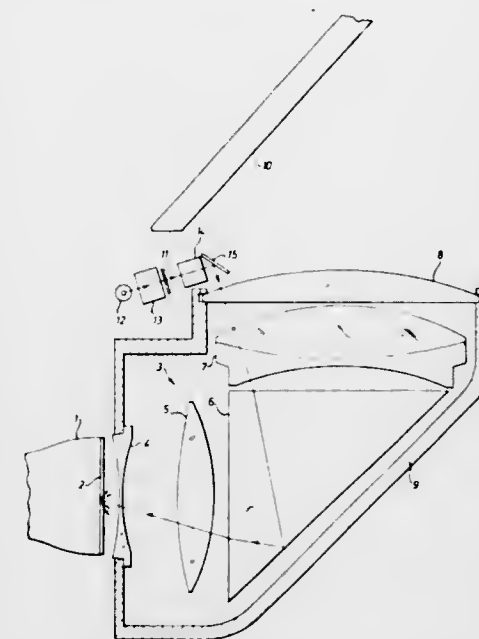
Filed Oct. 6, 1971, Ser. No. 186,907

Claims priority, application Great Britain, Oct. 9, 1970, 48,195/70

Int. Cl. G02b 27/10

U.S. Cl. 350-174

9 Claims



A head-up display system having a first display apparatus including a cathode ray tube to give a main display and an optical system through which the image on the tube travels towards an observer, and a second display apparatus including a source of light and image means to provide an additional display, and light-directing means to direct light from the source into the optical system so as to travel toward the cathode ray tube so that an image of the additional display is formed on the tube, whereby a stand-by display is provided which can be switched on in the event of failure of the main display. The light-directing means is positionally adjustable, whereby the position of the image of the additional display formed on the cathode ray tube is also adjustable.

3,738,734

OPTICAL FLUID LENS CONSTRUCTION

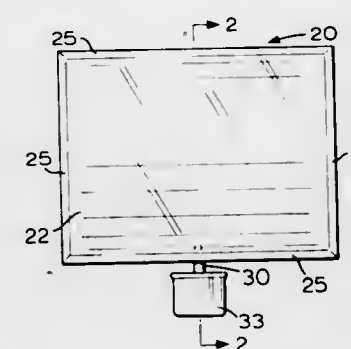
Stuart S. Tait, 3 Marydons Crescent, Agincourt, Ontario, and Thomas T. Reider, 47 Brahm Avenue, Willowdale, Ontario, both of Canada

Filed Feb. 23, 1972, Ser. No. 228,634

Int. Cl. G02b 3/12

U.S. Cl. 350-179

11 Claims



This invention provides a liquid-filled lens, which incorporates means for causing atmospheric pressure at least partly to counteract the internal pressure arising from the static pressure of the liquid head. This is accomplished generally by lowering the atmospheric equivalent level below the top of the

chamber. Preferably, the latter is specifically carried out by making the chamber within the liquid lens air-tight except for an opening connected to an open-ended tube, the other end of the tube being immersed below the level of a liquid in a receptacle, the level of the liquid in the receptacle being below the top of the chamber, and preferably in the area between the bottom of the chamber and a point about one-third of the way between the bottom and the top of the chamber.

3,738,735

LENS FOR NIGHT VISION APPARATUS

Franz Schlegel, Munich, Germany, assignor to Optische Werke G. Rodenstock, Munich, Germany

Continuation-in-part of Ser. No. 45,640, June 12, 1970,

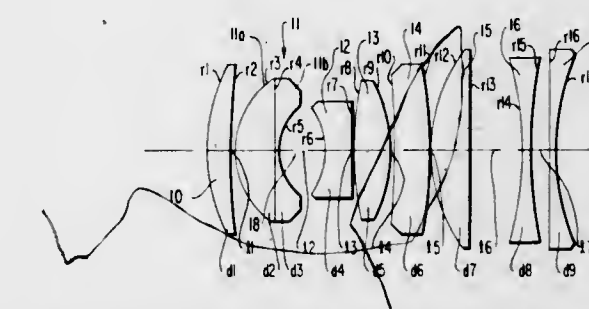
abandoned. This application July 21, 1971, Ser. No. 164,753

Claims priority, application Germany, July 21, 1971, P 20 36 298.5

Int. Cl. G02b 9/00

U.S. Cl. 350-214

2 Claims



An objective for night vision apparatus with a positive curvature of field whose radius corresponds approximately to the focal distance and which has a ratio of lens aperture of up to about 1:1.1, preferably 1:1.3, and a field angle of about 50° for visible rays, which comprises a converging meniscus-shaped collective lens as the front lens, a first cemented diverging meniscus following the front lens which in turn is adjoined by a second diverging meniscus that is uncemented and consists of a single lens; the diaphragm space is enclosed between two meniscus lenses, while the second meniscus lens is adjoined by three collecting lenses which, in turn, are followed by two Smyth lenses.

3,738,736

PHOTOGRAPHIC LENS SYSTEM OF GREAT RELATIVE APERTURE

Yoshiyuki Shimizu, Kawasaki, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

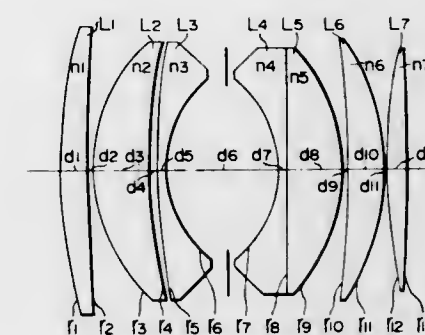
Filed Dec. 20, 1971, Ser. No. 209,540

Claims priority, application Japan, Dec. 25, 1970, 45/125635

Int. Cl. G02b 9/62

U.S. Cl. 350-215

5 Claims



A photographic lens system comprises seven components, which, as viewed in the direction of incidence of light, are a positive component convex to the object side of the lens, a positive component convex to the object side, a negative meniscus component convex to the object side, a negative

component having its surface of greater curvature facing the object side, a positive component having its surface of greater curvature facing the image side, a positive meniscus component convex to the image side, and a positive component having its surface of greater curvature facing the object side. An aperture stop is interposed between the third and fourth components. The fourth and fifth components are joined together. The entire system satisfies predetermined conditions, thereby providing a relative aperture of F/1.2, an angle of view 46° and a back focus at least 0.7 times as long as the overall focal length of the system, while various aberrations therein are well corrected.

3,738,737

ANTI-GLARE SAFETY REARVIEW MIRROR FOR AUTOMOTIVE VEHICLES

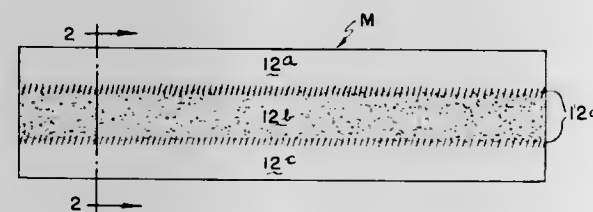
John Edward Mills, 15142 Drake Road, Strongsville, Ohio

Filed Oct. 7, 1971, Ser. No. 187,563

Int. Cl. B60r 1/04; G02b 5/08

U.S. Cl. 350-278

11 Claims



In a day and night rearview mirror system for an automotive vehicle, whether an otherwise conventional inside or outside mirror or a periscope system, on a mirror over its horizontal extent and horizontally parallel to road as viewed in the image display, there is provided a middle band of reflectivity reduced to a degree that, for following headlights imaged to the driver in the band, the glare is diminished to a level which is not interfering to a safe driving night vision nor annoying to the driver; a sufficient width or vertical dimension of the band enabling the driver easily to bring imaged following headlights into, and with changing inter-vehicle spacing keep them within, the reduced reflectivity area by a slight head tilting.

3,738,738

SUPER-WIDE ANGLE PHOTOGRAPHIC OBJECTIVE

Yasuo Takahashi, Tokyo, Japan, assignor to Ashai Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

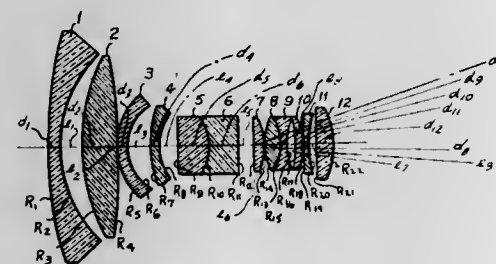
Filed Sept. 2, 1971, Ser. No. 177,343

Claims priority, application Japan, Sept. 9, 1970, 45/79064

Int. Cl. G02b 9/64

U.S. Cl. 350-214

3 Claims



A ten group, twelve element, super-wide angle photographic objective lens which corrects chromatic aberration over the whole image plane to be used and to obtain an aberration condition balanced therewith.

HIGH LIGHT INTENSITY PHOTOGRAPHIC LENS OF THE EXTENDED GAUSS TYPE

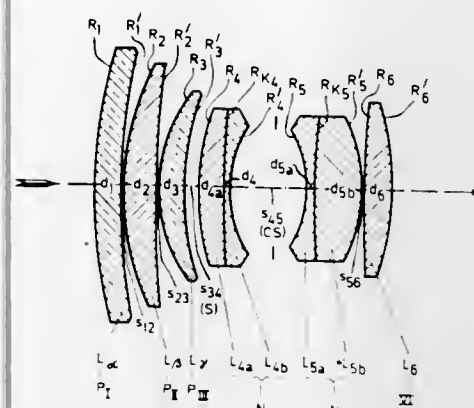
Erhard Glatzel, and Erwin Korschack, both of Heidenheim, Germany, assignors to Carl-Zeiss-Stiftung, Wurttemberg, Germany

Filed Mar. 17, 1972, Ser. No. 235,578

Int. Cl. G02b 9/62, 9/64

U.S. Cl. 350-214

10 Claims



A photographic lens of the extended Gauss type, with a high relative aperture, having a single air spaced positive element behind the rear Gauss component, and a plurality of air spaced positive elements in front of the forward Gauss component. Eight specific embodiments are disclosed, and constructional rules or formulae are developed, to enable the production of other specific structures embodying the invention.

3,738,740

SUN REFLECTOR

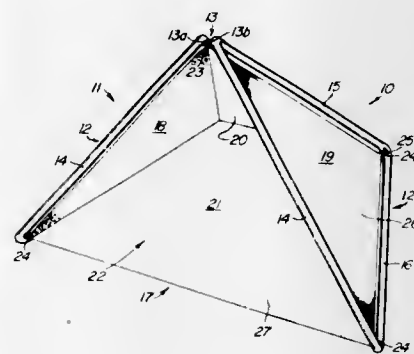
Graham S. Campbell, 6003 Oakhill Drive, Salt Lake City, Utah

Filed July 3, 1972, Ser. No. 268,821

Int. Cl. G02b 5/08

U.S. Cl. 350-288

10 Claims



A sun reflector composed of an upstanding frame that supports a flexible and portable sun reflector or solarium structure. The frame is collapsible and the reflector structure folds to allow the sun reflector to be easily stored and transported. The reflector structure is provided with a dark, heat absorbing and retaining outer surface, and a light sun reflective inner surface and floor. When in use, the sun reflector is positioned to expose the reflector interior and floor to direct sunlight entering through an open frontal area such that a sun bather positioned on the reflector floor is exposed to both direct and reflected sunlight.

3,738,741

SLIDE PROJECTOR

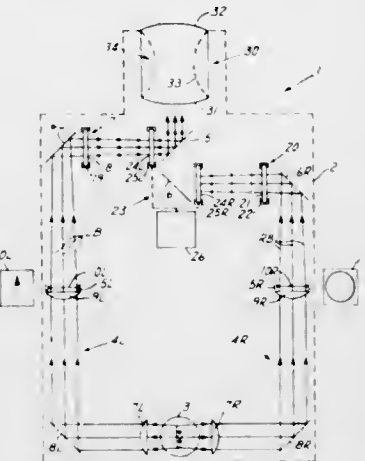
Thomas A. Fournie, 6805 Zumirez Drive, Malibu, Calif.

Filed June 30, 1970, Ser. No. 51,155

Int. Cl. G03b 21/14

U.S. Cl. 353-20

12 Claims



Disclosed is a slide projector having means for polarizing the light projected therefrom. The projector may be arranged to selectively project one or more slides and the polarizing means are selectively operable to control the intensity of the slide image or images projected, thereby to permit the image of a slide to be selectively developed on a viewing screen and dissolved therefrom. Further, the polarizing means may be arranged so that a dissolve type transition may be accomplished on a viewing screen from the projection of the image of one slide to the projection of the image of another.

3,738,742

ILLUMINATION OPTICAL SYSTEM FOR PROJECTING MULTI-PHOTOGRAPHIC IMAGE

Yoshio Fukushima, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

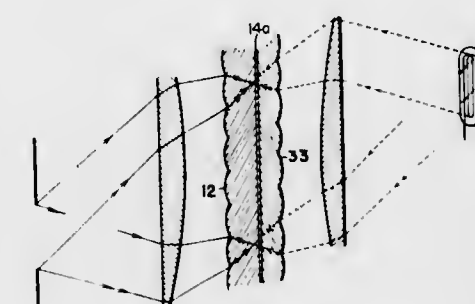
Filed May 7, 1971, Ser. No. 141,435

Claims priority, application Japan, Oct. 20, 1967, 42/67455

Int. Cl. G03b 21/14

U.S. Cl. 353-38

5 Claims



An illumination optical system for projecting multi-photographic images wherein the illumination light loss is minimized is provided by disposing a group of micro-lenses substantially similar to that used in the photographing optical system in the of and backwardly of an image plane; or displacing an illumination light source relative to said image plane in plane symmetrical relation with a movable photographing aperture; or disposing a light diffusion plate between said image plane and said micro-lens group; or disposing photographing and projection condenser lenses in symmetrical relation with respect to said image plane; or disposing the light source and the aperture in point symmetrical relation with respect to the center of said image plane; or positioning the light source relatively closer to said image plane; or focusing the optical image of the light source forwardly of the image plane after the light beams have passed through the image plane.

3,738,743

FLAT BED ELECTROSTATIC PHOTOCOPIER DESIGN FOR CUSTOMER SERVICEABILITY

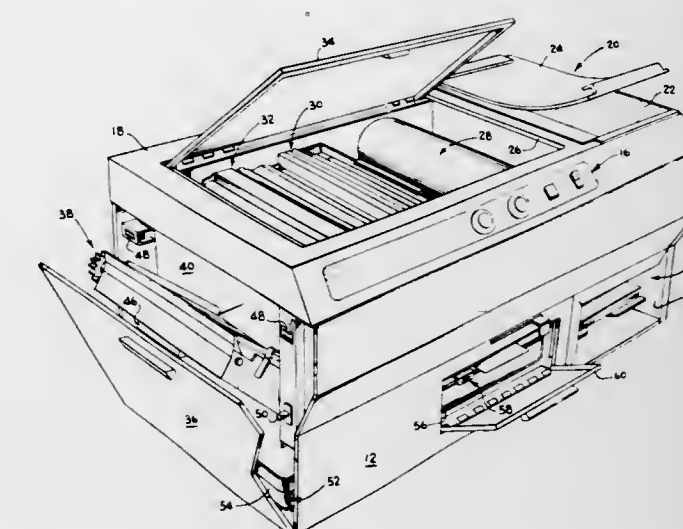
Lionel B. Hoffman, Wyckoff, and Isaac W. Sanders, Belleville, both of N.J., assignors to Pitney-Bowes Inc., Stamford, Conn.

Filed Apr. 5, 1971, Ser. No. 131,064

Int. Cl. G03g 15/22

U.S. Cl. 355-3

10 Claims



The disclosed flat bed electrostatic photocopier utilizes a U-shaped feedpath for feeding successive copy sheets from a supply through various processing stations to a receiving compartment. All segments of the feedpath are adjacent the perimeter of the copier and accessible through openings in the copier housing. Flash illumination of the original is utilized to achieve a full reflected image for projection onto the copy sheet while in transit through the imaging station.

3,738,744

VIEWER-PRINTER APPARATUS

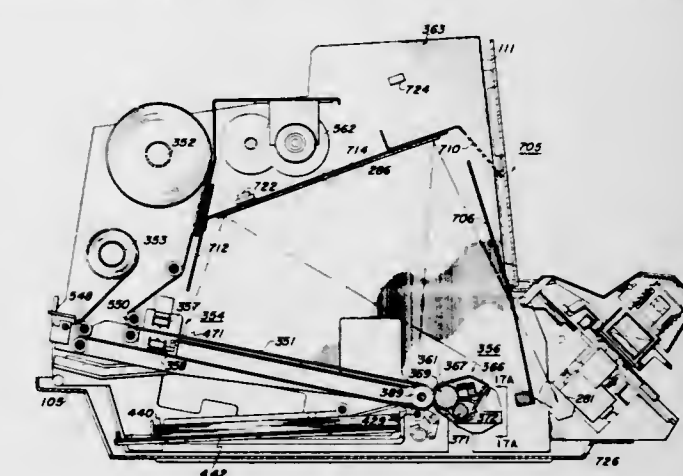
James R. Cassano, Rochester, and Charles E. Smith, Webster, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sept. 18, 1970, Ser. No. 73,568

Int. Cl. G03g 15/10

U.S. Cl. 355-10

13 Claims



Combination viewing and printing apparatus characterized by the capability of: producing a positive print from either a negative or a positive input film; printing on plain sheet paper which is fed from the apparatus at an optimum location; selecting the information to be printed from a microfilm transported by means of a differential drive arrangement which optimizes the film movement; accommodating various types of recording media, for example roll microfilm and microfiche; and presenting a plurality of image formats to the viewing screen and a recording media in a predetermined orientation convenient for viewing and printing.

3,738,745

FUR BRUSH ERASER

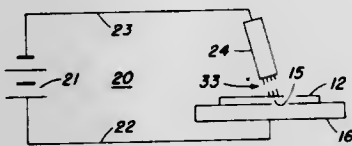
Herbert L. Bresnick, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 30, 1971, Ser. No. 213,917

Int. Cl. G03g 13/22

U.S. Cl. 355-17

9 Claims



Electrostatic discharge printing apparatus providing a visual image of a preselected pattern to have a level of electrostatic charge and polarity corresponding to a preselected level and polarity of developer particles, wherein a preassigned portion of the visual image is erased by increasing the electrostatic charge on the preselected image portion to exceed the preselected level of the developer particles, and thereafter using other developer particles of the preselected level and polarity to attract thereto the increased charged developer particles of the preselected polarity to erase the preassigned image portion without disturbing the remainder of the visual image having the preselected charge level and polarity.

3,738,746

AUTOMATIC STEREOSCOPIC PROFILING SYSTEM

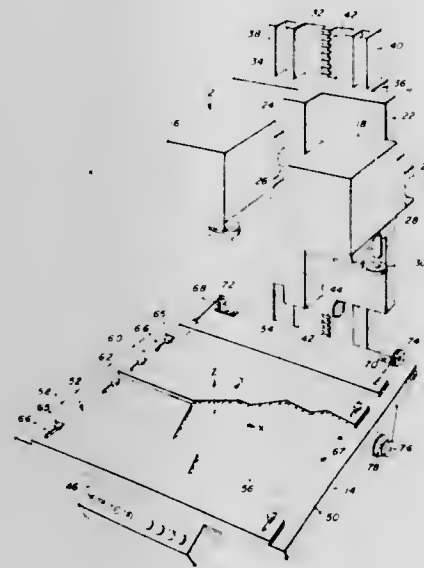
James G. Lewis, Falls Church, and Thomas A. Hughes, McLean, both of Va., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Dec. 8, 1970, Ser. No. 96,035

Int. Cl. G03b 35/24

U.S. Cl. 355-22

8 Claims



Positive and negative transparencies of a stereo-pair of photographs of terrain are projected in a double-projection stereoplotter apparatus to produce an image containing a uniform density line having extended continuity and distinguishable from the overall showing which appears so as to provide a profile signature of a plane intersecting the terrain. Edge enhancement of the photographs aids in establishing a more definitive profile signature.

3,738,747
CONTINUOUS FEED COPYING MACHINE WITH AN ELECTRONIC FLASH ILLUMINATION SYSTEM

Masamichi Hayashi, Minamishidaro-gun, Aichi-ken, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka-shi, Japan

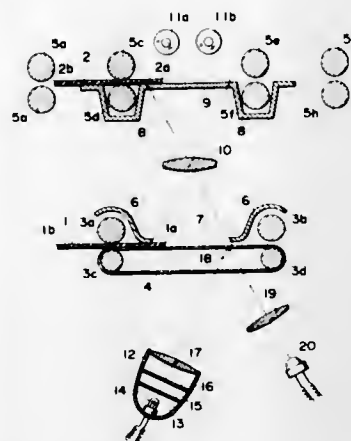
Filed May 14, 1971, Ser. No. 143,518

Claims priority, application Japan, May 14, 1970, 45/47480

Int. Cl. G03b 27/72

U.S. Cl. 355-68

3 Claims



A copy machine having an electronic flash illumination system is disclosed. The electronic flash is activated when a photosensitive device detects a light sensitive sheet of copy paper in the proper exposure position. The exposure takes place as both the original and copy sheets are moving in synchronism. The photosensitive device and an illumination device for detecting the copy paper are normally constructed to operate in a region of the spectrum to which the copy paper is insensitive.

3,738,748

PHOTOGRAPHIC PRINTER

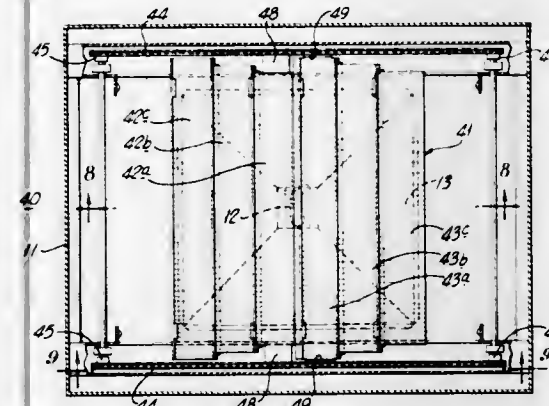
Richard A. Weismantel, 800 Surrey Dr., Streamwood, Ill., and Harold R. Benson, 525 W. Maple St., Lombard, Ill.

Continuation-in-part of Ser. No. 880,716, Nov. 28, 1969, abandoned. This application June 9, 1971, Ser. No. 151,253

Int. Cl. G03b 27/04

U.S. Cl. 355-121

4 Claims



There is provided a contact printer comprising a cabinet having a high intensity light source mounted within the cabinet, with a reflector fixedly mounted in the cabinet for directing a uniform beam of light toward the top of the cabinet where a printing frame is pivotally mounted about a central axis thereof. Because of the mounting of the frame, the top side of the frame may be loaded and then the loaded side may be pivoted downwardly toward the light source. It is desirable to use a high intensity light source in a suitable spectrum range to provide rapid exposure of the sensitized materials. One such light source advantageously is maintained in a reduced standby condition when the materials are not actually being exposed. When the lamp is in such standby condition, a shade or curtain is closed over the lamp to prevent blinding of an operator during pivoting of the printing frame.

3,738,749

RANGEFINDERS

Frank G. Everest, 287 Lonsdale Road, Stevenage, England

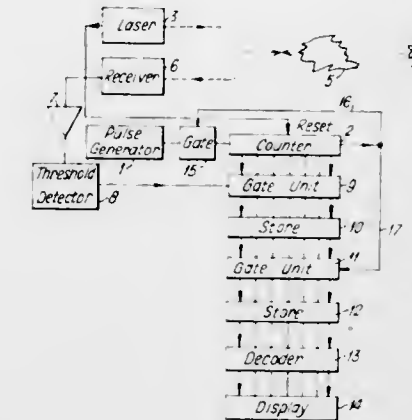
Filed Oct. 12, 1971, Ser. No. 188,325

Claims priority, application Great Britain, Oct. 15, 1970, 49,091/70

Int. Cl. G01c 3/08

U.S. Cl. 356-5

5 Claims



In a rangefinder (for example a laser rangefinder) emitting a pulse of electromagnetic energy, a pulse generator steps a counter to generate a progressively increasing signal following the emission of a pulse for a period corresponding to the delay before reception of a reflected pulse at the maximum range of interest. When a reflected signal is received the count at that instant is stored but subsequent reflections during the same period cause the stored value to be erased and replaced by the subsequent count. At the end of the said period the last stored value is transferred to a display unit. In this way, echoes from partially reflecting media between the emitter and a target are ignored.

3,738,750

DOPPLER SHIFT LASER VELOCIMETER DATA PROCESSOR

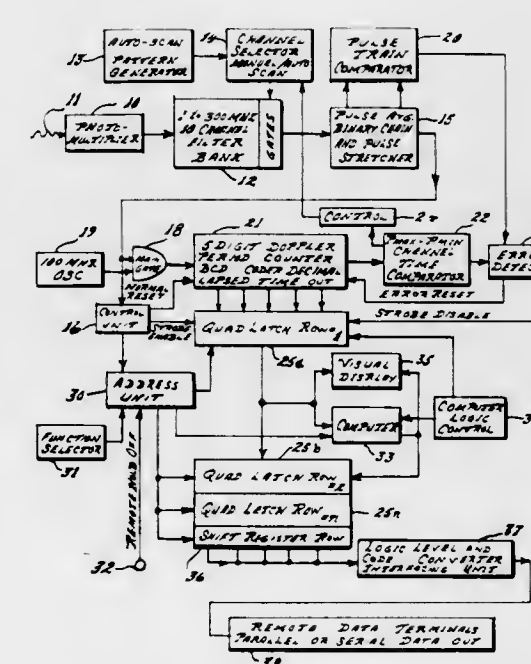
Henry T. Kalb, Manchester; Frank L. Crossway, Tullahoma, and Edward B. Harding, McMinnville, all of Tenn., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Dec. 10, 1970, Ser. No. 96,817

Int. Cl. G01p 3/36

U.S. Cl. 356-28

1 Claim



An apparatus for extracting doppler shift frequency information from signals which are produced by dual scatter laser

velocimeter over the doppler frequency range of 1 to 300 MHz. The laser doppler velocimeter data which is translated and processed into a form compatible with digital computer inputs may be obtained for very short scan times.

3,738,751

PORTABLE CONDENSATION NUCLEI METER

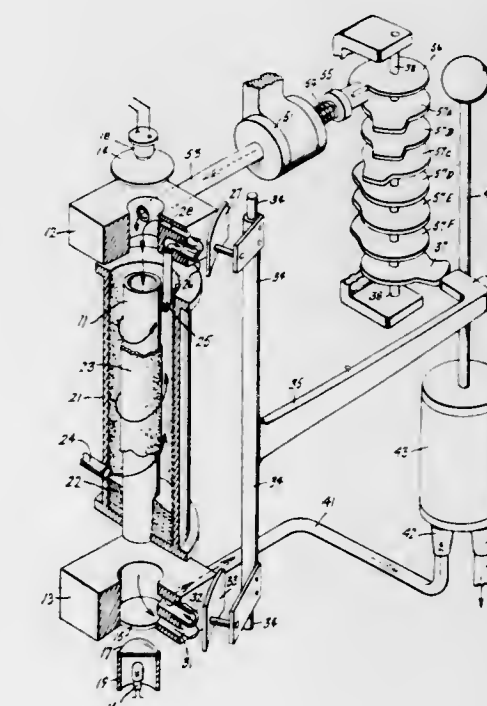
Theodore A. Rich, Scotia, N.Y., assignor to Environment/One Corporation, Schenectady, N.Y.

Filed July 21, 1970, Ser. No. 56,834

Int. Cl. G01n 1/00

U.S. Cl. 356-37

11 Claims



A portable condensation nuclei meter mounted in a manually portable housing and including a condensation chamber supported within the housing. A light source and electro-optic detector views the interior of the condensation chamber and derives output pulsed electric signals representative of the production of cloud of liquid droplets produced therein and which in turn are determined by the numbers of condensation nuclei particles entrained in a sample atmosphere. A manually operated pump supported on the housing serves to flush out the condensation chamber and supply it with sample atmospheres at substantially 100 percent relative humidity for each measurement cycle. Manually operable inlet and outlet valves isolate the condensation chamber during an expansion cycle performed intermediate each flushing operation of the pump. Manually actuated expansion cycle apparatus is coupled to the condensation chamber for suddenly expanding the volume of the condensation chamber at a sufficiently rapid rate to supersaturate a trapped specimen of the humidified sample atmosphere and form the cloud of droplets about the condensation nuclei particles as centers of condensation. The number of droplets thus produced being proportional to the number of condensation nuclei particles entrained in the sample atmosphere being monitored. A measure and hold measuring circuit having a linearly calibrated indicating meter is coupled to the electro-optic detector for measuring the value of the output electric signal pulses produced by the electro-optic detector during the instant of each liquid droplet cloud formation with the electric signal pulses being stored in a capacitor for subsequent reading out at a more convenient time with the linearly calibrated indicating meter by a user of the instrument.

3,738,752

INTENSITY SPATIAL FILTER HAVING NON-UNIFORMLY SPACED FILTER ELEMENTS

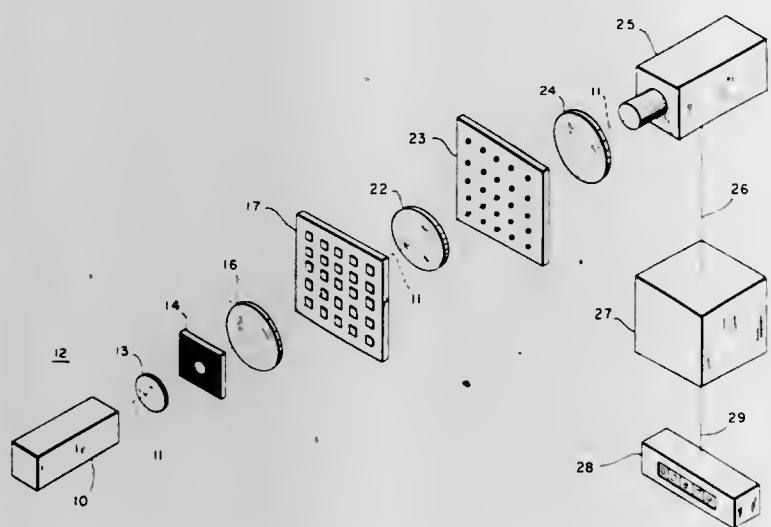
Robert Alfred Heinz, Flemington Township, Hunterdon County; Robert Charles Oehrle, Edgewater Park Township, Burlington County; Laurence Shrapnell Watkins, Hopewell Township, Mercer County, all of N.J., and Terrence Edward Zavec, Macungie Township, Lehigh County, Pa., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed May 3, 1972, Ser. No. 249,983

Int. Cl. G01n 21/32; G02b 27/38

U.S. Cl. 356-71

4 Claims



A spatial filtering system for inspecting integrated circuit photomasks, and the like. The system employs a spatial filter comprising a matrix-like array of opaque regions on a transparent field. Unlike prior art systems where the region-to-region spacing of the filter is uniform, in the instant invention the region-to-region spacing steadily increases from the centermost element outward according to a precise mathematical formula.

3,738,753

INTERFEROMETER UTILIZING GRATINGS TO MEASURE MOTION

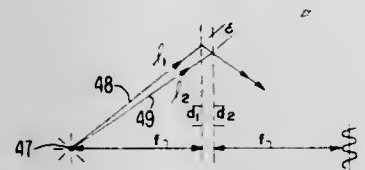
Wright H. Huntley, Jr., Los Altos, Calif., assignor to Holograf Corporation, Los Altos, Calif.

Filed Sept. 21, 1970, Ser. No. 73,791

Int. Cl. G01b 9/02, 11/04

U.S. Cl. 356-111

7 Claims



An interferometer and method of making same are disclosed wherein two energetic beams are used to record an interference pattern to form a grating having a period of a substantially exact multiple or standard submultiple of a standard measuring unit and wherein this interference pattern is utilized in an interferometer fringe counter wherein relative movement of the grating and source produce a fringe count which is a measure of the relative movement. The grating is disclosed as a hologram, and in one embodiment light is transmitted through the hologram in one direction and then back through the hologram in another direction whereby the interference fringes are established on the same side of the hologram as the source. In another embodiment two holograms are utilized, one fixed and one movable relative to the source, and interference fringes are established on the side of the hologram opposite the side where the source is located.

3,738,754

OPTICAL CONTACTING SYSTEMS FOR POSITIONING AND METROLOGY SYSTEMS

Raymond Marcy, and Michel Lacombat, both of Paris, France, assignors to Thomson-CSF, Paris, France

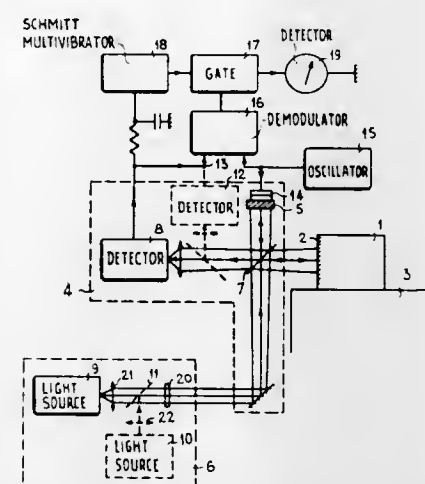
Filed Mar. 18, 1971, Ser. No. 125,640

Claims priority, application France, Mar. 20, 1970, 701063

Int. Cl. G01b 9/02

U.S. Cl. 356-106

12 Claims



The invention relates to optical connecting systems for accurately positioning a surface with respect to another surface.

The contacting system according to the invention comprises a Michelson interferometer in one arm of which an optical length modulating device is introduced. The source of radiant energy has an emission spectrum including two distinct spectral portions which are separately sensed in the detection arm of the interferometer. The detected signals are superimposed at the input of a synchronous detector, the output of which is coupled to a zero indicator.

The contacting devices in accordance with the invention are used in laser metrology systems.

3,738,755

ANALYZER EMPLOYING MAGNETO-OPTIC ROTATION

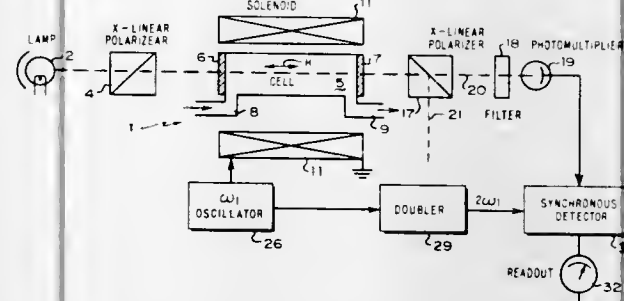
Robert L. Chaney, Cupertino, and Michael A. Kelly, Mountain View, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed July 14, 1971, Ser. No. 162,602

Int. Cl. G01n 21/40

U.S. Cl. 356-117

9 Claims



A magneto-optic rotation analyzer method and apparatus is disclosed. In the analyzer, a light beam of linearly polarized light, preferably in the ultra-violet region is shown through a sample of a material to be analyzed. A magnetic field is applied to the sample parallel to the light beam to obtain magneto-optic rotation of the polarization of the light by constituents of the sample. The emerging light beam is analyzed as to its polarization to separate light which is rotated from light which has not been rotated. One of the separated light beams is detected by a photodetector. The magneto-optic rotation effect is modulated at a certain modulation frequency and the output signal is synchronously detected against the modulation frequency or a harmonic thereof for improved signal-to-noise ratio. The synchronously detected output is measured to obtain a measurement of the sample under analysis.

3,738,756

MAGNETO-OPTIC ROTATION ANALYZER

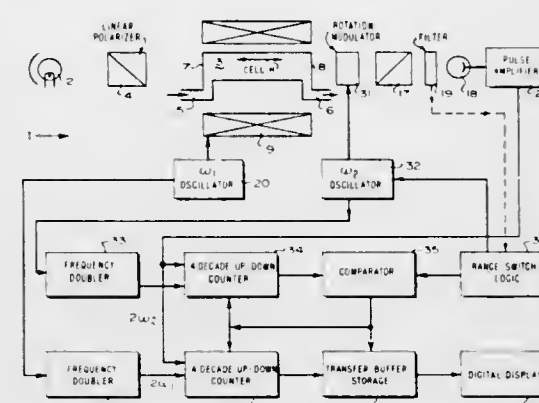
Robert L. Chaney, Cupertino, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed July 12, 1971, Ser. No. 161,846

Int. Cl. G03b 27/22

U.S. Cl. 356-117

8 Claims



In a magneto-optic rotation analyzer, a first modulator modulates the magneto-optic rotation, if any, of the probing light beam by the sample at a first modulation frequency and a second reference modulator, independent of the sample, modulates the polarization of the probing light beam at a second reference modulation frequency. Both modulators produce separate modulation components in the output of the photo-multiplier employed to detect the polarization affected probing light beam. The separate sample and reference modulation signal components are separately detected and integrated. The reference signal is utilized to compensate for variations in the parameters of the optical components through the optical path of the analyzer.

3,738,757

REFRACTOMETER

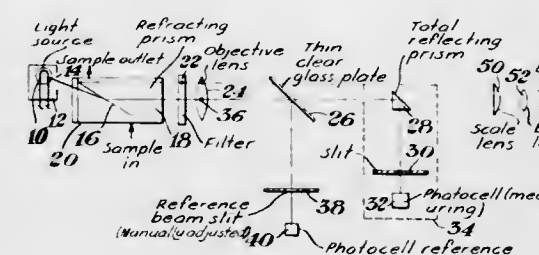
Ormond E. Barstow, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed July 2, 1971, Ser. No. 159,429

Int. Cl. G01n 21/46

U.S. Cl. 356-131

10 Claims



This invention relates to an improved recording refractometer of the critical angle type wherein the brightness of the dark field is observed continuously by one reference photocell while another photocell assembly (measuring) scans to find the light-dark dividing line. The electrical outputs of the reference and measuring photocells are coupled to a bridge circuit, amplifier and servo motor which pivots the measuring photocell assembly until the slit adjacent to the measuring cell comes into, and remains in, coincidence with the light-dark boundary. Indicating or recording means coupled mechanically to the measuring photocell assembly shows the refractive index of the sample.

911 O.G.-22

3,738,758

METHOD AND APPARATUS FOR FORMULATING INKS

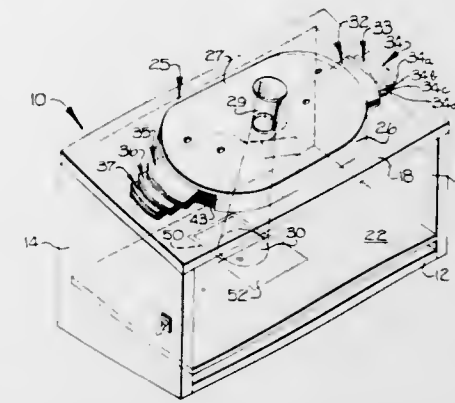
William C. Gober, Jr., Doraville, Ga., assignor to Wilkoff Color Corporation, Charlotte, N.C.

Filed Sept. 29, 1970, Ser. No. 76,457

Int. Cl. G01j 3/48, 3/52

U.S. Cl. 356-189

10 Claims



A method and apparatus for formulating an ink capable of reproducing a desired color having an unknown ink formulation. The apparatus includes a viewing area adapted to receive a color sample having a known ink formulation as well as a sample of the color having an unknown ink formulation. A number of filters are mounted above the viewing area such that any number or combination of the filters may be selectively positioned to overlie the known color sample until the unknown color is approximately duplicated by the known color sample and superimposed filters. The color of each filter is reproducible by a known ink formulation, and thus an ink capable of reproducing the unknown color may be prepared by mixing an appropriate amount of the inks indicated by the selected filters with the ink of the known sample.

3,738,759

APPARATUS AND METHODS FOR FLOW PHOTOMETRY OF PARTICLES OF A DISPERSION

Wolfgang Dittich, Am Krug 42, and Wolfgang Gobbe, Lohafenerweg 39, both of Muenster, Germany

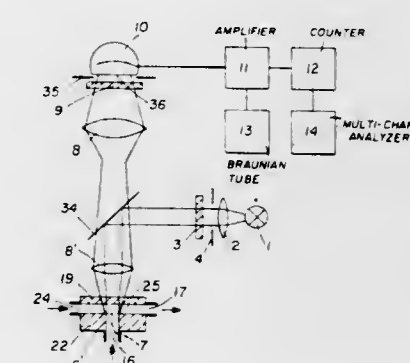
Continuation-in-part of Ser. No. 884,651, Dec. 12, 1969, abandoned. This application Apr. 16, 1970, Ser. No. 29,215

Claims priority, application Germany, Apr. 18, 1969, P 19 628.2

Int. Cl. G01n 21/26

U.S. Cl. 356-208

6 Claims



In flow photometry by means of transmitting light from a light source to a flowing dispersion in a measuring zone and from the dispersion to a photosensitive receiver and associated apparatus for measuring and/or counting the particles of the dispersion and in which there is an optical axis extending from the measuring zone to the photosensitive receiver, the improvements in which the dispersion is caused to flow through the measuring zone with a velocity component parallel to the optical axis, and a stream of the dispersion

medium optically empty or other optically empty fluid of like refractive index is directed to wash the dispersion from the measuring zone or to form an envelope around the dispersion as the dispersion is introduced into the measuring zone.

3,738,760

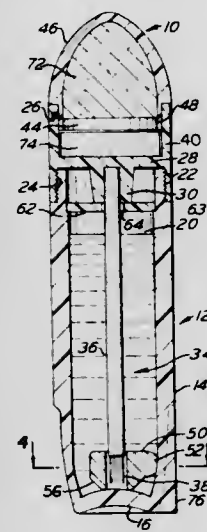
PAINT TOUCH-UP CONTAINER

John W. Madeira, Akron, Ohio, assignor to Plastic-Kote Company, Medina, Ohio

Filed Oct. 13, 1971, Ser. No. 188,824

Int. Cl. A46b 11/00

U.S. Cl. 401-4



A container adapted to dispense materials from first and second storage chambers. The first storage chamber is defined by a hollow cylindrical body having a sidewall and a bottom wall. A cap is provided for the body and includes an applicator brush. A hollow agitator is disposed within the first chamber about the brush. Ribs or fins project from either the agitator or the cylindrical body sidewall to guide the agitator in its reciprocating up and down movement. The cap further includes a second storage chamber defined by an upper sidewall extending from the cap. A closure member is provided for the cap. In the preferred embodiment the first storage chamber of the container is adapted to receive touch-up paint. The second storage chamber is adapted to receive rubbing compound.

3,738,761

RESERVOIR BRUSH FOR THE APPLICATION OF AGENTS ON TO SURFACES

Goran J. F. Hard af Segerstad, 4 Borgmastarungen, 190 30 Sigtuna, Sweden

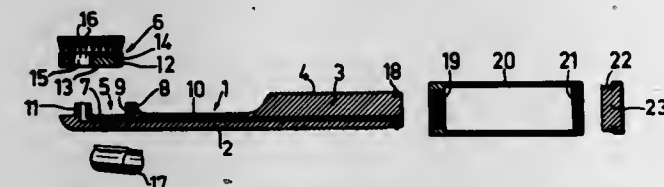
Filed Mar. 31, 1971, Ser. No. 129,934

Claims priority, application Sweden, Apr. 6, 1970, 4695

Int. Cl. A46b 11/02

U.S. Cl. 401-173

3 Claims



A reservoir brush comprising a brush body including a shank with a through hole or duct, and an enlarged end portion having external threads engaging internal threads of a cylindrical receptacle for a more or less viscous treating agent such as a tooth paste. At its other end the shank is provided with a flat support surface having a first stud extending at right angles thereto, said stud having a hole communicating with

the duct of the shank, and a second stud extending from one end of the support surface at right angles thereto and having a flat surface facing the hollow stud. The flat support surface of the shank is adapted to receive a correspondingly shaped detachable brush element having a through hole matching the hollow stud extending from the flat support surface, and an end surface adapted to engage the flat surface of the second stud. A resilient means is provided to keep the brush element in a firm engagement with the support surface.

3,738,762

DISPOSABLE TOOTHBRUSH

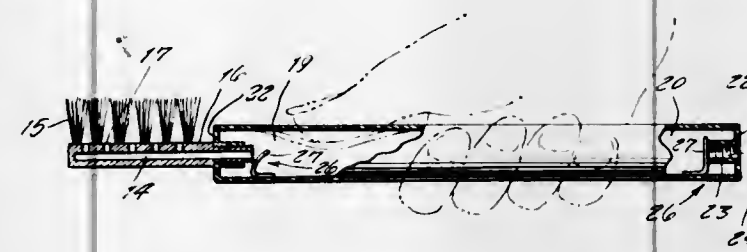
Jimmie Moore, and Elmor Moore, both of 490 1/2 Seward Street, Rochester, N.Y.

Filed Mar. 8, 1971, Ser. No. 121,732

Int. Cl. A46b 11/02

U.S. Cl. 401-186

5 Claims



A novel toothbrush that includes an elongated handle made of resilient plastic material, the handle being hollow so to form a compartment within each opposite end thereof, one compartment containing toothpaste and the other compartment containing mouthwash, and the opposite ends of the toothbrush handle being attachable to a removable brush head that includes a hollow base upon which brush bristles are supported, the hollow base being adaptable to receive the toothpaste or mouthwash from the elongated handle, and the base being perforated so to permit the toothpaste or mouthwash to flow outward upon the brush bristles.

3,738,763

CONCRETE FINISHING MACHINES

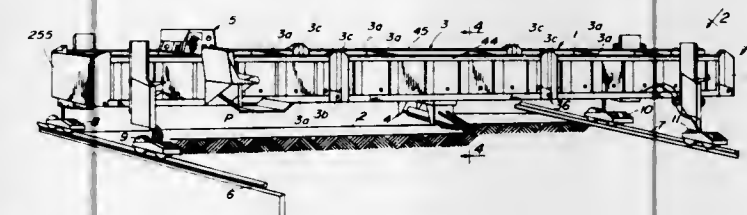
Herbert C. Giesmann, Omaha, Nebr., assignor to Bld-Well Corporation, Canton, S. Dak.

Filed June 3, 1971, Ser. No. 149,523

Int. Cl. E01c 19/22

U.S. Cl. 404-119

24 Claims



A concrete finishing machine movable longitudinally of a roadway, or the like, with a concrete-surfacing unit movable back and forth transversely of the roadway, with movement of the machine and of the surfacing unit capable of being selectively either manually or automatically controlled.

3,738,764

MEANS FOR PRODUCING RELATIVE MOVEMENT BETWEEN TWO BODIES

Maurice Woolmer Gribble, Marple, England, assignor to Ferranti Limited, Hollinwood, Lancashire, England

Division of Ser. No. 789,459, Jan. 7, 1969, Pat. No. 3,596,526.

This application May 11, 1971, Ser. No. 142,278

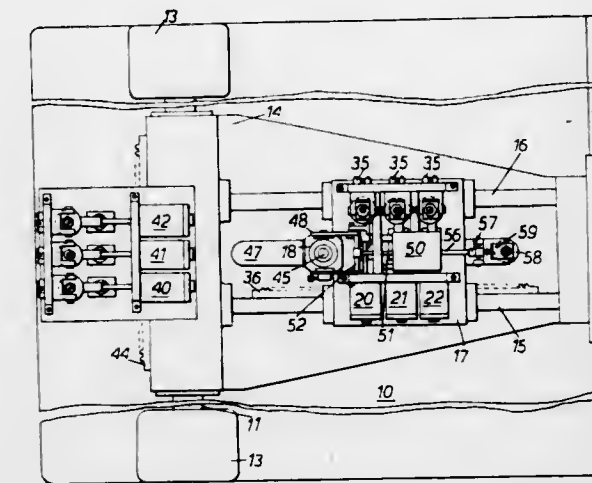
Int. Cl. B23b 39/08; B23c 11/12

U.S. Cl. 408-3

8 Claims

Means for moving one body relative to another comprises a main toothed rack carried on one body and at least three ac-

tuators carried on the other body. Each actuator carries a stub rack of similar form to the main rack and is operable to force the stub rack into engagement with the main rack. The spac-



ing between the actuators is such that sequential operation of the actuators causes the bodies to move relative to one another in the required direction.

3,738,765

SEALING STRUCTURE FOR POLE BORING MACHINE

Milton H. Mater, 1415 Brook Lane, Corvallis, Oreg.

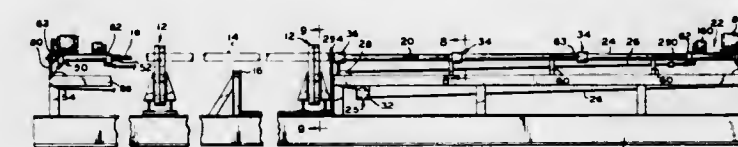
Division of Ser. No. 843,043, July 18, 1969, Pat. No.

3,598,393. This application Apr. 8, 1971, Ser. No. 132,539

Int. Cl. B23b 41/02

U.S. Cl. 408-37

3 Claims



A pair of aligned drills each includes a drill tube carrying a drill bit including a forward pilot pin, forward cutters of a smaller diameter and rearward cutters of a larger diameter. The drill tube is rotated and drills an axial hole in a pole slightly larger than a guide tube, which extends to a point just behind the rearward cutters and journals the drill tube. Pressurized air fed into the guide tube through a rotary coupling travels through a venturi passage at the forward end of the guide tube and carries chips from the drill bit back through the drill tube. The guide tube is rotated slowly to dislodge chips and facilitate movement of the guide tube into the bore being formed. A carriage slidable on tubular ways and guides slidable on the ways support the guide tube and is moved forwardly slowly by a cable drive to feed the drill and is returned rapidly by the cable drive. The drills are moved forwardly from opposite ends of the pole to be drilled until one drill reaches the end of its feed stroke and then this drill is retracted while the other drill completes its stroke. A slidable interlock prevents the drills from coming together and reverses the motion of the carriage of one of the drills when the drills closely approach each other. Opposed clamps having generally V-shaped jaws on the ends of tongs grip and center the pole relative to the drills. The rotary coupling forms pressure-tight seals both with the drill tube and the guide tube. Spiders in the guide tube mount ball bearings journaling the drill tube and permit flow of air along the space between the drill tube and the guide tube.

3,738,766

DOWEL HOLE DRILLING DEVICE

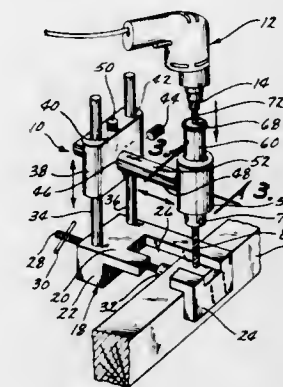
Walter Elder, Jr., Route No. 1, Waukegan, Iowa

Filed Aug. 4, 1971, Ser. No. 169,012

Int. Cl. B23b 45/14

U.S. Cl. 408-109

2 Claims



A dowel hole drilling device comprising a clamp means for maintaining the member to be drilled therebetween and a pair of support members extending upwardly therefrom. A support means is adjustably vertically mounted on the support members and has one end of an arm member selectively horizontally secured thereto. A vertically disposed guide collar is secured to the other end of the arm member and has a vertically movable drive member rotatably mounted therein. The upper end of the drive member is adapted to be secured to the chuck of an electric drill. The lower end of the drive member is adapted to have a drill bit secured thereto in a manner which permits the easy removal and insertion of the drill bit. A spring detent means is provided in the guide collar for yieldably maintaining the drive member in its uppermost position.

3,738,767

ADJUSTABLE BORING BAR

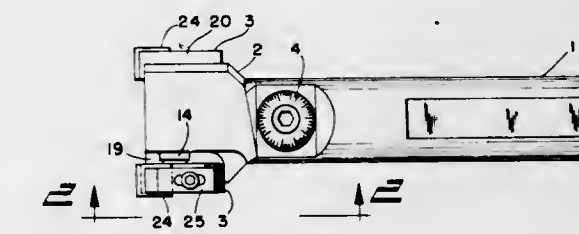
Milton L. Benjamin, and Wilbur N. Miles, both of Chagrin Falls, Ohio, assignors to Erickson Tool Company, Solon, Ohio

Filed July 15, 1971, Ser. No. 162,851

Int. Cl. B23b 29/034, 51/00

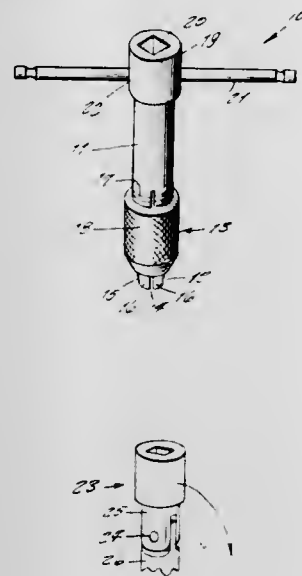
U.S. Cl. 408-161

4 Claims



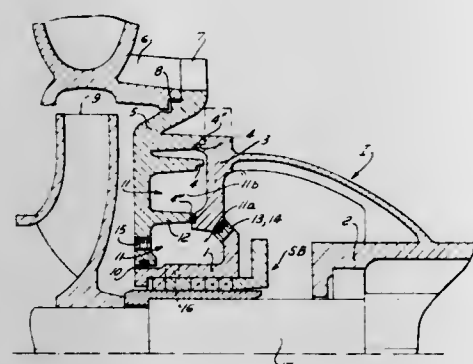
An adjustable boring bar characterized in that the bar has a transverse bore in which the overlapped shank portions of a pair of cutter elements are simultaneously moved radially outward or inward with respect to the longitudinal axis of the bar by screw actuated cam means which engages inclined surfaces of the respective shank portions. The screw actuated cam means comprises a nut movable in another transverse bore in the bar by rotation of a dial screw, said nut having an inclined cam face which engages a cam plunger which is longitudinally movable in a central longitudinal bore in the bar, said plunger having a V-shaped tongue which engages the respective inclined surfaces of the shank portions of the cutter elements. The adjustable boring bar herein is further characterized in that the cutter elements are of T-shaped configuration with the shanks overlapped as aforesaid in a transverse bore in the bar and with the crossbar portions guided and supported by integral shoulders formed on the bar, the crossbar portions having provision for mounting of carbide or like inserts.

3,738,768
TAP WRENCH WITH SWIVEL DRIVE
 Russell P. Kuhn, 109 Tesing Circle, Bridgeport, Conn.
 Filed Feb. 9, 1971, Ser. No. 113,900
 Int. Cl. B25b 13/10, 13/44
 U.S. Cl. 408—240



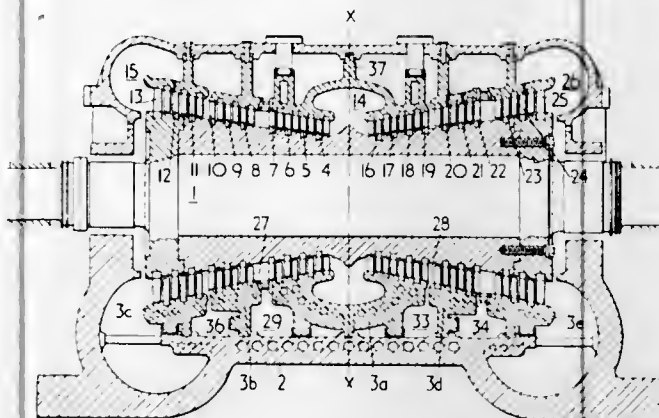
A drive tap wrench that is manually operable and which includes a removable cross-handle; the device being adaptable to be used as a conventional "T" tap wrench or which can be used with a 1/4 inch drive ratchet wrench.

3,738,769
HOUSING FOR CENTRIFUGAL PUMPS
 Wolfgang Hanagarth, and Richard Schafer, both of 6710 Frankenthal/Pfalz, Germany, assignors to Klein, Schanzlin & Becker Aktiengesellschaft, 6710 Frankenthal/Pfalz, Germany
 Filed Sept. 16, 1971, Ser. No. 188,706
 Claims priority, application Germany, Sept. 16, 1970, P 20 45 685.3-15
 Int. Cl. F01d 11/00
 U.S. Cl. 415—110



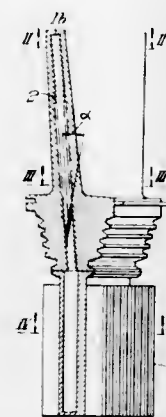
A centrifugal pump housing wherein the shaft sleeve, the cylindrical portion for reception of a stuffing box and a radial flange form a one-piece annular inlet section which is bolted to a wearing ring and a volute casing. The flange has several concentric annular ribs one of which is sealingly engaged by a single concentric rib of the wearing ring, or vice versa. This renders it possible to employ the same wearing ring for assembly with any one of several differently dimensioned inlet section, or to employ a single inlet section for assembly with any one of several differently dimensioned wearing rings.

3,738,770
TURBINES
 John Reginald Bolter, Durham, England, assignor to Reyrolle Parsons Limited, Durham, England
 Filed June 14, 1971, Ser. No. 152,557
 Claims priority, application Great Britain, June 15, 1970, 28,905/70
 Int. Cl. F01d 25/32, 3/02
 U.S. Cl. 415—121 A



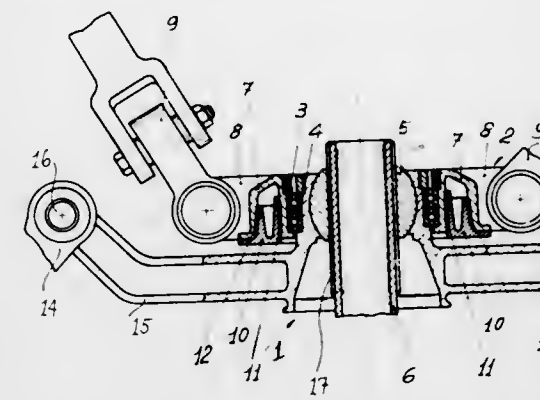
A vapor turbine arrangement comprising a turbine having a plurality of bladed rotor wheels and provided with means for extracting liquid entrained within the vapor passing through the main vapor flow path of the turbine, which means are positioned to extract the liquid at a stage of the vapor expansion within the turbine upstream of a final bladed rotor wheel at the low pressure end of the turbine and which extract a portion of the vapor together with the liquid, the arrangement further having means for the return of the vapor to the main vapor flow path of the turbine, subsequent to separation of the vapor and liquid, at a stage of the vapor expansion within the turbine where the pressure of the vapor is only slightly lower than the pressure at which it was extracted, the vapor being returned to up-stream of at least one bladed rotor wheel of the turbine.

3,738,771
ROTOR BLADES OF ROTARY MACHINES, PROVIDED WITH AN INTERNAL COOLING SYSTEM
 Jeanne Genot Nee Delarbre, Sceaux; Emile Le Grives, Fontenay-aux-Roses, and Guy Berland, Chatillon, all of France, assignors to Office National d'Etudes et de Recherches Aerospatiales, Chatillon-sans-Bagneux, France
 Filed July 15, 1971, Ser. No. 162,849
 Claims priority, application France, July 20, 1970, 7026718
 Int. Cl. F01d 5/18
 U.S. Cl. 416—96



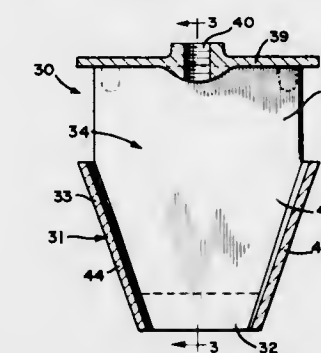
The cooling system is by phase transition in circulation in a closed cycle of a cooling fluid. The blade includes several closed elemental cavities, the wall of each elemental cavity including at least one continuous stria extending over its length along a helicoidal track. It is useful for aircraft gas turbine blades.

3,738,772
OSCILLATING PLATE FOR HELICOPTERS
 Giorgio Parenti, Parma, Italy, assignor to SIAI-Marchetti S.p.A., Varese, Italy
 Continuation-in-part of Ser. No. 23,067, March 26, 1970, abandoned. This application Mar. 7, 1972, Ser. No. 232,395
 Int. Cl. B64c 27/74
 U.S. Cl. 416—114



A dynamic oscillating plate is disclosed for use on a helicopter. The plate includes the combination of an upper forged ring having an over-turned U hollow section, and a lower forged ring having a U hollow section which is dimensioned to mate internally with the overturned U hollow section. The mating members form a rigid connection highly resistant to deflection and torsional forces when secured in mating position solely by engaging contact of mating arms of the U hollow sections, and without added mechanical engaging means.

3,738,773
BLADELESS PUMP IMPELLER
 Walter H. Tinker, Frankfort, Ohio, assignor to The Tait Manufacturing Company, Dayton, Ohio
 Continuation-in-part of Ser. No. 91,767, Nov. 23, 1970, abandoned. This application Oct. 20, 1971, Ser. No. 190,947
 Int. Cl. F01d 1/34
 U.S. Cl. 416—179

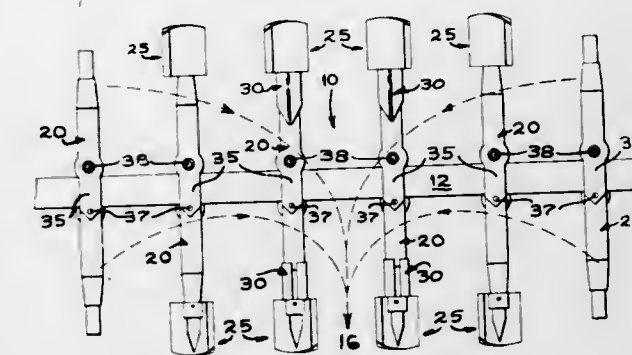


A bladeless pump impeller has a hollow, generally tubular body with an inlet end and an outlet end communicating with the hollow interior. The inlet to the impeller is of generally circular cross-section and the outlet is of generally oblong cross-section, the interior wall of the impeller providing a smooth transition from the inlet to the outlet.

3,738,774
ASPHALT MIXER TIP AND SHANK ASSEMBLY
 Kenneth V. Lutz, 19782 Glen Brae Drive, Saratoga, Calif.
 Filed Dec. 16, 1971, Ser. No. 208,817
 Int. Cl. B01f 7/04

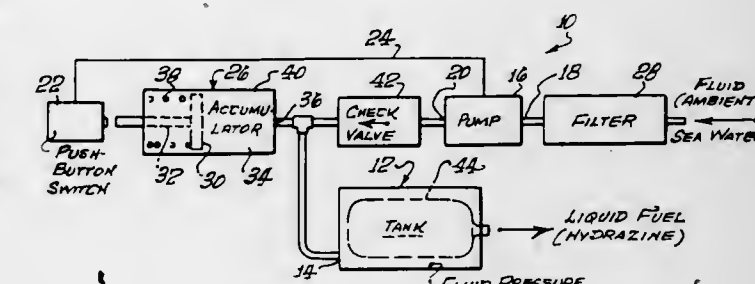
U.S. Cl. 416—210
 An asphalt mixer tip and shank assembly in which a pugmill shank is secured midway between its ends to a mixer shaft.

The shank comprises a separable hub with complementary shaft gripping hub halves clamped to the mixer shaft by bolts interengaging the separable members. A mixer tip is detachably secured at each end of the shank. Each mixer tip is formed with an ear and a recessed portion to receive the distal



end of its associated separable member of the shank and is secured to the shank by a pin passing through the ear to urge the shank into the recessed portion of the mixer tip in fixed relation thereto. A slip-on shroud is mounted on each end of the shank.

3,738,775
CONSTANT PRESSURE LIQUID SUPPLY SYSTEM
 Alvah T. Strickland, Kailua, Hawaii, assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
 Filed Oct. 7, 1971, Ser. No. 187,484
 Int. Cl. F04b 49/08; B65d 35/28
 U.S. Cl. 417—38

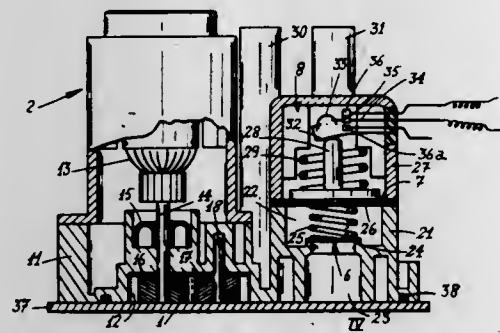


A constant pressure liquid supply system including a tank having an inlet; a pump which has an inlet for receiving fluid and an outlet which is connected to the tank inlet; switch means connected to the pump for turning the pump on and off; and means responsive to fluid pressure within the tank and cooperable with the switch means for turning the pump on when the tank fluid pressure falls below a predetermined level and turning the pump off when the tank fluid pressure attains said predetermined level. A bladder for containing liquid may be mounted in the tank and may have an outlet which extends therefrom for discharging the liquid when squeezed down by fluid pressure within the tank.

3,738,776
PUMPING DEVICE, ESPECIALLY FOR WATER SUPPLY
 Jacques Debare, Tarbes, France, assignor to Societe Francaise D'Equipement Menagen, Lourdes, France
 Filed Aug. 2, 1971, Ser. No. 168,213
 Claims priority, application France, Sept. 24, 1970, 7034616
 Int. Cl. F04b 49/02

U.S. Cl. 417—38
 The invention relates to a pumping device comprising a pump driven by a motor, a diaphragm which is subjected to

the water pressure downstream of the pump and a contactor which is actuated by the diaphragm for the purpose of controlling the motor. The pump is of the gear type and a check-



valve is placed upstream of the diaphragm in the distribution line which is supplied by the pump.

The invention is of particular interest for the supply of water to caravans, bungalows or like premises.

3,738,777

ELECTROMAGNETIC CONVEYING TROUGH WITH COOLING CHANNELS

Axel von Starck, Luttrich, and Hans-Erwin Gerbig, Remscheid, both of Germany, assignors to AEG-Elotherm GmbH, Remscheid-Hasten, Germany

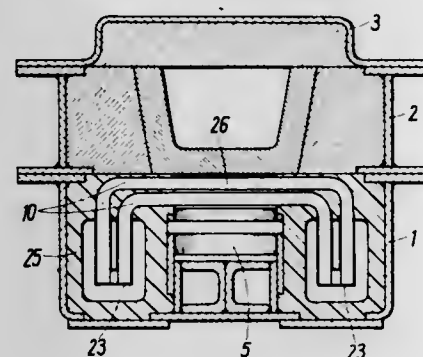
Filed Aug. 6, 1971, Ser. No. 169,766

Claims priority, application Germany, Sept. 30, 1970, P 20 48 026.6

Int. Cl. H02k 45/00; H02n 4/20

U.S. Cl. 417-50

11 Claims



An electromagnetic conveyor of the type having an obliquely ascending trough, a travelling field inductor mounted beneath the trough with a core and a polyphase winding comprised of solid, bare conductors carried by the core and a housing for receiving the heads of the windings which forms a cooling channel through which a liquid coolant, such as water, can circulate. The housing preferably also forms a return channel which communicates with the cooling channel at the upper end of the trough and the conductor portions in heat conducting relationship with the circulating coolant are preferably coated with electrical insulation to prevent electrochemical dissociation of the coolant. The cooling channel may be bounded by an electrically insulating compound which can be poured into the housing after a consumable core is first placed in the housing. After the compound has set, the core can be removed, for example by melting. The invention relates to an electromagnetic conveying trough comprising an obliquely ascending trough and, below the trough, a travelling field inductor having a laminated slotted sheet iron core carrying a polyphase winding. The bottom end of the conveying trough is usually connected to a melting or holding furnace containing a molten metal charge from which the electromagnetic field travelling toward the upper end of the trough conveys liquid metal to the top of the trough. The winding heads of the inductor windings are usually contained in winding head housings located on each side of the laminated core.

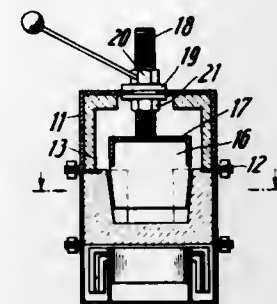
3,738,778
ELECTROMAGNETIC CONVEYING TROUGH
Axel von Starck, Remscheid-Luttringhausen, and Hans Erwin Gerbig, Remscheid, both of Germany, assignors to AEG-Elotherm GmbH, Remscheid-Hasten, Germany
Filed Aug. 10, 1971, Ser. No. 170,475

Claims priority, application Germany, Jan. 16, 1971, P 21 02 074.6

Int. Cl. H02n 4/20

U.S. Cl. 417-50

7 Claims



An electromagnetic conveying trough of the type having an upwardly sloping trough body in which the liquid metal that is to be conveyed is driven upwards by a traveling electromagnetic field generated by an inductor and a gate in the body of the trough for limiting the layer thickness of the liquid metal, the mean direction of the gate opening in a direction perpendicular to the effective component of the traveling electromagnetic field not exceeding 80 percent, and preferably not 75 percent, of the mean width of that portion of the trough that precedes the gate in the direction of axial flow.

3,738,779

VARIABLE DISPLACEMENT PUMP HAVING PRESSURE COMPENSATION CONTROL MEANS

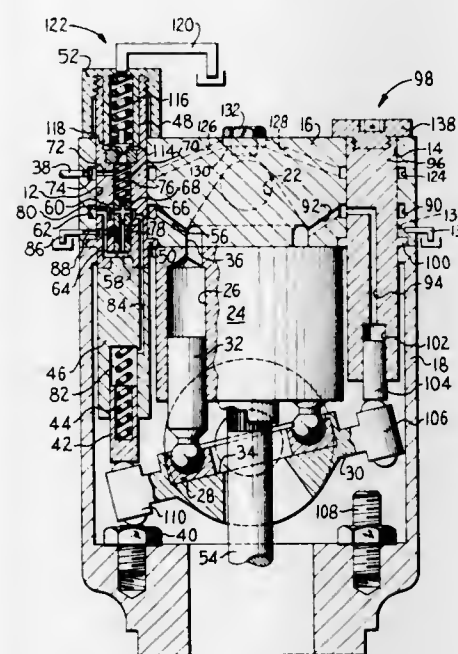
Allyn J. Hein, Joliet; Walter Z. Ruseff, New Lenox, and Gilbert Tribbley, Joliet, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed June 28, 1971, Ser. No. 157,157

Int. Cl. F04b 49/00

U.S. Cl. 417-213

1 Claim



A variable displacement pump of the type having a plurality of rotatable, axially-aligned pistons guided by a pivotal swash plate for enabling adjustment of displacement and also having a sharp cutoff pressure compensator control means whereby the swash plate is shifted to its minimum displacement position when a predetermined maximum pressure is reached or when the pump load is in a neutral condition, thereby curtailing heat generation and horsepower loss.

3,738,780 CAPACITY CONTROL VALVE FOR SCREW COMPRESSOR

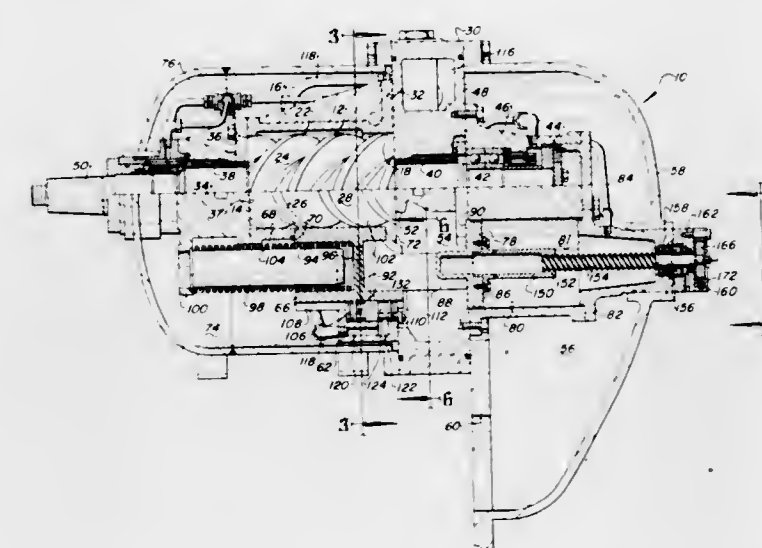
Soren E. H. Edstrom, Quincy, Ill., assignor to Gardner-Denver Company, Quincy, Ill.

Filed Nov. 5, 1971, Ser. No. 196,056

Int. Cl. F04b 49/02, 49/08; F01c 1/16

U.S. Cl. 417-281

13 Claims



A capacity control valve for a liquid injected helical screw gas compressor comprising an axially slidable wall portion of the compressor casing. The control valve body is integrally formed with a piston for a hydraulically actuated valve positioning cylinder, and is arranged in the compressor housing to respond to compressor discharge gas acting thereon to tend to move to a minimum capacity or open position. The capacity control valve is guided in the rotor housing by a cylindrical guide pin having passages for conducting compressor injection liquid to the compressor working chamber. The guide pin is interchangeable to provide for alternate locations for injecting liquid into the working chamber. The capacity control valve is operable to be positively locked in a predetermined axial position by a locking lever controlled from the exterior of the compressor.

3,738,781

PUMP UNIT FOR CONVEYING HIGH TEMPERATURE MEDIA

Walter Hagemann, Itzehoe-Nordsee, and Erwin Zimmermann, Helliggenstedten-Jullanka, both of Germany, assignors to Siemens & Hirsch mbH, Itzehoe/Holstein, Germany

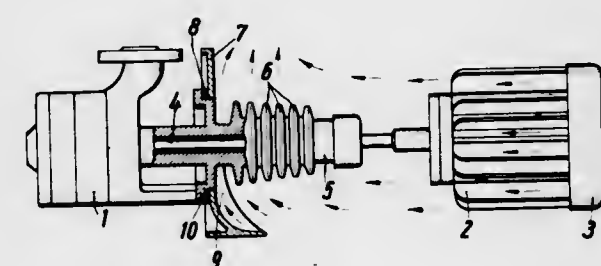
Filed Dec. 14, 1970, Ser. No. 97,910

Claims priority, application Germany, Dec. 23, 1969, P 19 64 474.7

Int. Cl. F04d 7/06, 13/06

U.S. Cl. 417-423 R

6 Claims



A pump unit for conveying high temperature media having an air cooled drive motor and a centrifugal pump wherein said drive motor is mounted so as to cause cooling air to pass over the shaft sealing housing and reduce the temperature in the area of the shaft packing.

3,738,782

CENTRIFUGAL PUMP WITH CONCRETE VOLUTE

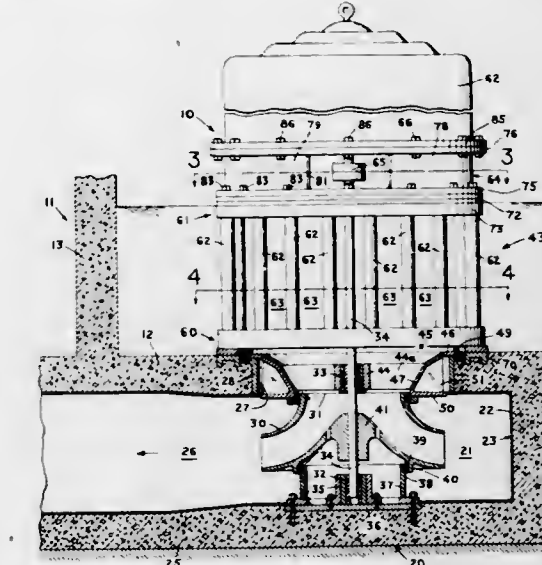
Warren H. Fraser, Westfield, N.J., assignor to Worthington Corporation, Harrison, N.J.

Filed Sept. 1, 1971, Ser. No. 176,929

Int. Cl. F04b 17/00

U.S. Cl. 417-424

18 Claims



A Centrifugal Pump disposed in a reinforced concrete reservoir with a free standing body of fluid to be pumped which has a concrete volute having one side thereof formed by a part of the reservoir to permit the suction inlet of the volute to be connected into the lower portion of said reservoir, a rotatable shaft vertically disposed in the suction inlet and extends into the volute to receive an inverted impeller at one end, the suction eye of the impeller which is at the upper end communicate with the suction inlet of the volute so that fluid from the reservoir is delivered downwardly into the suction eye of the impeller by gravity flow, the volute having a discharge outlet for discharging the pumped fluid, and driving means for rotating the shaft and impeller is connected to the end of the shaft remote from the impeller.

Additionally in the present disclosure a combined stand and trash rack is connected about the suction inlet for the volute and is disposed to support the driving means for the shaft in assembled position. The combined stand and trash rack may include vane means adjustable to guide or to prerotate the fluid delivered from the reservoir to the suction inlet of the volute for the pump.

3,738,783

SCREW ROTOR MACHINE FOR COMPRESSIBLE MEDIA

Pavel Evgenievich Amosov, Kronverkskaya ulitsa, 29/37, kv. 87; Leonid Mikhailovich Imyanitov, 6-ya Sovetskaya ulitsa, 33, kv. 4; Vitaly Konstantinovich Smekhov, ulitsa Kolomenskaya, 33/40, kv. 25; Valery Leonidovich Trofimov, ulitsa Matrosova, 12, kv. 8, all of Leningrad; Avely Isaich Shvarts, ulitsa Kosmonavtov, 3, kv. 45, and Vladimir Borisovich Shnepp, ulitsa Zarya, 4, kv. 5, both of Kazan, all of U.S.S.R.

Filed Oct. 20, 1970, Ser. No. 82,296

Claims priority, application U.S.S.R., Oct. 20, 1969, 1367354

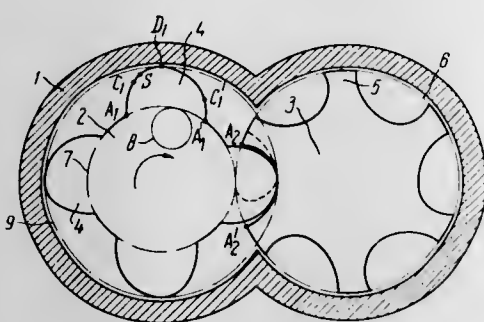
Int. Cl. F01c 1/16, 1/24; F04c 1/10, 1/14

U.S. Cl. 418-201

2 Claims

A screw profile machine for compressible media, in which the profile of the head of the lobes of a driving rotor is formed by two portions of epicycloids interconnected by a conjugating curve. The rear portion of the conjugating curve, as viewed in the direction of the driving rotor rotation, is a portion of an elongated hypocycloid formed as a result of oscillations of a generating circumference along the inner side of the

initial circumference of the driving rotor with a point disposed outside the generating circumference whose radius is greater than zero but is smaller than the radius of the initial circum-

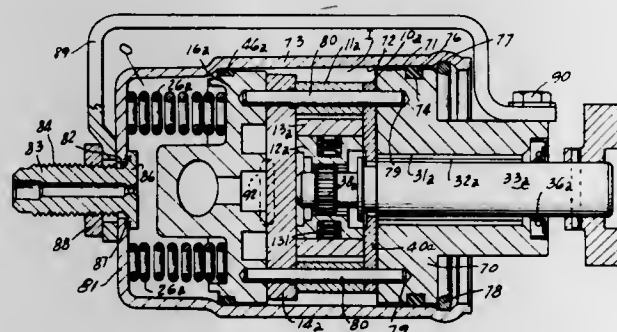


ference of the driving rotor, and the front portion of the conjugating curve, as viewed in the direction of the driving rotor rotation, is essentially an arc of a circumference.

3,738,784
PUMP HOUSING FOR USE WITH TOP MOUNTED OR REMOTE MOUNTED RESERVOIRS
Hubert M. Clark, Birmingham, and George A. Berman, Detroit, both of Mich., assignors to TRW Inc., Cleveland, Ohio

Filed Dec. 17, 1970, Ser. No. 99,057
Int. Cl. F01c 21/00; F03c 3/00; F04c 15/00
U.S. Cl. 418-270

1 Claim

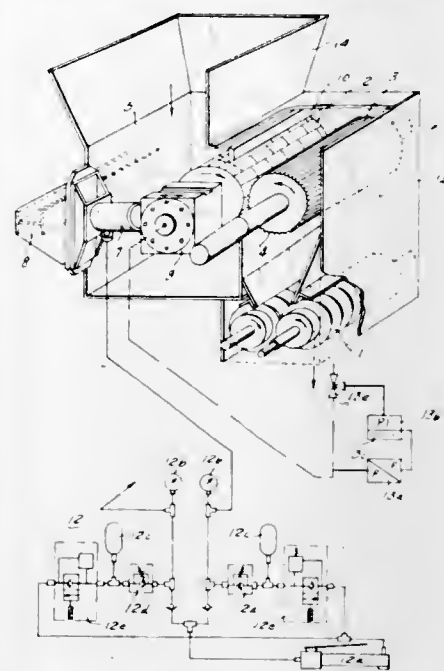


A compact housing construction for a power booster pump of the type having a stack-up of parts forming an operative pump unit wherein first and second axially disposed housing parts together form a cylindrical housing envelope for closing the stack-up of parts, the parts being sized and shaped to form complementary inner and outer diameters with a seal groove and a locking groove formed therein so that one part may be inserted within the other. One of the parts has an inlet opening for connection to a top mounted or remote mounted reservoir.

3,738,785
APPARATUS FOR PROCESSING OF FINELY DIVIDED PARTICULATE MATERIALS
Helmut Reinhardt, Weiss near Cologne; Bernd Brandt, and Albert Peters, both of Wesseling-Berzdorf, all of Germany, assignors to Deutsche Gold-Und Silber-Schmelzanstalt Vormalis Roessler, Frankfurt am Main, Germany
Filed Nov. 6, 1969, Ser. No. 874,654
Claims priority, application Germany, Nov. 8, 1968, P 18 07 714.0

Int. Cl. B29d 7/00
U.S. Cl. 425-85
A mass of finely divided material is confined in a chamber. Two rollers are arranged for rotation in the chamber in axial parallelism with one another and define with each other a narrow longitudinally extending gap. At least one of the rollers has a circumferential wall composed of gas-permeable porous

material. This one roller is hollow and arranged to communicate with a source of underpressure so that, as the roller rotates, the particulate material is attracted onto its outer surface forming a layer thereon which is subjected to substantial compaction when it passes through the gap between the two

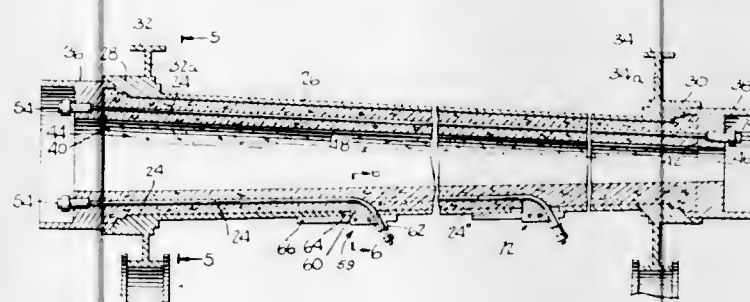


rollers. The rollers rotate in opposite direction. The compacted material is removed from the outer surface of the roller or rollers and subdivided into portions of desired size. A method of processing the particulate material, and a roller for use in the apparatus are also disclosed.

3,738,786
REINFORCEMENT OF CONCRETE STRUCTURES
Myers Van Buren, Cheriton, Va., assignor to Bayshore Concrete Products Corp., Cape Charles, Va.
Division of Ser. No. 8,139, Jan. 16, 1970, which is a division of Ser. No. 639,371, May 18, 1967, Pat. No. 3,501,881. This application June 9, 1971, Ser. No. 151,284
Int. Cl. B28b 23/06

U.S. Cl. 425-111

9 Claims

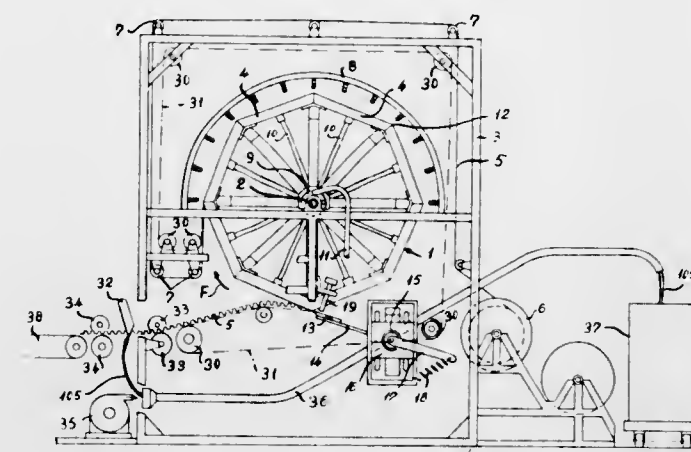


Use of pretensioned elongated reinforcing rods in concrete structures, the rods being terminated at various intermediate ends of the structure, and special anchor arrangements for permitting intermediate termination of the rods.

3,738,787
APPARATUS FOR SEVERING ARTICLES FROM A CONTINUOUS THERMOPLASTIC WEB MOLDED ON ROTARY VACUUM-FORMING MACHINES
Guido Martelli, Piazza XX Settembre 5; Nerio Martelli, Via Cavallotti 6, and Francesco Martelli, Piazza XX Settembre 5, all of Bologna, Italy
Continuation of Ser. No. 727,990, May 9, 1968, abandoned.
This application Nov. 17, 1970, Ser. No. 90,448
Claims priority, application Italy, May 9, 1967, 6985 A/67; Sept. 27, 1967, 7330 A/67
Int. Cl. B29c 17/04

U.S. Cl. 425-142
Apparatus for severing articles molded in a web of thermoplastic material in vacuum-forming machines comprising a

rotary drum on the periphery of which mold are mounted under the action of heating and suction means, the said web being first cut into quadrangular sections by co-action of cutting edges provided transversally on the drum with swinging cutter means mounted in proximity of the same drum.

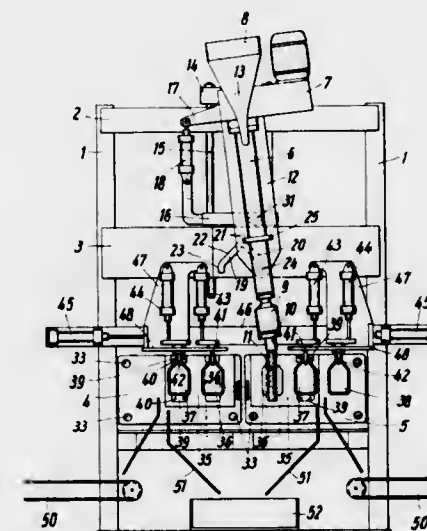


Whenever a further cutting of the single articles from said quadrangular sections of web is desired, said sections are piled up in a convenient number and from said piles of web sections piles of single articles are cut off by means of reciprocating cutters, which may have shaped cutting edges.

3,738,788
BLOW-MOULDING MACHINES
Erhard Langecker, Hohbuschener Weg 5, Meinerzhagen, Germany
Filed May 24, 1971, Ser. No. 146,307
Claims priority, application Germany, May 25, 1970, P 20 26 972.1
Int. Cl. B29d 5/06

U.S. Cl. 425-326

8 Claims

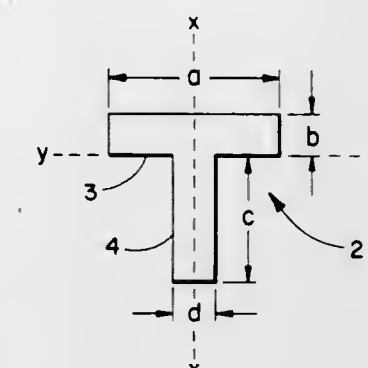


A blow-moulding machine having a pair of stationary moulds and a single vertically and pivotally movable extruder above the moulds for supplying extrudate alternately to the respective moulds, movements of the extruder being controlled by a guide track arrangement and a piston and cylinder assembly, and each mould comprising a moulding cavity and a waste removal and ejecting cavity transfer means being provided for transferring a blown product from the moulding cavity to the waste removal and ejecting cavity.

3,738,789
APPARATUS FOR EXTRUDING FILAMENTS HAVING ASYMMETRIC CROSS-SECTION
Byar Hazim Shemdin, Brooklyn, N.Y., assignor to Fiber Industries, Inc., Charlotte, N.C.
Division of Ser. No. 14,352, Feb. 26, 1970, Pat. No. 3,652,753.
This application Nov. 2, 1971, Ser. No. 195,028
Int. Cl. B29f 3/04

U.S. Cl. 425-464

4 Claims

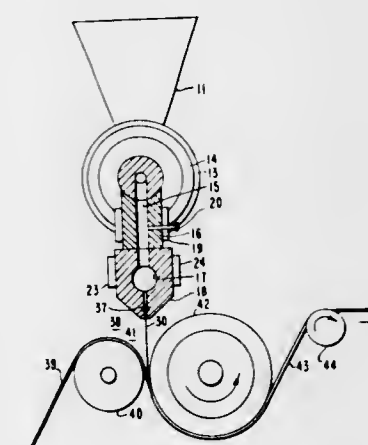


A process to reduce kneeing during the melt spinning of continuous filaments through a T-shaped orifice by selecting dimensions of the orifice so that its extrusion factor is within a defined range.

3,738,790
APPARATUS FOR EXTRUDING A FILM OF THERMOPLASTIC MATERIAL HAVING PREDETERMINED ZONES OF DIFFERENT FILM THICKNESS
Glenn M. Violette, R.D. 1, Greenwich; Leon J. Paquin, 18 Achley Pl., Glens Falls, both of N.Y., and James A. Lock, 3762 San Juan Hill, Mobile, Ala.
Division of Ser. No. 835,837, April 3, 1969, which is a division of Ser. No. 700,968, June 26, 1968, abandoned. This application Nov. 3, 1970, Ser. No. 86,626
Int. Cl. B29f 3/04

U.S. Cl. 425-467

7 Claims



The present invention contemplates an apparatus, a process and a product produced by the process, whereby preselected areas of a moving paperboard substrate are coated with a thermoplastic film having zones of different thickness, so that the substrate areas are in predetermined registry with the film zones, by employing a threaded deckle rod during the extrusion of the thermoplastic film. The threaded deckle rod imparts the varying thickness profile to the film.

3,738,798 ANTI-POLLUTION PORTABLE OIL HEATER

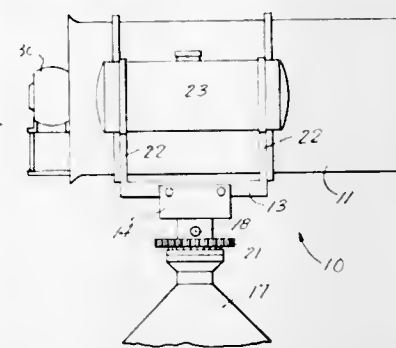
Lewis M. D. Grainger, Route 1, Glen Allen, Va.
Continuation-in-part of Ser. No. 182,456; Sept. 21, 1971. This application Apr. 11, 1972, Ser. No. 242,928
Int. Cl. F231 5/00

U.S. Cl. 432-222

5 Claims

An anti-pollution portable oil heater which is adapted to be mounted on a mobile apparatus and arranged for oscillation or rotation about a vertical axis so as to spread the heat over wide areas such as orchards, warehouses and other locations where it is essential to heat both interior and exterior areas. The heater includes a pollution free oil burner having both a primary and a secondary combustion chamber to burn all pollutants resulting from the products of combustion. The secondary combustion chamber is surrounded by an insulating shield and is positioned in a cylindrical housing having an air supply fan at

the upstream end thereof, which directs air over the secondary combustion chamber and to become heated thereby for



discharge along with the products of combustion from the secondary combustion chamber into the area to be heated.

3,738,799
DYEING HUMAN HAIR WITH 2-AMINOPHENOLS
Gregoire Kalopissis, Paris, and Andree Bugaut, Boulogne sur Seine, both of France, assignors to L'Oreal, Paris, France
Continuation-in-part of Ser. No. 645,521, June 12, 1967, abandoned, which is a continuation-in-part of Ser. No. 293,282, July 8, 1963, abandoned. This application Aug. 31, 1970, Ser. No. 68,488
Int. Cl. A61k 7/12

U.S. Cl. 8-10.2

9 Claims

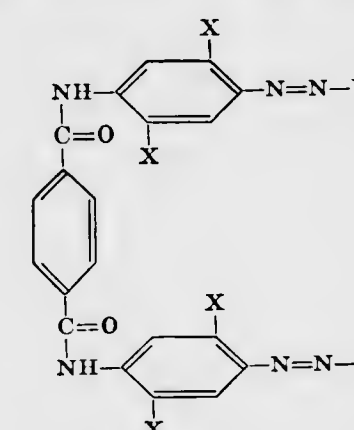
Hair dye compositions that contain a dye compound selected from the group consisting of 6-amino-4-methoxy-2-aminophenol, 5-amino-4-methoxy-2-aminophenol, 6-amino-4-dimethylamino-2-aminophenol, 6-amino-4-diethylamino-2-aminophenol and 4-diethylamino-2-aminophenol.

3,738,800
DISPERSE AND DIRECT TEREPHTHALOYL CHLORIDE-AMINOAZOBENZENE COTTON DYE MIXTURE AND POLYESTER AND CELLULOSE DYEING WITH SAID MIXTURE
Anton Mudrak, Broadview Heights, Ohio, and John A. Zelek, Gastonia, N.C., assignors to Kewanee Oil Company, Bryn Mawr, Pa.
No Drawing. Continuation-in-part of application Ser. No. 821,977, May 5, 1969, which is a continuation of application Ser. No. 613,408, Feb. 2, 1967, now abandoned. This application May 24, 1972, Ser. No. 256,525
Int. Cl. D06p 3/82

U.S. Cl. 8-21 C

6 Claims

Cotton/polyester fibers are dyed in a one step dyeing process using a dye bath containing a disperse dye for the polyester and a direct dye having good resistance to degradation at the high temperature required for dyeing polyester fibers. The direct dye is selected from a group of compounds that are derived by the reaction of terephthaloyl chloride with various amino-azobenzene compounds and are represented by the formula



wherein Y represents a group selected from the class consisting of $-C_6H_4SO_3Na$, $-C_{10}H_5(SO_3Na)_2$, and $-C_6H_3(OH)COONa$, and X is a group selected from the class consisting of hydrogen, methyl and methoxy.

3,738,801
UNIFORMLY DYED YELLOW WATER SWELLABLE CELLULOSIC FIBERS

John Blackwell, Kennett Square, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Aug. 6, 1971, Ser. No. 169,832
Int. Cl. D06p 3/82

U.S. Cl. 8-21 C

3 Claims

Water swellable cellulosic fibers, for example, cotton, or blends or mixtures thereof with synthetic fibers, for example, polyester fibers, uniformly dyed in fast yellow shades with 2,2'-(azo-di-p-phenylene)-bis(6-methylbenzothiazole).

CHEMICAL

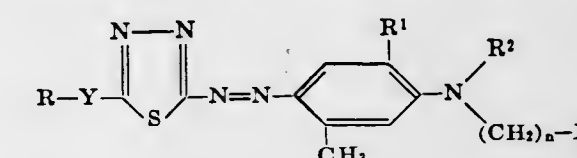
3,738,802
POLYAMIDE FIBERS DYED WITH THIADIAZOLYL AZO COMPOUNDS

Max A. Weaver and David J. Wallace, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Original application June 16, 1969, Ser. No. 833,745, now Patent No. 3,657,187. Divided and this application Jan. 6, 1972, Ser. No. 215,915
Int. Cl. C09b 29/36

U.S. Cl. 8-41 B

9 Claims

Polyamide fibers are dyed bright, fast red to pink shades with a compound having the formula



in which R is an alkyl, allyl, aryl, or cyclohexyl radical; Y is $-O-$ or $-S-$; R1 and R2 each is hydrogen or alkyl; n is 2 or 3; and X is pyrrolidinono, acylamide, carbamoyl or acyloxy.

3,738,803
DYEING OF TEXTILE FIBERS IN A SOLVENT MEDIUM

Remy Blanc, Lyon, Willy Hess, Limas, and Georges Ramier, Villefranche-sur-Saone, France, assignors to S.T.X., Groupement d'Interet Economique, Paris, France

No Drawing. Continuation-in-part of application Ser. No. 33,094, Apr. 29, 1970. This application Dec. 12, 1971, Ser. No. 210,571

Claims priority, application France, Apr. 30, 1969, 6912355; Nov. 26, 1969, 6940684; Mar. 20, 1970, 7011537; Feb. 2, 1971, 7105279

Int. Cl. D06p 1/68

U.S. Cl. 8-93

22 Claims

Treatment of textile fibers such as dyeing, sizing, moth-proofing, etc. is accomplished by the "exhaustion" method using a bath of a solvent for the treating agent and a diluent in which the treating agent is relatively insoluble, at an elevated temperature, the solvent being progressively removed from the bath in the liquid or vapor phase during the treating operation resulting in a homogeneous and resistant dyeing or other treatment of the textile fibers and a nearly complete exhaustion of the treating agent.

3,738,804
DYEABILITY OF MELT BLEND FIBERS WITH HIGH ELECTRON AFFINITY DYES

Orville E. Snider, 1911 Coggin St., Petersburg, Va.; James E. Loughlin, 4230 Denbigh Drive, Charlotte, N.C.; and Hans Ortheil, Melody Lane, Rte. 8, Spartanburg, S.C.

No Drawing. Original application Nov. 13, 1967, Ser. No. 682,572. Divided and this application Apr. 8, 1971, Ser. No. 132,549

Int. Cl. D06p 3/82

U.S. Cl. 8-15

2 Claims

Fibers are prepared which are comprised of 4-50 parts by weight of a substantially linear fiber-forming polyester having recurring cyclic structure in the polymer backbone dispersed in a continuous body of 50-96 parts by weight of a linear fiber-forming polyamide, said fiber having at least 5,000 polyester microfibrils per 1,000 square microns cross section and is dyed with an azo disperse dye having a solubility of less than 0.1 gram in 100 cc. of water and which has an apparent electron affinity of greater than 3 electron volts, said azo disperse dye having one or more

electron attracting substituent moieties, and there may be simultaneously present electron repelling substituent moieties, provided the sum of the charges of the electron attracting moieties are at least 0.5 electron volt greater than the sum of the electron repelling moieties. The fibers may be blended with other fibers to form fabrics having novel effects.

A process for producing said dyed polyblend fibers or fabric therefrom comprising dyeing in an aqueous medium at a temperature of at least 150° F. as the sole fiber in the textile article or in combination with at least one other fiber selected from the group consisting of polyamide, polyester, polyacrylonitrile, polypropylene, cotton, silk and wool, said dye being solely an azo disperse dye having an electron affinity of at least 3.0 electron volts and alternately there may be simultaneously present, for multicolor effects, one or more dyes selected from the group, acid dyes, acid metallized dyes, direct dyes, basic dyes, and anthraquinone disperse dyes.

3,738,805

METHOD OF PRODUCING PURIFIED ASBESTOS STRUCTURES
Hans Fetzner, Schwabach Hall, Germany, assignor to Rex Asbestwerke Graf von Rex KG., Schwabach Hall, Germany

No Drawing. Filed June 8, 1971, Ser. No. 151,141
Claims priority, application Germany, Dec. 4, 1970,
P 20 59 845.2
Int. Cl. D01f 9/06

U.S. Cl. 8—137.5

3 Claims

Method of producing purified, shaped asbestos structures which are obtained by processing and coagulating dispersions of asbestos fibers containing organic additives. The structures are purified to remove residues of the organic additives. The purification is effected by subjecting the structures to a solvent treatment with a lower aliphatic alcohol and/or an aqueous solution of an organic base. The lower aliphatic alcohol may be used in mixture with aqueous inorganic bases.

3,738,806

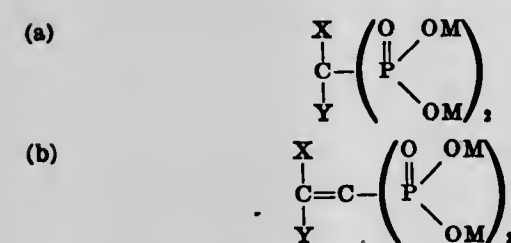
PROCESS FOR THE PREVENTION OF CORROSION

William A. Feller, Jr., Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Jan. 26, 1968, Ser. No. 700,730
Int. Cl. C23f 11/16

U.S. Cl. 21—27

9 Claims

A method of inhibiting the corrosion of ferrous metals and nonferrous metals in contact with an aqueous corrosive medium which comprises maintaining in said medium a complex formed by (1) an organo-phosphorus ligand selected from the group consisting of:



(c) and mixtures thereof

wherein X and Y each are hydrogen, hydroxyl, lower alkyl group containing 1 to 4 carbon atoms, or lower alkenyl group containing 2 to 4 carbon atoms, and M is hydrogen, ammonium, alkali metal or lower alkyl amine and (2) a metal ion which includes zinc, nickel, cobalt, cerium, lead, tin, calcium, ferrous, ferric, chromium, chromic, mercurous, mercuric, or manganese for example, a complex formed by the divalent ion zinc, and the ligand 1-hydroxy-1, 1-ethylidene diphosphonic acid.

3,738,807 METHODS OF REDUCING WATER EVAPORATION

Samuel I. Horowitz and Robert J. Kufirin, Verona, N.J., assignors to Witco Chemical Corporation, New York, N.Y.
No Drawing. Filed Sept. 20, 1971, Ser. No. 182,255
Int. Cl. B01f 1/18

U.S. Cl. 21—60.5 A

9 Claims

Water loss due to evaporation from a body of water in a catchment, reservoir, channel, and the like, is inhibited by applying a liquid bitumen-polyurethane composition on the surface of said body of water, said polyurethane being cured in situ on said body of water to form a continuous cohesive thin thermoplastic bituminous membrane on the surface of the water.

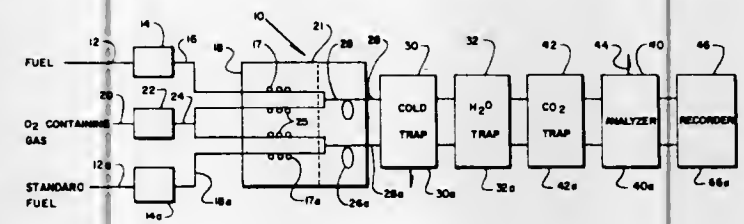
3,738,808

OCTANE MONITORING

Glenn P. Cunningham, Gibsonia, and John G. Larson, Pittsburgh, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
Filed Mar. 18, 1971, Ser. No. 125,687
Int. Cl. G01n 33/22

U.S. Cl. 23—230 PC

14 Claims



Means to determine a characteristic of a hydrocarbon, such as the octane rating of gasoline, by reacting known amounts of the hydrocarbon with an oxygen containing gas, such as air, under certain conditions to maintain a mild reaction less vigorous than an explosion or even a cool flame. The amount of oxygen consumed is directly correlatable to the characteristic of interest.

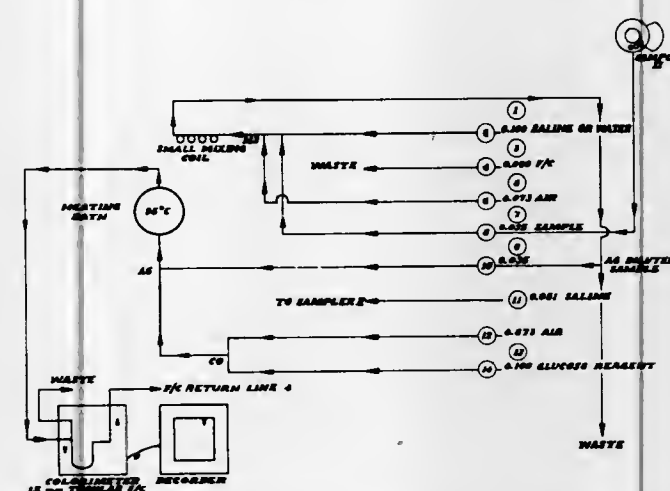
3,738,809

GLUCOSE ASSAY AND REAGENTS THEREFOR

Jerry W. Denney, Carmel, Ind., assignor to American Monitor Corporation, Indianapolis, Ind.
Filed Aug. 2, 1971, Ser. No. 168,020
Int. Cl. G01n 31/22, 33/16

U.S. Cl. 23—230 B

12 Claims



A colorimetric or spectrophotometric glucose assay, of ortho-toluidine type, in which certain dicarboxylic acids (succinic acid and hydroxysuccinic acid) or a tricarboxylic acid, citric acid, provide the promoter of the reaction of an aromatic amine with glucose, in a solvent system containing ethylene glycol or propylene glycol, desirably in the presence of a small amount of water.

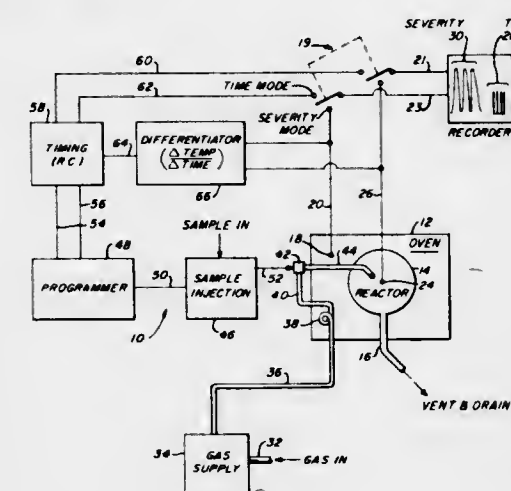
3,738,810

OCTANE ANALYZER

Russell M. Clinton III, Gibsonia, and Thomas J. Puzniak, Cheswick, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
Filed Aug. 31, 1971, Ser. No. 176,593
Int. Cl. G01l 23/22; G01n 33/22

U.S. Cl. 23—230 PC

27 Claims



Means to determine a characteristic of a hydrocarbon, such as the octane rating of gasoline, by reacting a sample of the hydrocarbon with an oxygen containing gas, such as air, under certain conditions to maintain a mild reaction less vigorous than an explosion. The time elapsed between injection of the hydrocarbon into the gas stream and reaction of the hydrocarbon with the oxygen in the gas, and/or some facet of the severity of the reaction, are correlatable to the value of the characteristic of interest of that hydrocarbon.

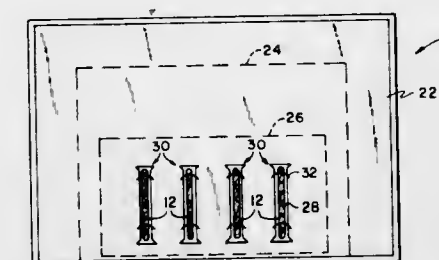
3,738,811

RESIDUAL ALKYLATING AGENT DETECTOR AND METHOD THEREFOR

Shu-Sing Cheng, Carpentersville, Ill., assignor to The Kendall Company, Boston, Mass.
Filed July 1, 1971, Ser. No. 158,764
Int. Cl. B65d 79/00; G01n 31/22, 33/16

U.S. Cl. 23—232 R

26 Claims



A frangible ampule constructed of material which is impermeable to alkylating agent, and containing an indicator; the device is suitable for monitoring residual alkylating agent inside a sterile, sealed package.

3,738,812

AUTOMATIC CHEMICAL ANALYZER

James M. Berry, South Charleston, Wallace E. Byrd and Ronald D. Dillon, Charleston, Carroll E. Dunn, Eleanor, and Sterling T. Martin, S.E. Charleston, W. Va., assignors to Ionics Incorporated
Filed July 27, 1971, Ser. No. 166,463
Int. Cl. G01n 27/36, 31/16

U.S. Cl. 23—253 R

5 Claims

Apparatus for measuring the concentration of a sample solution including means for mixing reagent solution of known concentration with a known volume of sample

solution. Means are included to provide an electrical signal corresponding to the instantaneous concentration of a particular ion of the sample-reagent mixture. When the first derivative of the electrical signal is a maximum,

means are provided to compare electrical signals corresponding to sample volume, reagent concentration and reagent volume to provide a signal corresponding to sample concentration.

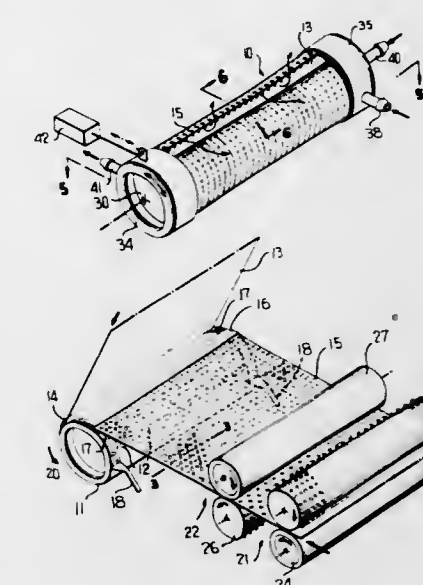
3,738,813

MASS-TRANSFER DEVICE AND METHOD OF MAKING SAME

William G. Esmond, 537 Stamford Road, Baltimore, Md. 21229
Filed June 4, 1971, Ser. No. 149,951
Int. Cl. A61m 1/03

U.S. Cl. 23—258.5

10 Claims

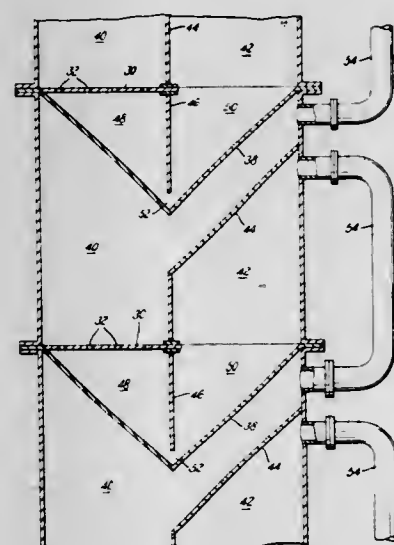
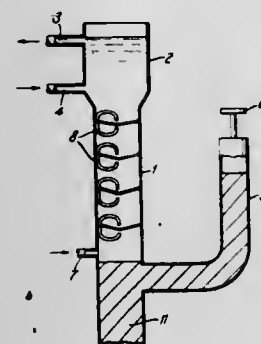


A transfer device which is particularly useable as a device for oxygenating blood. The device simply consists of a tubular support form about which an embossed film and a plain film are wrapped or coiled while suitably sealed together after which flow members in the form of end caps are applied. The transfer device is formed in a simple wrapping operation and the embossed film may be embossed immediately in advance of the wrapping operation.

3,738,814
PULSED COUNTERCURRENT LIQUID-SOLIDS CONTACTING APPARATUS
 Francis Louis Dirk Cloete and Michael Streat, London, England, assignors to National Research Development Corporation, London, England
 Application Oct. 12, 1967, Ser. No. 676,998, which is a continuation-in-part of application Ser. No. 317,180, Oct. 18, 1963. Divided and this application May 8, 1969, Ser. No. 847,752

U.S. Cl. 23—270 Int. Cl. B01d 11/04

7 Claims



Apparatus for effecting countercurrent continuous liquid/solids contact comprising a stack of interconnected stages through which only liquid is pulsed in one direction and only settled solids are pulsed in the opposite direction after first settling in one of the stages before passing to the next stage. Each stage is connected to the next stage by a conduit which communicates with the below-settled-solids level of one stage and with the above-settled-solids level of the next stage. Each conduit includes a non-descending section which prevents passage of fluidized solids under gravity.

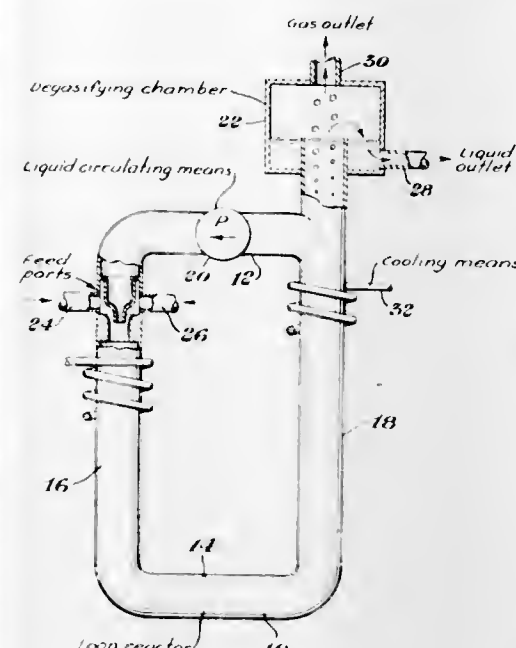
3,738,815
REACTOR FOR REMOVING OLEFINS FROM ACETYLENIC AND OLEFIN-CONTAINING GASEOUS HYDROCARBON MIXTURES
 Chester E. Pawloski, Bay City, and Russell L. Stewart, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
 Original application Dec. 22, 1967, Ser. No. 692,892, now Patent No. 3,562,349. Divided and this application Oct. 9, 1970, Ser. No. 79,710

U.S. Cl. 23—260 Int. Cl. B01j 1/00

2 Claims

Olefins are substantially removed from an acetylenic and olefin-containing gaseous hydrocarbon mixture by chlorinating said mixture in the presence of the liquid chlorination products of said mixture wherein the temperature is below about 60° C. The process is conducted

in a novel reactor comprising a closed tubular loop having feed ports, circulating means, a degasifying chamber



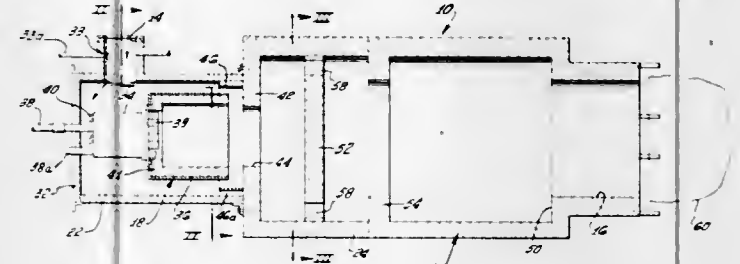
including separate outlet ports for liquid and gas, and cooling means for the loop, and the resulting gaseous product is useful as a welding and cutting gas.

3,738,816
APPARATUS FOR INCINERATION OF COMBUSTIBLE MATERIALS IN A CONTINUOUS FLOW OF A GASEOUS MEDIUM

John H. Hirt, Monterey Park, Calif., assignor to Hirt Combustion Engineers, Montebello, Calif.
 Original application Apr. 26, 1968, Ser. No. 724,348, now Patent No. 3,637,343. Divided and this application June 10, 1971, Ser. No. 151,869

U.S. Cl. 23—277 C Int. Cl. F23d 15/02; F23m 9/00

8 Claims



A fume incinerator apparatus for purifying a continuous flow of waste gas that contains combustible material by incinerating such material. The exemplary incinerator includes a chamber, a fuel-operated burner in the chamber, and flow control means for rapidly and thoroughly mixing waste gas and the hot gaseous products from the burner for highly effective and efficient incineration of the combustible material.

3,738,817
WROUGHT DISPERSION STRENGTHENED METALS BY POWDER METALLURGY

John Stanwood Benjamin, Suffern, N.Y., assignor to The International Nickel Company, Inc., New York, N.Y.
 Application Aug. 27, 1969, Ser. No. 853,413, now abandoned, which is a continuation-in-part of application Ser. No. 709,700, Mar. 1, 1968, now Patent No. 3,591,362. Divided and this application Mar. 5, 1971, Ser. No. 121,551

U.S. Cl. 29—182.5 Int. Cl. B22f 3/00

10 Claims

This invention relates to the powder metallurgy of wrought, dispersion strengthened metals and also to a

powder metallurgy method for producing wrought dispersion strengthened metal shapes selected from the group consisting of nickel, copper, lower alloy steels, maraging steels, zinc-base metals, columbium-base, tantalum-base and tungsten-base refractory metals, platinum-base metals, and gold-base metals characterized metallographically by a uniform distribution of dispersoids in both the longitudinal and transverse directions.

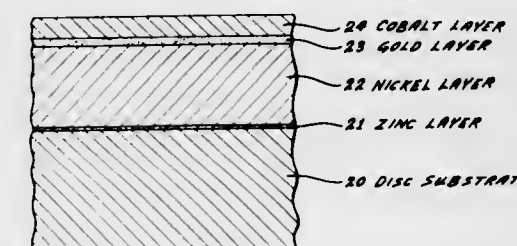
3,738,818
HIGH RECORDING DENSITY MAGNETIC MEDIA WITH SQUARE B-H LOOP

Elliot Stone and Pravin K. Patel, Los Angeles, Calif., assignors to Control Data Corporation, Minneapolis, Minn.

Filed June 3, 1971, Ser. No. 149,717
 Int. Cl. B32b 15/00

U.S. Cl. 29—194

10 Claims



A magnetic recording medium and a method of producing it which permits the production of a magnetic recording medium having a high intrinsic coercivity greater than 300 oersteds and an 0.95 square B-H hysteresis loop permitting high switching speeds and high density recording. The magnetic recording medium comprises an aluminum alloy disc substrate covered by zinc and nickel layers, overlaid by a gold film and thin-film cobalt magnetic layer. The fabrication process involves electroless deposition of thin-film layers of zinc and nickel on the substrate, then the deposition of a one-half micro-inch gold layer covered by a cobalt phosphorus thin-film layer. The method provides for tailoring of the value of coercivity independent of the thickness of the magnetic film layer.

3,738,819
METHOD OF USING COMBUSTION ADJUVANT
 Maclin R. Milner, Clearwater, and Frederick B. Johnston, Tampa, Fla., assignors to Trimex Corporation, Clearwater, Fla.

No Drawing. Continuation-in-part of applications Ser. No. 852,867, Aug. 25, 1969, now abandoned, and Ser. No. 11,827, Feb. 16, 1970, now Patent No. 3,628,925. This application Dec. 15, 1971, Ser. No. 208,455

U.S. Cl. 44—4 Int. Cl. C10I 9/00, 1/32

3 Claims

A method of employing an adjuvant for hydrocarbon fuels is provided by adding an adjuvant comprising a calcium based montmorillonite clay, a phosphate, and a source of boron oxide to a hydrocarbon fuel in a combustion zone. A preferred formulation comprises 85 weight percent calcium bentonite, 10 weight percent anhydrous trisodium phosphate, and 5 weight percent sodium borate. The adjuvant is combined with the hydrocarbon fuel or with combustion air in an amount of from about 0.00001 up to less than about 0.1 weight percent, based on the weight of the hydrocarbon fuel. Combustion efficiency is substantially improved and oxidation is substantially more complete, so that combustion products are produced in less noxious forms. In addition, the nature of

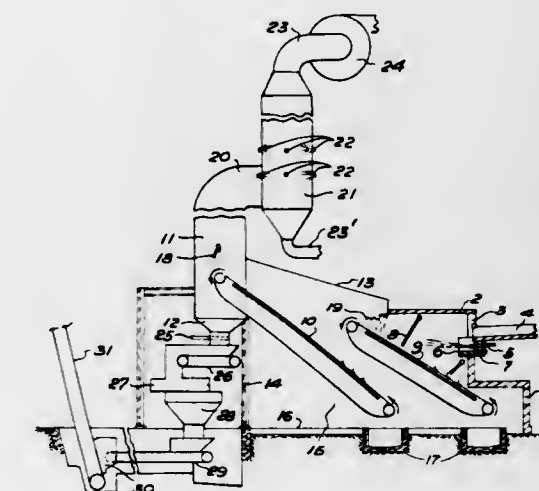
slag or other deposits upon surfaces in a furnace or combustion chamber are substantially altered, so that corrosive conditions do not occur and the deposition of slag is prevented or materially reduced, and the ash is produced in a soft, friable form.

3,738,820
METHOD OF AND APPARATUS FOR THE PROCESSING OF MOLTEN SLAG
 Fred Osborne, Birmingham, Ala., and Selwyn P. Kinney, Carnegie, Pa., assignors to S. P. Kinney Engineers, Inc., Carnegie, Pa.

Filed June 1, 1970, Ser. No. 42,434
 Int. Cl. C03b 19/08

U.S. Cl. 65—19

9 Claims



This application discloses an improvement in an apparatus for and method of expanding molten slag such as blast furnace slag by contacting it with water, as shown for example in Pat. No. 2,702,407, granted Feb. 22, 1955. According to this invention, the apparatus for contacting the slag with water and the conveyor for the expanded slag is enclosed. The vapors and gases resulting from this operation are conducted from the enclosure into an outlet duct system comprising a stack. Air flow is induced through the enclosure, and in the environment within the enclosure H₂S is converted into SO₂ and H₂O, and elemental sulphur will also result from the reactions which take place in this enclosure. Most of the solids entrained in the gases settle out of the gases inside the enclosure and are carried out on the conveyor.

The effluent gases from the enclosure are contacted in the outlet duct system with water in the form of a spray, this taking place either in the stack or in a gas washer into which the stack gases flow from the stack. The spray of water dissolves SO₂ and removes entrained solids.

3,738,821
PROCESS OF AGGLOMERATING AMMONIUM SULFATE AND MAKING COMPLETE FERTILIZER

Mack A. Barber, Hanford, Calif., assignor to Reserve Oil and Gas Company, Los Angeles, Calif.

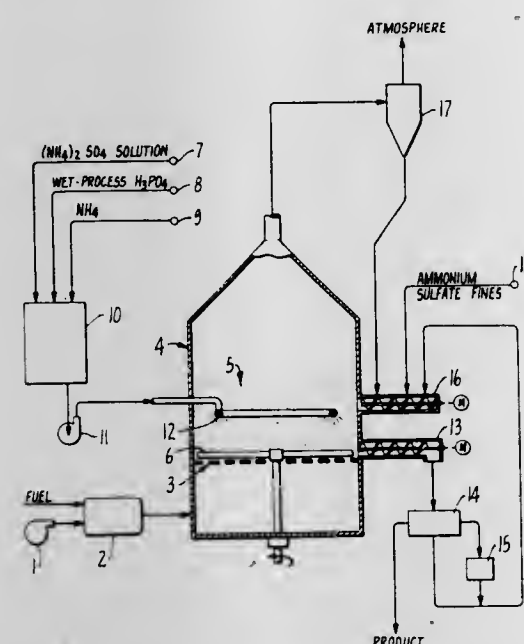
Continuation-in-part of Ser. Nos. 52,754, July 6, 1970, abandoned, and Ser. No. 102,145, Dec. 28, 1970, abandoned. This application May 18, 1972, Ser. No. 254,505

U.S. Cl. 71—36 Int. Cl. C05b 7/00

7 Claims

A method of agglomerating or pelletizing ammonium sulfate for fertilizer and other purposes which includes the addition of a minor amount of ammonium phosphate or equivalent to an aqueous solution of ammonium sulfate and driving off the water to form pellet-sized agglomerates. An aqueous solution of varying quantities of mono-ammonium phosphate, di-ammonium phosphate and ammonium sulfate,

the mono- and di-ammonium phosphate portions being the reaction products of wet-process phosphoric acid and either anhydrous or aqua ammonia, is fed to a fluidized bed dryer.



pelletizer through a drilled pipe distributor which is within or above the fluidized bed of pelleting fertilizer, said solution forming a series of coatings on the seed pellets in the fluidized bed to thus appreciably increase their size.

3,738,822

GIBBERELLIN PREPARATIONS

Yutaka Asahi, Hyogo, and Hideo Nakamachi, Osaka, Japan, assignors to Takeda Chemical Industries, Ltd., Higashi-ku, Osaka, Japan

No Drawing. Filed Mar. 28, 1969, Ser. No. 811,653

Int. Cl. A01n 9/12

U.S. Cl. 71-89

8 Claims

The solubility of the gibberellins in aqueous solutions is improved by incorporating at least one member of the group consisting of a neutral amino acid having pKa value of 3 to 5, a salt of an acidic amino acid having a pKa value due to at least one of the carboxyl groups of 3 to 5 and a basic amino acid having pKa value due to at least one of the ammonium groups of 8 to 13. Compositions having growth promoting activity are also provided.

3,738,823

PROCESS OF KILLING UNDESIRED WEEDS

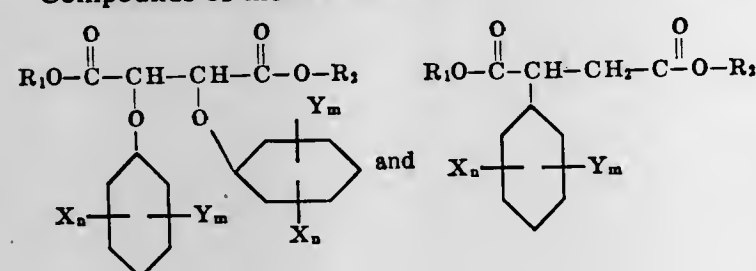
Delta W. Gier, Laurinburg, N.C., and Daniel M. Wasleski, Kansas City, Mo., assignors to Baychem Corporation, New York, N.Y.

No Drawing. Original application Oct. 16, 1967, Ser. No. 675,350, now abandoned. Divided and this application May 22, 1970, Ser. No. 38,649

Int. Cl. A01n 9/24

U.S. Cl. 71-108

Compounds of the formulae



wherein R₁ and R₂ are hydrogen, alkyl, chloroalkyl, phenyl and alkyl phenyl, X is halogen, Y is nitro, m is an integer from 1 to 2 and n is an integer of 1 to 3 are useful as herbicides and desiccants and to a lesser extent as defoliants. For the best desiccant properties there should be a halogen in the ortho position of the chloronitrophenyl group.

3,738,824

METHOD AND APPARATUS FOR PRODUCTION OF METALLIC POWDERS

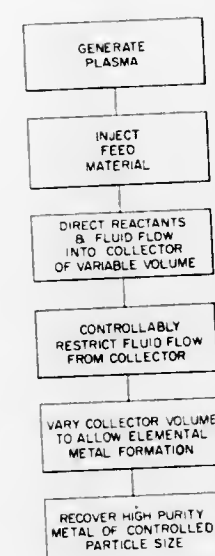
Robert D. Davis, Newport Beach, Theodore N. Meyer, Westminster, and Roy L. Blizzard, Huntington Beach, Calif., assignors to Plasmachem, Inc., Newport Beach, Calif.

Filed Mar. 18, 1971, Ser. No. 125,589

Int. Cl. B22f 9/00; C22b 49/00, 61/00

U.S. Cl. 75-5 B

11 Claims



In the process of producing elemental metal powders, especially refractory metals, using a plasma reactor, the reactant feed material is introduced into the reaction zone of the reactor and the effluent from the reaction zone is directed into a quenching zone through a selectively variable passageway or orifice in a manner that permits separation of the metal particles from the effluent hot gas stream and continuous collection of the metallic powder in a collection zone wherein the metallic powder is of a selected characteristic, controlled by the maintenance of certain operational parameters, including a selected differential fluid pressure in the collection zone as well as reaction and collection zone temperatures. Apparatus for carrying out the process is also disclosed.

3,738,825

SYSTEM AND METHOD OF ELECTROSLAG REMELTING UTILIZING SLAB-SHAPED ELECTRODES

Boris Izrailevich Medovar, Boulevard Lesy Ukrainky 2, Apt. 8; Yuriy Vadimovich Latash, ul. Artema 55, Apt. 23; Oleg Petrovich Bondarenko, ul. Khreshchatik 15, Apt. 34; and Alexsey Georgievich Bogachenko, ul. Miljutenko 15/2, Apt. 141, all of Kiev, U.S.S.R.

Filed June 3, 1970, Ser. No. 43,092

Int. Cl. C22d 7/08

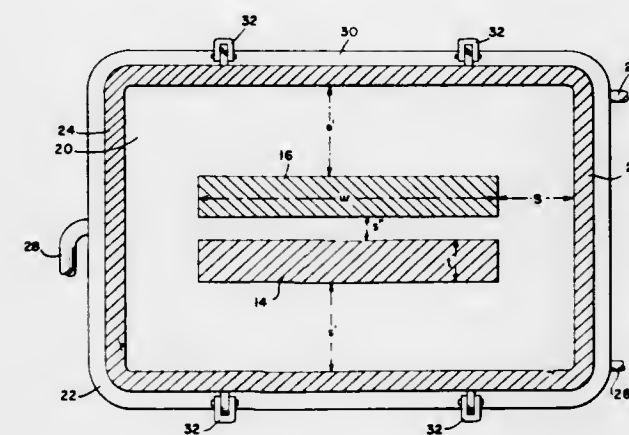
U.S. Cl. 75-10 C

31 Claims

In an electroslag remelting process of the type where two electrodes are immersed in a molten slag bath in a mold

and AC power is applied between the electrodes, a significant power reduction is effected by the use of slab-shaped

proved densities result in sintering, as do improved catalytic actions. Simultaneous pulverization of coarse particles or bodies is also achieved where desired. The



electrodes instead of conventional square-cross-section electrodes.

3,738,826

METHOD OF CONTINUOUSLY PRODUCING BLISTER COPPER FROM COPPER MATTE

Axel von Starck, Remscheid, and Franz E. Pawlek, Berlin, Germany, assignors to AEG-Elotherm G.m.b.H., Remscheid-Hasten, Germany

Filed June 1, 1971, Ser. No. 148,348

Claims priority, application Germany, June 4, 1970,

P 20 27 452.6

Int. Cl. C22b 15/00

U.S. Cl. 75-75

2 Claims

A method of continuously producing blister copper from copper matte in which the matte is conveyed up an ascending refractory trough after introduction into a melting vessel, with siliceous material added in a first section of the trough and oxygen containing gas added in this first and a second following section so that the iron in the matte sulphide reacts with the oxygen in the second section to form copper which collects on the trough floor to be removed at the upper end of the trough.

3,738,827

METHOD FOR ADDING SOLID METAL TO MOLTEN METAL

Michael J. Pryor, Woodbridge, Jacob Crane, Hamden, and Joseph Winter, New Haven, Conn., assignors to Olin Corporation

No Drawing. Filed July 29, 1970, Ser. No. 59,348

Int. Cl. C22b 15/14, 9/10

U.S. Cl. 75-76

7 Claims

The disclosure teaches a method for adding solid metal to molten metal, especially without deleterious reaction with air. The method is characterized by providing the solid metal in rod or wire form clad with a material compatible with the molten metal and feeding the clad material into the molten metal. The disclosure teaches novel composites to achieve this end. The method is particularly useful in deoxidizing molten metal.

3,738,828

METHOD OF POWDER ACTIVATION

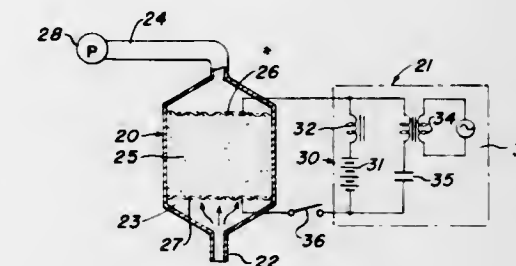
Kiyoshi Inoue, 16-8, 3-chome Kamiyoga, Tokyo, Japan
Continuation-in-part of application Ser. No. 692,960, Dec. 22, 1967. This application July 31, 1970, Ser. No. 60,070

Int. Cl. B22f 1/00

U.S. Cl. 75-211

16 Claims

A method for activation of metallic powders by subjecting the powder to bombardment with electrons, ions, or molecules in an inert or reductive atmosphere. Im-



pretreatment is, in some instances, combined with loading the activated particles directly into a mold, for compaction or sintering, preferably with some additional activation, all done in an integrated system.

3,738,829

NICKEL ALLOY FOR AUTOMOTIVE VALVE SEATS

Yoshihito Sato, Kawaguchi, Japan, assignor to Nippon Piston Ring Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed June 15, 1971, Ser. No. 153,404

Claims priority, application Japan, June 22, 1970,

45/54,175

Int. Cl. C22c 19/00

U.S. Cl. 75-170

4 Claims

Exhaust valve seats of an alloy differing from S-Monel by small amounts of carbon and/or lead dispersed in the base component in the form of a separate phase have a much longer useful life in automotive engines fueled with lead-free gasoline.

3,738,830

METHOD FOR PRODUCING A METAL DIE OR MOLD

Takashi Kimura, Yoshihiko Abe, and Hiroshi Hamamoto, Nagoya, Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi-ken, Japan

Filed June 26, 1970, Ser. No. 50,219

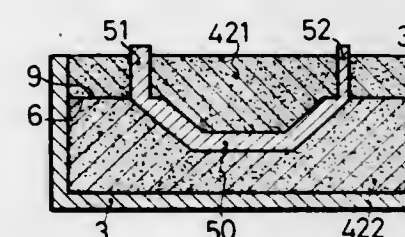
Claims priority, application Japan, July 7, 1969,

44/53,577

Int. Cl. B22f 1/00

U.S. Cl. 75-214

3 Claims



A method for producing a metal die or mold including the steps of placing a pattern, corresponding in configuration to that of the cavity surface of a desired die, in a frame, or box, filling the frame with a sintering powder such as iron, copper, iron and graphite, or mixtures thereof, and heating the powder together with the pattern in the frame to sintering temperature, whereby to form a die complementing the pattern in the configuration.

3,738,831

CHALCOGEN ORGANIC COMPOUNDS USED IN ELECTROPHOTOGRAPHIC PLATES AND PROCESSES

Wolfgang H. H. Gunther, 585 Bending Bough Drive, Webster, N.Y. 14580
Original application July 30, 1970, Ser. No. 59,495, now Patent No. 3,674,467. Divided and this application Dec. 20, 1971, Ser. No. 210,274
Int. Cl. G03g 5/04, 5/06, 13/22

U.S. Cl. 96—1.5 19 Claims
This invention relates to organic diselenides and polyselenides among which are cyclic compounds represented by the formula:



wherein R is selected from divalent hydrocarbylene radicals of 5 to 20 carbon atoms, divalent heterocyclic, alicyclic and aromatic radicals having from 3 to 50 carbon atoms, n is a positive integer and X is the radical



linear polymers having a repeating unit represented by the formula:



wherein A is selected from divalent alkylene radicals having from 9 to 20 carbon atoms, divalent aromatic radicals from 6 to 50 carbon atoms and divalent heterocyclic radicals and polymers having a repeating unit represented by the formula:



wherein B is selected from the group consisting of divalent, hydrocarbylene radicals and divalent heterocyclic radicals, a is a positive integer of at least 3 and b is a positive integer greater than 1. This invention also relates to the use of these compounds in the production of electrophotographic plates.

3,738,832

COLOR ELECTROPHOTOGRAPHIC PROCESS EMPLOYING LIQUID DEVELOPER CONTAINING GELATIN

Selji Matsumoto, Yasuo Tamai, and Takao Komaki, Asaka, Japan, assignors to Xerox Corporation, Stamford, Conn.
No Drawing. Filed July 9, 1970, Ser. No. 53,631
Int. Cl. G03g 13/10, 9/04

U.S. Cl. 96—1.2 8 Claims
There is disclosed a color electrophotographic imaging process utilizing a liquid developer composition containing a gelatin additive so as to enhance the properties of the resulting color image in a direct or combination color imaging process. It is further disclosed that upon cleaning each image prior to the subsequent recycling utilizing additional color compositions with a low boiling point solvent that the qualities of the resulting image may be further enhanced.

3,738,833

PHOTOCONDUCTIVE ELEMENTS CONTAINING HALOGENATED POLY- α -OLEFIN BINDERS

Stewart H. Merrill, Rochester, and Lawrence E. Contois, Webster, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Continuation of abandoned application Ser. No. 812,446, Apr. 1, 1969, which is a continuation-in-part of application Ser. No. 755,716, Aug. 27, 1968, now Patent No. 3,652,269. This application July 20, 1971, Ser. No. 164,444
Int. Cl. G03g 5/04, 5/06

U.S. Cl. 96—1.6 12 Claims
Photoconductive elements containing a photoconductor and a binder comprising polymers of halogenated poly- α -

olefins are described. These elements can be sensitized and charged either negatively or positively.

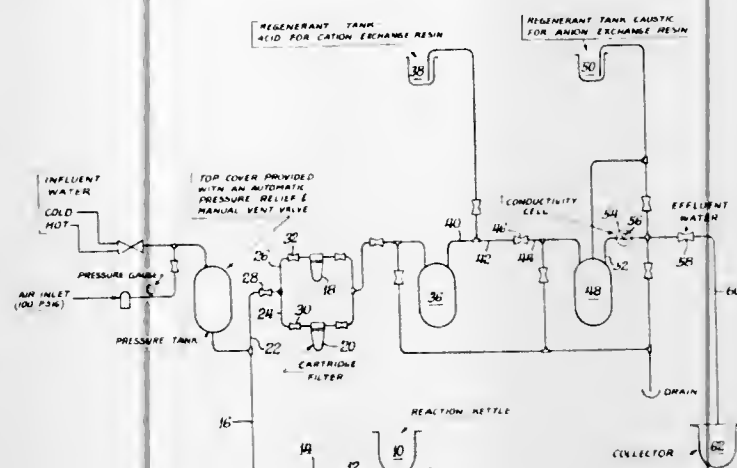
3,738,834

METHOD OF PREPARING SILVER HALIDE EMULSIONS AND IMAGE PROCESSES USING SAME

Ronald D. Arena, Durham, Conn., assignor to Addressograph-Multigraph Corporation, Mount Prospect, Ill.
Filed Apr. 22, 1971, Ser. No. 136,571
Int. Cl. G03c 5/00

U.S. Cl. 96—36

6 Claims



Method of purifying an aqueous emulsion containing a silver halide suspended therein and using same in an imaging process which comprises contacting said emulsion with a first ion-exchange material which provides one of the ions selected from the class consisting of hydrogen ions and hydroxyl ions and with a second ion-exchange material which provides the opposite ion from that provided by said first ion-exchange material, the time of contact of said emulsion with each of said ion-exchange materials being sufficient to exchange substantially all of the ions in said emulsion for hydrogen and hydroxyl ions, and then separating the emulsion from said ion-exchange materials. The emulsion is applied to a base support exposed to actinic radiation to selectively harden a portion of the surface and then washing away the unhardened layer.

3,738,835

ELECTROPHORETIC PHOTORESIST COMPOSITION AND A METHOD OF FORMING ETCH RESISTANT MASKS

Peter Bakos, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Continuation-in-part of abandoned application Ser. No. 887,704, Dec. 23, 1969. This application Oct. 21, 1971, Ser. No. 191,559
Int. Cl. G03c 1/68, 5/00

U.S. Cl. 96—36 10 Claims
A photoresist composition which can be uniformly deposited on a metal substrate by electrophoresis is provided. The electrophoretic photoresist composition is an emulsion prepared from a first solution containing a polychloroprene material, a sensitizer, a stabilizer and a polymeric resin binder and a second solution containing a wetting agent, surfactants, N-methyl-2-pyrrolidone and triethanol amine. The emulsion is formed by the dropwise addition of the second solution into the first solution while agitating the same. A method for preparing fine line structures using the above composition is also provided.

The high resolution photoresist composition of this invention is used in the manufacture of semiconductor devices such as, diodes, transistors, and microelectronic blocks where very fine lines of 1 micron thickness or less are required. The composition can also be used to electrophoretically coat irregularly shaped articles requiring uniformity of coating.

3,738,836

PROCESS OF MAKING IDENTIFICATION CARDS

Robert L. Dalton, Pittsford, N.Y., assignor to R. D. Products, Inc., East Rochester, N.Y.
Original application July 17, 1967, Ser. No. 653,808. Divided and this application Dec. 14, 1970, Ser. No. 97,781
Int. Cl. G03c 5/04

U.S. Cl. 96—43 2 Claims
A transparency, bearing intelligence identifying the individual, whose picture is to be taken, is slid into the camera into registry with the exposure aperture of the camera, and both the image of the individual and the intelligence on the transparency are photographed simultaneously on the film frame.

3,738,837

LIGHT-SENSITIVE COLOR PHOTOGRAPHIC MATERIAL

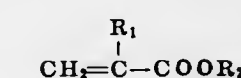
Yoshimi Kuwabara, Koganei-shi, Tokyo; Shunji Matsuo, Nishitama-gun, Tokyo; Hidehiko Ishikawa, Odawara-shi, Kanagawa-ken, and Mikio Sato, Odawara-shi, Kanagawa Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 889,298, Dec. 30, 1969, abandoned. This application May 23, 1972, Ser. No. 256,011
Int. Cl. G03c 1/84

U.S. Cl. 96—84 R

5 Claims

A light-sensitive silver halide color photographic material comprising one or more layers. At least one layer constituting

which comprises a homopolymer of a monomer of the general formula



in which R₁ stands for hydrogen, methyl or chlorine, and R₂ for a chlorinated alkyl, or methyl or ethyl, when R₁ is chlorine, or a copolymer of the monomer with other polymerizable ethylenically unsaturated compound.

3,738,839

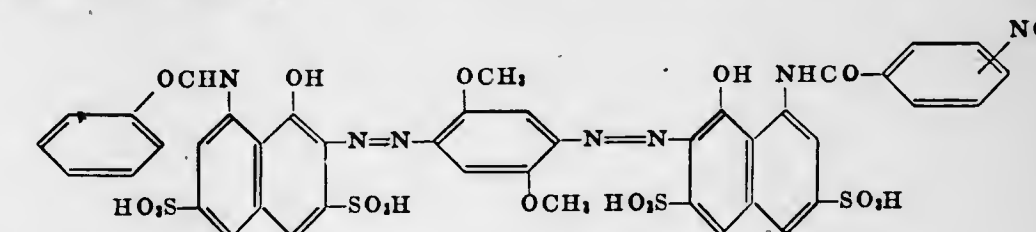
COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIALS FOR A SILVER DYE BLEACHING PROCESS

Makoto Yoshida, Shinichi Imai, and Juniti Tamano, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Oct. 19, 1970, Ser. No. 82,033
Int. Cl. G03c 1/10

U.S. Cl. 96—99

6 Claims

A color photographic light-sensitive material for a silver dye bleaching process comprising a support having thereon a photographic emulsion layer containing a cyan dye represented by the following general formula:



the photographic material contains a dispersion in a difficulty water-soluble high boiling organic solvent, either singly or in admixture with a low boiling organic solvent, of two or more compounds represented by the general formula

wherein said nitro group is at the para- or meta-position of the benzoyl nucleus and method for preparing same is disclosed.

3,738,840

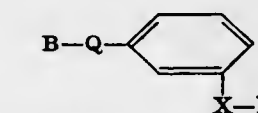
COLOUR COUPLERS

Brian Anderson, Bury, England, assignor to Ilford Limited, Ilford, England
Filed Apr. 14, 1970, Ser. No. 28,422
Claims priority, application Great Britain, Apr. 18, 1969, 20,003/69
Int. Cl. G03c 1/40

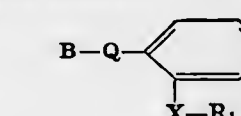
U.S. Cl. 96—100

1 Claim

This application describes a colour coupler selected from the class consisting of compounds of the general formula:



and of the general formula:



wherein in the above two formulae B represents a colour coupler residue, Q is a group containing an alkali solubilising radical, R₁ is an alkyl group containing at least 12 carbon atoms and X is a direct link or —O—, —CONH—

—SO₂— or —SO₂NH—, corresponding compounds in which there is a linking group between B and Q and corresponding compounds in which there is a linking group between Q and the phenyl group.

3,738,838

SUBLAYER FOR PHOTOGRAPHIC POLYESTER FILM BASE

Yuzo Ando and Motoo Kogure, Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd.
No Drawing. Filed Sept. 10, 1968, Ser. No. 758,696
Claims priority, application Japan, Sept. 19, 1967, 42/59,603
Int. Cl. G03c 1/78

U.S. Cl. 96—87

2 Claims

A sublayer for a photographic polyester film base,

3,738,841 SUGAR SYRUP FOR BREAD DOUGH PREPARATION

Vincent A. Toscano, Queens Village, N.Y., assignor to Amstar Corporation, New York, N.Y.
No Drawing. Filed Aug. 13, 1971, Ser. No. 171,483
Int. Cl. A21d 2/18

U.S. Cl. 99—90 R **9 Claims**
An improved bread dough is prepared by incorporating in the dough along with other bread dough-making ingredients a syrup consisting essentially of sucrose and invert sugar (dextrose and levulose) as the only dissolved sugars. A suitable syrup would contain about 76.5% by weight dissolved sugars, the dissolved sugars being made up of about 50% by weight sucrose, about 25% by weight dextrose and about 25% by weight levulose. An especially useful syrup would also contain dissolved therein water-soluble autolyzed brewer's yeast in an amount in the range from about 25 parts per million to about 500 parts per million based on the weight of said syrup.

3,738,842
PROCESS FOR PREPARING CURED SAUSAGES
Paul A. Hammes, Westfield, Charles W. Everson, Warren, and Wilson E. Danner, Linden, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Continuation-in-part of application Ser. No. 200,639, Nov. 30, 1971, which is a continuation-in-part of application Ser. No. 858,171, Sept. 15, 1969, now abandoned. This application Feb. 17, 1972, Ser. No. 227,244
Int. Cl. A22c 11/00; A23b 1/02; A23l 3/34

U.S. Cl. 99—109 **4 Claims**
Glutamic acid, either alone or with other agents, is added into the sausage mixture as its acidity assists in the curing step without serving to break the sausage emulsion.

3,738,843
PREPARATION OF COOKED CANDIES
Robert R. Frey, Huntingdon Valley, Pa., assignor to Richardson-Merrell Inc., New York, N.Y.
No Drawing. Filed Mar. 30, 1971, Ser. No. 129,569
Int. Cl. A23g 3/00

U.S. Cl. 99—134 R **2 Claims**
The gumminess of cooked candies made with arabino-galactan can be reduced by incorporating small amounts of mannitol and/or lactose in the aqueous solution before or during the cooking period.

3,738,844
CONFECTIONS CONTAINING LOW-ASH DEMINERALIZED WHEY SOLIDS
Kenneth E. Rash, Jr., Pleasanton, John C. Colmey, Diablo, and Charles E. Zanzig, Danville, Calif., assignors to Foremost-McKesson, Inc., San Francisco, Calif.
Continuation-in-part of abandoned application Ser. No. 807,280, Mar. 14, 1969. This application June 10, 1971, Ser. No. 151,685
Int. Cl. A23g 3/00

U.S. Cl. 99—134 R **6 Claims**
Confection mixes and products having all or part of the milk solids replaced with low ash content-electro-dialyzed whey solids.

3,738,845
PROCESS FOR THE MANUFACTURE OF SUGARLESS CONFECTIONS
Jerome T. Liebrand, Farmingdale, N.Y., assignor to Pfizer Inc., New York, N.Y.
No Drawing. Filed Jan. 7, 1972, Ser. No. 216,229
Int. Cl. A23g 3/00

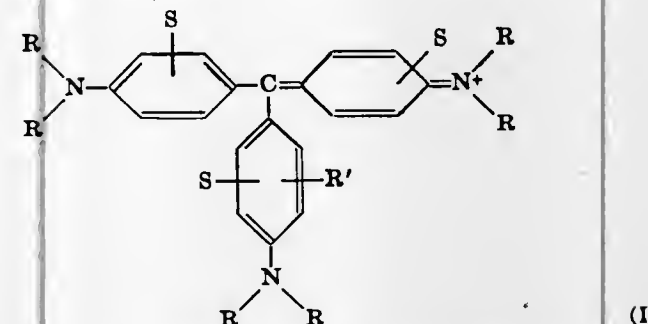
U.S. Cl. 99—134 R **4 Claims**
A process for the preparation of clear sorbitol hard candies is described which prevents the crystallization of

sorbitol by the addition of an organic acid, such as citric acid, prior to the completion of the cooking step.

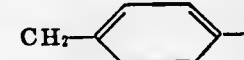
3,738,846 FOGGED DIRECT POSITIVE SILVER HALIDE EMULSION CONTAINING A SULFONATED TRIPHENYLMETHANE DYE

Hideo Kamano; Hirotsugu Kato; Teruo Kobayashi, and Kazuo Inoue, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Apr. 14, 1971, Ser. No. 134,046
Claims priority, application Japan, Apr. 14, 1970, 45/31854
Int. Cl. G03c 1/08

U.S. Cl. 96—139 **7 Claims**
A direct positive photographic silver halide material containing in a silver halide emulsion layer and/or its adjacent layer a compound represented by the following general formula (I)



in which R may be the same or different and is selected from the group consisting of H, CH₃, C₂H₅, and

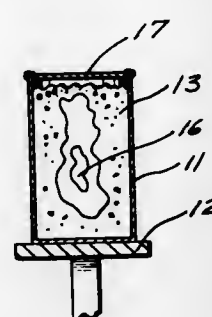


R' is selected from the group consisting of H, CH₃, and Cl, and S is selected from the group consisting of SO₃H, and the alkali metal salts thereof and the ammonium salt thereof, and wherein the number of S substituents ranges from 1 to 3, is disclosed.

3,738,847 PROCESS FOR PRODUCING A CANNED EGG IN MEAT PET FOOD

Peter J. Bechtel, East Lansing, Mich., assignor to The Quaker Oats Company, Chicago, Ill.
Filed Apr. 23, 1971, Ser. No. 136,754
Int. Cl. A22c 18/00; A23b 1/00

U.S. Cl. 99—187 **1 Claim**



A process is disclosed for producing an egg in meat pet food wherein a container is partially filled with a ground meat mixture, a tube is inserted into the ground meat mixture, an egg mixture is passed through the tube until the container is filled while at all times maintaining a layer of ground meat mixture between the egg mixture and the container, removing the tube from the container, sealing the container, and heating the sealed container to sterilize the ground meat mixture and egg mixture.

A new product is described comprising in combination a center core of a sterilized egg mixture, a surrounding

medium of a sterilized ground meat mixture which completely surrounds the sterilized egg mixture and a container which contains the ground meat mixture and which is hermetically sealed.

3,738,848 PROCESS FOR PRODUCING A DRIED SPLIT PEA OR DRIED LENTIL PRODUCT

Fred Mader, Route 1, Palouse, Wash.
Continuation-in-part of Ser. No. 781,971, Dec. 6, 1968, abandoned. This application Aug. 18, 1971, Ser. No. 172,887
Int. Cl. A23b 7/02

U.S. Cl. 99—204 **3 Claims**
A crisp nutrient food product is obtained from dried split peas or lentils by soaking the split peas or lentils in water without cooking to soften and evenly partially expand the cellular structure with little or no carbohydrate loss and cooking of the split peas or lentils in a cooking oil at a high temperature of between 375° F. and 425° F. for a brief period of time less than three minutes to fully expand, thermally set and cook the split peas or lentils. As a final step, seasoning can be applied to the cooked product.

3,738,849
CHEMICAL PLATING SOLUTIONS
Harold Edward Bellis, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Dec. 22, 1971, Ser. No. 211,043
Int. Cl. C23c 3/02

U.S. Cl. 106—1 **16 Claims**
An aqueous chemical plating solution for depositing a metal such as nickel, cobalt, copper or iron on a catalytic substrate, using a reducing agent such as formaldehyde, sodium hypophosphite or a borane, particularly an alkali metal borohydride, is stabilized against decomposition by containing therein an alkali metal cyanoborohydride.

3,738,850
LITHOGRAPHIC PLATE DESENSITIZER FORMULATIONS
Eugene A. Radell, Frederick J. Rauner, and James F. Houle, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 137,612, Apr. 26, 1971. This application Oct. 4, 1971, Ser. No. 186,396
Int. Cl. C09d 5/20; C09k 3/00, 3/18

U.S. Cl. 106—2 **8 Claims**
Lithographic plate desensitizer formulations based on hydrophilic colloids are improved by the addition of dialdehydes, and molybdate ions.

3,738,851
WAX EMULSION
William Harding Jarvis, Coleford, England, assignor to Ragosine Oil Company Limited, London, England
No Drawing. Filed Apr. 6, 1971, Ser. No. 131,787
Claims priority, application Great Britain, Apr. 6, 1970, 16,232/70
Int. Cl. C09d 5/08

U.S. Cl. 106—14 **11 Claims**
An emulsion containing an aqueous continuous phase, a normally solid wax in the disperse phase, an emulsifying agent and a corrosion inhibitor has been found to be useful for coating the inside of containers in order to prevent deterioration of sensitive materials, such as latex, stored or transported in such containers. The emulsion may also be used to coat the stanchions holding motor cars and the like during their spraying; this enables any paint inadvertently sprayed on the stanchions to be readily stripped off. Furthermore, the emulsion-deposited coating can easily be removed by a non-acidic wash.

3,738,852
CATIONIC BITUMINOUS EMULSION
Tadashi Doi, Shunzo Ohtsuka, and Sumio Arai, Wakayama, Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan
No Drawing. Continuation-in-part of application Ser. No. 744,700, July 15, 1968. This application May 17, 1971, Ser. No. 144,329
Claims priority, application Japan, July 19, 1967, 42/46,473

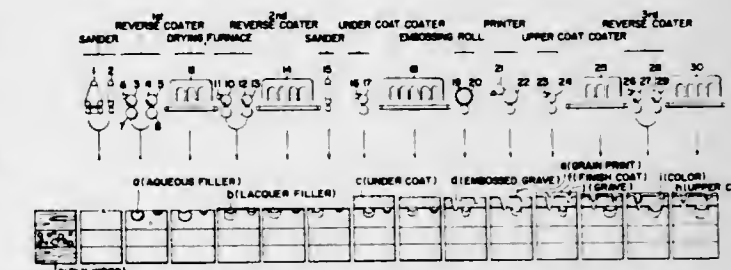
U.S. Cl. 106—277 **5 Claims**
An asphalt-in-water emulsion in which there is an emulsifier comprised of a mixture of a water-soluble salt of a monoamine having a long chain alkyl or alkenyl group of 8 to 22 carbon atoms and a water-soluble salt of a triamine having a long chain alkyl or alkenyl group of 8 to 12 carbon atoms.

3,738,853
ARTICLES PRODUCED BY CASTING OF SULFUR ASPHALT
Olaf Kopvillam and James W. MacLean, Burlington, Ontario, Canada, assignors to Shell Oil Company, New York, N.Y.
No Drawing. Filed Oct. 5, 1971, Ser. No. 186,820
Int. Cl. C08h 13/00; C09d 3/24

U.S. Cl. 106—274 **4 Claims**
Sulfur-asphalt pavements and construction articles are produced by casting sulfur-asphalt-aggregate mixes in forms without the application of densification pressure. The mixes employed to produce the cast articles have weight ratios of sulfur to asphalt of at least 1:1.

3,738,854
PROCESS FOR MAKING DECORATIVE BOARDS
Yumio Oishi, Kanbara-machi, Japan, assignor to Noda Plywood Mfg. Co., Ltd., Shimizu-shi, Shizuoka-ken, Japan
Filed May 24, 1971, Ser. No. 146,246
Claims priority, application Japan, May 27, 1970, 45/45,420
Int. Cl. B44d 1/14, 1/28

U.S. Cl. 117—8 **7 Claims**

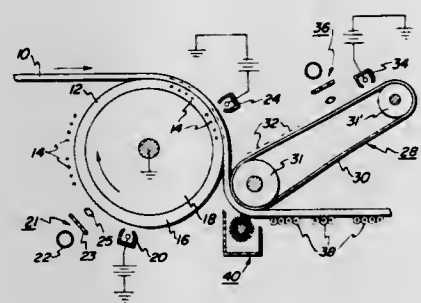


Decorative panels are obtained by applying a base-color undercoat, then embossing, printing pattern, applying a transparent or semitransparent coat, heating to obtain only incomplete drying and to shrink the cavities produced in the embossing step, applying a semi-transparent color paint which is incompatible with the coat previously applied, filling the cavities with a coloring paint and drying.

3,738,855
INDUCTION IMAGING SYSTEM
Robert W. Gundlach, Victor, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Dec. 21, 1970, Ser. No. 99,886
Int. Cl. G03g 13/08

U.S. Cl. 117—17.5 **30 Claims**
A method for simultaneously forming a plurality of visible powder images on a receiving member is described. The method comprises bringing a substantially humidity

insensitive receiving member having controlled conductivity characteristics into contact with a first imaging member bearing an electrostatic charge pattern so as to induce a latent electrostatic image in the receiving member, separating the latter from the first imaging member while contacting the receiving member with a second imaging member bearing an electrostatic charge pattern and sub-



sequently applying electroscopic marking material to the receiving member while it is in contact with the second imaging member or immediately after separation therefrom thus simultaneously forming a plurality of visible powder images on the receiving member. The developed powder images may be fixed to the receiving member or transferred to a final copy sheet and fixed thereon.

3,738,856

X-RAY CONVERSION SCREEN UTILIZING YTTRIUM OXYSULFIDE PHOSPHOR

Frank Masi, Morristown, N.J., assignor to United States Radium Corporation, Morristown, N.J.
No Drawing. Filed Jan. 11, 1972, Ser. No. 216,966
Int. Cl. C09k 1/36; H01j 1/63

U.S. Cl. 117—33.5 C

11 Claims

An X-ray conversion screen comprises a substrate sheet having on a surface thereof a phosphor coating consisting essentially of at least 5% by weight of yttrium oxysulfide activated with from 0.1% to 10% by weight of terbium or a mixture of terbium plus dysprosium. Up to 95% by weight of the phosphor coating may be (a) gadolinium, lanthanum or lutetium oxysulfide phosphor activated with terbium or a mixture of terbium plus dysprosium, (b) barium phosphate activated with divalent europium, (c) calcium tungstate, (d) zinc sulfide or zinc cadmium sulfide activated with copper or silver, or (e) barium lead sulfate.

3,738,857

PRESSURE-SENSITIVE RECORD SHEET AND METHOD OF MAKING

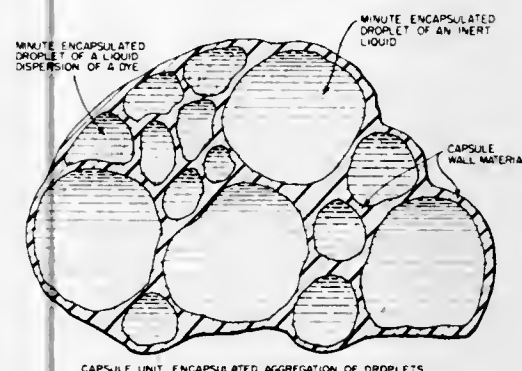
Bruce W. Brockett, Dayton, and Fredrick D. Weaver, Trotwood, Ohio, assignors to The National Cash Register Company, Dayton, Ohio
Original application Nov. 8, 1968, Ser. No. 774,312, now abandoned. Divided and this application Nov. 9, 1970, Ser. No. 88,137
The portion of the term of the patent subsequent to Nov. 2, 1988, has been disclaimed
Int. Cl. B41m 5/10, 5/22

U.S. Cl. 117—36.1

2 Claims

There is provided by this invention a minute, multiple-droplet-retaining pressure-rupturable capsule unit for supplying marking liquid, the use of which in a paper coating constitutes a new method of aiding in the protection of minute capsules against accidental rupture and loss of marking liquid until marking pressures are applied. The capsule unit comprises a bounding and retaining matrix of deposited polymer film material in which the droplets are retained in random distribution, the droplets being of two kinds, differing in size and material. The droplets

of smaller size are of concentrated liquid marking material, whereas the larger droplets are of a diluent for the liquid of the smaller capsules, so that, when a capsule is smashed in its entirety, it releases a low-viscosity diluted marking liquid that quickly dries on paper by evaporation and by imbibition. The larger retained droplets protrude and cause bumps in the deposited matrix. When the units are used as a coating on record sheet material in close juxtaposition, as dried from an applied liq-



uid coating slurry of the units, the protuberances of the large droplets protect the smaller droplets from accidental pressure-release by scuffing types of casually-applied handling forces. Thus a sheet of paper sensitized to direct printing pressure with a coating of these capsule units for use as part of a record unit system shows both excellent marking-liquid transfer efficiency and accidental-smudge resistance—a marked improvement over present commercial papers coated with capsular aggregates having droplets of uniform size and composition.

3,738,858

METHOD OF PRODUCING LOW-SCATTER SURFACES ON METAL SUBSTRATES

Robert M. Elwell, Merrimac, Jurgen M. Kruse, Lincoln, and Leon Michelove, Lexington, Mass., assignors to Ittek Corporation, Lexington, Mass.
No Drawing. Filed Feb. 3, 1972, Ser. No. 223,332
Int. Cl. B44d 1/44; C23c 3/00

U.S. Cl. 117—64 R

8 Claims

A method for producing low-scatter or ultrasmooth surfaces of metal substrates is disclosed. The method comprises contacting and polishing the metal substrate in the presence of both a source of the metal in a zero-valent or latent zero-valent state and a source of the metal in an ionic state. The metal substrate is preferably polished with a soft, smooth, resilient cloth. Low-scatter surfaces are useful on certain optical components including mirrors.

3,738,859

CONVEYOR BELTING

Arthur Ernest Anderson, Hull, Michael John Roberts, Thorngumbald, near Hull, and Peter John Wright, Hull, England, assignors to J. H. Fenner & Co. Limited, Marfleet, Hull, England
No Drawing. Filed Feb. 3, 1971, Ser. No. 112,435
Claims priority, application Great Britain, Feb. 5, 1970, 5,471/70
Int. Cl. F16g 1/04

U.S. Cl. 117—76 T

4 Claims

Conveyor belting comprising a textile carcass impregnated with polyvinyl chloride, an inner layer of polyvinyl chloride or other thermoplastics material covering the impregnated textile carcass and an outer layer of a natural or synthetic rubber covering the inner layer, the rubber being so compounded that under the action of heat generated by friction at the outer surface of the belt, the rubber layer becomes detached from the textile carcass.

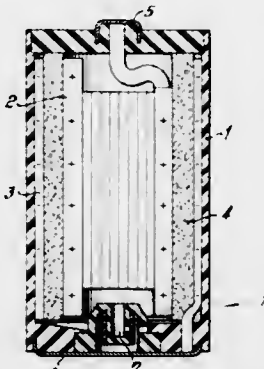
3,738,860

CELL OR BATTERY HOUSING OF SYNTHETIC RESIN FOR MAINTENANCE FREE BATTERIES

Eckart von Roda, Diekhofen, and Ewald Trankle, Backnang, Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany
Filed Mar. 5, 1971, Ser. No. 121,402
Claims priority, application Germany, May 26, 1970, P 20 25 631.9
Int. Cl. B44d 1/02

U.S. Cl. 117—95

9 Claims



For housing a cell or battery, where a maintenance-free lifetime of at least three years is desired and the housing should be of synthetic resin, the water transmission rate of the material of which the housing is constructed—when measured at 20° C. of a film 40 microns thick with a relative humidity at 85% on one side of the film and 0% on the other—must not exceed 10 gm.⁻²d.⁻¹, and preferably should not exceed 3 gm.⁻²d.⁻¹. The housing may consist of two layers, one of which has a low water-transmission rate and the other of which has a high resistance to mechanical stress.

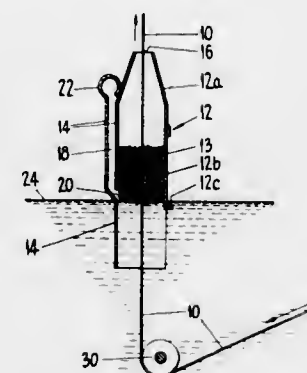
3,738,861

METHOD OF WIPING GALVANISED WIRE OR STRIP

Jack Pryor Sciffer, New Lambton, New South Wales, and Harrie Roxby, Kotara South, New South Wales, Australia, assignors to Australian Wire Industries Pty. Ltd., Melbourne, Victoria, Australia
Filed Mar. 7, 1969, Ser. No. 805,145
Claims priority, application Australia, Mar. 8, 1968, 34,755/68
Int. Cl. B05c 11/02; C23c 1/02

U.S. Cl. 117—102 M

2 Claims



The invention relates to the operation of wiping galvanised wires or strips immediately after they are withdrawn from the galvanising bath.

For this purpose, the wires or strips are drawn upwardly through a bed of washed and graded river gravel or of nodules or like bodies composed of other suitable inert material having a specific gravity lower than that of molten zinc.

The bed is preferably contained within a chamber which is open at its upper and lower ends and the latter preferably projects into the molten zinc bath.

The interstices of the bed and the space immediately above it are filled with a non-oxidising gas which excludes air and this gas preferably contains H₂S. This gas enters the chamber close to the surface of the molten metal and is preferably preheated by heat exchange from the interior of the chamber before it enters the latter.

It is found that a wiping bed according to the invention, requires replacement less frequently than the conventional charcoal bed so that labour costs are reduced and also that the throughput speeds of the wires or strips may be substantially increased.

3,738,862

PROCESS FOR PREPARING REINFORCED LAMINATES IN SITU WITH EPOXY-POLYHYDRIC PHENOL CONDENSATES

John M. Klarquist, Paul D. Jones, and Lawrence C. Reilly, Cherry Hill, N.J., assignors to Shell Oil Company, New York, N.Y.
No Drawing. Original application Feb. 24, 1970, Ser. No. 13,786, now abandoned. Divided and this application Nov. 8, 1971, Ser. No. 198,023
Int. Cl. C08g 30/14

U.S. Cl. 117—126 GE

11 Claims

Laminates, particularly glass reinforced electrical laminates, are prepared in situ by impregnating a glass cloth with a varnish comprising (1) an epoxy resin containing an organic phosphine or a phosphonium halide, (2) a phenol, (3) a solvent, (4) an epoxy curing agent, and optionally (5) an accelerator.

3,738,863

INORGANIC REFRACTORY LIQUID COMPOSITION

Suezo Sugaike and Masayuki Watanabe, Tokyo, and Tomitaro Kubo, Kanagawa-ken, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
No Drawing. Filed July 9, 1971, Ser. No. 161,928
Claims priority, application Japan, July 10, 1970, 45/59,844
Int. Cl. C23c 3/00; B44d 1/34

U.S. Cl. 117—127

7 Claims

The present invention provides (i) inorganic refractory liquid compositions comprising a metal nitride and potassium salts of phosphoric acid as main constituents, and (ii) a method of forming a phosphate of said metal by the reaction of said compositions at temperatures below 150° C.

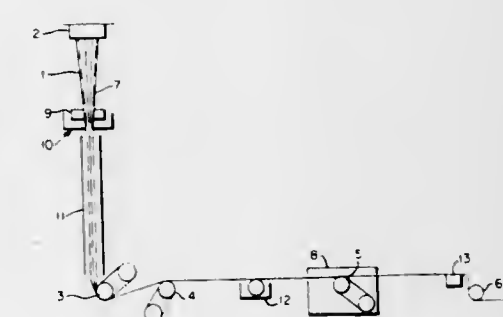
3,738,864

FIBER BEARING ANTISTATIC COMPOSITION

Karl Altan, Waynesboro, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Apr. 26, 1971, Ser. No. 137,515
Int. Cl. B32b 27/02; C09j 3/16

U.S. Cl. 117—138.8 F

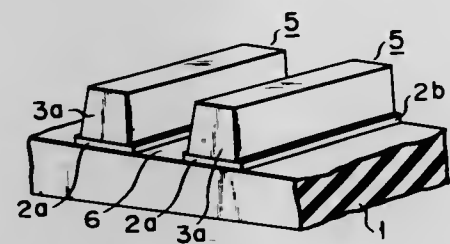
13 Claims



Polyamide or polyester fiber bearing the reaction product of a polyoxypropylene diamine and a polyepoxide

substantially free from ethyleneoxy groups provides a durable antistatic agent which attracts brighteners during washing but does not attract dirt typically retained in dry cleaning solvents during dry cleaning.

3,738,865
METHOD FOR MANUFACTURING A MAGNETIC THIN FILM MEMORY ELEMENT
Syozo Takeno, Yokohama, Mitsuhiro Tashiro, Tokyo, and Akira Kasai, Yokohama, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed July 30, 1970, Ser. No. 59,537
Claims priority, application Japan, July 31, 1969, 44/60,303
Int. Cl. B44d 1/18; H01l 7/00
U.S. Cl. 117-212 7 Claims



A magnetic thin film memory is formed by simultaneously etching a first magnetic thin film and a conductor film both successively integrated on a flat substrate as far as to the surface of the substrate thereby to form integrated strips comprised of equally spaced magnetic and conductive strips, selectively etching the conductive strips by an etchant capable of etching only the conductive strips in such a manner that their widths become less than the widths of the magnetic strips, and entirely covering, after removal of the photo-resist, each of the conductive strips with a magnetic thin film to form a closed flux path with said first magnetic thin film.

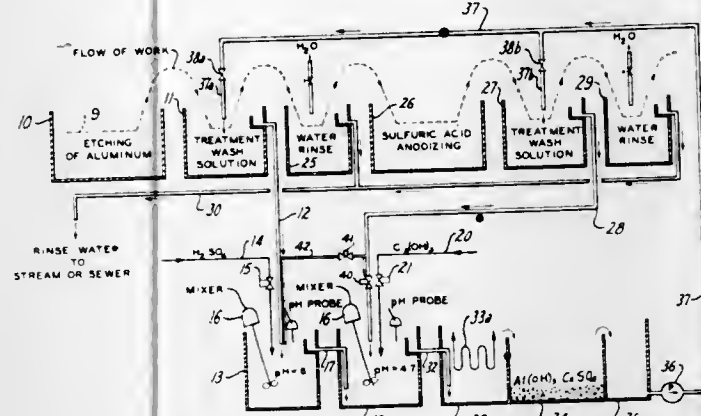
3,738,866
FLAME RESISTANT POLYOLEFIN COMPOSITION AND ARTICLE FORMED THEREOF
Stanton C. Martens, New Haven, Conn., assignor to General Electric Company
No Drawing. Continuation of application Ser. No. 805,955, Feb. 20, 1969. This application Aug. 19, 1970, Ser. No. 65,245
Int. Cl. H01b 7/00, 3/30

U.S. Cl. 117-232 9 Claims
This invention relates to an insulated wire or cable characterized by a high degree of flame resistance. The conductor of the wire or cable is insulated with a cured product comprising a blend consisting essentially of an unchlorinated polyolefin and a chlorinated polyolefin, the unchlorinated polyolefin being present in a range of about 30 percent to 55 percent by weight and the chlorine in a range of about 20 percent to 35 percent by weight of the blend, a chlorinated polyolefin stabilizer and an organic peroxide.

3,738,867
REMOVAL OF METAL CONTAINING DEPOSITS FROM NON-METALLIC SUBSTRATES
Helmut Franz, Oakmont, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
No Drawing. Filed Apr. 1, 1971, Ser. No. 130,468
Int. Cl. B08b 3/08; C03c 23/00
U.S. Cl. 134-2 4 Claims

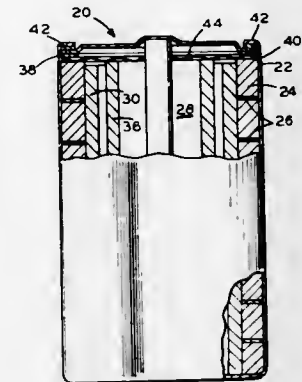
The removal of metal containing deposits from non-metallic substrates, such as glass, using solutions containing 0.05 to 10 percent oxidizing agent, such as hydrogen peroxide, sodium perborate, sodium persulfate, potassium persulfate/ammonium persulfate or the like. The resulting metal containing spent solution is easily treated to yield an essentially non-polluting effluent.

3,738,868
WASTE TREATMENT OF ALUMINUM CONTAINING SOLUTIONS
Leslie E. Lancy, Ellwood City, Pa., assignor to Lancy Laboratories Inc., Zelienople, Pa.
Continuation of abandoned application Ser. No. 8,173, Feb. 3, 1970. This application Jan. 7, 1972, Ser. No. 216,285
Int. Cl. B01d 21/01
U.S. Cl. 134-13 19 Claims



The yield of dry solid content of sludge is greatly increased in proportion to the quantity of flocculent material by taking off dissolved aluminum containing wash water solutions from an aluminum processing line, reconditioning and returning the solutions as aqueous wash solutions to the line and reusing them in the line, and treating and neutralizing the taken off solutions to settle and periodically remove sludge therefrom. The economy of the operation and yield of the dry solids content in the the sludge is further enhanced by providing a relatively low acid pH before neutralization of alkaline waste, by combining acid and caustic solutions for treatment, and by the application of heat.

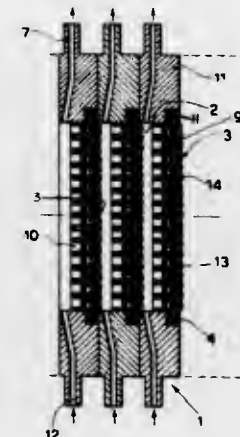
3,738,869
ELECTRIC CELL WITH DEPOLARIZER COMPENSATED AGAINST CURRENT EROSION EFFECTS
John F. Zaleski, Pleasantville, N.Y., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.
Filed May 25, 1972, Ser. No. 256,833
Int. Cl. H01m 21/00
U.S. Cl. 136-14 15 Claims



An electric cell having a depolarizer structure of stacked pellets, with intermediate metal elements serving to electrically connect the respective pellets to an associated electrode.

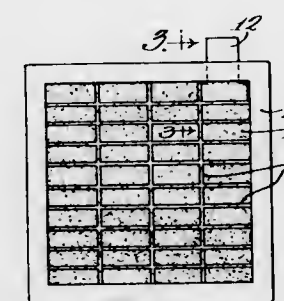
troconductive support, with the stacked pellets under compression, whereby the pellets are maintained electrically active irrespective of erosive structural deformation and loss of direct electrical contact with the supporting electrode.

3,738,870
STORAGE BATTERIES CONTAINING ZINC HALIDE IN AN AQUEOUS SOLUTION OF THE TYPE HAVING A SOLUBLE CATHODE AND A DISSOLVED ANODE
Mario De Rossi, Rome, Italy, assignor to Consiglio Nazionale Delle Ricerche, Rome, Italy
Continuation-in-part of Ser. No. 856,408, Aug. 9, 1969, Pat. No. 3,625,764. This application Aug. 11, 1971, Ser. No. 170,697
Int. Cl. H01m 41/00
U.S. Cl. 136-22 10 Claims



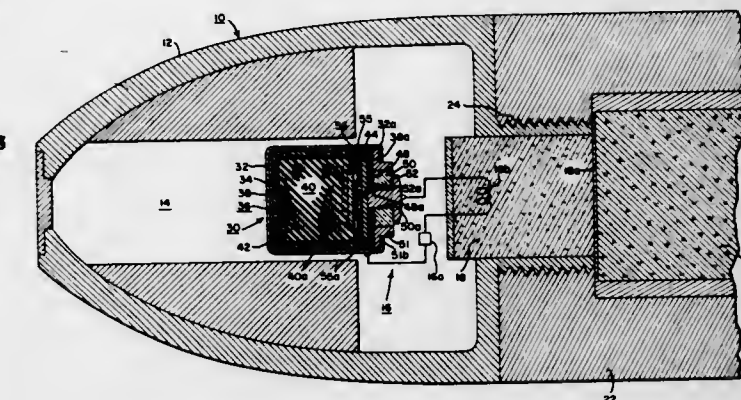
An improved reversible electric cell of the type which includes a soluble metal cathode, a chemically non-reactive electrode and an electrolyte comprising an aqueous solution of a metal halide is disclosed. The electrode is provided with open channels or grooves in which a dispersion, of paste-like consistency, is disposed. The dispersion or mixture comprises an inert conducting powder and an alkylammonium perchlorate. The alkylammonium perchlorate combines with the halogen released upon charging to form an addition product in a solid state. This prevents the halogen from being dissolved in the electrolyte during the charging cycle which would corrode soluble metal cathode and discharge the cell.

3,738,871
STORAGE BATTERY PLATES OF PLASTIC AND LEAD
William R. Scholle, Long Beach, Calif., assignor to Scholle Corporation, Northlake, Ill.
Filed May 6, 1971, Ser. No. 140,742
Int. Cl. H01m 35/04
U.S. Cl. 136-65 3 Claims



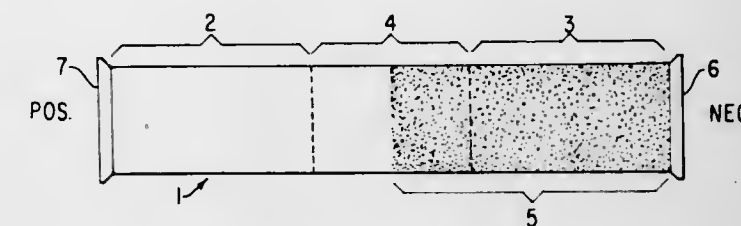
Relates to storage battery plates of the accumulator type reinforced with and containing an appreciable portion of plastic material.

3,738,872
MINIATURIZED THERMAL CELL
Richard T. Ziemba, Burlington, Vt., assignor to General Electric Company
Continuation-in-part of application Ser. No. 595,884, Nov. 21, 1966. This application Jan. 2, 1968, Ser. No. 695,144
Int. Cl. F42b 13/12; F42c 19/00; H01m 21/14
U.S. Cl. 136-90 11 Claims



A thermal cell is provided having a housing made up of a case forming one terminal, a pin connector forming the remaining terminal, and an insulative spacer therebetween. A normally solid and nonconductive thermally fusible electrolyte is positioned within the housing in contact with a first electrode in electrical contact with the negative terminal and a cathodic depolarizer in electrical contact with a positive terminal. Thermite material is mounted in thermally conductive relation with the electrolyte, and is ignited by a cap. The cap is positioned between two rigid surfaces, one of which is a relatively displaceable striker element. In service the thermal cell is mounted in the nose of a H.E. projectile and connected to a coil actuated detonator charge through a voltage actuated switch.

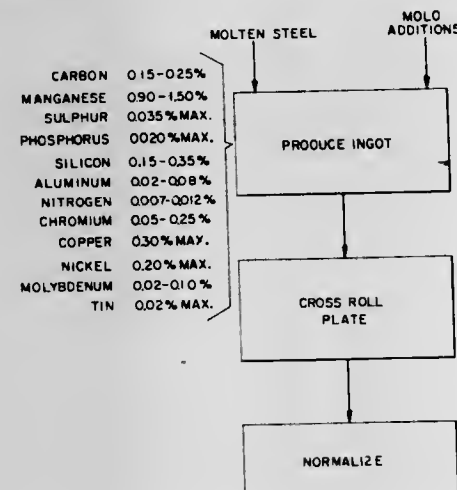
3,738,873
SELF GENERATING THERMOELECTRIC CONVERTER
Le Conte Cathey, Aiken, S.C., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Dec. 23, 1964, Ser. No. 420,840
Int. Cl. G21h 1/10
U.S. Cl. 136-202 5 Claims



A single body semiconductor made of a radioactive element having a radioactive isotope heat source of the same element as an integral part thereof. The semiconductor is a compound including radioactive actinide element, such as plutonium, uranium or thorium, and the heat source is a heat-producing radioactive isotope of the same element. Suitable doping impurities, diffused into

part of the semiconductor bar, shift the electrical potential distribution across the center portion to produce the thermoelectric element.

3,738,874
LOW TEMPERATURE STEEL PROCESS
Alfred G. Allten, Rosemont, and Frederick J. Semel, Philadelphia, Pa., assignors to Alan Wood Steel Company, Conshohocken, Pa.
Original application July 24, 1967, Ser. No. 655,465, now abandoned, and a continuation-in-part of application Ser. No. 883,490, Dec. 9, 1969. Divided and this application May 26, 1971, Ser. No. 147,030
Int. Cl. C21d 1/28, 7/14
U.S. Cl. 148—12 3 Claims



The process of making a low temperature weldable steel plate of plain carbon grade and unusually high impact resistance and yield strength in normalized condition. The steel contains carefully controlled amounts of carbon, manganese, sulfur, phosphorus, silicon, aluminum and nitrogen, plus alloying elements which may include chromium, copper, and nickel, certain of which components can be achieved as residual elements in scrap. The alloy will be used especially as plate.

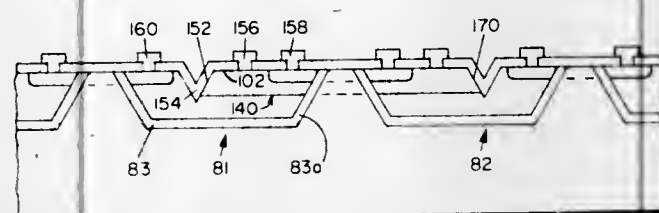
3,738,875
STAINLESS STEEL OF IMPROVED DUCTILITY
Wesley Kalita, New Kensington, Pa., assignor to Allegheny Ludlum Industries, Inc., Pittsburgh, Pa.
No Drawing. Original application Sept. 22, 1969, Ser. No. 860,036. Divided and this application July 14, 1971, Ser. No. 162,474
Int. Cl. C21d 9/46

U.S. Cl. 148—12 3 Claims
Stainless steel of improved ductility and cold rollability, more particularly, stainless steel which may be cold rolled from hot band directly to final gage without intermediate processing and annealing. In accordance with the invention, there is provided a stainless steel consisting essentially of up to 0.6% carbon, 0.2 to 1.0% manganese, 13 to 14% chromium, 0.2 to 1% silicon, 0.1 to 0.3% aluminum, 0.05 to 0.15% titanium and the balance essentially iron with usual steelmaking residuals.

3,738,876
PERMANENT MAGNET MATERIAL POWDERS HAVING SUPERIOR MAGNETIC CHARACTERISTICS AND METHOD
Joseph J. Becker, Schenectady, and Robert E. Cech, Scotia, N.Y., assignors to General Electric Company
No Drawing. Original application June 21, 1968, Ser. No. 738,809, now Patent No. 3,615,914. Divided and this application May 24, 1971, Ser. No. 146,562
Int. Cl. H01f 1/06

U.S. Cl. 148—105 6 Claims
The magnetic coercive force of cobalt-rare earth intermetallic compounds is stabilized by treating the compounds in particle form with zinc or arsenic.

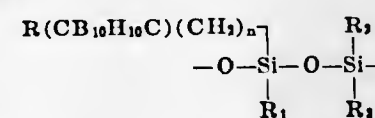
3,738,877
SEMICONDUCTOR DEVICES
Uryon S. Davidsohn, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Aug. 24, 1970, Ser. No. 66,164
Int. Cl. H01l 7/00, 7/64, 19/00
U.S. Cl. 148—175 4 Claims



Various devices are described herein utilizing anisotropic etching and dielectric isolations as means for limiting areas of either conductivity type semiconductor material. Surface junctions normally found in the diffused semiconductor devices of the prior art are also eliminated by the use of overlap diffusion techniques. Anisotropic etching is employed in certain of the devices for attaining buried PN junctions.

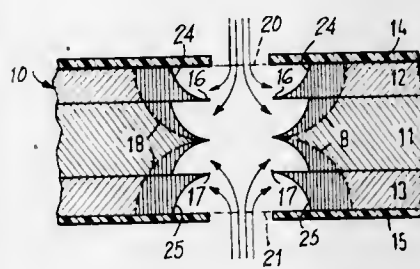
3,738,878
HIGH BURNING RATE SOLID PROPELLANT HAVING A SILICON-CARBORANYL COPOLYMER FUEL BINDER
Joseph Green, East Brunswick, N.J., assignor to Thiokol Chemical Corporation, Bristol, Pa.
No Drawing. Filed Nov. 2, 1967, Ser. No. 681,959
Int. Cl. C06b 11/00

U.S. Cl. 149—19 5 Claims
High burning rate solid propellants having fuel-binders based on carboranyl copolymers having the recurring structural units:



wherein R, R₁, R₂ and R₃ are selected from hydrogen, aliphatic, cycloaliphatic and aryl radicals and n is an integer including zero.

3,738,879
METHOD OF PRODUCING AN EXACT EDGE ON AN ETCHED ARTICLE
Ruprecht von Siemens, Munich, Germany, assignor to Siemens Aktiengesellschaft
Filed Mar. 10, 1971, Ser. No. 122,797
Claims priority, application Germany, Mar. 19, 1970, P 20 13 196.8
Int. Cl. C23f 1/02; H05k 1/00, 3/04
U.S. Cl. 156—11 7 Claims



An edge more exactly conforming to the outlines of an etching mask is produced by a method which includes providing a metallic foil whose resistance to etching decreases along the depth of its thickness from at least a

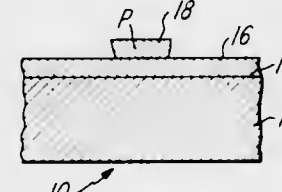
first surface, applying an etching mask to at least said first surface of the foil, and subjecting the masked surface to an etching agent. The differential resistance to etching avoids or minimizes undercutting of the edges of the thick foil. The foil may be acted on by the etching agent from one or more surfaces and in each case should decrease in resistance from the surface being acted on. The foil may comprise a series of discrete layers having predetermined thickness relationships with each other. To provide a continuous change of resistance to the etching agent which is inversely proportional to the distance from the unmasked surface, the discrete layers of material having different resistance values may be subjected to a high temperature diffusion treatment whereby their change in resistance follows a smooth curve.

3,738,880
METHOD OF MAKING A SEMICONDUCTOR DEVICE

Abraham Laker, Lebanon, N.J., assignor to RCA Corporation
Filed June 23, 1971, Ser. No. 155,899
Int. Cl. H01l 7/50, 7/44

U.S. Cl. 156—17

3 Claims



Portions of a polycrystalline silicon layer disposed on a silicon dioxide insulating layer on a semiconductor wafer are removed after diffusing boron into and through the regions to be retained. Good edge definition of the retained silicon and improved yields resulting from fewer oxide pinholes are achieved.

3,738,881
ANISOTROPIC ETCHING OF SILICON AND GERMANIUM

William Charles Erdman, Danielsville, and Paul Felix Schmidt, Allentown, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.
No Drawing. Filed Sept. 22, 1971, Ser. No. 182,891
Int. Cl. H01l 7/50

U.S. Cl. 156—17

6 Claims

Single crystal silicon and germanium having major faces parallel to the (100) plane may be etched anisotropically with an etchant comprising an oxidizing agent, an alcohol and an alkali metal hydroxide. It has been found in the case of silicon that the presence of the oxidizing agent is not required for etching but inhibits the formation of pyramids which terminate the etching process.

3,738,882
METHOD FOR POLISHING SEMICONDUCTOR GALLIUM ARSENIDE PLANAR SURFACES

Jagtar Singh Basl, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

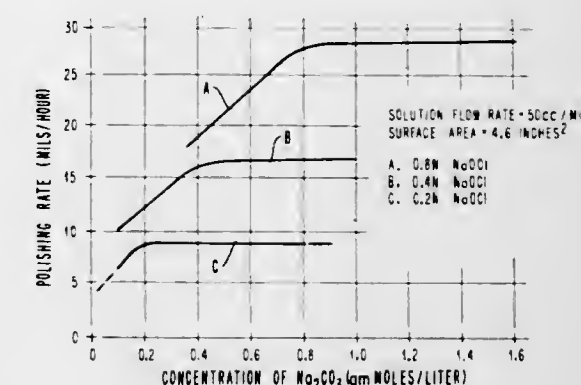
Filed Oct. 14, 1971, Ser. No. 189,114
Int. Cl. H01l 7/00

U.S. Cl. 156—17

6 Claims

An improved method for polishing gallium arsenide planar surfaces is disclosed comprising positioning gallium arsenide wafers or slices in close adjacency to a polishing medium providing a relative motion between said wafer and polishing medium while providing a controlled predetermined flow of alkali metal hypochlorite and alkali

carbonate solution to said wafers and polishing medium and continuing the relative motion until the wafer surface

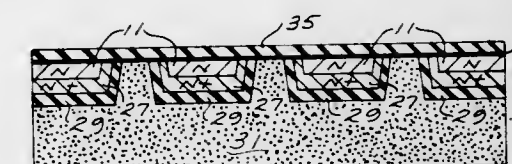


is polished to a smooth and featureless condition whereupon the wafers are washed and removed from the polishing mechanism.

3,738,883
DIELECTRIC ISOLATION PROCESSES
Kenneth E. Bean, Richardson, and Paul S. Gleim, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 19, 1968, Ser. No. 785,244
Int. Cl. H01l 7/50

U.S. Cl. 156—17

1 Claim



A process for fabricating dielectrically isolated circuit elements for integrated circuits. An etch-resistant layer of silicon nitride is formed over one surface of a monocrystalline semiconductor substrate and a layer of polycrystalline material is thereafter deposited over the silicon nitride layer. A substantial portion is removed from the other surface of the substrate to leave a relatively thin layer thereof. An etch-resistant mask is then formed on the thereby exposed surface of this remaining thin substrate layer and a pattern of isolation moats is etched through the exposed portions of the substrate layer thereby to form discrete islands each comprising substrate material while the silicon nitride layer is substantially unaffected by the etchant and functions as an etch stop. A dielectric layer is thereafter formed over the exposed surfaces of the islands, and a layer of polycrystalline material is deposited over the dielectric layer. The first polycrystalline material is then removed by etching which exposes the silicon nitride layer which again serves as an etch stop and the monocrystalline islands are dielectrically isolated from each other in a common body of polycrystalline material whereafter the circuit elements are formed in the monocrystalline islands.

3,738,884
METHOD FOR PRODUCING NON-WOVEN FIBROUS PRODUCTS

John W. Soehngen, Berkeley Heights, N.J., assignor to Celanese Corporation, New York, N.Y.
Original application Sept. 21, 1966, Ser. No. 580,994, now Patent No. 3,607,588. Divided and this application June 22, 1970, Ser. No. 59,823
Int. Cl. D04h 3/16

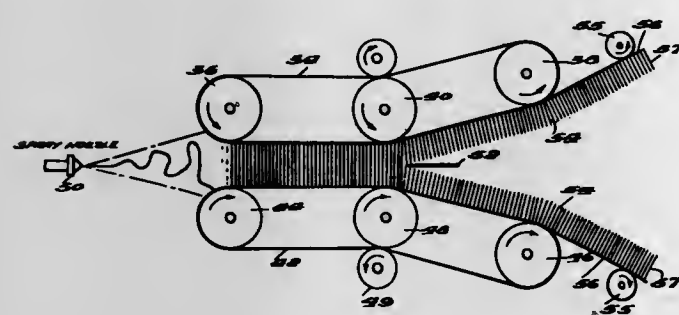
U.S. Cl. 156—167

11 Claims

A method of making non-woven fabrics comprising spray spinning a substantially continuous filament of

thermoplastic polymeric material and collecting this material by means of opposed spaced-apart moving collect-

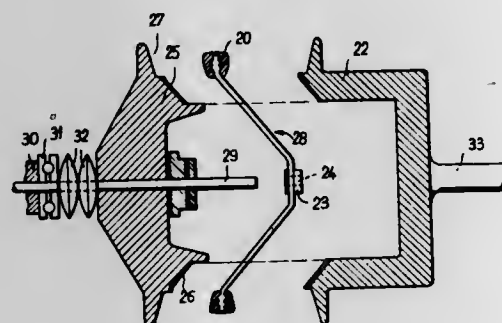
and the substrate and subjecting the system to pressure and radio frequency heating to heat the substance so that it melts the thermoplastic to effect a bond.



3,738,887
METHOD OF SEAMLESS CONNECTION OF LEATHER- AND/OR SYNTHETIC LEATHER-PARTS, OR THE LIKE, MATERIAL AND APPARATUS FOR PERFORMING THE METHOD
 Richard Hoffmann, Stetten, near Hechingen, Germany, assignor to Firma Bima Maschinenfabrik GmbH, Hechingen, Hohenzollern, Germany
 Filed Mar. 17, 1971, Ser. No. 125,060
 Claims priority, application Germany, Mar. 21, 1970, P 20 13 675.8
 Int. Cl. B29c 19/02; B30b 15/34
 U.S. Cl. 156—380 6 Claims

ing surfaces disposed in the path of the material issuing from the extrusion orifice.

3,738,885
METHODS OF MANUFACTURING STEERING WHEELS
 Alexandre Lecomte, Billancourt, France, assignor to Regie Nationale des Usines Renault, Billancourt (Hauts de Seine), and Automobiles Peugeot, Paris, France
 Filed May 13, 1970, Ser. No. 36,850
 Int. Cl. B65h 81/06
 U.S. Cl. 156—172 1 Claim



A method of manufacturing a steering wheel for a motor vehicle which comprises a rim connected through arms to an axial member, said rim being obtained either by winding a preliminary pattern or by direct winding of textile glass material selected from the group consisting of monofilaments, yarns or roving, embedded in a plastic resin adapted to set, by using a rotary circular mould formed with a peripheral recess adapted to wind said textile glass, said mould consisting of a pulley formed by a pair of registering and detachable flanges, said method being characterized in that there are provided at the outer ends of said arms a plurality of rim-anchoring projections, and that said arms are so disposed in said mould that their ends project therefrom inside said recess adapted to receive the textile glass winding, the winding operation proper being eventually performed whereby said projections are embedded therein.

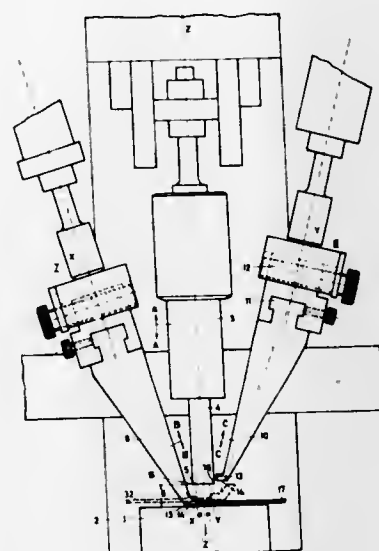
3,738,886
BONDING POROUS THERMOPLASTICS
 Robert John Southgate, Ipswich, England, assignor to Imperial Chemical Industries Limited, London, England
 No Drawing. Filed July 20, 1971, Ser. No. 164,417
 Int. Cl. B29c 19/04 12 Claims

Bonding a porous polyolefine web having a porosity to air of at least 0.5×10^{-3} mls./sq. cm. sec. cm. to a substrate by depositing a liquid substance having a conductivity of at least 1×10^{-4} mhos cm.⁻¹ between the foam

A method of and apparatus for seamless connection of leather- and/or synthetic leather-parts, or the like working material with one of its face parts provided with a glue material layer between the parts, which glue material layer can be activated and the two parts adhering together by a pressure effect which comprises the steps of lowering the face parts to be connected together in a width below an electrode with a glue material layer disposed therebetween, the width being less than the width of the bottom face of the electrode. The electrode is lowered onto the face parts with overlapping the bottom face of the electrode over the face parts, heating the superposed face parts for activating the glue material layer by the electrode sitting thereon, and the face parts are pressed together by the electrode for adhering together of the face parts.

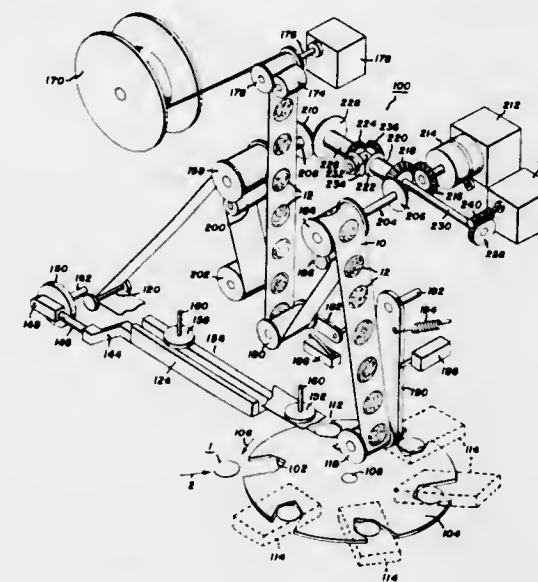
3,738,888
PROCESS FOR DISCRETE ELEMENT TRANSFER FROM A CONTINUOUS TAPE TO A DISCRETE SUBSTRATE
 Earl C. Williams, Syracuse, N.Y., assignor to General Electric Company
 Filed June 2, 1970, Ser. No. 42,682
 Int. Cl. B32b 31/10; C09j 5/02
 U.S. Cl. 156—238 7 Claims

A clamping unit compressively presses elements mounted on a continuous tape against an adhesive surface of a substrate at a bonding station and transports the substrate and tape together toward a stripping station. Synchronous feed and collection control rollers allow the tape to be held taut, yet free to move toward the stripping station. A drive arrangement for the synchronous rollers is provided to permit the desired tension to be

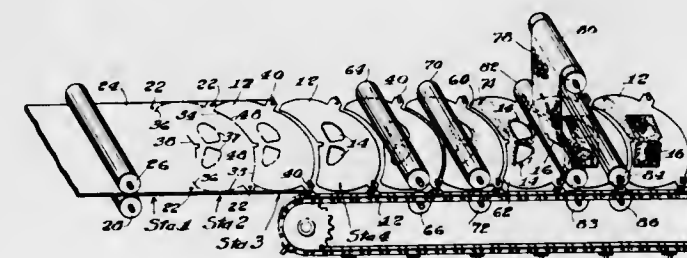


maintained on the tape and to permit spaced loci on the tape to be aligned with the discrete substrates. A feed

and a cover assembly hinged to the base. The cover assembly includes a platen which when brought into engagement with the base cooperates with the flexible wall



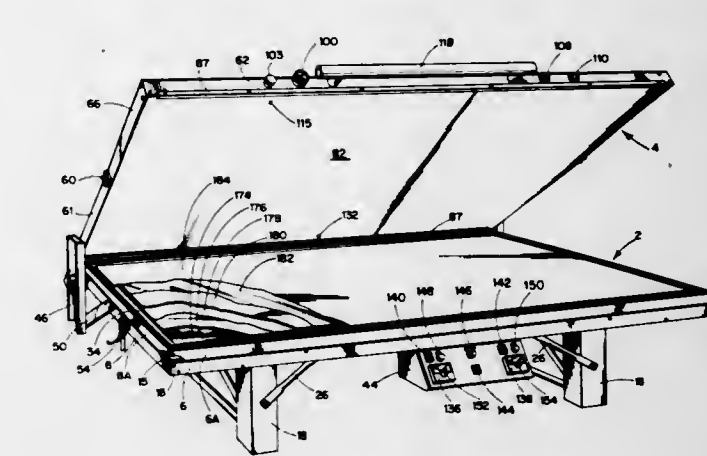
3,738,889
METHOD OF MAKING A DISPOSABLE FILTERING DEVICE
 James P. Whelan, North Marshfield, Mass., assignor to Ad-Tec Products, Inc., North Quincy, Mass.
 Original application Oct. 11, 1967, Ser. No. 674,624, now Patent No. 3,567,033, Divided and this application Mar. 1, 1971, Ser. No. 119,688
 Int. Cl. B32b 31/00; B01d 39/08
 U.S. Cl. 156—263 7 Claims



A disposable conical filtering device having gauze covered openings is characterized by structure providing a more rigid and efficient filtering device which is more convenient in use and which is particularly adapted for straining paint or the like. The novel method of producing the present filtering device is characterized by novel steps including die-cutting blanks from a strip of material and assembling the same in a rapid and economical manner with a minimum of waste material.

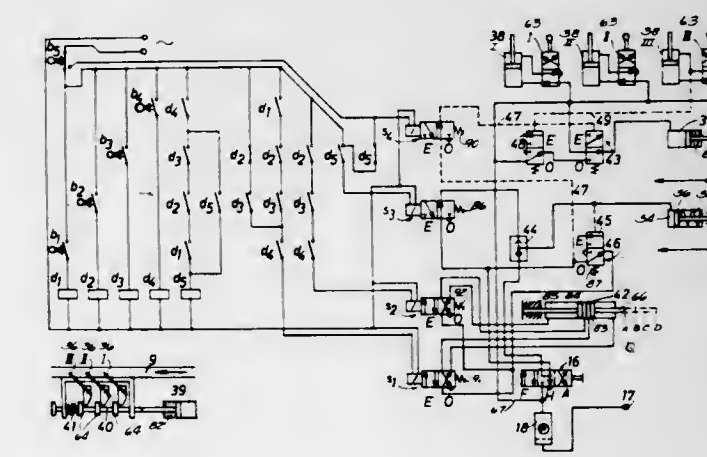
3,738,890
METHOD OF BONDING A LAMINATING FILM TO A GRAPHIC ART OBJECT
 Terence C. Johnson, Hamden, Conn., and Malcolm E. Reed, Reading, Mass., assignors to Seal, Inc., Derby, Conn.
 Filed Apr. 8, 1971, Ser. No. 132,359
 Int. Cl. B29c 17/00; C12h 1/00
 U.S. Cl. 156—286 9 Claims

A vacuum press adapted for laminating transparent protective film to photographs and the like and for dry-mounting the same to suitable substrates or backing materials. The press comprises a base characterized by a flexible air-impermeable wall which supports the work sheets



to form a reducible work-receiving chamber. Means are provided for heating the platen and indirectly the work and for evacuating the work-receiving chamber to cause the work to be laminated under heat and pressure.

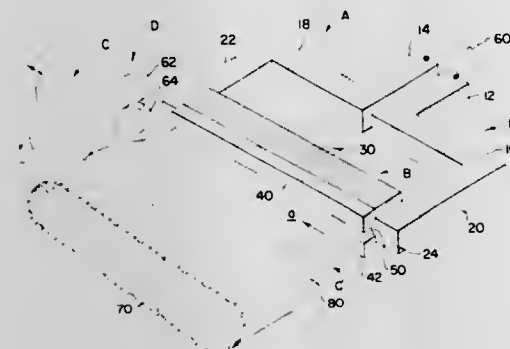
3,738,891
LABELING MACHINE WITH SPEED ADJUSTING MECHANISM
 Klaus-Dieter Püsching and Hans-Jürgen Patzwahl, Alteglofsheim, and Horst Kretschmer, Niedertraubling, Embach, Germany, assignors to Hermann Kronseder, Neutraubling, Germany
 Filed May 6, 1971, Ser. No. 140,828
 Claims priority, application Germany, July 22, 1970, P 20 36 440.3
 Int. Cl. B65b 57/04; B65c 7/00
 U.S. Cl. 156—363 12 Claims



A labeling machine and input conveyor with a variable speed drive and a control mechanism including a series of container sensors spaced physically along an accumulation table and input conveyor and subject to the degree of accumulation of containers on the table and conveyor to actuate said sensors in a sequence which will regulate the variable speed drive to supply the machine with containers at a speed appropriate for the degree of container accumulation. The input conveyor is provided with a container stop which will be actuated to block the admission of containers into the labeling machine when the nearest sensor is relieved of container pressure. Under this condition the variable speed drive continues to drive the machine at low speed, thus to finish processing containers already in the machine. The sensors are triggered only by a build-up or accumulation of containers sufficient to laterally dislocate the containers and exert lateral pressure on the sensor switch feeler.

3,738,892
INDUCTION HEATING APPARATUS FOR SEALING TUBE-LIKE CONTAINERS
 Edmund N. Curcio, South Orange, N.J., assignor to Park-Ohio Industries, Inc., Cleveland, Ohio
 Filed May 14, 1971, Ser. No. 143,466
 Int. Cl. B29c 19/02; H05b 5/00
 U.S. Cl. 156—380

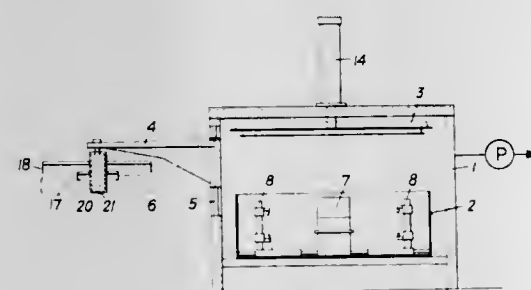
8 Claims



A method and apparatus for sealing by induction the ends of tube-like containers comprised of electrically non-conductive material wherein a thin layer of an electrically conductive material is disposed at least along one side of the area to be sealed which area is then inductively heated to effect adhesion between the contacting surfaces. The area so joined is then pressed together at least after being heated.

3,738,893
APPARATUS FOR POSITIONING A TREAD BAND ON A VEHICLE TIRE
 Bruno Edler, Roseggerstrasse 25, a-8600 Bruck a.d. Mur, Austria
 Filed July 7, 1970, Ser. No. 52,861
 Claims priority, application Austria, July 17, 1969, A 6875
 Int. Cl. B29h 5/04, 17/36
 U.S. Cl. 156—394

15 Claims

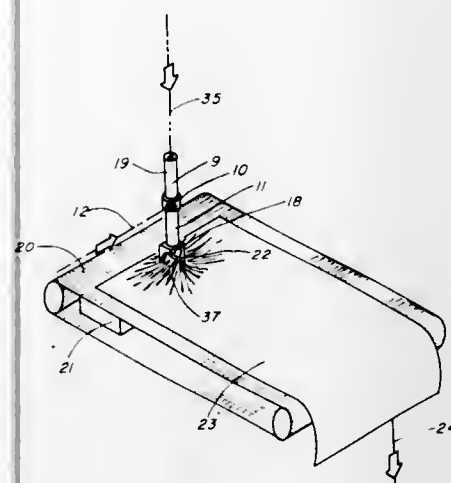


An apparatus for positioning a closed tread band on a vehicle tire whereby the closed tread band is disposed around and spaced from a tire and there the space between the tread band and the tire is evacuated. The tread band is thereafter brought into contact with the tire and affixed thereto.

3,738,894
FORAMINAL APPARATUS FOR SPLAYING AND DEPOSITING NONWOVEN FILAMENTARY STRUCTURES
 Walter Peter Lipscomb and Garland Linwood Turner, Chesterfield County, Va., assignors to Allied Chemical Corporation, New York, N.Y.
 Filed Sept. 28, 1971, Ser. No. 184,422
 Int. Cl. D04h 3/00

U.S. Cl. 156—441
 An apparatus for augmenting dispersal and improving deposition of a plurality of continuous filaments onto a

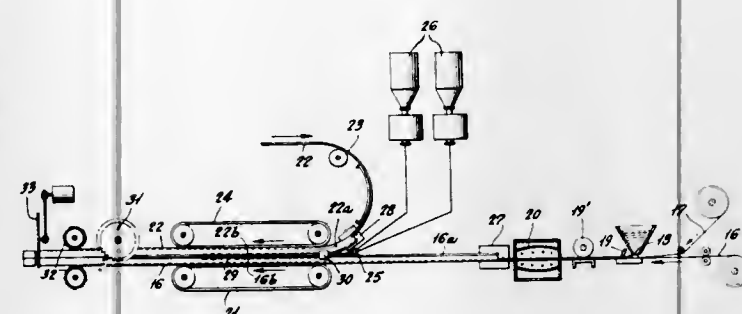
continuously moving surface whereby random distribution of the filaments is provided for the production of uniformly distributed nonwoven webs. Such apparatus comprises a foraminal splaying device having two opposing surfaces with holes extending through at least one of the two opposing surfaces. Compressed gas, e.g. air, is discharged through the holes in substantially parallel columns so as to interpenetrate a filament bundle passing



between the two opposing surfaces. The two opposing surfaces of the splaying device have continuous surfaces of curvature which surfaces exhibit a converging to diverging pattern as the opposing surfaces extend from the exit of the aspirator. The foraminal splaying device is positioned near the exit of an aspirator so as to spread the filaments in substantially all directions and thereby to provide greater openness and greater random laydown of filaments.

3,738,895
APPARATUS FOR MAKING LAMINATED STRUCTURAL PANELS OF CELLULAR FOAMED RESIN
 Jean Paymal, Clermont, France, assignor to Compagnie de Saint-Gobain, Neuilly-sur-Seine, France
 Original application Mar. 14, 1968, Ser. No. 713,153, now abandoned. Divided and this application Dec. 16, 1971, Ser. No. 209,001
 Claims priority, application France, Mar. 22, 1967, 99,785; Dec. 11, 1967, 131,728; Dec. 28, 1967, 134,050
 Int. Cl. B31f 1/00; B32b 5/18; B29d 27/00; B29g 7/02
 U.S. Cl. 156—443

29 Claims

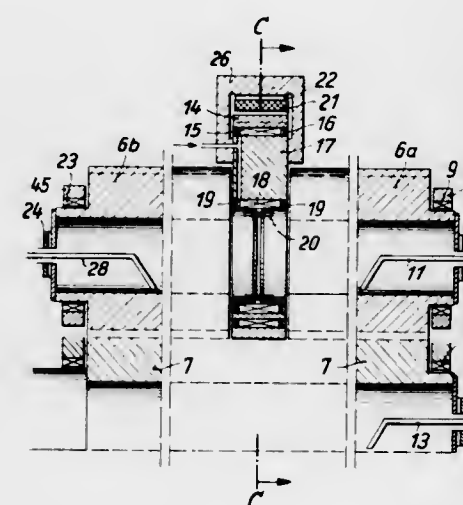


The production of laminated structural panels, particularly for buildings, composed of a cellular core of foamed resin with facing layers of a hardenable resin, with or without reinforcement, which are assembled in such ways

that the foaming of the core resin occurs simultaneously with the hardening of the resin of the facing layers so that the assembly is integrated effectively, giving rise to no faulty joints or deleterious stresses, and thereby imparting maximum strength characteristics to the panels.

3,738,896
ROLLING MILL FOR PASSING WEBS, ESPECIALLY CORRUGATED CARDBOARD WEBS
 Rolf Sonnichsen, Lindenstrasse 62, Wedel, Holstein, Germany
 Filed Jan. 20, 1971, Ser. No. 107,899
 Claims priority, application Germany, Jan. 31, 1970, P 20 04 483.1
 Int. Cl. B31f 1/20; B30b 3/04
 U.S. Cl. 156—462

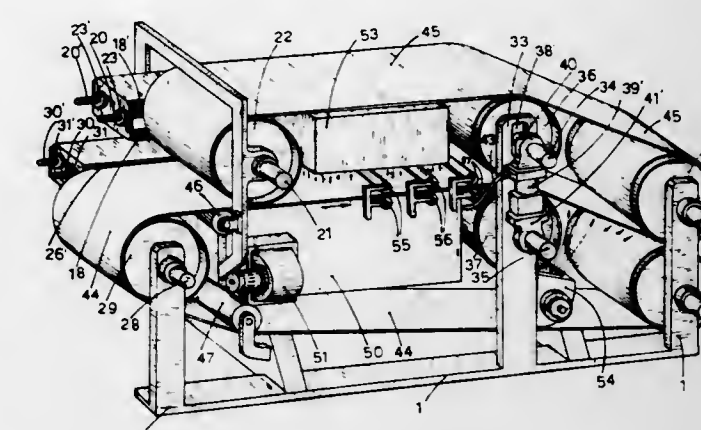
8 Claims



Apparatus for rolling web or strip wherein at least a pair of parallel rollers compress the web as it passes therebetween wherein at least one of the rollers is provided with auxiliary bearing structure located intermediate its ends. Such auxiliary bearing structure includes an eccentric element mounted within a recess defined in the roller, and the element is mounted upon the apparatus frame for adjustment in a radial direction. A rolling ring is then mounted upon the eccentric element and the roller ring is of an axial width substantially equal to that of the recess defined in the supported roller wherein the outer periphery of the roller ring coincides with the supported roller surface at the point of roller contact with the web being treated.

3,738,897
FABRICS COUPLING MACHINE
 Giacomo Bianchini, Viale Affori 19, Milan, Italy
 Filed May 18, 1971, Ser. No. 144,593
 Claims priority, application Italy, May 22, 1970, 24,968/70
 Int. Cl. B32b 31/04

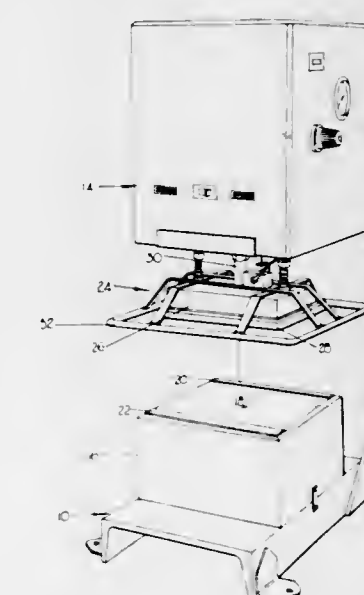
U.S. Cl. 156—498
 A machine for thermic coupling of fabrics in general and collars in particular with a reinforcing interlining, provided with a layer of adhesive means, characterized in that it includes: two belts conveyors, one upper and one lower belt conveyor, cooperating with each other, between which the fabrics to be coupled with each other are held in pressed condition and supplied to the various phases of treatment, a heating means consisting of an infra-red ray source and a warm air flow, two pressure rollers over which move the aforesaid belt conveyors, two driving rollers for the aforementioned belt conveyors, the speed of which may be varied, disposed in a lowered position



rollers and feeding in cool air to cool the obtained coupled fabric.

3,738,898
APPARATUS FOR BONDING MATERIALS WITH HEAT SETTABLE ADHESIVE
 Paul E. Lowe and Byron K. Pool, Cincinnati, Ohio, assignors to Natmar, Inc., Cincinnati, Ohio
 Filed Feb. 4, 1971, Ser. No. 112,604
 Int. Cl. B32b 31/00; B30b 15/34
 U.S. Cl. 156—498

9 Claims



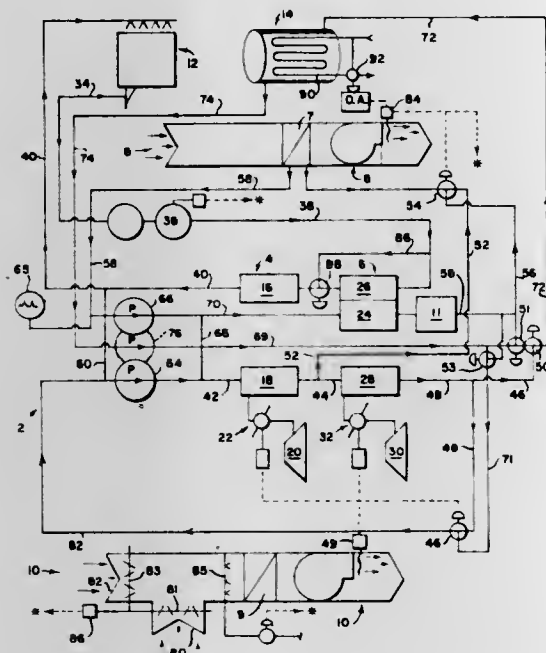
Machine having a platen and a pressure clamping head arranged to clamp the materials to be bonded against the platen under pressure, and means for successively heating and thereafter cooling the clamped materials so as to effect a complete bonding prior to release of the materials.

3,738,899
AIR CONDITIONING SYSTEM AND METHOD
 Edward Russell McFarlan, Westfield, N.J., assignor to A. I. McFarlan Company, Inc., Springfield, N.J.
 Filed Aug. 2, 1971, Ser. No. 168,013
 Int. Cl. F25b 13/60

U.S. Cl. 165—2
 An air conditioning system and method of the type wherein streams of hot water and chilled water are supplied from a central station to air treating units and the

15 Claims

water returns to the central station from each of the units through a common return line. A storage tank is connected to receive both chilled water and heated water depending upon the operating conditions, and provides a "flywheel effect," i.e., heat is removed from the tank during periods



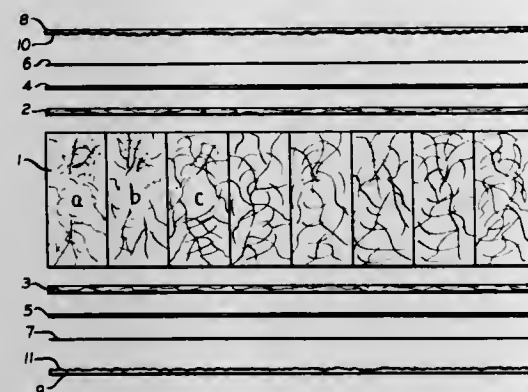
of dominant heating load conditions by passing chilled water to the tank where it is stored in anticipation of a need for increased cooling, and heat is delivered to the tank during periods of dominant cooling load conditions by passing heated water to the tank where it is stored in anticipation of a need for increased heating.

3,738,900 TEXTURED FILM FINISHED PANELS AND DOORS

William A. Matzke, Mahopac, N.Y., assignor to
Champion International Corporation, New York, N.Y.
Filed Aug. 18, 1971, Ser. No. 172,670
Int. Cl. B32b 1/04, 3/02

U.S. Cl. 161—41

6 Claims



This invention pertains to embossed decorative patterns and decorative laminates, particularly textured film finished panels and doors and the method of manufacture wherein a wadding sheet or pad sheet is interposed between the surface film and the substrate. High quality embossed products of great durability are economically manufactured by this technique.

3,738,901 CLUTCH DISK AND METHOD OF MAKING

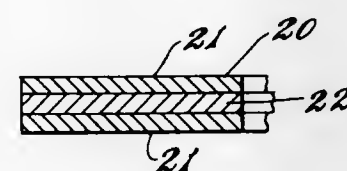
Hiromichi Matsushima, 123 Takabayashi-cho, and Tomoyuki Ito, 65-2 Nakazawa-cho, both of Hamamatsu-shi, Shizuoka-ken, Japan

Continuation-in-part of abandoned application Ser. No. 792,004, Jan. 17, 1969. This application Mar. 29, 1971, Ser. No. 128,709

Int. Cl. F16d 69/02, 69/04

U.S. Cl. 161—42

2 Claims



A clutch disk including a porous feltlike sheet of organic fibers, activated carbon made from coconut shells, and resol-type phenolic resin bonded to a core plate by comolding under heat and pressure, and a method of manufacture of the same.

3,738,902 KNIT FABRICS POSSESSING IMPROVED DURABLE-PRESS AND COMFORT PROPERTIES

John Dean Turner, Greensboro, N.C., assignor to
Burlington Industries, Inc., Greensboro, N.C.

No Drawing. Filed Apr. 1, 1971, Ser. No. 130,510

Int. Cl. B32b 7/00

U.S. Cl. 161—89

6 Claims

A durable press textile having improved shape retention, comfort and wear characteristics which comprises a knitted fabric having a face consisting of at least essentially of non-cellulosic yarn (which is free from durable press finish) and a back consisting of at least in part of cellulosic yarn, the back having a durable press reactant finish thereon. The product may be made by knitting a single, double or warp knit fabric, presensitizing the cellulosic back by application thereto of a durable press resin, pressing and curing.

3,738,903 HERMETIC SEALING OF APERTURED ARTICLES

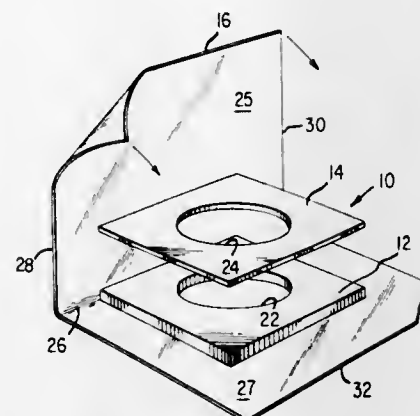
Charles Berwick, Yardley, Pa., and Colin Alexander Henry, Princeton Junction, N.J., assignors to Homasote Company, Trenton, N.J.

Filed May 24, 1971, Ser. No. 146,047

Int. Cl. B65b 53/02; B65d 65/38, 65/02

U.S. Cl. 161—113

5 Claims



An apertured article of manufacture, for example an end suspension panel for a reel on which a web of material may be wound, is hermetically sealed in a plastic

film envelope both along the periphery and along the edge of an aperture of the article. Opposite faces of the envelope, normally unconnected in the area of the aperture, are there brought together and heat-sealed.

The invention also embraces a method of hermetically sealing opposite, normally unconnected, faces of a plastic film envelope along the edge of an aperture of an enclosed article by clamping them together along the edge and thereafter heat-sealing them adjacent the clamping location.

Apparatus for effecting a hermetic seal of a plastic film envelope, along the edge of an aperture formed in a housed article, includes opposed annular clamping jaws that clamp face or cover portions of the envelope together within the aperture, after which a correspondingly shaped heating element enters the aperture, heat-seals the cover portions, and removes unwanted areas.

3,738,904 FILLED, BIAXIALLY ORIENTED, POLYMERIC FILM

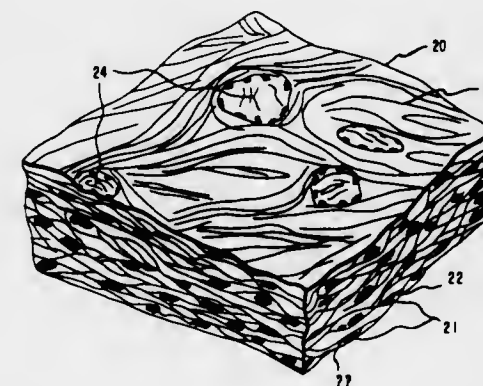
Richard Masayoshi Ikeda, Chadds Ford, Pa., and George Joseph Ostapchenko, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed June 28, 1971, Ser. No. 157,367

Int. Cl. B32b 3/00

U.S. Cl. 161—117

14 Claims



A thermoplastic film and a process for preparing the film which is characterized as a cellular polymer matrix with a filler dispersed therein, biaxially oriented by stretching in mutually perpendicular directions and having a void content of at least about 30 to 70%, an elongation at break at 22° C. of at least about 8% in either direction of stretch, a fibrous surface having about 2 to 40 surface ruptures per square millimeter, and an oxygen permeability of about 900 to 10,000,000 cc./100 sq. in./24 hrs./atmosphere/mil.

This film has many desirable and controllable properties such as density, opacity, porosity, strength and surface texture making it useful for various applications such as a bag for packaging groceries, a synthetic writing paper, an ultra filter, or a substrate for an ion exchange membrane.

3,738,905 PAPER TOWELING MATERIAL AND METHOD OF COMBINING INTO MULTI-PLY PRODUCTS

Gordon D. Thomas, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Apr. 29, 1970, Ser. No. 32,912

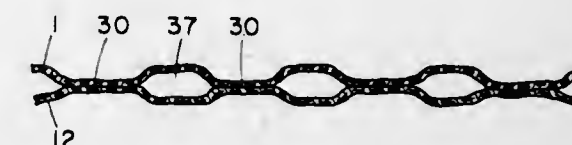
Int. Cl. B32b 1/00, 3/00, 3/28

U.S. Cl. 161—127

12 Claims

Multi-ply creped cellulose wadding material useful in sheet form as a paper tissue toweling and the like. The multi-ply wadding material structure includes lands and

recess areas embossed into outer webs of the sheet. In two-ply toweling material internal lands of one ply extend transversely to internal lands of the other and the two plies are secured together at spaced cross-over zones of the lands. The lands bridge recess areas and limit sheet



extension in the wet and dry state of the sheet. Additional wadding plies may be provided between the outer embossed plies. The outer webs are embossed prior to lamination in a steel nip, for example, and are united into a sheet structure in the steel nip.

3,738,906 PYROLYTIC GRAPHITE-SILICON CARBIDE MICROCOMPOSITES

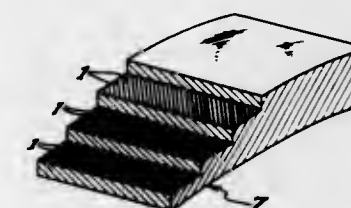
Eugene L. Olcott, Falls Church, Va., assignor to Atlantic Research Corporation, Alexandria, Va.

Filed Aug. 21, 1970, Ser. No. 65,899

Int. Cl. B32b 5/08

U.S. Cl. 161—168

8 Claims



A rigid pyrolytic graphite microcomposite material comprising a matrix of pyrolytic graphite containing embedded therein codeposited crystalline silicon carbide comprising aciculae oriented approximately perpendicular to the a-b plane of the crystallite layers of the pyrolytic graphite. The SiC comprises at least about 5 volume percent of the microcomposite material, preferably at least about 10 volume percent.

A method for making said microcomposite material comprising pyrolyzing a mixture of methyl trichlorosilane and a hydrocarbon gas at temperatures of about 2800°F to 4000°F, preferably about 3200°F to 3800°F and, thereby codepositing pyrolytic graphite and SiC.

A rigid composite pyrolytic graphite article comprising a matrix of the above microcomposite material containing embedded therein at least one reinforcing refractory filament or strand layer. The refractory filament or strand layer comprises a plurality of unidirectional and substantially parallel, laterally spaced, individual, continuous refractory filaments or strands. The microcomposite matrix is nucleated from each of the individual refractory filaments or strands and interconnected to form a continuous matrix phase surrounding and interconnecting the individual filaments or strands comprising the embedded filament or strand layer.

A method for making said rigid pyrolytic graphite article comprising winding a continuous, individual, refractory filament or strand around a shaped form and simultaneously pyrolyzing a mixture of methyl trichlorosilane and a hydrocarbon gas onto the filament or strand at about the point of winding contact to nucleate pyrolytic graphite and SiC from the filament or strand, winding additional turns of the filament or strand around the form, each additional turn being spaced from previously wound turns and, as each of the additional

turns is wound, simultaneously pyrolyzing the mixture of methyl trichlorosilane and hydrocarbon gas thereon at about the point of winding contact and on the codeposited pyrolytic graphite and SiC nucleated from previously wound turns.

3,738,907

THERMOPLASTIC LAMINATES BONDED TOGETHER BY BLOCK COPOLYMERS

Klaus Bronstert, Carlsberg, Alfred Hofmann, Bobenheim-Roxheim, and Gerhard Fahrback and Volker Ladenberger, Schwetzingen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Germany

No Drawing. Filed May 24, 1971, Ser. No. 146,448
Int. Cl. B32b 15/08, 27/32

U.S. Cl. 161—217

3 Claims

Laminates consisting of at least two thermoplastics bonded together by an adhesive. The adhesive is a block copolymer of the Formula A—B, in which A is a polyvinylaromatic block and B is a polyolefin block. The laminates may be used in the manufacture of domestic appliances, in the automobile industry or for packaging applications.

3,738,908

PREHYDROLYSIS AND DIGESTION OF BAGASSE FIBERS

Eduardo J. Villavicencio, Paramonga, Peru, assignor to Process Evaluation and Development Corporation, New York, N.Y.

No Drawing. Filed June 1, 1971, Ser. No. 149,000
Int. Cl. D21c 3/26

U.S. Cl. 162—80

6 Claims

Pulp, suitable for production of newsprint, is prepared from sugarcane bagasse by controlled prehydrolysis under acid conditions followed by digestion under alkaline conditions in the presence of an alkali metal silicate or alkali metal bisulfite or mixtures thereof, and thereafter adding to the pulp, prior to blowdown, sufficient amounts of alkali metal silicate as required.

3,738,909

MAGNESIUM HYDROXIDE-CONTAINING PAPER

John Maskal, Ivan M. Thompson, and Henrik R. Heikel, Ludington, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application Nov. 4, 1968, Ser. No. 773,350, now Patent No. 3,639,158. Divided and this application May 17, 1971, Ser. No. 144,248
Int. Cl. D21h 3/66

U.S. Cl. 162—181 A

1 Claim

Paper possessing outstanding opacity, whiteness and gloss characteristics containing a magnesium hydroxide pigment having about 1 to 5 weight percent calcium ion concentration in solid solution therewith and methods of manufacturing such paper are provided. The pigment is contained either as a paper filler or as a component of a coating pigment composition.

3,738,910

NOZZLE ADJUSTING ARRANGEMENT FOR A PAPERMAKING MACHINE HEADBOX

Donald B. De Noyer, Beloit, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Continuation-in-part of application Ser. No. 81,823, Oct. 19, 1970. This application Feb. 8, 1972, Ser. No. 224,572

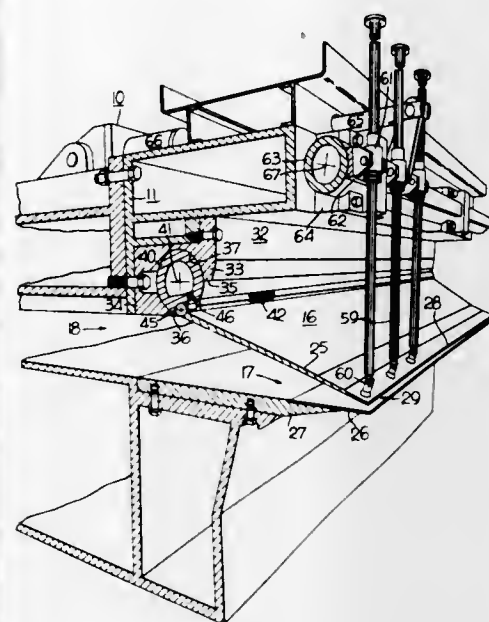
Int. Cl. D21f 1/02

U.S. Cl. 162—347

9 Claims

A headbox for a papermaking machine is disclosed with an arrangement for adjusting the upper lip of a tapered nozzle paper stock discharge passage. A cylindrical bearing is supported by headbox front wall structure for rotation about a horizontal axis central to the cylindrical

bearing. The upstream edge of the upper lip of the stock discharge nozzle is journaled in a socket defined in the outer periphery of the cylindrical bearing for supporting the upstream edge of the upper lip relative to the bearing.



A linkage is connected to the cylindrical bearing for rotating the cylindrical bearing about its central axis and moving the upper lip with the upstream and downstream edges thereof moving along respective paths each having a horizontal component.

3,738,911

PAPERMAKING MACHINE DEWATERING DEVICES HAVING DIVERGING TRAILING SURFACES WHICH INCLUDE WEAR-BEARING INSERT MATERIALS

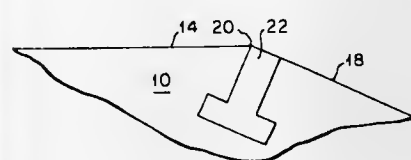
Arnold F. Kienzl, Heidenheim, Germany, and Benjamin Adelbert Thorp, Greeneville, Tenn., assignors to Huyck Corporation, Kensselaer, N.Y.

Filed Nov. 23, 1970, Ser. No. 91,992

Int. Cl. D21f 7/00

U.S. Cl. 162—374

8 Claims



This invention relates to dewatering devices for papermaking machinery and, more particularly, to hydrofoil blades which are characterized by having wear-bearing material forming the diverging trailing surface in the region of the crease line which forms its juncture between the trailing surface and the adjacent top surface.

3,738,912

FUEL ELEMENT FOR HIGH TEMPERATURE REACTOR

Lothar Rachor, Kleinauheim, and Karl-Gerhard Hackstein, Hanau am Main, Germany, assignors to Nukem Nuklear-Chemie und-Metallurgie, GmbH, Wolfgang, near Hanau am Main, Germany

Filed Sept. 10, 1969, Ser. No. 856,542

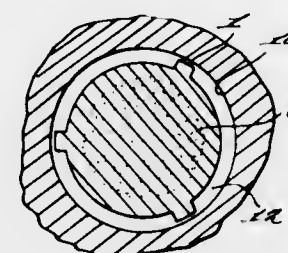
Int. Cl. G21c 3/18

U.S. Cl. 176—71

12 Claims

There is provided a fuel element for high temperature reactors comprising a fuel body and a structural graphite body surrounding the fuel body and spaced therefrom.

Flange means on either the fuel body or the graphite body is provided extending part way through the space to pro-



vide for possible relative changes in dimensions of the fuel body and the graphite body.

3,738,913

METHOD OF PREPARING POLYPEPTIDES

Vernon L. Johnsen, La Grange, and Raymond S. Burnett and Eugene V. Matern, Chicago, Ill., assignors to Wilson Pharmaceutical & Chemical Corporation

No Drawing. Continuation-in-part of application Ser. No. 548,374, May 9, 1966, which is a continuation-in-part of application Ser. No. 301,970, Aug. 14, 1963, now abandoned. This application Sept. 11, 1970, Ser. No. 71,355

Int. Cl. C12d 13/06

U.S. Cl. 195—29

7 Claims

The method of producing the polypeptides of this invention deals with protein hydrolysis wherein a collagen-containing material is subjected to heat in the presence of aqueous solution having sulfite ions present, to produce a hydrolyzed protein solution of reduced gel-forming character having a Formol Nitrogen Value of the order of 6 or less, subjecting the hydrolyzed protein solution to anion exchange treatment and thereafter further hydrolyzing the proteins using proteolytic enzymes to produce a polypeptide product having a Formol Nitrogen Value in the range of 8 to 17, which polypeptides are useful for treatment of hair due to unique sorption characteristics.

3,738,914

APPARATUS FOR PRESERVATION OF ORGANS

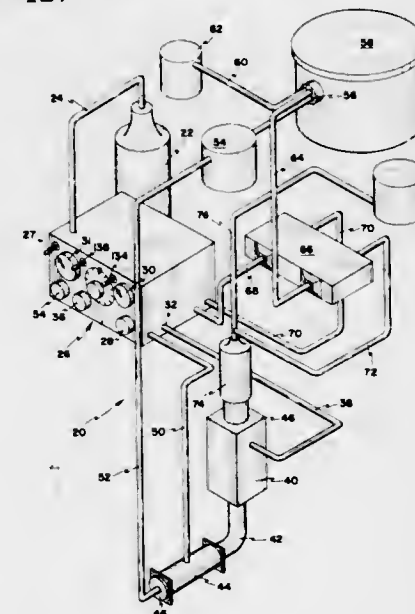
Gale H. Thorne, Bountiful; Orin Lew Wood, Salt Lake City, and Kay L. Knudson, Murray, all of Utah, assignors to Baxter Laboratories, Inc., Morton Grove, Ill.

Filed Oct. 6, 1969, Ser. No. 863,869

Int. Cl. C12k 9/00

U.S. Cl. 195—127

8 Claims



Apparatus and method of preserving life organs, the apparatus having an organ container in which the organ may be subjected to elevated pressure, a pump pulsately delivering

perfusate into the organ and an oxygenator to oxygenate the perfusate effluent from the organ. A constant pressure bias maintains a minimum pressure on the perfusate between pulses. A fluid flow control system delivers driving fluid in a pulsed manner to the pump at a selected rate and at selected pulse duration. The method includes delivering pulsed oxygenated perfusate to the organ and uniformly conducting perfusate away from the organ and providing a constant pressure bias on the perfusate. Loss or gain of liquid volume caused by waste secretion by the organ is compensated for.

3,738,915

METHOD OF SEPARATING VINYL ACETATE FROM LIQUID MIXTURES WITH FLURAL DISTILLATIONS AND SIDE STREAM PHASE SEPARATION

Lucio di Fiore, Milan, Claudio Divo, Saronno, and Marcello Ghirga, Bresso, Italy, assignors to Società Italiana Resine S.p.A., Milan, Italy

Filed June 18, 1971, Ser. No. 154,374

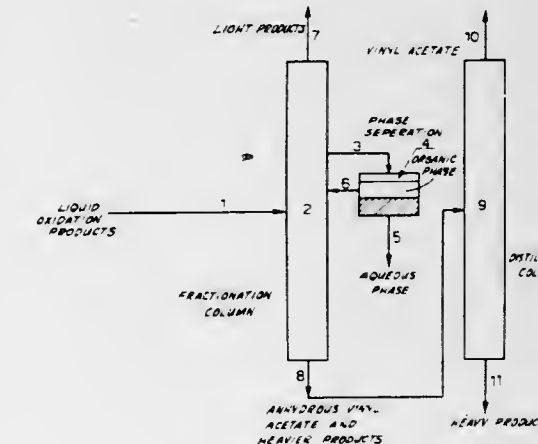
Claims priority, application Italy, July 1, 1970,

26,853/70

Int. Cl. C07c 67/06

U.S. Cl. 203—39

11 Claims



Vinyl acetate is separated from mixtures also containing methyl acetate and water, by feeding the mixtures to an intermediate position of a fractional distillation column, drawing off an aqueous phase above that position and separating it into an aqueous and an organic phase, returning the organic fraction to the column at a point between the mixture feed point and the point at which the aqueous phase is drawn off, and removing light products at the top of the column and vinyl acetate, with heavy products, at the bottom for subsequent fractionation.

3,738,916

PROCESS FOR THE PRODUCTION OF REGENERATIVELY COOLED ROCKET COMBUSTION CHAMBERS AND THRUST NOZZLE ASSEMBLIES

Karl Butter, Munich, and Kuno Knauer, Moosach, Germany, assignors to Messerschmitt-Bolkow-Blohm, GmbH, Munich, Germany

Filed Mar. 12, 1971, Ser. No. 123,535

Claims priority, application Germany, Mar. 28, 1970,

P 20 15 024.7

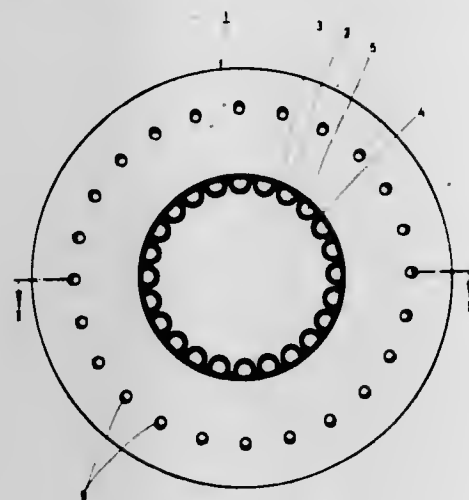
U.S. Cl. 204—9

9 Claims

A process for the production of rocket combustion chambers and thrust nozzle assemblies having lengthwise cooling channels. The process consists of the following steps:

- (1) Cutting the negative form of the cooling channels into the surface of a suitable core;

(2) Galvanically depositing a first layer on the core surface to provide the inner wall of the rocket combustion chamber and thrust nozzle assembly said inner wall also defining said cooling channels;

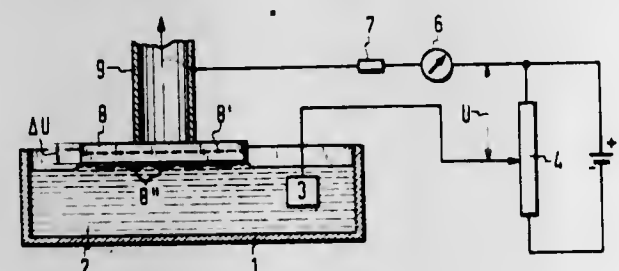


(3) Filling the cooling channels externally with an electrically conductive fill material; and
(4) Galvanically depositing a second layer on said first layer and the fill material to provide a smooth external wall for the rocket combustion chamber and thrust nozzle assemblies.

3,738,917
METHOD FOR SIMULTANEOUS PRODUCTION OF A PLURALITY OF EQUAL SEMICONDUCTOR COMPONENTS WITH A PN JUNCTION FROM A SINGLE SEMICONDUCTOR WAFER
Werner Spath, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Munich, and Erlangen, Germany

Filed Aug. 16, 1971, Ser. No. 171,957
Claims priority, application Germany, Aug. 18, 1970, P 20 41 035.9

Int. Cl. B01d 59/40; C23b 5/48
U.S. Cl. 204—15 5 Claims



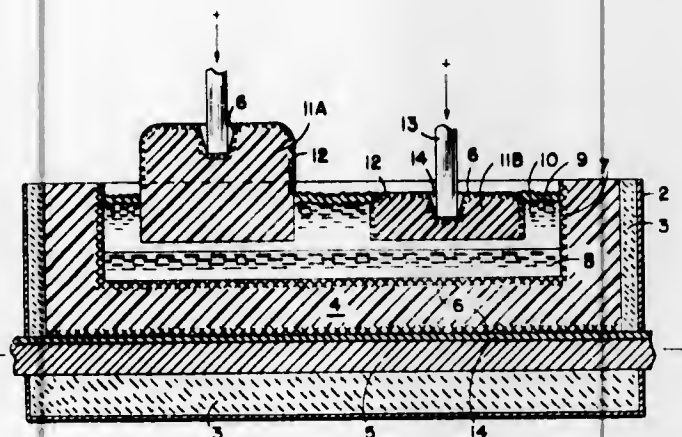
Following the production of a plurality of equal semiconductor components in one semiconductor wafer, the front part of the wafers that is bordered by all components, was subjected to electrolytical processing which influences the defective components, permanently, and differently than those which are in good order. After severing of the semiconductor wafer, the components are subsequently used or valued according to these permanent differences.

3,738,918
REDUCTION OF ALUMINUM WITH IMPROVED REDUCTION CELL AND ANODES

Arthur F. Johnson, 203 Creole Lane, North Gate Urban Farms, Franklin Lakes, N.J. 07417
Filed Aug. 16, 1971, Ser. No. 172,047

Int. Cl. B01k 3/04; C22d 3/02
U.S. Cl. 204—290 R 6 Claims
A system for the fused fluoride electrolysis of aluminum in a potcell wherein a carbonaceous anode and potlining

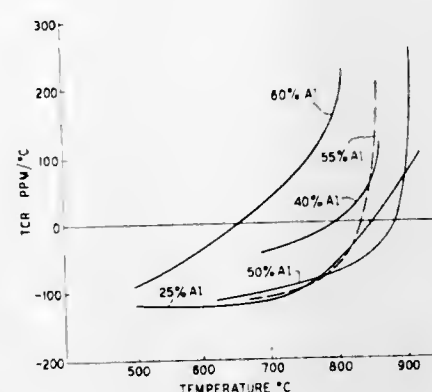
are preserved against deterioration by impregnating their respective surfaces with a pitch-fluoride mixture and a pitch-graphite mixture. Atmospheric oxidation of anode surfaces is prevented so maximum anode cross sectional area is preserved and, hence, has minimum resistance for current travel through the anode and through the underlying electrolyte. The more dense carbon surface also reduces corner erosion of anodes. Impregnation is preferably carried out with one or more applications of alu-



minum fluoride suspended in a high melting, low volatile coal tar pitch. An improved potlining protects against electrolyte penetration and circulating metal erosion of the potlining surface, and improves conductivity; the lining bottom is sealed and smoothed with graphite suspended in molten pitch, which is absorbed by capillary attraction, and which increases conductivity. The lining walls are sealed and smoothed with a similar mixture of fluorspar and pitch, which decreases conductivity.

3,738,919
TECHNIQUE FOR ADJUSTING TEMPERATURE COEFFICIENT OF RESISTANCE OF TANTALUM ALUMINUM ALLOY FILMS
John Michael Chilton, Coopersburg, and Donald Jaffe, Emmaus, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Continuation-in-part of abandoned application Ser. No. 214,205, Dec. 30, 1971. This application Apr. 13, 1972, Ser. No. 243,630

Int. Cl. C23c 15/00
U.S. Cl. 204—37 R 5 Claims



A technique for adjusting the temperature coefficient of resistance of sputtered tantalum aluminum alloy films to a value within the range of -100 to 300 p.p.m./°C. involves heat treating the sputtered film at temperatures

ranging from 650–950° C. in an ambient in which the maximum partial pressure of oxygen is 1×10^{-5} torr. The described technique permits the realization of temperature coefficients of resistance of approximately zero, thereby maximizing the device applications of such films.

3,738,920
PLATING TARNISH-INHIBITED BRIGHT SILVER ALLOY

Gaetano Thomas Viglione, R.F.D. 1,

Amesbury, Mass. 01913

No Drawing. Filed May 20, 1971, Ser. No. 145,514
Int. Cl. C23b 5/32, 5/44

U.S. Cl. 204—43 6 Claims
A plating bath, process and alloy comprising tin, silver and nickel for tarnish-inhibited bright silver applications. An alkaline cyanide water bath is employed. The alloy composition is 20 to 45% by weight of tin, 45 to 70% by weight of silver, balance nickel and impurities.

3,738,921
ANODIC OXIDATION OF ALUMINUM AND ALLOYS THEREOF TO FORM HARD ANODIZED COATINGS THEREON

Marguerite Elise Lestrade and Jean Herret, Tarbes, France, assignors to Etat Francais, Paris, France
No Drawing. Filed July 8, 1971, Ser. No. 160,921
Claims priority, application France, July 9, 1970, 7025414

Int. Cl. C23b 9/02

U.S. Cl. 204—58 3 Claims
Aluminum and alloys thereof are anodized with a hard coating by anodic oxidation at a temperature between 15 and 20° C. with a current density of 2.5 and 3.5 amperes/dm.² for a time between 1 and 2½ hours in an electrolyte having the following composition.

	G./liter
Al ₂ (SO ₄) ₃ ·18H ₂ O	200–400
(COOH) ₂ ·2H ₂ O	20–50
(CH ₂ OH—CHOH—CH ₂ OH)	7–20

3,738,922
ELECTROPOLISHING BATH SOLUTION
Emil Toledo, Natick, Mass., assignor to the United States of America as represented by the Secretary of the Navy
No Drawing. Filed Jan. 20, 1972, Ser. No. 219,512
Int. Cl. C23b 3/06

U.S. Cl. 204—129.9 4 Claims
A principally phosphoric acid electropolishing bath for copper beryllium wire is characterized by additions of small amounts of copper sulfate and ammonium sulfate (or of copper ammonium sulfate), and sodium molybdate, and a fluoboric additive.

3,738,923
POLY(ETHYLENE/CHLOROTRIFLUOROETHYLENE) AND POLY(ETHYLENE/TETRAFLUOROETHYLENE) HAVING IMPROVED HIGH TEMPERATURE PROPERTIES

Dana Peter Carlson, Wilmington, Del., and Norman Eugene West, Vienna, W. Va., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 4,395, Jan. 20, 1970, which is a continuation-in-part of application Ser. No. 777,172, Nov. 19, 1968. This application Mar. 1, 1971, Ser. No. 119,814
Int. Cl. B01j 1/10; C08f 27/00

U.S. Cl. 204—159.2 13 Claims
The subjecting of poly(ethylene/tetrafluoroethylene) and poly(ethylene/chlorotrifluoroethylene) to a moderate amount of ionizing radiation has the effect of improving the tensile properties, especially ultimate elongation, of the copolymers at elevated temperatures. The amount of radiation required to obtain this improvement is minimized by following the radiation treatment with heat treatment of the copolymer.

3,738,924
PROCESS FOR THE SOLVENT CASTING OF CELLULOSE FILMS USING RADIATION, AND PRODUCTS THEREOF

Billy R. Dotson, Spencerport, Edward D. Morrison, Rochester, and Robert F. Williams, Jr., Webster, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed July 6, 1971, Ser. No. 160,131
Int. Cl. B01j 1/10, 1/12

U.S. Cl. 204—159.12 15 Claims
Significantly increased processing rates can be obtained when cellulose ester dopes used in solvent casting processes for manufacturing cellulose ester film products (for photographic film base, for example) are modified with one or more compatible monomeric materials capable of undergoing free radical polymerization, and the resulting cast (modified) dopes are irradiated with high-energy radiation to polymerize the compatible monomer portion of the dope before the cast layer is stripped from the casting web. The resulting film products have properties equal to or better than conventional cellulose ester films in spite of the degradation of the cellulose ester material by the high-energy radiation that might have been expected.

3,738,925
CONCENTRATION PROCESS
Brian Alfred Cooke, Knotty Green, England, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Mar. 19, 1971, Ser. No. 126,317
Claims priority, application Great Britain, Mar. 26, 1970, 14,833/70

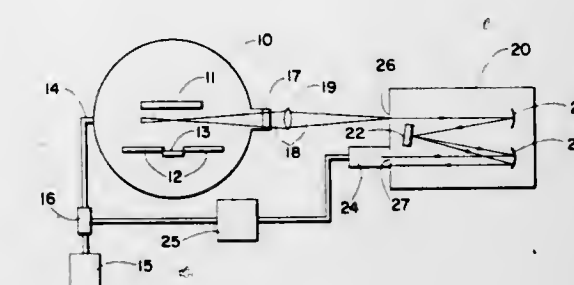
Int. Cl. B01k 5/00, 5/02; B01d 13/02

U.S. Cl. 204—180 P 28 Claims
Paint compositions, in which pigment, ionised binder and binder counter-ion are dispersed in a continuous medium, are concentrated under the influence of an electric field between barriers of material permeable to continuous medium and binder counter-ion but impermeable to pigment and ionised binder. Diluted aqueous paints, particularly when obtained by rinsing articles coated by electrodeposition, are treated to provide a more suitable effluent.

3,738,926
METHOD AND APPARATUS FOR CONTROLLING THE ELECTRICAL PROPERTIES OF SPUTTERED FILMS

William Dickson Westwood and Robert James Boynton, Ottawa, Ontario, Canada, assignors to Bell Canada, Montreal, Quebec, Canada
Filed Mar. 28, 1972, Ser. No. 238,817
Int. Cl. C23c 15/00

U.S. Cl. 204—192 10 Claims

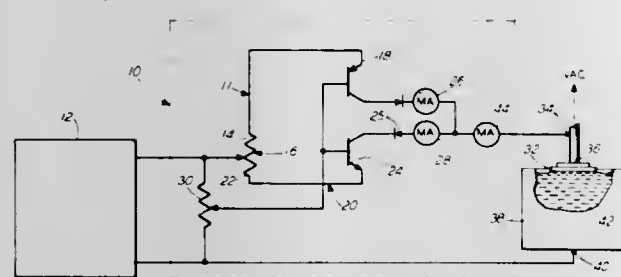


A method and apparatus for monitoring the sputtering of films by measuring the intensity of emission of two wavelengths in the light emitted by the plasma or glow discharge in the sputtering chamber. Two emission wavelengths are chosen which have a relationship which are indicative of sputtering conditions and are related to the

particular electrical property of the film to be controlled. For example, the emission for nitrogen and argon are used for the control of the resistance of a tantalum film, the supply of nitrogen controlled to maintain a predetermined relationship between the emissions for nitrogen and argon.

3,738,927 ASYMMETRICAL CONTROLLED CURRENT ELECTROPLATING

Richard C. Miller, Sinking Spring, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y.
Filed Apr. 23, 1971, Ser. No. 136,781
Int. Cl. B01k 3/00; G05f 5/00
U.S. Cl. 204—228 7 Claims



Gold is electroplated onto integrated circuits formed on a slice of silicon with asymmetrical alternating current. A unique current control unit provides consistency of the plating current even though the concentration of a plating solution may change during the plating operation.

The current control unit includes an NPN transistor and a PNP transistor with both outputs of the transistors connected in parallel to a terminal that contacts the silicon slice during plating thereof. A conventional source of symmetrical alternating current is connected to the emitter of the two transistors through a potentiometer. The potentiometer is adjusted to provide a desired ratio between the current carried through the NPN transistor and the current carried through the PNP transistor.

A separate means of biasing is provided so that the current through the transistors can be accurately controlled. The PNP transistor is biased to conduct a positive portion of the wave shape and the NPN transistor is biased to conduct a negative portion of the wave shape.

Thus, by establishing the desired ratio with the potentiometer, a controlled degree of asymmetry can be achieved. By controlling the level of biasing, a controlled magnitude of current can also be provided to the plating operation.

3,738,928

SPUTTER-COATING APPARATUS WITH END FEED

Hans Joachim Glaser, Gelsenkirchen, and Horst Beckmann, Bochum, both of Germany, assignors to Flachglas AG De-long-Dettag, Gelsenkirchen, Germany

Filed Mar. 31, 1972, Ser. No. 240,002
Claims priority, application Germany, Apr. 2, 1971, P 21 16 190.0

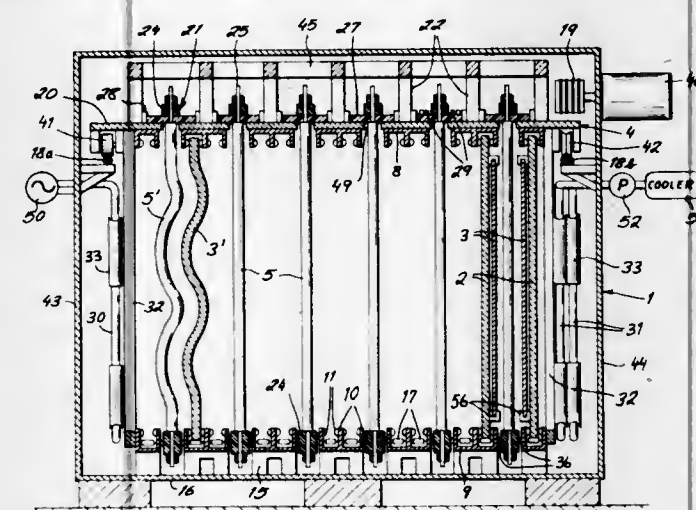
Int. Cl. C23c 15/00

U.S. Cl. 204—298

9 Claims

A sputter-coating apparatus comprises an elongated chamber provided at one end with a loading door and having internally a plurality of pairs of guide rails between which vertical platelike workpieces are stood. A carriage is horizontally displaceable above the workpieces and is provided with a plurality of suspended sputter-coating cathodes connected

together as a rack whose lower end is guided between the lower rails. All of the rails are formed as U-section channels to



receive the workpieces between their flanks, which are provided with adjustable spacers in order to maintain an exact positioning of the workpieces.

3,738,929

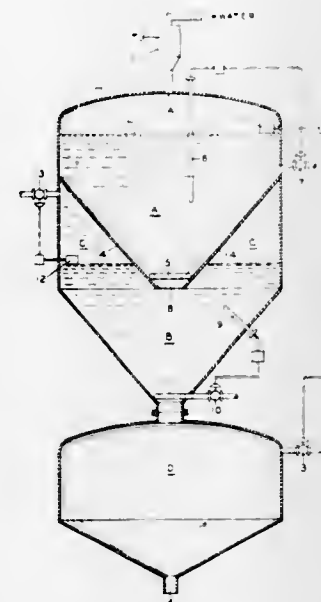
HYDROCARBON EXTRACTION

Ruel C. Terry and Robert E. Lane, Houston, Tex., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Mar. 26, 1971, Ser. No. 128,421
Int. Cl. C10g 1/04

U.S. Cl. 208—11

6 Claims



Continuous extraction of hydrocarbons from asphaltic or bituminous materials, such as "tar sands," within a pressurized vessel at elevated temperatures.

3,738,930

SECONDARY FROTH WASH

Victor Paul Kaminsky, Edmonton, Alberta, Canada, assignor to Canada-Cities Service, Ltd., Imperial Oil Limited, Atlantic Richfield Canada, Ltd., and Gulf Oil Canada Limited, fractional part interest to each

Filed Mar. 2, 1972, Ser. No. 231,349

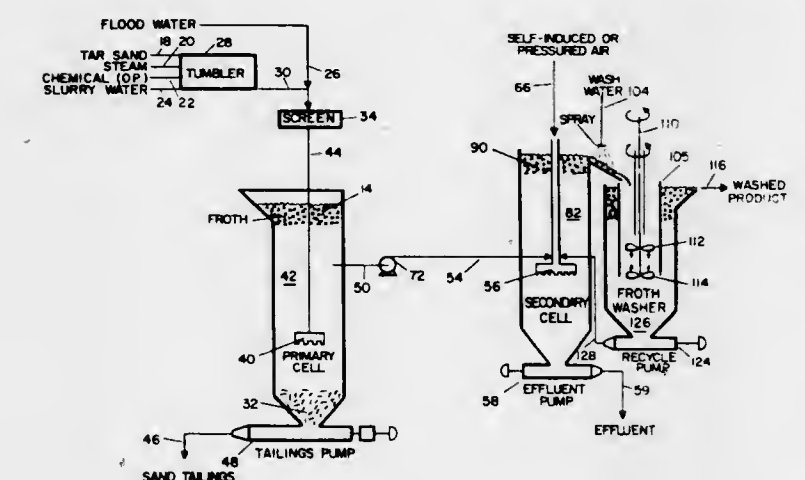
Int. Cl. C10g 1/04

U.S. Cl. 208—11

6 Claims

Disclosed herein is a process to reduce the amount of solids in a secondary froth to a level which is economical by subjecting the secondary froth to a water washing operation wherein the froth is deaerated, collapsed and subjected to intimate contacting with fresh

hot water. The contacting causes the bitumen contained within the froth to allow the release of the solids en-



trained within the bitumen, the water to separate from the bitumen, and the recovery of bitumen from the secondary froth.

3,738,931

METHOD FOR TREATING SYNTHETIC CRUDE OIL FOR POUR POINT REDUCTION

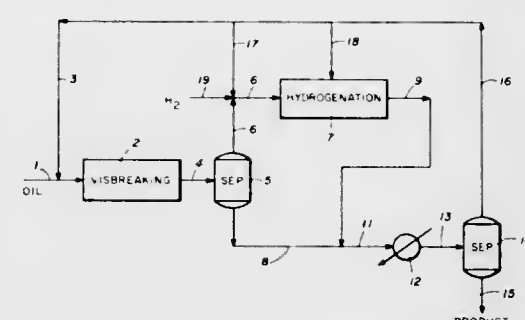
John H. Frankovich, Burbank, Ill., and Donald K. Wunderlich, Richardson, Tex., assignors to Atlantic Richfield Company, New York, N.Y.

Filed May 13, 1971, Ser. No. 143,098

Int. Cl. C10g 37/06

U.S. Cl. 208—67

3 Claims



A method is provided for treating synthetic crude oil to reduce its pour point and to stabilize the reduced pour point by visbreaking the crude oil in the presence of hydrogen so that from about 50 to about 200 s.c.f. of hydrogen is consumed per barrel of oil treated, separating vapors from the visbroken oil under conditions of temperature and pressure which are not substantially different from the conditions of the visbreaking operation, hydrogenating the vaporized portion of the visbroken oil, and combining at least part of the unvaporized oil with at least part of the hydrogenated vaporized visbroken oil to provide an oil product suitable for conventional storage, transportation, and the like.

3,738,932

METHOD FOR TREATING ACID WATER CONTAINING METALLIC VALUES

Paul D. Kostenbader, Bethlehem, Pa., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed Apr. 19, 1971, Ser. No. 135,292

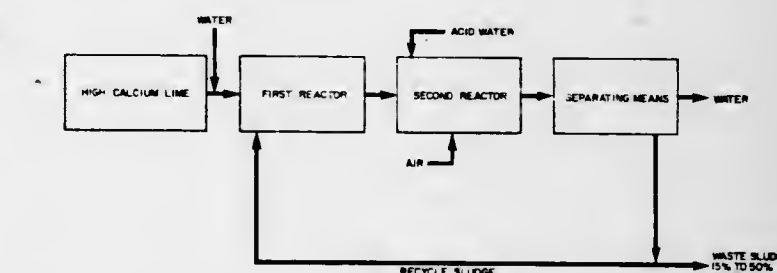
Int. Cl. C02c 5/04

U.S. Cl. 210—46

13 Claims

Method for treating acid water containing metallic values, for example AMD and diluted waste pickle liquor, in which the acid water is treated with an alkali-water slurry, for exam-

ple, high calcium lime, mixed with a portion of the sludge formed in the method. The alkali-water slurry and sludge are mixed in a first reactor for a time to obtain a uniform mix, prior to treating the acid water. The alkali-water slurry and sludge mix and the acid water flow to a second reactor. Air can be introduced into the second reactor. The acidity of the water is neutralized and a substantial portion if not all of the metallic values are oxidized and precipitated as solids. The



mixture in the second reactor flows to a separating means wherein the precipitated solids settle out and form a sludge. The sludge contains about 15 percent to about 50 percent solids. To achieve the results of the invention it is necessary to recycle a portion of the sludge formed in the method. About 20 pounds of solids in the sludge are required for each pound of solids precipitated from the acid water. The treated water can be recycled in the plant or can be discharged into environmental surface water without danger of polluting same.

3,738,933

PROCESS FOR THE REDUCTION OF THE BIO- CHEMICAL OXYGEN DEMAND OF SEWAGE, AND FOR THE RECOVERY OF THE INHERENT PROTEIN

Janos Hollo, Jeno Toth, and Istvan Zagyval, Budapest, Hungary, assignors to Tatabanyai Szenbanyak, Tatabanya, Hungary

No Drawing, Filed Dec. 3, 1970, Ser. No. 94,957
Claims priority, application Hungary, Dec. 15, 1969, TA-1,035

Int. Cl. C02c 5/02

U.S. Cl. 210—53

4 Claims

The biochemical oxygen demand of sewage of the type of meat, dairy and fermentation waste, is reduced by adding to the sewage at least 120 g./m.³ of a water soluble aluminum salt or bivalent or trivalent iron salt, 0.5 to 1 kfi./m.³ of bentonite or kaolin and 5 to 10 g./m.³ of polymers or copolymers of acrylic acid-acrylic amide in the form of an aqueous solution. The suspension is stirred and the pH adjusted to exceed 10 by addition of a basic calcium compound such as lime milk or calcium hydroxide. The precipitate thus obtained is separated by setting and transferred to a conical tank for treatment with carbon dioxide until the pH is no higher than 7, and the resulting precipitate is filtered and sterilized at a temperature above 130° C. under pressure, to produce a biochemical culture medium or animal feed.

3,738,934

OIL BASE DRILLING FLUID COMPOSITION AND PROCESS

William C. Browning and Billy G. Chesser, Houston, and Jerry L. Wood, Cypress, Tex., assignors to Milchem Incorporated, Houston, Tex.

Continuation-in-part of abandoned application Ser. No. 857,384, Sept. 12, 1969. This application June 17, 1971, Ser. No. 153,985

Int. Cl. C10m 1/28

U.S. Cl. 252—8.5 P

8 Claims

This invention relates to an oil base drilling fluid composition, additive, and filter cake which is effective at high temperatures and pressures and which is easily and economically formed by dispersing particles of an oil and water insoluble vinyl toluene-acrylate copolymer resin

which is obtained by reacting (a) vinyl toluene, with (b) an acrylate moiety, selected from the class consisting of methyl, ethyl, 2-ethyl-hexyl, butyl, dodecyl acrylates, and methacrylates, in a water-in-oil emulsion. In a preferred embodiment lignite, including mined lignite, oleophilic lignite or mixtures thereof, together with said copolymer resin has particular utility for high temperature drilling conditions.

3,738,935 HYDROGENATED OLEFIN SULFONATE-SOAP COMBINATION TOILET BARS CONTAINING ALKANOLAMINES

Gar Lok Woo, Tiburon, Calif., assignor to Chevron Research Company, San Francisco, Calif.
No Drawing. Filed May 27, 1971, Ser. No. 147,703
Int. Cl. C11d 9/30, 9/46, 17/00

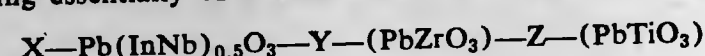
U.S. Cl. 252-117 5 Claims
The inclusion of a minor portion of trialkanolamines in combination with sodium hydrogenated olefin sulfonate detergent and soap bars which contain more than 5% by weight of inorganic salt prevents blotching of the bar surfaces.

3,738,936 FERROELECTRIC AND PIEZOELECTRIC COMPOSITION

Mitsuo Osada and Osamu Kumon, Osaka, and Tatsuya Nishimoto, Hyogo, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan
Continuation-in-part of application Ser. No. 712,192, Mar. 11, 1968. This application Mar. 4, 1971, Ser. No. 121,083
Claims priority, application Japan, Jan. 8, 1968, 43/1,030

The portion of the term of the patent subsequent to Dec. 28, 1988, has been disclaimed
Int. Cl. C04b 35/46, 35/48

U.S. Cl. 252-62.9 8 Claims
Ferroelectric and piezoelectric compositions consisting essentially of a solid solution of the ternary system



wherein from 0 to 25 atomic percent of the Pb^{+2} is replaced by an alkaline earth metal is disclosed. The constituents are defined by the formula

$$X+Y+Z=100$$

wherein X, Y and Z are in the following ranges, taken with reference to the figure ABCDEFGH in FIG. 1:

	X	Y	Z
A.....	75	0	25
B.....	60	10	30
C.....	10	60	30
D.....	5	55	40
E.....	5	45	50
F.....	15	30	55
G.....	25	10	55
H.....	55	0	45

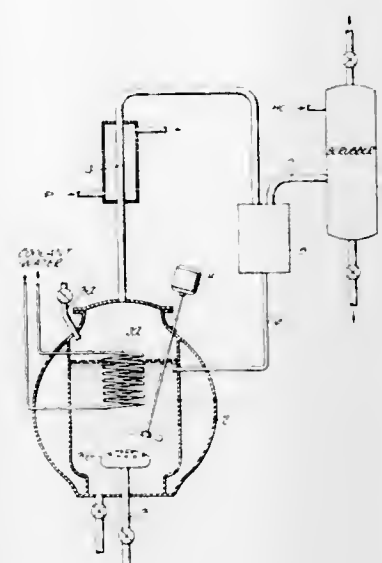
Also disclosed is a binary system consisting of from 55 to 75 mole percent $Pb(InNb)_{0.5}O_3$ and from 45 to 25 mole percent $PbTiO_3$ wherein from 0 to 25 atomic percent of the Pb^{+2} is replaced by an alkaline earth metal.

3,738,937 POLYALKYLENE POLYAMINO POLYKIS METHYLENE PHOSPHONIC ACIDS AND SALTS THEREOF AND METHODS FOR PRODUCING SAME

George J. Kautsky, Los Angeles, Calif., assignor to Textilana Corporation, Hawthorne, Calif.
Filed May 8, 1970, Ser. No. 35,844
Int. Cl. C02b 5/06

U.S. Cl. 252-180 23 Claims
This invention relates to polyalkylene polyamino polykis methylene phosphonic acids and their salts and to

methods of preparing the same substantially free of analogues thereof, in which amine radicals contain unsub-



stituted primary or secondary amine hydrogen, and to the process for using the same.

3,738,938 CARBONATE COMPOSITION AND PROCESS

Robert C. Barrett, Cartersville, Ga., assignor to Chemical Products Corporation, Cartersville, Ga.
Original application Feb. 29, 1968, Ser. No. 709,441, now Patent No. 3,615,811. Divided and this application Sept. 29, 1970, Ser. No. 76,416
Int. Cl. C09c 1/02, 3/02

U.S. Cl. 252-188.3 12 Claims
Mixtures of alkaline earth carbonates and metal oxides, together with dispersants and binder additives are dried to provide products particularly suitable for bulk handling, storage and shipment. The product can be prepared in such manner as to have excellent dry-flow characteristics, good pellicle strength and moderately high bulk density, while retaining the small particle size of the individual crystallites of which the dried pellicles are formed. The products may be particularly adapted for use in ceramic industries and/or may be adapted for use in aqueous suspensions, in which cases they are provided with ready dispersibility and high reactivity.

3,738,939 PROCESS FOR RECLAIMING PHOSPHORS FROM USED (SPENT) SLURRIES AND RELATED AREAS

David Single, Chicago, Ill., assignor to Motorola Inc., Franklin Park, Ill.
Continuation-in-part of abandoned application Ser. No. 786,927, Dec. 26, 1968. This application Jan. 26, 1971, Ser. No. 109,919
Int. Cl. B01j 9/14; C09k 1/12

U.S. Cl. 252-301.6 S 3 Claims
A spent (phosphor) slurry used in the manufacture of a color cathode ray tube is processed for reuse by a sequence of steps including the washing with water of a sludge containing the phosphor and water soluble and insoluble conglomerates, and mixing therewith a sulphonic acid derivative. The sulphonic acid derivative acts as a de-adherent to break up the conglomeration into products which are removed by washing, leaving the reclaimed phosphor.

3,738,940 METHOD OF OPERATING A BURNER FOR THE PARTIAL OXIDATION OF HYDROCARBONS TO SYNTHESIS GAS

Werner Auer, Heidelberg, Karl Buschmann, Neustadt, Heinz Hauser, Limburgerhof, and Walter Knobloch, Mannheim, Germany, assignors to Texaco Development Corporation, New York, N.Y.
No Drawing. Filed Jan. 26, 1970, Ser. No. 5,937
Int. Cl. C07c 1/02

U.S. Cl. 252-373 3 Claims
A mixture of hydrocarbon fuel and steam is introduced into the reaction zone of a synthesis gas generator by way of the annulus of an annular burner. Simultaneously, a mixture of oxygen and steam in the amount of about 0.5 to 5.5 weight percent steam (basis oxygen) is introduced into said reaction zone through the concentric inner conduit of the burner. Then, by partial oxidation of the hydrocarbon fuel in the reaction zone, synthesis gas, i.e. a mixture comprising carbon monoxide and hydrogen, is produced.

3,738,941 ORGANIC FLUIDS OF THE BORATE-GLYCOL TYPE

John Frederick Collins, East Grinstead, England, assignor to United States Borax & Chemical Corporation, Los Angeles, Calif.
No Drawing. Filed Mar. 3, 1971, Ser. No. 120,723
Claims priority, application Great Britain, Mar. 10, 1970, 11,340/70
Int. Cl. C23f 11/10, 11/18

U.S. Cl. 252-389 6 Claims
Condensation products produced by reaction of an alkali metal on alkaline earth metal borate with a glycol having at least seven carbon atoms or mixtures of such glycols with polyhydric alcohols having 3 to about 8 carbon atoms. Useful as corrosion-inhibiting additives for hydraulic or heat-exchanging fluids such as brake fluids.

3,738,942
LIQUID CRYSTAL MATERIAL
Shoichi Matsumoto, Yokohama, and Masahiro Kawamoto, Kamakura, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan
Filed Aug. 31, 1971, Ser. No. 176,472
Claims priority, application Japan, Sept. 9, 1970, 45/78,453
Int. Cl. G01n 31/00

U.S. Cl. 252-408 9 Claims
A mixed nematic liquid crystal material prepared by mixing p-[N-(p-methoxy benzylidene)amino]phenyl 2-ethyl hexanoate with one or more liquid crystal materials such as a fatty acid ester of p-[N-(p-alkoxy benzylidene)amino]phenol, alkyl p-(p-alkoxy phenoxy carbonyl)phenyl carbonate, or p-[N-(p-alkoxy benzylidene)amino]-n-alkyl benzene.

3,738,943 BIODEGRADABLE DETERGENT FOR AUTOMATIC CAR WASH SYSTEMS

Thomas M. Kaneko, Trenton, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.
No Drawing. Filed Dec. 18, 1970, Ser. No. 99,522
Int. Cl. C11d 1/22, 3/065, 3/48

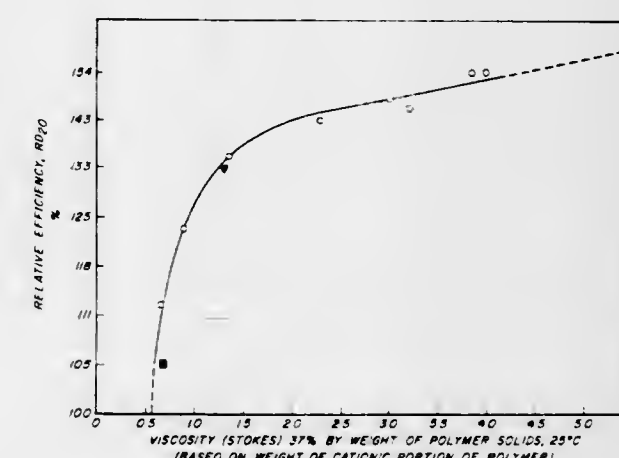
U.S. Cl. 252-540 10 Claims
Biodegradable detergent for automatic car wash systems, and in particular "tunnel-type" car wash systems, consists essentially of: (a) from about 5 to 12 parts by weight of a nonionic surfactant, (b) from about 2 to 7

parts by weight of an anionic surfactant which is the phosphate ester of nonionic (a), (c) from about 2 to 10 parts by weight of linear alkylbenzene sulfonate anionic surfactant, (d) from about 0 to 10 parts by weight of detergent builder, (e) from about 0 to 2.0 parts by weight of alkali, and (f) from about 91 to 59 parts by weight of water, based on 100 parts by weight of detergent. This detergent is efficaciously deployed in very dilute concentrations in aqueous solutions of up to 1 part of detergent per 400 parts of water.

3,738,944
COMPOSITIONS FOR INITIATING OLEFIN
POLYMERISATION AND THE USE THEREOF
John Paton Candlin, Frodsham, James Edward Maguire, Runcorn, and Ronald John Wyatt, Ashton, near Chester, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Mar. 1, 1971, Ser. No. 119,894
Claims priority, application Great Britain, Mar. 3, 1970, 10,142/70
Int. Cl. B01j 11/84

U.S. Cl. 252-431 R 6 Claims
A transition metal composition useful for polymerising olefins, which is formed by the reaction of (1) a material insoluble in organic solvent having surface hydroxyl groups free from adsorbed water; (2) a transition metal compound having at least one hydrocarbyl ligand, the transition metal being selected from those of Groups IV-A and V-A of the Periodic Table of Elements; and (3) a compound of a metal of Groups I to III of the said Periodic Table having at least one hydrocarbyl ligand. The composition is useful in the polymerisation and copolymerisation of olefinically unsaturated monomers, especially ethylene.

3,738,945
POLYQUATERNARY FLOCCULANTS
Hans Peter Panzer, 150 Old N. Stamford Road, Stamford, Conn. 06905, and Kenneth Wayne Dixon, 58 Newton Ave., Norwalk, Conn. 06851
Continuation-in-part of abandoned application Ser. No. 115,556, Feb. 16, 1971. This application Feb. 4, 1972, Ser. No. 223,622
Int. Cl. C02b 1/20; C08g 25/00, 30/16
U.S. Cl. 260-2 BP 20 Claims



Polyquaternary flocculants of average molecular weight, in excess of 10,000 are prepared by reacting a secondary amine with an epihalohydrin or diepoxide for use in flocculation of aqueous systems where ordinary cationic flocculants cannot be used.

3,738,946 CONVERSION OF SCRAP POLYURETHANE FOAM TO POLYOL

Floro F. Frulla, Wallingford, Alec Odinak, New Haven, and Adnan A. R. Sayigh, North Haven, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Filed Aug. 5, 1971, Ser. No. 169,468
Int. Cl. C08f 37/24; C08g 53/22

U.S. Cl. 260—2.3 8 Claims
A process is disclosed for converting scrap polyurethane into a polyol which is re-usable without the need for purification in the preparation of polyurethane foam. The process comprises heating the scrap at about 175° C. to about 250° C. (preferably at 185 to 225° C.) in the presence of a dihydroxy compound consisting of (i) from 100 percent to 90 percent by weight of an aliphatic diol having from 2 to 6 carbon atoms, inclusive, and having a boiling point above about 180° C. and (ii) from 0 percent to 10 percent by weight of a dialkanolamine having from 4 to 8 carbon atoms, inclusive. The process is particularly advantageous in the recovery of useful polyols from scrap rigid polyurethane foams derived from a polymethylene polyphenyl polyisocyanate and a polyol obtained by reaction of propylene oxide with a mixture of polymethylene polyphenyl polyamines produced by acid condensation of aniline and formaldehyde.

3,738,947 PROCESS FOR MAKING FLAME RETARDED POLYURETHANE FOAM

John Flshbela, Marlowe, Raymond W. H. Bell, Great Kings Hill, and Anthony J. Clarke, Chinnor, England, assignors to Dunlop Holdings Limited, London, England
No Drawing. Filed Jan. 19, 1970, Ser. No. 4,041
Claims priority, application Great Britain, Jan. 31, 1969, 5,455/69

Int. Cl. C08g 22/44 4 Claims
U.S. Cl. 260—2.5 AM
Flame-resistant polyurethane foams are obtained by incorporating in the foam-forming reaction mixture a halogen-substituted aromatic amine having not more than one benzene ring, for example 4-chloro-m-phenylene diamine or p-chloro-aniline. The invention is particularly applicable to flexible foams of low density in respect of which it is possible to obtain foams which are self-extinguishing when exposed to flame.

3,738,948 RUBBER COMPOSITIONS

Donald D. Dunnom, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed Dec. 21, 1970, Ser. No. 100,425
Int. Cl. C08d 9/10; C08g 37/10 23 Claims
U.S. Cl. 260—3
Fiber reinforced rubber compositions and particularly vehicular tires employing a vulcanization product comprising a finely-divided reinforcing siliceous filler, a methylene donor compound such as hexamethylene tetramine, a multifunctional phenol such as resorcinol and a compatible metal soap such as calcium stearate; and a novel process of preparation are provided.

3,738,949 PINHOLE RESISTANT NYLON FILM

Elliott A. Schonberg, East Orange, and Geza Pap, Irvington, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Continuation of application Ser. No. 47,123, June 17, 1970, which is a continuation-in-part of application Ser. No. 746,766, July 23, 1968, now abandoned. This application Feb. 18, 1972, Ser. No. 227,646
Int. Cl. C08g 51/56, 51/62 3 Claims
U.S. Cl. 260—18 N
A self-supporting, pinhole resistant polycapromide film comprising polyepsilon caprolactam resin having a

water content of 0.04 to 0.12% by weight, epsilon caprolactam monomer present in an amount of 4 to 6% by weight, and heat stabilizer comprising 40 to 50 p.p.m. cupric chloride and 0.20 to 0.30% by weight potassium iodide.

3,738,950 POLYAMIDES MODIFIED WITH ADIPIC ACID AND PROCESS FOR THEIR PREPARATION

Robert J. Sturwold and Hubert J. Sharkey, Cincinnati, Ohio, assignors to Emery Industries, Inc., Cincinnati, Ohio
No Drawing. Filed June 14, 1971, Ser. No. 153,097
Int. Cl. C08g 20/20 8 Claims
U.S. Cl. 260—18 N
This invention relates to useful polymeric fat acid polyamide compositions modified with adipic acid and a method for their preparation. The adipic acid-modified polyamide resins are derived from polymeric fat acids and piperazine or piperazine derivatives and have an excellent balance of physical properties, softening point and adhesive properties making them suitable for hot melt bonding of vinyl-based substrates.

3,738,951 NONSMEARING ERASER ELASTOMER COMPOSITIONS

Terence C. Middlebrook, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.
No Drawing. Filed July 24, 1970, Ser. No. 58,157
Int. Cl. C08d 9/14 6 Claims
U.S. Cl. 260—23.7 M
Eraser formulations which are nonsmearing and do not require cure are disclosed, these comprising a block polymer, a vulcanized vegetable oil, a naphthenic oil and, optionally, conventional fillers, dyes, abrasives and the like.

3,738,952 STABILIZED SHELLAC SEALING COATING FOR TABLETS

Charles A. Signorino, King of Prussia, Pa., assignor to Colorcon Incorporated, West Point, Pa.
No Drawing. Continuation of application Ser. No. 823,514, May 9, 1969. This application Dec. 6, 1971, Ser. No. 205,436
Int. Cl. A61k 9/00 6 Claims
U.S. Cl. 260—27 R
A stabilized shellac sealing coating for tablets and the like comprising shellac and polyvinylpyrrolidone, said shellac having free carboxyl groups, said polyvinylpyrrolidone having free basic groups, the ratio by weight of the shellac free carboxyl groups to the polyvinylpyrrolidone free basic groups being about 1 to 1. A method of making a stabilized shellac sealing film for coating tablets and the like comprising taking a desired quantity of shellac, titrating a specimen of the shellac to ascertain the number of moles of acid in the shellac, adding to the shellac a quantity of polyvinylpyrrolidone having the same number of moles of base, and mixing the shellac and polyvinylpyrrolidone together in a solvent.

3,738,953 SYNERGISTIC FIRE RETARDANT FOAMS

Carlos J. Anorga, Carson, Samuel Chess, Palos Verdes Estates, and Theodore B. Lefferdink, Carson, Calif., assignors to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Filed Dec. 6, 1971, Ser. No. 205,380
Int. Cl. C08g 22/44 12 Claims
U.S. Cl. 260—2.5 AJ
Flexible polyurethane foams are described which have outstanding flame retardant properties. The foams are the product of reaction, under foam producing conditions,

of a combination of (a) a mixture of toluene diisocyanate and polymethylene polyphenyl isocyanate; (b) a polyether polyol; (c) antimony oxide; (d) a polyhalogenated aromatic compound or a polybrominated diol; and (e) a highly chlorinated hydrocarbon polymer. The foams meet the very stringent tests for fire retardance required of seat cushioning, mattresses, and like materials in aircraft, institutions such as hospitals, convalescent homes and the like.

3,738,954 VINYL ESTER/ISOBUTENE COPOLYMER DISPERSION

Francis Paul Gltz, Sutton, England, assignor to BP Chemicals (U.K.) Limited, London, England
No Drawing. Continuation of application Ser. No. 695,850, Jan. 5, 1968. This application Jan. 18, 1971, Ser. No. 107,452
Int. Cl. C08f 45/24 6 Claims
U.S. Cl. 260—29.6 R
A process for the production of film forming aqueous dispersions of copolymers of vinyl esters of organic acids and isobutene having low residual monomer content, the process comprising copolymerising a vinyl ester of an organic acid (e.g. vinyl acetate) and isobutene in aqueous dispersion until 65 to 95 percent by weight of the total monomer charge is converted to polymer and then removing unpolymerised isobutene and continuing polymerisation of residual vinyl ester.

3,738,955 IMPERMEABLE BUILDING MATERIAL

Keith B. Bozer and Lloyd H. Brown, Crystal Lake, and Daniel S. P. Eftax, Barrington, Ill., assignors to The Quaker Oats Company, Chicago, Ill.
No Drawing. Filed Feb. 3, 1971, Ser. No. 112,486
Int. Cl. C08g 51/04 14 Claims
U.S. Cl. 260—39 R
A process for producing an impermeable bound aggregate building material composition comprising: (a) forming a monomeric binder mixture of specified amounts of monomeric furfuryl alcohol and a silane coupling agent of the general formula:



wherein R' is a short chain alkylene radical; R'' is aryl, alkyl, substituted aryl, or furfuryl; and X is amino, mercapto, epoxy, or glycidioxy; (b) forming a mixture of specified amounts of aggregate and acidic catalyst; (c) admixing specified amounts of the monomeric binder with specified amounts of the aggregate-acidic catalyst mixture; and (d) admixing specified amounts of clay with the bound aggregate.

3,738,956 POLYVINYL CHLORIDE COVERING FOR A PLANT ENCLOSURE CONTAINING SURFACE ACTIVE AGENTS TO MODIFY WATER-CONDENSATE DROPLET CONTACT ANGLE

Flaviano Glatti, Mestre, and Pierantonio Sanmartin, Padova, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy
Filed Apr. 8, 1970, Ser. No. 26,646
Claims priority, application Italy, Apr. 10, 1969, 15,342/69
Int. Cl. A01g 9/00; C08f 45/02, 45/66 1 Claim
U.S. Cl. 260—41 R
A method of controlling plant growth which involves enclosing the growth site in a structure having a trans-

lucent covering of synthetic-resin containing surface-active agents to reduce the contact angle of water droplets formed thereon from vapor condensation less than 75° and preferably lower than a critical L-value wherein L is the contact angle and

$$\sin L = \frac{n_2}{n_1}$$

n_2 and n_1 being the indices of air and water respectively.

3,738,957 COACERVATES OF POLYVINYL ALCOHOL AND COLLOIDAL SILICA

Ralph K. Iler, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Mar. 18, 1971, Ser. No. 125,719
Int. Cl. C08f 45/04 7 Claims
U.S. Cl. 260—41 A
Coacervates of polyvinyl alcohol and colloidal silica having the average particle diameter of 4-50 nanometers are formed in good yields within the pH range of 1.5-4.5 and with the silica/polyvinyl alcohol ratio such that a monomolecular layer of polyvinyl alcohol can be formed on the silica surface. The concentration of polyvinyl alcohol is such that there are 1-5 alcoholic hydroxyl groups per square nanometer of silica surface. Such coacervates are useful as insolubilizers and extenders for polyvinyl acetate emulsions, as a source of fine silica powders that can be used as adsorbents for vapors or as a source of colloidal silica dispersible in water-miscible organic solvents.

3,738,958 SYNERGISTIC FLAME RETARDING COMPOSITION FOR POLYPROPYLENE OF 1,2,3,4,5-PENTABROMO-6-CHLOROCYCLOHEXANE, TETRABROMOPHTHALIC ANHYDRIDE AND ANTIMONY TRIOXIDE

Henry N. Paul 3rd, Blue Bell, Pa., assignor to Thiokol Chemical Corporation, Bristol, Pa.
Continuation-in-part of abandoned application Ser. No. 126,815, Mar. 22, 1971. This application Feb. 10, 1972, Ser. No. 225,233
Int. Cl. C08f 45/59 11 Claims
U.S. Cl. 260—45.75 B
Self-extinguishing compositions are obtained from normally flammable polypropylene materials by the addition of a synergistic acting flame retarding composition containing from about 20 to 60% by weight 1,2,3,4,5-pentabromo-6-chlorocyclohexane, 30 to 70% by weight tetrabromophthalic anhydride and 1 to 30% by weight antimony trioxide based on the total weight of the flame retarding composition.

3,738,959 FLAME-RETARDED OLEFIN POLYMER COMPOSITIONS

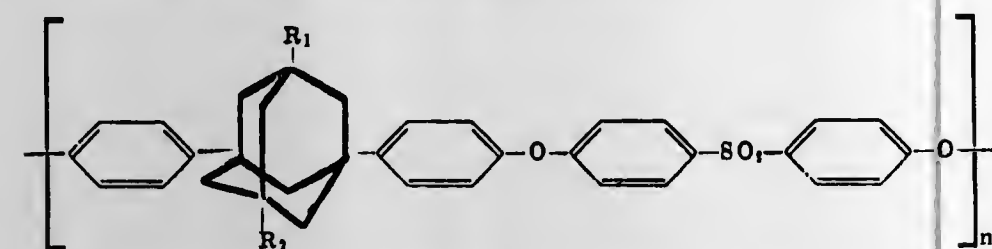
Christos Savides, Piscataway, and Peter Vincent Susi, Middlesex, N.J., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed May 22, 1972, Ser. No. 255,493
Int. Cl. C08f 45/60 10 Claims
U.S. Cl. 260—45.75
Flame-retarded compositions comprising an olefin polymer having incorporated therein (1) ethylenebis[tris(2-cyanoethyl)]phosphonium bromide, (2) ammonium poly-

phosphate, (3) titanium dioxide or silicon dioxide and (4) a compound having an —Si— linkage therein, are disclosed.

3,738,960 POLYSULFONE POLYMERS FROM ADAMANTANE BISPHENOLS

Robert M. Thompson, Wilmington, Del., and Irl N. Duling, West Chester, Pa., assignors to Sun Research and Development Co., Philadelphia, Pa.
No Drawing. Filed Dec. 30, 1971, Ser. No. 214,429
Int. Cl. C08g 23/00, 51/46

U.S. Cl. 260—49 7 Claims
Novel solid polysulfones having the structure:

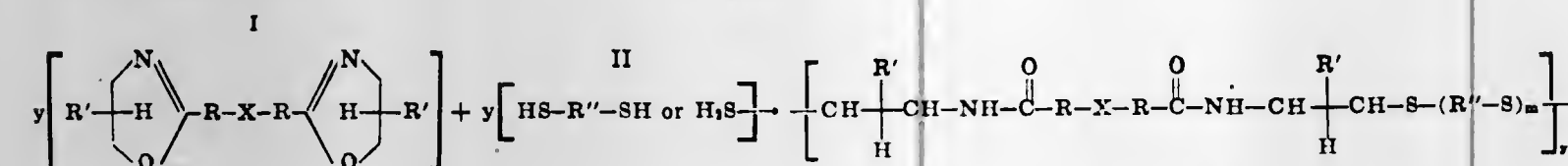


where R₁ and R₂ are hydrogen or hydrocarbyl radicals having 1 to 20 carbon atoms and n represents the number of such repeating units which are produced. These thermoplastic resins have exceptional oxidation stability, chemical inertness and high heat distortion temperatures and are useful in the manufacture of molded and extruded products.

3,738,961 COPOLYMERS OF BIS-OXAZOLINES AND DITHIOL COMPOUNDS AND PROCESS FOR THEIR PREPARATION

Donald A. Tomalia and Bruce P. Thill, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Original application June 16, 1969, Ser. No. 833,759. Divided and this application Dec. 9, 1970, Ser. No. 96,626
Int. Cl. C08g 20/00

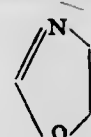
U.S. Cl. 260—47 CZ 9 Claims



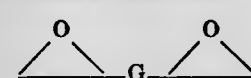
wherein

R=alkylene, arylene or arylalkylene
R'=hydrogen or lower alkyl
R''=alkylene, arylene, arylalkylene, cycloalkylene, or substituted cycloalkylene groups
X=O or S
m=0 or 1
y=molar quantity of monomers and degree of polymerization of polymers.

Also with excess of either I or II the polymer has



or —SH end groups which react with



to yield epoxy resin copolymers, when G is the moiety bridging between oxirane groups in a polyepoxide adapted to be cured to obtain an epoxy resin; and processes for making the above. The resins are adapted to be employed as adhesives, and as thermoplastic to thermoset polymers for production of plastic articles of manufacture.

3,738,962 CYANURATES OF CYANATOPHENYL-TERMINATED POLYARYLENE ETHERS

Basil L. Loudas, St. Paul, and Herward A. Vogel, Oakdale, Minn., assignors to Minnesota Mining & Manufacturing Company, St. Paul, Minn.
No Drawing. Original application July 1, 1968, Ser. No. 741,303. Divided and this application Mar. 8, 1971, Ser. No. 122,142
Int. Cl. C08g 23/00, 25/00

U.S. Cl. 260—47 R 10 Claims
Cyanatophenyl-terminated polyarylene ethers are thermally polymerized to produce polyarylene ether cyanurates having outstanding strength, toughness, and flexibility and useful in adhesives, coatings, and binders.

3,738,963 PROCESS FOR THE PRODUCTION OF POLYCARBONATES

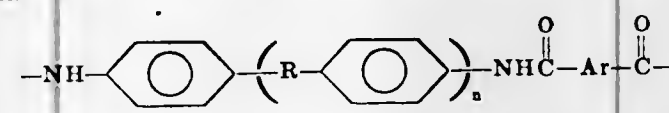
Helmut Praetorius, Lendersdorf, and Axel Vogts, Eschweiler, Germany, assignors to Akzo N.V., Arnhem, Netherlands
No Drawing. Filed Sept. 14, 1971, Ser. No. 180,508
Claims priority, application Germany, Sept. 15, 1970, P 20 45 443.7

U.S. Cl. 260—47 XA 17 Claims
A process for the production of polycarbonates wherein a di- or polyvalent alcohol which is at least partly esterified with trichloroacetic acid is heated in the presence of a basic compound at about 60° C. to 200° C., chloroform being split off and removed from the reaction. The resulting polycarbonates are especially useful, e.g. as foamed products.

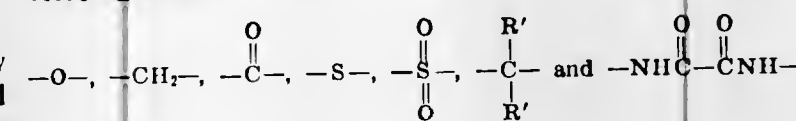
3,738,964 AROMATIC POLYAMIDES DERIVED FROM A MIXTURE OF AROMATIC DIAMINES CONTAINING 4,4-DIAMINO-OXANILIDE

Frank Dobinson, Gulf Breeze, and Frank M. Silver, Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed May 31, 1972, Ser. No. 258,108
Int. Cl. C08g 20/20

U.S. Cl. 260—47 CZ 6 Claims
A film- and fiber-forming aromatic polyamide comprising repeating units, wherein each unit is of the formula

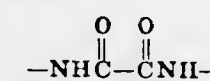


in which R represents a covalent bond or a divalent radical selected from



in which R' is a C₁ to C₄ alkyl group, Ar represents a para- or meta-phenylene radical and n is 0 or 1, and where-

in between 10 and 90 mole percent of said units are of said formula where R is

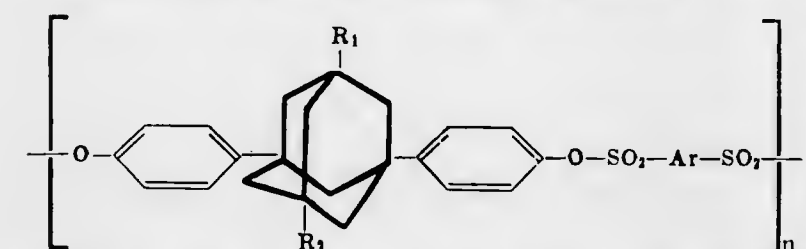


Fibers prepared from these polyamides are thermally stable, have a high modulus and are particularly useful as reinforcing elements for rubber and plastic articles.

3,738,965 POLYSULFONATE POLYMERS FROM ADAMANTANE BISPHENOLS

Robert M. Thompson, Wilmington, Del., and Irl N. Duling, West Chester, Pa., assignors to Sun Research and Development Co., Philadelphia, Pa.
No Drawing. Filed Dec. 30, 1971, Ser. No. 214,419
Int. Cl. C08g 25/00

U.S. Cl. 260—49 10 Claims
Novel solid polysulfonates having the structure:



where R₁ and R₂ are hydrogen or hydrocarbyl radical having 1 to 20 carbon atoms, Ar represents a divalent aromatic hydrocarbon radical and n represents the number of such repeating units which are produced. These thermoplastic resins are valuable in the manufacture of molded and extruded articles.

3,738,966 PROCESS FOR THE MANUFACTURE OF LINEAR HIGH POLYMERIC POLY-N-ALKYLHYDRAZIDES

Josef Studinka, Zurich, and Rudolf Gabler, Uitikon, Switzerland, assignors to Inventa A.G. für Forschung und Patentverwertung, Zurich, Switzerland
No Drawing. Filed Oct. 19, 1971, Ser. No. 190,677
Claims priority, application Switzerland, Oct. 29, 1970, 15,982/70

U.S. Cl. 260—65 10 Claims
A process for the manufacture of a linear high polymeric poly-N-alkylhydrazide wherein a hydrazine is condensed in chlorosulphonic acid at an elevated temperature with an aromatic dicarboxylic acid diester. The hydrazine optionally has a lower alkyl substitution at one of its hydrogen atoms.

3,738,967 POLYAMIDES FROM BIS-MALEIMIDES AND H₂S

James V. Crivello, Mechanicville, N.Y., assignor to General Electric Company, Schenectady, N.Y.
No Drawing. Filed July 16, 1971, Ser. No. 163,408
Int. Cl. C08g 20/20

U.S. Cl. 260—78 UA 12 Claims
Polyimide compositions are obtained by the reaction of a bis-imide and hydrogen sulfide. The resulting polymeric compositions have physical properties which make them suitable in coating, insulating, and molding applications.

3,738,968 COPOLYAMIDES OF 9,9-BIS(3-AMINOPROPYL)-FLUORENE

James S. Rldgway, Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Continuation-in-part of application Ser. No. 752,498, Aug. 14, 1968. This application Oct. 15, 1970, Ser. No. 81,116
Int. Cl. C08g 20/20

U.S. Cl. 260—78 R 3 Claims
High shrinkage polymers useful in production of hosiery and crimped conjugate yarns are provided by linear co-

polyamides of at least one aliphatic dicarboxylic acid such as adipic acid, at least one aliphatic diamine such as hexamethylene diamine and 9,9-bis(3'-aminopropyl)fluorene. Even greater shrinkage results when a portion of the aliphatic dicarboxylic acid is replaced with an aromatic dicarboxylic acid such as terephthalic acid.

3,738,969 POLYIMIDES

Fred F. Holub, Schenectady, and Denis R. Pauze, Scotia, N.Y., assignors to General Electric Company, Schenectady, N.Y.
No Drawing. Original application Apr. 25, 1969, Ser. No. 819,445. Divided and this application Apr. 30, 1971, Ser. No. 139,212
Int. Cl. C08g 20/20; C08f 31/04

U.S. Cl. 260—874 5 Claims
Improved products are obtained from the polymerization of mixtures of mono-imides and bis-imides. The compositions thus obtained have improved physical properties and heat resistance making them especially suitable in various coating, insulating and molding applications.

3,738,970 POLYVINYL CHLORENDATES

Dennis J. Cimino and John W. Mench, Rochester, and Leonidas H. Pancoast, Jr., Churchville, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed July 24, 1972, Ser. No. 274,536
Int. Cl. C08f 27/12

U.S. Cl. 260—78.4 D 5 Claims
Polyvinyl chlorendates of a wide range of combined chlorendyl and method of making polyvinyl chlorendates by reacting polyvinyl alcohol with up to about 125 percent of the stoichiometric amount of chlorendic anhydride.

3,738,971 INTERPOLYMERS OF ACRYLATES, UNSATURATED ACIDS AND HYDROXYLATED AMIDES AS PRESSURE-SENSITIVE ADHESIVES

Alfred M. Coffman, Avon Lake, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.
No Drawing. Filed Sept. 7, 1971, Ser. No. 178,462
Int. Cl. C08f 15/00

U.S. Cl. 260—80.73 6 Claims
Pressure-sensitive adhesives having an excellent balance of tack and strength are prepared by polymerizing together (1) a major amount of an alkyl acrylate wherein the alkyl group contains at least 6 carbon atoms, (2) a minor amount of an α,β-olefinically unsaturated carboxylic acid, and (3) a small amount of an α,β-olefinically unsaturated hydroxylated amide and (4) optionally an alkyl acrylate wherein the alkyl group contains 4 to 5 carbon atoms. The pressure-sensitive adhesives are particularly useful as transparent tape adhesives.

3,738,972 PROCESS FOR PRODUCTION OF STYRENE/ACRYLONITRILE COPOLYMERS

Klzyu Moriyama and Sakae Takahashi, Osaka, Japan, assignors to Daicel Ltd., Osaka, Japan
No Drawing. Filed Aug. 26, 1971, Ser. No. 175,378
Claims priority, application Japan, Aug. 28, 1970, 45/75,409

U.S. Cl. 260—85.5 R 2 Claims
Suspension polymerization of a styrene-acrylonitrile polymerization mixture is carried out while adding styrene to the polymerization mixture until the conversion of monomers to copolymer reaches 40 to 70%. An inert gas is passed through the polymerization system after the conversion has reached 75 to 85% to remove excess acrylonitrile, whereby there is obtained a styrene-acrylonitrile copolymer having a uniform homogenous composition.

3,738,973 FUROIC ACID ESTERS OF HYDROXY- CONTAINING POLYMERS

Sidney Augarten, Bronx, Kailash C. Pande, Farmingdale, and Stanley E. Kallenbach, Roslyn Heights, N.Y., assignors to Powers Chemco, Inc., Glen Cove, N.Y.
No Drawing. Filed Jan. 7, 1971, Ser. No. 104,804.
Int. Cl. C08f 15/02; C08g 17/14; G03c 5/00

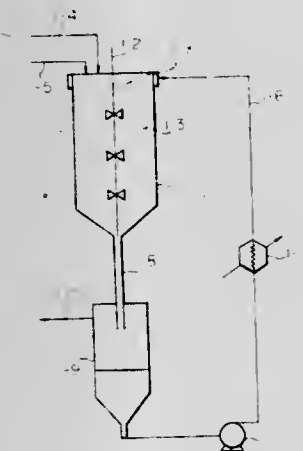
U.S. Cl. 260—88.1 P 5 Claims
Light-sensitive film forming polymers are disclosed which comprise recurring units of furoate-esterified polymeric alcohols selected from phenoxy resins, polyesters and styrene-allyl alcohol copolymers. The utilization of these photosensitive materials in photolithography and photomechanical processes is also described.

3,738,974 LIQUID PHASE PROCESS FOR THE POLYMERIZATION OF UNSATURATED MONOMERS

Masaaki Takehisa, Shiro Senrui, Hironori Kurihara, Yoshio Maruyama, Hiromasa Watanabe, Hayato Nakajima, Masamichi Toubi, and Takeo Simada, Takasaki, Takeshi Suwa, Sawa-gun, Yoshio Takasaka, Yokkaichi, and Hideyuki Hashiba, Itami, Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Japan

Filed Nov. 16, 1970, Ser. No. 89,846
Claims priority, application Japan, Nov. 20, 1969, 44/92,469

Int. Cl. C08f 1/16, 1/60, 1/98 11 Claims
U.S. Cl. 260—89.5 AW



In a process for polymerizing a monomer or monomers selected from an olefin and a vinyl monomer in the presence of an aqueous organic medium, adherence of the resulting polymer to the inside walls of the polymerization reactor is prevented by having a particular medium composition flow down in such a manner that said composition covers said inside walls. Said composition comprises a small amount of a monomer or monomers and a mixture consisting of substantially the same components as said aqueous organic medium. Said composition may typically be represented by a composition comprising a small amount of an olefin and/or a vinyl compound, water, and an organic medium such as a lower-alkanol, which is in physico-chemical equilibrium state with a reaction composition comprising an olefin and/or a vinyl compound, said organic medium and a small amount of water.

3,738,975 PROCESS FOR IMPROVING THE THERMAL STABILITY OF POLYVINYL ALCOHOL WITH A CYCLIC POLYCARBOXYLIC ACID

John E. Bristol, Niagara Falls, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Mar. 2, 1972, Ser. No. 231,364
Int. Cl. C08f 27/16

U.S. Cl. 260—91.3 PV 6 Claims
The thermal stability of polyvinyl alcohol containing an alkali metal acetate is improved by mixing a sufficient

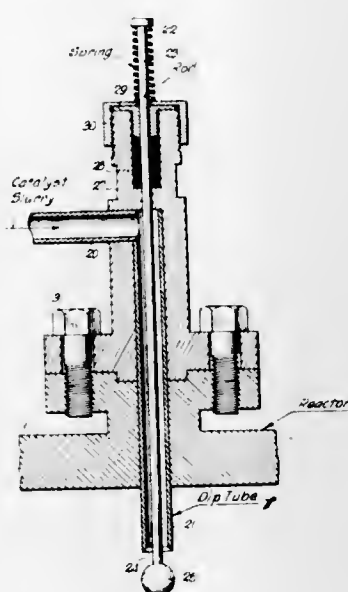
amount of a cyclic polycarboxylic acid selected from the group consisting of phthalic acid, terephthalic acid, isophthalic acid, and cis-4-cyclohexene dicarboxylic acid-1,2 with the polyvinyl alcohol to convert the alkali metal acetate contained with the polyvinyl alcohol to acetic acid and an alkali metal salt of the cyclic polycarboxylic acid such that when the composition is made up as a 10% solution in water, the solution has a pH of from about 3.0 to about 3.5.

3,738,976 OLEFIN CATALYST SLURRY FEEDING PROCESS AND APPARATUS

Leonard J. Heavin, Overland Park, Kans., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Jan. 18, 1971, Ser. No. 107,225
Int. Cl. C08f 1/56, 1/98

U.S. Cl. 260—93.7 3 Claims



In mono 1-olefin and diolefin processes an improved method and apparatus for introducing a catalyst slurry into the polymerization zone which comprises pressurizing a catalyst slurry through a transport zone into said polymerization zone, and thereafter passing said catalyst slurry over a convex surface positioned within said polymerization zone so as to disperse said catalyst slurry within said polymerization zone in the form of a spray.

3,738,977 POLYMERIZATION OF ETHYLENE WITH A SUPPORTED PALLADIUM CATALYST

John Biale, Placentia, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.
No Drawing. Continuation-in-part of application Ser. No. 760,724, Sept. 18, 1968. This application Apr. 22, 1971, Ser. No. 136,600

Int. Cl. C08f 1/66, 3/06 5 Claims
U.S. Cl. 260—94.9 DA
Hydrocarbon olefins are converted to higher boiling products comprising polymers and oligomers of the olefin and alkylates of the olefin with paraffinic hydrocarbons in the presence of a Group VIII noble metal distended on a synthetic zeolite, i.e., an aluminosilicate molecular sieve, that has been pretreated with hydrogen at conditions to impart selective polymerization or alkylation activity thereto. In a specific embodiment, ethylene is polymerized to low boiling oligomers comprising dimers, trimers, tetramers, etc. by contacting the ethylene under polymerization conditions with a palladium catalyst prepared by impregnation of a palladium salt or ion exchange of palladium from a palladium salt onto a Y molecular sieve that has been pretreated with hydrogen at a temperature from about 200° to 900° F. or is polymerized to solid polymer when the hydrogen treatment is performed at a

temperature from 0° to 100° F. The ethylene is also reacted under alkylation conditions with a paraffin hydrocarbon by contacting the olefin and paraffin under alkylation conditions with a palladium deposited on a Y molecular sieve that has been pretreated by contacting with hydrogen at a temperature of from 100° to about 200° F.

3,738,978 PROCESS FOR THE MANUFACTURE OF PEPTIDES

Georg Jager, Raunheim (Main), and Rolf Geiger, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Mar. 17, 1971, Ser. No. 125,419
Claims priority, application Germany, Apr. 8, 1970, P 20 16 703.7; Feb. 4, 1971, P 21 05 150.3
Int. Cl. C07c 103/52; C07g 7/00

U.S. Cl. 260—112.5 4 Claims
Method of making an N-isobornyloxycarbonyl derivative of an amino acid, imino acid, or peptide by reaction thereof with isobornyloxycarbonyl chloride or with an active isobornyloxycarbonyl ester.

Improved method of synthesizing a peptide by reaction of an N-isobornyloxycarbonyl-amino or -imino acid or peptide having a free carboxy group with an amino or imino acid or peptide having a free amino group.

Improved method of synthesizing a peptide by reaction of the free amino group of N^α-di-isobornyloxycarbonyl-arginine, or of a peptide containing N^α-di-isobornyloxycarbonyl-arginine with an amino or imino acid or peptide having a free carboxy group.

3,738,979 O²,2'-CYCLOCYTIDINE-3'-PHOSPHATE AND PROCESS FOR PRODUCING SAME

Joseph Nagyvary, Byran, Tex., assignor to the United States of America as represented by the Secretary, Department of Health, Education, and Welfare
No Drawing. Filed Oct. 23, 1969, Ser. No. 868,913
Int. Cl. C07d 51/52

U.S. Cl. 260—211.5 9 Claims
A novel process for preparing O²,2'-cyclocytidine-3' phosphate, a new compound, and aracytidine-3' phosphate, a known compound, is described.

3,738,980 ANTIBIOTICALLY ACTIVE COMPOUNDS

Hans Bickel, Binningen, and Wilhelm Kump, Therwil, Switzerland, assignors to Ciba-Geigy Corporation, Summit, N.J.

No Drawing. Filed Aug. 6, 1970, Ser. No. 61,820
Claims priority, application Switzerland, Aug. 11, 1969, 12,131/69; Dec. 8, 1969, 18,249/69
Int. Cl. C07d 41/06

U.S. Cl. 260—239.3 P 14 Claims
3-amino-derivatives of 25-O-desacetyl rifamycin S or 25-O-desacetyl-rifamycin SV, or of derivatives thereof at least partially hydrogenated in positions 16, 17, 18, 19; 28, 29, such as the 16, 17, 18, 19-tetrahydro or the 16, 17, 18, 19, 28, 29-hexahydro-derivatives with an aza-cycloaliphatic ring in 3-position exhibit in addition to a very good action against gram-positive microorganisms an antibacterial action against rifampicin-resistant Staphylococci and corresponding mutants of *Mycobacterium tuberculosis*.

3,738,981 TEXTILE TREATING COMPOSITIONS, PROCESS OF TREATING TEXTILES AND TEXTILE ARTICLES

Kenneth W. Graff, Hockessin, and Albert H. Sherman, Wilmington, Del., assignors to ICI America Inc., Wilmington, Del.

No Drawing. Filed Dec. 8, 1969, Ser. No. 883,347
Int. Cl. C08g 41/00, 43/00

U.S. Cl. 260—239.3 R 7 Claims
Disclosed are textile treating compositions comprising a novel class of carbamic acid esters containing at least one

thermally labile carbamic acid ester group and containing at least one thermally stable carbamic acid ester group derived from a polyoxyethylene ether. The textile treating compositions may be applied to textile materials to improve the physical characteristics thereof; for example, anti-soiling and/or soil release characteristics.

3,738,982 1,3-DIHYDRO-1 OXOPHOSPHINYALKYL-2H- 1,4-BENZODIAZEPINE-2-ONES

Erhard Wolf, Hofheim, Taunus, Hans Kohl, Schwalbach, Taunus, and Gunter Hartfelder, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed May 6, 1971, Ser. No. 140,977
Claims priority, application Germany, May 8, 1970, P 20 22 503.0; Sept. 23, 1970, P 20 46 848.8
Int. Cl. C07d 53/06

U.S. Cl. 260—239.3 D 9 Claims
Oxo-phosphinyl-benzodiazepines are disclosed which have tranquilizing properties and are suitable for enteral or parenteral administration.

3,738,983 PROCESS FOR THE PREPARATION OF 3-(3β,17β-DI- HYDROXYANDROST-5-EN-17α-YL) PROPIONIC ACID γ-LACTONE

Hugh L. Dryden, Jr., Deerfield, and Joseph Wleczorek, Chicago, Ill., assignors to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Aug. 6, 1971, Ser. No. 169,876
Int. Cl. C07c 173/00

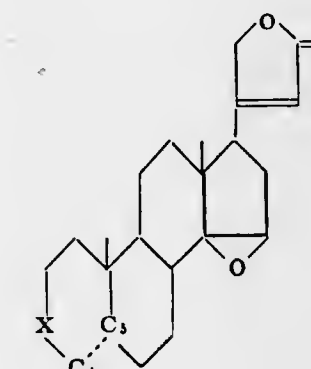
U.S. Cl. 260—239.57 11 Claims
A new process for the preparation of 3-(3β,17β-dihydroxyandrost-5-en-17α-yl)propionic acid N-lactone from dehydroisoandrosterone is described herein. The procedure makes use of a 1-(lower alkoxy)ethyl group as a protecting group for hydroxy functions in the steroid molecule. Use of such a protecting group is advantageous in that it not only improves the yields in the overall process but it also gives intermediates which are much more soluble in the solvents used so that a greater throughput of material is possible with a resultant increase in efficiency.

3,738,984 14,15-BETA-EPOXYCARDENOLIDES

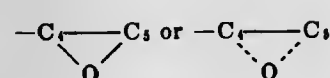
Hans-Gunter Lehmann and Georg Zollner, Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Germany

No Drawing. Continuation of abandoned application Ser. No. 873,086, Oct. 31, 1969. This application Nov. 26, 1971, Ser. No. 202,548
Claims priority, application Germany, Nov. 4, 1968, P 18 07 585.9
Int. Cl. C07c 173/02

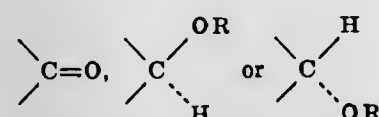
U.S. Cl. 260—239.57 3 Claims
14,15β-epoxycardenolides of the formula



wherein $C_4 \dots C_6$ is a saturated or unsaturated carbon-carbon bond or is



and wherein X is



and wherein R is hydrogen, acyl, alkyl, a tetrahydropyranyl residue or a substituted tetrahydropyranyl residue.

The compounds are made from the corresponding steroids which, however, have an unsaturated carbon-carbon bond in the 14,15-position, which bond is subjected to epoxidation. If there is a carbon-carbon double bond also in the 4,5-position, this bond may be reduced or likewise epoxidized. A keto group present in the molecule may be reduced to hydroxyl or a free 3-hydroxyl group may be acylated or acetalized or esterified or oxidized to a keto group. If the 3-hydroxyl group is esterified, acetalized or etherified, it may be converted to a free hydroxyl group.

The drugs are useful as heart drugs of a high degree of activity with comparatively low toxicity and in particular a desirably broad span between effective dose and toxic dose.

3,738,985

CERTAIN 3-(3-AMINO-2-BENZOYLOXYPROPYL)-4(3H)-QUINAZOLINONES

Rudi Beyerle, 15 Allensteinerstrasse, 6451 Bruchkobel, Germany; and Adolf Stachel, deceased; by Ingeburg Lydia Katharina Stachel, heiress-at-law, 52 Meerholzstrasse, 6; Rolf-Eberhard Nitz, 28 Steinauerstrasse, 6; and Josef Scholtholt, 18 Hunfelderstrasse, 6, all of Frankfurt am Main-Fechenheim, Germany

No Drawing. Filed Apr. 22, 1971, Ser. No. 136,560

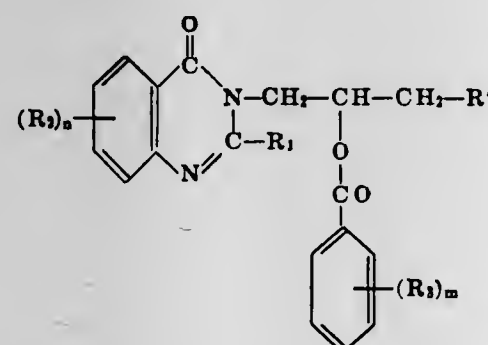
Claims priority, application Germany, Apr. 25, 1970, P 20 20 233.9

Int. Cl. C07d 51/48

U.S. Cl. 260—243 B

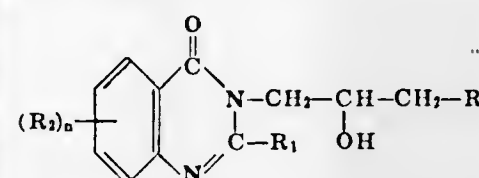
5 Claims

The present invention relates to pharmaceutically active basically substituted 4(3H)-quinazolinone derivatives possessing excellent coronary dilator properties and having the structural formula

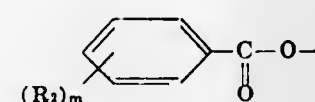


wherein R' stands for a radical selected from the group consisting of secondary aliphatic, cycloaliphatic or araliphatic amines having 2-10 carbon atoms and 5-, 6- or 7-membered heterocyclic nitrogen bases which contain in addition to the nitrogen atom a corresponding number of methylene groups, as well as optionally an additional nitrogen atom, an O or an S atom, said radical being bound, via a nitrogen atom; R_1 stands for hydrogen, an

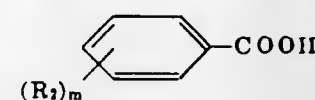
alkyl radical having from 1 to 4 carbon atoms, a pyridyl radical, a benzyl or phenyl radical, the two latter being optionally substituted by lower alkyl, lower alkoxy groups or halogen; R_2 represents hydrogen, nitro, amino, trifluoromethyl or lower alkoxy groups having from 1 to 4 carbon atoms; R_3 stands for alkoxy having from 1 to 4 carbon atoms; m means one of the integers 1, 2 or 3 and n means an integer from 1 to 4; and to the production of such derivatives by acylating, optionally in the presence of an acid-binding agent, 4(3H)-quinazolinones having the structural formula



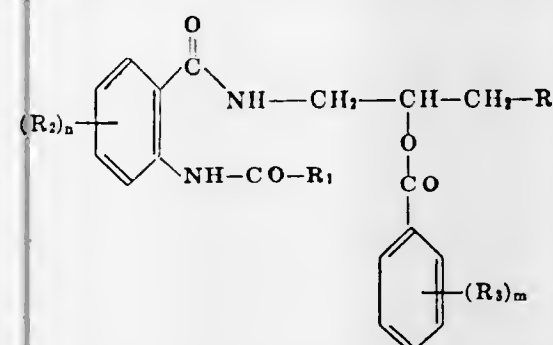
wherein R_1 , R_2 and n have the above-given meanings, R is identical with R' , or, in case R' contains an acyloxy radical of the structural formula



wherein R_2 and m have the above-given meanings, said R may also represent the radical of the underlying hydroxy compound, with an alkoxy benzoic acid of the formula



or a functional derivative thereof; or, the said derivatives may be produced by cyclizing, in the presence of dehydrating agents, 2-acylaminobenzamides having the structural formula



wherein the various radicals have the above-given meanings.

3,738,986

N-(1-ALKENYL)-PIPERAZINES

Stanley Robert Sandler, Springfield, and Maria Louisa Delgado, Philadelphia, Pa., assignors to Borden Inc., New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 759,766, Sept. 13, 1968. This application May 14, 1971, Ser. No. 143,658

Int. Cl. C07d 51/70

U.S. Cl. 260—268 R

3 Claims

This invention relates to novel mono-substituted derivatives of piperazine in which one hydrogen of piperazine is substituted by a 1-alkenyl radical containing from 3 to 10 carbon atoms, and to a method for making said derivatives in good yield by reacting piperazine with the corresponding C_3 to C_{10} aldehydes at between -30° C. and $+40^\circ$ C. in a medium in which the aldehyde is soluble.

3,738,987

FUNGICIDAL 3-AMINO-4-DIHALO PYRAZOLONES

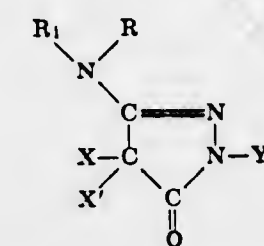
Andre Allais, Les Lillas, and Pierre Girault, Paris, France, assignors to Roussel UCLAF, Paris, France
No Drawing. Original application Jan. 2, 1969, Ser. No. 788,629, now Patent No. 3,632,818. Divided and this application Feb. 19, 1971, Ser. No. 117,113

Int. Cl. A01n 9/22

U.S. Cl. 424—273

10 Claims

3-amino-4,4-dihalo-5-pyrazolones of the formula



(I)

wherein X and X' are selected from the group consisting of chlorine and bromine, Y is selected from the group consisting of alkyl, cycloalkyl and aryl which may be substituted and R and R_1 are selected from the group consisting of hydrogen, alkyl, aryl, cycloalkyl and aralkyl which possess fungicidal activity.

3,738,988

PROCESS FOR OXIDATION OF DIHYDRO-QUINACRIDONES TO QUINACRIDONES

Julius Jackson, Westfield, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Oct. 8, 1970, Ser. No. 79,254

Int. Cl. C07d 39/00

U.S. Cl. 260—279 R

6 Claims

Quinacridones are prepared by oxidation of a corresponding 6,13 dihydroquinacridone in aqueous slurry using less than the stoichiometric amount of an anthraquinone sulfonic acid as oxidizing agent. The oxidizing agent is regenerated in situ by bubbling an oxygen-containing gas through the slurry. Divalent iron, cobalt or nickel ions in the slurry increase the effectiveness of the oxidation. Selective oxidation is possible to either completely β -crystal phase product or to completely γ -crystal phase product as desired without formation of any quinacridonequinone.

3,738,989

L-3-HYDROXY-6-OXO-N-CYCLOPROPYLMETHYLMORPHINANS

Yoshiro Sawa, Ashiya, Ryozo Maeda, Osaka, and Haruhiko Tada, Toyonaka, Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

No Drawing. Original application Mar. 17, 1969, Ser. No. 807,917, now Patent No. 3,654,280, dated Apr. 4, 1972. Divided and this application June 29, 1971, Ser. No. 158,058

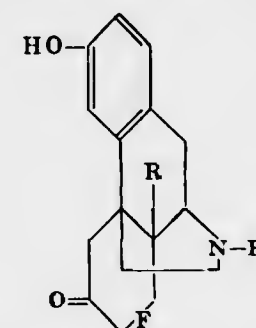
Claims priority, application Japan, Mar. 21, 1968, 43/18,385

Int. Cl. C07d 43/32

U.S. Cl. 260—285

3 Claims

A L-3-hydroxy-6-oxomorphinan compound represented by the formula:



wherein R represents a hydrogen atom or a hydroxyl group, R_1 represents a cyclopropylmethyl group and F

represents the presence or absence of a double bond, being useful as a narcotic antagonist, is prepared by introducing the substituent at the N-position.

3,738,990

NICOTINIC ACID DERIVATIVES

Alden Gamaliel Beaman, North Caldwell, and Oscar Neal Miller, Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Nov. 23, 1970, Ser. No. 92,296

Int. Cl. C07d 31/36

U.S. Cl. 260—295.5 R

2 Claims

6-halo-2-hydroxynicotinic acid, 4-amino-2-hydroxynicotinic acid, 2-hydroxy-4-(lower alkyl)nicotinic acid, 2-hydroxy-5-(lower alkyl)nicotinic acid, 5-halo-2-hydroxynicotinic acid, and their salts, useful as hypolipidemic agents, are described.

3,738,991

LATEX COMPOSITIONS

Delmer H. Reed, South Charleston, W. Va., assignor to Union Carbide Corporation, New York, N.Y.
No Drawing. Filed May 13, 1971, Ser. No. 143,209

Int. Cl. C08f 29/46, 37/18

U.S. Cl. 260—296 RW

3 Claims

There is described herein an acrylic latex having enhanced adhesion by the incorporation therein of an amine salt of a copolymer of ethylene and acrylic acid. Better wet adhesion characteristics are described when a small amount of wax is incorporated into the latex. The latex may be employed in the manufacture of paints, sealants, caulks and mastics.

3,738,992

1-AZA-5-HYDROXYMETHYL-3,7-DIOXABICYCLO-[3.3.0]-OCTANE

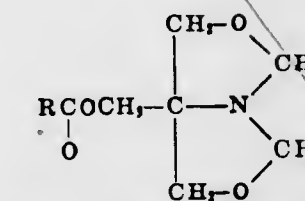
John A. Frump, Terre Haute, Ind., assignor to Commercial Solvents Corporation
No Drawing. Continuation-in-part of abandoned application Ser. No. 2,394, Jan. 12, 1970. This application Feb. 7, 1972, Ser. No. 224,270

Int. Cl. C07d 85/26

U.S. Cl. 260—307 F

3 Claims

Bicyclic oxazolidine esters corresponding to the formula



where R is an alkyl or alkenyl radical of from 8 to 17 carbon atoms. The compounds are useful in lubricant compositions and as anti-foam agents.

3,738,993

BENZIMIDAZOLYL SULFIDES AND SULFONES

Rudiger D. Haugwitz, Highland Park, and Venkatachala L. Narayanan, Hightstown, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.

No Drawing. Filed Mar. 4, 1971, Ser. No. 121,159

Int. Cl. C07d 49/38

U.S. Cl. 260—309.2

4 Claims

1-alkylthioalkyl- and 1-alkylsulfonylalkyl-benzimidazoles are provided which are useful as anthelmintics.

3,738,994

2-CYANO-POLYHALOBENZIMIDAZOLES

Michael H. Fisher, Somerville, N.J., assignor to Merck & Co., Inc., Rahway, N.J.
No Drawing. Original application Sept. 26, 1969, Ser. No. 861,452, now abandoned. Divided and this application Aug. 13, 1971, Ser. No. 171,749

Int. Cl. C07d 49/38

U.S. Cl. 260—309.2

2 Claims

Trihalo- and tetrahalobenzimidazoles having at the 2-position a substituent selected from the group consisting

of cyano, thiocarbamoyl, loweralkylmercapto, loweralkylsulfonyl and 2-thiazolin-2-yl are active as anthelmintics, coccidiostats and as pesticides.

3,738,995 SOLVENT PROCESS FOR THE PREPARATION OF 1-CARBAMOYL-SUBSTITUTED 2-BENZIMIDAZOLECARBAMATES

Charles D. Adams, Newark, Del., and Rudolph Schlatter, Chadds Ford, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of abandoned application Ser. No. 774,528, Nov. 8, 1968. This application May 14, 1971, Ser. No. 143,628

Int. Cl. C07d 49/38
U.S. Cl. 260—309.2 4 Claims
1-carbamoyl-substituted 2-benzimidazolecarbamate fungicides are made by reacting an alkyl 2-benzimidazolecarbamate with the appropriate isocyanate in a selected solvent such as methyl ethyl ketone at temperatures between 10 and 100° C. for 0.1 to 24 hours.
The process is particularly useful for the preparation of 1-butylcarbamoyl-2-benzimidazolecarbamate, methyl ester, a compound useful as a fungicide.

3,738,996 PROCESS FOR THE PREPARATION OF QUATERNARY IMIDAZOLINE DERIVATIVES

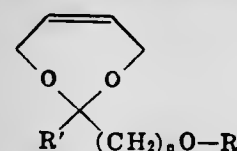
Michael Bloch, Salmunster, Germany, and Adolph Koebner, St. Bees, Cumberland, England, assignors to Rewo Chemische Fabrik G.m.b.H., Steinau, Kreis Schluchtern, Germany
No Drawing. Filed Dec. 21, 1971, Ser. No. 210,543
Claims priority, application Germany, Dec. 23, 1970, P 20 63 424.6

Int. Cl. C07d 49/34
U.S. Cl. 260—309.6 8 Claims
Quaternary imidazoline derivatives are prepared in high yield by quaternizing a basic tertiary imidazoline with a halogen-substituted aliphatic organic carboxylic or sulfonic acid or a sultone, at a temperature within the range of 40° C. to 90° C., under mildly alkaline conditions, by adding alkali if necessary at such a rate as to maintain the pH of the reaction mixture at a value such that samples thereof diluted with water to 10%-solids fall within the pH range of 7-9, and preferably 7 to 7.5, any remaining amount of the predetermined amount of alkali being added subsequently without regard to its effect upon the pH value, but the reaction being continued within the aforesaid temperature range until a constant pH value is attained. In this way under optimum conditions yields even in excess of 90% can frequently be secured.

3,738,997 SUBSTITUTED 1,3-DIOXEPINS

Chester E. Pawloski, Bay City, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Original application Jan. 6, 1970, Ser. No. 1,032, now Patent No. 3,652,594, dated Mar. 28, 1972. Divided and this application Sept. 9, 1971, Ser. No. 179,215

Int. Cl. C07d 17/00
U.S. Cl. 260—338 2 Claims
The present invention is directed to new substituted 1,3-dioxepin compounds corresponding to the formula:



wherein R is a lower alkyl group of from 1 to about 8, both inclusive, carbon atoms or an aryl group of from 6 to about 8 carbon atoms inclusive. R' is hydrogen or

an alkyl group of from 1 to about 8, both inclusive, carbon atoms, and n is an integer of from 0 to about 8. The present invention is further directed to a novel process for the preparation of such substituted 1,3-dioxepin compounds wherein n is 0 by reacting, at room temperatures, a corresponding trialkyl orthoalkanoate with cis-2-butene-1,4-diol in the presence of a non-oxidizing acid catalyst. The compounds of the present invention are suitable for use as herbicides.

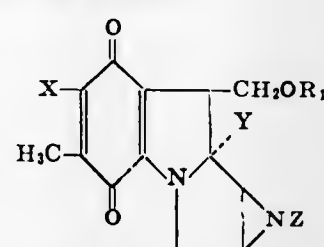
3,738,998 DECARBAMOYLMITOSANES

Kelzo Uzu, Kinichi Nakano, and Toshinaka Takahashi, Tokyo, Japan, assignors to Kyowa Hakko Kogyo Kabushiki Kaisha, Tokyo-to, Japan
No Drawing. Original application Apr. 8, 1969, Ser. No. 814,278, now Patent No. 3,627,781. Divided and this application Apr. 9, 1971, Ser. No. 132,893
Claims priority, application Japan, Apr. 11, 1968, 43/23,704, 43/23,705, 43/23,706; May 2, 1969, 44/29,122

Int. Cl. C07d 27/36 3 Claims

U.S. Cl. 260—326.3

Compounds of the formula



and processes for their preparation are provided wherein X is methoxy or amino, Y is methoxy, hydroxy or hydrogen when R1 is hydrogen and methoxy or hydroxy when R1 is R2CO, Z is hydrogen or methyl when R1 is hydrogen and methyl or R2CO when R1 is R2CO, R1 is hydrogen or R2CO and R2 is lower alkyl. These compounds are antibiotics and, additionally, find use in treating tumors.

3,738,999 2,3,4,5-TETRAHYDRO-2-PHENYL-1,4-BENZOTHIAPINE, HYDROCHLORIDE

John Krapcho, Somerset, and Jack Bernstein, New Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Original application Mar. 10, 1966, Ser. No. 533,264. Divided and this application May 28, 1970, Ser. No. 50,003
Int. Cl. A61k 27/00; C07d 93/40
U.S. Cl. 260—327 B 1 Claim
This invention relates to 2,3,4,5-tetrahydro-2-phenyl-1,4-benzothiazepine, hydrochloride having valuable therapeutic properties and processes for the preparation thereof.

3,739,000 PROCESS FOR PREPARING AMINOTRIPHENYL-METHANE LEUCO BASES

Marcello Lodolini, Rochester, and Cataldo A. Maggiali, Pittsford, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Sept. 25, 1970, Ser. No. 75,760
Int. Cl. C09b 11/14
U.S. Cl. 260—391 18 Claims
Amino-triphenylmethane leuco bases are prepared by reacting benzaldehyde or a ring-substituted benzaldehyde with an N,N-dialkylaniline in the presence of a catalytically effective amount of an organic sulfonic acid. The reaction is advantageously carried out by employing a polar solvent which forms an azeotrope with water and continuously removing the water produced in the reaction by azeotropic distillation.

3,739,001 25,26-DIHYDROXYCHOLECALCIFEROL

Hector F. De Luca, Madison, Wis., assignor to Wisconsin Alumni Research Foundation, Madison, Wis.
No Drawing. Filed Oct. 22, 1971, Ser. No. 191,842
Int. Cl. C07c 171/08
U.S. Cl. 260—397.2 1 Claim
25,26-dihydroxycholecalciferol and method for preparing same.

25,26-dihydroxycholecalciferol is characterized by its ability to induce intestinal calcium transport.

3,739,002 CEPHALOSPORIN C SOLUBILIZATION PROCESS

Harold B. Hayes and Gerald L. Huff, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Continuation-in-part of application Ser. No. 836,953, June 26, 1969. This application Dec. 17, 1969, Ser. No. 886,030
The portion of the term of the patent subsequent to Feb. 8, 1989, has been disclaimed

Int. Cl. C07d 99/24 6 Claims
U.S. Cl. 260—243 C
Acylation of the side-chain amino group of cephalosporin C with a halo lower alkanoyl group leads to a solvent-soluble product which can be efficiently extracted from the aqueous fermentation broth by use of an organic solvent.

3,739,003 ORGANIC COMPOUNDS OF THE TRANSITION METALS

Georgis Codet, Ruell, Francois Dawans, Bougival, Francois-Xavier de Charentenay, Ruell, and Philippe Teyssle, Le Vesinet, France, assignors to Institut Francais du Pétrole des Carburants et Lubrifiants, Ruell-Malmaison, France
No Drawing. Filed Oct. 1, 1969, Ser. No. 862,948
Claims priority, application France, Oct. 1, 1968, 168,366

Int. Cl. C07f 15/04, 15/06 6 Claims
U.S. Cl. 260—439 R
As catalysts, particularly for the polymerization of ethylenically unsaturated monomers, there are provided compounds of the formula:



in which X is a halogen atom, n is 1, 2 or 3, M_T is a transition metal from Groups IV to VIII (sub-groups a and b) of the periodic chart of the elements, Y is a hydride ion or an anion, except OH, each of m, p and q is an integer from 1 to 4, m+p being such as to constitute an electrically neutral compound, L is a Lewis base and r is a number from 0 to 2. Preferred examples include nickel monochloro-trifluoroacetate, nickel monobromo-trifluoroacetate, cobalt monochloro-trifluoroacetate, and complexes thereof.

3,739,004 SYNTHESIS FERROCENYL BUTADIENE COMPOUNDS

Billy W. Ponder, Tuscaloosa, and Charles W. Barnhill, Birmingham, Ala., assignors to the United States of America as represented by the Secretary of the Army
No Drawing. Filed Oct. 1, 1971, Ser. No. 185,856
Int. Cl. C07f 15/02 6 Claims
U.S. Cl. 260—439 CY
The process for making ferrocenyl butadiene by reacting ferrocenealdehyde in tetrahydrofuran solvent with allyllithium to produce ferrocenylbutenol, and then reacting the ferrocenylbutenol in a dehydration reaction in the presence of neutral alumina to produce butadienylferrocene. The butadienylferrocene can be used in the preparation of polymers for solid propellant binders such as being copolymerized with butadiene.

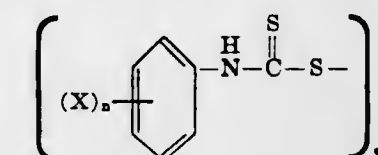
3,739,005 PREPARATION OF AROMATIC POLYISOCYANATES BY CATALYTIC CARBONYLATION OF NITRO COMPOUNDS

James D. McClure, Oakland, Calif., assignor to Shell Oil Company, Houston, Tex.
No Drawing. Filed Dec. 13, 1971, Ser. No. 207,654
Int. Cl. C07c 119/04

U.S. Cl. 260—453 PC 14 Claims
An improved process for preparing carbocyclic aromatic isocyanates comprises contacting a carbocyclic aromatic polynitro compound with carbon monoxide in the presence of a catalyst system consisting of certain noble metal halides, an organic isocyanide and at least one compound selected from the group consisting of iron molybdate, manganese molybdate and iron borate.

3,739,006 BIS DITHIOCARBANILATES

John Joseph D'Amico, Akron, Ohio, assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Feb. 2, 1970, Ser. No. 8,023
Int. Cl. C07c 155/08 3 Claims
U.S. Cl. 260—455 A
Bis dithiocarbanilates of the formula



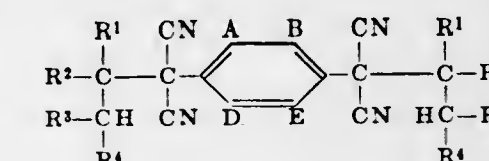
wherein A is thioalkylene, oxyalkylene, or xylylene, X is lower alkyl, chloro, bromo, fluoro, iodo, nitro or hydrogen and n is one or two as disclosed. The new compounds are useful as nematocides, bacteriocides, fungicides and insecticides.

3,739,007 PROCESS FOR PREPARING ALIPHATIC NITRILES OF INCREASED CARBON CHAIN LENGTH

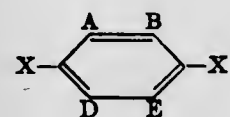
Irving Schwager, Hopewell Junction, and Robert M. Suggitt, Wappingers Falls, N.Y. (both % Texaco, Inc., P.O. Box 509, Beacon, N.Y. 12508)
No Drawing. Filed Aug. 26, 1970, Ser. No. 67,243
Int. Cl. C07c 121/02 5 Claims
U.S. Cl. 260—464
This process concerns the preparation of aliphatic nitriles, particularly nitriles having an increased carbon chain length by the addition of acetonitrile to aliphatic olefins containing 6 to 20 carbon atoms by a free radical initiated addition reaction at temperatures of 150° to 180° C. using mole ratios of acetonitrile to olefin ranging from about 100 to 200.

3,739,008 FLUORO- AND CYANO-SUBSTITUTED 1,4-PHENYLENE-BIS(HYDROCARBYLMALONONITRILES) AND PROCESS OF PREPARATION

Elmore Louis Martin, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 664,315, Aug. 30, 1967, which is a continuation-in-part of application Ser. No. 514,385, Dec. 16, 1965. This application Sept. 22, 1970, Ser. No. 74,466
Int. Cl. C07c 49/62, 121/02, 121/66 6 Claims
U.S. Cl. 260—465 G
Compounds of the formula



in which R¹, R², R³ and R⁴ are hydrogen or hydrocarbon of 1-10 carbon atoms free of olefinic or acetylenic unsaturation and wherein A, B, D and E are hydrogen, fluorine or a cyano group with the proviso that no more than two of A, B, D and E are hydrogen, can be made by reaction of the appropriate substituted malononitrile with a compound



in which X is halogen, in the presence of an alkali metal, alkaline earth metal, or lower alkoxides thereof. The compounds are intermediates for the preparation of substituted tetracyanoquinodimethans useful as dyestuffs and for the preparation of charge transfer complexes of tetracyanoquinodimethans also useful dyestuffs and antistatic agents.

3,739,009

PRODUCTION OF AROMATIC O-AMINONITRILES
Hans Juergen Sturm, Gruenstadt, and Helmut Junge, Wachenheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Nov. 12, 1970, Ser. No. 89,036
Claims priority, application Germany, Nov. 15, 1969, P 19 57 590.7; Oct. 7, 1970, P 20 49 161.6

Int. Cl. C07c 121/12; C09b 1/20

U.S. Cl. 260-465 B 8 Claims

Manufacture of aromatic o-aminonitriles by reaction of aromatic o-aminocarboxamides with dehydrating agents. Aromatic o-aminonitriles are intermediates in the manufacture of dyes.

3,739,010

CHLORINATION PROCESS

Eljiro Suzuki, Hyogo, and Ryuzo Kimoto, Kazuo Imaoka, and Kojiro Umemoto, Osaka, Japan, assignors to Takeda Chemical Industries, Ltd., Higashi-ku, Osaka, Japan

No Drawing. Filed Sept. 13, 1971, Ser. No. 180,136
Claims priority, application Japan, Sept. 18, 1970, 45/82,222

Int. Cl. C07c 121/02

U.S. Cl. 260-465.7 3 Claims

Methacrylonitrile is reacted with chlorine in the gas phase at an elevated temperature and in the presence of water vapor to produce 3-chloro-2-cyanopropene and 1,3-dichloro-2-cyanopropene. The objective compounds are useful as intermediates for the synthesis of medicines and industrial chemicals.

3,739,011

CATALYTIC ISOMERIZATION OF 2-METHYL-3-BUTENENITRILE TO LINEAR PENTENENITRILES
William Charles Drinkard, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 876,613, Nov. 13, 1969. This application Apr. 30, 1971, Ser. No. 139,202

Int. Cl. C07c 121/30

U.S. Cl. 260-465.9 10 Claims

A process for isomerization of 2-methyl-3-butenitrile to linear pentenenitriles by means of certain zero valent nickel complexes such as Ni(PR₃)₂ and Ni(PR₃)₄, wherein "R" is an alkyl or aryl group. A combination of a promoter such as cation of a metal and excess ligand such as triphenylphosphine may be used with the nickel complex.

3,739,012
DIMETHYLSULFONIUM - 2-[(ALKOXYCARBONYL) CARBONYL]PHENACYLIDES AND DERIVATIVES THEREOF

Kenneth Wayne Ratts, 12139 Lake Como Drive, Creve Coeur, Mo. 63141

No Drawing. Continuation of application Ser. No. 765,733, Aug. 8, 1968, which is a division of application Ser. No. 549,160, May 11, 1966, both now abandoned. This application Feb. 16 1971, Ser. No. 115,865

Int. Cl. C07c 149/46

U.S. Cl. 260-470 3 Claims

Dialkyl sulfonium α -(alkoxycarbonylcarbonyl)phenacylides, useful as fungicides.

3,739,013

METHOD OF PREPARING ALPHA AMIDES

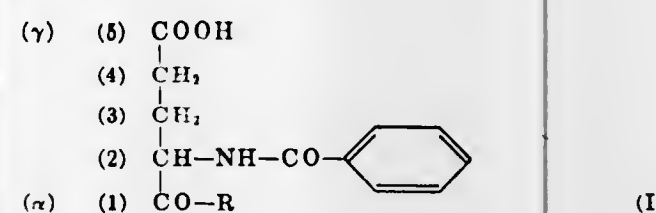
Giampaolo Picciola and Luigi Rovati, Milan, Italy, assignors to Rotta Research Laboratories S.p.A., Milan, Italy

No Drawing. Filed Sept. 23, 1970, Ser. No. 74,926
Claims priority, application Italy, Oct. 13, 1969, 53,660/69

Int. Cl. C07c 103/50

U.S. Cl. 260-471 R 8 Claims

Method of preparing an alpha-amide of the general formula:



comprising esterifying the (5) carboxyl group of glutamic acid with benzyl alcohol, benzoylating the amino group of the ester thus obtained, amidating the (1) carboxyl group of the benzoylated ester, and debenzoylating the amidated benzoylated ester.

3,739,014

STABILIZERS FOR CELLULAR POLYURETHANES
Gunter Oertel, Cologne-Filtard, Manfred Dahm, Leverkusen, Hans Holtschmidt, Leverkusen-Steinbuechel, and Manfred Roegler, Bad Godesberg, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Feb. 25, 1969, Ser. No. 802,246
Claims priority, application Germany, Mar. 1, 1968, P 16 94 248.6

Int. Cl. C07c 125/06

U.S. Cl. 260-472 5 Claims

Non-ionic foam stabilizers for polyester polyurethane foams are obtained by linking hydrophobic amines or amides with polyethers containing ethylene oxide.

3,739,015

ESTERS OF p-PHENOXY AND p-ALKOXY CINNAMIC ACID

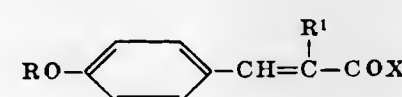
Toshio Wattanabe, Takeyuki Hashimoto, and Shigeki Yoshimatsu, Osaka, Shigeyuki Takeyama, Yamato-machi, Kita-Adachi-gun, Kohki Takashima, Tokyo, and Kiyoshi Izumi, Urawa, Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

No Drawing. Filed Sept. 4, 1970, Ser. No. 69,900

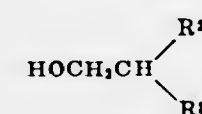
Int. Cl. C07c 69/76

U.S. Cl. 260-473 R 15 Claims

A compound of the formula:



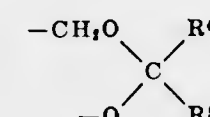
wherein X is a halogen atom, R is a phenyl radical or an alkyl radical having 12-18 carbon atoms and R¹ is a hydrogen atom, a methyl radical, or a phenyl radical, is condensed with a compound of the formula:



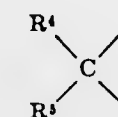
wherein R² is a hydrogen atom and R³ is a radical selected from the group consisting of methacryloyloxy radical, halomethyl radical, a halogen atom and a radical of the formula:



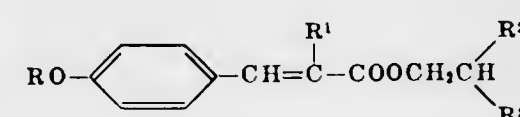
wherein Me is an alkali metal, or R² and R³ form together a radical of the formula:



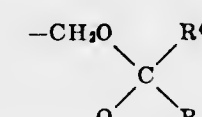
wherein



is the residual moiety of an acetal or a ketal.
An ester compound of the formula:

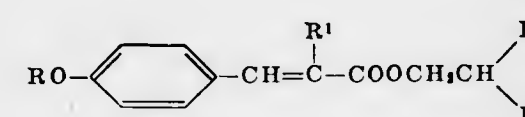


wherein R, R¹, R² and R³ are as defined above, is produced. When R² and R³ form said radical of the formula:



the said residual moiety of an acetal or a ketal is eliminated therefrom to form a resulting product. When R³ is a halogen atom or a halomethyl radical. The resultant product is further hydrolyzed to convert its halogen atom or halomethyl radical respectively to hydroxy radical or hydroxymethyl radical.

A compound is produced which has the formula:



wherein R² is a hydrogen atom, R³ is a hydroxymethyl radical when R² is a hydroxy radical or R³ is a radical selected from the group consisting of methacryloyloxy radical, halomethyl radical, hydroxymethyl radical, hydroxy radical, a halogen atom and a radical of the formula:



3,739,016

PERFLUORO-PHENOXYPROPIONIC ACID AND ESTERS AND SALTS THEREOF

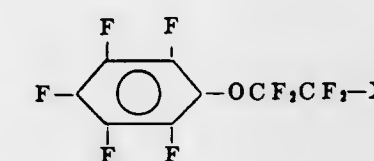
Richard W. Quarles, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Original application Mar. 18, 1970, Ser. No. 20,806. Divided and this application June 28, 1972, Ser. No. 267,108

Int. Cl. C07c 69/76

U.S. Cl. 260-473 G 2 Claims

Novel compounds of the formula



are provided wherein X is -COF, -COCl, -COOH, -COOR, -COOM, -CONR₁R₂, or -CN wherein R is an alkyl radical, M is a metal, and R₁ and R₂ are independently hydrogen or alkyl radicals. Also provided are novel compounds of the formula



wherein X is as defined above. These novel compounds are useful in the preparation of perfluoro(3-phenoxypropyl vinyl ether) monomer, said monomer being useful in the preparation of copolymers having improved oxidative stability.

3,739,017

OXIDATION OF ETHYLENE ACETALS OF AROMATIC ALDEHYDES

Edward L. Reilly, Woodbury, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed May 6, 1971, Ser. No. 141,012

Int. Cl. C07c 69/82

U.S. Cl. 260-475 P 7 Claims

An ethylene acetal of an aromatic aldehyde dissolved in a substantially inert, nonacidic organic solvent with a cobalt catalyst also dissolved therein is oxidized at a temperature of approximately 20-125° C. by molecular oxygen to form a 2-hydroxyethyl ester of the aromatic acid corresponding to the aldehyde.

3,739,018

11-AZA-10 KETO DIPHTHIC COMPOUNDS

Clive A. Henrick, and John B. Siddall, both of Palo Alto, Calif., assignors to Zeecon Corporation, Palo Alto, Calif.

Filed Jan. 18, 1971, Ser. No. 107,431

Int. Cl. C07c 101/28

U.S. Cl. 260-482 R 8 Claims

Novel 11-aza-10 keto aliphatic compounds prepared by the reaction of an allylic alcohol with N,N-dialkylacetamide dialkyl acetal useful for insect control.

3,739,019

PREPARATION OF OPTICALLY ACTIVE TRANS-CHRYSANTHEMIC ACID

Kenzo Ueda, Nishinomlya, and Yoshio Suzuki, Amagasaki, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

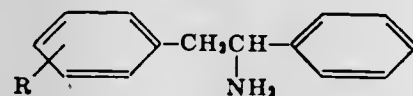
No Drawing. Filed June 29, 1970, Ser. No. 50,931
Claims priority, application Japan, July 2, 1969, 44/52,619

Int. Cl. C07c 51/42, 61/16, 87/78

U.S. Cl. 260—514 H

7 Claims

An optical resolution method for preparation of (+)-trans-chrysanthemic acid which comprises using as a resolution agent a novel amine represented by the formula,



wherein R is an alkyl having 1 to 3 carbon atoms or a halogen atom.

3,739,020

PREPARATION OF CARBOXYLIC ACIDS

Dorothee M. McClain and Irving L. Mador, Cincinnati, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y.

No Drawing. Filed May 13, 1969, Ser. No. 824,305

Int. Cl. C07c 51/26, 53/08

U.S. Cl. 260—531 R

10 Claims

A vapor phase process for the preparation of carboxylic acids by the direct oxidation of lower alkanols. In accordance with one embodiment, the process comprises reacting ethyl alcohol, in vapor form, with an oxygen-containing gas in the presence of a solid palladium metal-containing catalyst. Preferred reaction conditions include a temperature of 130° C. or less and atmospheric or slightly elevated pressure. The reaction is carried out in the absence of an alkaline material.

3,739,021

CONTINUOUS PREPARATION OF NITROLOTRIACETIC ACID

William Jennings Peppel, Heinz Schulze, and Edward Thomas Marquis, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Filed Aug. 19, 1971, Ser. No. 173,317

Int. Cl. C07c 101/20

U.S. Cl. 260—531 C

4 Claims

A falling-film reactor is employed to provide a continuous process for preparing nitrolotriatic acid (NTA) and its salts from triethanolamine (TEA) in the presence of alkali metal hydroxides and cadmium salts. Temperatures greater than the melting point of cadmium metal are employed.

3,739,022

L-2-AMINO-4-METHOXY-TRANS-3-BUTENOIC ACID

Thomas Casimir Demay, Livingston, and James Parnell Scannell, Bloomfield, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Oct. 20, 1971, Ser. No. 191,074

Int. Cl. C07c 101/04

U.S. Cl. 260—534 M

1 Claim

The present invention relates to the preparation of the antibacterial substance L-2-amino-4-methoxy-trans-3-butenic acid by culturing the organism *Pseudomonas aeruginosa*.

3,739,023

PROCESS FOR THE SELECTIVE CATALYTIC DEHALOGENATION OF HALO ACETIC ACIDS

Kurt Sennewald, Hurth-Hermulheim, Alexander Ohorodnik, Liblar, Werner Mittler, Hurth-Hermulheim, Joachim Hudeck, Knapsack, near Cologne, and Hans-Joachim Hardel, Bruhl-Vochem, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany

Filed Mar. 23, 1970, Ser. No. 21,697

Claims priority, application Germany, Mar. 25, 1969, P 19 15 037.9

Int. Cl. C07c 53/16

U.S. Cl. 260—539 A

3 Claims

Selective hydrogenating dehalogenation of halocarboxylic acids, particularly of a crude product which is obtained in the chlorination of acetic acid with the formation of monochloroacetic acid and which in addition to monochloroacetic acid contains di- and optionally trichloroacetic acid as by-product and also acetic acid, by introducing an excess of hydrogen into the liquid crude product, heated to a temperature of 60–170° C., in the presence of a hydrogenation catalyst which is stationary or suspended in the crude product and which consists of an inert carrier and also of a noble metal of Group VIII of the Periodic System, wherein the di- and optionally trihalocarboxylic acid is partially dehalogenated into monohalocarboxylic acid. The noble metal catalyst is more particularly activated by adding at least one metal salt and/or metal oxide which is not a contact poison for the noble metal catalyst and which is at least partially soluble in the feed mixture, and/or adding at least one organic compound which is suitable as a proton acceptor and is at least partially soluble in the starting mixture, the added material being introduced into the starting mixture to be dehalogenated.

3,739,024

PRODUCTION OF ALPHACHLOROTHIOAMIDE DERIVATIVES

John P. Chupp, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 868,625, Oct. 22, 1969, which is a continuation-in-part of application Ser. No. 842,372, July 16, 1969, now Patent No. 3,594,394. This application Dec. 20, 1971, Ser. No. 210,209

Int. Cl. C07c 153/05

U.S. Cl. 260—551 S

8 Claims

A process for preparing α -chlorothioamides by the reaction of an α -chloroamide with a thionophosphine sulfide. These compounds possess herbicidal activity.

3,739,025

PROCESS FOR THE PREPARATION OF CYCLO-PROPYLMETHYL ALKYL AMINES

Jerome Linder and Lester L. Maravetz, Westfield, George N. Schmit, Scotch Plains, and Neil F. Newman, Matawan, N.J., assignors to Esso Research and Engineering Company

Filed Aug. 28, 1970, Ser. No. 67,809

Int. Cl. C07c 85/12, 87/34

U.S. Cl. 260—563 D

5 Claims

This invention relates to a method for preparing cyclopropylmethyl alkyl amines and alkylcyclopropylmethyl alkyl amines. The method comprises the steps of reacting an allylic chloride with hydrogen bromide in the presence of a free radical catalyst to form the anti-Markownikoff product 1-bromo-3-chloropropane which can be optionally substituted with C₁–C₄ alkyl groups; contacting the reaction product of step (1) with a metal cyanide to form a gamma-chloronitrile; reacting the gamma-chloronitrile with an alkali metal hydroxide to yield cyclopropyl

or an alkylcyclopropyl cyanide; reacting the cyclopropyl cyanide or alkylcyclopropyl cyanide with an alkyl amine and hydrogen to yield a cyclopropylmethyl alkyl amine or an alkylcyclopropylmethyl alkyl amine.

In another aspect of this invention, the cyclopropyl or alkylcyclopropyl cyanide is reacted with hydrogen and the resulting cyclopropylmethyl amine or alkylcyclopropylmethyl amine is then reacted with either a ketone, aldehyde, or alcohol and hydrogen, or with an alkyl halide in the absence of hydrogen, to form either cyclopropylmethyl alkyl amines or C₁–C₄ alkylcyclopropylmethyl alkyl amines.

In still another variation of this invention, an N-alkylidene cyclopropylmethyl amine, or an N-alkylidene alkylcyclopropylmethyl amine, prepared by reacting a cyclopropylmethylamine or an alkylcyclopropylmethyl amine with an aldehyde or ketone, can be hydrogenated to form the cyclopropyl methyl alkyl amines or alkylcyclopropylmethyl alkyl amines.

The formation of cyclopropylmethyl alkyl amines and alkylcyclopropylmethyl alkyl amines without concurrent hydrogenolysis of the cyclopropane ring has proven to be quite unexpected and is the result of the careful conditions under which the cyclopropyl cyanide or alkylcyclopropyl cyanide is reacted with the various reactants stated hereinabove.

3,739,026

REDUCTIVE ALKYLATION REACTIONS USING MODIFIED NICKEL CATALYST SYSTEMSFarris H. Wilson, Jr., Cuyahoga Falls, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron Ohio
No Drawing. Continuation of application Ser. No. 606,010, Dec. 30, 1966. This application Dec. 3, 1969, Ser. No. 876,174

Int. Cl. C07f 85/08

U.S. Cl. 260—576

9 Claims

N-alkyl substituted amines are produced by reacting amine compounds, nitro compounds or nitroso compounds with an aldehyde or a ketone in the presence of hydrogen and a catalytic amount of a two component or a three component catalyst system, the former comprising a nickel catalyst and an acid, and the latter comprising a nickel catalyst, an acid and sulfur-containing compounds.

3,739,027

HYDROGENATION OF NITROPARAFFINS

Walter C. Gates, Jr., Newburgh, N.Y., assignor to Texaco Inc., New York, N.Y.

No Drawing. Filed May 21, 1971, Ser. No. 145,873

Int. Cl. C07c 85/10

U.S. Cl. 260—583 M

10 Claims

A process for the catalytic hydrogenation of secondary mono-nitroparaffins wherein high conversion and selectivity to secondary alkyl primary amines is obtained by passing the nitroparaffin through a catalyst bed and hydrogenating at an average conversion temperature of 200 to 450° F. where the difference in ° F. (ΔT) between the maximum conversion temperature and the inlet temperature of said bed is at least 100° F.

3,739,028

PREPARATION OF AMINES

Ralph W. Lagally and Johann G. D. Schulz, Pittsburgh, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed Nov. 24, 1969, Ser. No. 879,602

Int. Cl. C07c 85/04

U.S. Cl. 260—585 A

14 Claims

A process for preparing primary alkyl amines which involves reacting an alkyl halide with ammonia in a monohydric alcohol or a liquid saturated hydrocarbon wherein critical amounts of ammonia are used within a critical temperature range.

3,739,029

N-ALKYL AMINE PRODUCTION

Eugene F. Magoon, Walnut Creek, and Lynn H. Slaugh, Lafayette, Calif., assignors to Shell Oil Company, New York, N.Y.

Continuation of abandoned application Ser. No. 832,307, June 11, 1969. This application Dec. 29, 1971, Ser. No. 213,770

Int. Cl. C07c 85/02

U.S. Cl. 260—585 A

5 Claims

Ethylene is converted to n-alkyl amines by (1) telomerizing ethylene and ethyl iodide to primary n-alkyl iodides, (2) reacting the n-alkyl iodide with ammonia or an amine to produce a n-alkyl amine hydroiodide, (3) treating the amine hydroiodide with a base to produce a n-alkyl amine and an iodide salt, (4) converting the iodide salt to hydrogen iodide and (5) hydroiodinating ethylene with the hydrogen iodide to produce ethyl iodide for recycle to provide the ethyl iodide for telomerization with ethylene.

3,739,030

2-HYDROXY-5-AMINO-BENZAMIDE DERIVATIVES

Boris Gradnik and Andrea Pedrazzoli, Milan, and Leone Dall'Asta, Pavia, Italy, assignors to Societe d'Etudes de Recherches et d'Applications Scientifiques et Medicales E.R.A.S.M.E., Paris, France

No Drawing. Filed June 17, 1970, Ser. No. 47,168

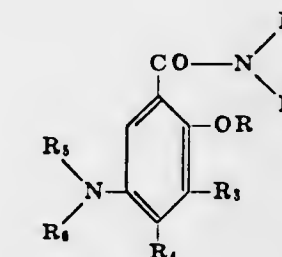
Claims priority, application Great Britain, June 20, 1969, 31,267/69

Int. Cl. C07c 103/30

U.S. Cl. 260—559 S

8 Claims

2-hydroxy-5-amino-benzamide derivatives of formula



have a good muscle relaxant activity and a strong anti-inflammatory action. They are prepared by hydrolysis of the corresponding 5-acetamido-derivatives and optional subsequent alkylation, in any order. They can be included in pharmaceutical compositions in dosage unit form in amounts of from 50 to 500 mg.

3,739,031

DODECYL 2-HYDROXYETHYL SULFOXIDE

Hill M. Priestley, North Bergen, and James H. Wilson, Demarest, N.J., assignors to Lever Brothers Company, New York, N.Y.

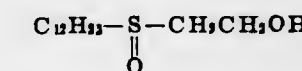
No Drawing. Division of application Ser. No. 869,985, Aug. 25, 1969, which is a continuation of application Ser. No. 647,333, June 20, 1967, which is a continuation-in-part of application Ser. No. 365,487, May 6, 1964, which in turn is a continuation-in-part of applications Ser. No. 725,505, Apr. 1, 1958, and Ser. No. 60,546, Oct. 5, 1960, all now abandoned. This application Oct. 23, 1970, Ser. No. 83,623

Int. Cl. C07c 147/14, 147/02

U.S. Cl. 260—607 A

1 Claim

The compound dodecyl 2-hydroxyethyl sulfoxide



has utility in detergent compositions as a foam-stabilizing additive.

3,739,032 PROCESS FOR THE PREPARATION OF UNSATURATED ETHERS

Friedrich Wunder, Florsheim (Main), Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Nov. 16, 1970, Ser. No. 90,075
Claims priority, application Germany, Nov. 17, 1969, P 19 57 680.8

Int. Cl. C07c 41/00

U.S. Cl. 260—614 R 10 Claims

This invention relates to a process for the preparation of unsaturated ethers by splitting acetals at elevated temperature in the gaseous phase in the presence of supported catalysts containing a noble metal, in which process alkali metal or alkaline earth metal carboxylates in an amount of from 1 to 30% by weight are added to the catalysts to obtain an increase in yield.

3,739,033 NOVEL FLUORINATED ALIPHATIC TRIETHERS

Louis G. Anello, Orchard Park, and Richard F. Sweeney, Elma, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Mar. 1, 1971, Ser. No. 120,065

Int. Cl. C07c 43/00

U.S. Cl. 260—615 F 10 Claims

Perhaloalkyl ethers of α,ω -partially-fluorinated aliphatic ether diols useful as stable fluid dielectric coolants, inert liquid media for carrying out chemical reactions, hydraulic fluids, lubricants and as oxygen and carbon dioxide transport components of artificial blood compositions.

3,739,034 PRODUCTION OF NONIONIC DETERGENTS

Joseph A. Cahill, Philadelphia, and Joseph A. Meyers III, Springfield, Pa., and Richard W. Sauer, Cherry Hill, N.J., assignors to Atlantic Richfield Company, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 878,223, Nov. 19, 1969. This application Mar. 17, 1972, Ser. No. 235,798

Int. Cl. C07c 41/02

U.S. Cl. 260—615 B 6 Claims

Nonionic detergents are prepared by the liquid phase air oxidation of normal paraffins, reduction of the oxidate, fractionation of the reduced oxidate to remove the lighter compounds, and reacting the bottoms fraction with ethylene oxide to produce the desired nonionic detergents. This process offers a convenient method for the production of detergents from paraffins.

3,739,035 BIS(2,6-DIPHENYLPHENOLS)

Jimmy L. Webb, Jonesville, N.Y., and Walter L. Hall, Mount Vernon, Ind., assignors to General Electric Company

No Drawing. Filed May 26, 1971, Ser. No. 147,165

Int. Cl. C07c 39/16

U.S. Cl. 260—619 A 6 Claims

Bis(2,6-diphenylphenols) prepared from 2,6-diphenylphenol and certain aldehydes and ketones are new chemi-

cal compounds. They are useful in making highly crystalline, thermally stable polyesters, including polycarbonates as homopolymers or for imparting these properties to copolymers in which they are incorporated.

3,739,036 METHOD OF PREPARING 3,3,3- TRIFLUOROPROPENE-1

John A. Valicenti, Roland L. Halm, and Forrest O. Stark, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Sept. 30, 1971, Ser. No. 185,392

Int. Cl. C07c 17/20, 21/18

U.S. Cl. 260—653.3 5 Claims
 $\text{CF}_3\text{CH}=\text{CH}_2$ is prepared by contacting a halogenated hydrocarbon, such as 1,1,1,3-tetrachloropropane, with sodium fluoride at a temperature of from 400 to 475° C. for at least five minutes.

3,739,037 SYNTHESIS OF UNSATURATED HYDROCARBONS

Norbert F. Cywinski, Odessa, Tex., assignor to Phillips Petroleum Company

No Drawing. Original application May 14, 1964, Ser. No. 367,581, now Patent No. 3,551,463, dated Dec. 29, 1970. Divided and this application Sept. 8, 1970, Ser. No. 70,477

Int. Cl. C07c 3/08

U.S. Cl. 260—666 XA 7 Claims

Non-conjugated diolefins are produced by reacting acetylenic hydrocarbons with cyclic or acyclic monoolefins.

3,739,038 STILBENE PRODUCTION

Raymond A. Franz, Kirkwood, Phillip D. Montgomery, Creve Coeur, and Herbert J. Gebhart, Jr., Ferguson, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed June 8, 1971, Ser. No. 150,921

Int. Cl. C07c 5/20

U.S. Cl. 260—668 R 10 Claims
This application describes a process for the conversion of bibenzyl and/or bibenzyl derivatives in the presence of oxygen and a halogen to produce stilbene and/or stilbene derivatives.

3,739,039 SELECTIVE TERTIARY ALKYLATION OF AROMATIC HYDROCARBONS

Jesse K. Boggs, Houston, Tex., assignor to Esso Research and Engineering Company

Filed Dec. 28, 1970, Ser. No. 101,921

Int. Cl. C07c 3/00

U.S. Cl. 260—671 R 24 Claims

Aromatic hydrocarbons are selectively alkylated in high yields with C_7 to C_{14} tertiary alkyl halides, without the formation of substantial quantities of secondary alkyl aromatics, by carrying out the reaction in the presence of a non-volatile Friedel Crafts catalyst, a boiling liquid, and substantially reduced pressures. A sweep gas such as air or an inert gas may be employed with more active Friedel Crafts catalysts such as aluminum chloride. Preferably, the reaction is carried out under a pressure no greater than 150 mm. Hg absolute, and a temperature of 0° to 30° C. The concentration of hydrogen halides in the reaction mass is maintained below 0.02 mol fraction when using less active Friedel Crafts catalysts such as ferric chloride and below 0.005 when using more active catalysts such as aluminum chloride.

3,739,040 TERTIARY ALKYLATION OF BENZENE AT ATMOSPHERIC PRESSURE

Jesse K. Boggs, Houston, Tex., assignor to Esso Research and Engineering Company

No Drawing. Filed Dec. 28, 1970, Ser. No. 102,249

Int. Cl. C07c 3/56

U.S. Cl. 260—671 P 12 Claims

Benzene is selectively tertiary-alkylated at high conversions by reaction with C_7 to C_{14} tertiary alkyl chlorides in the presence of FeCl_3 catalyst at atmospheric pressure. The selective alkylation is accomplished by carrying out the reaction at a temperature from about -10° C. to about +30° C. and in the presence of a rapidly boiling solvent. The solvent concentration in the solvent/benzene mixture is from about 5 to about 90 mol percent, preferably from about 15 to about 80 mol percent.

3,739,041 CURABLE COMPOSITION OF MATTER OF CAR- BOXYL TERMINATED POLYESTERS AND DIEPOXY COMPOUNDS

Rolf Schmid, Gelterklingen, and Willy Fisch, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

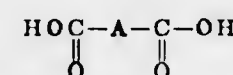
No Drawing. Continuation-in-part of application Ser. No. 699,384, Jan. 22, 1968. This application Mar. 8, 1971, Ser. No. 122,198

Claims priority, application Switzerland, Jan. 25, 1967, 1,072/67; Mar. 8, 1967, 3,391/67

Int. Cl. C08g 45/14

U.S. Cl. 260—835 10 Claims

The invention relates to process for the manufacture of crystalline, predominantly linear polyadducts, characterized in that a long-chain dicarboxylic acid of the formula



in which A represents a predominantly linear residue in which polymethylene chains alternate in a regular manner with ether oxygen atoms or carboxylic acid ester groups, the quotient Z:Q (in which Z represents the number of carbon atoms in the recurrent structural unit of residue A and Q the number of oxygen bridges in the recurrent structural unit of residue A) being at least 5 and preferably at least 6, and the total number of carbon atoms in alternating carbon chains in residue A) being at least 50, is reacted at an elevated temperature with diepoxy compounds to form polyadducts, using for every equivalent of epoxide groups 0.7 to 1.2, preferably 0.9 to 1.0 equivalent of carboxyl groups.

3,739,042 BLOCK COPOLYMERS OF ANIONICALLY POLY- MERIZED AND FREE RADICAL POLYMERIZED MONOMERS

Nan S. Chu, Hartsdale, N.Y., and James L. Jezl, Swarthmore, Pa., assignors to Standard Oil Company, Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 529,216, Feb. 23, 1966. This application Oct. 6, 1969, Ser. No. 864,204

Int. Cl. C08f 15/04

U.S. Cl. 260—878 B 20 Claims

Block copolymers are provided having at least two blocks, the first such blocks being a homopolymer or copolymer of a hydrocarbon selected from the group consisting of alpha-olefins having up to 18 carbon atoms and diolefins and at least one of the other blocks being a homopolymer or copolymer obtained from at least one other monomer such as acrylic and methacrylic esters,

amides, and nitriles; vinyl halides; vinylidene halides; vinyl ethers and esters; vinylpyridines and alkylvinylpyridines; N-vinyl lactams; styrenes and alkyl styrenes and mixtures thereof.

3,739,043 LOW TEMPERATURE POLYMERIZATION PROCESS

Michael Fryd, Philadelphia, Pa., and John L. Ludlow, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Original application Oct. 20, 1969, Ser. No. 867,903. Divided and this application Nov. 18, 1971, Ser. No. 200,198

Int. Cl. C08f 15/26

U.S. Cl. 260—885 1 Claim
A process for preparing a polymer by low temperature polymerization in an organic liquid, using as a polymerization initiator a system which comprises

- (1) a peroxy or peracid compound,
- (2) an organic reducing agent,
- (3) a metal salt, and
- (4) a small amount of water.

3,739,044 LOW TEMPERATURE POLYMERIZATION PROCESS AND INITIATING SYSTEM

David K. Wald, Cherry Hill, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 867,904, Oct. 20, 1969. This application Dec. 9, 1971, Ser. No. 206,552

Int. Cl. C08f 15/26

U.S. Cl. 260—885 3 Claims
A process for preparing a polymer by low temperature polymerization in an organic liquid, using as a polymerization initiator a system which comprises

- (1) a peroxy or peracid compound,
- (2) benzoin, and
- (3) a metal salt.

3,739,045 DICYANOPHENYL THIOPHOSPHATES

Heinrich Adolph, Limburgerhof, Heinz Ellingsfeld, Frankenthal, and Manfred Patsch and Ernst Schaffner, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed June 3, 1971, Ser. No. 149,780
Claims priority, application Germany, June 20, 1970, P 20 30 545.7

Int. Cl. C07f 9/18; A01n 9/36

U.S. Cl. 260—940 3 Claims

New and valuable substituted dicyanophenyl thiophosphates having a good insecticidal action and a process for controlling insects with these compounds.

3,739,046 REMOVAL OF ORTHOPHOSPHATES FROM ORGANIC PHOSPHATE ESTERS

James R. Stanford, Sugar Land, and James D. Watson, Houston, Tex., assignors to Nalco Chemical Company, Chicago, Ill.

No Drawing. Filed May 3, 1971, Ser. No. 139,825

Int. Cl. C07f 9/02

U.S. Cl. 260—990 5 Claims

Orthophosphates are removed from organic phosphate esters by precipitating them as inorganic phosphates at an elevated pH in a reaction medium containing a polar solvent and water in which the inorganic phosphate is insoluble.

3,739,047

REMOVAL OF ORTHOPHOSPHORIC ACID FROM ORGANIC PHOSPHATE ESTERS

James R. Stanford, Sugar Land, and Paul G. Vogelsang, Jr., Houston, Tex., assignors to Nalco Chemical Company, Chicago, Ill.

No Drawing. Filed May 3, 1971, Ser. No. 139,824

Int. Cl. C07f 9/02

U.S. Cl. 260—990

4 Claims

Orthophosphoric acid is removed from organic phosphate esters by extraction with a polar solvent which is a non-solvent for the organic phosphate esters.

3,739,048

METHOD OF GRANULATING POWDER

Kazutoshi Morita, Osaka, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

No Drawing. Continuation of abandoned application Ser. No. 876,035, Nov. 12, 1969. This application May 26, 1971, Ser. No. 147,244

Int. Cl. G21c 21/02; B02c 23/06

U.S. Cl. 264—5

6 Claims

This invention relates to a method of granulating a fine powder. A fine powder is difficult to handle when it is molded by compression. Therefore, this invention provides a method in which a powdery foaming agent, that is, a substance which vaporizes upon heating, is previously mixed with the powder of a grain size smaller than the grain size desired, then this mixture is compressed into shaped pieces; these shaped pieces thus obtained are heated to get the foaming agent to vaporize, the expansion force of this vaporization pulverizes the compressed pieces into grains of the desired grain size. The invention also teaches a method which makes it possible to freely control the grain size distribution of the grains to be obtained by altering the grain size of the foaming agent, the ratio of the foaming agent added and the compression force.

3,739,049

METHOD FOR PRODUCING POWDER COMPOSED OF PRECISELY SPHERICAL PARTICLES

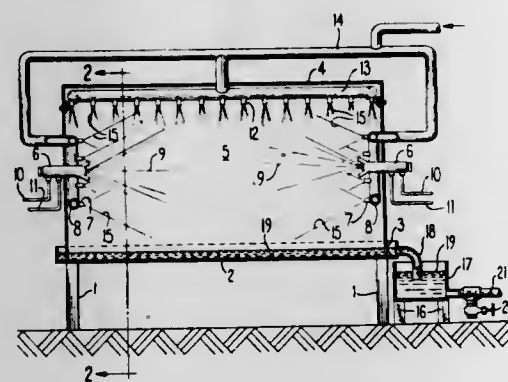
Kazuo Honjo, Nishinomiya, Japan, assignor to Iteki Co., Ltd., Tokyo, Japan

Filed Dec. 4, 1970, Ser. No. 95,403

Int. Cl. B01j 2/06

U.S. Cl. 264—14

1 Claim



Method for producing a synthetic resin powder composed of precisely spherical particles wherein a solution

is prepared by dissolving a synthetic resin in a solvent, spraying the solution in the presence of a separation agent, removing the separation agent from the sprayed material after recovery, and drying the resultant product.

3,739,050

PROCESS AND APPARATUS FOR MAKING LARGE-AREA CONCRETE PANELS

Thamer Koncz, Wittponerstrasse 297/Buchzelgstrasse, 8053 Zurich, Switzerland, and Max Zimmerli, Zurich, Switzerland; said Zimmerli assignor to said Koncz

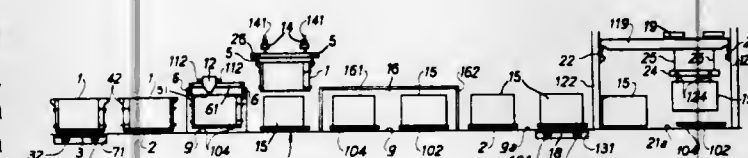
Filed Mar. 10, 1971, Ser. No. 122,841

Claims priority, application Switzerland, Mar. 13, 1970, 3,760/70; Germany, Feb. 13, 1971, P 21 06 937.4, P 71 05 480.3

Int. Cl. B28b 5/00, 7/22, 7/26

U.S. Cl. 264—39

17 Claims



A process of and apparatus are provided for mass producing large-area concrete floor and wall slabs wherein liftable inner form panels for forming said slabs are mounted in upright positions on trolley cars, a pair of said movable panels being mounted on each car. A series of cars are moved on tracks to positions at a concreting station wherein the cars are laterally aligned and the pair of movable inner panels on each car is sandwiched between upright stationary outer form panels in a battery of forms provided at the concreting station. The forms are filled with concrete while they are held closed by hydraulic press means, and thereafter the trolley cars are moved on the tracks through a curing oven to an unloading station where the slabs are removed. The movable form panels are cleaned, and the trolley cars and form panels are returned to the concreting station to repeat the cycle. An overhead crane may be provided to lift the movable panels and separate them from the slabs before the trolley cars enter the curing oven.

3,739,051

METHOD OF MAKING A MOLDED FOAM DECORATIVE PRODUCT

George Warren Smith, P.O. Box 506, Pigeon Cove, Mass. 01966

Filed July 21, 1971, Ser. No. 164,512

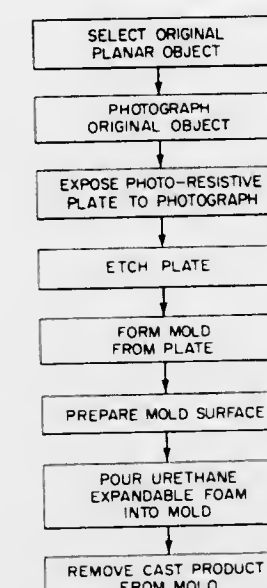
Int. Cl. B29c 1/02; B29d 27/04

U.S. Cl. 264—48

13 Claims

A method and product of producing a three dimensional colored decorative product. The method preferably comprises photographing a line drawing, employing the resulting photographic transparency to expose a photo-sensitive plate, etching the plate, forming a flexible elastomer mold from the etched plate and casting a foamable liquid reaction mix in the mold to form a cured non-

resilient urethane foam three dimensional product. The mold interior can be painted with a pigmented coating



before the urethane foam is cast. The mold can include a frame portion.

3,739,052

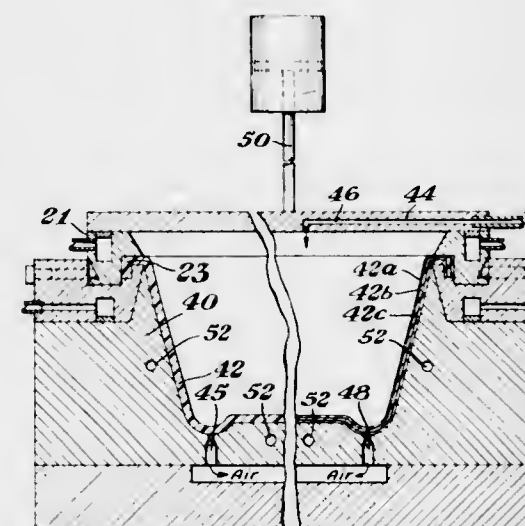
SCRAPLESS FORMING OF PLASTIC ARTICLES
Ralph E. Ayres and Kenneth J. Cleereman, Midland, and Walter J. Schrenk, Bay City, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Aug. 11, 1970, Ser. No. 62,969

Int. Cl. B29c 17/04; B29f 5/00

U.S. Cl. 264—92

37 Claims



A scrap free process for rapidly making thermoplastic containers wherein the resultant containers can, if desired, be multilayered for vapor or gas barrier or other reasons, or be oriented for toughness and improved stress crack resistance. The containers can be formed from multilayered or homogeneous plastic sheets wherein a relatively thin thermoplastic blank is provided. This blank is lubricated, heated and forged into a desired shape preform with a predetermined lip configuration. The center portion of each said preform is maintained at a forming temperature while the peripheral portion thereof is rapidly brought below the softening point of the plastic resin. The preform is then immediately thermoformed into a container having a desired shape and size, and cooled. If desired, the preform can be forged, cooled and recovered for a subsequent thermoforming operation.

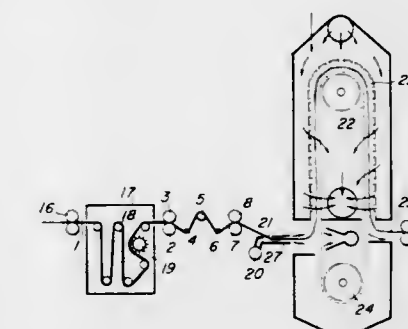
3,739,053

METHOD FOR FIBRILLATING STRETCHED FILM
Masahide Yazawa, Tokyo, Japan, assignor to Polymer Processing Research Institute, Ltd., Tokyo, Japan
Application Apr. 23, 1969, Ser. No. 818,529, which is a continuation-in-part of application Ser. No. 510,546, Nov. 30, 1965, which in turn is a continuation-in-part of application Ser. No. 569,714, Aug. 2, 1966. Divided and this application Sept. 17, 1971, Ser. No. 181,329
Claims priority, application Japan, June 5, 1965, 40/33,241; Apr. 14, 1966, 41/23,966

Int. Cl. D01d 5/22

U.S. Cl. 264—154

6 Claims



The present disclosure is directed to a method and apparatus for manufacturing split-fibers from a uniaxially oriented film obtained from a fiber-forming polymer which comprises slide-rubbing at least one side of the oriented film in the oriented direction under an effective longitudinal tension on at least one rough surface rotating at a peripheral speed different from that of the running speed of the film and having many tiny and rigid projections thereon, said film contacting, in succession, a plurality of said rigid projections which do not pierce the film, thereby fibrillating the film into many fibrils as a result of the shearing stress between film portions passing along the projected portions of the rotating rough surface and those portions passing along the recessed portions of the rotating surface.

3,739,054

PROCESS FOR THE PRODUCTION OF HIGH SHRINKAGE THREADS, YARNS AND FIBERS FROM ACRYLONITRILE POLYMERS

Horst Wieden, Alfred Noga, and Herbert Morzolph, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation of abandoned application Ser. No. 755,797, Aug. 28, 1968. This application Apr. 5, 1971, Ser. No. 131,490

Int. Cl. D01f 7/00; B29c 25/00

U.S. Cl. 269—206

5 Claims

This invention relates to a process for the production of high shrinkage threads, yarn and fibers from acrylonitrile polymers or copolymers containing at least 50% by weight of polymerised acrylonitrile and mixtures thereof, wherein the thread or yarn produced by the dry spinning process is exposed to elevated temperatures in the presence of steam and is then stretched and dried. The spun thread or yarn obtained by the dry spinning process may be contacted with saturated steam under pressure.

3,739,055

METHOD FOR HEAT TREATING POLYAMIDE FIBERS

Toshiyuki Ueda and Takuji Fukuda, Tokyo, Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan

Filed Aug. 19, 1970, Ser. No. 65,094

Claims priority, application Japan, Aug. 26, 1969, 44/67,047

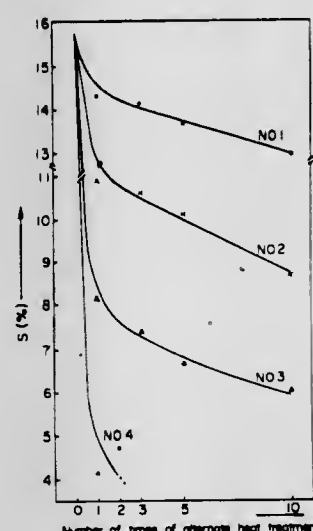
Int. Cl. B29c 25/00

U.S. Cl. 264—342 RE

1 Claim

Polyamide fibers are stabilized against heat and stress by subjecting the fibers to a heat treatment at a high

temperature for a given time under a high tension and then to a heat treatment at a high temperature for a

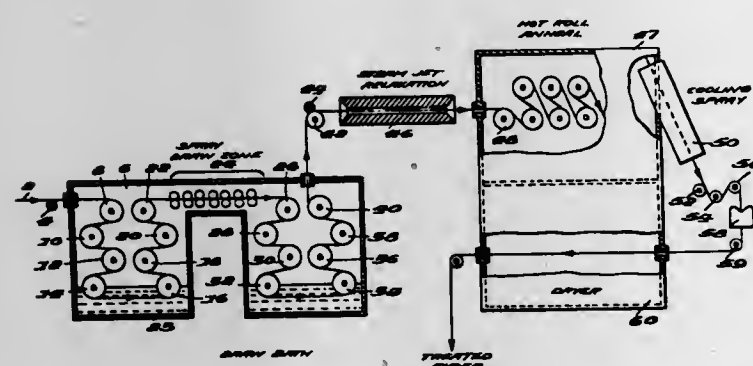


given time under a low tension alternately repeatedly at least 3 times. These polyamide fibers are used for reinforcing elastic materials, particularly for tyre cord.

3,739,056 DRAW/RELAX/ANNEAL PROCESS FOR POLYESTERS

Evan Franklin Evans and John Barry Nash, Kingston, N.C., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of abandoned application Ser. No. 698,623, Jan. 17, 1968. This application Oct. 12, 1971, Ser. No. 182,154

Int. Cl. B29c 25/00, 17/02; D02j 1/22
U.S. Cl. 264—290 T 10 Claims



The dyeability of crystalline, linear condensation polyester fibers is greatly improved by sequentially drawing, relaxing and annealing the fibers. The fibers are drawn at a temperature above their apparent minimum crystallization temperature, relaxed above 180° C., and annealed at a temperature above the relaxation temperature. Apparatus is also disclosed.

3,739,057
PROCESS FOR THE RECOVERY OF RHENIUM AND MOLYBDENUM VALUES FROM MOLYBDENITE CONCENTRATE
Ellsworth W. Daugherty, Golden, Albert E. Erhard, Denver, and James L. Drobnick, Lakewood, Colo., assignors to Molybdenum Corporation of America, Louviers, Colo.

Filed July 9, 1971, Ser. No. 161,111
Int. Cl. C01g 39/00, 47/00
U.S. Cl. 423—50 16 Claims
Process for the recovery of molybdenum and rhenium from molybdenite which comprises: oxidizing the molyb-

denum in the molybdenite concentrate slurry to the hexavalent form with oxygen or oxygen-containing gases and less than a stoichiometric amount of nitric acid for the sulfide sulfur present, recovering molybdenum and rhenium values from the resulting solution when it contains up to 600 g./l. of sulfuric acid with an amine or quaternary ammonium type extractant, removing the molybdenum and rhenium values from the extractant with ammonium hydroxide, selectively recovering rhenium values from the resulting alkaline solution with a quaternary ammonium type extractant, recovering the remainder of the molybdenum values from the eluate, stripping rhenium from the extractant with perchloric acid or perchlorate salt and recovering rhenium from the stripping solution.

3,739,058 PRODUCTION OF A PAPER PIGMENT GRADE MAGNESIUM HYDROXIDE PRODUCT

John Neil Perlard, Bay City, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Aug. 27, 1970, Ser. No. 67,625
Int. Cl. C01f 5/14 3 Claims

A method which comprises: slaking dolime, which has a surface area of from about 1 to about 15 m.²/g., to hydrate the magnesium oxide and calcium oxide; adding the slaked dolime to a Mg⁺⁺ containing brine in an amount sufficient to react up to about 90% of the Mg⁺⁺, the reaction mixture also containing at least about 200 p.p.m. boron; reacting the Ca(OH)₂ of the slaked dolime with the Mg⁺⁺ at a temperature from about 50° C. to 75° C. to form Mg(OH)₂; and separating the magnesium hydroxide solids from the residual liquor. The magnesium hydroxide product so made is highly useful as a component in a paper pigment formulation.

3,739,059 PROCESS FOR PREPARING HYDRAZINIUM DIPERCHLORATE

Marvin M. Fein, Westfield, and John E. Paustian, Whippany, N.J., assignors to Thiokol Chemical Corporation, Bristol, Pa.

No Drawing. Filed July 21, 1965, Ser. No. 473,860
Int. Cl. C01b 21/52 5 Claims

1. A process for preparing hydrazinium diperchlorate product by double decomposition comprising the steps of admixing a hydrazine salt selected from the group consisting of hydrazinium monohydrochloride, hydrazinium dihydrochloride, hydrazinium monosulfate, and hydrazinium disulfate, with sodium perchlorate and hydrogen chloride, in the presence of water, to form a reaction mixture slurry including perchloric acid and sodium chloride, heating said admixture of perchloric acid and sodium chloride until hydrazine diperchlorate is formed, removing the sodium chloride to form a filtrate, cooling the filtrate until hydrazinium diperchlorate is formed, and isolating the hydrazinium diperchlorate product.

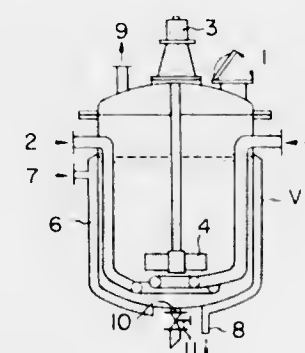
3,739,060 METHOD OF PREPARING CALCIUM SULFITE FOR USE AS A FILLER FOR PLASTICS

Shinichi Tomiyama, Chiba-ken, Rinnosuke Susuki, Tokyo, Hiroshi Hoshi, Chiba-ken, Jiro Saito and Hiro Goto, Tokyo, Kenji Umehara, Chiba-ken, and Keiichi Murakami, Miyagi-ken, Japan, assignors to Lion Fat & Oil Co., Ltd., Tokyo, Japan

Filed Dec. 3, 1970, Ser. No. 94,873
Claims priority, application Japan, Dec. 9, 1969, 44/98,829; Feb. 12, 1970, 45/12,092
Int. Cl. C01f 11/48 12 Claims

A method of preparing calcium sulfite to be used as a filler for plastics, which comprises the steps of hydrating

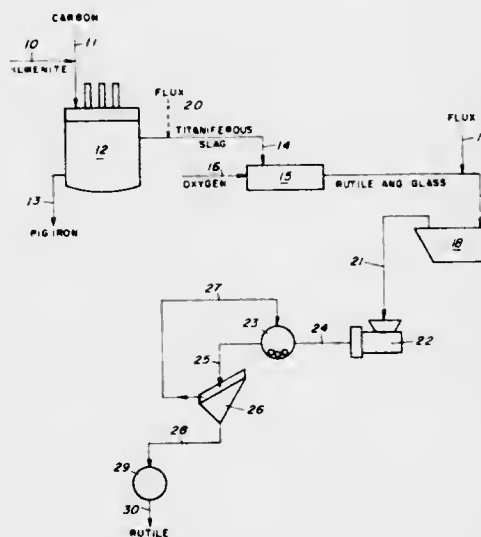
calcium oxide with water at elevated temperatures to convert it into calcium hydroxide and introducing sulfur



dioxide gas into the resultant aqueous suspension of calcium hydroxide at high temperatures until the pH of the solution reach the range of 7-13.

3,739,061
MANUFACTURE OF SYNTHETIC RUTILE
William A. Stickney, Willard L. Hunter, and Gerald W. Elger, Albany, and Stanley C. Rhoads, Corvallis, Oreg., assignors to the United States of America as represented by the Secretary of the Interior
Filed Aug. 10, 1971, Ser. No. 173,334
Int. Cl. C01g 23/04 9 Claims

U.S. Cl. 423—610



Synthetic rutile is produced from a reduced titania slag by oxidizing the slag to form rutile in microcrystalline form. These microcrystals are then grown to larger sizes by heating in the presence of a fluxing agent which dissolves metal oxide impurities contained in the slag to form a weak and friable glassy matrix. Rutile crystals are freed from the matrix by comminution and a rutile product fraction is recovered using physical or chemical beneficiation techniques.

3,739,062
**DIRECT CONVERSION OF DAWSONITE
TO PSEUDOBÖEHMITE**
Leo R. Barsotti, Pleasanton, Calif., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.
No Drawing. Filed Oct. 5, 1970, Ser. No. 78,176
Int. Cl. C01f 7/02, 7/30; B01j 11/50 6 Claims

Dawsonite in aqueous slurry is hydrothermally treated to obtain pseudoböehmite characterized by a surface area

in excess of 250 m.²/g. and an Na₂O impurity level of less than 0.1% by weight. The pseudoböehmite is suitable for the preparation of catalyst supports due to its high surface area, low impurity level and high pore volume.

3,739,063
SHOCK WAVE REACTIONS
James L. Lauer, Penn Wynne, Pa., assignor to Sun Research and Development Co., Philadelphia, Pa.
Continuation-in-part of Ser. No. 795,926, Feb. 3, 1969, abandoned. This application Dec. 29, 1970, Ser. No. 102,521
Int. Cl. C01b 1/03, 13/02 3 Claims

It has been found that the efficiency of shock wave reactions can be greatly improved by using mercury vapor as a diluent in the reaction gas. By using reduced pressure in the reaction gas - Hg mixture the boiling point of the Hg is reduced and after the reaction the Hg is easily separated merely by allowing the product gas to come to atmospheric pressure whereupon the Hg condenses out. Even at pressures of atmospheric or greater the Hg is easily separated from the product gas because of its high boiling point.

3,739,064
DIHYDROCHALCONE SWEETENING AGENTS
George P. Rizzi, Springfield Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Filed Sept. 30, 1970, Ser. No. 76,972
Int. Cl. A61k 7/16; A23l 1/26 9 Claims

Hesperetin dihydrochalcone, and certain homologs thereof, are dissolved in appropriate organic solvents and aqueous-organic solvents to provide novel sweetening compositions useful in flavoring edible products.

3,739,065
**ANHYDROUS, STABLE SMALLPOX VACCINE
COMPOSITION FOR PERCUTANEOUS AP-
PLICATION AND METHOD OF PREPARING
THE SAME**
Bruno Mettler, Thorshaus, and Mirko Majer, Bern, Switzerland, assignors to Schweizerisches Serum- und Impfinstitut und Institut zur Erforschung der Infektionskrankheiten, Bern, Switzerland
No Drawing. Filed Dec. 22, 1971, Ser. No. 211,095
Claims priority, application Switzerland, Jan. 4, 1971, 12/71 8 Claims

A smallpox vaccine composition which is stable for extended periods without refrigeration and ready for direct percutaneous administration is a stiff ointment essentially consisting of lyophilized vaccinia virus and polyorganosiloxane having a viscosity of 30,000 to 100,000 centistokes at 20° C. and a flow limit of more than 10, but not substantially more than 500 dynes per square centimeter. It is prepared by dispersing the lyophilized virus in a liquid polyorganosiloxane of low viscosity which is volatile at ambient temperature, mixing the dispersion so obtained with the polyorganosiloxane of the desired high viscosity, and removing the volatile liquid by evaporation in a scavenging gas or a vacuum. The ointment may be administered percutaneously without dilution or other preparation in a manner conventional in itself. It does not tend to run off the inoculated skin under the force of gravity.

ERRATUM

For Class 424—273 see:
Patent No. 3,738,987

ELECTRICAL

3,739,066

ELECTRODE REMELTING ARRANGEMENT

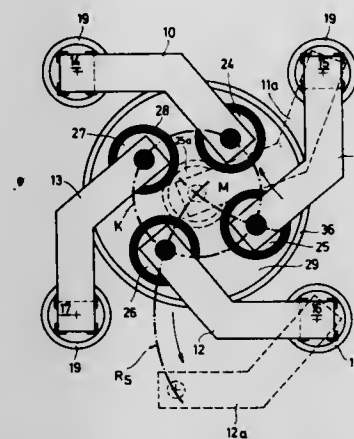
Edgar Ermold, Bruchkobel; Hans F. W. Schwartz-Domke, Hanau; Helmut Scheidig, and Karl-Georg Redel, Rodenbach, all of Germany, assignors to Leybold-Heraeus-Verwaltung GmbH, Cologne-Bayental, Germany
Filed Dec. 3, 1971, Ser. No. 204,540

Claims priority, application Germany, Mar. 9, 1971, P 21 11 047.4

Int. Cl. H05b 3/60, 7/10

U.S. Cl. 13-9

6 Claims



An arrangement for remelting electrodes, in which a plurality of electrode carrying arms are distributed about the periphery of a chill mold. The electrode carrying arms are pivoted in a horizontal plane, with the radius from the pivoting center to the axis of the electrode carried by an arm, passing through the center of the chill mold. The electrode carrying arms are also pivotable so that the axes of the electrodes carried by the arms, lie on concentric circles within the chill mold.

3,739,067

FURNACE FOR VOLATILIZING MATERIALS

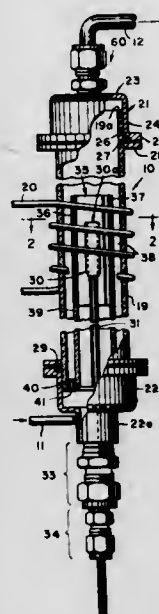
Henry M. Stahr, Odgen, and Andrew J. Wunderlich, Ames, both of Iowa, assignors to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed July 5, 1972, Ser. No. 269,117

Int. Cl. H05b 5/12

U.S. Cl. 13-26

8 Claims



An induction furnace for rapidly heating substances by induction to volatilize them includes a split cylindrical carbon

susceptor spaced inwardly of a cylindrical outer wall and surrounding a carbon cup holding the substance for bringing the temperature of the hot zone up to as high as 2000°C. very rapidly. A metal-to-metal seal is provided for sealing a tantalum rod holding the cup while permitting adjustment of the position of the cup axially of the cylindrical outer wall.

3,739,068

MONETARY DECODIFYING DEVICE

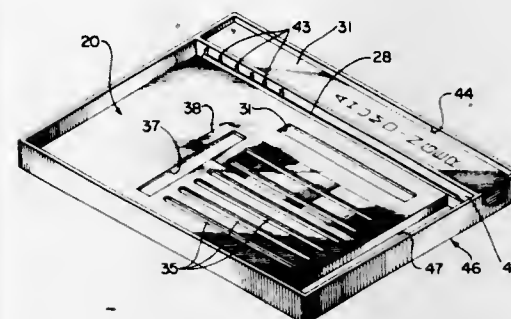
Bruce F. Harkins, Vernon Road, Fayette, Ala.

Filed May 7, 1971, Ser. No. 141,277

Int. Cl. G09c 1/00

U.S. Cl. 35-2

5 Claims



This decodifying device comprises a box-like structure comprising backing and front face parts having guide slots in which digit bearing strips are slidable for positioning toward code letters on a code word lying laterally adjacent to the digit slide strips with the spacings between the digits and the letters of the code word being the same and a window opening in which the final result translated from the letters to monetary value may be read. Holes are provided in the digit strips to which the pointed end of an implement is applied for moving the strips to locations corresponding to the letters of the code word. The code word may be supplied from a removable code strip extended into a slot from one end of the device, while in one form of the device only a single work hole is provided in the digit strip and in another form of the device there is provided a series of holes corresponding respectively to the 10 digits on the strip. With the implement the strip is brought to a stop at the end of the slot in the front face thereby minimizing the searching required as with the first form of the invention. An L-shaped code word card is provided to locate the code word both in a location for use with the digit strips in another location where the code word can be readily observed. A reset device is provided with the second form of the invention to bring all of the strips at an equal location preparatory to use of the device.

3,739,069

FILM VIEWER

Arthur Sandmeier, 78 Chemin de la Caille, Neuchatel 2000, Switzerland

Filed Aug. 13, 1971, Ser. No. 171,533

Claims priority, application Great Britain, Aug. 24, 1970, 40,700/70

Int. Cl. G09b 3/06

U.S. Cl. 35-9 E

12 Claims

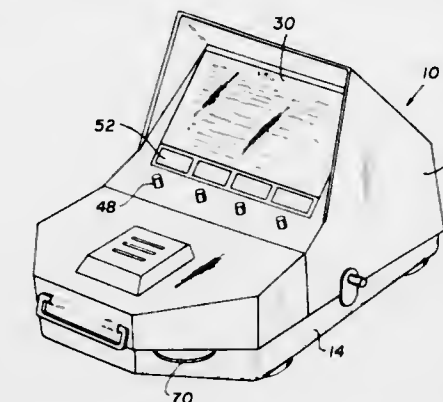
A viewing machine for projecting an image from a strip of film or the like comprising a body having a screen and optical means for projecting the image on the screen. The strip is wound in cartridge at least in part about two spaced reels. The

JUNE 12, 1973

ELECTRICAL

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strip is exposed between the reels. Means are provided for mounting the reels on a pair of rotatable studs to maintain the



exposed portion operatively related to the optics. The studs are manually movable to move the strip past the optical means to project selected portions of the strip on the screen.

3,739,070

TEACHING ASSIST

David B. Rosen, 31 Arthur Avenue, Apt. 12, East Providence, R.I., and William P. Torrey, 1 Whetstone Drive, Apt. 5, Galtersburg, Md.

Filed June 30, 1971, Ser. No. 158,204

Int. Cl. G09b 1/00

U.S. Cl. 35-48 A

1 Claim



This invention pertains to a teaching assist or device which includes a base sheet printed on two sides after which it is folded. A set of questions or instructions printed on the front or face side of the base sheet and visible through an overlying transparent sheet is attached to the end of said base sheet. On this transparent overlay the student writes his answer by means of a wax pencil or the like. After the student has completed the instructions or applied the indicated answers to the outer surface of the transparent sheet in accordance with the printed instructions the transparent sheet is lifted and the folded end of the base sheet is swung onto the face surface so as to bring into view the printed answers on the back of the base sheet. The transparent sheet is then lowered to lay on the folded portion and the correct answers or instructions printed on said back surface of the base sheet. The student's answers as written on the transparent sheet are compared with the printed answers after which the wax marks are erased from the transparent sheet and the assist is again folded for use by another student.

3,739,071

tone-color FORMING CIRCUIT IN ELECTRONIC MUSICAL INSTRUMENT

Naoyuki Niinoml, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Dec. 29, 1971, Ser. No. 213,458

Claims priority, application Japan, Dec. 29, 1970, 45/121658

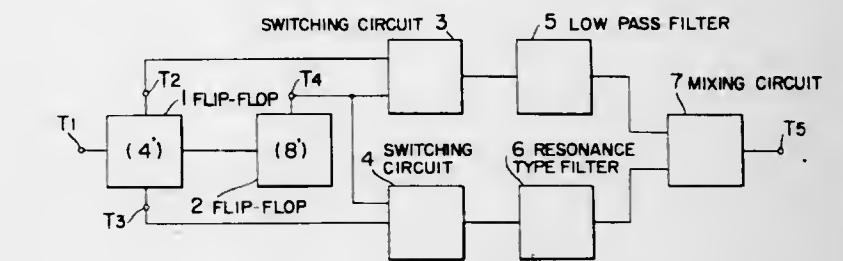
Int. Cl. G10h 1/06

U.S. Cl. 84-1.19

4 Claims

A tone-color forming circuit in an electronic musical instrument comprises fundamental tone and second harmonic tone producing circuits operable in mutual in-phase relationship, a first switching circuit of a longer decaying time connected with the outputs of the fundamental and second harmonic

producing circuits, a second switching circuit of a shorter decaying time connected with the output of the fundamental tone producing circuit and with the phase-reversed output of the second harmonic producing circuit, a first filter and a



second filter of different characteristics coupled respectively with the outputs of the first and second switching circuits, and a mixing circuit, whereby a musical tone signal of double-fold decay can be obtained from the mixing circuit.

3,739,072

GUITAR CONSTRUCTION

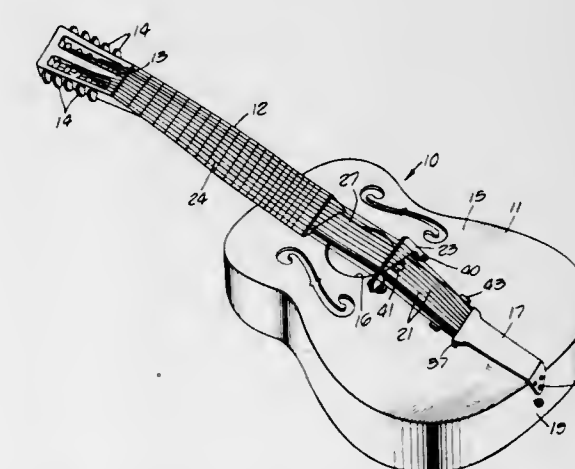
Walter E. Smith, P. O. Box A, Payette, Idaho

Filed Nov. 26, 1971, Ser. No. 202,371

Int. Cl. G10d 3/00

U.S. Cl. 84-291

5 Claims



An acoustic guitar having a neck attached to a hollow body is provided with a compression strut which relieves the hollow body of forces produced by tension of the strings. The compression strut extends from the string anchor to the neck over the sound opening in the upper surface of the body. The compression strut also supports the string-contacting bridge which is attached to said upper body surface. An adjustable support is positioned in the clearance space between the compression strut and said upper body surface.

3,739,073

TERMINATION FOR ELECTRIC CABLE AND FLUID FILLED CABLE CONDUIT

Harold N. Schneider, Springfield, and J. Kenneth Wittie, Berwyn, both of Pa., assignors to General Electric Company, Philadelphia, Pa.

Filed May 5, 1972, Ser. No. 250,658

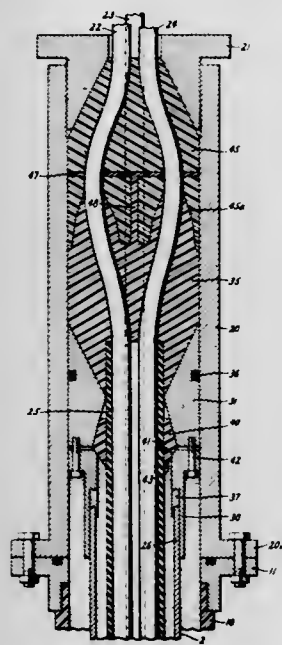
Int. Cl. H02g 15/04

U.S. Cl. 174-23 R

8 Claims

An electric cable emerging from a liquid-filled chamber under pressure, such as a deep well casing, is led through a high pressure hose or other conduit to a self sealing terminator in which the conduit and cable sheathing is terminated and from which the cable conductors alone emerge. The terminator comprises a tubular shell having a sealed tubular piston therein and a closure cap at its outlet end. The pressure hose is connected to the incoming end of the terminator shell and the cable is led into and through the piston. All cable sheathing

and armor is terminated at the piston and the cable conductors continue through the closure cap. A body of resilient seal-



ing material between the piston and closure cap is compressed by fluid pressure on the piston to seal against the cable conductors.

3,739,074

INSULATION GAS-FILLED TUBULAR CASING STRUCTURE FOR HIGH-VOLTAGE CONDUCTOR

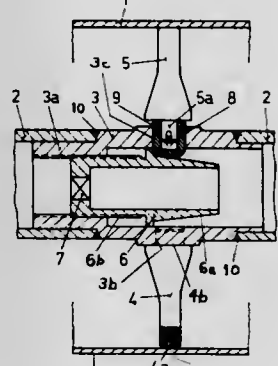
Dieter Floessel, Fislisbach, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland
Filed June 13, 1972, Ser. No. 262,174

Claims priority, application Switzerland, Sept. 16, 1971, 13539/71

Int. Cl. H01b 9/06

U.S. Cl. 174-28

6 Claims



A high-voltage tubular electrical conductor is encapsulated within an insulation gas filled rectilinear tubular casing and supported centrally within the casing by longitudinally spaced support-insulators each of which is provided with three legs spaced 120° apart about the conductor. Two of the legs are fixedly secured to the conductor structure and include rolling means in the form of balls at their outer ends to facilitate abrasion-free insertion of the conductor-support insulator assembly within the casing. The third leg is supported by the tubular conductor for movement in a radial direction by a drive mechanism to enable the leg to be moved from radially inward position establishing an initial clearance with the wall of the casing during insertion of the conductor and support insulator assembly to a radially outward position establishing a spring-loaded elastic pressure contact with the casing wall thereby to secure the support-insulator in position against longitudinal displacement. The drive mechanism for the radially displaceable leg is a tapered screw which, when rotated by a key inserted through the conductor, advances the tapered drive surface longitudinally and forces the leg radially outward.

3,739,075 CABLE STRINGING AND INSULATING APPARATUS AND METHOD

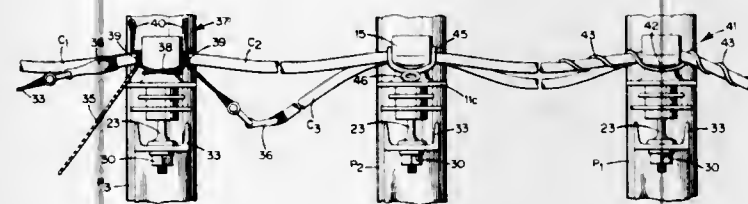
Leonard P. Jean, Nashua, and William L. Hendrix, Amherst, both of N.H., assignors to Hendrix Wire and Cable Corporation, Milford, N.H.

Filed Apr. 12, 1971, Ser. No. 132,965

Int. Cl. H02g 1/04; H01b 17/22

U.S. Cl. 174-40 R

5 Claims



Synthetic material, conductor enclosing insulator apparatus for aerial electric power distribution and transmission circuits. Eyelet insulator apparatus for initial stringing and permanent supporting of wires or conductors of aerial electric power circuits. Method of installing open cable or bare wire conductors of electric power distribution or transmission circuits by stringing the conductors through and securing them to overhead mounted insulators of such circuits.

3,739,076

ELECTRICAL CABLE TERMINATING AND GROUNDING CONNECTOR

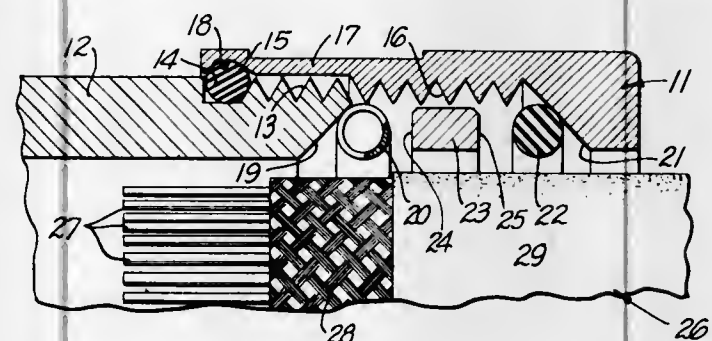
Lawrence Schwartz, 831 S. Main St., Burbank, Calif.

Filed Apr. 17, 1972, Ser. No. 244,810

Int. Cl. H02g 15/02; H01r 17/18

U.S. Cl. 174-78

8 Claims



A terminating and grounding connector for electrical cables and the like. The connector includes a housing and an end member screw threadedly mounted on said housing. A resilient annular electrically conductive coil spring is mounted between adjacent portions of the housing and end member. As the end member is rotatably threaded toward the housing, an inwardly directed annular bevel engages the spring and moves it inwardly toward an electrically shielded portion of the cable. The spring is compressed circumferentially so that its inner periphery makes electrical grounding contact with the shielded portion of the cable. In an alternative embodiment, a plurality of separate shields from the interior of a cable are passed through and held between the coils of the spring.

3,739,077

MULTIPLE CONDUCTOR BUNDLE SUPPORT AND SPACER

Paul F. Winkelman, Beaverton, Oreg., assignor to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed May 31, 1972, Ser. No. 258,143

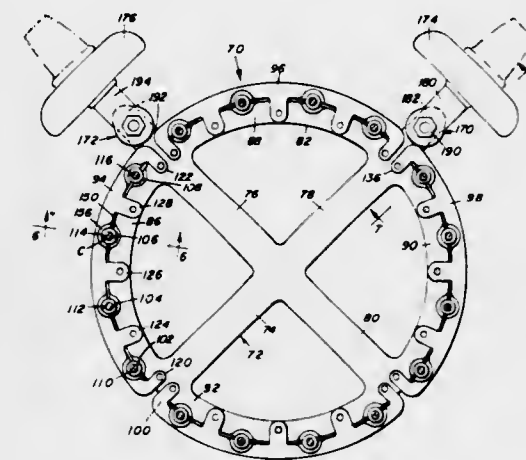
Int. Cl. H02g 7/00

U.S. Cl. 174-149 R

9 Claims

Devices maintaining the structural integrity and stability of multiple conductor bundles of a high voltage transmission line

are each constituted by a unitary circular member having a plurality of conforming members conjoined therewith in a connective relationship which faces openings of essentially semi-cylindrical complementary recesses therein so as to form an array of corresponding passages wherein the conductors of a bundle are maintained interconnected and thereby structurally supported in an expanded spatial disposition. Spaced,



interjacent coaxing portions of the respective members obtain the requisite alignment of the recesses, and facilitate the security of the assembly as its respective passages are adapted to have clamped therein individual conductors of the bundle. Embodiments of the assembly having a reinforced unitary member including extensions thereof for junctures to insulators facilitate connection of the conductor bundle to a transmission line tower.

3,739,078

APPARATUS FOR REPRODUCING COLORED IMAGES

Peter C. Pugsley, Plinner, and Mouayed E. Dobouny, Dartford, both of England, assignors to Crosfield Electronics Limited, London, England

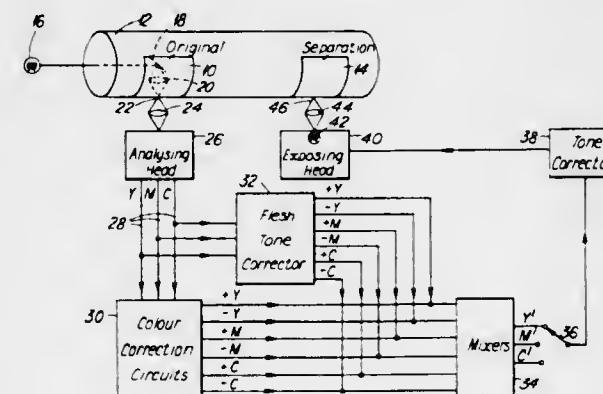
Filed Jan. 19, 1971, Ser. No. 107,674

Claims priority, application Great Britain, Jan. 28, 1970, 4,147/70

Int. Cl. G03f 3/08

U.S. Cl. 178-5.2 A

5 Claims



In color picture reproducing apparatus of the kind in which a color picture analyzing-scanner scans a color picture, element by element, and analyzes its color components to provide a number of electric signals representing respectively the densities of the different color components at the scanned elements, a circuit for changing a specified hue (such as flesh tone) recognizes the combination of signals representing the specified hue at any element and applies a correcting signal to one or more of the color channels to produce a desired modification of the hue.

3,739,079

COLOR TELEVISION CAMERA USING ONLY TWO CAMERA TUBES

Toshimasa Noda, Masafumi Hanaoka, and Akiyoshi Kouno, all of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

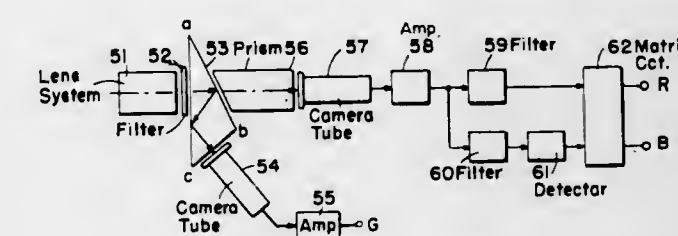
Filed Sept. 21, 1971, Ser. No. 182,353

Claims priority, application Japan, Apr. 30, 1971, 46/29196; Sept. 22, 1970, 45/83589; Nov. 13, 1970, 45/100386; Nov. 13, 1970, 45/113443

Int. Cl. H04n 9/08

U.S. Cl. 178-5.4 ST

13 Claims



A color television camera employs only two camera tubes. One tube is a color pick-up tube for obtaining a chrominance signal comprising individual signals corresponding to respective two color components of the three primary colors, and the other of which is an image pick-up tube for obtaining a luminance signal. A target for the color pick-up tube comprises a photo-diode-array-type target, and includes apparatus for color separation disposed at the surface of the target on which light is projected, such that the camera optical system may be simplified.

3,739,080

COLOR TELEVISION CAMERAS

Horst Bachmann, Darmstadt, Germany, assignor to Fernseh GmbH, Darmstadt, Germany

Continuation of Ser. No. 85,923, Nov. 2, 1970, abandoned.

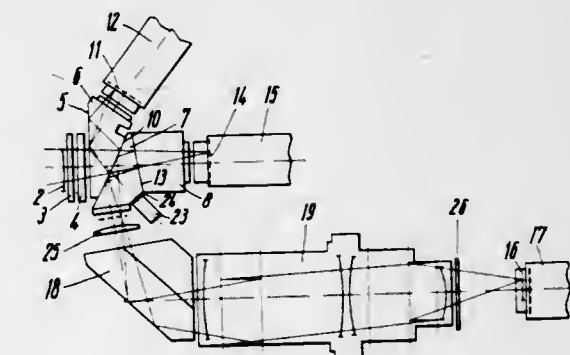
This application June 9, 1972, Ser. No. 261,441

Claims priority, application Germany, Nov. 26, 1969, P 19 59 328

Int. Cl. H04n 9/08

U.S. Cl. 178-5.4 E

5 Claims



An optical system for a color television camera comprises a beam-splitting arrangement for separating an incident light beam into three partial beams corresponding respectively to three different parts of the visible spectrum, the three partial beams being supplied to the photoelectric cathodes of respective camera tubes. One of the partial beams is supplied to the respective photoelectric cathode by way of an intermediate lens, so that the size of the image on that photoelectric cathode is different from the size of the images on the other two photoelectric cathodes.

3,739,088 PRINTING PLATE PRODUCTION METHOD AND APPARATUS

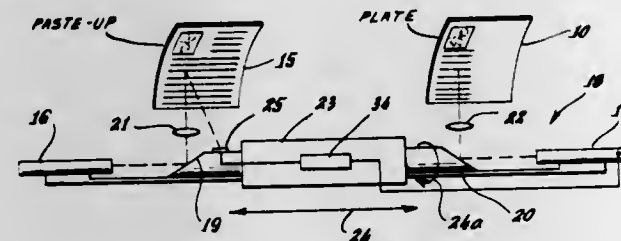
Robert M. Landsman, Norwalk, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed May 20, 1971, Ser. No. 145,187

Int. Cl. G01d 15/14; H04n 1/24

U.S. Cl. 178-6.6 TP

3 Claims



A relief printing plate is formed by providing a sheet of material that collapses within its own volume by application to a surface of the sheet of a particular type of radiant energy, such as infrared radiation, this surface of the sheet being covered by a film of material which reflects said radiation. A relief pattern is formed by vaporizing selected areas of the reflective film to uncover underlying areas of the sheet so that the unvaporized reflective film forms a reflective template of the pattern to be in relief, and thereafter applying the radiation to the surface to collapse the uncovered areas of the sheet and leave in relief the areas shielded by the reflective template. In a preferred form the reflective film is initially covered by a layer of material that absorbs sufficient heat from a beam of another type of radiant energy to vaporize the reflective film immediately underlying a spot on the absorbent layer heated by the beam. A paste-up or other graphic representation of material to be reproduced in relief is scanned to produce electric signals corresponding to contrasts in the scanned material and the signals are applied to modulate a beam of radiant energy, which is scanned over the absorbent layer in synchronism with the scanning of the graphic representation, so that the beam heats selected areas of the absorbent film to vaporize underlying areas of the reflective film in a pattern such that the unvaporized reflective film is in a pattern corresponding to the pattern to be reproduced in relief.

3,739,089 APPARATUS FOR AND METHOD OF LOCATING LEAKS IN A PIPE

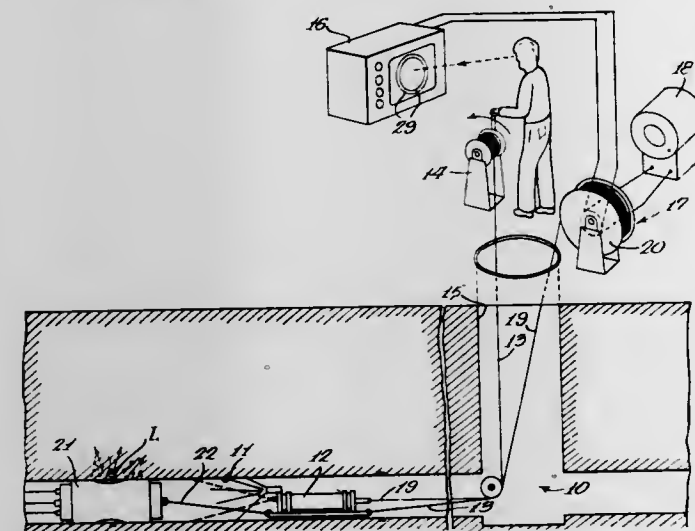
Roy C. Latall, Des Plaines, Ill., assignor to Conco Inc., Mendota, Ill.

Filed Nov. 30, 1970, Ser. No. 93,610

Int. Cl. H04n 7/18

U.S. Cl. 178-6.8

10 Claims



An apparatus for locating leaks in a pipe, such as a sewer pipe, wherein a viewing device such as a television camera is

moved longitudinally through the pipe. The image seen by the camera is displayed on a television receiver. The camera utilizes a relatively long focal length lens so that only a short length of pipe is sharply in focus at each position of the camera. Means are provided for indicating the location of the camera as it is moved along the pipe so that when a leak is found, the location of the camera and corresponding, the location of the leak are accurately indicated to the user. The apparatus utilizes only the image of the pipe and the leak itself for locating the leak.

3,739,090 PROCESS AND CIRCUIT ARRANGEMENT FOR REPRODUCTION OF A SLOWLY TRANSMITTED PICTURE IN VIDEO TELEPHONY

Wolfgang Heberle, Munich; Siegfried Guntersdorfer, Sauerlach, and Peter Klein, Gauting, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

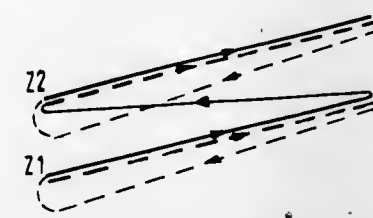
Filed July 6, 1971, Ser. No. 159,994

Claims priority, application Germany, July 6, 1970, P 20 33 441.2

Int. Cl. H04n 7/12, 7/18

U.S. Cl. 178-6.8

6 Claims



A process and apparatus are described for flicker-free reproduction, e.g., over a narrow band channel, of a slowly transmitted video telephony picture in which received picture signals are stored and repeatedly made visible on a display screen. The picture storage takes place in a storage tube in which, at the reading out of a given picture signal, the memory at this location is erased. For picture reproduction on a display screen each line stored in a storage plate of the storage tube is read out at high speed, and the picture signals, so obtained, are simultaneously portrayed on the display screen of a picture tube and recorded in an intermediate memory. Subsequently, the signals delayed by the intermediate memory are re-recorded at the same location of the previously read-out line. Thereafter, the next and all further stored lines of each picture are successively read out, reproduced, immediately stored and re-recorded back in the picture storage tube in the same manner.

3,739,091 METHOD AND APPARATUS FOR DISPLAYING IMAGE AND MEASURING OBJECT THEREIN

Kazuo Kurasawa, Hamamatsu, Japan, assignor to Hamamatsu TV Co. Ltd., Hamamatsu-shi, Shizuoka-ken, Japan

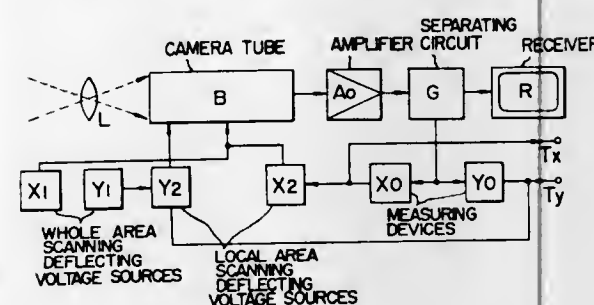
Filed Apr. 26, 1971, Ser. No. 137,365

Claims priority, application Japan, Apr. 24, 1970, 45/34765

Int. Cl. H04n 5/06, 5/22, 7/18

U.S. Cl. 178-6.8

2 Claims



A method and device for displaying an image including an object to be measured on the screen of a television receiver

3,739,094 GASEOUS LIGHT FIRING CIRCUIT FOR TELEVISION RECEIVERS

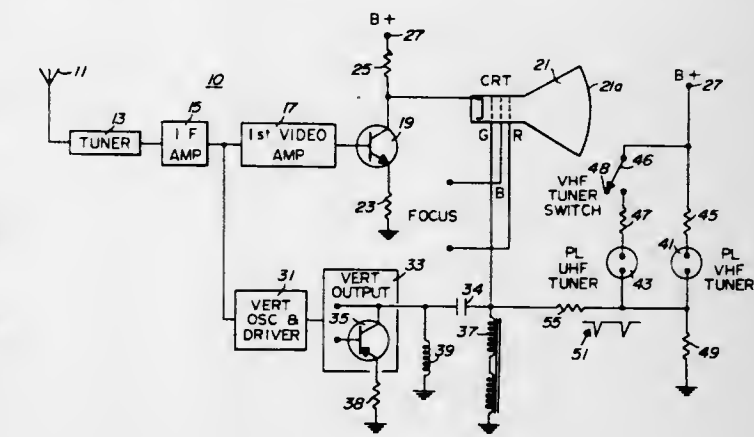
Donald E. Griffey, Skokie, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Sept. 8, 1971, Ser. No. 178,770

Int. Cl. H04n 5/44

U.S. Cl. 178-7.3 R

4 Claims



3,739,092 TELEVISION SIGNAL BLANKING

Ernst Legler, Seehelm, Germany, assignor to Fernseh GmbH, Darmstadt, Germany

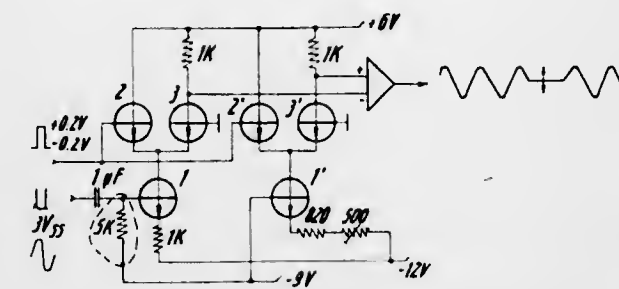
Filed Sept. 2, 1971, Ser. No. 177,346

Claims priority, application Germany, Sept. 8, 1970, P 20 44 352.1

Int. Cl. H04n 5/14

U.S. Cl. 178-7.1

6 Claims



A television signal to be blanked is supplied to an input transistor of a first cascade; a variable D-C is supplied to a base of an input transistor in a second cascade. Each cascade has two output transistors, with nullers connected to the input transistors. A base of one output transistor in each cascade is supplied with a blanking pulse; bases of the other output transistors are held at a reference voltage. A ballast resistor is connected across outputs in each cascade, and a blanked signal is taken from a difference amplifier supplied by like-biased output transistors.

3,739,093 DEVICE FOR REPRODUCING INFORMATION RECORDED IN A HOLOGRAM

Yasunori Kanazawa, Hachioji, and Yasutsugu Takeda, Kokubunji, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

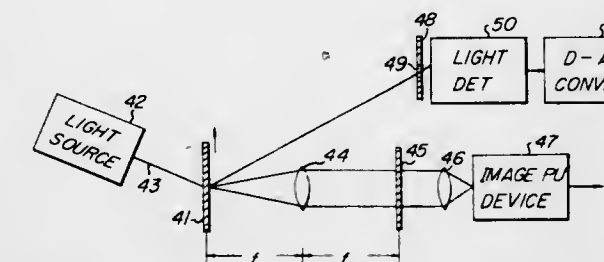
Filed July 13, 1971, Ser. No. 162,143

Claims priority, application Japan, July 17, 1970, 45/62056

Int. Cl. H04n 5/30

U.S. Cl. 178-7.2

8 Claims



A device for reproducing picture information and sound information which are recorded in a hologram in the overlapped manner, wherein the reproduction is performed while the hologram is continuously moved in one direction, a convex lens being used for the reproduction of the picture information while the sound information is reproduced directly from the moving hologram, whereby the picture information is reproduced at a fixed place while allowing a concurrent and continuous reproduction of the sound information.

3,739,095 SCANNING APPARATUS

Milton Alden, Needham, Mass., assignor to Alden Research Foundation, Brockton, Mass.

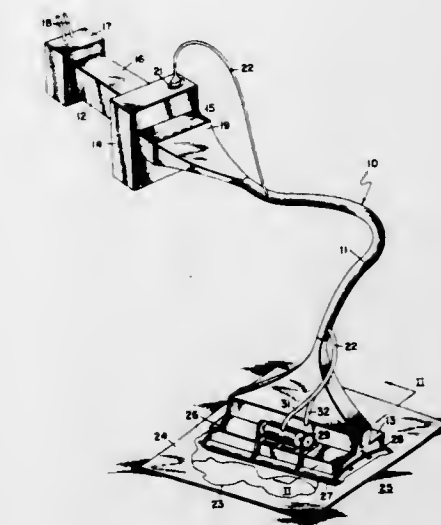
Continuation of Ser. No. 765,949, Oct. 8, 1968, abandoned.

This application Aug. 2, 1971, Ser. No. 168,406

Int. Cl. H04n 1/24, 3/02

U.S. Cl. 178-7.6

1 Claim



This invention relates to scanning apparatus and, more particularly, to equipment for reading visual material and converting it to an electrical signal representative of the visual image for retransmission to a recorder located at a remote location.

3,739,096

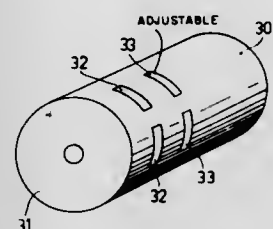
LOUDSPEAKER SYSTEM HAVING A CARDIOID DIRECTIONAL RESPONSE PATTERN

Wilhelmus Hermanus Idling, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Jan. 12, 1971, Ser. No. 105,908

Claims priority, application Netherlands, Jan. 31, 1970, 7001421

Int. Cl. G10k 13/00

U.S. Cl. 179-1 E



A loudspeaker system, preferably in the form of a straight or concavely bent column in the or each lateral wall of which at least one slit has been formed which acts only as an acoustic resistor. This ensures that the cardioid directional response pattern remains constant over a wide frequency range. The directional response pattern may be influenced by varying the location and/or the width of the or each slit.

3,739,097

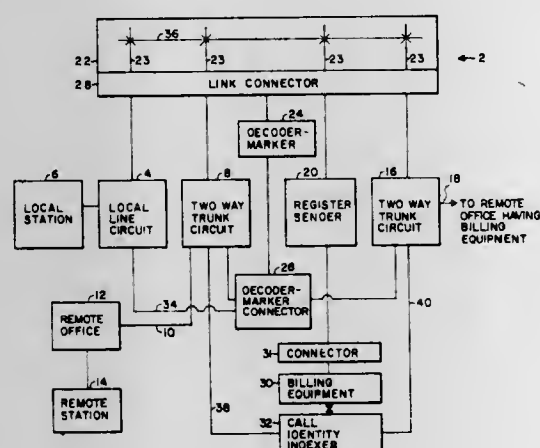
TELEPHONE MESSAGE ACCOUNTING SYSTEM

Derek Leyburn, Ottawa, Khurshid Ahmad, Kanata, and Robert Thomas Milne, Toronto, all of Ontario, Canada, assignors to The Bell Telephone Company of Canada, Montreal, Quebec, Canada

Filed Sept. 30, 1971, Ser. No. 185,300

Int. Cl. H04m 15/00

U.S. Cl. 179-7.1 R



A telephone billing system in which a call identity indexer (CII) of the billing equipment of a central office is connected both to trunk circuits serving other offices possessing billing equipment (inter-office trunk circuits), and to trunk circuits serving offices lacking billing equipment (remote trunk circuits). Each trunk circuit has an automatic message accounting relay which, when operated, identifies that trunk circuit to the billing equipment for billing. Each remote trunk circuit has a bridge relay operative on connection of a register-sender thereto, during a call by (but not to) the remote trunk circuit, to operate the AMA relay therein. When a local line circuit makes a long distance call, it operates a local relay in the decoder-marker, and the local relay causes the AMA relay of the called trunk circuit to operate. Double billing is avoided since when a remote trunk circuit calls another remote or inter-office trunk circuit, neither the local relay, nor the bridge relay of the called trunk circuit, operates.

3,739,098

SYSTEM FOR THE REMOTE SUPERVISION OF MULTICHANNEL PCM REPEATERS

Roberto Camiciottoli, and Giuseppe Grossi, both of Milan, Italy, assignors to Societa Italiana Telecomunicazioni Siemens S.P.A., Milan, Italy

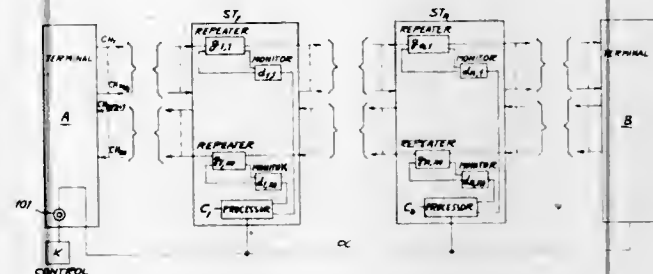
Continuation-in-part of Ser. No. 198,788, Nov. 15, 1972. This application Mar. 27, 1972, Ser. No. 238,314

Claims priority, application Italy, Mar. 26, 1971, 22336 A/71

Int. Cl. H04j 3/02

U.S. Cl. 340-258 D

6 Claims



A proximity detector and alarm in which an antenna is connected to the gate of a metal oxide semiconductor field effect transistor MOSFET which causes a silicon controlled switch (SCS) to trigger a blocking oscillator. a processor

3,739,099

LONG LINE ADAPTER CIRCUIT

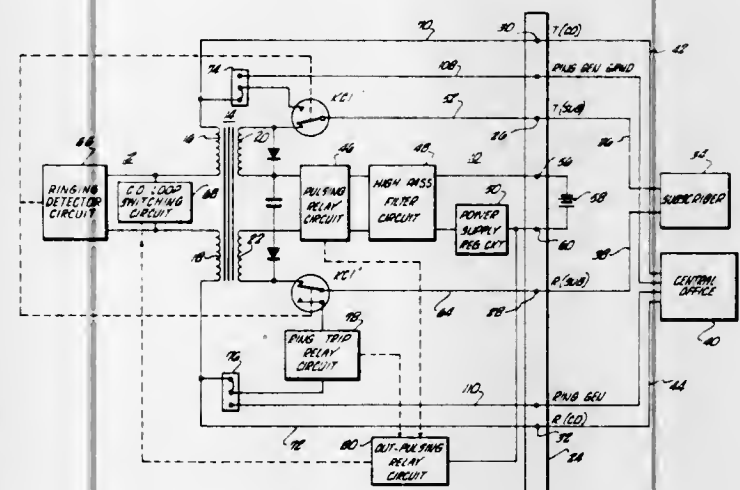
Alan R. FitzSimons, Laguna Beach, and Frank P. Mazac, Santa Ana, both of Calif., assignors to San/Bar Electronics Corporation, Long Beach, Calif.

Filed June 1, 1970, Ser. No. 42,190

Int. Cl. H04q 1/36; H04b 3/36

U.S. Cl. 179-16 F

12 Claims



A long line adapter circuit employable with telephone lines used to connect a central office to either normally or abnormally distant subscriber facilities is disclosed. The adapter circuit, which may be physically situated at a central office or at a midplacement point between a central office and a subscriber facility, includes a subscriber loop circuit and a central office loop circuit which are inductively coupled through a line coupling transformer to provide audio coupling between the central office lines and the subscriber lines. The subscriber loop circuit includes a pulsing relay circuit which responds to

a receiver being placed in an off-hook condition and to dial pulses generated by a subscriber. A high pass filter is employed to attenuate battery noise due to voltage surges created by the operation of the pulsing relay circuit. Also included is a regulator circuit for preventing saturation of the transformer and for providing current limiting when the adapter circuit is used for short subscriber's lines. The central office loop circuit includes a ringing detector circuit for sensing AC ringing signals transmitted from a central office and a switching circuit which is controlled by an out-pulsing relay circuit. The switching circuit serves to complete or close the central office loop circuit on both outgoing and incoming calls, and to discontinue the application of ringing signals to a subscriber facility on incoming calls.

3,739,100

DIAL AND MULTIFREQUENCY TELEPHONE SYSTEM EMPLOYING RINGING AND LAMP FLASH SIGNALLING

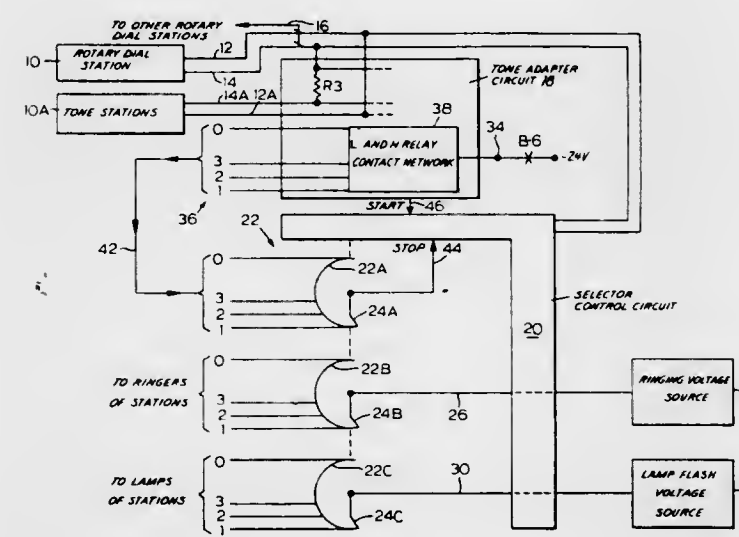
Delmar G. Cartwright, Pte. Claire, Quebec, Canada, assignor to Bell Canada, Montreal, Quebec, Canada

Filed Mar. 29, 1971, Ser. No. 128,691

Int. Cl. H04m 3/04

U.S. Cl. 179-18 AD

7 Claims



An intercom telephone system having a selector and selector control circuit to receive dial pulse digits. Ringing and lamp flash signals are applied to a called station through two levels of the selector. When some of the stations are tone (multifrequency) stations, a tone adapter circuit receives the tone digits, and causes the selector to step to a position corresponding to the digit received. As in the case of dial pulse digits, ringing and lamp flash are then applied to the called station through the levels of the selector.

3,739,101

CROSS FIELD SYSTEM WITH BISTABLE POLARIZED RELAYS

Peter Gerke, Grafelfing; Helmuth-Joachim Böck, München, and Anton Sennfelder, Gilching, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Jan. 12, 1971, Ser. No. 105,795

Claims priority, application Germany, Jan. 13, 1970, P 20 01 353.0

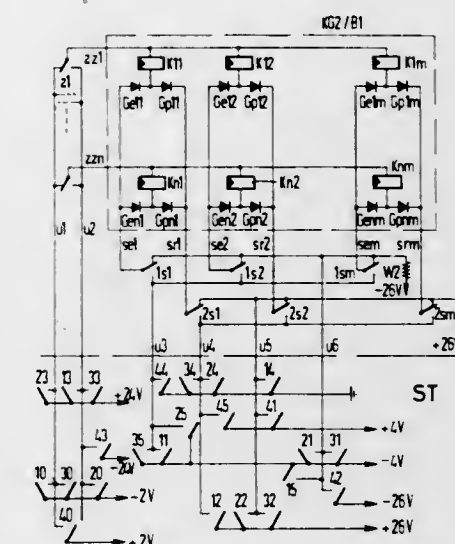
Int. Cl. H04q 3/48

U.S. Cl. 179-18 GE

5 Claims

A switching arrangement for telephone exchange installations having coupling multiples of the cross-field type con-

structed using coupling contacts of bistable polarized coupling relays, particularly, holding relays, is described. The coupling relays are selectively engageable and returnable. Each relay has a coil end connected directly to markable row input leads and the other coil end connected over two oppositely poled diodes with a column engagement lead. Each such column lead is individually markable and has an equivalent column return lead. When a coupling relay is marked for engagement or return, a marking voltage source is connected to a row input lead, and the marking voltage source is connected to a



column engagement lead or a column return lead and to ground. A first blocking potential equal to or of opposite polarity relative to the functional voltage at the marked column engagement lead is connected to the unmarked column return or engagement leads. At the unmarked column engagement or return leads, a second blocking potential is applied, which is equal to or of opposite polarity to the potential at the marked row input lead. Additionally, the unmarked row input leads are connected to a third blocking potential which is equal to or in opposite polarity to the potential at the marked column engagement or column return lead.

3,739,102

TRANSMITTER RECEIVER FOR RADIO TELEPHONE NETWORK

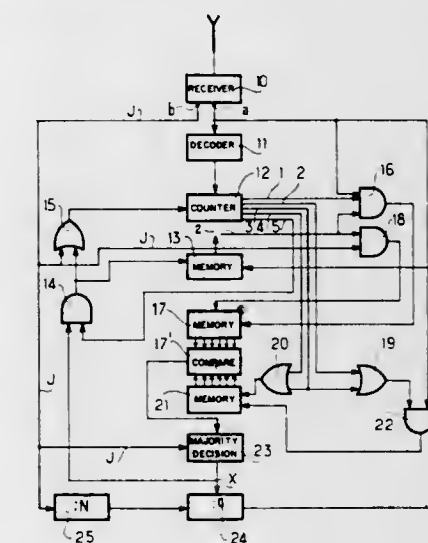
Didier Leonard, Boulogne, France, assignor to Compagnie Industrielle Des Telecommunications Cit-Alcatel, Paris, France

Filed May 28, 1971, Ser. No. 148,078

Int. Cl. H04q 7/04

U.S. Cl. 179-41 A

9 Claims



Device ensuring the selection of a fixed connection extension located so as to provide a good quality connection exclusive of other fixed extensions which are not so favorably located. The intended application is the connection between a mobile extension and a fixed extension supplied by the said connection extension.

3,739,103

SYSTEM FOR THE ADJUSTMENT OF THE PHASE POSITION OF AN ALTERNATING VOLTAGE

Heinz Hess, Weiterstadt, Germany, assignor to Fernseh GmbH, Darmstadt, Germany

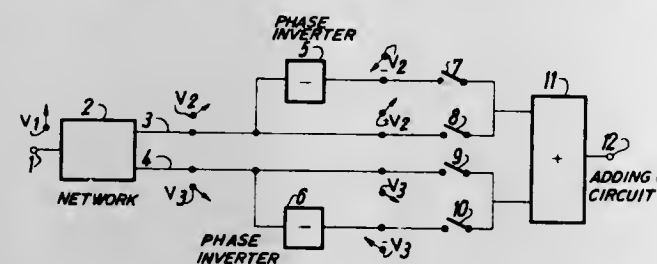
Filed July 13, 1970, Ser. No. 54,242

Claims priority, application Germany, July 12, 1969, P 19 35 445.1

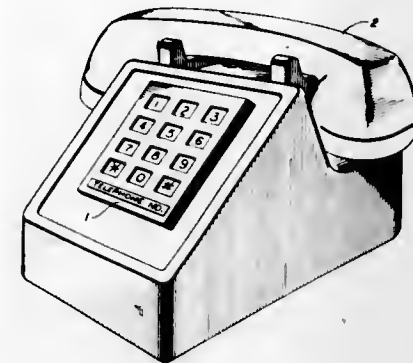
Int. Cl. H041 7/08; H03b 3/04

U.S. Cl. 178—69.5 CB

6 Claims



Phase-position adjuster, particularly for color television studio use, for generating signals of varying phase shifts and combining them by selective switching to generate a phase-corrected signal.



slidably mounted therein and bearing a legend which may correspond to the legend on the push button associated therewith. Each tab fits over its respective push button and may be secured thereto by means of a pressure sensitive adhesive applied to the underside of the tab. The tabs of the array are larger than the push buttons and are progressively offset in two dimensions with respect to the push button array, thereby to provide a tab array having larger dimensions than the push button array.

3,739,104

KEY TELEPHONE SYSTEM SIGNALING CIRCUIT

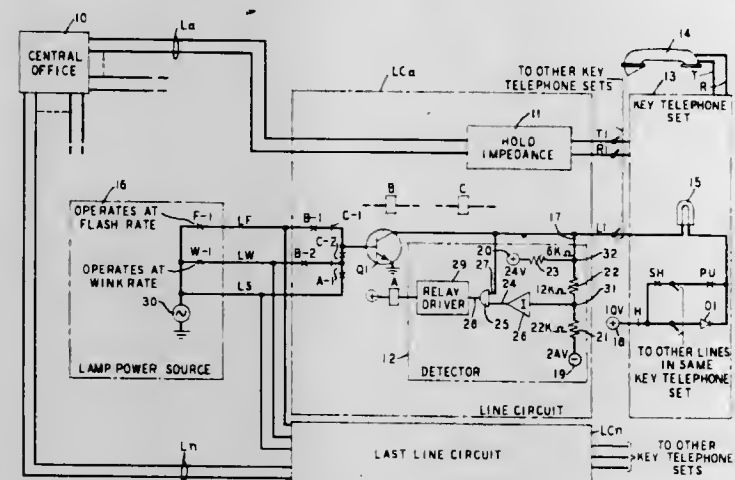
John Francis O'Neill, Boulder, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Aug. 18, 1971, Ser. No. 172,824

Int. Cl. H04m 1/00

U.S. Cl. 179—81 C

10 Claims



A combined key telephone set line lamp and line pickup key signaling circuit allows illumination of the line lamp while enabling the lamp illumination lead to carry the control information found on the usual A lead of key telephone sets. In the telephone set or at the end of the telephone station cable a single diode in series with the lamp permits illumination of the line lamp by pulsed ground potential on the illumination lead but normally blocks a source of dc potential connected to the lamp through the diode from the illumination lead. The operation of the line pickup key shunts the diode and between successive ground pulses the dc potential is detected on the illumination lead.

3,739,105

SUPPLEMENTAL PUSH BUTTON INDEX FOR USE WITH PUSH BUTTON ARRAY AS ON A PUSH BUTTON TELEPHONE

Arthur H. Anson, 3301 Congress St., Allentown, Pa.

Filed Feb. 28, 1972, Ser. No. 229,758

Int. Cl. H04n 1/26

U.S. Cl. 179—90 K

1 Claim

An apertured frame is provided which is adapted to fit over a push button array, each aperture of the frame having a tab

ARRANGEMENT AT MAGNET TAPE CARTRIDGE USING SEPARATE JACKS TO FORCE CORRECT SEQUENCE OF WRITING, READING, AND ERASING

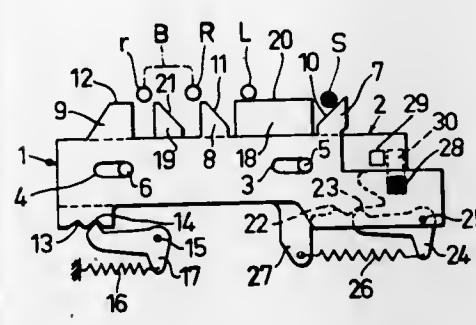
Willem Huijsers, Farsta, Sweden, assignor to Hugin Kassaregister A.B., Stockholm, Sweden

Filed Aug. 13, 1971, Ser. No. 171,582

Claims priority, application Sweden, Aug. 13, 1970, 11051/70

U.S. Cl. 179—100.2 Z

7 Claims



Computer processing often includes the insertion of a magnet tape cartridge into a jack to bring about the desired operation, i.e., writing, reading or erasing. The jacks are provided with actuating pins of different relative location to penetrate into an end recess in the cartridge and thereby to release the operation. According to the invention, the cartridge has at its insertion end two parallel slides mounted movably and provided with alternately inclined and plane guide edges and, respectively, stop edges for the actuating pins of the jacks to eliminate entirely the insertion of the cartridge into a wrong jack and thereby the risk of destroying valuable information. The cartridge in other words, is processed in a forced correct sequence writing, reading and erasing.

3,739,107

ON PREMISE TELEPHONE LOOP TESTER

Lucian W. Spencer, Dallas, Tex., assignor to Superior Continental Corporation, Hickory, N.C.

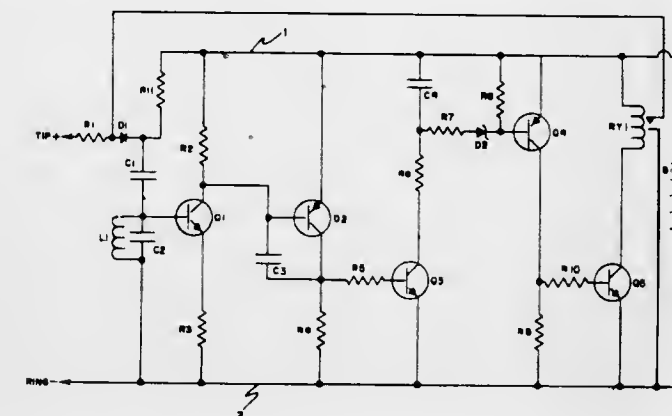
Filed Oct. 13, 1970, Ser. No. 80,380

U.S. Cl. 179—175.3

20 Claims

The instant invention relates to a device that permits a telephone line (loop) to be tested from a telephone central of-

fice, thereby eliminating the expense resulting from a visit by a repairman to a subscriber's premises. The disclosed device is responsive to an audio tone of a predetermined frequency, is located on a subscriber's premises and is activated by an audio tone of frequency within the pass band of the telephone circuit, this tone being transmitted from a central office. A tuned detector, located within the device, upon receiving said



predetermined tone, actuates a timing circuit and relay circuit that places a circuit across the tip and ring of a telephone line. The circuit simulates the electrical condition of a telephone instrument in the "off hook" position and causes central office line equipment to operate, if the telephone loop is in an operable state, thereby indicating that the telephone loop is complete from the central office to the subscriber's premises.

3,739,108

HIGH SPEED VEHICLE CURRENT COLLECTING DEVICE

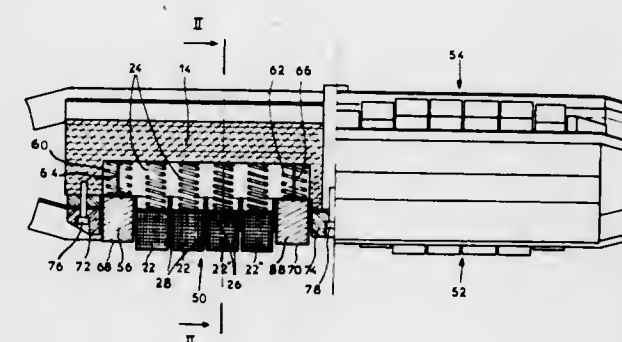
Jean-Pol Payen, Grenoble, France, assignor to Merlin Gerin, Societe Anonyme, Grenoble, France

Filed Feb. 3, 1971, Ser. No. 112,291

Int. Cl. B601 5/08

U.S. Cl. 191—58

1 Claim



Electric current collecting device for feeding of a high speed vehicle which comprises a movable shuttle, or current collecting head, mechanically guided by feed rails and contact shoes biased against these rails. Movable and stationary guide shoes are secured to the shuttle to reinforce the guide action by excessive off-centering of the shuttle, the guide shoes being in normal operating positions spaced from the feed rails.

3,739,109

SAFETY DISCONNECT SWITCH

Hans Ege, Des Plaines, Ill., assignor to Underwriters Safety Devices Co., Chicago, Ill.

Filed May 19, 1972, Ser. No. 255,093

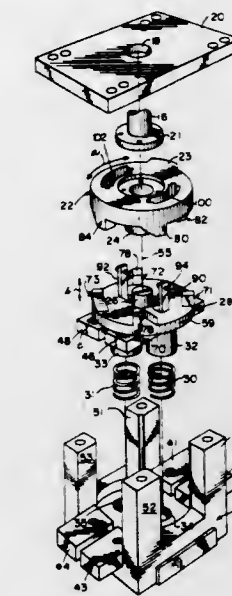
Int. Cl. H01h 19/58

U.S. Cl. 200—4

10 Claims

A safety override disconnect switch particularly adapted for emergency use in the main electrical power supply of heavy equipment. The switch features an operator controlled axially

fixed rotor having cam means for axially driving an axially movable contact-carrying element to close the switch, and heavy biasing means for strongly biasing the contacts away from the circuit connectors.



In a preferred embodiment a backup cam system becomes operational should the contact-carrying axially movable element remain stuck to circuit connectors during reverse rotation of the operator controlled rotor.

3,739,110

MULTIPLE SWITCH CONTROL ASSEMBLY WITH MULTIPLE PUSHBUTTON INTERLOCK LATCH BAR AND SAFETY SWITCH

Philip James Constable, Uxbridge, England, assignor to Drayton Controls Limited, West Drayton, Middlesex, England

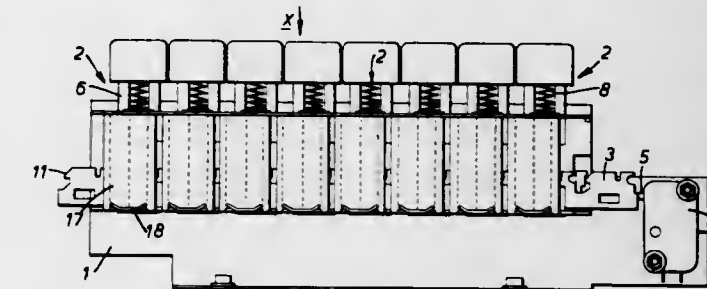
Filed Dec. 15, 1971, Ser. No. 208,208

Claims priority, application Great Britain, Dec. 22, 1970, 60826/70

U.S. Cl. 200—5 R

Int. Cl. H01h 9/26

8 Claims



A multiple push button assembly with abutment members on each pushbutton are securely held in undercut portions of a single latch bar in the respective pushbutton switch operative positions. More than one pushbutton assembly may be simultaneously actuated and interlocked in the operative position.

3,739,111

TRANSFER SWITCH FOR TAP-CHANGING REGULATING TRANSFORMERS WITH IMPROVED CONTACT STRUCTURE

Georg Wittenzellner, Oberhinkhofen, and Hans Stark, Regensburg, both of Germany, assignors to Maschinenfabrik Reinhausen Gebrüder Scheubeck K.G., Regensburg, Germany

Filed Jan. 25, 1972, Ser. No. 220,668

Claims priority, application Germany, Feb. 2, 1971, P 21 04 766.5

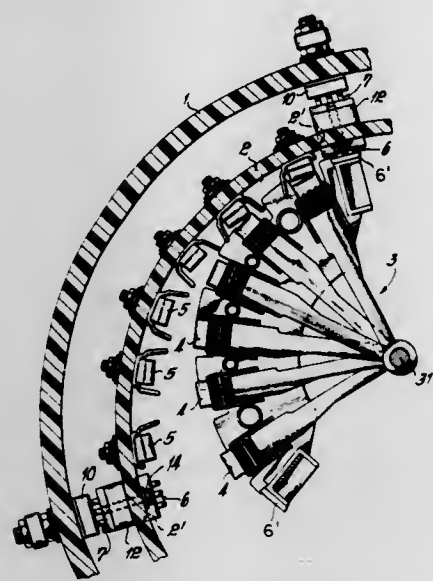
U.S. Cl. 200—11 TC

Int. Cl. H01h 21/78, 1/22

5 Claims

A transfer switch structure for tap-changing regulating transformers includes a cylindrical contact support for fixed

contacts, cooperating movable contacts arranged inside the support and a liquid containing tank for housing said contact support. The tank is provided with terminals. A novel contact



structure including spring-biased superimposed contact fingers forming an X-like pattern is provided for transferring current from the movable current-carrying contacts to the terminals of the transfer switch.

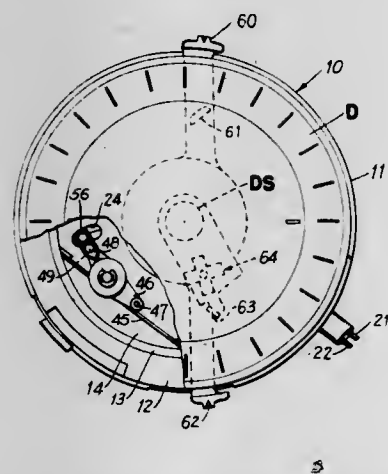
**3,739,112
ELECTRICAL TIMER SWITCH ASSEMBLY WITH
IMPROVED SWITCH OPERATOR MEANS FOR
AUTOMATIC AND MANUAL TRIPPING**

Claude V. Koch, Two Rivers, Wis., assignor to AMF Incorporated, White Plains, N.Y.

Filed Nov. 22, 1971, Ser. No. 200,768
Int. Cl. H01b 43/18; G04c 23/50

U.S. Cl. 200—38 F

6 Claims



A time switch having a receptacle in its case in which one of the receptacle contacts provides the fixed contact of the switch means and the switch actuating means is disassociated from the trip means to prevent automatic operation of said time switch.

**3,739,113
REVERSIBLE PROGRAMMER FOR ELECTRIC
CIRCUITS**

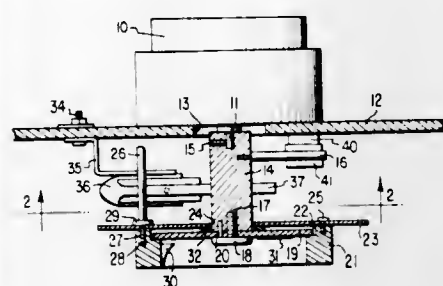
Bjorn J. Gruenwald, Easton, Pa., assignor to Alpha Press Electronics, Inc., Alpha, N.J.

Filed June 22, 1971, Ser. No. 155,581
Int. Cl. H01h 43/10, 21/28

U.S. Cl. 200—38 R

A device for providing repetitive pulses having adjustable width and spacing including a drive motor, a cam pin rotatable with the output shaft of the drive motor and a second cam pin carried with the first pin but angularly manually adjustable

relative thereto. A switch mounted adjacent the paths of travel of the pins causes the motor to periodically reverse as the pins sequentially operate the switch back and forth. One or more other switches are operated by one or both of the cam pins to



control external load means. The angular relationship of the pins is adjustable by moving one pin, through a friction clutch, relative to the other. Increasing the angle between pins increases the pulse spacing, and adjustment of an output switch position alters the pulse duration.

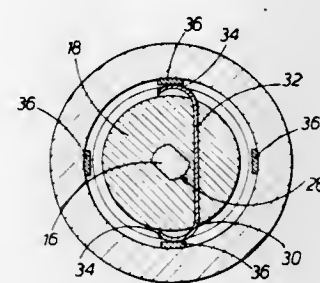
**3,739,114
SECURITY DEVICES**

Leonard Palman, 5 Windsor Circle, Hendon Lane, London N.3, England

Filed Dec. 29, 1971, Ser. No. 213,705
Int. Cl. H01h 27/00

U.S. Cl. 200—44

2 Claims



An electrical switch for use in connection with, for example, courtesy lights in automobiles, truck lights and refrigerator lights. The switch has three members, two of which are relatively movable against a biasing force to make and/or break an electric circuit supplying, for example, the courtesy light. The third member has an interference fit within a bore in one of the other two members and forms an adjustable extension thereof constituting an abutment whereby the switch is operable. When fitting the switch to a door, the third member is fitted loosely in the bore so that when the door is closed for the first time, the rod is forced through the bore to a position wherein the door is closed and the switch is operated. The interference fit retains the rod in this position.

**3,739,115
SWITCHING APPARATUS**

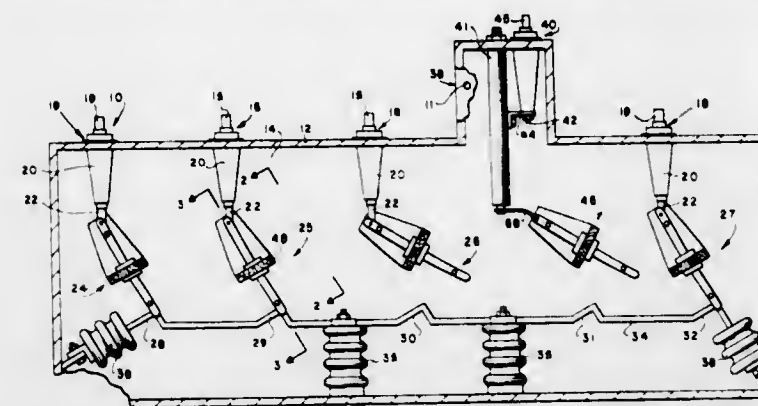
James E. McClain, and Byron G. Darnell, both of Greenville, Tex., assignors to Esco Manufacturing Company, Greenville, Tex.

Filed June 17, 1971, Ser. No. 153,981
Int. Cl. H01h 31/00

U.S. Cl. 200—48 R

Disclosed is switch apparatus having a plurality of rotatably mounted contacts having resiliently supported extensions selectively coupling a plurality of fixed contacts to another set of corresponding fixed contacts on a bus bar, the fixed bus bar

contacts being part of a continuous cross-section rod and having adjacent portions respectively tangential and perpendicular



lar to the arcuate motion of the rotatable contact at the instant of disengagement of the rotatable contact from the respective bus bar contact.

3,739,116

WATER SOFTENER REGENERATION CONTROL

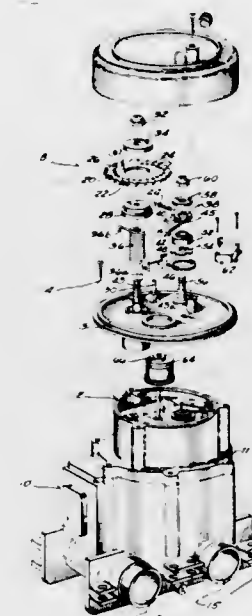
John F. Horvath, Milwaukee, Wis., assignor to Aqua-Chem, Inc., Milwaukee, Wis.

Filed Sept. 15, 1971, Ser. No. 180,747

Int. Cl. G01d 13/26

U.S. Cl. 200—56 R

15 Claims



Initiation of the regeneration cycle of a water softener is achieved on the basis of the volume of water processed by the softener. Flow volume is measured and when a preselected amount of flow has occurred, a control is actuated to initiate the regeneration cycle. The mechanism for translating the measured flow is reset to the prescribed starting point after the regeneration cycle has been initiated and is adjustable to provide control at any one of a number of different flow galonages.

3,739,117

**MAGNETIC SWITCH FOR GAME BOARDS WITH
MOVABLE MAGNET CONTACT**

Robert A. Melton, 320 N. Johnson, Macomb, Ill.

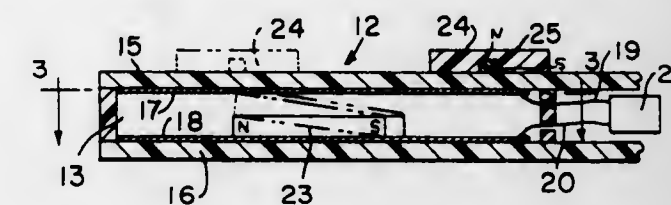
Filed Mar. 8, 1972, Ser. No. 232,797

Int. Cl. H01h 3/16, 36/02

U.S. Cl. 200—61.1

The magnetic switch comprises a plastic enclosure located beneath the playing surface of a game board. A sheet or strip of copper foil is secured to the underside of the top wall of the enclosure and a second sheet or strip is secured to the upper

surface of the bottom wall. These sheets are connected into a signal circuit by leads. A bar magnet rests on the lower conductive sheet. A playing piece has a magnet embedded in it. When the playing piece is moved over the proper pole of the



bar magnet, one end will be elevated into contact with the upper conductive sheet, thus closing the electric signal circuit. A paramagnetic cup may be substituted for the bar magnet, or a steel ball may be substituted for the playing piece.

3,739,118

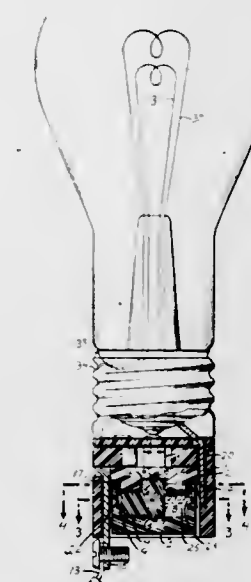
INERTIALLY OPERABLE ELECTRICITY SWITCHES
Wallace A. Bounds, 3726 135th Avenue S.E., King County, Wash.

Filed June 14, 1971, Ser. No. 152,716

Int. Cl. H01h 35/14

U.S. Cl. 200—61.45 R

48 Claims



An inertially operable electricity switch, otherwise described as an impulse switch, of relatively small size. Combinations of the small impulse switch and socket adapter, movable room lamps and long life light bulbs. The switch is operated by a small relatively sharp movement of that electrical device in which it may be assembled, such as in a table lamp and its socket when the table lamp is gently and momentarily accelerated in its upper part where the switch is contained within the socket. The lamp remains in place with socket and switch in the same single general attitude but sways momentarily. New components of the switch which enable it to function as it does are a small unstable mass linked to switch contacts and release and stabilizing means for releasing and holding contacts in the proper position. Movement of the unstable mass with respect to the remainder of the switch are particularly its structure or mounting interchanges switch contacts, while the release and stabilizing means holds them in their new positions when acceleration is stopped.

The separate combinations of the switch with each of a light bulb socket, socket adapter, and light bulb itself are operated also by gentle and momentary acceleration. The new switch with its combinations are primarily intended to enable easier and more convenient lighting operations than are now afforded by similar devices in popular use.

3,739,119

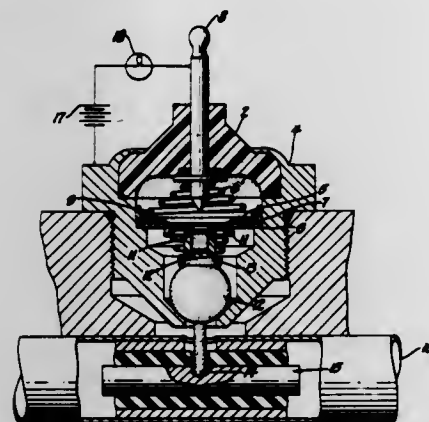
PISTON ACTUATED PRESSURE RESPONSIVE SWITCH WITH RECENTER CONTACT ADJUSTMENT MEANS
Richard C. Rike, Dayton, Ohio, assignor to General Electric Corporation, Detroit, Mich.

Filed Sept. 1, 1971, Ser. No. 176,972

Int. Cl. H01h 33/38

U.S. Cl. 200-82 D

1 Claim



A pressure responsive switch for indicating the loss of pressure in a vehicle brake line with the switch being actuated by piston movement through a swivel or toggle arrangement including a contact ring which is engaged by a contact to complete a circuit when hydraulic pressure occurs. The contact remains in electrical engagement after the toggle returns to its center position. The switch has a stem which is pressed inwardly to recenter the contact after the brake system has been repaired.

3,739,120

FLEXIBLE SWITCH SUPPORT AND TERMINAL CONNECTOR

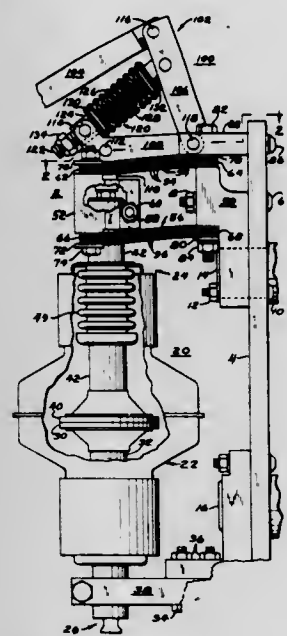
Robert V. Starr, Amity, Pa., assignor to McGraw-Edison Company, Elgin, Ill.

Filed July 15, 1971, Ser. No. 162,923

Int. Cl. H01h 166 J

U.S. Cl. 200-144 B

5 Claims



A movable electrically conductive connector for a switch is disclosed which comprises a support structure having a pair of spaced apart straps each comprising a plurality of thin, flexible, conductive laminated plates. The straps have a superimposed position with the corresponding ends of each of the straps being clamped to a fixed terminal and the opposite ends of the straps each being clamped to the movable stem of a movable switch contact. The straps are movable with the contact stem in a substantially straight line perpendicular to the horizontal planes of the straps over a small travel distance of the contact stem.

3,739,121

TORQUE TUBE VACUUM SWITCH

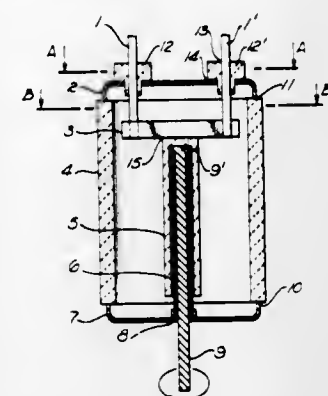
Floyd D. Miles, Saratoga, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Oct. 12, 1971, Ser. No. 188,385

Int. Cl. H01h 33/66

U.S. Cl. 200-144

13 Claims



A vacuum switch employing a torque tube extending into the evacuated enclosure. A control rod extends within the open external torque tube end and engages the internal end so that an externally applied torque on the rod torsionally deflects the internal end of the torque tube. Rotatable switch elements within the enclosure are activated by this motion. Bridging (double-gap) embodiments and various switching format versions are shown.

3,739,122

HIGH VOLTAGE ARC EXTINGUISHING CIRCUIT INTERRUPTER

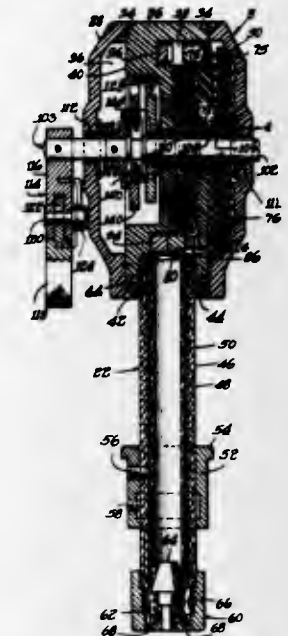
Chester E. Pierzchala, Wheaton, Ill., assignor to Reliable Electric Company, Franklin Park, Ill.

Filed July 19, 1971, Ser. No. 163,581

Int. Cl. H01h 33/12

U.S. Cl. 200-146 R

13 Claims



A load interrupter unit of the arc expulsion type has a dielectric body with a fixed contact on the body and a dielectric rotor rotatable in the body and carrying a movable contact. A snap-acting or timing mechanism is used to rotate the rotor in one direction for effecting a quick-break of the contacts, and the same mechanism is used to rotate the rotor in the same direction to effect a quick-make of the contacts. The circular contact path renders the unit relatively compact. The gases produced by the arc pass between the separating contacts and quench the arc, and the gases pass to the outside of the unit through an expulsion vent. A dielectric wall of the body isolates and protects parts of the mechanism from the chamber in which the arc is formed.

3,739,123

CIRCUIT BREAKER

Zenichi Nakano, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

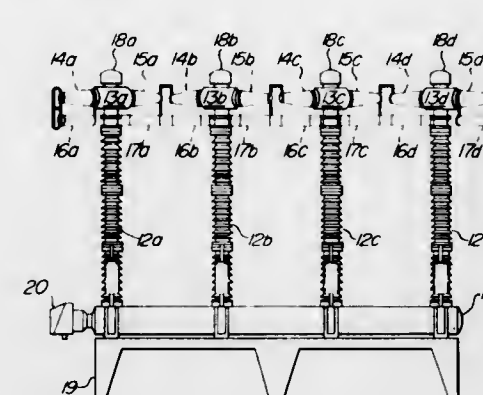
Filed Nov. 16, 1971, Ser. No. 199,194

Claims priority, application Japan, Nov. 24, 1970, 45/102778

Int. Cl. H01h 33/54

U.S. Cl. 200-148 R

10 Claims



A circuit breaker wherein a pair of valves having different diameters are connected with each other through an actuating rod so as to constitute first differential valve means, a valve seat having a diameter smaller than that of the smaller-diameter valve is provided in the larger-diameter valve in such a manner as to be able to be brought into and out of contact with the larger-diameter valve, second differential valve means is established between the smaller-diameter valve and the effective minimum diameter given by the contact of the valve seat with the larger-diameter valve so that pressure medium always acts on these two valves, the aforementioned two differential valve arrangements are reversed through the engagement and disengagement of the valve seat and by controlling the pressure of the medium acting on the larger-diameter valve by means of a controller, whereby the aforementioned actuating rod is biased either in the closing direction or breaking direction, and thus the breaking portion connected with the actuating rod is operated.

3,739,124

BLAST-PISTON CIRCUIT BREAKER

Frederich Richter, and Heinz-Helmut Schramm, both of Berlin, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

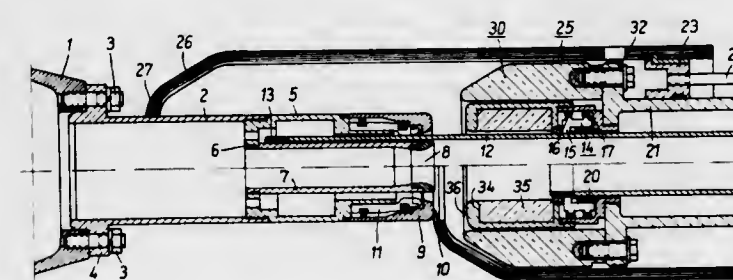
Filed Apr. 10, 1972, Ser. No. 242,380

Claims priority, application Germany, Apr. 30, 1971, P 21 22 183.0

Int. Cl. H01h 33/70

U.S. Cl. 200-148 A

4 Claims



The circuit breaker is provided with a stationary contact, made hollow for the removal of switching gases, and a movable contact pin which is movable with the blast cylinder relative to the stationary piston. The length of the contact pin is such that the contact pin separates from the contact only when the free volume of the blast cylinder is reduced to one-half.

half. The end of the blast cylinder slides on a tube surrounding the contact which tube has a bent end face spaced in opposition to a metal part enclosed by the stationary piston to define a planar spark gap, the diameter of which is twice as large as that of the movable contact pin.

3,739,125

PUFFER-TYPE GAS-BLAST CIRCUIT BREAKER

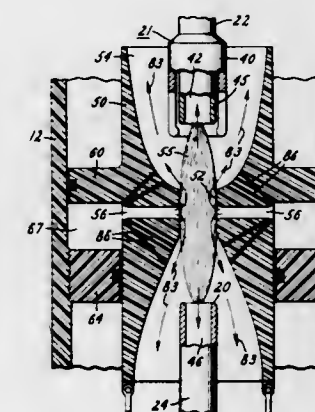
Heinz O. Noeske, Cherry Hill, N.J., assignor to General Electric Company, Philadelphia, Pa.

Filed Apr. 27, 1972, Ser. No. 248,123

Int. Cl. H01h 33/70

U.S. Cl. 200-148 A

11 Claims



A puffer-type gas-blast circuit breaker comprises a pair of separable electrodes between which an arc is established and a nozzle having a throat of insulating material through which the arc extends. A plurality of injection passages extend radially of the nozzle into the throat region and intersect the throat at their inner ends. Pump means operates in response to circuit-breaker opening to inject arc-extinguishing gas through the injection passages into the throat, and this gas is forced to flow axially of the arc in opposite directions from the throat toward the spaced electrodes.

3,739,126

SWITCH ASSEMBLY

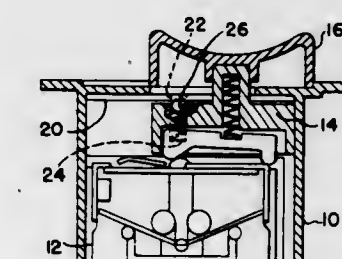
Edward V. Sahrbacker, Brecksville, and Julius P. Wied, Boston Heights, both of Ohio, assignors to Lucerne Products, Inc., Northfield, Ohio

Filed June 1, 1971, Ser. No. 148,512

Int. Cl. H01h 15/02, 3/50, 9/06

U.S. Cl. 200-157

1 Claim



A slide button tool handle electric switch having a reciprocable slide button for actuating the switch. The switch includes means for detachably retaining the slide button in at least one of its reciprocable positions. The switch also includes guide means for guiding and limiting the reciprocable travel of the slide button.

3,739,127

KEYBOARD PULSE SWITCH

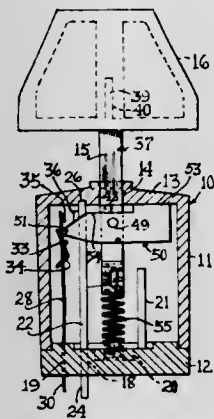
Eric L. Long, and Walter L. Cherry, both of Waukegan, Ill., assignors to Cherry Electrical Products Corporation, Waukegan, Ill.

Filed Feb. 17, 1972, Ser. No. 227,058

Int. Cl. H01h 13/50, 1/50

U.S. Cl. 200—160

7 Claims



An electric switch having a momentary pulse-like action embodied in a housing through which an actuator is adapted to be reciprocally moved, with the switch associated with a so-called keyboard assembly utilized in electronic equipment such as computers, data processing machines, and electric typewriters. A trip member is mounted on the actuator with limited pivotal movement relative thereto. A spring contact is stressed by the trip member, and when released springs into momentary contact with a stationary contact with a stationary terminal. The spring contact may be coated with lead, tin, or other dense material to absorb and restrain bounce of the contact.

3,739,128

FLAME PROOF THERMOSTAT BOX

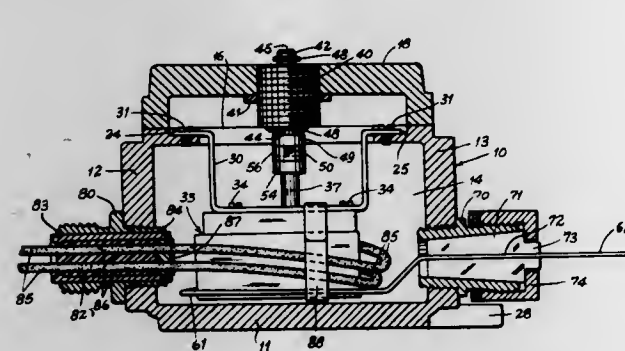
Glenda F. Kaesser, St. Louis, and Marshall G. Zavertnik, Manchester, both of Mo., assignors to Killark Electric Manufacturing Company, St. Louis, Mo.

Filed Sept. 30, 1971, Ser. No. 185,319

Int. Cl. H01h 21/08

U.S. Cl. 200—168 G

13 Claims



A flame proof box to contain any one of several commercially available thermostat switches with a readily removable strap support for the switch; readily removable flame-proof means to conduct the wires and the capillary tube of the thermostat through the walls of the box; and a flame-proof means through the removable cover of the box for adjustment of the thermostat, that has a lost motion, positive-connection, clutch device that enables the cover to be secured in place and the clutch elements to be interengaged without pre-alignment of the clutch elements.

TUBE WELDING APPARATUS AND METHOD

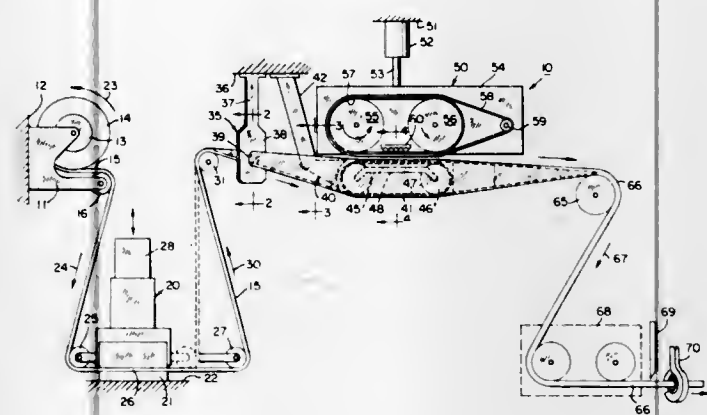
Norman K. Miller, Concordville, Pa., assignor to Miller Brothers, Concordville, Pa.

Filed Nov. 26, 1971, Ser. No. 202,322

Int. Cl. H05b 9/04

U.S. Cl. 219—10.53

9 Claims



Apparatus and method wherein a web of material to be welded is longitudinally fed and simultaneously constrained to a transversely concave configuration, encompassing an arbor or support in the concave relation with web margins overlapping, and welding means welding the overlapping margins in cooperation with the supporting arbor.

3,739,130

MULTI-CAVITY MICROWAVE APPLICATOR

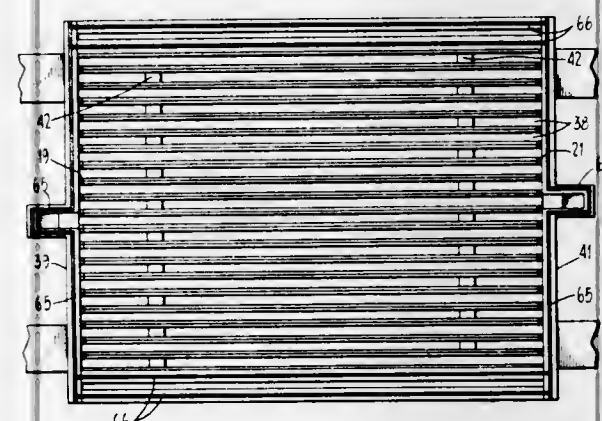
Jerome R. White, Saratoga, Calif., assignor to Guardian Packaging Corporation, Newark, Calif.

Filed May 25, 1972, Ser. No. 256,645

Int. Cl. H05b 9/06

U.S. Cl. 219—10.55

12 Claims



A multi-cavity applicator is described for treating a moving web of material uniformly across its width with microwave energy. The applicator is made up of two separate sets of cavity resonators which are intermeshed with one another to provide a material treatment zone made up of alternating resonators of the two sets. The cavities of each set are energy coupled together and are individually dimensioned to support one of the classes of modes consisting of $TE_{1,0,n}$, $TM_{1,1,n}$, $TE_{0,1,n}$ and $TM_{0,1,n}$ where n represents an integral number. Moreover, the resonators of each set in the treatment region are so positioned relative to the resonators of the other set that the points of highest electrical intensity in adjacent ones of such resonators are in space quadrature, i.e., the points of highest electrical intensity in the adjacent resonators are 90° spatially out of phase.

3,739,131

APPARATUS FOR INDUCTIVELY SURFACE-HARDENING WORKPIECES OF AT LEAST APPROXIMATELY AXIALLY SYMMETRICAL SHAPE

Friedhelm Reinke, Remscheid, Germany, assignor to AEG-Elotherm G.m.b.H., Remscheid-Hasten, Germany

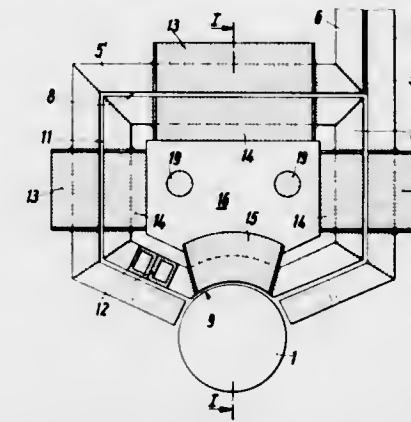
Filed July 17, 1972, Ser. No. 272,636

Claims priority, application Germany, Sept. 23, 1971, P 21 47 518.3

Int. Cl. H05b 5/02

U.S. Cl. 219—10.79

10 Claims



An apparatus for inductively surface-hardening a workpiece having two heating conductors extending on each side of the workpiece parallel to the workpiece axis and a cross conductor at one end of the workpiece completing the conductor loop. According to the invention of this application, a further conductor is provided about the workpiece with surfaces extending parallel to and slightly separated from inner surfaces of the cross conductor ground part of the circumference and around the workpiece for the rest of the circumference so that current flow is induced in the further conductor. The further conductor is preferably mounted for axial movement so that the distance between a stop holding one end of the workpiece and the further conductor remains the same.

3,739,132

POWER CONTROL CIRCUIT FOR RESISTANCE HEATING MOVING CONDUCTORS

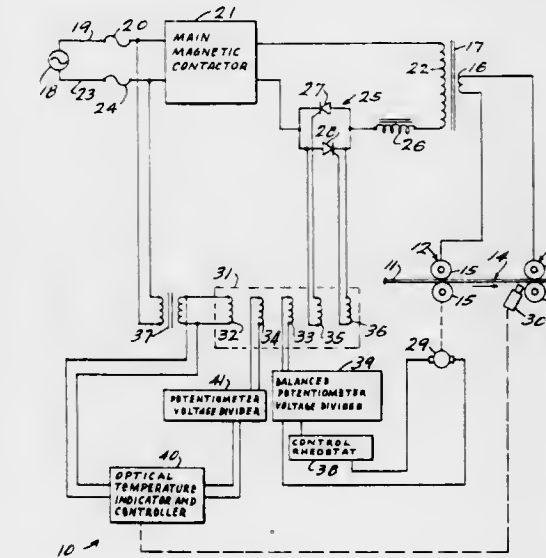
Edgar A. Ellinghausen, and George B. Johnson, both of Crystal Lake, Ill., assignors to Interstate Drop Forge Co., Milwaukee, Wis.

Filed Dec. 1, 1971, Ser. No. 203,581

Int. Cl. H05b 1/02

U.S. Cl. 219—50

3 Claims



A circuit for regulating the temperature to which a moving conductor such as a wire or rod is heated. The conductor is electrically heated by the Joule effect as it passes between two or more electrical contacts. Current in the conductor is controlled in response to both the temperature and the speed of the conductor.

3,739,133

APPARATUS FOR WELDING TUBES INTO TUBE PLATES

Karl Kadlez, and Adolf Marek, Vienna, both of Austria, assignors to Simmering-Graz-Pauker Aktiengesellschaft fur Maschinen-Kassel-und-Waggonbau, Vienna, Austria

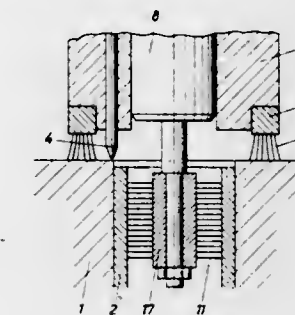
Filed July 13, 1971, Ser. No. 162,046

Claims priority, application Austria, July 14, 1970, 6381; June 9, 1971, 4983

Int. Cl. B23k 9/02

U.S. Cl. 219—60 A

12 Claims



Apparatus for welding tubes to tube plates in an inert gas atmosphere comprises a welding head carrying a gas shield in surrounding relation to the welding electrode to confine the inert gas to the welding zone. The gas shield comprises heat-resisting insulating material to enable close juxtaposition to the electrode so as to confine the welding zone and the material also is flexible in order to maintain contact with the tube plate despite irregularities of the plate surface or the ends of the tubes secured thereto in order to exclude surrounding atmosphere from the welding zone. The welding head may have a slidably supported centering member including a mandrel portion for extending into a tube to center the head and a portion extending axially of the mandrel portion and carrying a similar gas shield of flexible material for engaging the inner surface of the tube after the mandrel has been withdrawn from the tube and during the welding operation.

3,739,134

PROCESS FOR TACK WELDING AND FINISHING SPIRALWELD PIPE

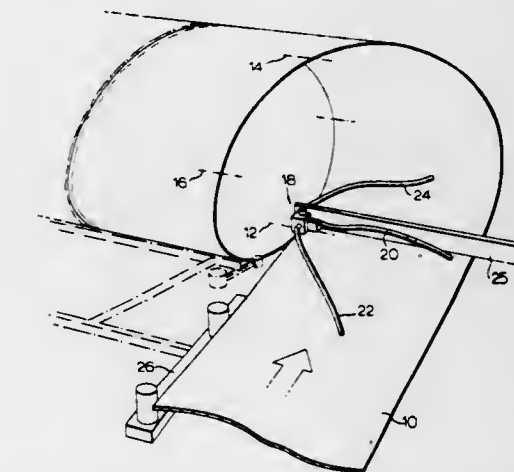
Harry C. Wade, Hamilton, and John W. Witts, Fonthill, Ontario, both of Canada, assignors to The Steel Company of Canada Limited, Hamilton, Ontario, Canada

Filed Dec. 29, 1971, Ser. No. 213,269

Int. Cl. B23k 1/16

U.S. Cl. 219—62

4 Claims



A process is disclosed for producing spiralweld pipe, in which skelp is delivered to a rolling station, rolled, and continuously tack-welded together at the lowermost point in the vertical cross-section of the pipe. The pipe is removed and the tack-weld is converted to a secure seam by submerged-arc welding at another location.

3,739,135

ELECTRO-EROSION MACHINING APPARATUS

Jean Pfau, Collonge-Bellerive, (Geneva), Switzerland, and Hubert Schaidt, Munich, Germany, assignors to Ateliers des Charmilles S.A., Geneva, Switzerland

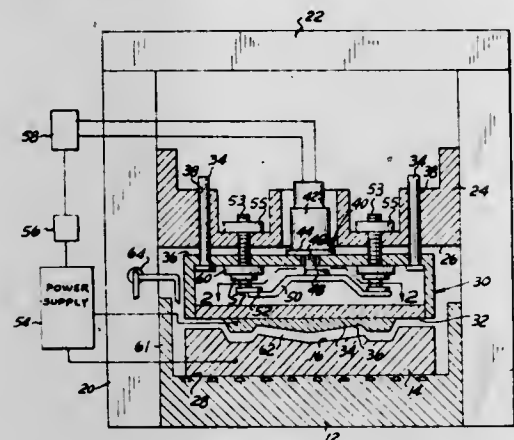
Filed Oct. 20, 1971, Ser. No. 190,986

Claims priority, application Switzerland, Oct. 22, 1970, 15681/70

Int. Cl. B23p 1/04, 1/14

U.S. Cl. 219—69 G

7 Claims



An electro-erosion machining apparatus particularly adapted for electro-eroding workpieces of large dimensions and weight. The apparatus is provided with a frame supporting a pair of parallel platens, one of the platens being adjustably positionable at various positions relatively to the other platen. An intermediary platen, disposed between the two platens mounted on the frame of the apparatus, is supported from one of the platens by appropriate guiding means and is driven relatively thereto by way of a servo mechanism controlled by the servo control adapted to normally maintain a finite spacing between the surface of a workpiece and the working surface of an electrode tool in electro-erosion machining apparatus. The intermediary platen forms part of the workpiece and electrode tool assembly of the apparatus.

3,739,136

PROCESS AND APPARATUS FOR MACHINING BY ELECTRO-EROSION

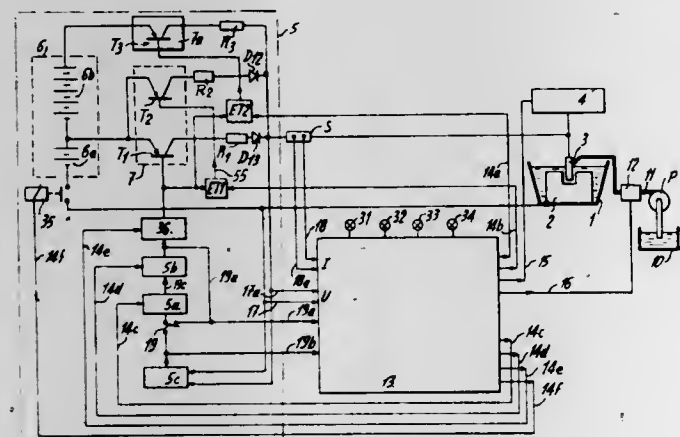
Georges-Andre Marendaz, Geneva, Switzerland, assignor to Ateliers Des Charmilles S.A., Geneva, Switzerland

Filed Mar. 22, 1972, Ser. No. 236,826

Int. Cl. B23p 1/08, 1/14

U.S. Cl. 219—69 C

10 Claims



A process and installation for machining by electro-erosion, comprising means for measuring the voltage between the electrode and the part to be machined during a discharge, and a device sensitive to the difference between the voltages corresponding to two distinct discharges, this device acting upon the electrical and/or the mechanical control of the installation.

3,739,137

PROCESS AND APPARATUS FOR MACHINING BY ELECTRO-EROSION

Georges-Andre Marendaz, Geneva, Switzerland, assignor to Ateliers Des Charmilles S.A., Geneva, Switzerland

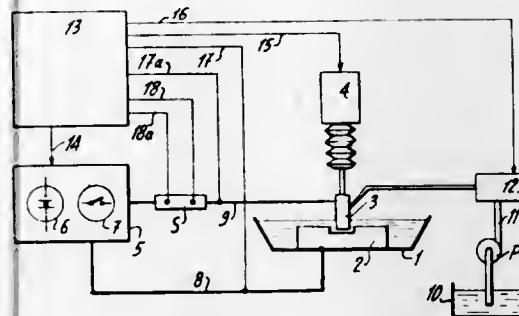
Filed Mar. 22, 1972, Ser. No. 236,827

Claims priority, application Switzerland, Mar. 25, 1971, 4401/71; Mar. 25, 1971, 4402/71

Int. Cl. B23p 1/08, 1/14

U.S. Cl. 219—69 C

13 Claims



A process and installation for machining by electro-erosion, comprising means for measuring the rate of variation of the voltage of the machining gap during the establishment of each discharge, these means acting upon the electrical and/or the mechanical control of the installation.

3,739,138

SPARK EROSION MACHINING

Bernard Arthur Hall, Birmingham, and Stanley Peter Hollins, Streetly, both of England, assignors to Joseph Lucas (Industries) Limited, Birmingham, England

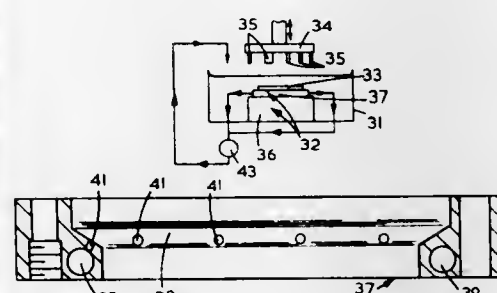
Filed June 29, 1972, Ser. No. 267,594

Claims priority, application Canada, Feb. 7, 1971, 31081

Int. Cl. B23p 1/08

U.S. Cl. 219—69 D

5 Claims



Apparatus for use in spark erosion machining a plurality of through bores in a work piece. The apparatus includes a work piece support and an electrode support which is movable relatively towards and away from the workpiece support. The workpiece support defines a recess which in use is closed by the work piece so that the work piece and support define a chamber which is open by way of the bores being machined in the work piece. The work piece support contains a conduit extending around the recess and communicating with the recess by way of a plurality of passages which are spaced around the wall of the recess and the apparatus also includes a pump and means coupling the pump to the conduit so that during operation of the pump a pressure difference exists between opposite sides of the work piece so that dielectric liquid is caused to flow through the bores which are being machined in the work piece. The apparatus further includes detachable plugs for blocking predetermined passages of said plurality of passages so as to provide different pressure differences between opposite sides of the work piece in selected regions of the work piece.

3,739,139

APPARATUS FOR SHORT CIRCUIT ELECTRIC ARC WELDING

Klas Bertil Weman, Laxa, Sweden, assignor to Elektriska Suetningsaktiebolaget, Gothenburg, Sweden

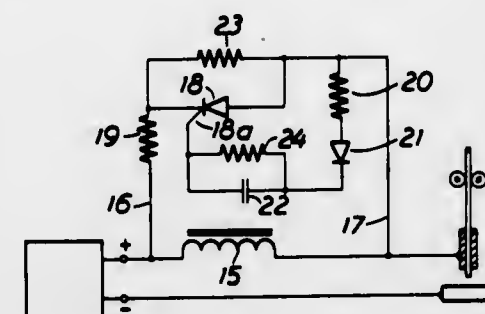
Filed Jan. 5, 1971, Ser. No. 103,983

Claims priority, application Sweden, Jan. 14, 1970, 387/70

Int. Cl. B23k 9/10

U.S. Cl. 219—131 R

5 Claims



A D.C. arc welding circuit containing a series inductor shunted by a branch containing a half-wave rectifier and a resistor. The rectifier is poled so as to block the current produced in said shunt branch by the voltage induced in the inductor on rise of the magnetic flux in the inductor.

3,739,140

COMBINATION WELDING TORCH

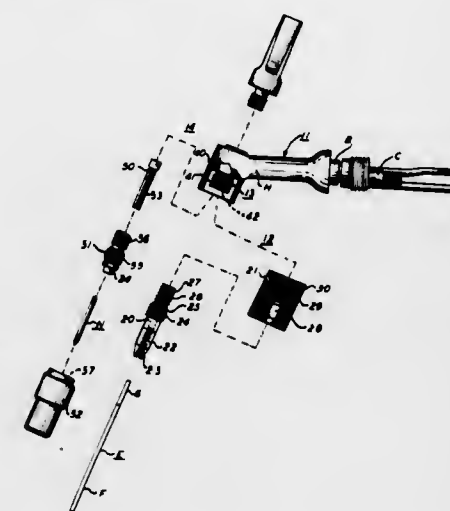
James V. Rotillo, 329 Hackensack Street, Carlstadt, N.J.

Filed Sept. 20, 1971, Ser. No. 181,741

Int. Cl. B23k 9/28

U.S. Cl. 219—144

1 Claim



A combination welding torch. Adapter means are provided for electric arc welding utilizing a consumable electrode interchangeable with elements for inert gas shielded arc welding utilizing a non-consumable electrode, and connection means are provided for use in the welding torch apparatus, to thereby provide a unitary welding torch usable interchangeably for performance of welding operations.

3,739,141

FUSED EYELETING MACHINE

William Jordan Siegel, 814 East Franklin Avenue, Silver Spring, Md.

Continuation of Ser. No. 756,133, Aug. 29, 1968, abandoned.

This application July 26, 1971, Ser. No. 166,303

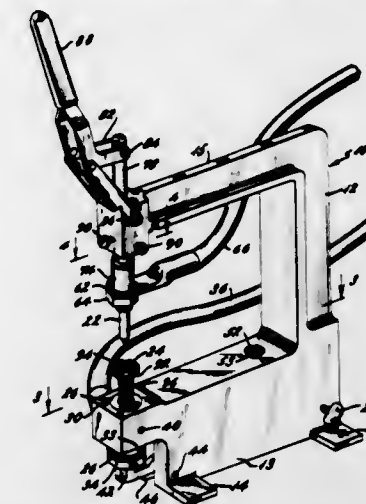
Int. Cl. H05b 1/00

U.S. Cl. 219—150 V

11 Claims

This invention relates to a fused eyeletting machine of high flexibility and accuracy. A pair of manually moved opposed

tools (22,24), electrically isolated from the machine frame structure carry out eyelet upsetting and fusing operations.



Means are provided to adjust the upsetting pressure; centering and leveling accessory is provided to position a workpiece between the tools.

3,739,142

ELECTRIC BLANKET HAVING AUXILIARY HEATING ELEMENT

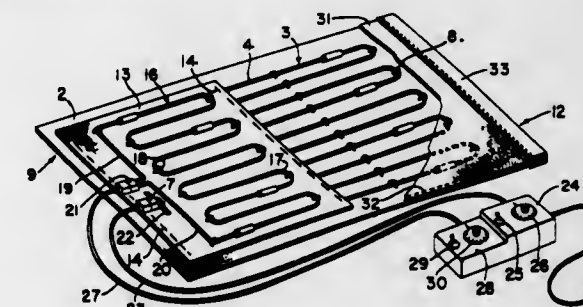
John M. Johns, 120 Drysdale Drive, Los Gatos, Calif.

Filed Feb. 1, 1972, Ser. No. 222,574

Int. Cl. H05b 1/00

U.S. Cl. 219—212

4 Claims



Presented is an electric blanket construction in which the conventional heating element adapted to transmit heat over the major area of the blanket is augmented by an auxiliary heating element which is superimposed over a portion of the conventional heating element to increase the transmission of heat from a selected portion of the blanket.

3,739,143

HEAT DEVELOPER APPARATUS

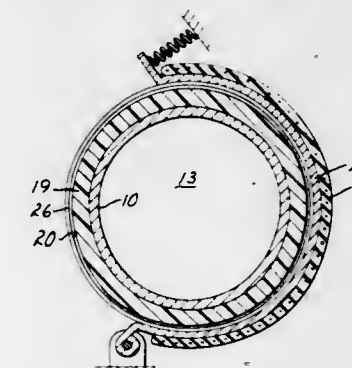
Arion J. Amundson, Oakdale, and Gary L. Hovind, Cottage Grove, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Nov. 30, 1970, Ser. No. 93,726

Int. Cl. H05b 1/00

U.S. Cl. 219—216

1 Claim



A heat developer for developing light sensitive heat developable sheet material without imparting pressure to the

sensitive coating while the sheet material is being heated. The developer includes a rotating cylinder and an electrically heated metal plate partially covering the cylinder and spaced therefrom to define a space for the sheet material corresponding to the thickness of the sheet material.

3,739,144

ELECTRIC SAUNA UNIT

Sven-Olaf Janson, Fredagrand 13, Halmstad, Sweden

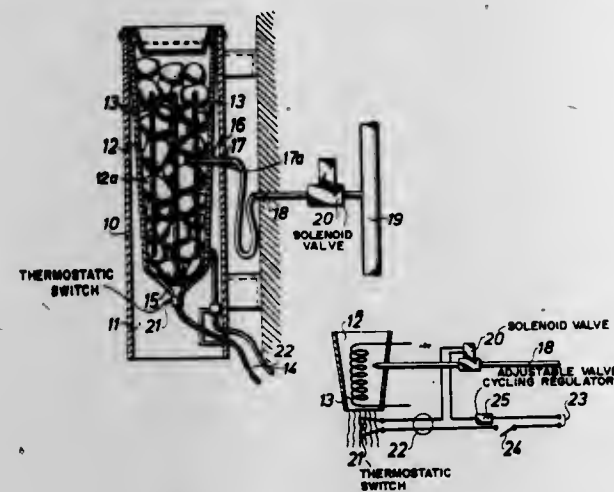
Filed May 20, 1971, Ser. No. 145,309

Claims priority, application Sweden, May 21, 1970, 6992/70

Int. Cl. H05b 3/02; F24h 7/02

U.S. Cl. 219—362

2 Claims



In an electric sauna unit there is a nozzle for sprinkling water over heated stones in a stone receiving chamber. The bottom of this chamber forms a trough collecting water which has not vaporized, and an electric heating element extends into this trough. The supply of water is controlled by a valve operatively connected with a thermostatic element exposed to the external heat radiation from the bottom of the trough. Instead of a thermostatic switch for controlling the water supply, this can be achieved by a bimetallic spring arranged adjacent the bottom of the cabinet and mechanically connected to a control valve. In the water conduit may be disposed a manually disposed throttle valve. The water control valve may be a solenoid valve which is periodically opened and closed.

3,739,145

DISHWASHER WATER-AIR HEATER

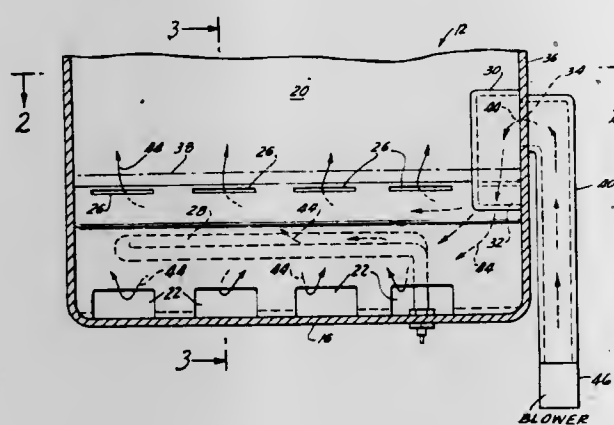
Harold L. Woehler, Herrin, Ill., assignor to Fedders Corporation, Edison, N.J.

Filed Nov. 8, 1971, Ser. No. 196,695

Int. Cl. H05b 1/00; B08b 3/10

U.S. Cl. 219—370

7 Claims



An electrical heating element is mounted to the bottom of a dishwasher tank and a cover is positioned over said heating element to define a heating chamber. The cover has ports

formed on both a top surface and on a side surface, said ports communicating the heating chamber with the wash chamber of the dishwasher. An air duct connects the heating chamber to an external blower and passes through the wall of the dishwasher tank at a level above the maximum water level of the dishwasher. When heating water, the water circulates through the heating chamber by convection to insure an even water temperature. When air is being heated, the external blower circulates room temperature air through the heating chamber where it comes in contact with the heating element prior to passing through the ports into the wash chamber where it circulates between the dishes to enhance drying.

3,739,146

PYROLYTIC OVEN

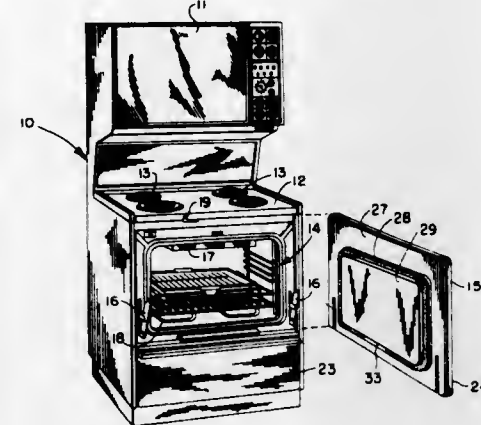
John W. Gilliom, Mansfield, Ohio, assignor to The Tappan Company, Mansfield, Ohio

Filed July 20, 1972, Ser. No. 273,593

Int. Cl. F27d 11/02

U.S. Cl. 219—393

4 Claims



The normal door sealing gasket of the oven is incomplete to form an ambient air inlet of predetermined width at the bottom central region of the interface of the closed door and the oven liner. At this region, there is an opposed baffle of greater length beneath the inlet and engaged by the inner door liner to form therewith lateral ambient air passage means for flow therethrough of such air to the inlet and hence the interior of the oven. Such passage means prevents flame from being expelled from the oven in its pyrolytic or high temperature cleaning cycle of operation.

3,739,147

EXTRUDED CONTACT ELECTRIC HEATER STRIP

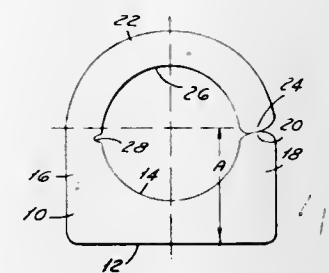
William K. Mayhew, Adrian, and Wendell E. Disbrow, Tecumseh, both of Mich., assignors to Gould Inc., Chicago, Ill.

Filed Mar. 23, 1972, Ser. No. 237,324

Int. Cl. H05b 3/58

U.S. Cl. 219—535

3 Claims



A thermally conductive casing and a method for forming the same for a contact heater resistance element in the form of an open extrusion of thermally conductive, soft metal which, in open form, will receive an elongate resistance element and which is then closed to confine the element and shaped into a configuration which draws the contacting edges of the extrusion into tight engagement to seal in the heating element.

3,739,148

FOOD WARMING DISH

William D. Ryckman, Jr., Asheboro, N.C., assignor to General Electric Company, Bridgeport, Conn.

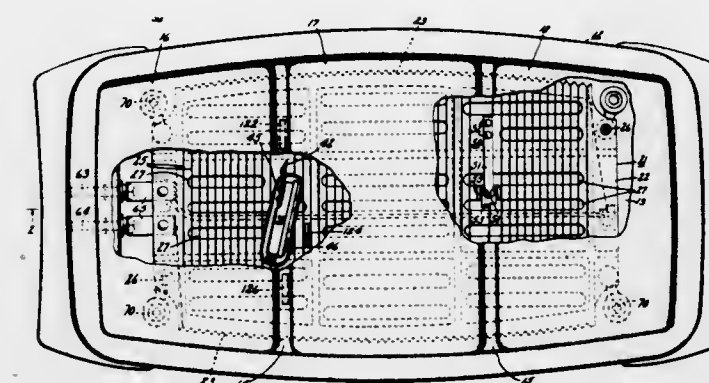
Filed Jan. 28, 1972, Ser. No. 221,532

Int. Cl. F27d 11/02

U.S. Cl. 219—441

6 Claims U.S. Cl. 217—448

9 Claims



A food warming dish that employs an electrical resistance heating element for heating a heat retentive material inside the dish. Energization of the heating element is regulated by a semiconductor control device having two terminals in electrical circuit with the heating element and a control gate that permits electrical current to flow between the two terminals only after a signal has been applied to the control gate. The semiconductor control device is arranged in an electrical circuit such that a temperature responsive switch in series relationship between the heating element and semiconductor control device prevents a signal from being sent to the control gate when the temperature reaches a set predetermined temperature.

3,739,149

COOKING APPLIANCES

Karl Fischer, and Felix Schreder, both of Oberderingen, Germany, assignors to E. G. O. Elektro-Geräte Blanc U. Fischer Kommanditgesellschaft, Germany

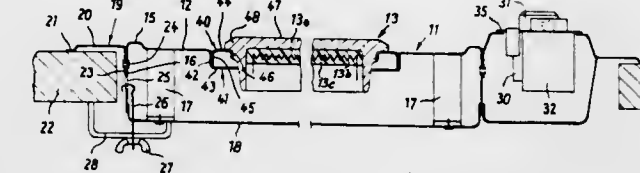
Filed Feb. 16, 1971, Ser. No. 115,324

Claims priority, application Germany, Feb. 17, 1970, P 20 07 145.8

Int. Cl. H05b 3/68

U.S. Cl. 219—445

31 Claims



An electric cooking appliance comprises one or several hot-plates fitted in respective openings in a top plate. A ring encircles each hot-plate with a peripheral flange of the hot-plate resting on said ring. The outer edge of the ring and the inner edge of the opening in the top plate have downwardly directed continuous flanges which are sealed to one another and fixed to one another. A frame by which the appliance can be mounted on a base has an opening provided with a downwardly directed flange in which the top plate is fitted with an outer downwardly directed flange on the top plate adjoining and secured to the frame flange.

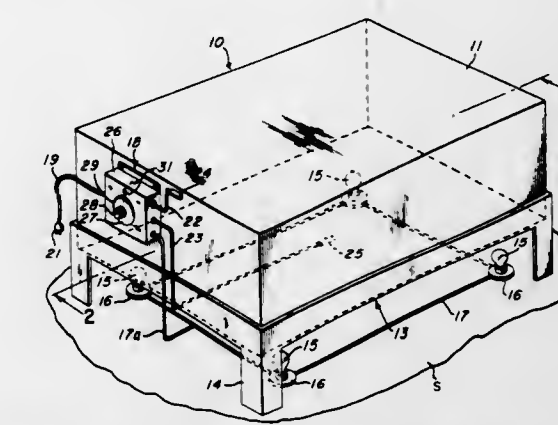
3,739,150

SURFACE PLATE AND CONTROLS THEREFOR

Rudolph J. Rahn, Dayton, Ohio, assignor to Rahn Granite Surface Plate Company, Dayton, Ohio

Filed Jan. 5, 1971, Ser. No. 104,004

Int. Cl. H05b 1/02



A granite surface plate which is provided at its undersurface with a controlled source of heat. Temperature sensors are used as controls to apply and vary the heat in a manner to maintain the upper surface of the plate flat, irrespective of a changing temperature gradient to which the surface plate may be subjected.

3,739,151

ELECTRONIC VOTING MACHINE

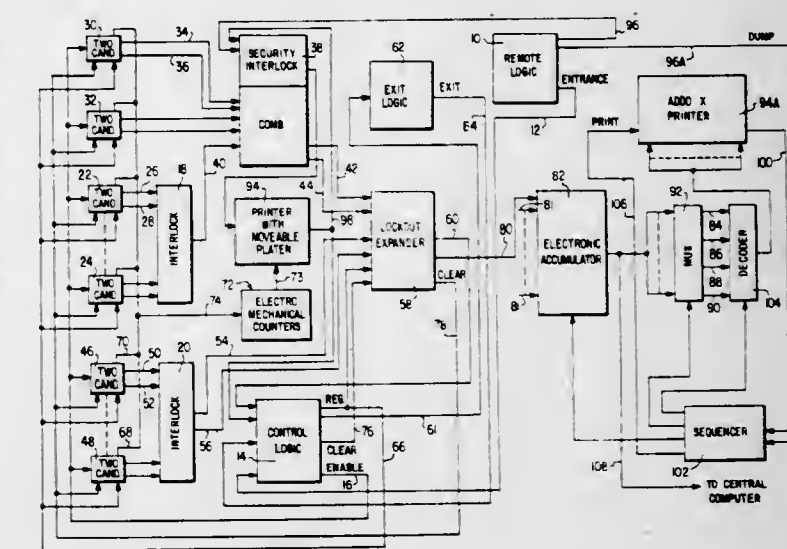
Michael Terrance Moldovan, Jr., Charles Jerome Lindros, both of Lakewood, Robert Dean Wescott, and Lawrence Levi Anderson, both of Jamestown, all of N.Y., assignors to AVM Corporation, Jamestown, N.Y.

Continuation-in-part of Ser. No. 204,506, Dec. 3, 1971, abandoned. This application Apr. 17, 1972, Ser. No. 244,609

Int. Cl. G07c 13/00

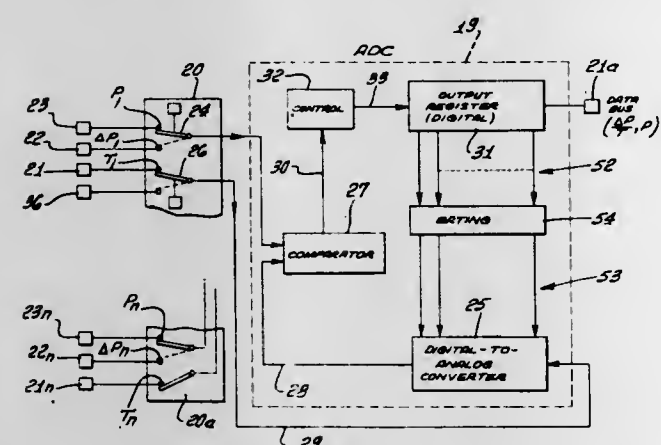
U.S. Cl. 235—54 F

18 Claims



An electronic voting machine is disclosed which accommodates for selection of one, and only one, candidate from each of two office groups. Electronic logic circuitry is used throughout. The logic features redundant interlocks to assure (1) that overvoting in either office group cannot occur and (2) that a vote cannot be counted unless a selection has been made in both office groups. The interlocks feature redundancy while minimizing the components needed to accommodate for large numbers of candidates in both office groups, and also a combined cancel after vote reset arrangement which both prevents overvoting and causes reset after vote completion. Another feature of the system is the use of parallel tallying devices each capable of printing out its tally, one such device

- b. a first shift register connected to receive said digital output $\Delta P/T$ and into which said digitized $\Delta P/T$ is shiftable,
 c. a second shift register connected to receive said digital output P and into which digitized P is shiftable,
 d. multiplier means connected to receive and multiply the



contents of said shift registers, thereby producing a corresponding digital product, and

- e. a third shift register connected to receive the digital product of the multiplier means. Additional circuitry is operable to derive, from the contents of the third register, the square root of the quantity $\Delta P \cdot P/T$.

3,739,160 METHOD AND APPARATUS FOR FAULT-TESTING BINARY CIRCUIT SUBSYSTEMS

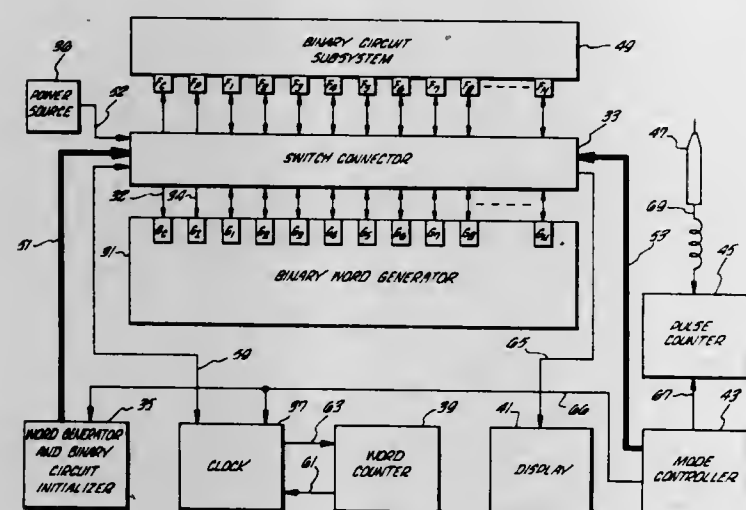
Hasan Afif El-Hasan, and Roger Erwin Packard, both of Santa Barbara, Calif., assignors to Burroughs Corporation, Detroit, Mich.

Filed Nov. 8, 1971, Ser. No. 196,316

Int. Cl. G06f 11/00

U.S. Cl. 235-153 AC

40 Claims



A subsystem of binary circuits, packaged in modular form and having a plurality of connection points through which it is incorporated into a master system such as a digital computer, is tested by utilizing a binary word generator that periodically generates a string of parallel binary bits for application to the subsystem under test. Output signals from the subsystem under test are continually monitored and supplied to the binary word generator to shape the character of the succeeding string of parallel binary bits (binary word) applied to the subsystem. If there are no faults in the subsystem under test, starting the word generator and the digital circuits in the subsystem from respective initial reference states, insures that the binary word applied to the subsystem by the word generator, after a certain number of word applications or periods, will always be the same, for the same initial states and number of periods. A different binary word, than the one expected for

a subsystem having no faults, is generated at the end of a test cycle when an identically structured subsystem having a fault or faults therein is tested under the same initial conditions and number of periods. To isolate the fault-containing portion of a subsystem when the expected word is not generated, the output connection points of the subsystem are disconnected from the input connection points of the binary word generator, the binary circuit subsystem and word generator are placed into an initial or reference state, and the binary signals appearing at each output connection point of the subsystem are counted during a cycle of word applications by the word generator. The count of binary signals generated at each output connection point of the binary subsystem will always be the same number for the same number of word applications and the same set of initial states for the binary word generator and the subsystem, if there are no faults in the subsystem. If there is a fault in a circuit connected to a particular output connection point of the subsystem, the count of binary signals appearing at this point for one test cycle, (a particular number of word applications) will be different than expected, while the count at all the other output connection points will be the same as expected, assuming that the initial states of the binary word generator and the binary subsystem, and the number of word applications remained the same.

3,739,161 CASH REGISTERS AND OTHER ACCOUNTING MACHINES

Henry Gross, and Samuel Gross, both of London, England, assignors to Gross Cash Registers Limited, London, England

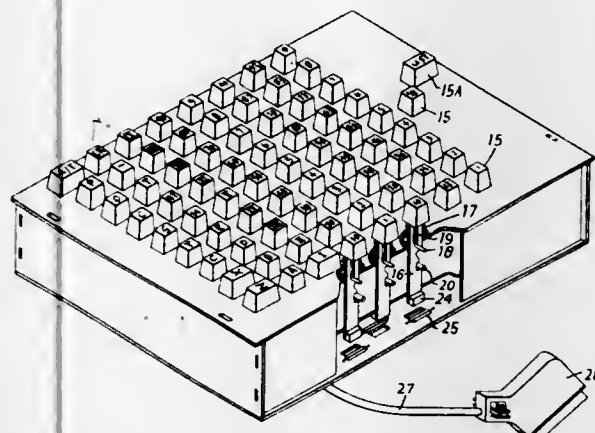
Filed Dec. 10, 1970, Ser. No. 96,829

Claims priority, application Great Britain, Dec. 22, 1969, 62,227/69

Int. Cl. G06f 7/38; G06c 7/06

U.S. Cl. 235-156

15 Claims



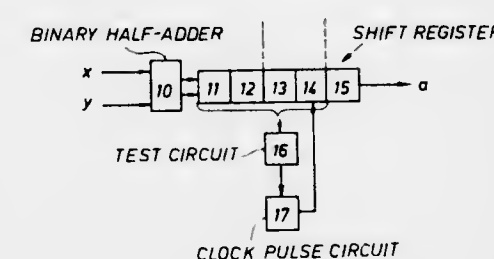
The disclosure relates to an apparatus for calculating and indicating number values applied thereto including input means in the form of a keyboard having a plurality of key members arranged in rows and columns wherein the key members in at least two of the columns are operable both to enter values into the apparatus and to cause the apparatus to perform simultaneously one operative cycle of calculation and indication of result, one of these columns corresponding to a series of whole numbers while the other corresponds to the same numbers plus a fraction or a higher order number; indicator means including indicator element, and means for actuating one of the indicator elements similarly for operation of corresponding keys in said two columns; the apparatus including at least one further column of numbers for entering higher values without effecting cycling.

3,739,162
SERIAL BCD ADDER WITH RADIX CORRECTION
 Hubertus Bettin, Braunschweig, Germany, assignor to Olym-
 pla Werke AG, Wilhelmshaven, Germany
 Filed July 14, 1971, Ser. No. 162,503
 Claims priority, application Germany, July 16, 1970, P 20
 35 225.4

Int. Cl. G06f 7/50

U.S. Cl. 235-170

13 Claims

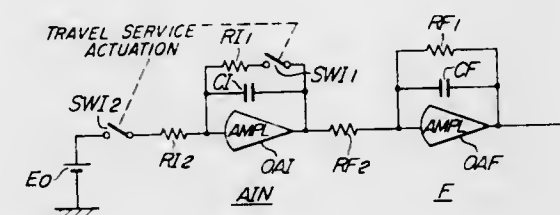


An MOS transistor circuit arrangement for the calculating mechanism of an electronic computer for adding and subtracting binary numbers under consideration of so called illegal characters (pseudotetradecimals) which consist of the binary numbers 10 through 15 in the BCD code. The circuit arrangement includes a dynamic shift register, input logic circuit means connected to the first stage of the shift register for adding a pair of binary input signals; test circuit means responsive to the value stored in the shift register for detecting an illegal character and producing an output signal; a clock pulse circuit means responsive to the output of the test circuit means for producing a correction value output signal; and circuit means included in selected stages of the shift register and coupled to the output of the clock pulse circuit for adding the correction value to the value stored in the shift register.

3,739,163
MEASUREMENT OF MEAN WAITING TIME
 Kotaro Hirasawa; Koichi Kawatake, both of Hitachi; Takeo Yumlnaka, and Tatsuo Iwasaka, both of Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
 Filed Jan. 11, 1971, Ser. No. 105,221
 Claims priority, application Japan, Jan. 16, 1970, 45/3857
 Int. Cl. G06g 7/18; G06f 7/38

U.S. Cl. 235-183

21 Claims



The mean value of waiting time, W_m , for an elevator system on a certain floor can be obtained by detecting intervals of the elevator arrival $T_1, T_2, T_3, \dots, T_i$ at the floor and carrying out the operation:

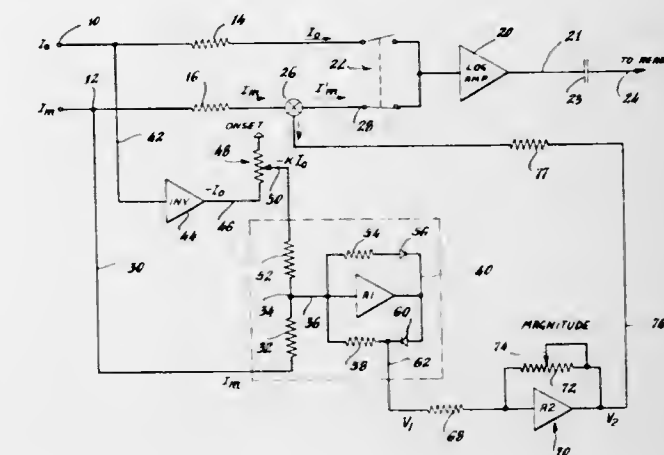
$$W_m = (1/2) (T_1^2 + T_2^2 + T_3^2 + \dots + T_i^2) / (T_1 + T_2 + T_3 + \dots + T_i)$$

An analog integrator AIN begins integration of a constant voltage as each elevator signals his arrival and resets at the next elevator arrival so as to provide an output of a sawtooth waveform. A filter F flattens this sawtooth output to supply a quantity proportional to the mean waiting time. In a digital embodiment, counters are employed to perform the summing operations.

3,739,164
DEVICE FOR COMPENSATING A DERIVED SIGNAL
 Walter Bohler, Norwalk, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.
 Filed June 21, 1971, Ser. No. 154,724
 Int. Cl. G06g 7/24, 7/26

U.S. Cl. 235-197

8 Claims

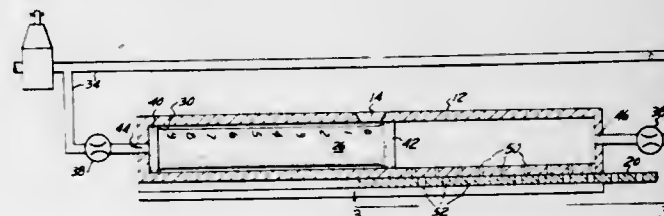


A second derived signal is compensated over a particular range for undesired deviation caused by an error signal component in a first measured signal, from which the second signal is derived. A correction signal is algebraically added to the first signal at values on one side of an "onset" value (corresponding to the beginning of the particular range of the second derived signal). Where the error signal component is of constant value (causing a relative percentage error inversely proportional to the amplitude of the first signal), the correction signal will be proportional to the amount that the first signal is less than the "onset" value; this will cause a constant percentage error in the corrected first signal for all values at or below the onset value. The second derived signal will therefore now vary at least proportionally to the correct measured value for all values of the first signal on one side of (less than, in this case) the "onset" value. Values of the first signal at the "onset" value are not affected so that a single setting of the proportionality factor for the correction signal will cause the desired compensation of the derived signal over the particular range. In the exemplary use, the first measured signal is the apparent transmission of a sample material in a photometric system, the constant (positive) error component is the undesired stray radiation measured, and the second derived signal is the absorbance (a logarithmic function of the first transmission signal). The device will cause the compensated absorbance versus sample concentration to be a straight line and therefore acts as a so-called "curve straightener" in spectrophotometers (especially of the atomic absorption type).

3,739,165
FLUID PRESSURE OPERATED DIGITAL DISPLAY
 Robert L. Esken, Clayton, Ohio, assignor to The Bendix Corporation, Southfield, Mich.
 Filed Jan. 27, 1972, Ser. No. 221,365
 Int. Cl. G06d 1/02

U.S. Cl. 235-201 FS

10 Claims



A digital display device is disclosed for displaying increments of mechanical movement, which includes a movable

piston member having an ordered series of numerals inscribed thereon along its longitudinally axis and disposed in a bore having a window adapted to register with individual numerals on the piston. The piston position in the bore is controlled by venting or fluid pressure on one end thereof which is normally applied to both the ends with this venting in turn controlled by registry between a series of ports on a movable control plate and a series of ports in the bore wall which have a vernier spacing relationship therebetween so that a slight incremental movement of the valve plate produces a much larger movement of the piston in the bore. When combined with a similar second piston and bore arrangement controlled by a simple porting control performed by the same control plate, a digital display of control plate incremental movement in units and tenths of units of these increments is provided.

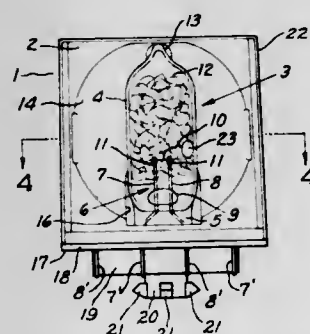
3,739,166 PHOTOFLASH DEVICE

Robert M. Anderson, Pepper Pike, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 30, 1971, Ser. No. 214,246
Int. Cl. G03b 15/02

U.S. Cl. 240-1.3

4 Claims



A photoflash device with a photoflash lamp mounted within a reflector, the lamp being mountable in the reflector only in one or the other of two 180° apart axially oriented positions, has only one moisture indicator spot so located on the inside wall of its transparent envelope as to be viewable from in front of the reflector either directly or by reflection off the reflector irrespective of which one of the axially oriented positions the lamp is mounted in within the reflector.

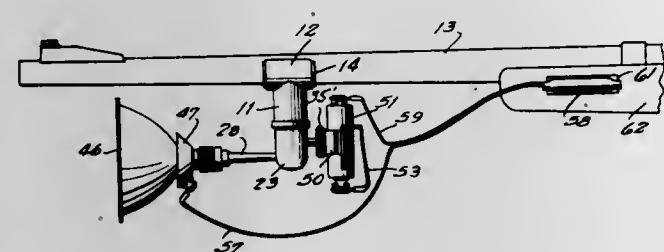
3,739,167 LIGHT FOR HUNTING WEAPON

Glen H. Avery, 1247 Blodgett Avenue, Fort Worth, Tex.

Filed Apr. 8, 1970, Ser. No. 26,551
Int. Cl. F21v 33/00

U.S. Cl. 240-2

3 Claims



A spot light for use in night hunting includes a standard having means for attachment to a weapon such as a rifle, shotgun or bow. The standard includes a swivel housing, for adjustably supporting a swivel which carries a light holder and reflector, and clamping means for locking the swivel in a selected position to aim the spot light. The housing provides a mounting for a battery, and a remote switch connected to the unit through appropriate conductor wires is mounted on the weapon in position to be conveniently actuated by the hunter at the appropriate time.

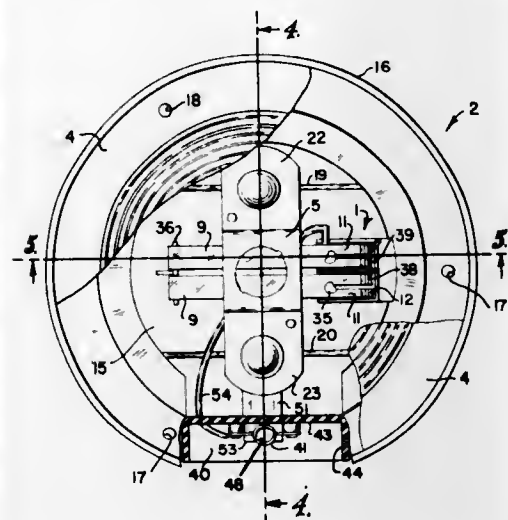
3,739,168 VEHICLE LAMP AND TERMINAL THEREFOR

Kenneth C. Ploeger, Blue Springs, Mo., assignor to Rupert Manufacturing Company, Inc., Blue Springs, Mo.

Filed May 8, 1972, Ser. No. 250,876
Int. Cl. B60g 1/00

U.S. Cl. 240-7.1 R

9 Claims



A vehicle lamp for automobiles, trailers, trucks, and the like includes a housing having an open end compartment closed by a lens and a lamp support within the compartment for receiving a lamp having a lamp base with at least one lamp contact thereon and engageable with a terminal mounted on an insulating member and having a resilient finger portion of the terminal engageable with a bare end portion of an insulated conductor in a manner to cause flexing of the finger portion and clamping of the conductor by pressing the bare end portion of the conductor against the insulating member to prevent withdrawal therefrom.

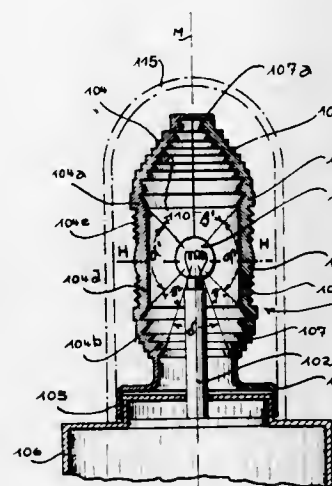
3,739,169 PANORAMIC LIGHT EMITTER FOR WARNING LIGHTS

Wilhelm Weinreich, 354 Friedrichstrasse 30, Kurbach, Germany

Filed Aug. 30, 1971, Ser. No. 175,977
Claims priority, application Germany, Sept. 1, 1970, P 20 43 253.5; Dec. 23, 1970, P 20 63 481.5

U.S. Cl. 240-22

5 Claims



The panoramic light emitter includes a cylindrically shaped converging lens positioned around a central light source. The lens directs the rays of light passing therethrough in a horizontal direction generally perpendicular to the vertical axis of the emitter. Concave reflectors having a configuration in section of segments of a parabola are positioned above and below the cylindrical lens. The light rays strike the reflectors and reflect horizontally parallel to the light rays reflected by the lens so

that substantially all of the light from the light source is either deflected by the lens horizontally or reflected by the reflectors horizontally to provide a panoramic source of light for 360 degrees around the vertical axis of the emitter. Another embodiment has a transparent generally cylindrical member positioned over the light source with the axis of the cylindrical member coaxial with the vertical axis of the emitter. The cylindrical member has upper and lower portions positioned above and below the light source that deflect the vertically projected rays of light emanating from the light source to a horizontal direction generally perpendicular to the vertical axis of the emitter. The intermediate portion of the cylindrical member has an annular cylindrical concave lens and annular upper and lower deflectors that also project the intermediate portion of the light generated by the light source in a horizontal direction to thus provide a panoramic source of light for 360° around the vertical axis of the light emitter.

3,739,170 AUGER ELECTRON SPECTROSCOPY

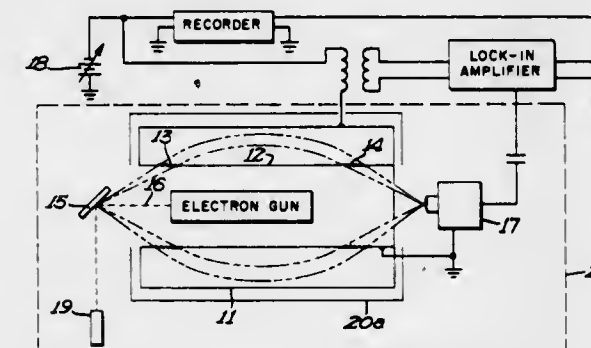
Gerald K. Bohn, Hopkins, and Roland E. Weber, Minneapolis, both of Minn., assignors to Physical Electronics Industries, Inc., Edina, Minn.

Continuation of Ser. No. 68,983, Sept. 2, 1970, abandoned.
This application Dec. 20, 1971, Ser. No. 210,092

Int. Cl. H01J 37/26

U.S. Cl. 250-49.5 AE

17 Claims



An apparatus is disclosed having special utility for performing analyses utilizing the Auger effect. A coaxial cylindrical electron analyzer is combined with a coaxial electron gun between the apertures in the inner tube of the analyzer. A structure for a cylindrical analyzer having an electrical field free of fringing between cylinders is also disclosed, as is a simplified off-axis exit aperture.

3,739,171 GAMMA RAY SPECTROSCOPY WITH QUANTITATIVE ANALYSIS

Hubert D. Scott, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed July 19, 1971, Ser. No. 163,982

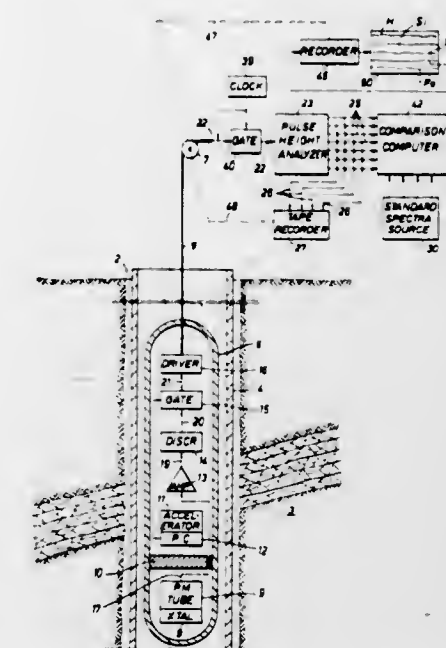
Int. Cl. G01t 1/16

U.S. Cl. 250-83.3 R

20 Claims

An illustrative embodiment of the invention includes methods and apparatus for obtaining gamma ray spectra of earth formations surrounding an open or cased well borehole. Pulsed neutrons of 14 MEV are used to excite the elements around the well bore and a scintillation detector is activated a predetermined time after each pulse from the source to detect gamma rays resulting from the capture in the earth formation of thermalized neutrons from the source. The spectrum of gamma rays so resulting is obtained and compared with a composite spectrum made up of a weighted mixture of standard spectra by the use of the least squares technique. The gain and threshold values of the standard spectra are adjusted and the

composite spectra resulting therefrom are again compared with the unknown spectrum and this process repeated until the best possible fit of the standard composite spectrum is ob-



3,739,172 CIRCUIT FOR IMPROVING DATA IN PULSE DETECTION SYSTEMS

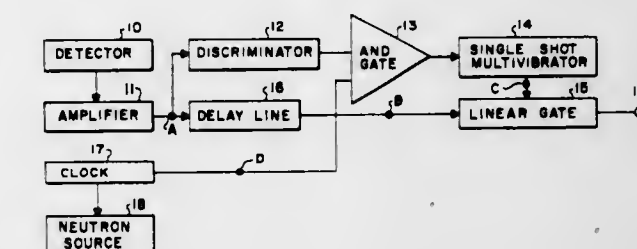
Richard B. Culver, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed May 24, 1971, Ser. No. 146,261

Int. Cl. G01t 1/16

U.S. Cl. 250-83.3 R

14 Claims



The amplified pulses from a radioactivity detector are coupled through a delay line to a linear gate. The amplified pulses from the detector are also connected to a discriminator. The output of the discriminator is AND gated in a logical gate with a clock pulse which is synchronized with a high energy neutron source. The AND gate triggers a single shot multivibrator which in turn triggers the linear gate. The delay line allows for the time required for the detector pulse to rise to the discriminator threshold and for the propagation delay in the logic circuitry. The linear gate opens before the arrival of the detector pulse and closes after it passes through. In this embodiment, any detector pulse having the necessary discriminator level occurring within the clock pulse interval passes through the linear gate as a full width pulse. In an alternative embodiment, a J-K flip-flop circuit is triggered by the trailing edge of the single shot multivibrator to disable the AND gate, thus causing the linear gate to pass only the first detected pulse having the necessary discriminator level.

3,739,173

INTERLACED MULTIPLEXING ELECTRO-OPTICAL SYSTEM

Georges Broussaud, Paris 16eme, France, assignor to Thomson-CSF, Paris, France

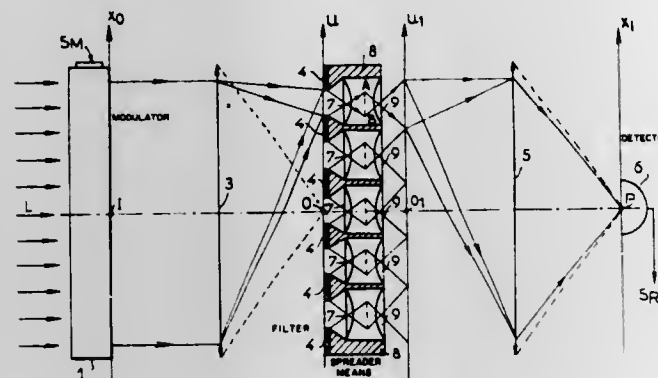
Filed Feb. 5, 1971, Ser. No. 112,893

Claims priority, application France, Feb. 18, 1970, 7005787

Int. Cl. H04b 9/00

U.S. Cl. 250-199

7 Claims



A double diffraction optical system associated with a monochromatic light source, with optical-electrical modulating means and with photoelectric detector means, for effecting the interlaced spectral demultiplexing of a plurality of multiplexed electrical signals.

3,739,174

INTEGRATING ELECTROMAGNETIC BEAM POSITION SENSOR

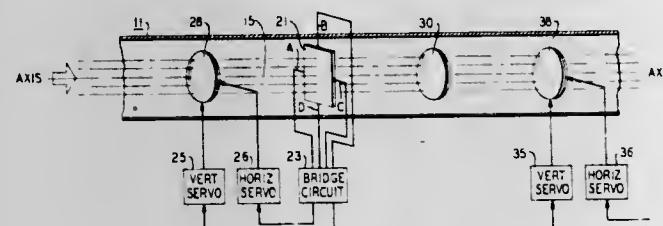
Detlef Christoph Gloge, Red Bank, N.J., assignor to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.

Filed Jan. 4, 1971, Ser. No. 103,754

Int. Cl. G01j 1/20

U.S. Cl. 250-201 R

4 Claims



Quadrant-type spatially-integrating beam position sensors are disclosed that extend across a transverse section of an optical waveguide. These sensors intercept a fraction of the optical beam energy therein either along two orthogonal lines through the optical beam or throughout a cross section of the beam.

3,739,175

PHOTO SENSITIVE STAR SENSING ARRAY

Crawford D. Mabey, Largo, and Alvin M. Turner, Clearwater, both of Fla., assignors to Honeywell, Inc., Minneapolis, Minn.

Filed Jan. 6, 1971, Ser. No. 104,358

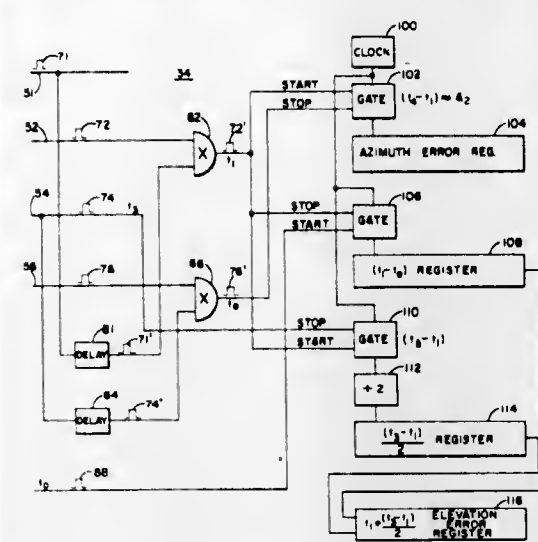
Int. Cl. G01j 1/20

U.S. Cl. 250-203 R

1 Claim

A photosensitive detector for mounting in the focal plane of a star tracking telescope of the gradient detecting type. The

detector includes two sets of long, thin photocells set at an angle to each other so that azimuth information as well as



elevation information can be obtained with a single sweep in elevation as the image of a predetermined star traces a path across the photocells.

3,739,176

ARRANGEMENT FOR THE CONTROLLED GUIDANCE OF A WORKING MACHINE WITH LASER BEAMS

Juergen Thorn, Haar, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

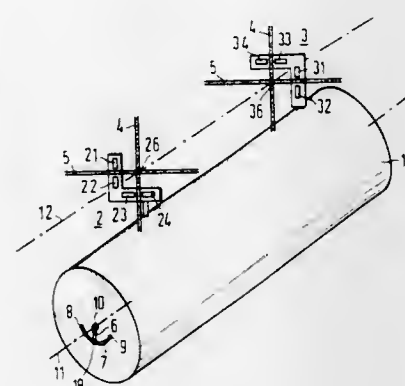
Filed Feb. 22, 1971, Ser. No. 117,326

Claims priority, application Germany, Feb. 27, 1970, P 20 09 360.1

Int. Cl. G01j 1/20

U.S. Cl. 250-203 R

9 Claims



An apparatus which moves may be simply and accurately controlled to travel generally parallel with a laser beam where the apparatus has connected therewith or mounted thereon a control means including a first and second sensing means which detect any relative movement from a predetermined relationship with the laser beam. Advantageously the control means includes at least first and second sensing means positioned in spaced relation along the laser beam with each producing a separate indication of deviation from the laser beam. In addition a third sensing means may be provided on the apparatus at a point remote from the laser beam to measure rotary movement of said apparatus. It is an important feature of the invention that the laser beam have distinctly measurable horizontal and vertical components and may take the form of a cross. In such case each of the first and second sensing means will include a pair of photoelectric sensors preferably located on opposite sides of each of a horizontal and vertical component of the laser beam at the point of the sensing means.

3,739,177

LIGHT SENSITIVE CONTROL

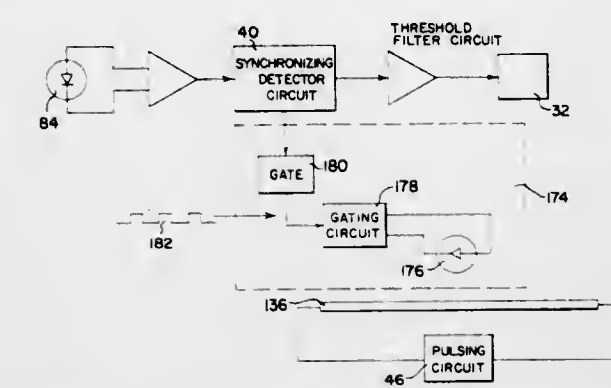
Wen H. Ko, Cleveland, Ohio, assignor to North American Manufacturing Company, Cleveland, Ohio

Filed Dec. 15, 1970, Ser. No. 98,301

Int. Cl. G01n 21/30

U.S. Cl. 250-206

6 Claims



Presence or location of an object is detected or movement thereof is controlled by projecting light at the location where the object or the edge thereof is expected and detecting transmitted or reflected light by a photoelectric responsive device. The photoelectric responsive device is connected to a circuit which actuates either an indicator of the location of the object in the illuminated field or actuates mechanism for readjusting the position or direction of the movement of the object. The effect of variations in ambient or extraneous light or flashes of light is overcome by pulsing the projected light at a suitable rate and causing the photoelectric response circuit to be responsive only to electrical currents having the same pulse wave form as the light source with means for synchronizing the electric detector circuit with the light source.

3,739,178

AUTOMATIC BRIGHT SOURCE PROTECTION CIRCUIT AND POWER SUPPLY CIRCUIT FOR AN IMAGE INTENSIFIER

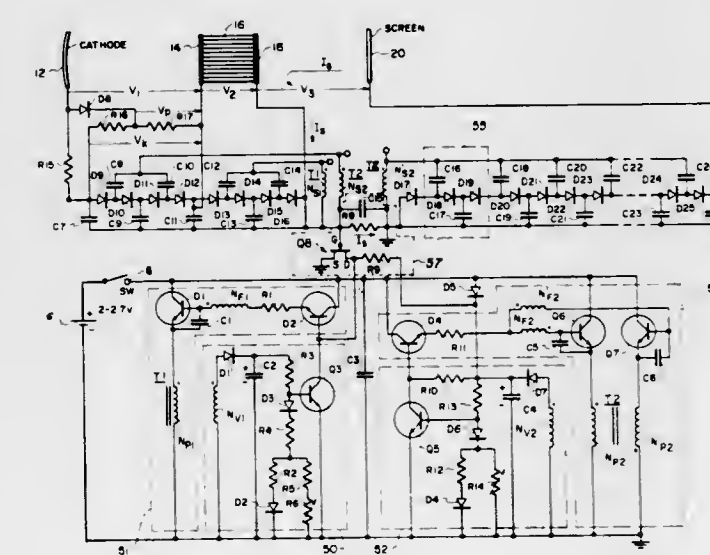
Sen-Te Chow, Fairfax, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 16, 1972, Ser. No. 253,744

Int. Cl. H01j 31/50

U.S. Cl. 250-213 VT

7 Claims



A bright source protection circuit and regulated power supply for an image intensifier tube in which the amount of screen current is sensed at the gate of an enhanced mode FET and the FET, in turn, controls voltage regulated oscillators in which the outputs of the oscillators furnish bias voltages to the cathode, to the electrodes on the microchannel plate, and to the screen within the image intensifier wherein these bias volt-

ages change inversely to any change in the screen current. Since screen current flows in direct proportion to the amount of illumination emanating from the source being viewed, the brightness of the source being viewed by an operator looking through the image intensifier remains constant at the output of the image intensifier tube.

A clamping circuit between the cathode and the input electrode of a microchannel plate clamps the cathode operational voltage within the stable region of the cathode current-voltage characteristics. Pulsing outputs of the voltage controlled oscillators are transformer coupled to three voltage multipliers that provide separate direct current voltages to the cathode, to the input and to the output electrodes of a microchannel plate, and to the screen.

3,739,179

RADIATION SENSITIVE TRAFFIC WARNING SYSTEM

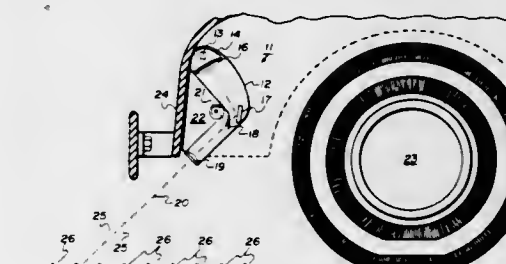
Iniz I. Krekow, 1060 Concord Street, San Diego, Calif.

Filed Jan. 7, 1971, Ser. No. 104,570

Int. Cl. E01c 23/16

U.S. Cl. 250-216

1 Claim



A traffic warning system for warning vehicles in the event of an attempt to enter a traffic lane in the wrong direction or crossing over a center line which will emit a loud signal as from the vehicle horn in which a reflective surface disposed on the center line and as seen by a vehicle crossing the center line and on any lane as seen by a vehicle attempting to proceed in the wrong direction in that lane which will reflect a collimated light projected by the vehicle and returned thereto through a discriminator which is coupled to the vehicle horn and a similar warning system which alerts vehicles as they are changing lanes proceeding in the correct direction whereby a reflective surface reflects the same collimated light in a different duty cycle which is passed through the discriminator sounding a soft alarm, such as a bell.

3,739,180

PARTICLE SIZE DISTRIBUTION ANALYSIS

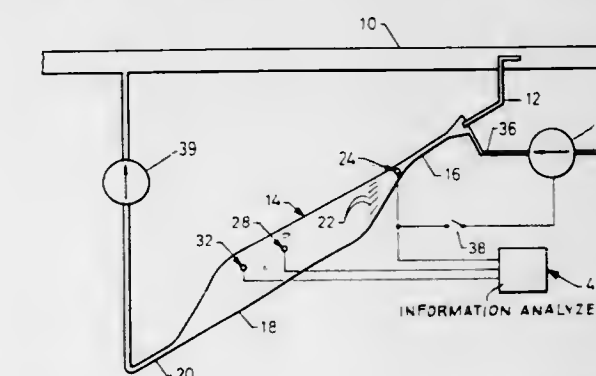
John T. Martin Carlson, Edina, Minn., assignor to Terry K. Qualey, St. Paul, Minn., part interest

Filed Sept. 28, 1970, Ser. No. 76,058

Int. Cl. G01n 21/26

U.S. Cl. 250-218

18 Claims



Apparatus and method for analyzing the size distribution of particles of similar density generally uniformly carried in a flow stream in a first section and segregated in the flow stream in a second section by forces acting on the particles according

to their respective volumes in which the concentration by volume of all solids carried in the flow stream in the first section is measured, the concentration by volume of solids carried in the flow stream in the second section is measured at least at one predetermined position and the measurement made in the second section is divided by that made in the first section.

3,739,181

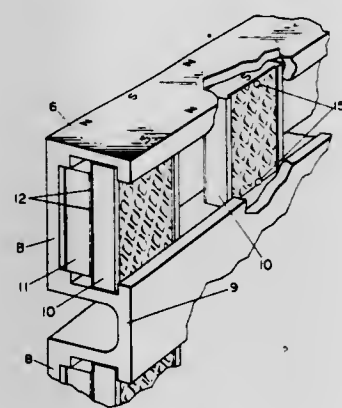
MAGNETICALLY POSITIONED CODING DEVICE

Charles S. Vincent, Jr., Stuart Draft, and John R. Van Patten, Waynesboro, both of Va., assignors to General Electric Company, Salem, Va.

Filed Apr. 23, 1971, Ser. No. 136,854
Int. Cl. G01n 21/30

U.S. Cl. 250-219 D

3 Claims



An arrangement for coding objects moving on a conveyor line comprising a code carrying device for mounting on the object wherein said device comprises tabs for spatially defining a coded message, said tabs and carrier being magnetized in a special manner to cause the tabs to assume desired, predetermined locations on the carrier in response to magnetic circuit coaction between carrier and tabs.

3,739,182

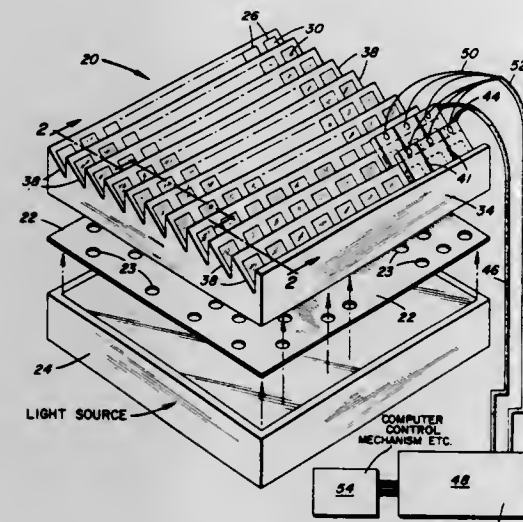
ENERGY SENSITIVE READOUT DEVICE

Donald Bertram Bickler, Temple City, Calif., assignor to Globe-Union Inc., Milwaukee, Wis.

Filed June 17, 1971, Ser. No. 154,059
Int. Cl. G08c 9/06

U.S. Cl. 250-219 DC

12 Claims



A compact energy sensitive readout device capable of transmitting light signals that yield a high degree of signal resolution from an indicia bearing surface by presenting a plurality of spaced shielded light transmitting conduits that form individual light pathways with the light receiving end of each ar-

ranged in a common plane and the light transmitting end of each symmetrically angled and having attached thereto a radiant energy cell responsive to the energy conducted through the conduit.

3,739,183

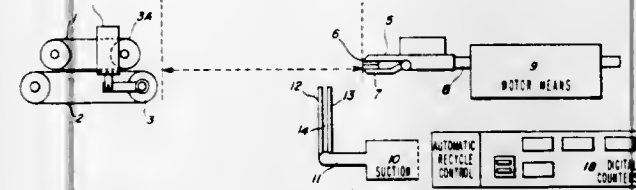
APPARATUS AND PROCESS FOR MEASURING FIBER LENGTHS

Roy Harold Burton, and Tony Lewis Baldwin, both of Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Oct. 15, 1970, Ser. No. 81,098
Int. Cl. G01n 21/30

U.S. Cl. 250-219 S

6 Claims



An apparatus and process are disclosed and claimed for measuring fiber lengths which involves the use of gripping means to hold the fibers together, a suction means for straightening the fibers between two substantially parallel transparent plates and counting means comprising at least one photocell mounted on a carriage with at least one fiber optic duct terminating in juxtaposition therewith.

3,739,184

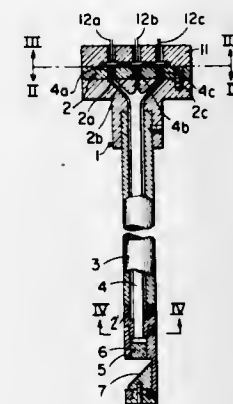
METHOD AND APPARATUS FOR INSPECTING A BOTTLE

Takuma Katsumata, Inazawa; Hideo Uchiyama, Nishi-ku, Nagoya, and Yoshiharu Marita, Shows-ku, Nagoya, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Chujoda-ku, Tokyo, Japan

Continuation-in-part of Ser. No. 826,472, May 21, 1969, abandoned. This application June 11, 1971, Ser. No. 152,081
Int. Cl. H01J 39/12

U.S. Cl. 250-223 B

12 Claims



To detect foreign matter on the surface of a bottle, an instrument incorporating an optical fiber bundle is inserted into the bottle with incident light directed to the inlet end of the fiber bundle. Within the instrument, the optical fiber bundle is divided at its outlet end to provide separate optical signals which are converted into electrical signals for indicating the presence of foreign matter.

3,739,185

CIRCUIT SYSTEM FOR SWITCHES OF AN AUTOMOBILE

Tetsuji Shimizu, Showa-ku, Nagoya; Yoichi Hotta, Kita-ku, Nagoya, and Takaomi Yoshida, Nishi-ku, Nagoya, all of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Selsakusha, Nishikasugai-gun, Aichi Prefecture, Japan

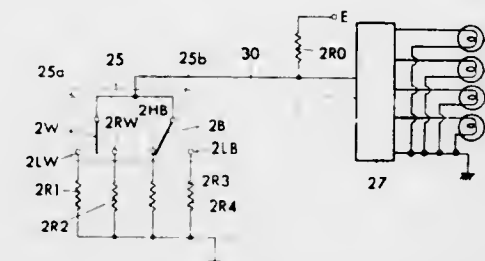
Filed June 30, 1971, Ser. No. 158,371

Claims priority, application Japan, July 2, 1970, 45/57246; July 3, 1970, 45/57737; July 4, 1970, 45/58147; Aug. 31, 1970, 45/75738

Int. Cl. H02g 3/00

U.S. Cl. 307-10 R

12 Claims



A circuit system for switches of an automobile in which passive elements are respectively connected between contacts of the switches and a grounding, each of the switches or each group of the switches is connected to a signal detecting circuit through one signal line and said signal line is grounded through a contact corresponding to an operative position of the switch or the group of switches and the passive element, thereby to transmit a signal corresponding to said operative position of the switch or the group of switches for energizing a load corresponding to said signal. With such a circuit system, the switches can be made much small-sized and the signal line is prevented from being bulky. A possible trouble in a conventional switch system, such as a melting of a contact or a burning of a signal line can be well prevented.

3,739,186

AC/DC SUPPLY CIRCUIT FOR AN APPLIANCE

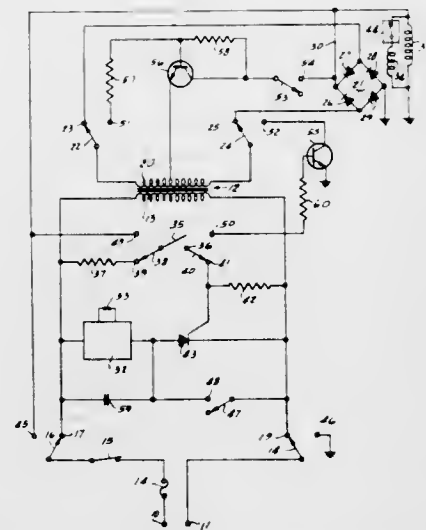
Phillip E. Gokey, Whitewater, and Frederick A. Rose, Ft. Atkinson, both of Wis., assignors to Polar Ware Corporation, Sheboygan, Wis.

Filed Mar. 17, 1970, Ser. No. 20,367

Int. Cl. H02j; H02m

U.S. Cl. 307-23

5 Claims



Both alternating and direct potentials are provided from either an alternating or a direct supply to control a low voltage, direct current operated solenoid valve of a burner and a high, alternating voltage operated igniter for the burner. A burner electrical supply circuit for connection to either type of electrical supply employs a transformer commonly associated and selectively connectable with a converter and an inverter respectively for step-down and step-up operation.

3,739,187

REMOTE SWITCHING SYSTEM

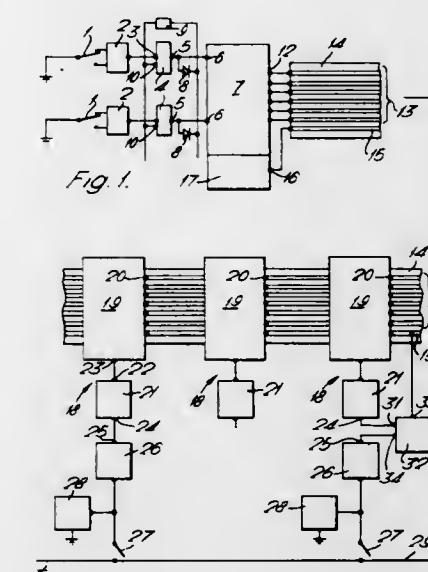
Arthur Richard Pottle, Cheshunt, England, assignor to AMP Incorporated, Harrisburg, Pa.

Filed Sept. 12, 1972, Ser. No. 288,445

Int. Cl. H02j 3/00

U.S. Cl. 307-29

11 Claims



A remote switching system suitable for an automobile employs a power circuit supplied by the automobile battery and connected through electrical gates to loads such as lamps, windscreen wiper motor etc., the loads being associated with manual switches at the driving position, each of which when operated causes a unique binary signal to be emitted from an encoder, the bits of the binary signal being derived on different ones of parallel spaced conductors which transmit the binary signal to decoders associated respectively with the loads, one of the decoders reacting to a particular unique binary signal to open or close the associated electrical gate thus to connect or disconnect the load to or from the power circuit.

3,739,188

COMMON WIRE COMPENSATION CIRCUIT

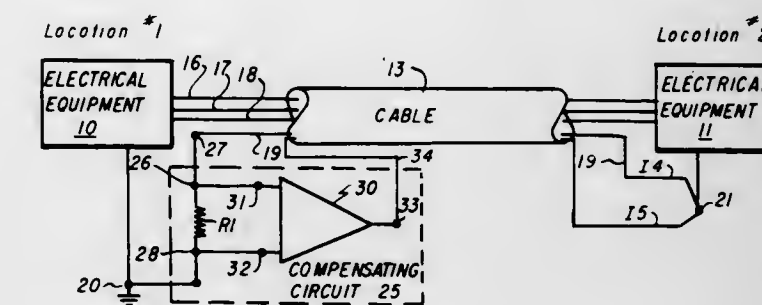
Paul H. Froehling, Franklin, Wis., assignor to Johnson Service Company, Milwaukee, Wis.

Filed Oct. 22, 1971, Ser. No. 191,737

Int. Cl. H02j 3/12

U.S. Cl. 307-103

6 Claims



In an electrical control system having equipment at different locations interconnected by a multi-wire cable including a common wire which links points of reference potential for the equipment, a compensating circuit samples current flowing in the common wire such that whenever a potential difference exists between the reference points a current is generated in a compensating wire which is extended to one of the points of reference potential to minimize the current flow in the common wire thereby equalizing the potentials at the reference points.

3,739,189

DEVICE FOR STOPPING A TURNTABLE AT SELECTED POSITIONS

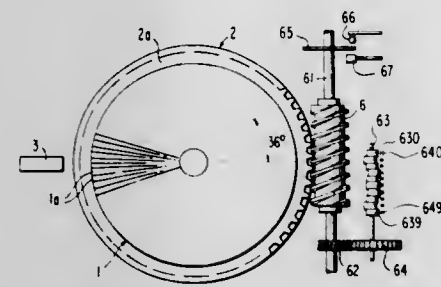
Shunkichi Igarashi, Tokyo, and Takeshi Okano, Nishinomiya, both of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed May 26, 1972, Ser. No. 257,207

Claims priority, application Japan, May 31, 1971, 46/37720
Int. Cl. H01h 47/24

U.S. Cl. 307-117

4 Claims



A turntable having a plurality of sections containing information cards is provided with control means for accurately stopping the turntable at selected positions to permit retrieval of a desired card. The control means comprises an arrangement of cams, cam-operated switches, and a photoelectric circuit including a light-interrupting disc continuously driven in synchronism with the rotation of the turntable.

3,739,190

PART INTERROGATION SYSTEM

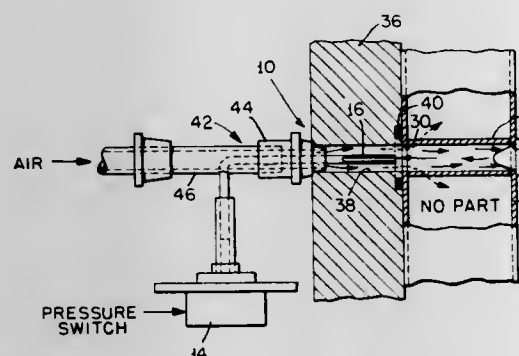
Jay F. Whitsel, Southampton, Pa., assignor to The Budd Company, Philadelphia, Pa.

Filed Dec. 6, 1971, Ser. No. 205,001

Int. Cl. H01h 35/24

U.S. Cl. 307-118

4 Claims



An interrogation system for indicating the presence or absence of a part or an aperture for a workpiece. An amplified pressure switch is positioned to receive a stream of air to indicate such presence or absence and then to control a power source to a machine tool depending upon the information.

3,739,191

VEHICULAR DECELERATION SENSOR USING CAVIATION PHENOMENA IN ELECTRICALLY CONDUCTIVE LIQUID

Yasuo Nagazumi, Tokyo, and Takeshi Mori, Yokohama, both of Japan, assignors to Nissan Motor Company Limited, Yokohama, Japan

Filed Aug. 25, 1971, Ser. No. 174,661

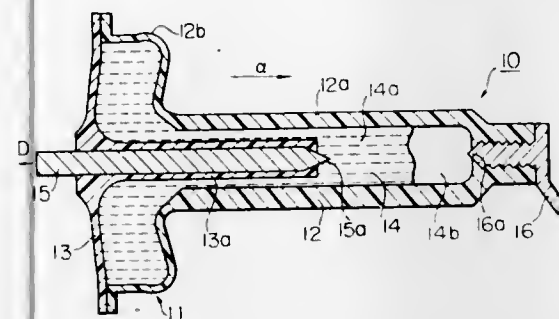
Claims priority, application Japan, Aug. 25, 1970, 45/73855; Mar. 31, 1971, 46/19536; Mar. 31, 1971, 46/19537; May 15, 1971, 46/32720; May 15, 1971, 46/32721
Int. Cl. H01h 35/00

U.S. Cl. 307-121

18 Claims

Vehicular deceleration sensor using cavitation phenomena in a confined electrically conductive liquid. The deceleration

sensor includes a container provided stationary relative to a vehicle and defining a chamber confining therein the conductive liquid such as mercury. A first electrode is mounted on the container and protrudes into the chamber for electrically contacting with the liquid. At least one second electrode is also mounted on the container at a spacing from the first electrode and protrudes into the chamber for electrically contacting with the liquid. Cavitation means is included in the container for bearing upon a force of inertia of the liquid, when an accelerating force is applied to the container, and for being



deformed by the inertia to form a cavity in the liquid between the first electrode and one of the second electrodes when the accelerating force is above a predetermined level. Deceleration of the vehicle can be detected by detecting at least one of the interruptions of electric current flowing between the first electrode and one of the second electrodes, in response to formation of the cavity. The characteristics of deceleration level and direction to be detected can be controlled by employing a suitable gate circuit in combination with the deceleration sensor.

3,739,192

NON-OSCILLATING ARCLESS SWITCHING OR INDUCTIVE D.C. LOADS

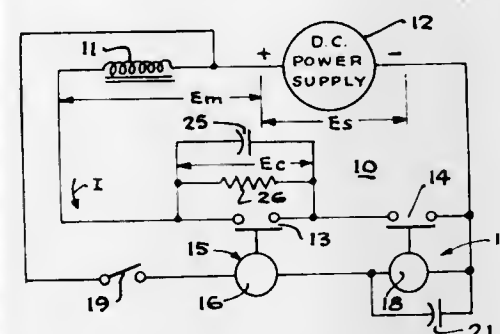
Joseph V. Oswald, 2852 South Central Park Avenue, Chicago, Ill.

Filed Nov. 24, 1971, Ser. No. 201,633

Int. Cl. H01h 9/30

U.S. Cl. 307-136

7 Claims



A circuit interrupter for arclessly interrupting current flow to an inductive D.C. load, comprising first and second switches which are functionally offset, in opening sequence, by a predetermined switching interval; during the switching interval, a like level of energy of polarity opposite to the energy stored in the magnetic field of the load is transferred to a capacitor connected in parallel with the first switch, whereupon both energy charges are simultaneously discharged into and thermally dissipated in a resistance connected in parallel with the capacitor. The switching interval corresponds to one-fourth cycle of the resonance frequency of the resonant circuit formed by the capacitor and the inductive load plus the RC and L/R time functions of the circuit; the resistance is selected, relative to the capacitor and the load inductance, to preclude oscillation of the load current during the time interval between the opening of the first and second switches. The capacitance is selected relative to the load inductance, to fix and limit the maximum voltages occurring in the course of the switching interval.

3,739,193

LOGIC CIRCUIT

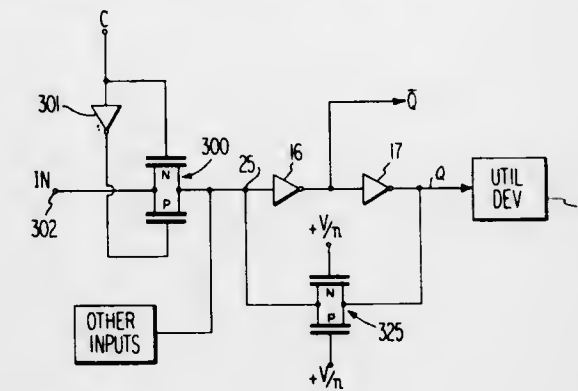
Richard Lee Pryor, Cherry Hill, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 11, 1971, Ser. No. 105,546

Int. Cl. H03k 19/08

U.S. Cl. 307-205

4 Claims



A logic circuit using semiconductor devices, especially of the MOS type, incorporating an intermediate circuit wherein information is continuously operated upon by a feedback path and without the necessity of switchable controls in the feedback path.

3,739,194

STATIC BIPOLAR TO MOS INTERFACE CIRCUIT

John A. Freeman, and David De Souza, both of Ottawa, Ontario, Canada, assignors to Microsystems International Limited, Montreal, Quebec, Canada

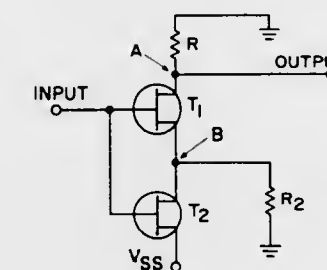
Continuation-in-part of Ser. No. 176,150, Aug. 30, 1971, abandoned. This application Jan. 17, 1971, Ser. No. 218,493

Claims priority, application Canada, July 21, 1971, 118,764

Int. Cl. H03k 19/40

U.S. Cl. 307-214

4 Claims



The invention relates to a method of interfacing between bipolar and field effect devices utilized complementarily in logic circuits. The invention provides compatibility virtually at all times between the switching levels for the bipolar and field effect devices and accomplishes this by providing source bias to the field effect transistor deriving input from the bipolar device, thereby effectively raising the turn-on voltage of the field effect transistor.

3,739,195

REMOTELY CONTROLLED ELECTRONIC DIFFERENTIAL RESISTANCE

Werner Fidl, Baden, and Ewald Kerschbaum, Maria Enzersdorf-Stadt, both of Austria, assignors to AKG Akustische u. Kino-Geräte Gesellschaft m.b.H., Wien, Austria

Filed Oct. 21, 1971, Ser. No. 191,513

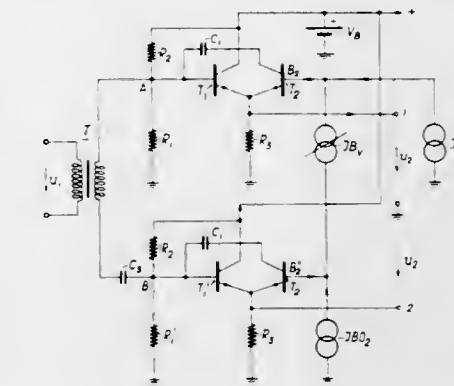
Int. Cl. H03k 17/00

U.S. Cl. 307-229

10 Claims

A remotely controllable electronic differential resistance comprises an amplifier and a control device. The amplifier can be either a cathode follower valve or a grounded collector

transistor, and the control device is a transistor having its collector connected for alternating current to the input electrode of the amplifier, its emitter direct current coupled to the output electrode of the amplifier, and its base connected either to an adjustable source of DC current or to an adjustable source



of DC voltage. A potentiometer can be provided by two serially connected such electronic resistances, the base of each control transistor being connected to one pole of a respective constant current source, and the bases of the two control transistors being interconnected through an adjustable current source.

3,739,196

FUNCTION GENERATOR

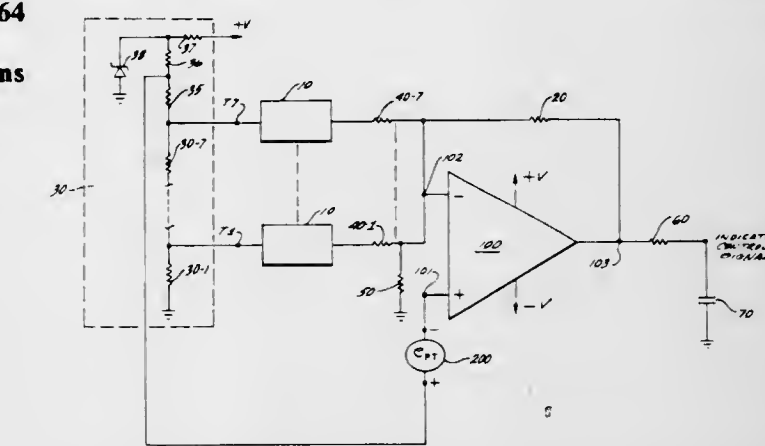
John R. Tavis, Mariposa, Calif., assignor to Tavis Corporation, Mariposa, Calif.

Filed Sept. 23, 1971, Ser. No. 183,067

Int. Cl. G06g 7/24; H01h 35/00

U.S. Cl. 307-229

9 Claims



A function generator comprises an openable and closeable series-circuit path having a node and which is closed only while a voltage at the node has a predetermined polarity with respect to a threshold voltage. An emitter-follower circuit has a transistor biased by a substantially constant voltage source and a resistor divider network. A transistor operated as a diode so as to have at most unity current-gain cooperates with the emitter follower to determine the transition between opening and closing the series-circuit path. The base-emitter junctions of the diode-operated transistor and the emitter-follower transistor have opposed voltage differences which are substantially equal despite temperature variations so that a highly precise transition is achieved. The closing of the series-circuit path causes current to flow therethrough and such current does not substantially affect the biasing of the emitter-follower because of its current gain characteristic.

In a preferred embodiment, each of a plurality of shunting resistors is connectable in parallel with each other and in series with a voltage dropping resistor driven by an operational amplifier. Each shunting resistor is operatively connected at a different threshold so that the function generator has a non-linear voltage transmission characteristic made up of a plurality of linear segments.

3,739,197

TRACK AND HOLD BUFFER AMPLIFIER

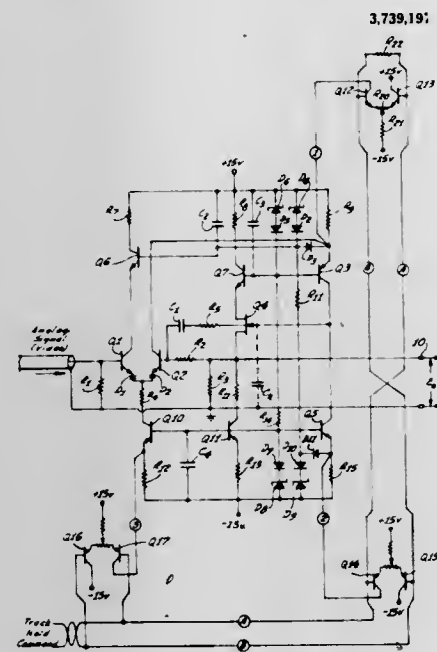
Robert S. Prill, Parsippany; Marshall A. Metzger, Totowa, and Bradley C. Eaton, Pompton Plains, all of N.J., assignors to The Slinger Company, Little Falls, N.J.

Filed Nov. 8, 1971, Ser. No. 196,282

Int. Cl. H03k 17/00

U.S. Cl. 307-238

7 Claims



An improved track and hold buffer amplifier is provided which is capable of tracking wide band video analog input signals, and which responds to an appropriate binary command to isolate itself from the analog input and effectively to hold the last received value of the analog input. The circuit to be described comprises a single wide band amplifier which provides the function of the two amplifiers required in the prior art closed loop system, and yet which has the stability of the prior art open loop type of system. A unique switching system is also provided which is non-floating, and which serves to switch the amplifier from its tracking mode into its isolation mode. The stray capacitance directly within the loop of the track and hold amplifier of the system provides the memory during the isolation hold mode, and this capacitance is used advantageously as the dominant 6 db/octave roll-off for the system.

3,739,198

CAPACITOR FIRED THYRISTOR

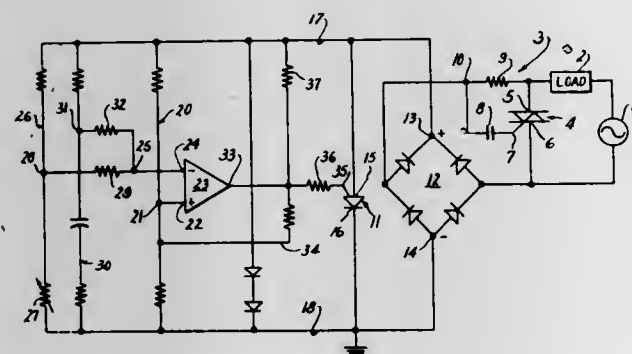
Ralph E. Clements, Loves Park, Ill., assignor to Barber-Colman Company, Rockford, Ill.

Filed June 21, 1972, Ser. No. 264,783

Int. Cl. H03k 17/00

U.S. Cl. 307-252 B

10 Claims



A capacitor is discharged through the control circuit of a thyristor to positively render the thyristor conductive.

GENERATOR OF A TIME INTERVAL AS A MULTIPLE OF A BASE PERIOD

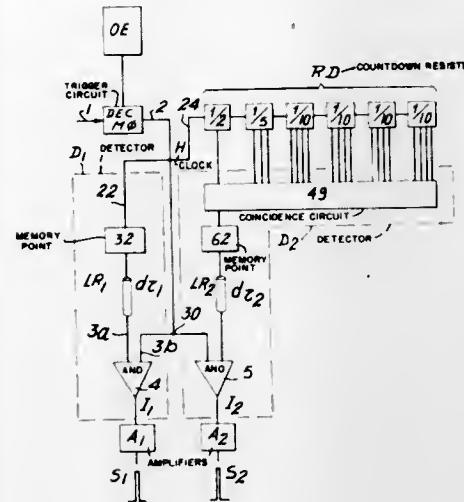
Jacques Negrou, Gesta, France, assignor to Commissariat A L'Energie Atomique, Paris, France

Filed Dec. 16, 1971, Ser. No. 208,607

Int. Cl. H03k 5/00

U.S. Cl. 307-260

8 Claims



A standard time interval having a well-defined duration for use as a time measurement reference is delimited by two fronts separated by N periods of an oscillation having a preferably rectangular waveform and produced by a frequency standard oscillator.

The generator comprises a trigger circuit which transmits clock pulses and synchronizes them with the fronts derived from the oscillator, a preset counting register operated by the clock pulses, two detectors for selecting the active clock-pulse fronts and each comprising a delay line, two amplifying circuits for collecting the active fronts and converting them into utilizable signals.

3,739,200

FET INTERFACE CIRCUIT

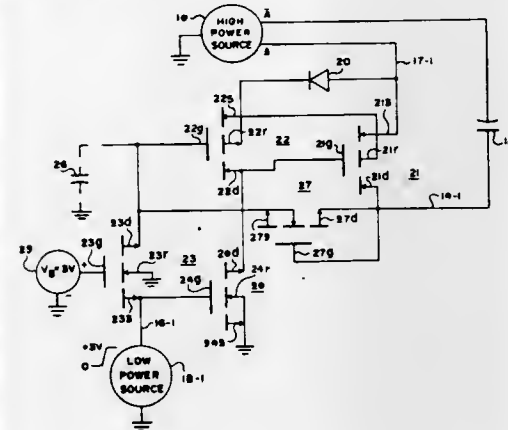
Michael V. D'Agostino, Mercerville, N.J., assignor to Michael D'Agostino, Mercerville, N.J.; Arthur Lief, Merrick; Hershel Harrison, and James Armour, both of New York, all of N.Y.

Filed Sept. 27, 1971, Ser. No. 184,000

Int. Cl. H03k 3/26

U.S. Cl. 307-304

6 Claims



Field-effect transistor (FET) interface circuit for interfacing low power circuits with higher power circuits. The illustrated circuit employs complementary metal oxide semiconductor (C-MOS) devices to accomplish the interface function to a liquid crystal display element with minimal power dissipation and complexity.

3,739,201

HIGH VOLTAGE REGULATOR DEVICE

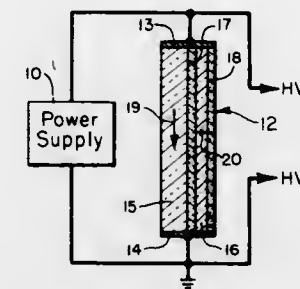
Robert Adler, Northfield, and George W. Hrbek, Arlington Heights, both of Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed June 9, 1971, Ser. No. 151,337

Int. Cl. H01v 7/00

U.S. Cl. 310-8

8 Claims



A film of semiconductor material shunts a source of high-voltage unregulated potential. The film is caused to act as an infinite series of infinitesimal field-effect transistors with gates of progressively higher potential. In response to a change in the value of the high voltage, the conductance of the semiconductor film is changed in a compensatory manner. In one version, the infinite series of gates is internally created within the film by piezoelectric action. In other approaches, the film is dielectrically coupled to a parallel strip of resistive material also coupled across the high-voltage source. The resistive strip provides the effective gate electrodes of the distributed field-effect transistor chain.

3,739,202

INSTRUMENT FOR RESPONDING TO MECHANICAL VIBRATION OF ACCELERATION AND FOR CONVERTING THE SAME INTO ELECTRIC ENERGY

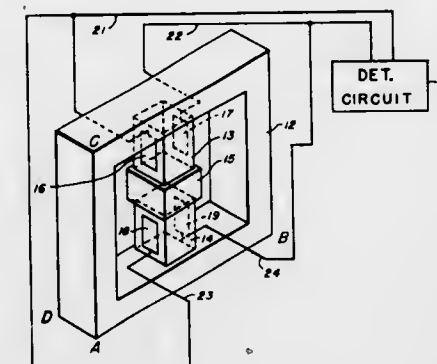
Walter G. Cady, 127 Power Street, Providence, R.I.

Continuation of Ser. No. 496,346, Oct. 15, 1965, abandoned, which is a continuation of Ser. No. 785,068, Dec. 17, 1968, abandoned. This application Aug. 28, 1970, Ser. No. 68,052

Int. Cl. H04r 17/00

U.S. Cl. 310-8.3

11 Claims



An instrument for responding to mechanical vibration or acceleration of a base comprising two piezoelectric or other suitable oppositely disposed normally unstrained electromechanical vibrators the outer ends of which are fastened to opposite parts of the base and the inner ends to an inertial member, which inner ends become simultaneously moved in substantially a single direction only, relatively to the base, in response to vibration or acceleration of the base in an opposite direction. In the case of piezoelectric crystals, the properties of shear or of compression can be utilized.

3,739,203

LINEAR INDUCTION MOTOR ARMATURES

Roland Joug, Nohant, and Bernard Ragout, Clermont-Ferrand, both of France, assignors to Pneumatiques, Caoutchouc Manufacture et Plastiques Kleber-Colombes, Colombes, France

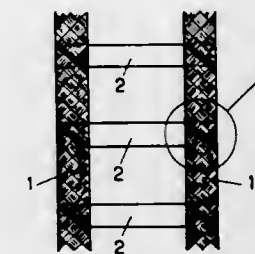
Continuation of Ser. No. 52,415, July 6, 1970, abandoned.

This application Nov. 12, 1971, Ser. No. 198,322

Int. Cl. H02k 41/02

U.S. Cl. 310-13

9 Claims



This invention relates to electrical armatures and according to the invention an armature, constituting a transport or conveying member adapted to be driven by the inductors of linear motors, is in the form of a squirrel cage made up of two flexible longitudinal members interconnected by transverse members. These transverse members are spaced apart by a distance of up to but not exceeding half the motor pole pitch and support members extend over the entire length of the armature and are less extensible than it. Finally, the armature and the support members are embedded in a flexible material such as natural or synthetic rubber or a synthetic plastics substitute therefor.

3,739,204

INPUT SIGNAL GENERATING DEVICE

Noboru Sugawara, and Takeshi Sawada, both of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

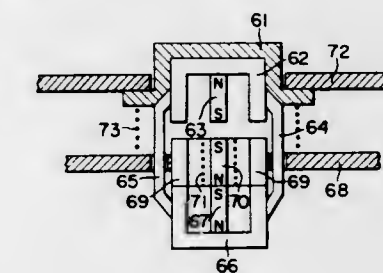
Continuation of Ser. No. 45,076, June 10, 1970, abandoned.

This application Mar. 6, 1972, Ser. No. 232,305

Int. Cl. H02k 35/00

U.S. Cl. 310-14

9 Claims



An input signal generating device for computers comprises a plurality of keys arranged on the keyboard each of which keys has means responsive to the depression of the associated key for magnetically producing an input signal to operate the operation unit. The means for producing the input signal comprise a coil and a magnetic member one of which is responsive to the depression of the associated key. The relative movement of the magnetic member and the coil induces voltage across the coil as an input signal.

3,739,205

BRUSH AND SPRING HOLDER ASSEMBLY

Herbert E. Winkelmann, Kettering, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 21, 1972, Ser. No. 282,607

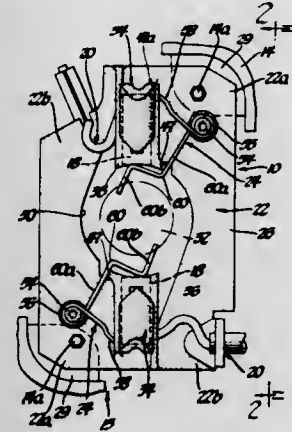
Int. Cl. H02k 15/00; H01r 39/40

U.S. Cl. 310-42

3 Claims

In a preferred form, this disclosure relates to a brush and spring holder assembly for a dynamoelectric machine having a

housing, a current collector and a brush for engaging the current collector and which comprises a mounting plate that is adapted to be supported within the housing and which has guide means for supporting and guiding the brush for radial movement toward the current collector. The assembly also comprises a pre-stressed spring means which is supported on the mounting plate and which has first and second portions for



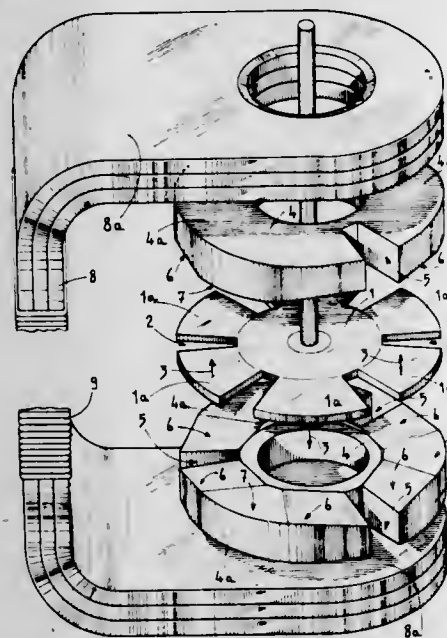
engaging the brush at opposite ends to biasingly retain the brush within the guide means. The first portion is disposed within the path of movement of the current collector as the latter is assembled within the housing and is moved by the current collector to disengage the brush when the current collector is assembled within the housing whereby the second portion biasingly moves the brush into engagement with the current collector.

3,739,206

STEPWISE RUNNING ELECTROMAGNETIC MOTOR
 Mariyse Schwarzmüller-Joch, Bienne, and Michel Schwab, Port, both of Switzerland, assignors to Omega Louis Brendt & Frère S.A., Bienne, Canton of Bern, Switzerland
 Filed Jan. 4, 1972, Ser. No. 215,378
 Int. Cl. H02k 37/00

U.S. Cl. 310—49

5 Claims



The stepwise running motor includes a disc shaped rotor having a plurality of magnets arranged in a generally circular manner. The magnets are of alternating plurality and the field of the magnets follows a direction parallel to the shaft of the rotor. The rotor is located between two annular pole pieces each of which has a plurality of pole shoes also arranged in a generally circular manner, the number of pole shoes being equal to half the number of the magnets of the rotor. The axial side of each of the shoes which faces the rotor between the pole pieces is cut at least partially slantwise with respect to a plane at a right angle to the motor shaft such that a transient magnetic field generated in the polar pieces produces stepwise forward motion of the rotor.

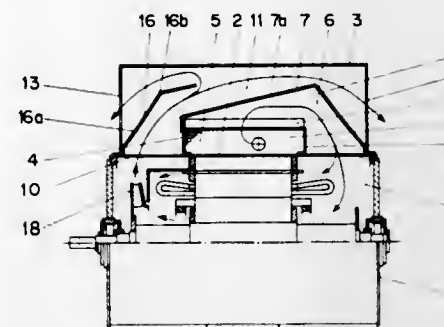
3,739,207
WEATHER-PROTECTED ELECTRIC MACHINE WITH AXIALLY CIRCULATING VENTILATION
 Philipp Kellmann, Mannheim, and Helmut Gaertner, Vöhringen, both of Germany, assignors to Brown Boveri & Company Limited, Baden, Switzerland
 Filed Sept. 23, 1971, Ser. No. 183,008

Claims priority, application Germany, Oct. 1, 1970, P 20 48 255.7

Int. Cl. H02k 9/00

U.S. Cl. 310—59

2 Claims



An axially ventilated dynamo-electric machine for outdoor use includes a rectangular casing located atop the machine housing which is also rectangular, there being an air inlet through a longitudinal wall of the casing into an air entry chamber located within the casing. A baffle arrangement within the casing provides a passageway closed off from the remainder of the space within the casing through which filtered air discharged from the air entry chamber is directed through an opening at one end of the machine housing to the interior thereof for flow axially of the machine to cool it, and this air after passing to the opposite end of the machine housing is delivered through an outlet in the housing into the casing from whence it is discharged to the exterior through outlets provided in the end walls of the casing. A second baffle structure located in the casing at the air outlet from the machine housing and which partially overlaps the first mentioned baffle arrangement cooperates with the latter in directing the air discharge and the entire ventilating structure is so structured that air flow through the machine housing is assured regardless of the direction or strength of the wind.

3,739,208

REVERSE FLOW COOLING SYSTEM FOR A DYNAMOELECTRIC MACHINE

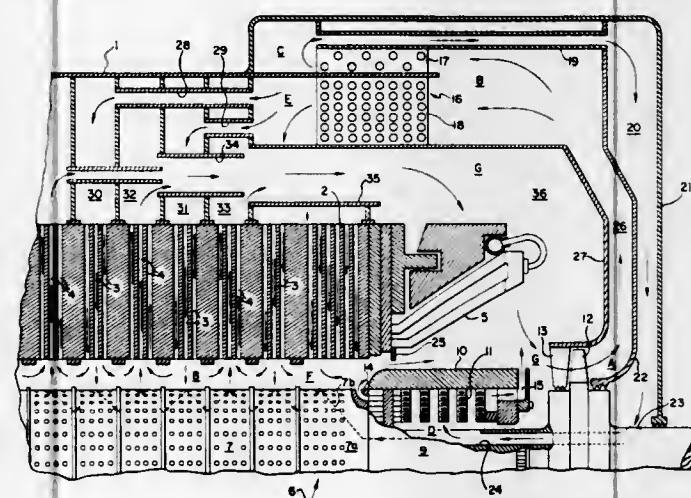
Allan C. Shartrand, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 3, 1971, Ser. No. 204,582

Int. Cl. H02k 9/00

U.S. Cl. 310—58

8 Claims



A dynamoelectric machine with internal gas cooling system has a reverse flow pattern with gas flowing from the fan

through the coolers and then to the parts to be cooled. The gas is separated into two flow portions at the cooler, one portion undergoing a low pressure drop and then serving to cool the rotor end turns and transition section, the other undergoing a relatively high pressure drop and then serving to cool the stator core and to supply the gas gap for "gap pickup" cooling of the rotor body.

3,739,209

RECTIFIER ASSEMBLY

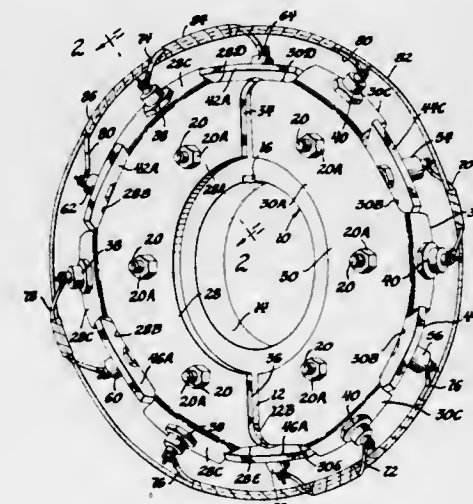
Walter Drabik, Downers Grove, Ill., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 31, 1972, Ser. No. 285,551

Int. Cl. H02k 9/04

U.S. Cl. 310—64

3 Claims



A rotatable rectifier assembly which can be used to feed the field winding of a generator from an exciter generator that has a three-phase Y-connected output winding. The rectifier assembly comprises an annular insulator which carries three heat sinks on one side thereof and two heat sinks on the opposite side thereof. The three heat sinks form AC input terminals for the rectifier assembly and carry diodes forming part of a three-phase full-wave bridge rectifier circuit. The other two heat sinks also carry diodes and form direct current output terminals for the rectifier assembly. The heat sinks, when secured to the insulator, form alternate notches and flanges and the diodes are mounted on the flanges such that they extend generally peripherally of the assembly to facilitate connection of the diodes. The arrangement is such that two diodes are connected in series between a respective direct current output terminal and an AC input terminal and all of the diodes are mounted on heat sinks to facilitate operating the diodes at a proper temperature.

3,739,210

RECTIFIER BRIDGE

Walter Bahlinger, Herbert Vogt, and Helmut Fischer, all of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed July 31, 1972, Ser. No. 276,656

Claims priority, application Germany, Aug. 6, 1971, P 21 39 607.6

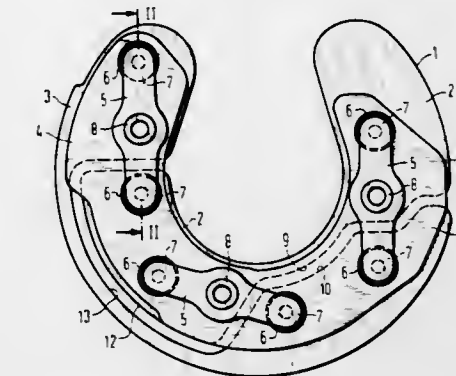
Int. Cl. H02m 7/52

U.S. Cl. 310—68 D

5 Claims

Rectifier bridge in the form of two insulated bus bars extending in the same plane and at least four disk cells, which may be diodes, maintained in current conductive engagement with the bus bars by leaf springs. Each leaf spring is connected to a bus bar intermediate its ends and presses one disk cell into conductive engagement with a bus bar at one end and another

disk cell in conductive engagement with another bus bar at its opposite end. The leaf springs are insulated from the bus bars



3,739,211

MAGNETIC TACHOMETER

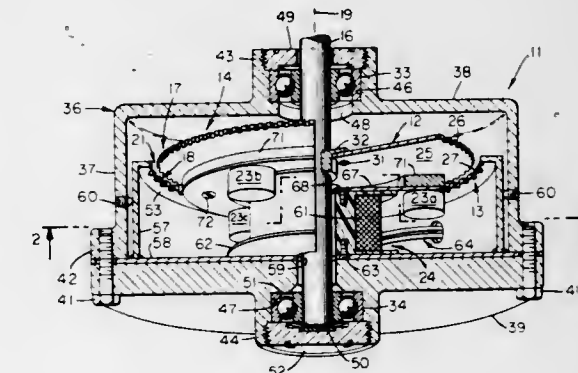
Alfred Hasler, Mountain View, Calif., assignor to Amper Corporation, Redwood City, Calif.

Filed Oct. 15, 1971, Ser. No. 189,685

Int. Cl. H02k 19/24

U.S. Cl. 310—168

7 Claims



A pair of toothed elements of magnetically permeable material are coaxially mounted for relative rotation with their teeth spaced opposed in rotational registration. The toothed elements are further mounted in magnetic circuit with magnets and a coil whereby magnetic flux provided by the magnets follows two separate magnetically parallel flux paths including the pair of toothed elements and the coil. As the toothed elements are relatively rotated, the net reluctance of the flux path through the tooth elements varies and causes a voltage to be induced in the coil which alternates at a frequency representative of the relative speed of rotation of the toothed elements. The other of the magnetically parallel flux paths is of a fixed reluctance and does not extend through the pair of toothed elements.

3,739,212

DEVICE FOR THE WEDGING OF COILS OF ROTORS OF ELECTRIC MACHINES

Robert Koelbel; Joseph De Vault; Roger Gillet, all of Belfort, and Christian Lehen, Cravanche, all of France, assignors to Societe Generale De Constructions Electriques Et Mecaniques (alsthom), Paris, France

Filed Oct. 4, 1971, Ser. No. 186,421

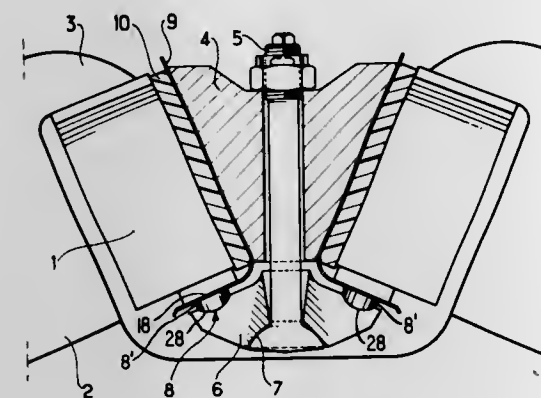
Claims priority, application France, Oct. 6, 1970, 7036130
 Int. Cl. H02k 3/18

U.S. Cl. 310—194

3 Claims

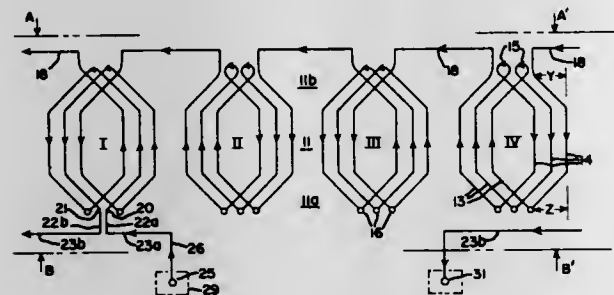
The invention relates to the wedging of coils on the rotors with salient poles of electric machines with wedges put

between the coils. The wedges are kept in place through studs which connect them through ball-and-socket joints to at-



tachment pieces resting under two adjacent coils. Such a wedging is especially useful in long machines wherein the rotor is subjected to extensive heating.

3,739,213
COMPACT CONNECTION SYSTEM FOR POLYPHASE ARMATURE WINDING
David M. Willyoung, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed June 15, 1972, Ser. No. 263,254
Int. Cl. H02k 3/00
U.S. Cl. 310-198 14 Claims

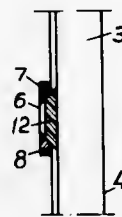


An armature winding, comprising series connected phase belts which in turn comprise series-connected coils, is connected in a compact manner by using coil conductors with equal end-arm span at opposite ends and non-radial (slanted) connecting elements between coil conductors plus phase belt jumper connections at a first end to advance the winding in the direction of current flow. Connections to the phase terminals can be made at the other end, permitting separation of the line end and neutral end terminals in substantially diametrically opposite peripheral locations. This minimizes the axial span requirements per phase for winding connections and phase terminals and is useful for the construction of generators with multiple sets of polyphase output (e.g., six phase generators).

3,739,214
DEVICE FOR CLAMPING A WINDING BAR IN TANGENTIAL DIRECTION
Torbjorn Johansson, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed Nov. 1, 1971, Ser. No. 194,314
Claims priority, application Sweden, Nov. 2, 1970, 14727/70
Int. Cl. H02k 3/48 2 Claims

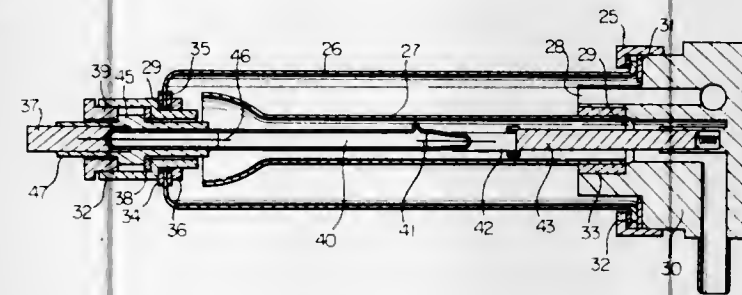
A winding bar is clamped in a tangential direction in a winding slot in a rotating machine, which is also provided with an axially directed slot wedge arranged at the opening of the slot, by providing a radially directed positioning groove in one of

the slot walls with a wedge device in this groove exerting pressure on the winding bar. The wedge device comprises two side wedges, which may be connected into a single unit, and which



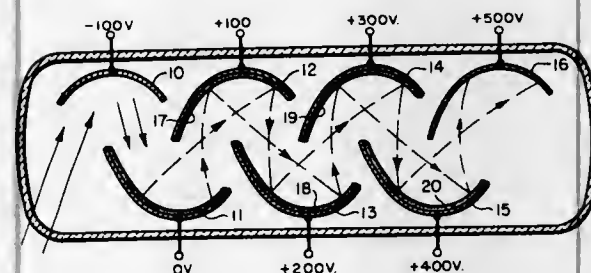
have sliding surfaces facing each other converging in tangential and radial directions and engaging an intermediate wedge which can be inserted in the radial direction between the two side wedges.

3,739,215
HIGH-PRESSURE MERCURY VAPOR LAMP PROVIDED WITH A COOLING WATER JACKET
Kaoru Mural, Tokyo, Japan, assignor to Yoshio Yazaki, Tokyo, Japan
Filed Aug. 9, 1971, Ser. No. 170,095
Claims priority, application Japan, Dec. 24, 1970, 45/129811
Int. Cl. H01j 61/52, 61/35
U.S. Cl. 313-24 3 Claims



A lamp assembly, which is a combination of a capillary type high-pressure mercury vapor lamp and a water cooling jacket, said combination being convenient for replacement and mounting of the lamp. The jacket also effectively absorbs the thermal radiation from the lamp and discharges air bubbles from the jacket.

3,739,216
SECONDARY ELECTRON MULTIPLIERS WITH SINGLE LAYER CERMET COATINGS
Serge Pakswier, Elmhurst, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.
Filed July 30, 1971, Ser. No. 167,794
Int. Cl. H01j 1/32, 43/04
U.S. Cl. 313-95 2 Claims



Secondary electron multiplier devices having one or more secondary electron emission multiplier elements each consisting essentially of a single-layer cermet coating on a supporting substrate. The coating may be formed by various techniques

including flash evaporation, vacuum sputtering, and chemical vapor deposition. Secondary emission ratios of two, three and more are attained with first cross-over voltages in the range from 20 to 40 volts. In applications where optimum temperature stability is required, gold/metal oxide cermets are employed.

3,739,217
SURFACE ROUGHENING OF ELECTROLUMINESCENT DIODES

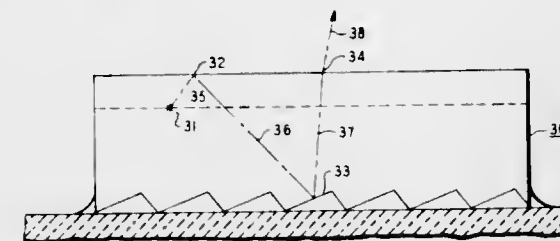
Arpad A. Bergh, Murray Hill, and Robert H. Saul, Scotch Plains, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 23, 1969, Ser. No. 835,383

Int. Cl. H01j 1/62, 63/04

U.S. Cl. 313-108 R

6 Claims



The emission of light from a high index of refraction electroluminescent body is limited by the phenomenon of total internal reflection. It has been found that, for devices of those materials which are transparent to their own radiation, such as GaP, the emission from a surface can be significantly increased by making that surface rough. Also, the spacial distribution of the emitted light can be influenced by the selection of rough and smooth surfaces. Chemical and alternative mechanical roughening processes are disclosed.

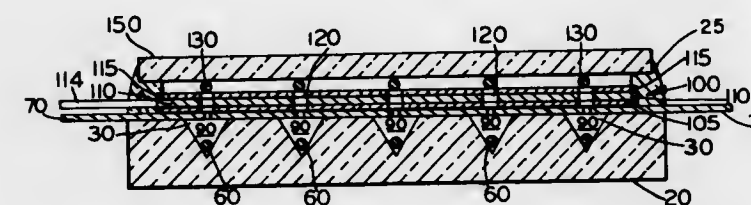
3,739,218
DISPLAY PANEL HAVING METAL CELL SHEET
Thomas C. Maloney, Bernardsville, N.J., assignor to Burroughs Corporation, Detroit, Mich.

Filed Nov. 16, 1970, Ser. No. 89,549

Int. Cl. H01j 61/04

U.S. Cl. 313-188

13 Claims



A display device including a plurality of communicating gas-filled display cells arrayed in a panel structure. A first layer includes a first plate having grooves in it, with first electrodes seated in the grooves, and second electrodes supported across them. A second layer includes a metal plate or sheet electrode having apertures in it and being insulated from the second electrodes and from third electrodes which are disposed above it. The first and second electrodes cross beneath the apertures and the third electrodes lie above the apertures, which serve as the display cells of the device.

3,739,219
ELONGATE LIGHT BLOCK ASSEMBLY LAMP
James A. Carley, Rolling Hills, Calif., assignor to Los Angeles Miniature Products, Inc., Torrance, Calif.

Filed Sept. 24, 1971, Ser. No. 183,406

Int. Cl. H01j 1/94; H01k 1/00

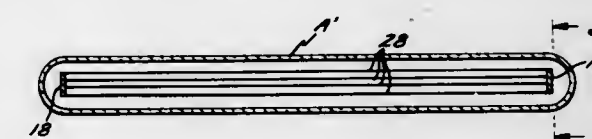
U.S. Cl. 313-278

2 Claims

An electrically operated lamp that includes an elongate, transparent envelope having two tubular legs extending out-

wardly in the same direction from the ends thereof, the legs being substantially normal to the longitudinal axis of the envelope. At least one elongate refractory element that may be brought to incandescence by passage of an electric current therethrough is longitudinally disposed within the envelope and is at all times maintained in tension by two electric current-conducting springs at least partially housed within the legs.

The lamp is particularly adapted for use with light block assemblies to produce an elongate zone of illumination of sub-



stantially uniform intensity through which multiple channel punched cards or punched tape pass. A light from this zone passes through openings in the cards or tape to actuate a light-sensitive receptor.

The possibility of one or more channels of coding or decoding being lost due to individual lamp failures is eliminated, when a lamp of the present invention is used as a source for the zone of uniform light intensity. This zone extends transversely across the punched card or tape as the card or tape moves through a predetermined position.

3,739,220
WORKPIECE SUPPORT FOR GLOW DISCHARGE APPARATUS

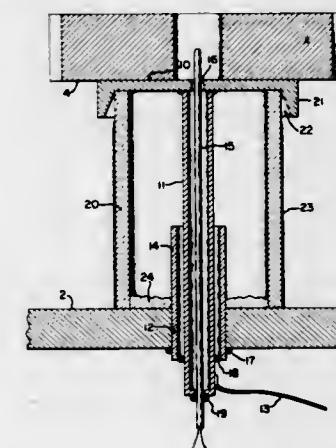
Claude K. Jones, Marblehead, and Stuart W. Martin, Salem, both of Mass., assignors to General Electric Company, Schenectady, N.Y.

Filed May 8, 1972, Ser. No. 251,274

Int. Cl. H01j 1/88

U.S. Cl. 313-281

5 Claims



An insulating support for the workpiece in a glow discharge apparatus. A workpiece table rests on and forms an acute angle with an insulating ceramic tube. A thin poorly conductive layer of sputtered metal deposit on the exterior of the tube, except at the location of the table and tube junction, forms a self-adjusting layer with a continuous potential gradient which suppresses arcing after the glow is established.

3,739,221
ELECTRIC LAMP BASE END STRUCTURE

James R. DeBleyker, Cleveland, Ohio, and William A. Hickox, Memphis, Tenn., assignors to General Electric Company, Schenectady, N.Y.

Filed Sept. 30, 1971, Ser. No. 185,119

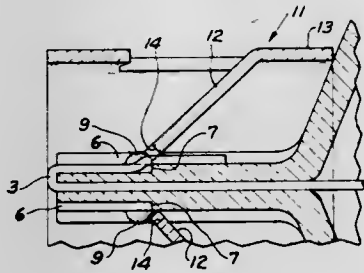
Int. Cl. H01j 5/50

U.S. Cl. 313-318

2 Claims

An electrical device with a stem press with a groove therein terminating in an end wall and having a lead wire bent around

the edge of the stem press and placed in the groove so as to extend beyond the end wall to an area of the press behind the required for fast magnetic deflection of a cathode ray tube electron beam while affording means for maintaining a con-



end wall. A hollow metal base fitted over the stem press has an inwardly directed tongue resiliently clamping the lead wire against the portion of the stem press behind the end wall.

3,739,222

BAR-GRAPH DISPLAY APPARATUS

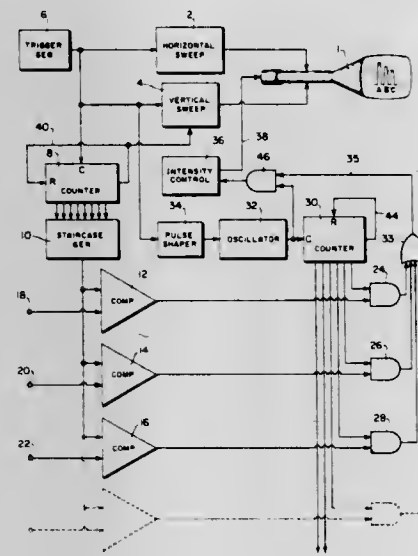
Edward T. E. Hurd, III, Cinnaminson, N.J., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Aug. 20, 1970, Ser. No. 65,507

Int. Cl. H01j 29/70

U.S. Cl. 315-22

12 Claims



A cathode-ray-tube display produces a plurality of separate bar-graph displays on a viewing face. A plurality of individual input signals are each sequentially compared with an output level from a staircase generator during a single horizontal sweep of the CRT viewing face. A vertical sweep circuit is arranged to move the CRT beam in sequence along a plurality of horizontal levels while a counter means synchronizes the aforesaid comparison operation with a movement of the CRT beam along each horizontal level. Each equality between the compared signals during the comparison operation produces an intensity turn-on control signal for the CRT to effect a display of a horizontal level segment of a corresponding display bar.

3,739,223

VOLTAGE-ON-DEMAND DEFLECTION AMPLIFIER

Orten Henry Symer, Wantagh, and Winfield Scott Bearce, Commack, both of N.Y., assignors to Orwin Associates Inc., West Babylon, N.Y.

Filed Mar. 30, 1970, Ser. No. 23,741

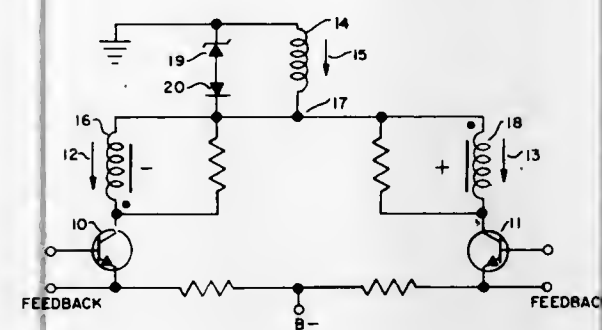
Int. Cl. H01j 29/70

U.S. Cl. 315-27 TD

3 Claims

A deflection amplifier which provides a boost voltage

required for fast magnetic deflection of a cathode ray tube electron beam while affording means for maintaining a con-



tinuous closed feedback loop around the deflection yoke and the driver amplifier.

3,739,224

CRT - SWEEP RETURN CIRCUIT

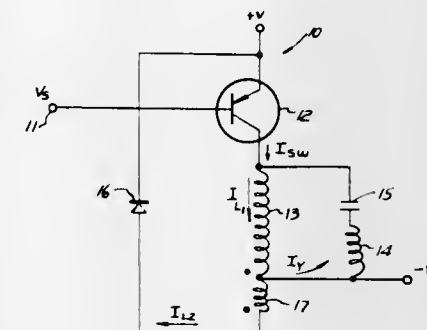
Walter T. Morrey, Cambridge, Mass., assignor to The Bendix Corporation, Southfield, Mich.

Filed Jan. 26, 1971, Ser. No. 109,881

Int. Cl. H01j 29/70

U.S. Cl. 315-27 TD

10 Claims



A circuit for returning the sweep of a cathode ray tube to the initial horizontal position is described. Sweep voltages are applied to a transistor and directed to the yoke coil of the CRT through a linear high-voltage DC coil. The linear coil is in parallel with the yoke coil, and conduction of the transistor controls the sweep voltages to the yoke coil. As the transistor responds to the sweep voltages, the yoke coil voltage changes to control the spot sweep and return it to the initial position at the end of each sweep. A diode causes the circuit to discharge into the power supply to greatly increase the efficiency of the circuit.

3,739,225

MICROWAVE MAGNETRON

James R. Mims, Acton, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Apr. 24, 1972, Ser. No. 247,080

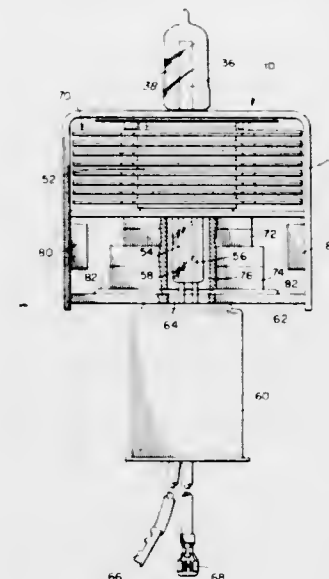
Int. Cl. H01j 25/50

U.S. Cl. 315-39.51

6 Claims

A combined RF seal, magnetic path and airflow path-defining means are provided for permanent-magnet-type magnetrons utilized in microwave heating. Spacer members of a ferromagnetic material are disposed between magnetic field pole piece means and the magnet means to assist in the magnetic field orientation and provide for improved circulation of

a fluid medium. The efficiency of the magnetic circuit is enhanced by the more efficient cooling of magnet members.



Any RF energy leakage along the electrical leads connecting the magnetron to the high voltage electric supply is also effectively suppressed.

3,739,226

EMERGENCY LIGHT UNIT FOR MOUNTING TO AN ELECTRICAL WALL OUTLET

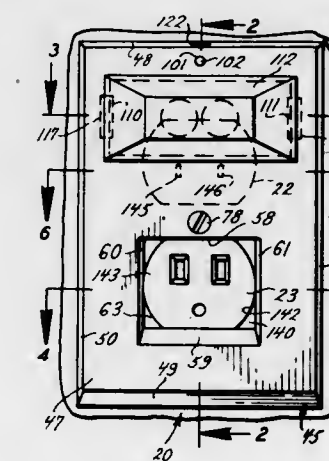
William A. Seiter, and Calvin J. Christensen, both of Fenton, Mo., assignors to said Christensen, by said Seiter

Filed Sept. 8, 1971, Ser. No. 178,636

Int. Cl. H05b 37/04

U.S. Cl. 315-86

12 Claims



This invention relates to an emergency light unit of a size for plugging into a standard electrical wall outlet. The unit is self-contained and includes means for energizing the light when the main electrical power fails and the ambient light in the area in which it is mounted is below a prescribed level. The light is powered during emergency conditions from rechargeable batteries which are continuously and automatically charged when the main power is operational. All of the components of the unit, including the batteries, are mounted in a casing of unitary construction at the front of which are exposed light bulbs for supplying the emergency light, the light-sensitive surface of a photocell for sensing the ambient light level in the area, and an electrical utility outlet. Means accessible from the front of the unit are also provided for testing its operability. The unit is plugged into a standard electrical wall outlet with the cover plate removed and is secured in the same manner as a conventional cover plate.

3,739,227

GAS-DISCHARGE SWITCHING DEVICE

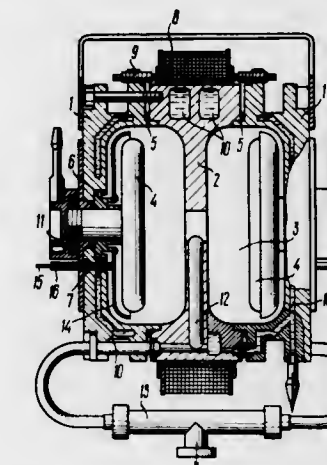
Alexandr Ivanovich Nastjukha, ulitsa Raspeltina, 11, kv. 15; Oleg Georgievich Bepalov, Smolenskaya naberezhnaya 2, kv. 65; Andrei Serafimovich Knyazyatov, ulitsa Rogova, 5, kv. 131; Pavel Alexandrovich Smirnov, B. Cherkizovskaya, 10, korpus 1, kv. 7, and Alexandr Nikolaevich Udovenko, ulitsa Rogova, 4, korpus 10, kv. 1, all of Moscow, U.S.S.R.

Filed June 5, 1972, Ser. No. 259,952

Int. Cl. H01j 17/14

U.S. Cl. 315-338

2 Claims



A gas-discharge switching device comprising: a hollow cathode in the form of a closed chamber; a barrier dividing the above-mentioned chamber so as to form at least two discharge chambers; at least two anodes each of which is arranged within each of the discharge chambers; a means for arc firing.

3,739,228

APPARATUS FOR TESTING ELECTRICAL CONTACT BETWEEN METALLIC OBJECTS

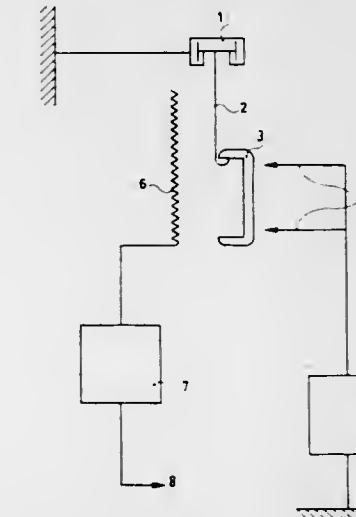
Marcel Point, Grenoble, France, assignor to Air Industrie, Courbevoie, France

Filed Feb. 18, 1972, Ser. No. 227,361

Int. Cl. B05b 5/00

U.S. Cl. 317-3

10 Claims



A device for preventing risks of fire or explosion due to electric sparks which may be produced at the attachment or suspension contacts of metal objects on which an electrostatic coating is intended to be applied, said device comprising means for inducing an electric charge on said metal object, and also means for giving an information when said electric charge reaches a pre-determined dangerous value. The charge-inducing means may utilize the existing high-tension source employed for the electrostatic coating, acting from a distance, and may comprise a variable-threshold charge-detection device adapted to trip a safety, alarm or indicator means. The device can be used in automatic electrostatic painting and powder-applying installations.

3,739,229

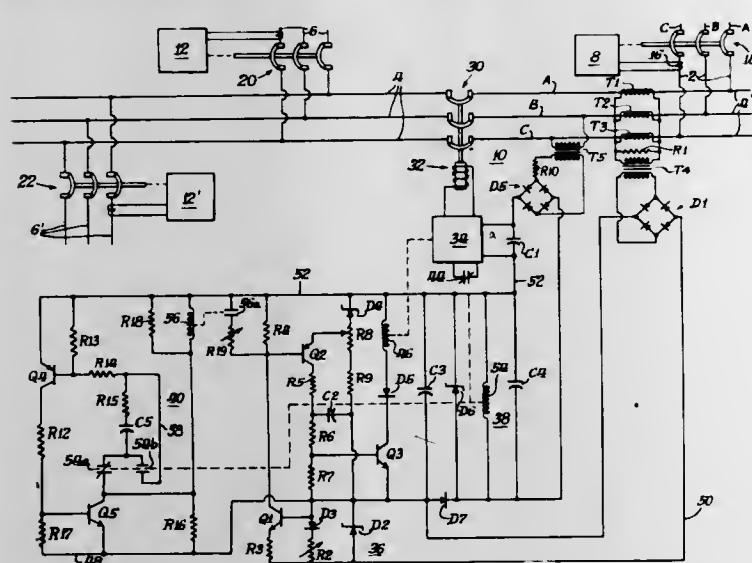
OVERCURRENT SENSING AND RESTRAINT CONTROL FOR SECTIONALIZING SWITCH

Richard J. Moran, Milwaukee, Wis., assignor to McGraw-Edison Company, Elgin, Ill.

Filed Sept. 20, 1971, Ser. No. 182,079
Int. Cl. H02h 7/26

U.S. Cl. 317—22

15 Claims



A sectionalizing switch control having a ground fault current sensing circuit and a restraint circuit including voltage or current sensing means. The restraint circuit restrains operation of the switch control and restrains operation of the ground fault sensing circuit due to load current inrush when voltage or current initially becomes present at the sectionalizing switch. The sectionalizing switch control and the ground fault sensing circuit both obtain operating power from system voltage at the sectionalizing switch. When voltage or current is initially sensed at the sectionalizing switch by the sensing means, the restraint circuit modifies the ground fault sensing circuit so that it will not respond to inrush load current to produce an output indicative of fault current. The restraint circuit includes a timing circuit which maintains the change initiated by the sensing means for a predetermined length of time.

3,739,230

OVERVOLTAGE ARRESTER

Gerhard Lange, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

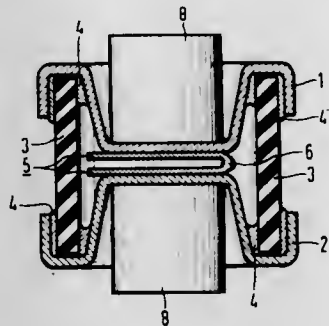
Filed Jan. 10, 1972, Ser. No. 216,524

Claims priority, application Germany, Jan. 13, 1971, P 21 01 417.5

Int. Cl. H02h 9/06

U.S. Cl. 317—62

4 Claims



An overvoltage arrester having a pair of electrodes received in a gas tight housing with the electrode surfaces arranged in a spaced, facing relationship characterized by at least one of the electrode surfaces of the pair of electrodes being coated with a small metal sheet which has a diameter greater than the

diameter of the electrode surface. In an embodiment of the invention, the metal sheet has a dish-shaped recess at its center and is connected to the surface of the electrode at the dish-shaped recess so that the peripheral edge of the sheet is spaced from the surface of the electrode and the opposite electrode.

3,739,231

INTERCONNECTION MATRIX BOARD

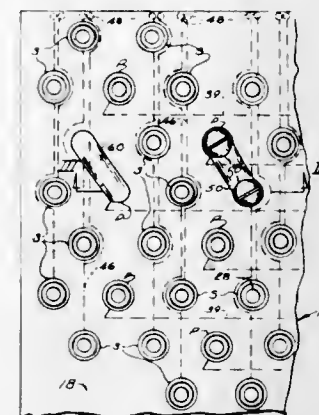
Frank K. Luteran, Jackson, Mich., assignor to Spartan Corporation, Jackson, Mich.

Filed Nov. 26, 1971, Ser. No. 202,315

Int. Cl. H05k 1/04

U.S. Cl. 317—101 CE

11 Claims



An electrical matrix board of dielectric material having a printed circuit defined upon two surfaces thereof and including a plurality of metallic terminals defined thereon in a plurality of sets, the terminals being related such that each set includes a central terminal surrounded by secondary terminals arranged in a hexagonal configuration, and the distance between adjacent secondary terminals defining a set, and between such secondary terminals and the associated primary terminal being equal. The terminals include connection means, preferably in the form of an axial passage, a portion of which may be threaded to receive a screw connector. The terminal sets are arranged on the matrix board in groups, whereby a printed circuit interconnects the primary terminals of sets in different groups, and selected terminals of sets within the same group are also interconnected by a printed circuit. Bridge means permits interconnection of selected terminals within the same set or group and the printed circuits include taps disposed adjacent the edge of the matrix board for connecting the board into other circuitry.

3,739,232

INTERCONNECTED ELECTRICAL CIRCUIT BOARD ASSEMBLY AND METHOD OF FABRICATION

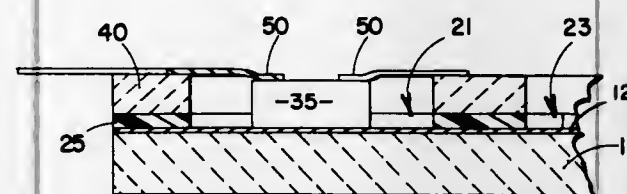
Norman J. Grossman, Malibu; Kermit K. W. Heid, Gardena; Richard D. Pittman, Thousand Oaks, and Ralph E. MacDougall, Woodland Hills, all of Calif., assignors to Northrop Corporation, Los Angeles, Calif.

Filed Apr. 10, 1972, Ser. No. 242,569

Int. Cl. H05k 1/04

U.S. Cl. 317—101 CP

7 Claims



An electrical circuit board assembly is formed by first depositing a conductive material on a substrate which forms both a ground and a heat sink for components subsequently

mounted thereon. A cavity pattern is then formed in a dielectric material placed over the conductive layer to form an alignment plate, the pattern in the plate being designed to receive various components which are placed therein. An etched circuit board which has apertures therein corresponding to the cavities in the alignment plate and having beam leads extending into these apertures and from the edges thereof, is placed over the alignment plate in alignment therewith, with the beam leads contacting corresponding terminals on the components mounted in the cavities. With the components resting on the conductive layer in the cavities but not attached thereto, and with the beam leads contacting but not attached to the component terminals, the unit is tested both electrically and mechanically and any faulty components replaced. After all testing and replacement of faulty components has been completed, the components are bonded in their aligned positions to the conductive layer on the substrate and the beam leads are bonded to associated terminals of the components.

3,739,233

ELECTRONIC COMBINATION LOCK

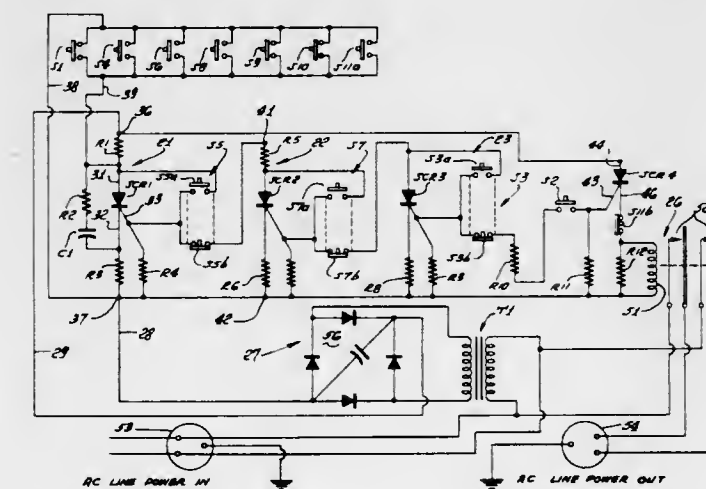
Andrew C. Edelson, 10832 Charnock Road, Los Angeles, Calif.

Filed May 26, 1972, Ser. No. 257,108

Int. Cl. E05b 49/00

U.S. Cl. 317—134

19 Claims



An electronic combination lock in which a plurality of silicon controlled rectifier (SCR) circuit stages are interconnected by a plurality of manually operable push button switches such that each of the serial stages starting with a first SCR circuit stage must be triggered to a conducting state before a succeeding SCR circuit stage is enabled for triggering. A final and output circuit stage serves as an output lock control means for unlocking a secured area. Thus, a preselected operating sequence of the push button switches is required in order to activate the lock control. Trial and error attempts to break the code are hindered by a plurality of additional push button switches connected to drive each of the SCR circuit stages to their non-triggered or normal condition thereby scrambling the lock and requiring a new application of the entire combination sequence.

3,739,234

SEMICONDUCTOR DEVICE HAVING HEAT PIPE COOLING MEANS

Per Ake Bylund, and Gunnar Mellgren, both of Vasteras, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed Jan. 28, 1971, Ser. No. 110,721

Claims priority, application Sweden, Feb. 24, 1970, 2336/70

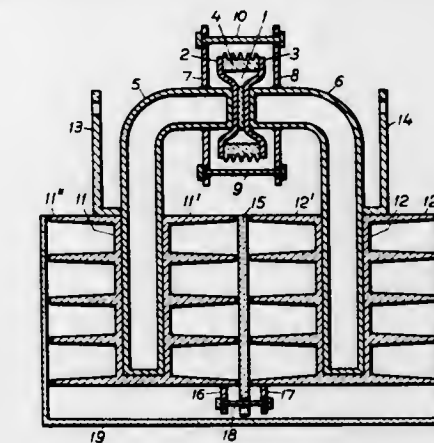
Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317—234 R

5 Claims

A semiconductor device has a semiconductor element arranged for double-sided cooling. At least one heat pipe is pro-

vided having one or more bends therein, one end of the heat pipe being in contact with the semiconductor element and the



other end being in heat exchange relation with a heat exchanger provided with cooling flanges.

3,739,235

TRANSCALANT SEMICONDUCTOR DEVICE

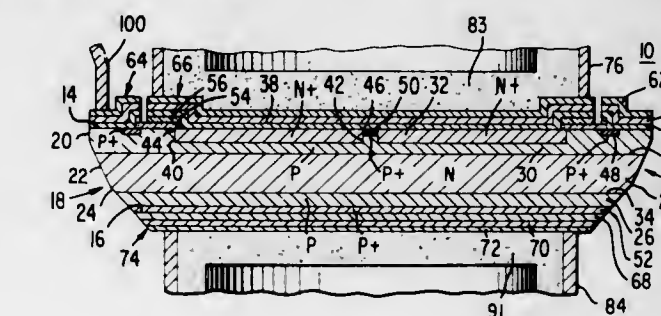
Sebastian William Kessler, Jr., Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 31, 1972, Ser. No. 222,244

Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317—234 R

11 Claims



A transcalant semiconductor device, which may be a thyristor or transistor, comprises a semiconductor body having an emitter-gate junction intersecting a first surface thereof, adjacent to a gate electrode preferably disposed at or near the periphery of the first surface. A first heat pipe is formed with a portion of the first surface, including the junction-surface intersection, internal thereto. Opposite the first surface is a second surface of the body, which may be internal to a second heat pipe formed therewith.

3,739,236

SEMICONDUCTOR SWITCHING DEVICE

Alberto Loro, Ottawa, Ontario, Canada, assignor to Microsystems International Limited, Montreal, Quebec, Canada

Filed July 19, 1971, Ser. No. 163,821

Claims priority, application Great Britain, Feb. 23, 1971, 5,257/71

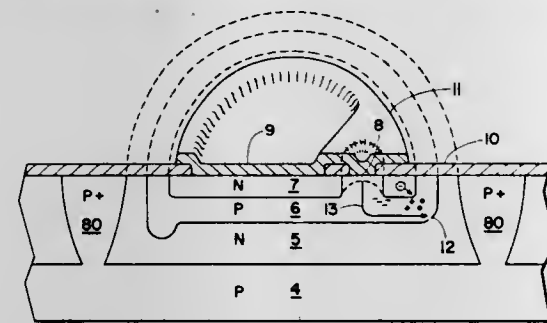
Int. Cl. H01l 1/00

U.S. Cl. 317—235 R

22 Claims

A four layer two terminal semiconductor switch having a preferred lowest resistance current path from its base contact

through the base adjacent the emitter. Means are provided to cause a particular position or region of the base periphery to break down at the switching current, or to cause base current

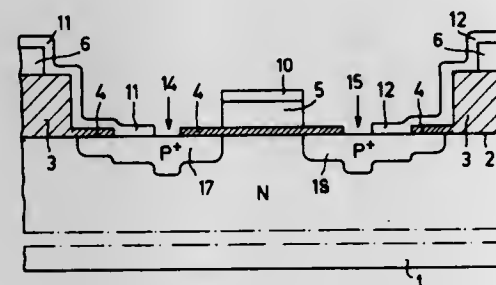


to flow to a conductive ring at the surface of the base; whereby an emitter-biasing voltage is set up in the base. Good individual control of both the switching current (I_s) and the holding current (I_H) is thus afforded.

3,739,237
METHODS OF MANUFACTURING INSULATED GATE FIELD EFFECT TRANSISTORS
John Martin Shannon, Reigate, England, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 18, 1970, Ser. No. 99,616
Claims priority, application Great Britain, Dec. 24, 1969, 62,909/69

Int. Cl. B01j 17/00; H011 11/00
U.S. Cl. 317—235 R 12 Claims



A method of making an IGFET by implantation techniques is described. The method features provision of the source and drain contact metal on the semiconductor surface and an adjoining insulator, provision of a gate electrode structure which will mask ions, and then ion bombardment under such conditions that the ions do not penetrate the gate electrode structure thereby defining a channel precisely aligned with the gate, but ions do penetrate the adjacent structure to form in the underlying semiconductor source and drain surface regions wholly defined by the implantation and whose p-n junctions terminate under the insulator. Upon completion, the source and drain contacts for the source and drain regions are automatically established. Various methods are described for controlling the locations where the ions are masked or are permitted to penetrate into the semiconductor.

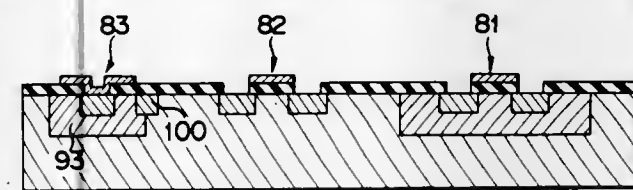
3,739,238
SEMICONDUCTOR DEVICE WITH A FIELD EFFECT TRANSISTOR
Hisashi Hara, Kanagawa, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Sept. 22, 1970, Ser. No. 74,459
Claims priority, application Japan, Sept. 24, 1969, 44/75231; Sept. 24, 1969, 44/75232; Jan. 14, 1970, 45/3522

Int. Cl. H011 19/00
U.S. Cl. 317—235 R 1 Claim

A semiconductor device includes a common substrate, on the one side of which there are provided an insulated gate field

effect transistor and bipolar transistor for protecting the former transistor from the failure. The gate of the former is

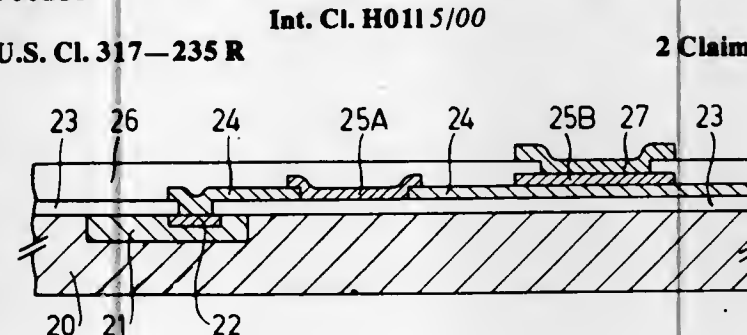


electrically connected to the emitter of the latter to have the same potential.

3,739,239
SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING THE DEVICE
George Kerr, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 4, 1971, Ser. No. 112,625
Claims priority, application Netherlands, Feb. 14, 1970, 7002117

Int. Cl. H011 5/00
U.S. Cl. 317—235 R 2 Claims

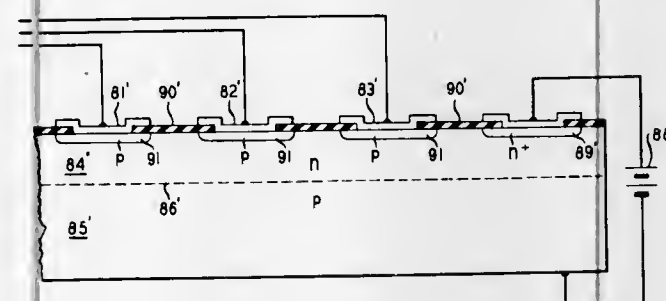


A semiconductor device having a planar structure, in particular a transistor, having at least an emitter zone which is provided with a series resistance in the form of a resistance layer provided on the surface, the resistance layer being also provided elsewhere on the device for a completely different purpose, where it is entirely covered by a metal layer. Application in particular for protection of the emitter-base junction in washed-out emitters in silicon transistors in which the resistance layer consists of titanium and the metallization consists of aluminium.

3,739,240
BURIED CHANNEL CHARGE COUPLED DEVICES
Robert Harold Krambeck, South Plainfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Apr. 6, 1971, Ser. No. 131,721
Int. Cl. H011 11/14

U.S. Cl. 317—235 R 10 Claims



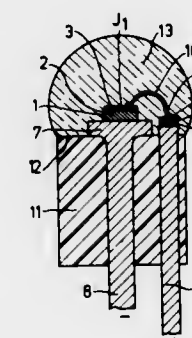
The specification describes charge coupled devices in which the storage layer is internally charged so that the energy level profile across the thickness of the layer has a maxima in the middle of the layer. Injected carriers can then be stored and

transferred in the bulk region of the semiconductor. If the energy level of the maxima exceeds the surface energy of the valence band by an amount exceeding the Boltzmann expression for thermal excitation, then the stored carriers remain isolated (statistically) from the surface states. The storage layer can be appropriately charged by biasing the layer to remove the mobile carriers. Residual fixed charge bends the energy band if the boundaries are fixed to appropriate barriers. The most convenient structure appears to be a large area p-n junction for the lower (buried) barrier with the usual MIS surface barrier. An MISIM structure is predictably similar. Multichannel structures are proposed such as N-P-N-P-N in which the isolated P-channels serve simultaneously as storage layers. Simultaneous use of both channels with controlled interconnection suggests many potential applications for logic circuits and the availability of convenient crossovers.

3,739,241
ELECTROLUMINESCENT SEMICONDUCTOR DEVICE CONTAINING CURRENT-CONTROLLING RECTIFYING DEVICE
Jacques Claude Thillays, Herouville Saint Clair, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 29, 1972, Ser. No. 230,409
Claims priority, application France, Mar. 1, 1971, 7106973

Int. Cl. H011 11/00, 15/00
U.S. Cl. 317—235 R 4 Claims



An electroluminescent semiconductor device. An electroluminescent device which is arranged in a partly transparent, protective housing which comprises two connections.

The device is characterized in that it comprises at least two semiconductor crystals of which one crystal shows an electroluminescent junction and the other shows a rectifying junction. The junctions are connected in series in such manner that during operation of the device all junctions are in the forward direction or all junctions are in the reverse direction.

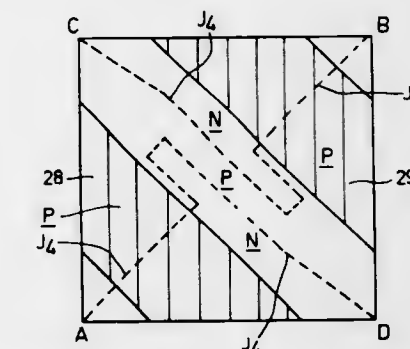
3,739,242
TRIAC
Alan Foster, Stockport, Cheshire, England, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 15, 1972, Ser. No. 226,461
Claims priority, application Great Britain, Mar. 1, 1971, 5,711/71

Int. Cl. H011 11/10
U.S. Cl. 317—235 R 9 Claims

A five layer triac, having three electrodes, with one electrode covering the whole surface of one side of the wafer, and

the other two electrodes being symmetrically located on the other side of the wafer, the two smaller electrodes being



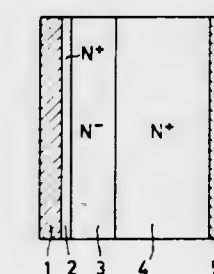
identical so that either may be used as the gate and the other as the second main power electrode.

3,739,243
SEMICONDUCTOR DEVICE FOR PRODUCING OR AMPLIFYING ELECTRIC OSCILLATIONS
Alain Semichon, Choisy-le-Roi, and Jacques Michel, Ville Luve Saint-Georges, both of France, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 99,064, Dec. 17, 1970. This application May 16, 1972, Ser. No. 253,787

Claims priority, application France, Dec. 24, 1969, 6944987

Int. Cl. H011 9/00
U.S. Cl. 317—235 R 6 Claims

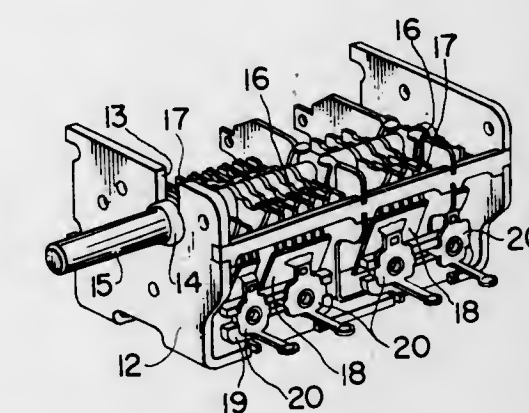


An avalanche transit time microwave device as described, employing a Schottky barrier.

3,739,244
VARIABLE CONDENSER
Toshio Tatsumi, Daito; Hideo Kitani, Kobe, and Hideo Maruoka, Higashi, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 26, 1971, Ser. No. 192,185
Claims priority, application Japan, Oct. 30, 1970, 45/108399

Int. Cl. H01g 5/06
U.S. Cl. 317—253 3 Claims



A variable condenser comprising a frame having a cutout formed in one side wall for providing a bearing portion at an

extension thereof, a rotor shaft having a bearing adapted to be received by said bearing portion to support the rotor shaft, said cutout being used to assemble the rotor shaft in the frame, rotor blades secured to the rotor shaft, and stator blades co-operative with the rotor blades and secured to said frame.

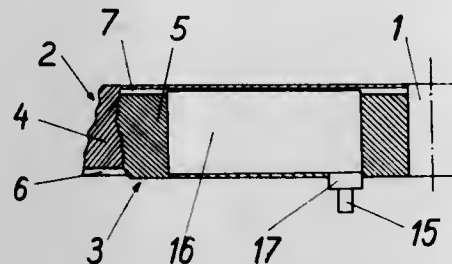
3,739,245 WOUND SUPPRESSOR CAPACITOR WITH SHOCK PROTECTION

Karlheinz Herbert Fuchshuber, Nurnberg, and Eric Harold Harkness, Grossweismannsdorf, both of Germany, assignors to International Standard Electric Corporation, New York, N.Y.

Filed July 28, 1971, Ser. No. 166,852
Int. Cl. H01g 3/215; H02h 7/16

U.S. Cl. 317-256

7 Claims



This invention relates to a four pole electrical wound capacitor for suppressing interfering voltages on current conducting lines. Two tapes of a thin dielectric material are each provided on one side with an electrical conducting metal layer for forming electrodes. Two lead-in conductors are connected to each layer, said lead-in conductors not only conducting the interfering current, but also the operating current flowing past the capacitor. The geometry and configuration of the wound capacitor provides a high Q LC filter which eliminates unwanted frequencies. An additional electrode foil with a terminal is in the capacitor to provide shock protection.

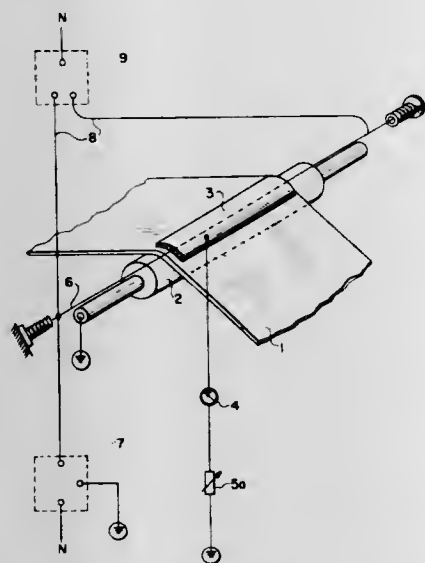
3,739,246 PROCESS AND APPARATUS FOR INCREASING THE CHARGE DENSITY OF INSULATORS

Gunter Haas, Wiesbaden-Blebrich, Germany, assignor to Kalle Aktiengesellschaft, Wiesbaden-Blebrich, Germany
Filed Dec. 14, 1970, Ser. No. 97,946

Claims priority, application Germany, Dec. 17, 1969, P 19 63 248.5

Int. Cl. H01t 19/00
U.S. Cl. 317-262 A

7 Claims



This invention relates to a process and apparatus for increasing the charge density on the surface of a dielectric material in which electrons and gas ions are produced in the

gas space above the surface of the material by means of direct current so that the surface is electrostatically charged. The process is an improvement which comprises producing an electric field of the same polarity above the source which generates the electrons and gas ions, whereby the migration of the electrons and gas ions to the surface of the material is directed.

3,739,247 POSITIONING DEVICE USING PHOTOELECTRIC SCANNING

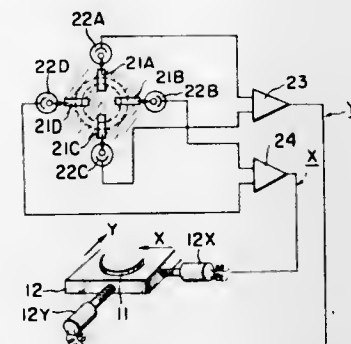
Isao Yamaguchi, and Nori Kato, Machida-shi, both of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed May 10, 1972, Ser. No. 252,020

Claims priority, application Japan, May 17, 1971, 46/33162; Mar. 2, 1972, 47/21802

U.S. Cl. 318-640

Int. Cl. G05d 3/00

21 Claims



This specification discloses a positioning device for setting an article in a predetermined position. The article to be positioned by the device has a referential pattern of predetermined shape formed on a surface thereof. The positioning device comprises reference pattern carrier means having a reference pattern whose base portion is substantially similar in shape to the referential pattern of the article. Means is provided to move the article in a plane and to a position where the referential pattern on the article and at least the base portion of the reference pattern are optically superposed one upon the other. The two patterns may be optically superposed by optical means. The superposed images of the two patterns are scanned by photoelectric converter means, which converts such images into electrical signals. Detector means is associated with the photoelectric converter means to detect the extent of deviation between the two patterns in accordance with the outputs from the photoelectric converter means.

3,739,248 SELF STARTING ELECTRICAL MOTOR

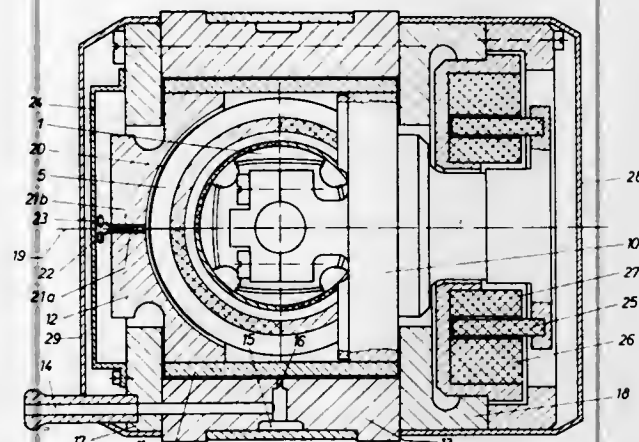
Heinz Wehde, Heidelberg, Germany, assignor to Teldix GmbH, Heidelberg, Germany
Filed Dec. 13, 1971, Ser. No. 207,292

Claims priority, application Germany, Dec. 12, 1970, P 20 61 391.6

U.S. Cl. 318-138

Int. Cl. H02k 29/00

17 Claims



This invention relates to an electrical motor comprising a permanent magnetic rotor, a stator provided with a single

phase operated winding and at least one auxiliary permanent-magnetic pole mounted on the stator for self-starting of said motor in a given direction, and more particularly to an electrical motor which is controlled in starting and running operation.

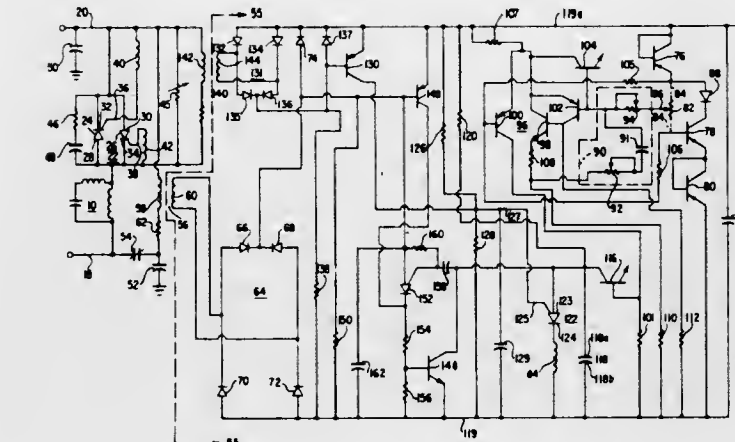
3,739,249 SPEED CONTROL CIRCUIT FOR A SINGLE PHASE ALTERNATING CURRENT MOTOR

George M. Rosenberry, Jr., Elmira, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed Oct. 5, 1971, Ser. No. 186,622

Int. Cl. H02p 5/40

U.S. Cl. 318-227

7 Claims



A speed control circuit for a single phase alternating current motor including controllable bidirectional current conducting means gated at a selected phase angle of each half cycle of the alternating current. A timing capacitor, which charges to a first level at a relatively fast rate and then to a higher or critical charge level at a relatively slow rate, generates an electrical pulse when it discharges at the higher level to gate the current conducting means. Although the timing capacitor discharges at the higher charge level, the phase angle of an alternating current half cycle at which it discharges depends upon the level to which it is first charged at the faster rate. This follows since the capacitor would reach the higher charge level at an earlier time in a half cycle if it charged to a higher, rather than a lower, first charge level at the faster rate. Further, after the timing capacitor discharges to gate the current conducting means, a transistor in parallel with the capacitor becomes conductive to prevent the capacitor from recharging to the higher charge level until the next following half cycle of the alternating current. This provision insures a proper timing of the circuit as well as preventing the generation of more than one gating pulse during each half cycle. Finally, since only a single gating pulse is generated each half cycle, means are provided to insure against the attempted gating of a current conducting means that does not have a voltage of proper amplitude applied across it and thereby waste the gating pulse generated for that half cycle of the alternating current.

3,739,250 ELECTRONIC RATE MEANS FOR A SERVO DRIVEN FUEL CONTROL

Terence Brockley Beadman, Ashby-de-la-Zouch, England, assignor to Rolls Royce Limited, Derby, England
Filed Sept. 14, 1970, Ser. No. 71,664

Claims priority, application Great Britain, Sept. 18, 1969, 46,015/69

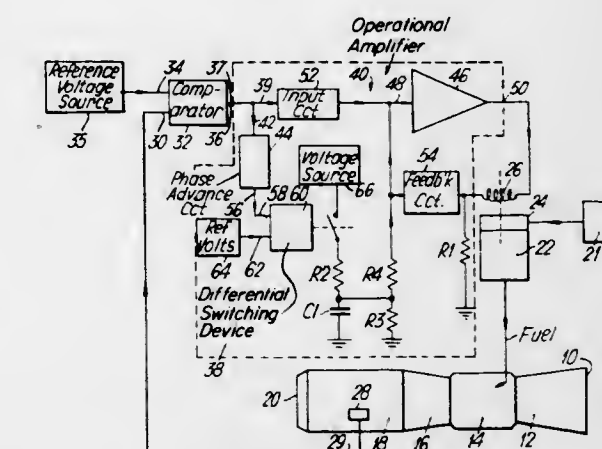
U.S. Cl. 318-610

Int. Cl. G05b 11/42

5 Claims

This invention concerns an electronic control system suitable for controlling jet pipe temperature or rotational speed of

a gas turbine engine rotor shaft. The control system is adapted to operate a solenoid which is connected to a valve in the fuel system of the engine to reduce the flow of fuel to the engine



when an electrical output signal from the control system exceeds the value of a reference signal generated by the control system.

3,739,251 MARINE AUTOPILOT SYSTEM

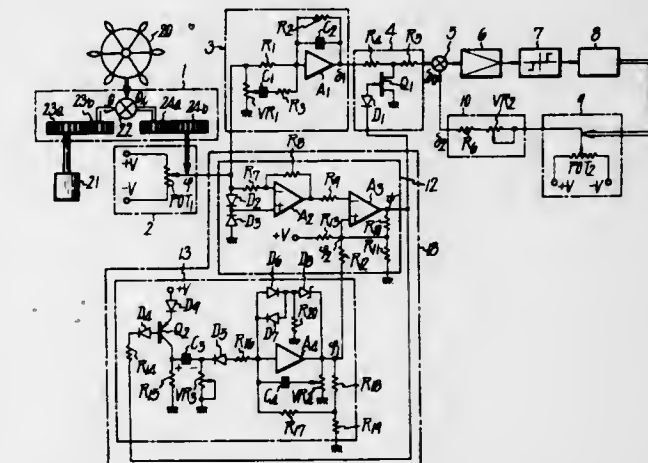
Isao Masuzawa, Tokyo, Japan, assignor to Kabushiki Kaisha Tokyo Keiki (Tokyo Keiki Co., Ltd.), Tokyo, Japan
Filed Mar. 3, 1971, Ser. No. 120,497

Claims priority, application Japan, Mar. 10, 1970, 45/20289

U.S. Cl. 318-611

Int. Cl. G05b 5/01

3 Claims



A marine autopilot system having a circuit for generating a signal corresponding to the deviation of a ship's heading from a set course, a signal limiter circuit for limiting the signal derived from the circuit, and a control device. In this case, the control device is supplied with the signal from the circuit and automatically control the signal limiter circuit at an optimum value in response to external disturbances exerted on the ship.

3,739,252 TORSIONAL STEPPING MOTOR AND EXCITER APPARATUS THEREFOR

John D. Hays, Troy; Johnny F. Schauerte, and Harlen L. Baswell, both of Dayton, all of Ohio, assignors to The National Cash Register Company, Dayton, Ohio
Filed Oct. 12, 1971, Ser. No. 188,419

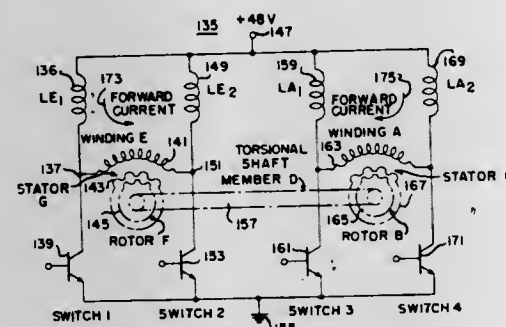
U.S. Cl. 318-696

Int. Cl. H02k 37/00

58 Claims

A stepping or indexing motor including plural electrical-to-mechanical energy transducer devices and a torsionally resilient coupling member for connecting transducer device rotor members and for storing rotor member mechanical ener-

gy between rotor member movements; the torsionally resilient coupling member also providing starting torque for the stepping motor, and a means for driving separately the inertia component and the friction component of the stepping motor load; and the torsionally resilient coupling member also providing means for achieving high torque-to-inertia and torque-to-motor volume ratios in the motor. In one embodiment a transducer device takes the form of a rotor, a stator, and a winding carried at each end of the coupling member with the output torque at a motor shaft being derived both



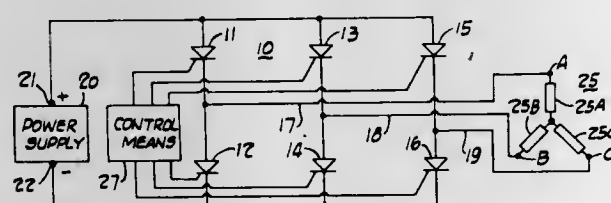
from an adjacent transducer device and from energy stored in the torsionally resilient coupling member during alternate sequential energizing and deenergizing of transducer windings, such alternate sequential energizing and deenergizing action subjecting the coupling member to a twisting action and a relaxing action during each step of operation. Electrical circuitry for controlling the flow of energy into the stepping motor and for removing energy from the motor magnetic circuit is also described along with a method for achieving a novel energy conserving release of rotor and stator magnetic engagement.

3,739,253 DISPLACED WAVEFORM FOR A PULSE WIDTH MODULATED POWER SOURCE

Andrew J. Humphrey, Cleveland, and Dennis L. Szymanski, Willoughby, both of Ohio, assignors to Reliance Electric Company, Cleveland, Ohio
Filed Oct. 12, 1971, Ser. No. 188,037
Int. Cl. H02m 1/12

U.S. Cl. 321-9 A

23 Claims



A pulse width modulated power source is disclosed capable of producing a displaced waveform which has a fixed RMS value and a variable ratio of fundamental to harmonic component. The displaced waveform has reduced harmonics which produce a higher fundamental component than was found in the prior art modulated waveforms. The displaced waveform is suitable for use as an intermediate waveform between a modulated and an unmodulated six-step waveform to overcome surges experienced in the transition therebetween. The foregoing abstract is merely a resume of one general application, is not a complete discussion of all principles of operation or applications, and is not to be construed as a limitation on the scope of the claimed subject matter.

3,739,254 VOLTAGE MULTIPLYING RECTIFIER DEVICE

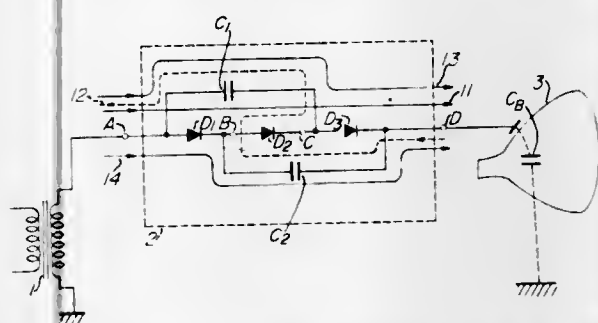
Isao Kojima, Tetsuya Takahashi, Takeshi Sasaki, and Tatsuwo Yosimura, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 21, 1971, Ser. No. 210,527
Claims priority, application Japan, Dec. 29, 1970, 45/128560

Int. Cl. H02m 7/00

U.S. Cl. 321-15

16 Claims



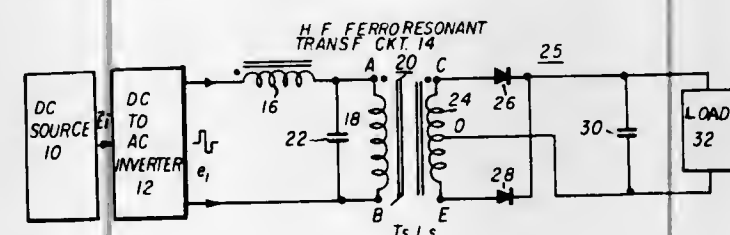
A voltage multiplying rectifier device for use as a high voltage power supply for a cathode-ray tube in a television receiver in which silicon rectifier elements are used for rectifying the high voltage.

3,739,255 HIGH FREQUENCY FERRORESONANT TRANSFORMER

Dale V. Leppert, 6535 Estel Road, Worthington, Ohio
Filed Dec. 16, 1971, Ser. No. 208,880
Int. Cl. G05f 3/08, 1/32

U.S. Cl. 321-16

19 Claims



A high frequency ferroresonant regulator circuit having a saturable core structure comprised of a first core of a square loop magnetic material and a second core; the first core having a first permeability region which provides low reluctance to the flux generated during the initial part of the period between resonant pulses of the ferroresonant circuit, and a second permeability region of different values upon saturation; the second core having a permeability which is less than the first permeability of the first core and which is greater than the second permeability of the first core, and which is of a value which does not saturate at the values of mmf provided by the ferroresonant circuit; which structure increases the width and decreases the amplitude of the resonant pulse provided by the ferroresonant transformer therein during the resonant period to provide increased circuit efficiency and more stable operation at all values of output load.

3,739,256 TRANSFER SWITCHING SYSTEM FOR REGULATING TRANSFORMERS INCLUDING THYRISTOR NETWORK AND LOGIC CONTROLS THEREFOR

Manfred Matzl, Eberbach/Neckar, Germany, assignor to Maschinenfabrik Reinhausen Gebrüder Scheubeck K.G., Regensburg, Germany
Filed Jan. 21, 1972, Ser. No. 219,705

Claims priority, application Germany, Jan. 29, 1971, P 21 04 076.6

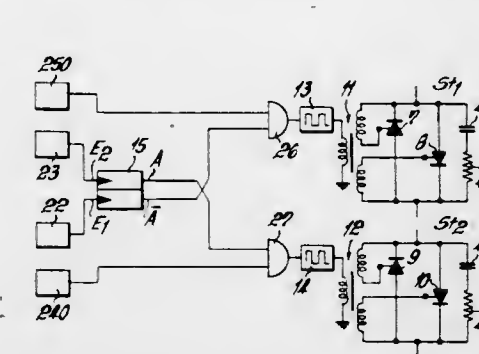
Int. Cl. G05f 1/20; H02m 5/12

U.S. Cl. 323-43.5 S

3 Claims

A system for performing tap-changing operations on tapped regulating transformers by thyristor networks and disconnect

contact means. The trigger pulse generators for the thyristors preferred flow control detector means comprises a contoured orifice having a smooth tapered inlet wall blended at an inter-



into a logic circuitry. The latter includes a bistable device and a pair of AND-gates.

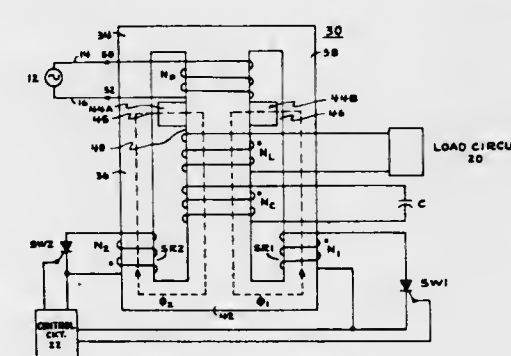
3,739,257 VARIABLE FLUX-RESET FERRORESONANT VOLTAGE REGULATOR

Patrick L. Hunter, Columbus, Ohio, assignor to North Electric Company, Gallon, Ohio

Continuation-in-part of Ser. No. 96,380, Dec. 9, 1970, abandoned. This application Sept. 29, 1971, Ser. No. 184,763
Int. Cl. G05f 1/38, 1/64

U.S. Cl. 323-50

22 Claims



A thyristor controlled ferroresonant voltage regulator circuit in which the output voltage is made adjustable by varying the reset flux level of each of two parallel magnetic core paths upon which the load windings are wound. One magnetic core path is driven hard into magnetic saturation during one half cycle of the output waveform, and the second magnetic core path is clamped at a given value; in the second half cycle the second path is driven into magnetic saturation and the one path is clamped at the given value. The level of clamping is determined by an associated control circuit which may comprise a simple manually adjustable potential source, or a circuit with load sensing and automatic feedback capabilities.

3,739,258 METHOD AND APPARATUS FOR DETECTING AND SIZING MICROSCOPIC PARTICLES

Richard F. Karuhn, Chicago; Reg Davies, Justice, and John Michael Clinch, Chicago, all of Ill., assignors to IIT Research Institute, Chicago, Ill.

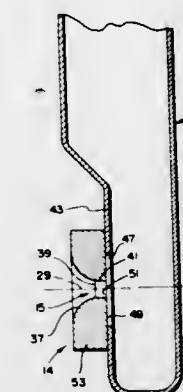
Filed Aug. 20, 1971, Ser. No. 173,372

Int. Cl. G01n 27/00

U.S. Cl. 324-71 CP

5 Claims

Improved accuracy of size measurement and size distribution of particles in a fluid have been obtained in an electrical zone sensing apparatus by a flow control director means which directs the fluid in a more streamlined, less turbulent flow through an aperture at which the particles are electrically sensed. Also, the particles were directed and guided to flow substantially parallel to longitudinal axis for the aperture. The



section with a central cylindrical wall defining a tubular shaped aperture.

3,739,259 POLE SYNCHRONIZATION TEST APPARATUS FOR MULTI-POLE CIRCUIT BREAKERS

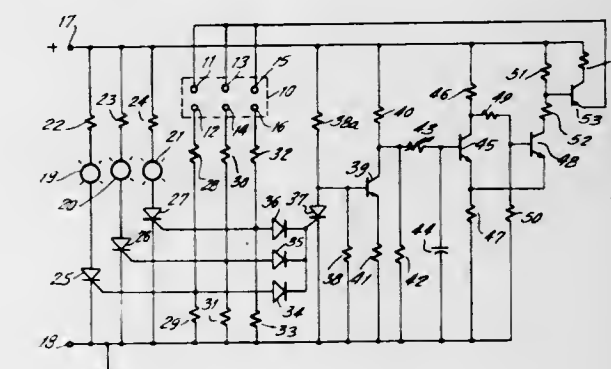
William E. May, Croydon, Pa., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed Oct. 22, 1971, Ser. No. 191,937

Int. Cl. G01n 31/00

U.S. Cl. 324-28 CB

11 Claims



A test circuit provides a thyristor for each pole of a multi-pole circuit breaker in series with a lamp. A transistor circuit starts a timing circuit in operation when the first pole contacts touch, and the thyristor associated with this first pole becomes conductive and its lamp is energized. The remaining poles must touch within a time interval determined by the timing circuit for their respective thyristor to become conductive, and for their respective indicating lamps to be energized.

3,739,260 METHOD FOR OPERATING A HALOGEN DETECTION DIODE AND ARRANGEMENT FOR CARRYING OUT THE METHOD

Walter Schädler, Triesen, Liechtenstein, assignor to Balzers Patent-Und Beteiligungs-Aktiengesellschaft, Balzers, Fürstentum, Liechtenstein

Filed June 23, 1971, Ser. No. 155,901

Claims priority, application Switzerland, June 30, 1970, 9943/70

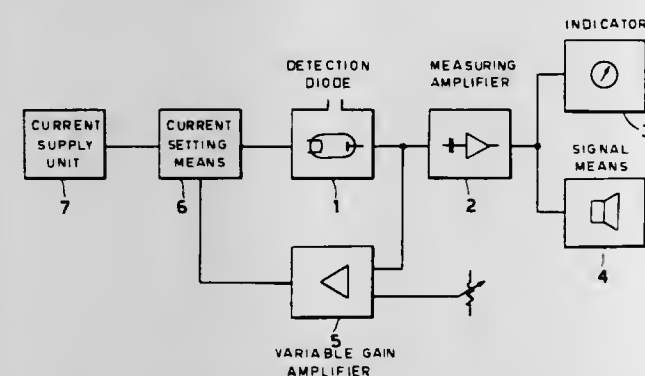
Int. Cl. G01n 27/00

U.S. Cl. 324-33

7 Claims

In a method of operating a halogen detection diode having a filament-heated anode, which emits ions when impacted by halogen gas, and a cathode, fundamental ion current variations of the diode are constantly sensed and the filament heating current is regulated in accordance with the sensed ion current variations to counteract the ion current variations to maintain the fundamental ion current substantially constant. The ion current peak, which occurs under the action of an halogenous gas on the anode of the diode, is measured and

serves as an indication of the halogen action. The arrangement for effecting the method includes a measuring amplifier connected to the cathode of the detection diode, an indicating meter and preferably an alarm device connected to the output of the measuring amplifier, a current supply for the filament and an adjusting means connecting the current supply to the



filament. A variable gain amplifier is connected to the cathode of the detection diode and to the setting means to regulate the filament heating current in a corrective sense in accordance with sensed fundamental ion current variations. The arrangement and method are used primarily for checking leakage of an atmosphere containing an halogenous gas.

3,739,261

METHOD FOR MEASURING THE AMOUNT OF COLD WORKING IN A STAINLESS STEEL SAMPLE

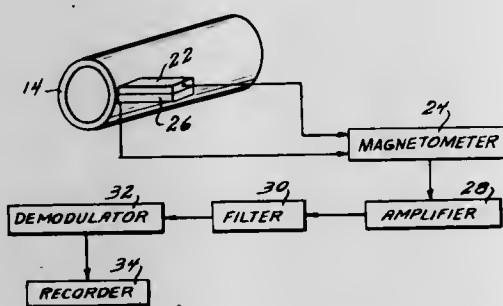
Claus J. Renken, Jr., Hoits Summit, Mo., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed June 28, 1971, Ser. No. 157,139

Int. Cl. G01r 33/12

U.S. Cl. 324—34 R

4 Claims



The amount of cold working in a stainless steel sample is determined by magnetizing the stainless steel sample in a predetermined direction and mounting a magnetic-field-sensing apparatus in magnetic coupled relationship with the stainless steel sample. The stainless steel sample is then moved relative to the magnetic-field-sensing apparatus to modulate the magnetic coupling therebetween responsive to the relative motion and provide magnetic-field scanning of the sample. The signal sensed by the magnetic-field-sensing apparatus is filtered to pass only the modulation frequency of the magnetic coupling, which filtered sensed magnetic-field signal provides a measure of cold working in the stainless steel sample.

3,739,262

INSPECTION MACHINE USING A MASTER AND FOLLOWER TO GUIDE A PROBE AT A PREDETERMINED ANGLE RELATIVE TO A TEST PIECE

Harold L. Seekins, Cincinnati, Ohio, assignor to General Electric Company, Lynn, Mass.

Filed Sept. 20, 1971, Ser. No. 182,025

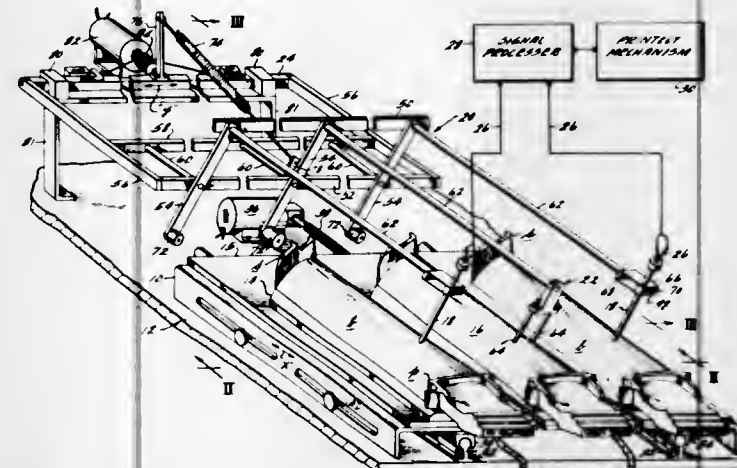
Int. Cl. G01r 33/12

U.S. Cl. 324—40

11 Claims

An eddy current inspection machine comprises a blade master and a plurality of blade holders mounted in side-by-

side relation on a carriage which reciprocates in a horizontal x direction. Probes and a follower are mounted on a parallel linkage mechanism which is pivotally mounted on a slide which is incrementally advanced in a horizontal y direction. The follower engages the master and controls the angular



3,739,263

CROSS-SECTIONAL AREA MEASURING DEVICE

Bengt Henoch, Alvsjo, Sweden, assignor to Institutet for Mikrovagsteknik, Stockholm, Sweden

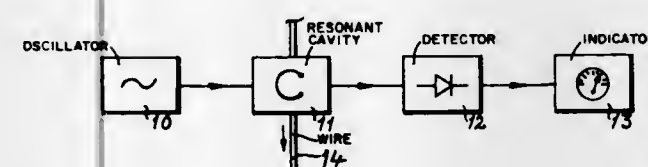
Filed Sept. 27, 1971, Ser. No. 183,946

Claims priority, application Sweden, Sept. 30, 1970, 13233/70

Int. Cl. G01r 27/04

U.S. Cl. 324—58.5 C

8 Claims



A device for measuring the cross-sectional area of an object such as a wire includes a resonant cavity through which the object passes. The resonant cavity is energized by a signal whose frequency periodically varies over a range which includes two distinct resonant modes of the cavity. By virtue of the passage of the object through the cavity both resonance frequencies change as a function of the cross-section of the object and the difference between these two resonance frequencies is a measure of the cross-section of the object.

3,739,264

GRAIN MOISTURE TESTER

Roy E. Resh, Bettendorf, Iowa, assignor to Agridustrial Electronics, Inc., Bettendorf, Iowa

Filed June 11, 1971, Ser. No. 152,186

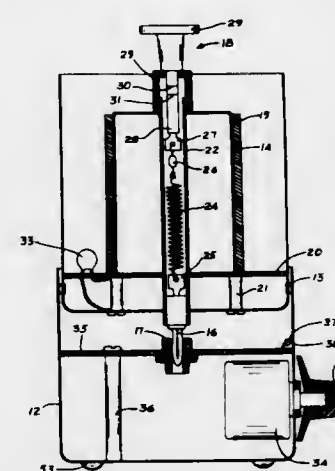
Int. Cl. G01r 27/26

U.S. Cl. 324—61 R

13 Claims

To provide a lightweight, portable tester, the bottom of an upper cylindrical aluminum container that is the housing for a test cell fits tightly into a lower cylindrical aluminum container that is a base and chassis for electrical circuits that measure permittivity. The upper container has a coaxial cylindrical inner electrode in which a spring scale is mounted, and since the tester is lightweight, the scale is used to measure a sample by weighing the sample along with the entire tester. Polystyrene foam surrounding the inner electrode distributes the sample quite evenly as it is poured into the cell and spaces

the grain from the inner electrode to prevent points of concentration of electric field. To compensate for change in permittivity resulting from change in temperature of the sample, a



temperature-sensing capacitor is mounted within the cell. A disabling circuit connected to a light-emitting-diode indicator provides a warning that the voltage of a battery is too low to provide reliable readings.

3,739,265

TEST INSTRUMENT AND METHOD FOR ISOLATING AND MEASURING THE CAPACITANCE DUE TO A PARTICULAR FUNCTIONAL GROUP IN A LIQUID

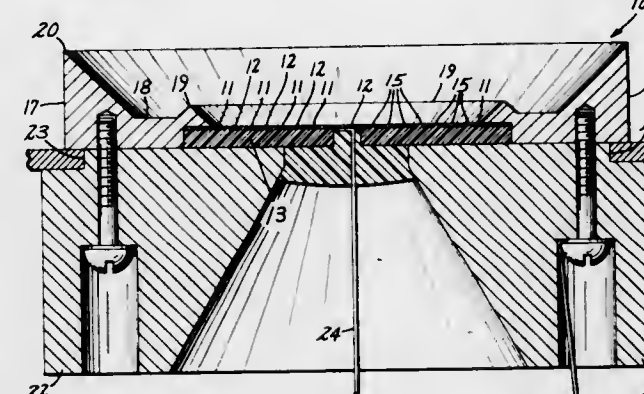
John D. Skildum, 34 N. Oaks Road, St. Paul, Minn.

Filed Sept. 9, 1970, Ser. No. 70,815

Int. Cl. G01r 27/26

U.S. Cl. 324—61 R

13 Claims



A sensor with a planar surface formed by two spaced apart electrodes and a low capacitance insulating material therebetween, adapted to receive a liquid to be tested thereon and electrically connected in one leg of a bridge circuit so that the capacitance of the sensor and liquid to be tested can be compared to the capacitance of the sensor and a standard liquid. The capacitance of liquids, such as oils and the like, varies with the oxidation thereof.

3,739,266

SYSTEM FOR SENSING VARIATIONS IN THE DIELECTRIC CONSTANT OF A FLOW OF MATERIAL

Joseph C. Neitzel, Denton, Tex., and Robert C. Strandberg, Greensboro, N.C., assignors to Hardwicke-Etter Company, Sherman, Tex., and Strandberg Engineering Laboratories, Inc., Greensboro, N.C., part interest to each

Filed Nov. 18, 1970, Ser. No. 90,604

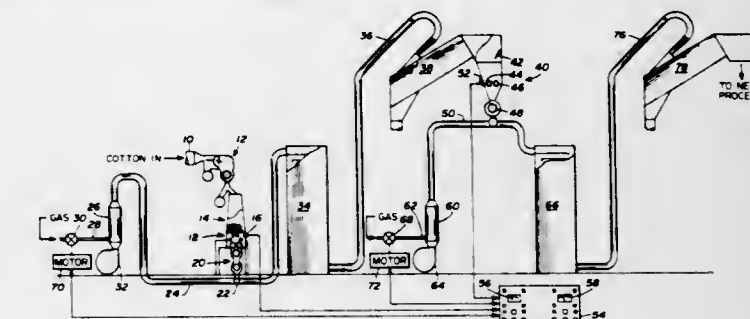
Int. Cl. G01r 27/26; G01n 1/00

U.S. Cl. 324—61 R

9 Claims

The specification discloses a system for detecting the moisture content of a flow of material such as seed cotton. The system includes capacitor plates for sensing variations in the dielectric constant of the flow of material past the plates. An oscillator generates an electrical signal having a frequency proportional to the dielectric constant and circuitry is responsive to the electrical signal for generating a direct current out-

put control signal representative of the moisture content of the flow of material. The control signal controls the tempera-



ture of a dryer system in dependency upon the average dielectric constant detected by the capacitor plates.

3,739,267

APPARATUS FOR DETECTING CONDUCTIVE MATERIAL UTILIZING A VAPOR LAMP

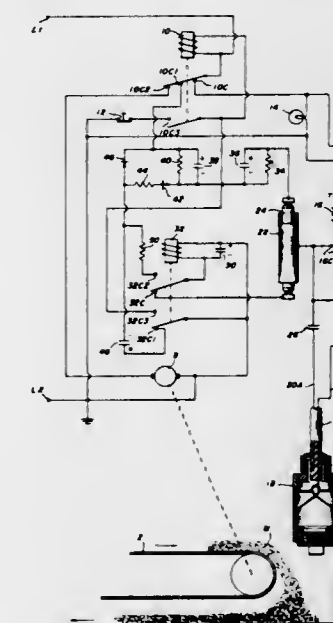
Victor R. Bart, East Gary, Ind., assignor to United States Steel Corporation

Filed May 2, 1972, Ser. No. 249,593

Int. Cl. G01n 27/00

U.S. Cl. 324—71 R

6 Claims



Apparatus for detecting conductive material, particularly a build-up at the end of a conveyor, includes a vapor lamp, an electrically conductive means around at least a portion of the lamp periphery, an AC power source, a biasing circuit for supplying a high potential DC charge to said lamp, and a probe. The probe includes a conductor adapted to contact the material and two insulated conductor leads connected to the electrically conductive means. One end of the first lead is connected to the detector conductor and the adjacent end of the second lead is insulated from the detector conductor and the first lead. A capacitor is connected in each lead. A timer relay contact is connected in parallel with the capacitor in the first lead. When conductive material is detected, the vapor lamp conducts and a circuit stops movement of the conveyor.

3,739,268

PARTICLE SENSING APPARATUS, METHOD AND FLOW DIRECTION COLLAR THEREFOR

Richard F. Karuhn, Chicago; Reg Davies, Justice, both of Ill., and Brian Howard Kaye, Sudbury, Ontario, Canada, assignors to IIT Research Institute, Chicago, Ill.

Filed Aug. 20, 1971, Ser. No. 173,575

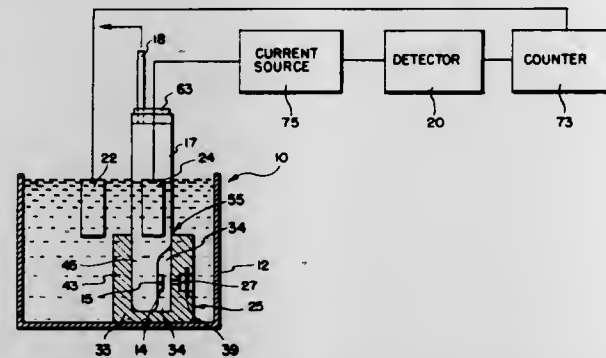
Int. Cl. G01n 27/00

U.S. Cl. 324—71 CP

11 Claims

A flow direction collar is positionable in an electrical zone sensing apparatus with an elongated bore therein disposed in

substantial alignment with an aperture through which particles carried by a liquid pass while being electrically sensed. The collar is positioned immediately upstream of the aperture to cause a directional flow of the liquid along a path substantially parallel to a longitudinal axis for the aperture. The flow



through the collar directs the particles to flow along paths substantially parallel to the aperture axis thereby reducing the turbulence about the particle created by abrupt changes in velocity. Preferably, the collar includes a housing for telescoping on the bottom of a detection tube.

3,739,269

PRECISION SELF-CONTAINED D.C. SUBSTITUTION BRIDGE FOR R.F. MEASUREMENTS

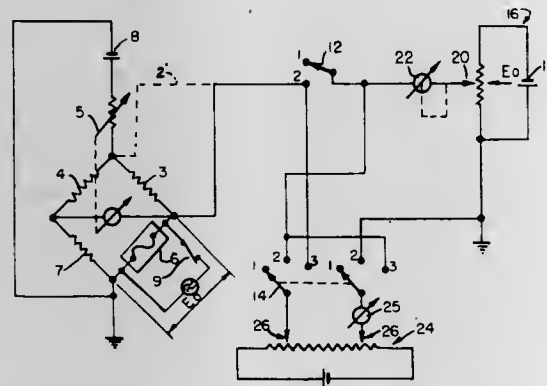
Bruno O. Weinschel, Bethesda, Md., assignor to Weinschel Engineering Co., Inc., Gaithersburg, Md.

Filed Oct. 12, 1971, Ser. No. 187,962

Int. Cl. G01r 5/26, 21/04

U.S. Cl. 324-106

7 Claims



An improvement is described over the system of U.S. Pat. No. 3,142,017 which shows a substitution bridge circuit using d.c. for measuring ultra-high frequency values and particularly power, but requires an expensive external d.c. voltage measuring device such as a precision potentiometer or a digital voltmeter with an accuracy of 10 microvolts for a 1 volt range. The improved system described herein makes essentially the same measurement but uses an inexpensive memory circuit for remembering a voltage and uses the internal calibrated voltage divider shown in the above patent to obtain the same result without requiring the expensive external d.c. voltage measuring device.

3,739,270

ELECTRONIC SPEEDOMETER/ODOMETER WITH INTERCHANGEABLE CALIBRATING MEANS FOR ACCOMMODATING A PLURALITY OF VEHICLE TIRE SIZES

Roger L. Miller, Ann Arbor, and Robert S. Podlewski, Jackson, both of Mich., assignors to Kelsey Hayes Company, Romulus, Mich.

Filed Feb. 1, 1971, Ser. No. 111,399

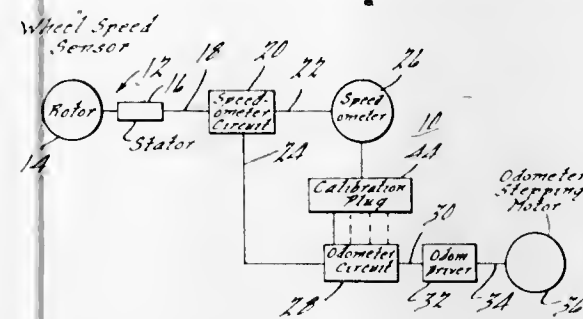
Int. Cl. G01p 3/54

U.S. Cl. 324-166

18 Claims

This invention relates to an electronic speedometer/odometer responsive to pulses from a wheel speed sensor which may

include a speedometer circuit and an ammeter for indicating speed with provision for interchangeably inserting calibrating resistors in the meter circuit for establishing a meter response in accordance with the vehicle tire size, and an odometer programmable circuit connected to an odometer with provision



for interchangeably inserting program circuits for establishing the response of the odometer selected in accordance with the vehicle tire size. Preferably, the meter calibration resistor and the odometer program circuit are mounted in a single interchangeable unit.

3,739,271

MIRRORED METER SCALE AND METHOD OF MANUFACTURE

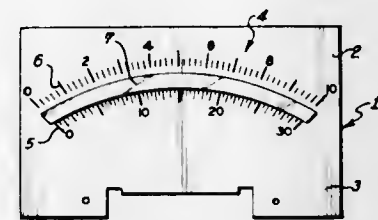
Percy A. Wetzel, Florham Park, N.J., assignor to Weston Instruments, Inc., Newark, N.J.

Filed July 26, 1971, Ser. No. 165,918

Int. Cl. G01r 1/08; G02b 5/08

U.S. Cl. 324-76 R

7 Claims



A meter scale of translucent plastic material and having indicia and a mirror thereon to avoid inaccurate readings due to parallax. The mirror is of a predetermined configuration and takes the form of a very thin film of reflective material bonded to a surface of the meter scale. The meter scale is made by printing indicia on a surface and heat transferring the very thin film mirror to a surface of the scale.

3,739,272

FILTER CIRCUIT FOR CORONA DETECTION

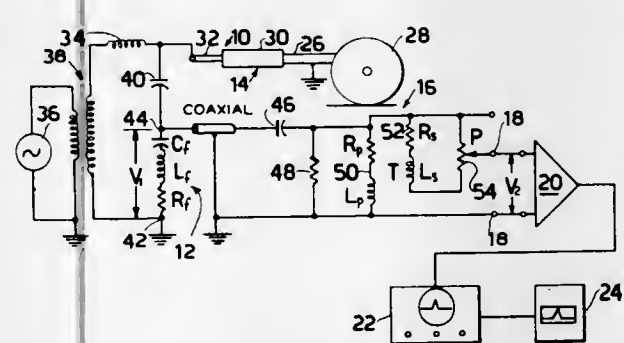
Alexander L. McKean, Ardsley, N.Y., assignor to Phelps Dodge Cooper Products Corporation, New York, N.Y.

Filed July 9, 1971, Ser. No. 161,190

Int. Cl. G01r 31/02, 31/12

U.S. Cl. 324-54

8 Claims



A filter network for providing essentially optimum resolution of pulse response in the detection of high frequency corona discharge, including a high pass filter for removing the

low frequency power line signal and its harmonics, and a low pass lossy transformer which introduces a low frequency bucking voltage in a subsequent stage of detection to balance out any residual low frequency signals still present, thereby providing improved resolution and sensitivity in the detection of corona discharge.

3,739,273

SPECTRUM ANALYZER

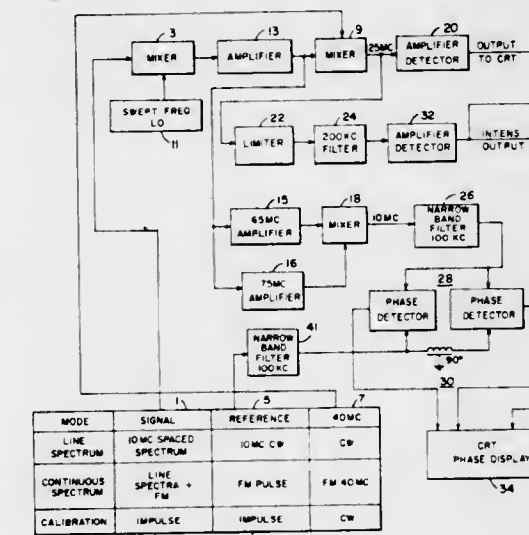
John W. Taylor, Jr., Baltimore, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 2, 1971, Ser. No. 195,885

Int. Cl. G01r 23/16

U.S. Cl. 324-77 C

4 Claims



This spectrum analyzer will measure phase as well as amplitude of the spectral components of a signal. This is done by measuring the phase difference between the spectral components which are separated by a fixed frequency. The input signal is mixed with a swept frequency of a local oscillator and the two components resulting therefrom are amplified and further mixed to obtain a frequency which is the difference of the two. This difference in frequency is measured by phase detectors so as to give a reading of the phase dispersion of the spectral components of the input signal.

3,739,274

DIRECT CURRENT MEASURING SYSTEM

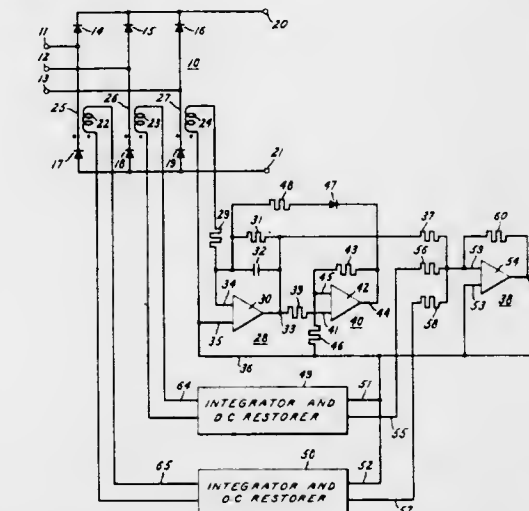
Robert P. DePuy, Cherry Hill, N.J., assignor to General Electric Company, Philadelphia, Pa.

Filed July 29, 1971, Ser. No. 167,406

Int. Cl. G01r 1/22, 1/02

U.S. Cl. 324-120

7 Claims



A current measuring system for use in a direct current electrical system wherein the magnitude of direct current is

periodically reduced to zero. A sensor or pick up device generates a signal proportional to the time rate of change of current, and this signal is integrated in an integrator to produce an output signal whose waveshape is a substantial replica of the original current. A direct current restorer circuit is provided in conjunction with the integrator in order to reduce errors due to drift of the output signal during intervals of zero current. This measuring system may be advantageously used to monitor the total current in a three-phase full-wave rectifier circuit.

3,739,275

WEATHERPROOF ELECTRICAL METER

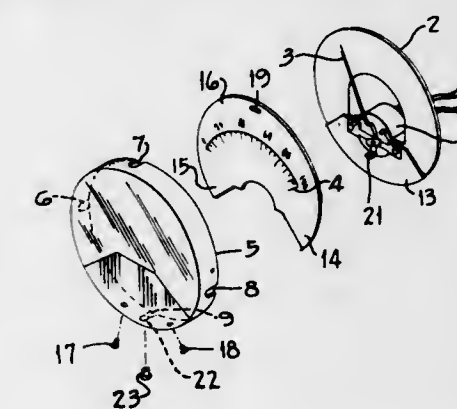
Elbert K. Mackenzie, North Wales, Pa., assignor to Electro-Mechanical Instrument Co., Inc., Perkasie, Pa.

Division of Ser. No. 832,924, June 3, 1969, Pat. No. 3,638,119. This application June 28, 1971, Ser. No. 157,441

Int. Cl. G01r 1/04

U.S. Cl. 324-156

6 Claims



In an industrial type electrical meter, a transparent molded plastic bezel has molded index grooves in the periphery thereof so that the meter can be mounted in an indexed bracket in one of several mounting positions without use of tools. The meter leads extend through an independently attached mounting fitting which is secured to the case by screws extending into blind holes in the case. The meter has spring-loaded, insulated shield encased, hand assembled, polarized connectors for connecting the meter into an electrical circuit without the use of tools.

3,739,276

METHOD OF AND SYSTEM FOR MEASURING THE SPEED AND LENGTH OF A MOVING ELONGATED ARTICLE

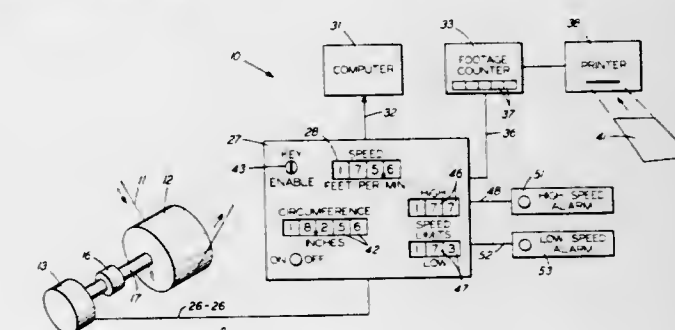
George C. Dornberger, Phoenix, Ariz., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed June 29, 1971, Ser. No. 157,863

Int. Cl. G01p 3/56

U.S. Cl. 324-161

7 Claims



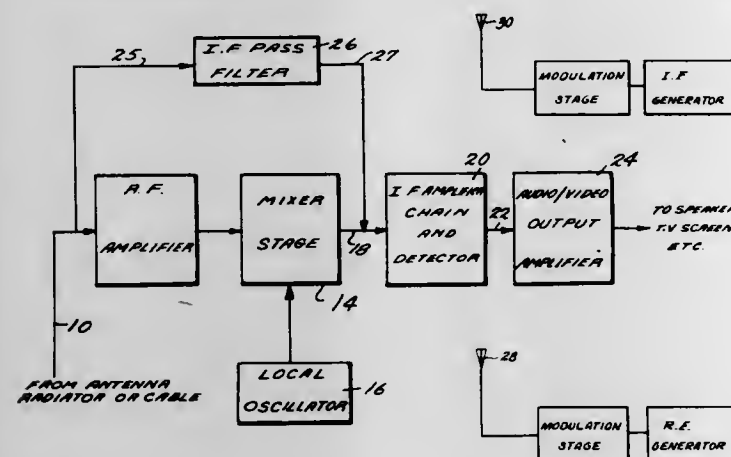
A system for measuring the speed and length of a moving elongated article, such as a moving wire exiting from an insulating process, includes a roller of precisely measured circumference in frictional contact with the wire, a transducer for generating a precise number of pulses in response to each revolution of the roller and a counting unit for receiving the generated pulses. The circumference of the roller is preset into the counting unit to control a pulse multiplying circuit

3,739,283 METHOD OF COMMUNICATING WARNING INFORMATION VIA THE INTERMEDIATE FREQUENCY OF A SUPERHETERODYNE RADIO AND/OR TELEVISION RECEIVER

Francis S. Colligan, 5200 Oakland Road, Chevy Chase, Md.
Filed Dec. 2, 1971, Ser. No. 204,012
Int. Cl. H04b 1/16

U.S. Cl. 325-373

9 Claims



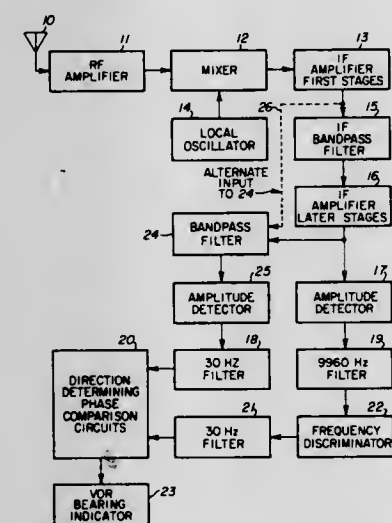
A method of communicating warning information via the intermediate frequency of a superheterodyne radio and/or television receiver. A separate intermediate frequency signal bearing warning information, such as a tone, is transmitted and is received at a receiver simultaneously with reception of a conventionally modulated carrier signal. The separate intermediate frequency signal bypasses the mixer and the local oscillator of the receiver and is fed directly into the intermediate frequency amplifier of the receiver and through the intermediate frequency detector to provide the warning information in audio or visual form for the radio or television user.

3,739,284 VOR RECEIVER IMMUNE TO FALSE BEARING INDICATION STEMMING FROM ADJACENT CHANNEL MODULATION COMPONENTS

Harris A. Stover, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa
Filed Oct. 14, 1971, Ser. No. 189,417
Int. Cl. H04b 1/20; G01s 1/50

U.S. Cl. 325-468

9 Claims



An improved variable omnirange (VOR) receiver is described. Troublesome FM to AM conversion in the receiver selectivity defining IF bandpass filter of adjacent channel 9960 Hz subcarrier modulation components, which combine with the normal 30 Hz carrier amplitude modulation component and destroy the true phase thereof, is prevented from developing false VOR bearing indications by the inclusion of a further narrow band IF bandpass filter through which the IF

signal is separately passed to an additional AM detector to develop the true 30 Hz AM component. The 30 Hz subcarrier FM component is demodulated in the normal manner. The reference and variable phase 30 Hz modulation components then exhibit a relative phase which is truly indicative of VOR bearing.

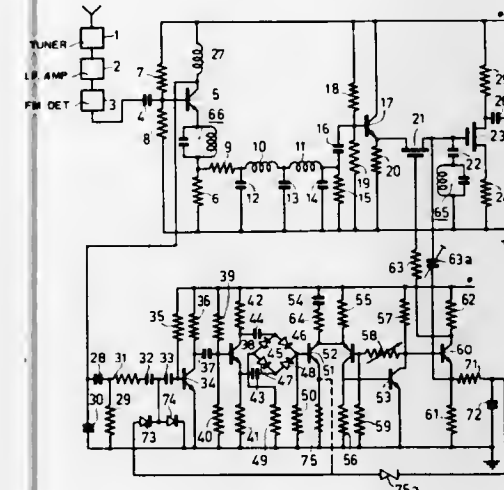
3,739,285 CIRCUIT ARRANGEMENT FOR SUPPRESSING INTERFERENCES IN AN FM RADIO RECEIVER

Gerard Hepp, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 21, 1970, Ser. No. 82,611
Claims priority, application Netherlands, Oct. 25, 1969, 6916127

U.S. Cl. 325-473

Int. Cl. H04b 1/10

5 Claims



A circuit arrangement for interference suppression in which the signal is applied through a gating circuit which is blocked during interference to a storage capacitor whose voltage remains constant during interference.

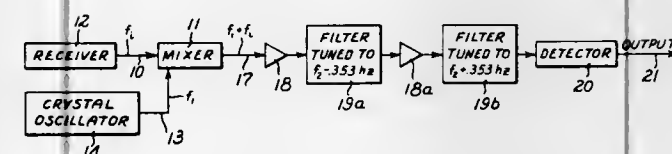
To reduce the distortion as a result of a pilot tone serving for the stereo detection of a stereo signal a parallel resonant circuit tuned to the pilot tone is incorporated in series with the storage capacitor.

3,739,286 CRYSTAL FILTER WITH TEMPERATURE COMPENSATION

James G. Arnold, 1724 South Augusta Place, and Loyd D. Myers, 8401 East Hayne Place, both of Tucson, Ariz.
Filed July 6, 1971, Ser. No. 159,975
Int. Cl. H03h 3/04; H04b 1/16

U.S. Cl. 325-416

5 Claims



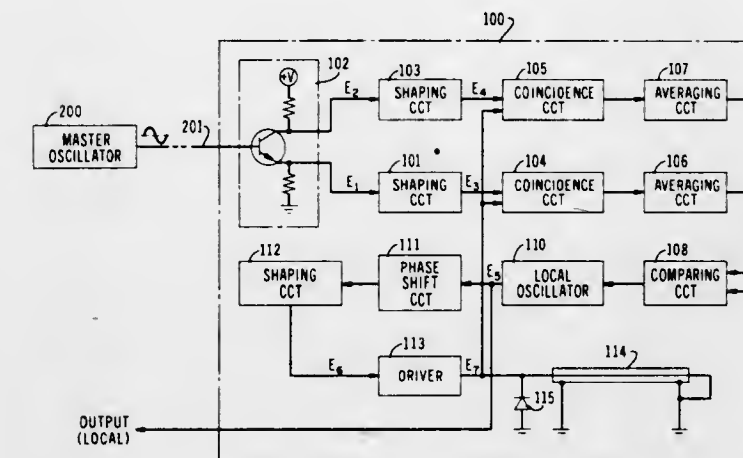
A narrow band transmission system using a crystal filter having a pass band width in the order of one hertz and operable over an ambient temperature range of 60°C. The output of a crystal controlled oscillator is mixed with the incoming signal to provide a sum signal as the input to the filter. The oscillator and filter crystals have matched temperature characteristics so that the oscillator frequency and the filter center frequency vary in the same amount with change in temperature.

3,739,287 PHASE DIFFERENCE DETECTION CIRCUIT

Stanley Jerome Johnson, North Aurora, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Nov. 15, 1971, Ser. No. 198,867
Int. Cl. H03b 3/04

U.S. Cl. 218-133

11 Claims



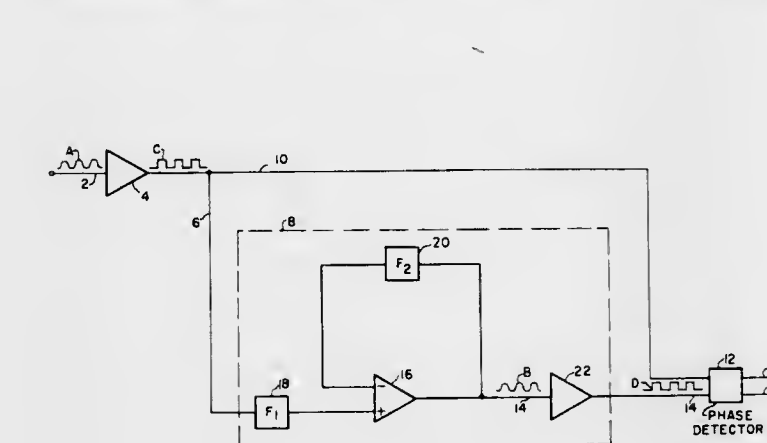
A circuit for synchronizing a local sine wave oscillator to a master oscillator is disclosed. A strobe pulse is derived during each cycle period of the locally generated sine wave in such a manner that the strobe pulse is centered about the midpoint of the cycle period. The phase difference between the two waves is measured by a comparison of the coincidence of each strobe pulse with the positive portion of the master wave and with the positive portion of the master wave delayed by 180°.

3,739,288 DEMODULATING CIRCUIT EMPLOYING PHASE SHIFTING TECHNIQUES

Edmund G. Coccagna, Villanova, Pa., assignor to Mohawk Data Sciences Corporation, Herkimer, N.Y.
Filed Oct. 8, 1970, Ser. No. 79,103
Int. Cl. H04l 27/14

U.S. Cl. 329-104

17 Claims



A circuit and method for converting into digital representation binary-coded input data represented by two different frequencies in an input signal. The input signal is fed to a phase-shifting circuit that generates a signal which lags or leads the input signal depending on which of the two input frequencies occur. The input signal and the output from the phase-shifting circuit are thereafter both fed to a phase-detecting circuit which provides a digital output signal indicative of whether the phase-shifted signal lags or leads the input signal. Thus, the digital output of the phase-detecting circuit indicates which of the two different frequencies occurs in the input signal.

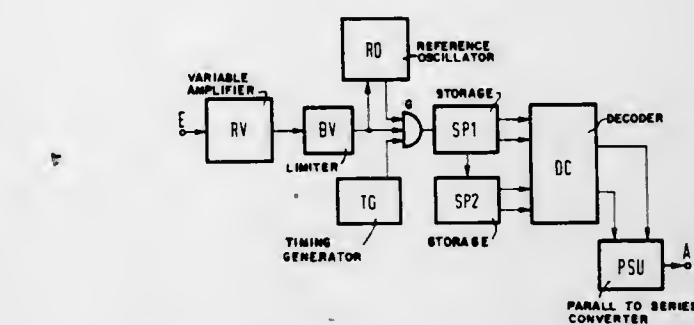
3,739,289 APPARATUS FOR DEMODULATION OF PHASE DIFFERENCE MODULATED DATA

Karlheinz Bochmann, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Aug. 30, 1971, Ser. No. 176,164
Claims priority, application Germany, Aug. 31, 1970, P 20 43 164.5

U.S. Cl. 329-104

Int. Cl. H04l 27/22

7 Claims



A circuit is described for demodulating phase difference modulated carrier signals. In particular for demodulating binary coded data, which are transmitted over a carrier frequency through certain phase shifts assigned, respectively, to the various data levels. A reference oscillator is provided in the demodulator for emitting a reference frequency signal having as many phases as there are phase states which have been established for message transmission. A timing generator is adjusted to produce a scanning pulse between two phase shifts, which scanning pulse has a minimum duration equal to the period of the carrier frequency. A first store is activated for the time duration of the scanning pulse. A gating pulse is generated from a crossover of the received carrier signal during the duration of the scanning pulse, and this facilitates the input of the reference phase from the reference oscillator agreeing with the carrier phase, in binary form, into the first store. Before the next scanning pulse occurs, the binary value in the first store is transferred to a second store. A decoder is provided for forming a difference value from the values in the two stores.

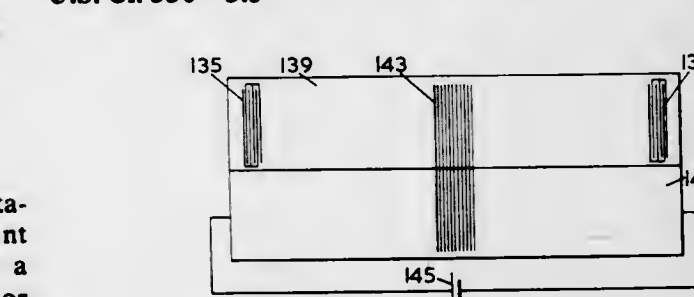
3,739,290 ACOUSTIC SURFACE WAVE DEVICES

Frank Graham Marshall, and Edward George Sydney Paige, both of West Malvern, England, assignors to The Secretary of State for Defense in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England
Filed May 2, 1972, Ser. No. 249,574
Claims priority, application Great Britain, May 5, 1971, 13,125/71

U.S. Cl. 330-5.5

Int. Cl. H03f 3/04

9 Claims



Acoustic surface wave amplifier devices wherein a coupler comprising at least several spaced filamentary conductors formed over a surface across the path of acoustic surface waves, is used to couple the acoustic surface waves to a semiconductor body mounted in close proximity to but electrically insulated from the filamentary conductors so that an

electron drift established in the semiconductor body will amplify the acoustic surface waves. The semiconductor body may be mounted alongside a substrate in which the acoustic surface waves are propagated, or over the path of the acoustic surface waves, or over part of the substrate adjacent to the path of the acoustic surface waves. The part of the coupler under the semiconductor body may be isolated from the substrate by a pad of non-piezoelectric material or by the semiconductor body.

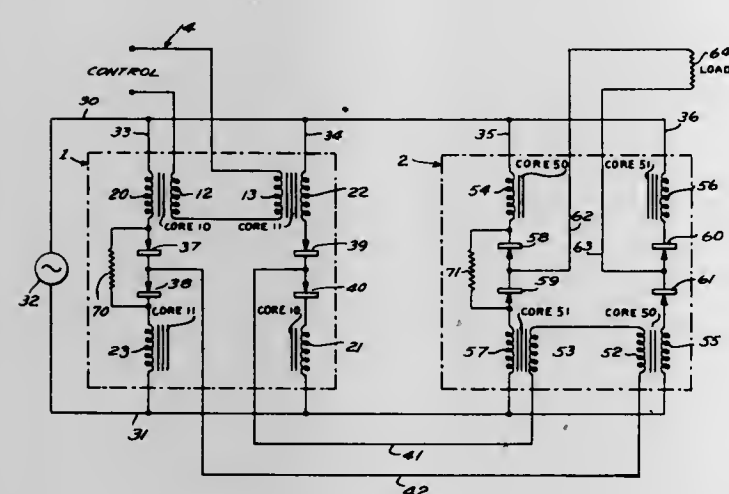
3,739,291

HALF-WAVE BRIDGE TYPE MAGNETIC AMPLIFIER
Theodor Adam Buchhold, Schenectady, N.Y., assignor to The Sperry Rand Corporation Ford Instrument Company, Division, Long Island, N.Y.

Filed Apr. 15, 1957, Ser. No. 653,030
Int. Cl. H03f 9/00

U.S. Cl. 330-8

3 Claims



A multistage magnetic amplifier having an a.c. line, each stage comprising a pair of closed magnetic circuits and two branch circuits connected across said a.c. line, each branch circuit including in series a reactor winding respectively disposed on one of said magnetic circuits an impedance and two unidirectional devices, said devices in each of the stages being poled in the same direction and the devices in successive stages being respectively oppositely poled, each stage also comprising a control circuit including two control windings, one control winding being disposed on each magnetic circuit, one control winding being arranged to aid the flux induced by the reactor winding of one core and the other control winding being arranged to oppose the flux induced by the reactor winding on the other core, and means conductively connecting the control circuit of the stages after the first stage to the branch circuits of the preceding stage at points between the two unidirectional devices in each branch circuit of the said preceding stage, and a single biasing resistor connected in shunt relation to the two unidirectional devices and the control circuit connection in one of said branch circuits.

3,739,292

AMPLIFIER CIRCUIT USING COMPLEMENTARY SYMMETRY TRANSISTORS

Tokio Furuhashi, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan

Filed June 29, 1970, Ser. No. 267,697

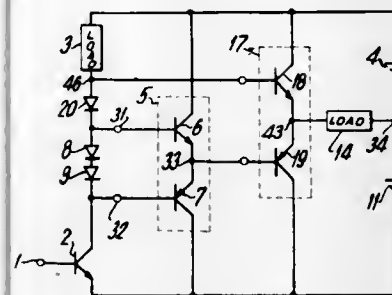
Int. Cl. H03f

U.S. Cl. 330-17

3 Claims

An amplifier circuit includes two sets of complementary-symmetry transistors. The base of the PNP transistor of the second complementary symmetry stage is connected to a junction between the emitters of the NPN and PNP transistors of

the first stage. The base of the NPN transistor of the second stage is connected to an impedance element and to the load.



The impedance element is connected in series with the collector of a transistor in a driver circuit.

3,739,293

MONOLITHIC INTEGRATED CIRCUIT OPERATIONAL AMPLIFIER

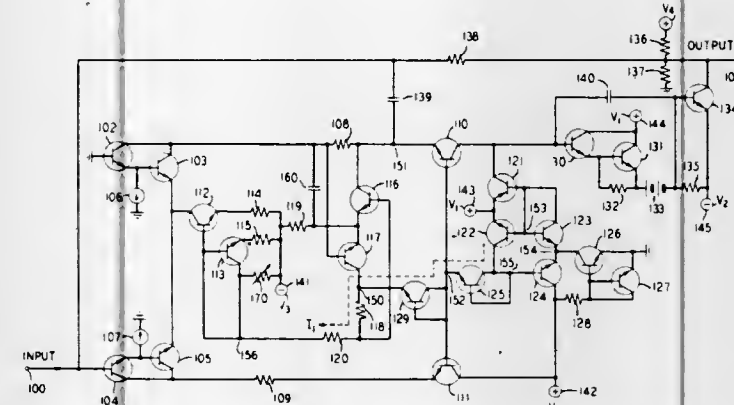
Veikko Reynold Saari, Spring Lake Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 24, 1971, Ser. No. 201,669

Int. Cl. H03f 3/68

U.S. Cl. 330-30 D

10 Claims



A monolithic integrated circuit operational amplifier has a Darlington connected differential amplifier input stage. The emitters of the differential amplifier are connected to a negative current source and the collectors are connected through resistors to the emitters of first and second common base transistors. The resistor in the emitter of the second common base transistor has a cross-coupled amplifier circuit in parallel with it. The collector of the first common base transistor is connected to a positive voltage source and the collector of the second is connected to a positive current source which is locked to the negative current source. This collector is also connected to the output of the circuit through a Darlington amplifier, a voltage level shift circuit, and a common-emitter transistor.

3,739,294

AMPLIFIER WITH A VELOCITY-MODULATED TUBE AND A COMPENSATION CIRCUIT FOR THE CORRECTION OF PHASE DISTORTIONS

Hinrich Heynisch, Grafelfing, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed July 28, 1971, Ser. No. 166,765

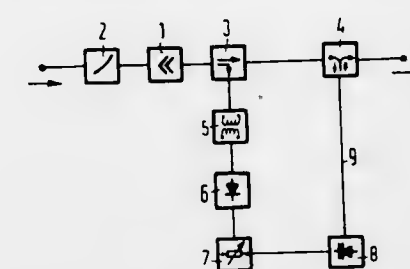
Int. Cl. H03f 3/54

U.S. Cl. 330-44

5 Claims

An amplifier with a velocity-modulated tube and a phase compensation circuit connected to the output of the tube wherein a controllable reactance is included within the phase compensation circuit and controlled in accordance with the modulation of the velocity-modulated tube by way of a directional coupler and a demodulator. The output signal of the velocity-modulated tube is reflected by way of a circulator and a line to which the controllable reactance is employed as a

line termination so that the phase rotation provided by the reflected signal of the line compensates for the phase distortion of the amplifier signal which occurs in the velocity-modulated tube.



3,739,295

LASER WITH MEANS FOR SUPPRESSING BACKGROUND FLUORESCENCE IN THE OUTPUT

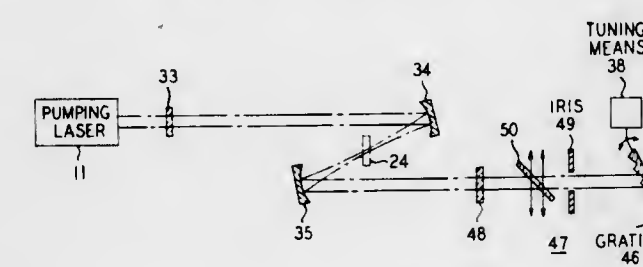
Jagdeep Chandravadan Shah, Matawan, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Apr. 3, 1972, Ser. No. 240,480

Int. Cl. H01s 3/08

U.S. Cl. 331-94.5

4 Claims



A tunable laser in which the direction of the output is invariant with frequency and is free of background fluorescence. The resonator includes a grating to tune the laser, a reflector that forms an auxiliary resonator with the grating, and a beam splitter therebetween that couples out a portion of the light returning from the grating through an aperture toward the reflector. The auxiliary resonator may employ nonreciprocal optics to reduce losses.

3,739,296

LASER SYSTEMS AND LASER CONTROL SYSTEMS
Leo Belser, Flushing Manor, N.Y., assignor to Columbia Broadcasting System, Inc., New York, N.Y.

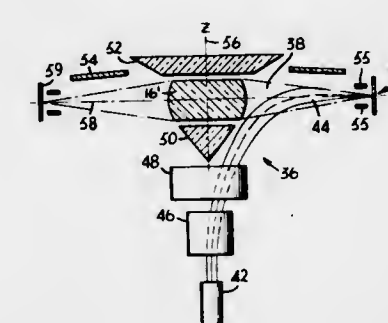
Continuation of Ser. No. 750,256, Aug. 5, 1968, abandoned.

This application Dec. 18, 1970, Ser. No. 99,661

Int. Cl. H01s 3/00

U.S. Cl. 331-94.5 K

22 Claims



A laser resonator includes nodally-mounted, passive, refractive or reflective image-forming means separate from the lasing medium and conjugate reflective surfaces on which conjugate images are formed. Activation of a desired mode or modes of the laser is achieved by selective excitation.

3,739,297

SINGLE BORE TUBE GAS LASER

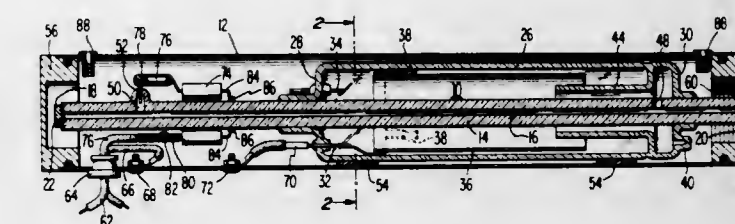
John Thomas Mark, Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.

Filed June 21, 1971, Ser. No. 154,826

Int. Cl. H01s 3/02, 3/22

U.S. Cl. 331-94.5

6 Claims



A gas laser employing a single bore tube having the laser mirrors attached to and terminating the opposite ends thereof and a bulb surrounding the bore tube, with the ends of the bulb being attached to the bore tube at two spaced points intermediate the ends of the bore tube. A hole through the wall of the bore tube provides communication between the bore and the inside of the bulb.

Also disclosed is means for shock mounting such a discharge tube in a cylindrical container with the axis of the bore tube in substantially coincident relationship with the axis of the container.

3,739,298

BROAD BAND TUNABLE SOLID STATE MICROWAVE OSCILLATOR

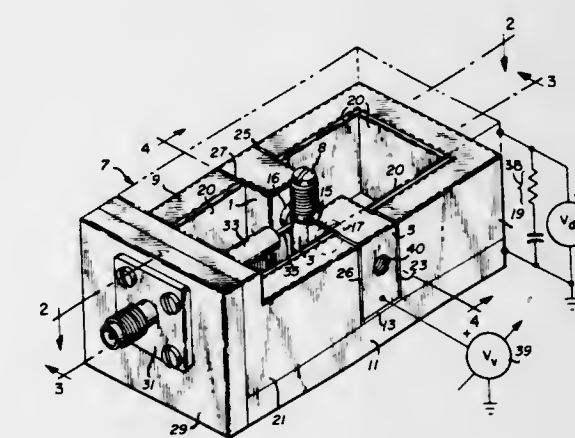
Kenneth Nobuo Kawakami, Thousand Oaks, Calif., assignor to Litton Systems, Inc., San Carlos, Calif.

Filed Jan. 12, 1972, Ser. No. 217,153

Int. Cl. H03b 7/14

U.S. Cl. 331-99

21 Claims



Broad band tunable solid state oscillator includes a microwave frequency generating diode; a capacitance, suitably a varactor; and an open wire transmission line of either two or three spaced conductors as a frequency determining element. The line is open along its sides and is in open communication with a bounded cavity and microwave loss material is disposed in the cavity to impart a low-Q characteristic thereto. In additional aspects the foregoing elements are arranged into a compact container which integrates therewith direct current paths from the diode and varactor for connection to external DC bias voltage sources.

3,739,299

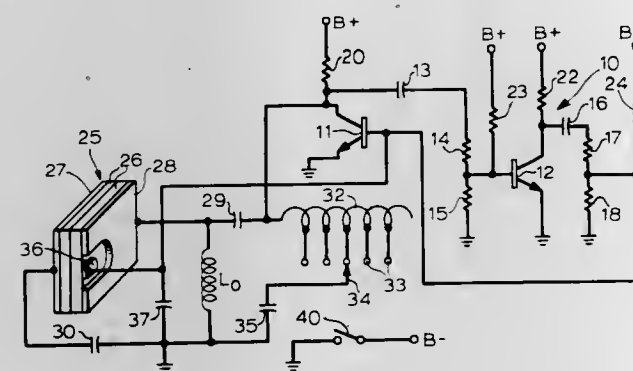
ADJUSTABLE PIEZOELECTRIC TUNABLE OSCILLATOR FOR ACOUSTIC SIGNAL GENERATING SYSTEM

Robert Adler, Northfield, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Apr. 20, 1972, Ser. No. 246,047
Int. Cl. H03b 5/36; H04b 11/00

U.S. Cl. 331-116 R

14 Claims



An acoustic signal transmitter includes an electronic oscillator capable of developing a signal of a given acoustic frequency within a range of such frequencies. A piezoelectric transducer forms part of the tuned circuit that controls the frequency of the oscillator. Coupled across the transducer is an electrical reactance selectively adjustable in discrete steps in order to modify the aforesaid frequency.

3,739,300

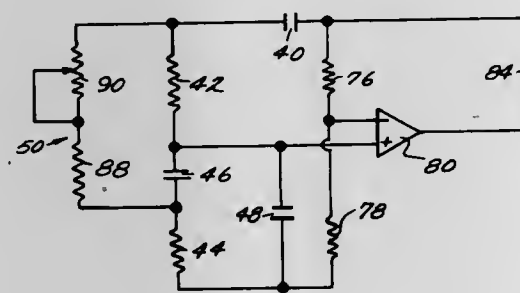
SINGLE COMPONENT CONTROLLED RC BRIDGE

Roy W. Tyre, 3069 Margavera Terrace, Chamblee, Ga.

Continuation-in-part of Ser. No. 811,350, March 28, 1969.
This application Mar. 7, 1972, Ser. No. 232,565
Int. Cl. H03b 5/26

U.S. Cl. 331-141

6 Claims



A simple economical RC circuit having a single variable element and a transfer function which is of the same character as the well known Wien Bridge. The circuit comprises two legs: the first leg comprises a resistor and a capacitor in series with a resistor or a capacitor connected in parallel across them; the second leg comprises a resistor and capacitor in series, the resistor of the second leg being connected to the capacitor of the first leg when the parallel element of the first leg is a capacitor and vice versa. In one embodiment variable resistor connects between the midpoints of the two legs when the parallel element is a capacitor or a variable capacitor connects between the midpoints if the parallel element is a resistor. The circuit is useful as a replacement for the two adjacent frequency determining legs of a Wien Bridge, for example, in a bridge-controlled oscillator, the single variable resistor or capacitor determining the resonant frequency of the circuit and therefore the oscillation frequency. Further circuits derived by reciprocity are also disclosed.

3,739,301

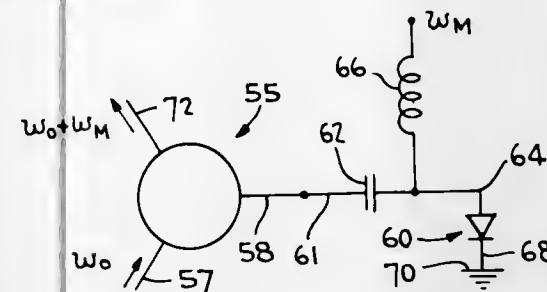
SINGLE DOIDE SINGLE SIDEBAND MODULATOR

Robert V. Garver, Boyds, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed June 30, 1971, Ser. No. 158,477
Int. Cl. H03c 3/22

U.S. Cl. 332-16 R

8 Claims



A transmission line feeds a PIN diode with an information signal. A modulating signal biases the diode so as to switch the diode between forward and reverse bias at an r.f. frequency. The PIN diode exhibits variable capacitance during switching which results in the generation, on the transmission line, of a single sideband modulated signal.

3,739,302

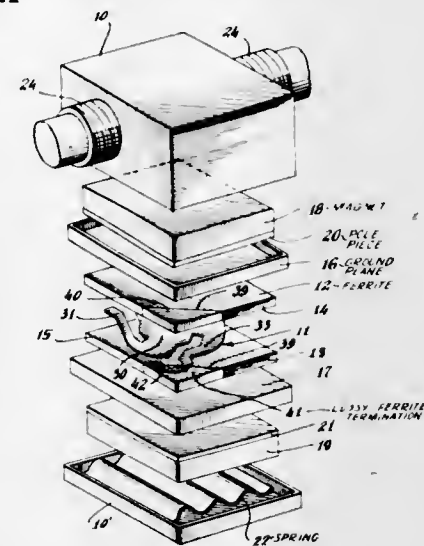
MINIATURIZED FERRIMAGNETIC CIRCULATOR FOR MICROWAVES

James W. McManus, Safety Harbor, Fla., assignor to Trak Microwave Corporation, Tampa, Fla.

Filed June 1, 1971, Ser. No. 148,800
Int. Cl. H01p 1/32

U.S. Cl. 333-1.1

6 Claims



A compact strip line type microwave circulator having an internal line impedance matching means is formed by a central conductor plate with spirally slotted conductor arms connected to suitable input and output ports, wherein the length of the slots bears a direct relation to a fractional wavelength of the microwave energy to be circulated and to the impedance of the input and output lines to be matched. The spiral cut central conductor plate is sandwiched between a pair of ferrite circulator elements, the opposite faces of the ferrite elements are bounded by parallel conductive ground planes, a pair of fixed magnets are positioned in intimate contact with the opposite ground plane conductors, and the entire assembly is enclosed within a steel housing containing a spring steel wafer to maintain pressure contact between abutting parallel surfaces of all elements in the sandwiched structure. In one embodiment a high loss ferrite attenuator is included within the sandwich assembly, coupled to a terminator port arm, and biased into resonance by the circulator fixed magnets to provide fail-safe internal termination — all within a unitary structure of only approximately $\frac{1}{4} \times \frac{1}{4} \times \frac{1}{4}$ inch external dimensions in the 1.5 GHz to 3.0 GHz range. In another embodiment a circulator was developed at 975 MHz in a $0.7 \times 0.7 \times 0.2$ inch size.

3,739,303

DELAY LINE FOR TRAVELLING-WAVE TUBES

Werner Veith, Franz Gross, and Konrad Pobl, all of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

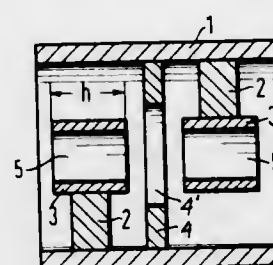
Continuation of Ser. No. 848,162, Aug. 7, 1969, abandoned.
This application May 7, 1971, Ser. No. 141,371

Claims priority, application Switzerland, Sept. 12, 1968, 13667/68

Int. Cl. H01j 25/34; H03h 7/30

U.S. Cl. 333-31 A

3 Claims



A delay line for travelling-wave tubes is formed by a hollow waveguide having hollow cylindrical metallic cylinders individually disposed concentrically and spaced apart along the longitudinal axis of the travelling-wave tube and intermediate electrodes disposed between adjacent metallic cylinders. Each of the metallic cylinders is connected to the inner wall of the wave guide on opposite sides of the wave guide from adjacent metallic cylinders. Each of the intermediate electrodes are in the form of a metallic ring which bears against the inner wall of the hollow wave guide and which includes a central inner aperture having a diameter which is substantially larger than the outer diameter of the metallic cylinders. The provision of the intermediate electrodes extends the upper and lower limiting frequencies whereby the dispersion curve of the travelling-wave tube becomes steeper and the pass band is reduced to prevent pre-oscillation and parasitic operation.

3,739,304

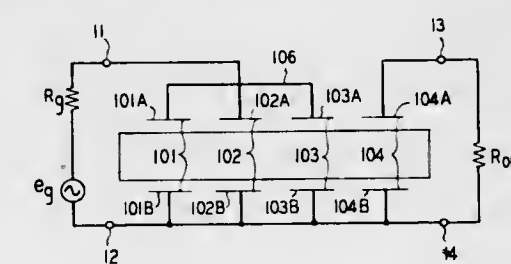
RESONATOR INTERCONNECTIONS IN MONOLITHIC CRYSTAL FILTERS

Arthur Rechtman Braun, Allentown, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sept. 27, 1971, Ser. No. 183,863
Int. Cl. H03h 7/10, 9/00

U.S. Cl. 333-72

14 Claims



In a multiresonator modified monolithic crystal filter employing a combination of mass loading and acoustic coupling, a direct nongrounded conductor, external to the piezoelectric body between two of the resonators, establishes a second transmission path through the filter. Attenuation peaks with control over their position are established thereby which enhances filter selectivity.

3,739,305

COAXIAL ATTENUATOR ASSEMBLY HAVING CROSS-SHAPED ATTENUATOR ELEMENT

Herbert F. Engelmann, Kinnelon, N.J., assignor to Engelmann Microwave Company, Montville, N.J.

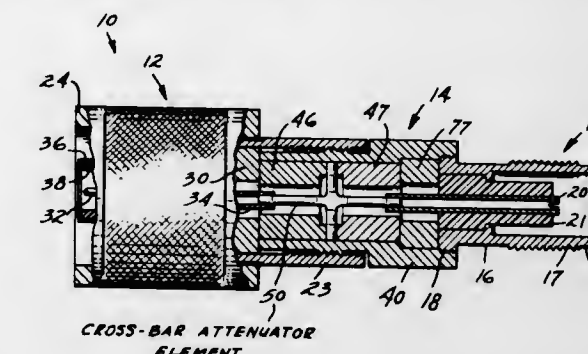
Filed Oct. 20, 1971, Ser. No. 190,768
Int. Cl. H01p 1/22

U.S. Cl. 333-81 A

4 Claims

A low value attenuator for high frequency coaxial applications. The attenuator incorporates a cross-bar attenuator ele-

ment which includes a pair of resistive bar elements which extend in perpendicular fashion with respect to one another and are electrically connected at their mutual intersection. A pair of spacers support the attenuator element in such fashion in the attenuator assembly that the first bar is coaxial with the



axial inner conductor of the assembly and the ends of the second bar electrically contact the outer coaxial conductor. The outer ends of both bars are provided with conductive portions to enable the electrical connections, the connection to the coaxially aligned bar being effected by a pair of coaxial resilient female connectors.

3,739,306

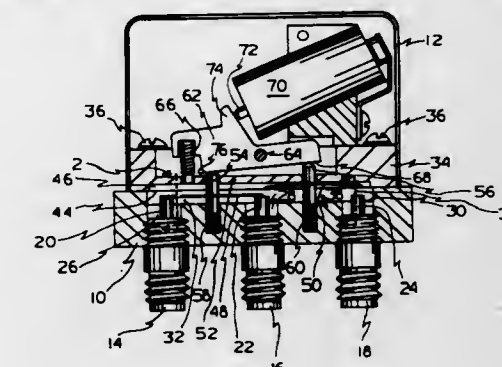
MICROWAVE COAXIAL SWITCH

Norbert Joseph Sladek, Fairfield, Conn., assignor to The Bunker-Ramo Corporation, Oak Brook, Ill.

Filed Sept. 3, 1970, Ser. No. 69,345
Int. Cl. H01p 1/10

U.S. Cl. 333-97 S

4 Claims



A microwave coaxial switch which provides relatively high isolation for the unused channel over a relatively large frequency band. The switch terminals and interconnecting switch blades are positioned in a rectangular chamber proportioned to form a waveguide below cut-off for the principal waveguide mode in the operating frequency range of the switch. A recess is provided in the wall of the chamber above the terminals with a terminal-interconnecting blade being positioned in the recess in physical and electrical contact with the recess upper wall when the blade is in its inactive position.

3,739,307

DUAL TURRET MECHANISM FOR GENERATING A TUNING VOLTAGE FOR A VOLTAGE TUNED AM-FM RADIO RECEIVER

Terrance W. Maugans, Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.

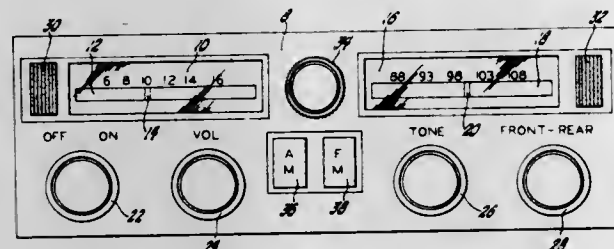
Filed Apr. 5, 1972, Ser. No. 241,241
Int. Cl. H03j 5/30, 5/32

U.S. Cl. 334-2

4 Claims

An apparatus for generating tuning voltages for a voltage tuned AM-FM radio receiver including AM and FM turrets each including a plurality of potentiometer assemblies, the wiper arms of which are positioned so as to generate voltages for tuning the respective tuned circuits in the AM and FM sections of the radio receiver. Ratchet mechanisms for each of the AM and FM turrets index the respective turrets to selec-

tively position the potentiometer assemblies in a tuning station at which a tuning voltage is picked off and supplied to the tuned circuits. A tuning mechanism is manually actuated and latched into engagement with a drive mechanism for the wiper arm of the potentiometer positioned at the tuning station and is operable to position the wiper arm to generate the desired



tuning voltage. AM and FM band selector push buttons are provided to position the tuning mechanism so as to selectively position the wiper arm of the potentiometer in the tuning station of either the AM or FM turrets. An unlatching mechanism is provided for unlatching the tuning mechanism upon the actuation of either of the ratchet mechanisms or either of the AM and FM band selector push buttons.

3,739,308

ELECTROMAGNETIC SWITCHING DEVICE WITH MOVABLE RATCHET

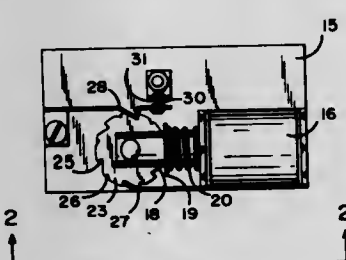
William Paul, Escondido, Calif., assignor to Switchpack Systems, Inc., Solana Beach, Calif.

Filed Sept. 27, 1971, Ser. No. 183,877

Int. Cl. H01h 3/34, 50/64, 50/58

U.S. Cl. 335-140

4 Claims



The disclosure comprises an electric relay switching device having a solenoid coil; a magnetically responsive armature adapted for reciprocal movement; a pair of electrical switching contacts; a cam device rotatably secured to said reciprocating armature and adapted for reciprocation therewith, said cam device being formed with a plurality of recesses; stationary detent means adapted to cause said cam to rotate upon reciprocation thereof, said switching means being responsive to the rotation of said cam device.

3,739,309

SOLENOID ACTUATED SWITCHING DEVICE FOR ELECTRIC MOTOR CONTROL CIRCUIT

Thomas B. Dalton, Muskegon, Mich., assignor to Westran Corporation, Muskegon, Mich.

Division of Ser. No. 2,259, Jan. 12, 1970, Pat. No. 3,593,084.

This application Feb. 1, 1971, Ser. No. 111,601

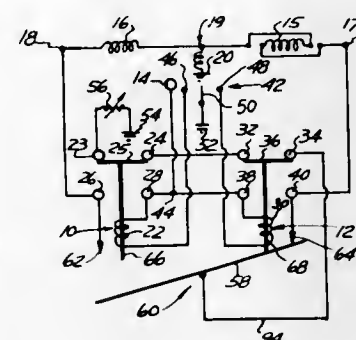
Int. Cl. H01h 50/18, 50/64, 3/42

U.S. Cl. 335-181

1 Claim

A solenoid actuated switching device for an electric motor control circuit for selectively connecting and disconnecting a pair of input terminals of an armature of an electric motor to a source of electrical power to selectively brake and reverse the rotation of the armature. Two solenoids move against respective sides of a pivoted arm member thereby actuating one of two switches, each having fixed and movable contacts. The

first fixed contact is connected in circuit only after the first solenoid has been deenergized to retract the armature thereof,



and the second fixed contact is connected only after the second solenoid has been deenergized to retract its armature.

3,739,310

ELECTRICAL SWITCH

Lloyd J. Lapointe, 52 Westbrook Road, West Hartford, Conn.

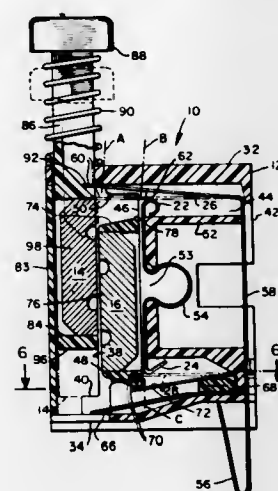
Continuation of Ser. No. 74,582, Sept. 23, 1970, abandoned.

This application Mar. 17, 1972, Ser. No. 235,783

Int. Cl. H01h 13/00, 5/02

U.S. Cl. 335-207

33 Claims



A magnetically operated electrical switch having a housing supporting a manually operable push slide and a freely movable shuttle. A magnet carried by the push slide cooperates with another magnet carried by the shuttle to effect movement of the shuttle in one direction in response to movement of the push slide in an opposite direction and to a critical position relative to the shuttle. A plurality of sets of electrical contacts are conditioned by the push slide and/or the shuttle. Each contact set includes a pair of elongated movable contacts mounted in cantilever position in the housing and having free end portions which extend into the path of either the shuttle or both the push slide and the shuttle. Operational characteristics of the switch are determined by the length of the free end portions of the various movable contacts. In accordance with one embodiment of the invention, at least one of the contact sets includes an electro-mechanical transducer or piezoelectric crystal which serves both as a stationary contact and a source of electromotive force.

3,739,311

BOBBIN ASSEMBLY FOR RELAY

Roman F. Garbark, Northlake, Ill., assignor to D. Gottlieb & Company, Chicago, Ill.

Filed Aug. 21, 1972, Ser. No. 282,312

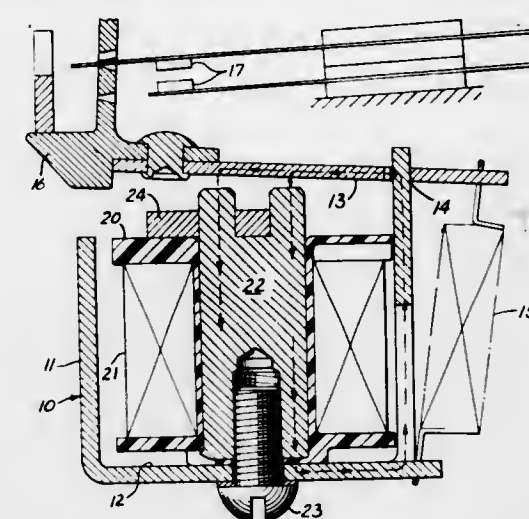
Int. Cl. H01f 3/14

U.S. Cl. 335-276

4 Claims

A bobbin assembly in an electric relay, the bobbin having a pair of flanges and with one of the flanges having an associated cap which at least partially encloses the end of the bobbin and

which serves as a seating surface for an iron core, the cap having windows formed therein to provide access for a staking tool so that the core is held captive within the bobbin prior to assembly in the relay. The outer end of the core carries a shad-



ing ring which is held in registered position by an embossment. The cap is clamped between the core and the frame of the relay to provide a magnetic gap thereby to reduce the level of residual flux when the relay coil is de-energized.

3,739,312

SPOOL WITH MEANS FOR START WIRE INSULATION

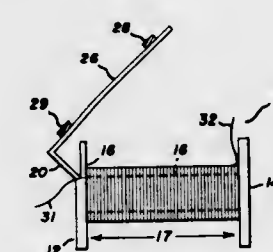
William J. Knebel, Waynesboro, Va., assignor to General Electric Corporation, Waynesboro, Va.

Filed June 19, 1972, Ser. No. 264,002

Int. Cl. H01f 15/10, 27/30

U.S. Cl. 336-192

9 Claims



A spool formed of insulating material having two end flanges axially spaced apart on a core for carrying a wire coil, one end flange containing a slot and flap, the flap being foldable against the end flange to protect a lead-in end of the wire coil which passes through the slot and is positioned between the flap and the flange.

3,739,313

PROTECTORS FOR ELECTRIC CIRCUITS

Aldino J. Gain, St. Louis, and Angelo Urani, St. Louis, both of Mo., assignors to McGraw-Edison Company, Elgin, Ill.

Filed Feb. 19, 1971, Ser. No. 116,819

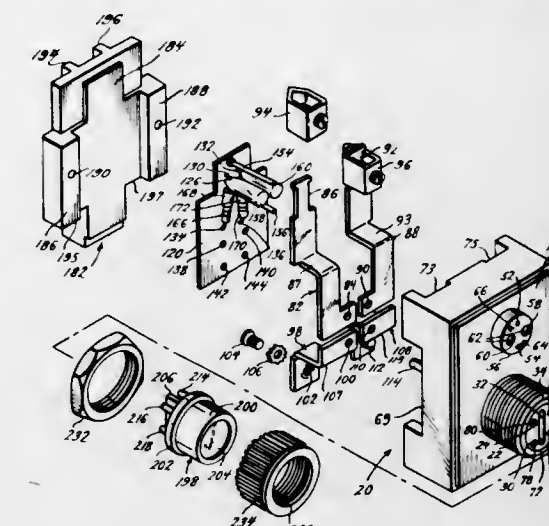
Int. Cl. H01h 85/02, 85/32, 85/54

U.S. Cl. 337-206

15 Claims

An electric fuse has a cup-like housing that is subdivided into two separate compartments by a partition; and each compartment has a fusible element therein which is embedded within arc-extinguishing material. A portion of the partition projects beyond the cup-like housing to enter a slot in a fuseholder to automatically align the terminals of the electric fuse with the fuse-receiving terminals of the fuseholder. An indicating lamp is connected in parallel with one of the fusible elements, and a second indicating lamp is connected in parallel with the other fusible element; and the conductors which connect those indicating lamps to the "load" terminals of the fuseholder are spaced far enough apart to prevent "arc over"

but are close enough to each other to capacitively couple those lamps together in the event a transitory "fault" causes



both of those fusible elements to "blow" and both of those lamps to become illuminated.

3,739,314

HEAT RESPONSIVE SWITCHING DEVICES

Philippe Rouvre, and Francois Peroy, both of Billancourt, France, assignors to Regie Nationale Des Usines Renault, Paris, France

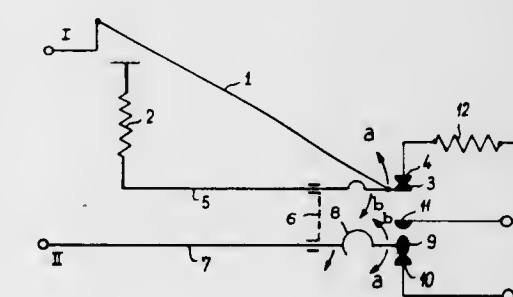
Filed Sept. 17, 1971, Ser. No. 181,473

Claims priority, application France, Sept. 23, 1970, 7034460

Int. Cl. H01h 37/50

U.S. Cl. 337-395

2 Claims



This thermal switching device is intended for switching a circuit with different time periods for the opening and closing thereof and is characterized in that it consists of a conducting wire having a relatively substantial coefficient of thermal elongation, said wire being connected at one end to a switch and at the other end to one end of a flexible blade carrying at this end a contact adapted to engage another contact connected via a first resistor to ground and at the other end through a second resistor of considerably greater value than the first resistor to ground, said blade further comprising a link actuating a movable blade contact adapted to open or close through a switch the circuit to be switched.

3,739,315

SEMICONDUCTOR TRANSDUCERS HAVING H SHAPED CROSS-SECTIONAL CONFIGURATIONS

Anthony D. Kurtz, Englewood; Joseph Mallon, Wood Ridge, and Charles Gravel, River Edge, all of N.J., assignors to Kulite Semiconductor Products, Inc., Ridgefield, N.J.

Filed May 18, 1972, Ser. No. 254,642

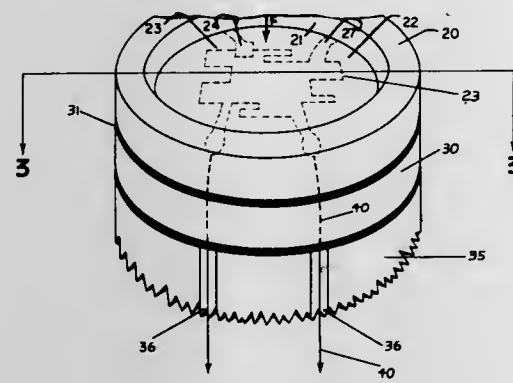
Int. Cl. G011 1/22

U.S. Cl. 338-3

4 Claims

There is disclosed a piezoresistive transducer assembly having a thin force collecting diaphragm interposed between two

annular rims to afford a H shaped cross-sectional configura-



tion to the assembly for providing mechanical stability and temperature compensation.

3,739,316

COORDINATED CONTROL DEVICE FOR VARIABLE RESISTORS

Tsugio Tokubo, Yokohama, Japan, assignor to Teikoku Tsushin Kogyo Co. Ltd., Kawasaki-shi, Kanagawa-ken, Japan

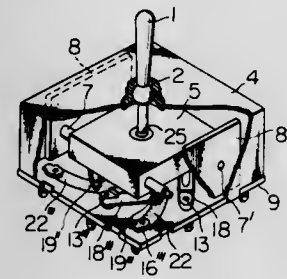
Filed May 1, 1972, Ser. No. 249,241

Claims priority, application Japan, Oct. 30, 1971, 46/086388

Int. Cl. H01c 9/02

U.S. Cl. 338—128

15 Claims



A device for coordinately controlling a plurality of variable resistors so as to achieve a desired combination of a plurality of varied resistances, said device comprising a plate member horizontally movable in any direction and a plurality of wipers which move in accordance with the movement of the horizontally movable plate member in engagement therewith respectively maintaining contact with a resistor.

3,739,317

ELECTRICAL FITTING INCORPORATING EQUIPMENT GROUND IN CONNECTION WITH TWO-WIRE AND THREE-WIRE RECEPTACLES

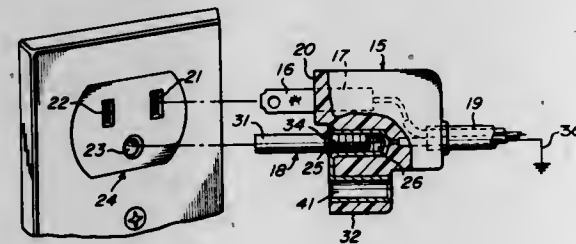
Melvin Wise, 223 Bellewood Avenue, Dayton, Ohio

Filed Oct. 12, 1971, Ser. No. 188,237

Int. Cl. H01r 3/06

U.S. Cl. 339—14 P

18 Claims



An electrical fitting which can be selectively connected to either a three-wire receptacle or a two-wire receptacle by reorientation of the ground male element within the fitting. An equipment ground connection is also established during selective connection between the electrical fitting and either the three-wire receptacle or the two-wire receptacle.

3,739,318

CONNECTOR CAP ASSEMBLY

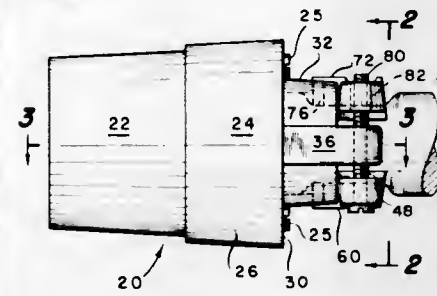
Paul H. Winter, William F. Davis, both of Syracuse, and Harold E. Meloling, Clay, all of N.Y., assignors to Pass and Seymour, Inc., Syracuse, N.Y.

Filed Mar. 5, 1971, Ser. No. 121,339

Int. Cl. H01r 13/44, 13/58

U.S. Cl. 339—36

3 Claims



A connector cap assembly for use in an attachment plug or cable connector wherein the cap assembly comprises a cylindrical body having an open bottom and a top with a cylindrical wall extending upwardly therefrom. A pair of supporting ears projects upwardly from the top to adjustably carry a pair of clamping members by means of a pair of screw assemblies. Cooperating guide means are provided on the clamping members and the wall portions to assure alignment of the clamping members throughout their entire travel.

3,739,319

MECHANICAL AND ELECTRICAL DISCONNECT

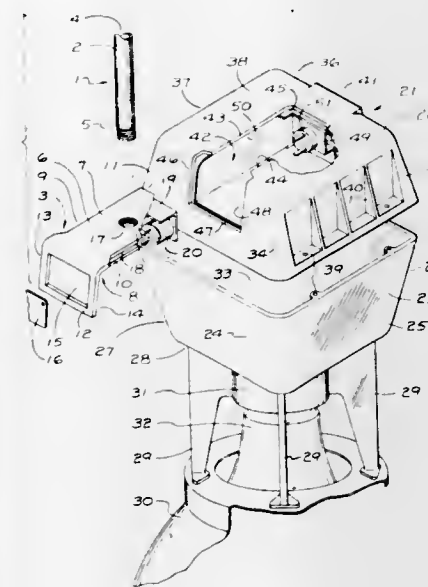
Willard R. Garnett, Bellefontaine Neighbors, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Apr. 14, 1971, Ser. No. 133,962

Int. Cl. H01r 13/62

U.S. Cl. 339—66 R

6 Claims



A high intensity gaseous discharge luminaire has a self-contained power connection. A supporting assembly has a tubular wire guide portion with a slide insert mounted on it. The luminaire housing enclosure has a slide insert track along a top and one side wall. The luminaire housing is movable from a disengaged, open position to an engaged, closed position defined by union of the housing and slide insert. The luminaire housing and slide insert each have electrical quick connects positioned to interlock in the closed position. When so interlocked, the tubular wire guide and slide insert support the entire weight of the luminaire housing.

3,739,320

STRAIN RELIEF MEMBER AND METHOD OF MANUFACTURING SAME

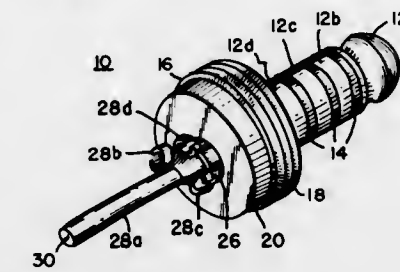
William H. Flanagan, Stamford, Conn., assignor to Nexus, Inc., Stamford, Conn.

Filed Sept. 23, 1969, Ser. No. 860,224

Int. Cl. H01r 13/58

U.S. Cl. 339—103 R

1 Claim



A strain relief member and a method for manufacturing same for utilization with electrical connector components comprising an angular support member formed integrally with and disposed entirely within the electrical component and a clamp member capable of compressing a cable into engagement with one surface of the angular support member.

3,739,321

DUST SEAL FOR ELECTRIC CONNECTORS

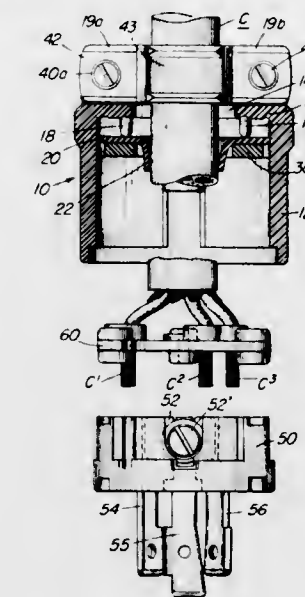
Robert M. Murphy, Fairfield, and Conrad M. Powell, Glastonbury, both of Conn., assignors to Arrow-Hart, Inc., Hartford, Conn.

Filed Mar. 17, 1971, Ser. No. 125,050

Int. Cl. H01r 13/58

U.S. Cl. 339—103 B

9 Claims



An electrical connector is provided with a thin centrally apertured resilient dust seal gasket that is adapted to hug a conductor cable passing through it. The gasket is held within a cylindrical insulating shell against a radial wall thereof by a flexible wafer made of nylon or equivalent, which in turn is secured to the shell by pins molded with the shell and on which the dust gasket and then the wafer are impaled. The assembly of the gasket and wafer within the shell is done in one pushing operation.

3,739,322

BATTERY TERMINAL CLAMP

Clarence B. Haegert, 12th and Elm Street, Coffeyville, Kans.

Filed July 27, 1971, Ser. No. 166,419

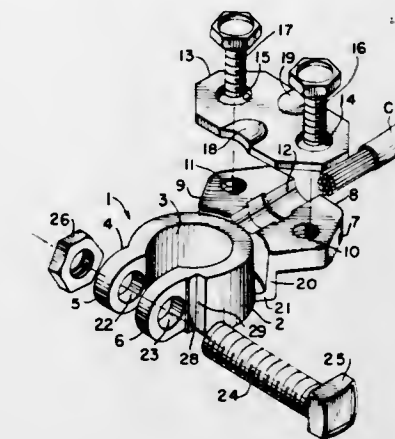
Int. Cl. H01r 11/26

U.S. Cl. 339—230 R

21 Claims

A battery terminal clamp for storage batteries comprising a bifurcated clamping body portion having a substantially circu-

lar opening therethrough, said battery terminal clamp having means thereon for clamping said battery terminal about a battery terminal post in such a manner that substantially the en-



tire clamping body portion yields and uniformly engages a battery terminal post when said battery terminal is tightened on a battery terminal post.

3,739,323

ELECTRICAL TERMINAL CONNECTOR

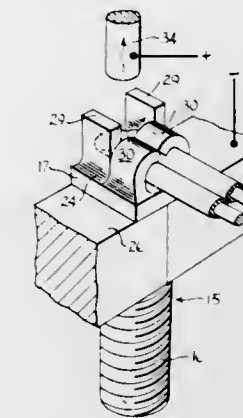
James A. Spors, West Bend, Wis., assignor to Briggs & Stratton Corporation, Wauwatosa, Wis.

Filed Apr. 24, 1972, Ser. No. 247,161

Int. Cl. H01r 5/04

U.S. Cl. 339—275

3 Claims



A terminal member is initially in the form of a screw having a head that is square as viewed along the screw axis, with integral upstanding flanges extending along a pair of its opposite sides. End portions of leads are laid between the flanges. The flanges are sheared in half parallel to the screw axis and simultaneously the rear tabs of the flanges are bent inwardly and down to grip the leads. The extreme front end portions of the leads, between the still upstanding front tabs, are then resistance welded to the head.

3,739,324

SYSTEM FOR VIEWING DETECTED OBJECTS

John W. Coltman, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 22, 1970, Ser. No. 100,679

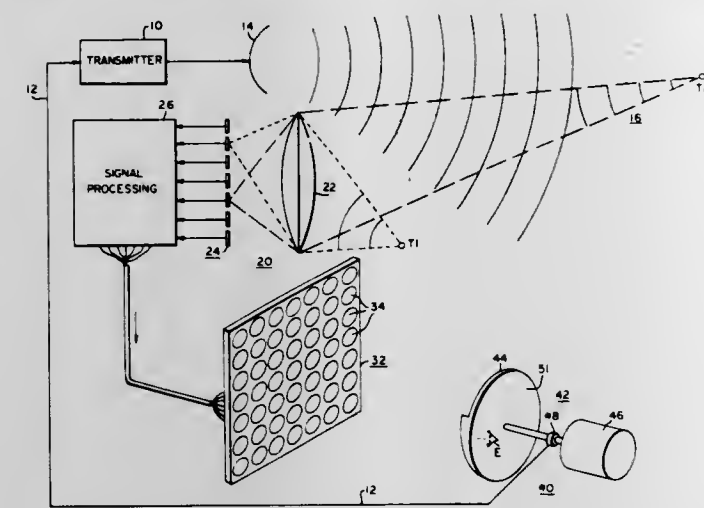
Int. Cl. G01s 9/66

U.S. Cl. 340—3 C

6 Claims

An array of sonar receiving elements provides signals to a corresponding array of display lights upon receipt of target signal returns from a field under investigation. The display is viewed by an observer having one eye placed behind a rotating

transparent disk having front and rear surfaces at an angle relative to one another, and which angle varies as the disk is



rotated, thereby changing the apparent position of the display lights as a function of time.

3,739,325

METHOD AND DEVICE FOR EVALUATING ECHO SIGNALS WITH ECHO SOUNDING SYSTEMS HAVING DIGITAL INDICATION

Reinhard Ludwig, Kiel, Germany, assignor to Electroacoustic Gesellschaft m.b.H., Kiel, Germany

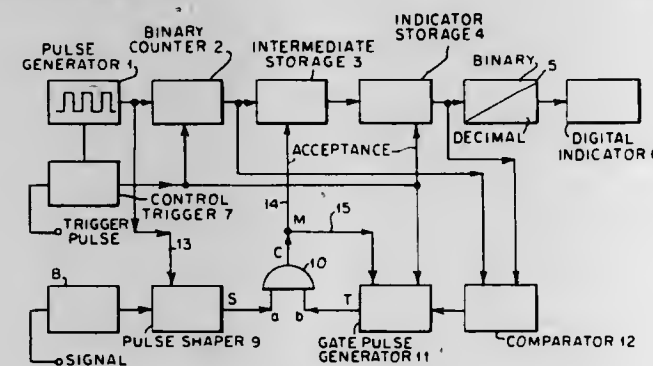
Filed June 10, 1971, Ser. No. 151,847

Claims priority, application Germany, June 13, 1970, P 20 29 311.2

Int. Cl. G01s 9/68

U.S. Cl. 340—3 R

4 Claims



Method of evaluating echo signals with echo sounding systems having digital indication of the sounding depth determined by the transmission time of the bottom echo includes comparing the transmission time of at least those echo signals having the intensity of bottom echos appearing in a given sounding period with the transmission time corresponding to the sounding results of a preceding sounding period and, from these echo signals, evaluating as bottom echo that signal having a transmission time differing least from the transmission time of the echo signal evaluated as bottom echo in the preceding sounding period; and system for carrying out the method.

3,739,326

HYDROPHONE ASSEMBLY

Wayne L. Kerr; Thomas W. Duggan, both of Houston, Tex., and Billy W. Davis, Flagstaff, Ariz., assignors to Schlumberger Technology Corporation, New York, N.Y.

Filed July 26, 1971, Ser. No. 166,251

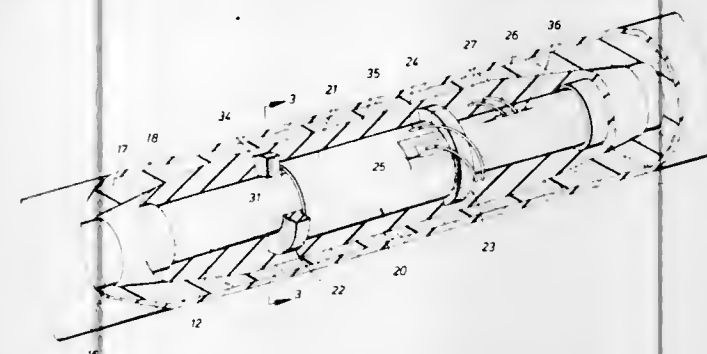
Int. Cl. G01v 1/38

U.S. Cl. 340—7 R

7 Claims

A hydrophone assembly for use in a marine streamer having a cable core includes a piezoelectric crystal in the form of cylinder that is mounted in concentric relation on the cable core by cap assemblies. Each cap assembly is formed in two

separate halves that can be fitted together and sealed with respect to the cylinder and core after the crystal is in place and



has been connected to the electrical conductors inside the core.

3,739,327

ELECTROACOUSTIC TRANSDUCERS OF THE MASS LOADED VIBRILE PISTON TYPE

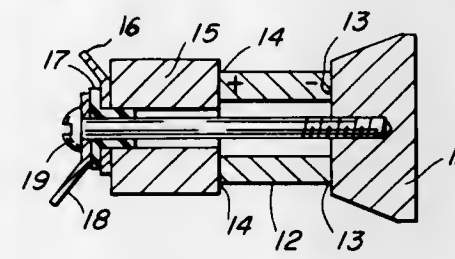
Donald P. Massa, Cohasset, Mass., assignor to Massa Division Dynamics Corporation of America, Hingham, Mass.

Filed Dec. 16, 1970, Ser. No. 98,631

Int. Cl. H04b 13/00

U.S. Cl. 340—10 R

17 Claims



A cylindrical, piezoelectric, ceramic transducer is clamped between an electrically conductive mass element and a vibrile piston. The electrical connection is completed from the piston via a stress bolt to a terminal near the mass element. This arrangement enables sturdy electrical connections to be made to electrodes on the ceramic material and eliminates soldered wire, or foil electrical connections to the ceramic.

3,739,328

ACOUSTIC IMPEDANCE LOGGING USING REFLECTION COEFFICIENTS

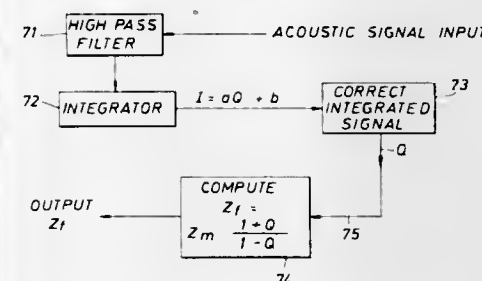
Ralph G. Bell, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed July 13, 1970, Ser. No. 54,419

Int. Cl. G01v 1/28

U.S. Cl. 340—15.5 AC

16 Claims



An illustrative embodiment of the present invention includes methods and apparatus for making measurements of the acoustic impedance of earth formations surrounding a well borehole. The acoustic reflection coefficient in the frequency region above 5 KHZ is measured and used in analog computer apparatus in conjunction with the known borehole mud impedance to determine the acoustic impedance of formations surrounding the borehole from a predetermined expression.

The process is repetitively performed at different borehole depths to give a log of this quantity.

3,739,329

ELECTRONIC SYSTEM FOR LOCATING

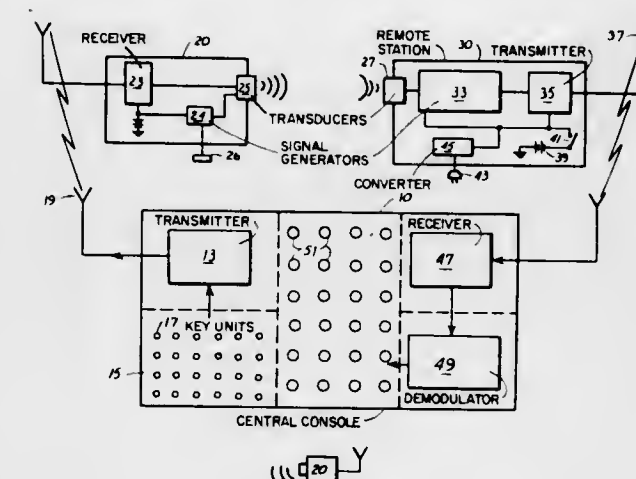
Robert W. Lester, Manhasset, N.Y., assignor to Recognition Devices, Inc., Manhasset, N.Y.

Filed May 24, 1971, Ser. No. 146,040

Int. Cl. G01s 3/80

U.S. Cl. 340—16 R

13 Claims



An electronic locating system includes a central console having a transmitter, receiver, and a display means, and a plurality of portable transceiver units, and a plurality of stations located at various places such as rooms on the premises where the system is installed. The transmitter is adapted to transmit signals of particular UHF frequencies, each signal being identified with a person to be sought. The portable unit is tuned to receive the UHF signal of a particular frequency code and generate an ultrasonic sound wave. A station adjacent to the portable unit (but within the same room) is adapted to receive the ultrasonic sound wave and generate an UHF signal frequency identified with the station. The receiver is adapted to receive the UHF signal transmitted by the station and the display means adapted to indicate the location of the station transmitting the UHF signal, thereby identifying the room location of the person being sought. The system includes means for utilizing existing power supply wires. The system is also adapted to operate with the existing telephone switching networks for enabling a person to be connected with another person within the premises by automatically ringing the telephone located near the other person in the same room. This system completely eliminates all types or forms of paging which require the cooperation of the person being sought and which do not give him the same dignity. With the present locating system, circumvention is not possible if continuous scanning is used. Also a most important aspect is the fact that a person may not be able to answer (as in a restroom) which would be indicated to the caller who is always the only one involved.

3,739,330

GEOPHONE ASSEMBLY

Gerald D. Hazelhurst; Don L. Fussell, and Hayward T. Guyton, all of Houston, Tex., assignors to Mark Products, Inc., Houston, Tex.

Filed July 8, 1970, Ser. No. 53,195

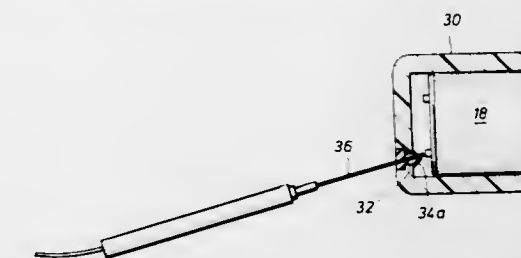
Int. Cl. G01v 1/16

U.S. Cl. 340—17

9 Claims

A geophone is enclosed by a case of nonconductive material to provide a geophone assembly for connecting into an external electrical circuit. An opening is provided in the case in which an electrical contact or probe can be located to make electrical contact with the internal circuit of the geophone by engaging a component of the circuit, such as a terminal external of the geophone housing or the housing itself, which may

become part of the internal circuit when the geophone is lying on its side. This allows the internal circuit of an individual



geophone to be tested without removing the case from the geophone. Means are provided for closing the opening.

3,739,331

LOGGING-WHILE-DRILLING APPARATUS

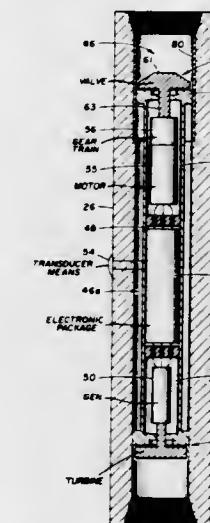
John K. Godbey, Dallas; Daniel E. Hawk, Duncanville, and Vasek R. Slover, Jr., Irving, all of Tex., assignors to Mobil Oil Corporation, New York, N.Y.

Filed July 6, 1971, Ser. No. 159,989

Int. Cl. G01v 1/40

U.S. Cl. 340—18 LD

11 Claims



An improved logging-while-drilling apparatus comprising a drill collar having a logging-while-drilling tool therein. The tool has a turbine-like, rotary valve which opens and closes at a rate to generate a pressure wave signal in the drilling fluid representative of a measured downhole condition. The tool includes means to adjust the gap between the rotor and stator of the valve to thereby adjust the strength of the signal thus generated. A sleeve of wear resistant material is provided in the collar adjacent the valve to reduce erosion caused by the drilling fluid.

3,739,332

ADVANCE CALL SYSTEM FOR VEHICULAR TRAFFIC CONTROL

Renato G. Martinez, 36 Doud Drive, Los Altos, Calif.

Filed July 8, 1971, Ser. No. 160,800

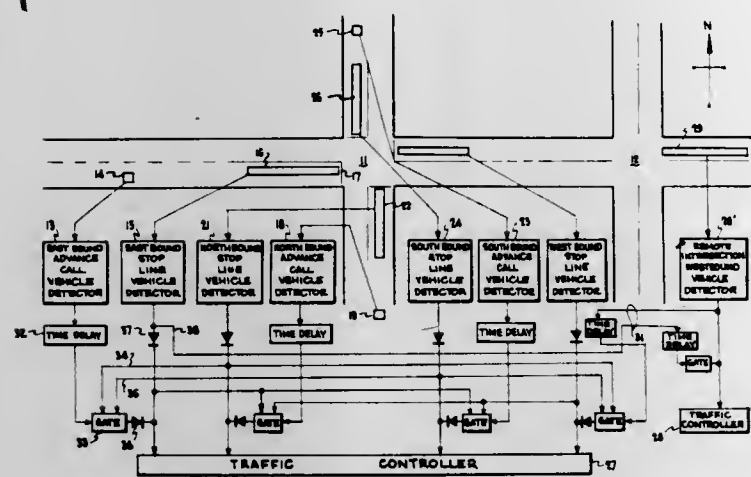
Int. Cl. G08g 1/08

U.S. Cl. 340—37

5 Claims

A vehicle moving along a traffic lane towards a light controlled intersection is sensed by a first vehicle detector at a location remote from the intersection, and an "advance call" signal is generated by the first vehicle detector. The advance call signal is impressed immediately upon a traffic controller, and a capacitor or other storage means continues to hold the signal until the vehicle is sensed by a second or principal vehicle detector located close to the intersection. The traffic lights are thereby changed to green in advance of the vehicle approaching the intersection, so that the vehicle need not stop or slow down unduly. In the event that other traffic exists that might conflict with the vehicle, call signals from vehicle detec-

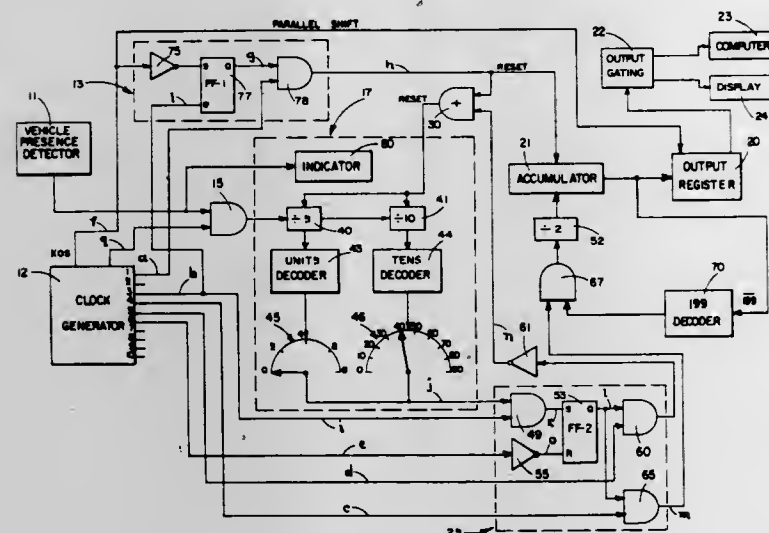
tors of conflicting phases of the controller will inhibit the advance call signal causing the controller to operate in a normal mode without the advance call signal. Where a street or



highway has two or more spaced apart intersections, a vehicle detector may serve in a dual capacity of providing a call signal for the controller of the first intersection and an advance call signal for the controller of the next intersection.

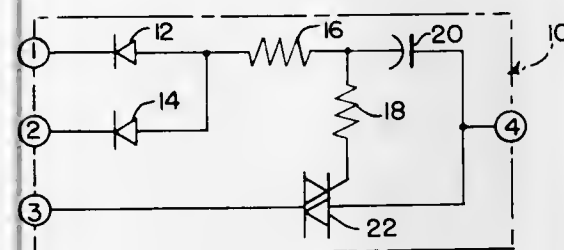
3,739,333 VEHICLE LANE OCCUPANCY COMPUTER FOR TRAFFIC CONTROLLER

Gary L. Meredith, Anaheim, Calif., assignor to Tamar Electronics, Inc., Anaheim, Calif.
Filed June 7, 1971, Ser. No. 150,337
Int. Cl. G08g 1/01
U.S. Cl. 340-31 A 8 Claims



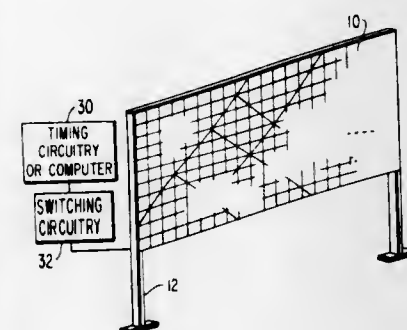
The invention is concerned with computing the percentage of a total time period that a particular point on a roadway is occupied by vehicles. Pulses generated by a clock generator are fed to a gating circuit, the gate of this circuit being controlled by the output of a vehicle presence detector which is installed on the roadway being monitored. The output of the gating circuit is fed to a scaling counter where a particular desired scale factor is selected. The output of the scaling counter is fed through an appropriate commutator to an accumulator, where a digital count in accordance with the road occupancy conditions as taken on successive samples is accumulated. The digital output of the accumulator is fed to an output register from which digital readings in accordance with the road occupancy conditions is provided to computing and display circuitry for appropriate utilization.

3,739,334
PILOT LAMP ELECTRONIC MULTI-SWITCHING
CIRCUITRY
Loren P. Hocking, 16495 East Eight Mile Road, East Detroit, Mich.
Filed Aug. 4, 1971, Ser. No. 168,955
Int. Cl. G09f 9/32
U.S. Cl. 340-334 18 Claims



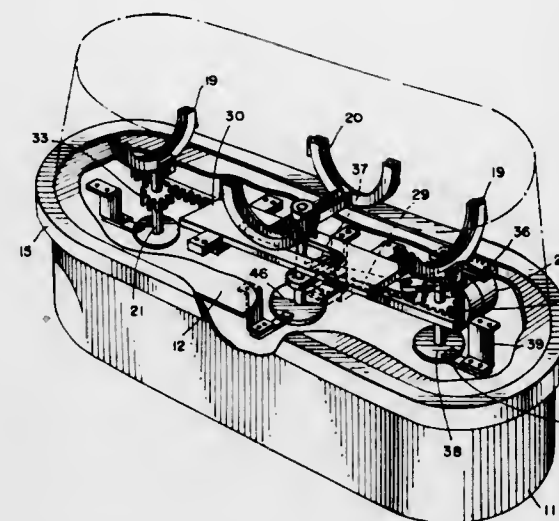
An electronic switching circuit, device and system for selective signalling or simultaneous testing of a plurality of pilot lights or lamps. In a plural system of signal or display lamps or pilot lights, connected in a common and/or individual circuits for signalling current flow or creating a display on an individual or multiple basis, the electronic switching device and circuitry performs dual functions of testing and signalling the lamp or pilot light, without modification of conventional electrical circuitry. The components of the electronic switching circuitry can be embodied into a unitary device.

3,739,335
TRAFFIC PATTERN SIMULATOR
John J. Matyssek, P.O. Box 5566, Crozet, Va.
Continuation-in-part of Ser. No. 863,309, Oct. 2, 1969, Pat. No. 3,605,084, which is a continuation-in-part of Ser. No. 826,212, May 20, 1969, Pat. No. 3,644,884. This application Mar. 19, 1971, Ser. No. 126,168
Int. Cl. G08g 1/00
U.S. Cl. 340-40 12 Claims



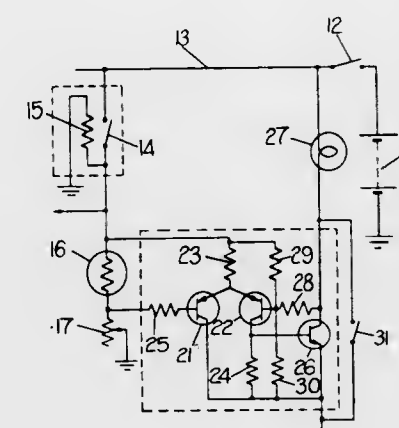
A modular simulator permitting study of traffic flow patterns under various traffic control conditions. Street intersection simulator modules are provided, each including on its front panel or face a plurality of street intersections with traffic control indicators for each traffic phase at each intersection. A plurality of timing circuitry modules generate various timing signals, and a plurality of switching modules permit selection of the particular timing signals provided to each traffic control indicator. The street intersection simulator modules are mounted on a frame for easy viewing. The modular construction permits the provision of as large a simulator as desired.

3,739,336
EMERGENCY VEHICLE WARNING LIGHT
Oliver J. Burland, 214 Rugley Road, Western Springs, Ill.
Filed July 28, 1971, Ser. No. 166,673
Int. Cl. B60q 1/52; F21q 1/00
U.S. Cl. 340-50 1 Claim



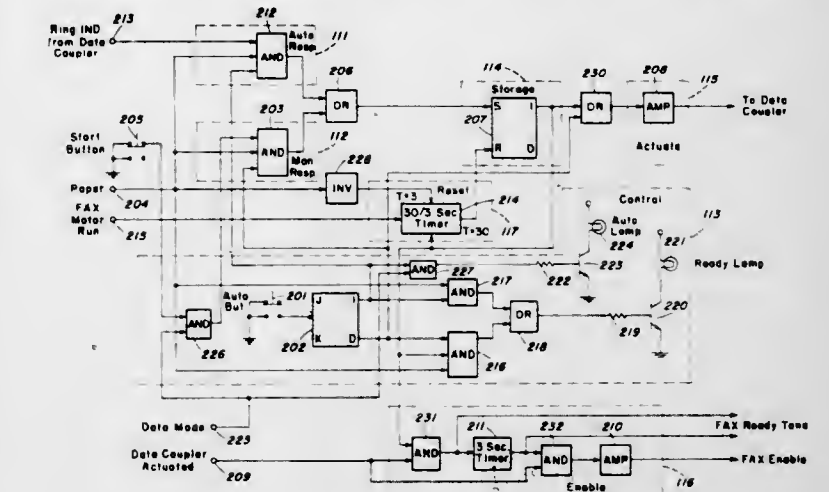
An emergency vehicle warning light having three aligned lamp units with the middle unit having a double lamp, each unit being mounted on a vertical post for oscillation in a horizontal plane, the source of electrical current to the lamps being delivered through the bottom ends of the posts.

3,739,337
FUEL GAUGE OPERATING CIRCUITS FOR ROAD
VEHICLES
William Frank Hill, Stafford, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Mar. 9, 1971, Ser. No. 122,477
Claims priority, application Great Britain, Apr. 14, 1970, 17,559/70
Int. Cl. B60q 1/00; G01f 23/10
U.S. Cl. 340-59 5 Claims



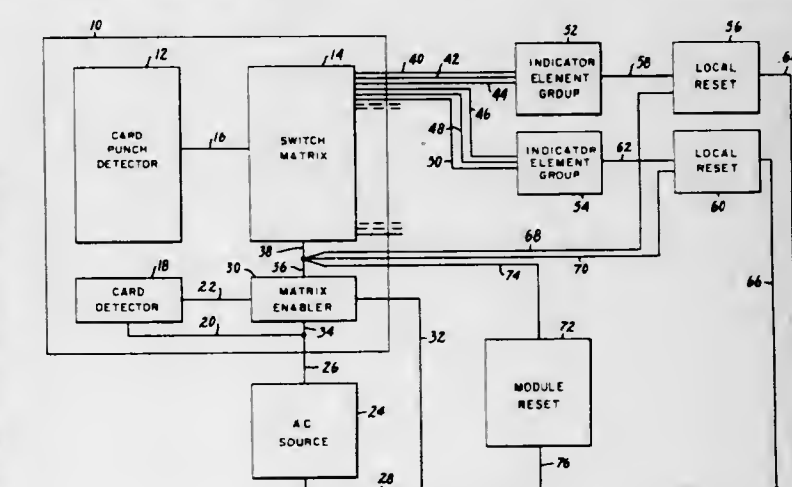
A fuel gauge operating circuit for a road vehicle has a pair of supply lines powered by the vehicle battery and a thermally operable voltage regulator including a vibrating contact through which the fuel gauge is connected to one supply line. The fuel gauge is connected to the other supply line through a variable resistor the value of which is determined by the level of the fuel in the fuel tank, and a transistor is connected in series with the warning lamp between the supply lines. A switching circuit is connected between the supply lines in series with the voltage regulator contact, and the switching circuit has an input connection to the junction of the fuel gauge and the variable resistor and an output connection to the base of the transistor so that the warning lamp flashes when the fuel level is low.

3,739,338
DATA COUPLING APPARATUS
Charles L. Jacobson, Pittsford; Stanley J. Zurakowski, Fairport, and John Tambert, Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.
Filed July 23, 1971, Ser. No. 165,684
Int. Cl. H04m 11/06; H04n 1/44
U.S. Cl. 340-147 R 20 Claims



A data device is automatically or manually connected to a communication channel to permit the communication of data over said communication channel between the data device and a remote device. Control means are provided to selectively determine an automatic or manual mode of operation. When in said automatic mode, automatic responding means responds to a signal representing a request by a remote device coupled to the communication channel to communicate with the data device for providing a communication path between the data device and the communication channel. When in said manual mode, manual responding means responds to the manual operation of switch means for providing a communication path between the data device and the communication channel. Once the communication path is established between the data device and the communication channel, irrespective of the mode of operation, enabling means is activated to initiate an operation of the data device. The present invention may be utilized for transmitting data over a conventional telephone system and is adapted to be combined with an automatic data coupling unit provided by various public telephone companies.

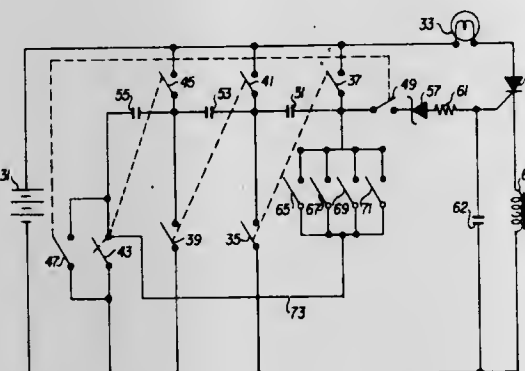
3,739,339
WAREHOUSE INDICATOR SYSTEM
Arthur S. Hillhouse, Colts Neck, N.J., and Alvin J. Fanthorp, Covington, Ky., assignor to The Great Atlantic & Pacific Tea Company, Inc., New York, N.Y.
Filed Sept. 23, 1971, Ser. No. 183,071
Int. Cl. G08b 5/36; H04q 1/30
U.S. Cl. 340-147 A 10 Claims



A system responsive to a punched card defining ordered items in ordered quantity is disclosed for providing quantity

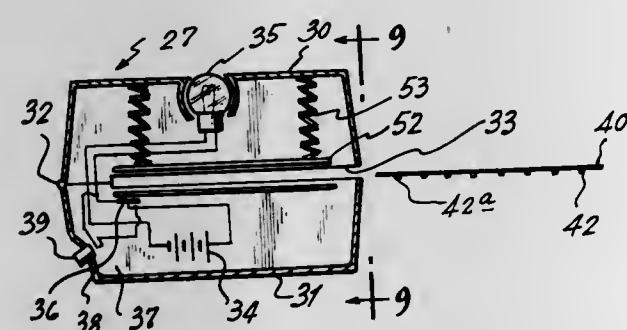
indication at warehouse locations containing the items. A group of indicator elements is disposed at each item location and, where the punched card defines ordered quantity by a binary number, each indicator group provides a binary indication of ordered quantity.

3,739,340
ELECTRONIC LOCK SYSTEM
Carlton Swain Moorefield, 4935 Birch Lane, Alexandria, Va.
Filed July 28, 1971, Ser. No. 166,730
Int. Cl. E05b 47/00
U.S. Cl. 340—147 MD 3 Claims



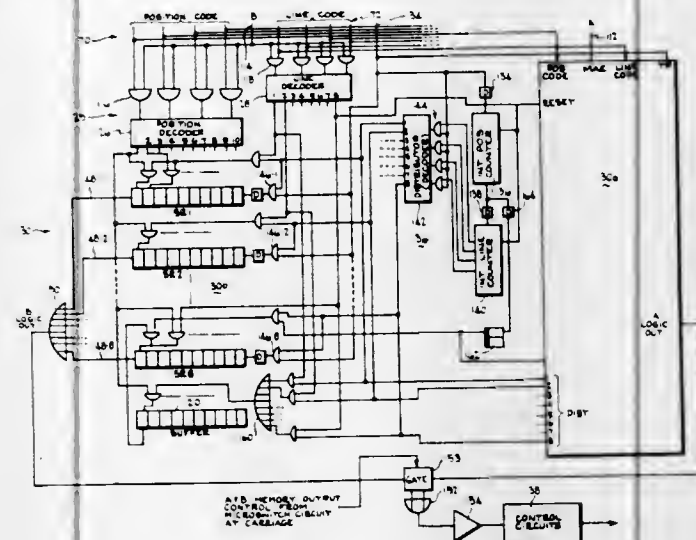
An electronic lock control circuit having a voltage source and means for charging a plurality of storage elements from said source. The storage elements are connected in series to a gating device. The combined voltage of all the storage elements is required to activate the gating means which, in turn, passes the activating energy for the lock.

3,739,341
CODED PLATE FOR POSITIVE IDENTIFICATION
Marvin Tessier, 260-05 57th Avenue, Little Neck, N.Y.
Filed Dec. 7, 1970, Ser. No. 95,565
Int. Cl. H04q 1/00
U.S. Cl. 340—149 A 7 Claims



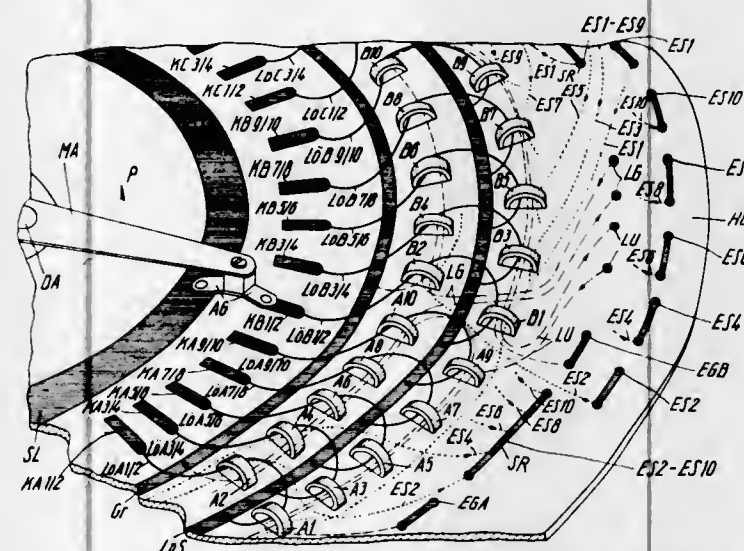
An article and method which insure that a person or item is positively identified. A person or object is assigned a specific indicia by imprinting protuberances on a thin plate. The plate forms a "key" and will fit into a lock mechanism so as to actuate a light or other signal member indicating that the "key" and "lock" are properly mated and the person or the object is positively identified. The lock mechanism is formed by forming depressions to correspond with the precise placement of the protuberances on the "key." When the protuberances fit within the depressions a signal indicating proper mating is given.

3,739,342
SELECTIVE RETRIEVAL AND MEMORY SYSTEM
Dieter Kortenhaus, Bingen, Germany, assignor to NSM Apparatebau GmbH, Bingen/Rhine, Germany
Filed May 26, 1971, Ser. No. 147,082
Claims priority, application Germany, Jan. 22, 1971, P 21 03 029.5
Int. Cl. G11b 5/00; H04q 9/00
U.S. Cl. 340—162 14 Claims



A system for selectively retrieving one of a plurality of articles, such as record disks in an automatic phonograph, has logic gates, a memory and related functional components readily suited for metal-oxide-semiconductor construction.

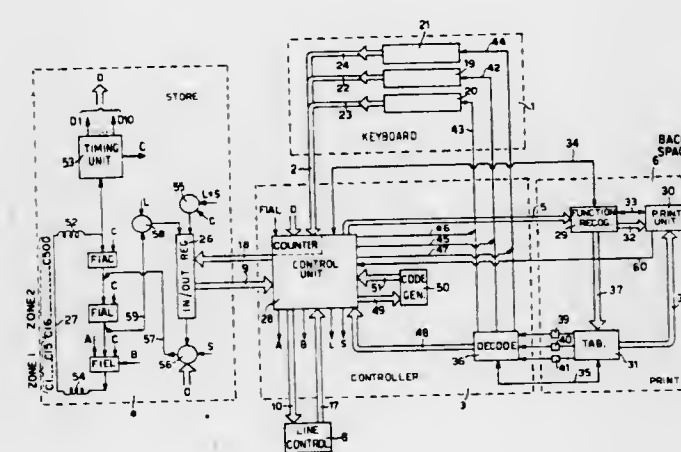
3,739,343
MEMORY MAGNET CONTROLS FOR A MACHINE WHICH AUTOMATICALLY CHANGES RECORDS
Heinrich Meyer, Haldem, Germany, assignor to Wilhelm Harting Werk für Elektro-technik und Mechanik, Espek-lamp, Germany
Filed Feb. 29, 1972, Ser. No. 230,289
Claims priority, application Germany, Mar. 1, 1971, P 21 09 540.9
Int. Cl. H04q 3/00
U.S. Cl. 340—162 R 5 Claims



A control arrangement for a machine which automatically changes disc records. The structure for controlling the sequence in which the records are played, in accordance with selections which are preliminarily made, includes two rows of apertured memory magnets directed to an electrical selecting mechanism so that through the latter information in accordance with the records selected is introduced into the memory magnets. The memory magnets in one row are respectively aligned with the memory magnets in the other row to form therewith pairs of aligned magnets which respectively correspond to the opposite sides of a given record. A signal-extinguishing conductor extends through each pair of

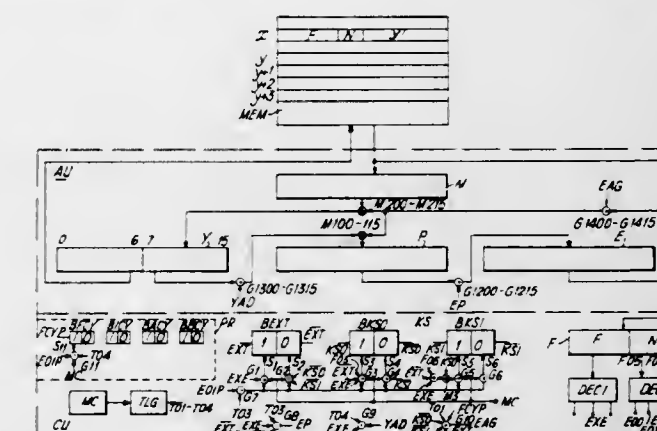
aligned memory magnets, has one end connected to one electrical contact and has an opposed end connected to a collecting conductor which is common to all of the opposed ends of all of the signal-extinguishing conductors. An electrically conductive slip member extends along the row of contacts to which all of the signal-extinguishing conductors are respectively connected, and a scanner is moved together with a movable record magazine along the slip member and successively along the row of contacts providing a bridge between the latter and the slip member. A read-out conductor extends through all of the memory magnets in one row which correspond respectively to one of the sides of the series of records and another read-out conductor extends through the memory magnets of the other row which respectively correspond to the other sides of the series of records in the magazine. These read-out conductors are both connected electrically to a dual read-out amplifier, and an electrical circuit is connected with the slip member, the common collector conductor, and the amplifier for providing automatic selection of a given side of a given record corresponding to a memory magnet to which a selecting signal has been transmitted to be stored therein, when the scanner bridges the contact connected to the signal-extinguishing conductor which passes through the latter memory magnet which has the selection signal and completes a circuit between the latter contact and the slip member.

3,739,344
DATA TERMINAL APPARATUS HAVING A DEVICE FOR ALIGNING PRINTED DATA
Francesco Serracchioli, Banchette, and Francesco Restivo, Cascinette, both of Italy, assignors to Ing. C Olivetti & C., S.p.A., Turin, Italy
Filed June 29, 1970, Ser. No. 50,721
Claims priority, application Italy, July 3, 1969, 52489 A/69
Int. Cl. G06f 3/12
U.S. Cl. 340—172.5 5 Claims



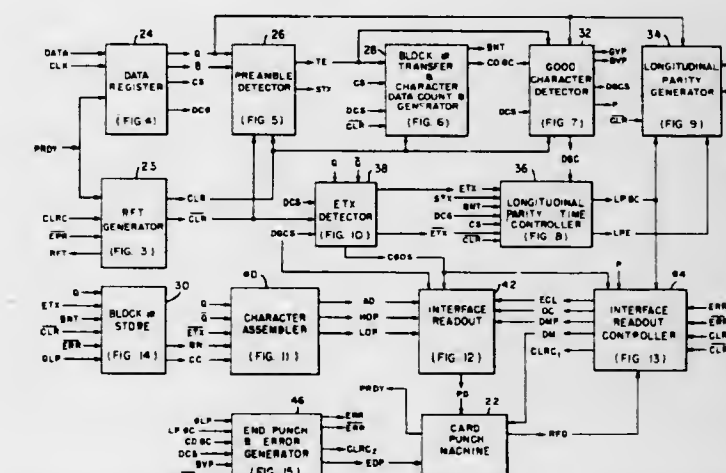
In a data terminal apparatus comprising a printing device and a keyboard, a memory divided in first and second zones is provided. The first zone stores the data characters entered on the keyboard under the control of a device causing the printing device to be backspaced one space starting from a predetermined position upon entering each character. A function key is operated after entry of the last character into the first zone to extract the characters from the first zone of the store and introduce them into the second zone of the store while simultaneously sending them to the printing device to be printed with the last entered character aligned on a predetermined columnar position.

3,739,345
MULTIPLE EXECUTE INSTRUCTION APPARATUS
Juliaan Leo Gerard Janssens, Olmen, and Mathieu Adrien Roger Peirsman, Antwerp, both of Belgium, assignors to International Standard Electric Corporation, New York, N.Y.
Filed May 25, 1971, Ser. No. 146,720
Claims priority, application Netherlands, May 27, 1970, 7007615
Int. Cl. G06f 9/20
U.S. Cl. 340—172.5 4 Claims



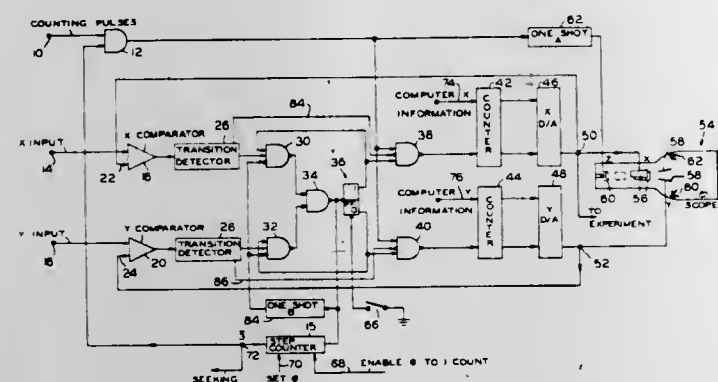
This data processing system has a memory with multiple execute instruction words stored therein. Each of these words contains the number of instructions included in a sequence of instructions to be executed and the address of the first instruction of the sequence. This type instruction word has the advantages of speed and memory space economy with only a limited increase in additional hardware.

3,739,346
DATA TRANSMISSION SYSTEM
John R. Copeland, and James F. Reid, both of Columbus, Ohio, assignors to The Great Atlantic & Pacific Tea Company, New York, N.Y.
Filed Sept. 23, 1971, Ser. No. 183,183
Int. Cl. G06f 3/04
U.S. Cl. 340—172.5 21 Claims



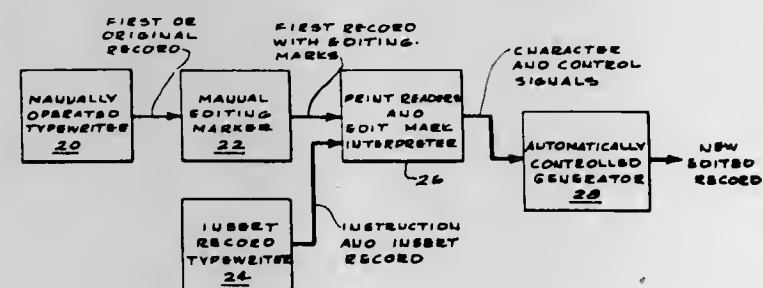
Systems are disclosed for use in producing punched cards, indicative of subjects and characteristics of subjects defined in a succession of digital signal groups. In a preferred application of the invention, the signal groups define subjects comprising ordered grocery items and subject characteristics comprising the quantity of the item required. The signal groups are conditioned for transmission by telephone lines, are regenerated after transmission and are processed in a manner effective for operating a card punch machine having the capability of punching multiple card columns at one time. The regenerated signal processing is also effective to arrange subject and characteristic information applied to the card punch machine in a manner providing increased information content in the punched card, thereby enabling efficient warehouse operations.

3,739,347
CURSOR FOR USE IN PERFORMING GRAPHIC INPUT IN A DISPLAY
 Charles A. Forsberg, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.
 Filed Mar. 20, 1970, Ser. No. 21,400
 Int. Cl. G05b 1/06, 19/30; G06f 3/14
 U.S. Cl. 340—172.5



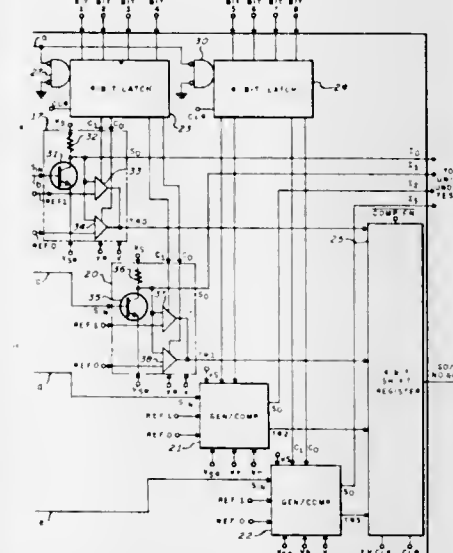
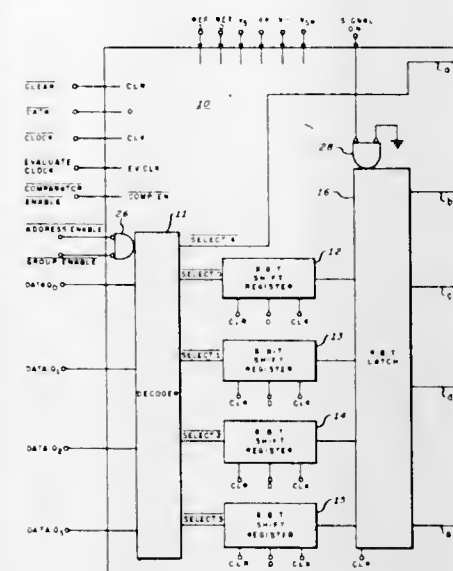
A pair of counter-registers are employed at a computer terminal for the reception of *x* and *y* coordinate information from a remote computer, and digital to analog converter means transform the register contents into deflection voltages for a cathode ray storage tube. A cursor display employs the same counter-registers, applying a series of impulses to such registers until the corresponding digital to analog converter outputs equal analog cursor inputs. The registers operate alternately and produce a large, cross-shaped cursor intersecting at the point of interest. The counter-registers can be stopped subsequent to comparison, and will then store digital information representing the coordinate address of the cursor intersection for introduction into the computer.

3,739,348
AUTOMATIC EDITING METHOD
 Ron Manly, 1922 West Segundo Boulevard, Gardena, Calif.
 Division of Ser. No. 63,020, Aug. 11, 1970, Pat. No. 3,676,856, which is a continuation of Ser. No. 275,415, April 24, 1963.
 This application May 1, 1972, Ser. No. 249,391
 Int. Cl. G06f 11/00; B41j 5/30
 U.S. Cl. 340—172.5



Methods and systems to avoid manually retyping or re-keyboarding textual material when revising or correcting the information contained in a record either while originally preparing the information or at a later date. The use of print readers or character recognition device to accomplish this "editing" is disclosed, as well as editing using paper tape typewriters, display devices, and other means such as using editing instructions. Methods are also disclosed for automatically reformatting the information into lines after insertions, deletions or other changes requiring shifting of the line layout of the information.

3,739,349
DIGITAL EQUIPMENT INTERFACE UNIT
 William M. Burdette, Jr., Largo, and David C. Davis, Jr., Clearwater, both of Fla., assignors to Sperry Rand Corporation, New York, N.Y.
 Filed May 24, 1971, Ser. No. 146,263
 Int. Cl. G01r 31/00
 U.S. Cl. 340—172.5

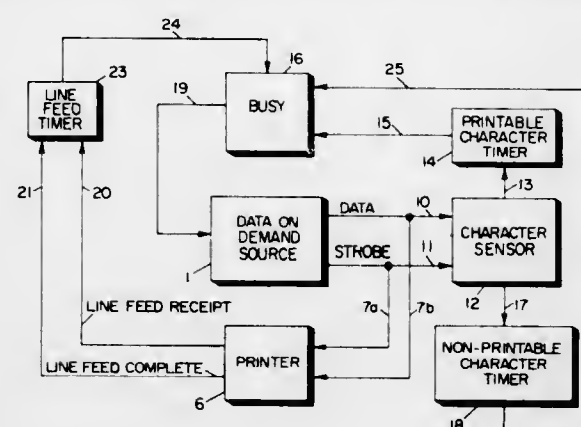


A programmable interface unit for use with automatic digital test equipment having a plurality of generator/comparator units which couple stimuli signals from a plurality of shift registers to a unit under test and evaluate output signals produced by the unit under test in response to the stimuli signals by comparing the output signals to programmable reference levels. Each terminal of the interface unit coupled between the generator/comparators and the unit under test may be employed alternately by appropriate programming to function as either a stimuli output to the unit under test or as an input to a comparator of an output signal produced by the unit under test.

3,739,350
HIGH-SPEED DATA PROCESSING SYSTEM
 Paul J. Moran, Waynesboro, Va., assignor to General Electric Company, Waynesboro, Va.
 Filed Sept. 24, 1971, Ser. No. 183,525
 Int. Cl. G06f 3/12
 U.S. Cl. 340—172.5

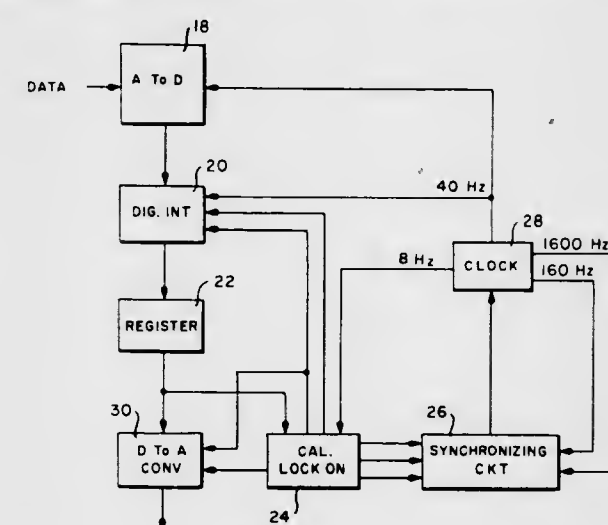
Increasing the through-put rate of data processing in an electronic printer by accepting incoming data at a rate which

is a function of the variable print density of the incoming data



being received.

3,739,351
PHASE CONTROL CIRCUITS
 Donald F. Forbes, Oakton, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
 Filed Feb. 22, 1972, Ser. No. 228,186
 Int. Cl. H04n 1/36; H04l 7/00
 U.S. Cl. 340—172.5

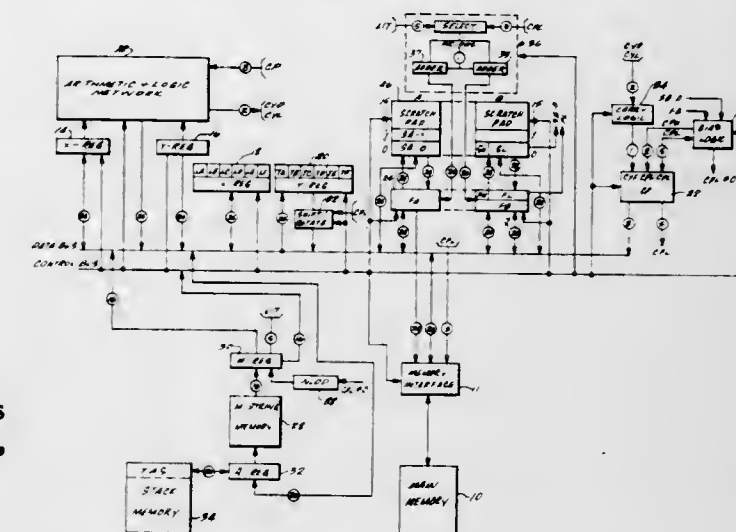


The invention relates to digital circuitry for synchronizing the system clock with the received data when a calibrate circuit indicates that the proper clear data has been received. The clock control operates in two modes. In the first mode the clock is allowed to run at a predetermined frequency at the end of a data frame (reset pulse). The clock is allowed to run at the predetermined frequency until the calibrate signal has been received as clear data and an indication to track is given by the calibrate clock on circuit. Upon receipt of the track indication the clock frequency is shifted from the predetermined frequency by an amount determined by the delay clocking between the clock pulses and the indication of all zero's indication calibrate pulse by the calibrate lock on circuit. The same shift in duty cycle is maintained throughout each frame. Thus, the synchronizing circuit causes the clock to hunt about while locked on the received data. Thereby tracking the received data.

3,739,352
VARIABLE WORD WIDTH PROCESSOR CONTROL
 Roger E. Packard, Santa Barbara, Calif., assignor to Burroughs Corporation, Detroit, Mich.
 Filed June 28, 1971, Ser. No. 157,297
 Int. Cl. G06f 9/00
 U.S. Cl. 340—172.5

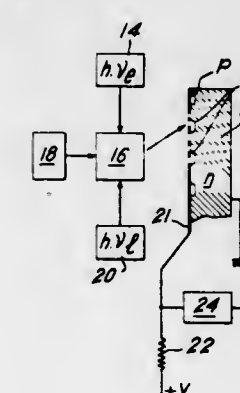
There is described a microprogrammed processor associated with a free field memory in which operands of any

length in terms of the number of bits can be processed. The free field memory is addressed by an address register that points to the boundary between any two bits stored in the memory as the start of a field and that specifies the number of bits in the field up to the maximum bit capacity of the memory. A control register, referred to as a bias register, determines the number of bits in parallel, up to a maximum number of parallel bits accommodated by one memory cycle, required in the execution of particular microinstructions. Any



microoperator string involving the manipulation of operands, such as an arithmetic operation or a data transfer operation, includes a bias operation in which the bias register is set to the lesser of the number of bits specified by the address register and the maximum number of bits transferred in one memory cycle. Once the bias register is set, it is used to control internal operations within the processor and transfers between the processor and memory as though the basic width of the machine had been changed.

3,739,353
OPTICAL-ACCESS MEMORY DEVICE FOR NON-DESTRUCTIVE READING
 Gunnar Bjorklund, Tyreso, Sweden; Joseph Borel, Echiroles, and Jean Marine, Grenoble, both of France, assignors to Commissariat A L'Energie Atomique, Paris, France
 Filed May 9, 1972, Ser. No. 251,739
 Claims priority, application France, May 14, 1971, 7117637
 Int. Cl. G11c 11/40
 U.S. Cl. 340—173 R



The memory device permits storage of a high density of information in binary form and comprises a p or n-type semiconductor substrate having a forbidden band *E_g* and two intermediate levels, the lower level being located at an energy *E_p* from the top of the valence band and the upper level at an energy *E_e* from the bottom of the conduction band, an array of memory cores distributed over the surface of the substrate, writing means for selectively populating the two intermediate core levels with majority carriers from the valence band, opti-

cal means for selectively illuminating the memory cores with photons of energy greater than the energy E_i between the two intermediate levels, means for detecting the reaction of each memory core when this latter is illuminated by the optical means.

3,739,354

VARIABLE CAPACITY MEMORY

Guy LeRoy, Lannion, France, assignor to Societe Lannionaise D'Electronique, Lannion and Compagnie Industrielle Des Telecommunications, Paris, France

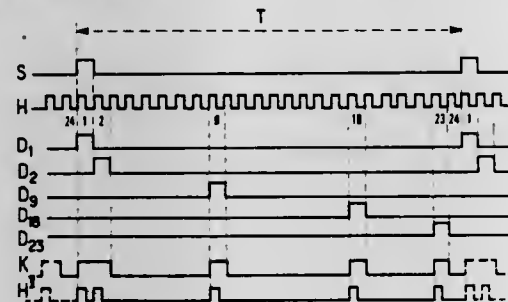
Filed Apr. 19, 1971, Ser. No. 135,248

Claims priority, application France, Apr. 17, 1970, 7013977

Int. Cl. G11c 21/00

U.S. Cl. 340—173 R

12 Claims



The device according to the invention comprises essentially a memory M having a useful capacity n which is lower than N, N representing the number of words contained in a frame T of a pulse code modulation system, and an advance clock of the said memory, supplying pulses H^2 according to a certain distribution arrangement in time of the frame, based on a fixed period clock H.

3,739,355

SENSE AMPLIFIER FOR HIGH SPEED MEMORY

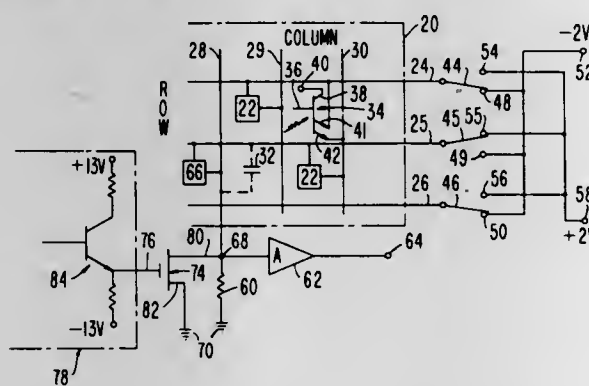
Arthur J. Radcliffe, Jr., Plymouth, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed May 28, 1971, Ser. No. 147,894

Int. Cl. G11c 7/02; C11c 11/40

U.S. Cl. 340—173 R

14 Claims



A sense amplifier for use in the interrogation of a phototransistor matrix employs an electronically controlled impedance in parallel with the load resistor of each column. The electronically controlled impedance substantially reduces the time constant of electrical noise resulting from row selection. Additionally, a balancing capacitor functions to cancel the transient which results from the switching of the controlled impedance.

3,739,356

HETEROJUNCTION INFORMATION STORAGE UNIT

Wilber David Pricer, Burlington, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 21, 1971, Ser. No. 155,031

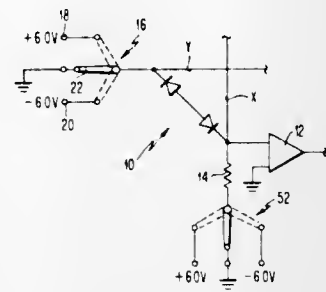
Int. Cl. G11c 11/36, 5/02

U.S. Cl. 340—173 R

13 Claims

A bistable information storage unit which has a semiconductor device having two P-N heterojunctions arranged in op-

posing series relation. The heterojunctions each exhibit stable high and low impedance states due to a high density of material imperfections, including deep energy traps. In normal



operation, the order of the impedance states of the heterojunctions of the device can be sensed and changed. The state or order of the junctions can be used to designate binary information.

3,739,357

MAGNETIC SHIFT MEMORY

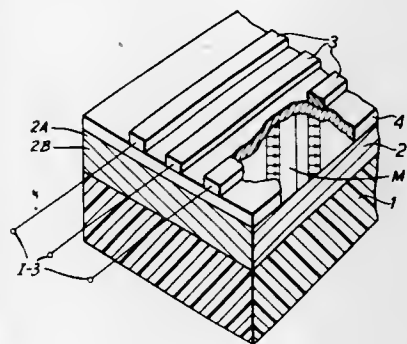
Reinhard Straubel, Berlin, Germany, assignor to VEB Filmfabrik Wolfen Fotochemisches Kombinat, Wolfen, Germany

Filed Dec. 4, 1970, Ser. No. 95,224

Int. Cl. G11c 19/00, 11/14

U.S. Cl. 340—174 MC

7 Claims



This invention relates to a magnetic shift memory for example in the form of a long ribbon, preferably endless, wherein the required raster of varying magnetic fields is provided in a permanent magnetic layer arranged adjacent to strips of magnetic material and sufficiently close thereto for causing on application of an impulse shaped current, a raster-like periodic variation of the critical switching field strength. The periodicity of the raster-like magnetization need not be constant. It may extend longitudinally and/or transversely and/or at an angle relative to the permanent magnetic layer.

3,739,358

SHIFT REGISTER OPERATING BY PROPAGATION OF DOMAINS IN THIN FILMS OF MAGNETIC MATERIAL

Claude Battarel, Magagnosc De Grasse, France, assignor to Techniques et Systemes Informatiques, Courbevoie, France

Filed Jan. 12, 1972, Ser. No. 217,174

Claims priority, application France, Jan. 14, 1971, 7101174

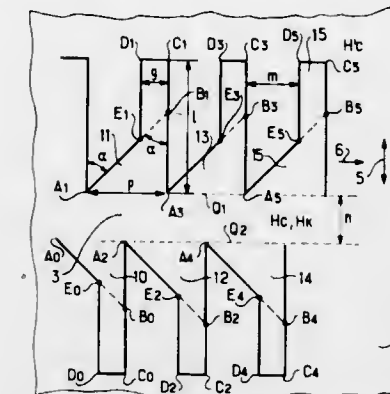
Int. Cl. G11c 19/00, 11/14

U.S. Cl. 340—174 MC

20 Claims

A first zone of relatively low coercivity is surrounded by a second zone of relatively high coercivity in a thin film shift register, with the zones formed of magnetizable material, the first zone extending along the axis of relatively difficult mag-

netization and being divided from the second zone on opposite sides by first and second boundaries in the form of regular saw



teeth, with the second axis being displaced relative to the first by half the width of a saw tooth.

3,739,359

MAGNETIC BUFFER STORAGE

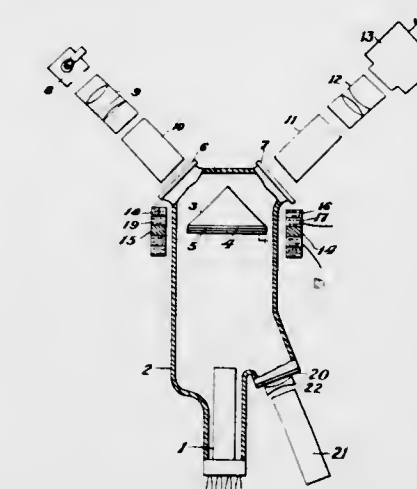
Robert Kerr Waring, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 25, 1971, Ser. No. 174,605

Int. Cl. G11c 11/14

U.S. Cl. 340—174 YC

17 Claims



A buffer storage system is described in which the storage element is composed of a magneto-optic mirror having a layer of a low-Curie temperature magnetic material on one face. Information can be read into the layer of low Curie temperature by thermomagnetic methods without disturbing previous information on the magneto-optic mirror, then transferred to the magneto-optic layer by a suitable transfer field (either a decaying oscillating field or a pulsed unidirectional field) at a predetermined time in response to trigger signals.

3,739,360

METHOD OF MAGNETIC DATA STORAGE

David Edward Lacklison, Crawley, England, assignor to U.S. Philips Corporation, New York, N.Y.

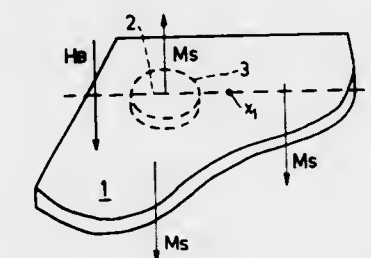
Filed Nov. 10, 1971, Ser. No. 197,457

Claims priority, application Great Britain, Nov. 13, 1970, 54,134/70

Int. Cl. G11c 11/14, 11/42

U.S. Cl. 340—174 YC

6 Claims



A method of magnetic data storage in which magnetic domains are generated and moved to desired locations in a

platelet of magnetic material exhibiting photomagnetic properties, e.g., FeBO_3 , by exposing the platelet in the desired locations to electromagnetic radiation.

3,739,361

MAGNETIC THIN FILM MEMORY PLANE

Mutsuo Ishikawa, Nagareyama; Shiro Nakagawa, Chiba, and Hiroyoshi Itoga, Ichikawa, all of Japan, assignors to TDK Electronics Corporation, Tokyo, Japan

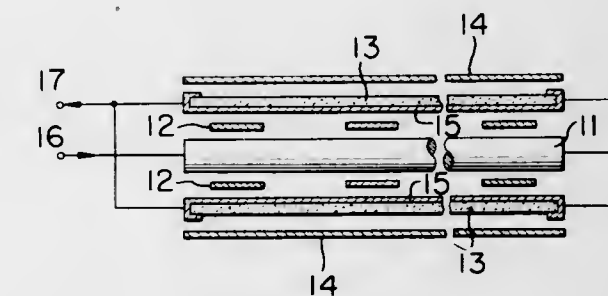
Filed June 25, 1971, Ser. No. 156,862

Claims priority, application Japan, July 8, 1970, 45/59702

Int. Cl. G11c 11/04, 11/14

U.S. Cl. 340—174 S

4 Claims



The word lines are arranged to cross the magnetic wires through which flows the digit current, and the surface in opposed relation with these word lines of the magnetic keeper which is disposed outwardly thereof, is applied with a thin electrically conductive film which is as a return line for the digit current.

3,739,362

MAGNETO-OPTICAL SIGNAL PROCESSOR

Richard E. Eschelbach, Palos Verdes Peninsula, Calif., assignor to The Magnavox Company, Torrance, Calif.

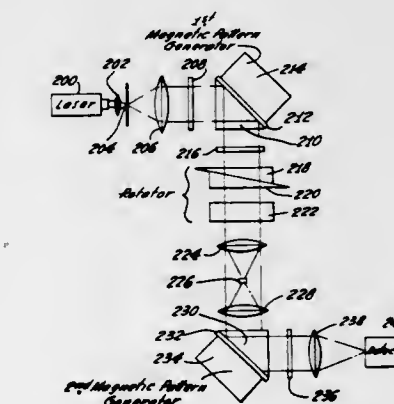
Continuation of Ser. No. 700,395, Jan. 25, 1968, abandoned.

This application Mar. 25, 1971, Ser. No. 128,122

Int. Cl. G11c 13/04; G11b 11/10

U.S. Cl. 340—174.1 M

27 Claims



The present invention relates to the optical processing of information using a magneto-optical light modulator to spatially modulate light energy in accordance with the information. The magneto-optical light modulator includes a thin magnetic film having a spatial magnetic pattern in accordance with the information. The light energy is directed to the thin magnetic film to produce variations in the characteristics of the light energy in accordance with the spatial magnetic pattern. After the light energy has been spatially modulated the light energy is further processed using optical lenses so as to produce a desired transform of the spatially modulated light energy.

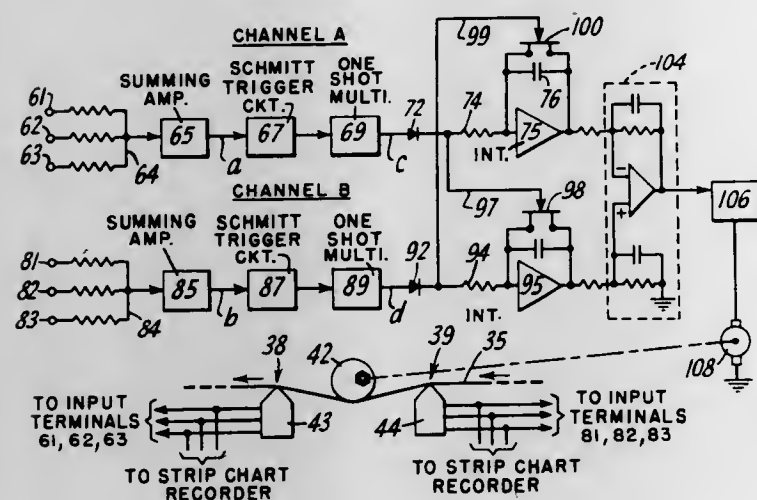
3,739,363

ADJUSTABLE TAPE PATH LENGTH

Raymond E. Carey, and Andy S. Robertson, both of Houston, Tex., assignors to AMF Incorporated, White Plains, N.Y.
Filed Apr. 17, 1972, Ser. No. 244,426
Int. Cl. G11b 15/18, 27/04

U.S. Cl. 340—174.1 L

11 Claims



Method and apparatus for producing a multitrack inspection log of anomaly signals produced by pipeline nondestructive inspection apparatus having two longitudinally spaced sets of anomaly sensors. Inspection apparatus produces on a magnetic tape a multitrack record of anomaly signals generated by respective sensors of the two sets. Magnetic recording playback apparatus includes two spaced magnetic head stacks and means located therebetween to adjust length of path the magnetic tape travels between the head stacks. Proper adjustment of path length assures that all anomaly signals corresponding to a given anomaly that is sensed by both sets of sensors appear in transverse alignment in the respective recording tracks of the multitrack inspection log.

3,739,364

ANTENNA MAST MISALIGNMENT DETECTOR

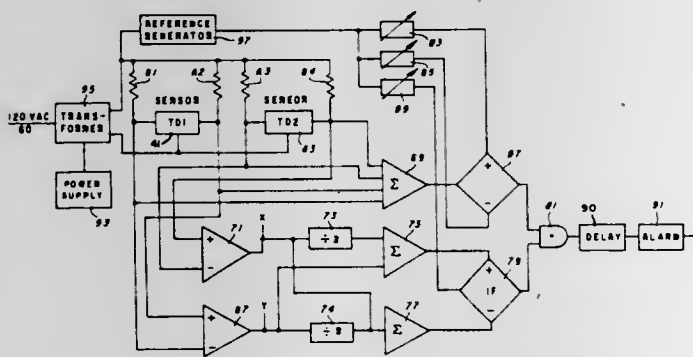
Carl M. Talkington, and Hamil W. Cooper, both of Austin, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed June 7, 1971, Ser. No. 150,490

Int. Cl. G08b 21/00

U.S. Cl. 340—213 R

3 Claims



An antenna misalignment detector has two electrolytic transducers mounted on a mast carrying the antenna perpendicular to each other in the same horizontal plane. The antenna is mounted on a mast. The square root of the sum of the squares of the output from the transducers is generated and compared with a predetermined reference so that an alarm sounds when the antenna is misaligned along a vertical axis to the ground.

3,739,365

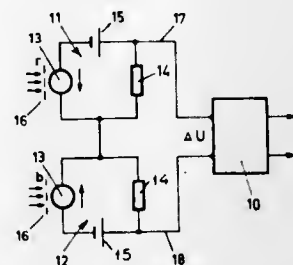
APPARATUS FOR DETECTION OF A FIRE OR OF FLAMES

Peter Muller, Oetwil, Switzerland, assignor to Cerberus AG., Mannedorf, Switzerland
Filed Dec. 1, 1970, Ser. No. 94,113
Claims priority, application Switzerland, Dec. 3, 1969, 18107/69

U.S. Cl. 340—228.2

Int. Cl. G08b 21/00

23 Claims



Fire detecting apparatus includes two photoelectric devices, each having different spectral sensitivities. A difference signal corresponding to the difference between the output signals of the photoelectric devices is generated and an alarm signal is developed when the difference signal deviates by a predetermined amount from a predetermined value or range of values, depending upon application. A preferred embodiment also includes a delay means for delaying generation of the alarm signal for a predetermined time.

3,739,366

FLOWMETER FOR ENGINE COOLING SYSTEM

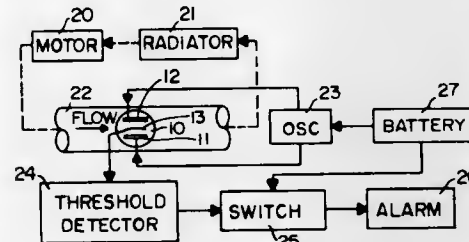
Melvin A. Lacey, Prospect Heights, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed June 14, 1971, Ser. No. 152,928

Int. Cl. G08b 21/00

U.S. Cl. 340—239 R

14 Claims



A flowmeter senses the flow rate in an engine cooling system to provide an indication of an extraordinary condition as when the water pump or one of the fluid conducting hoses would become inoperative. The flowmeter sensor comprises a pair of stationary electrodes located adjacent to and on either side of a flexible electrode which is deflected by the current flow. A relatively high frequency alternating current produces a field between the two stationary electrodes and the deflecting electrode will assume a potential based on its location in the field. A threshold detection circuit is connected to the deflecting electrode whereby a change in its apparent voltage will actuate a warning device.

3,739,367

SLOW ROTATIONAL SPEED ALARM

George H. Fathauer, Decatur, Ill., assignor to Dickey-John Corporation, Chatham, Ill.

Filed Aug. 19, 1971, Ser. No. 173,138

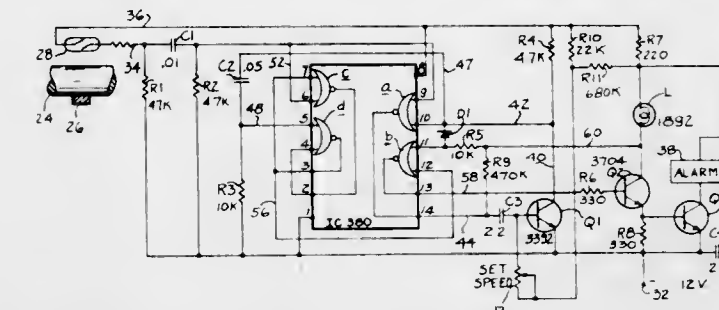
Int. Cl. G08b 21/00

U.S. Cl. 340—271

10 Claims

A digital alarm that produces a signal when a function that is being monitored falls below a preset alarm point. The monitored function may be the speed of a shaft. Input pulses representing the function to be monitored are fed into the

device and the period of the input pulses are compared with the interval of a signal generated by a monostable multivibrator within the device. If the input signal period is greater than the multivibrator interval, the alarm sounds, but if the input



signal period is less than the multivibrator interval the alarm is off. When the alarm is driven either off or on, it is held there until the monitored function changes to the complement condition.

3,739,368

STARTER GUN ATTACHMENT

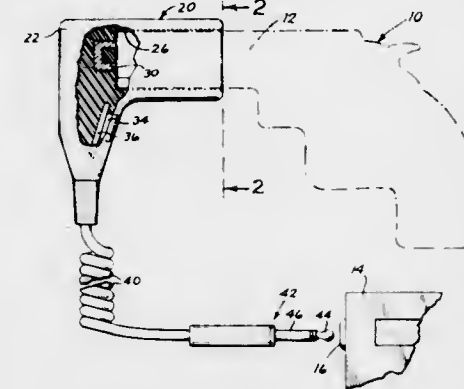
Bernard J. Stalp, Hillsboro, Oreg., assignor to Data Time, Inc., Beaverton, Oreg.

Filed Aug. 9, 1971, Ser. No. 170,199

Int. Cl. G07c 1/24

U.S. Cl. 340—323

8 Claims



Sound-actuated apparatus for controlling an electrically operated device in response to the firing of a gun remote from the device. The apparatus includes a housing having a magnet mounted thereon for detachably securing it to a gun. A microphone, and an electrical circuit connected thereto, are mounted in the housing for detecting the firing of the gun and for producing an electrical signal at output terminals of the circuit on detecting such firing. An elongated, flexible conductor is connected at one of its ends to the output terminals of the circuit and has a plug at its other end for detachably and operatively connecting it to a remote electrically operated device.

3,739,369

HISTORICAL DATA DISPLAY

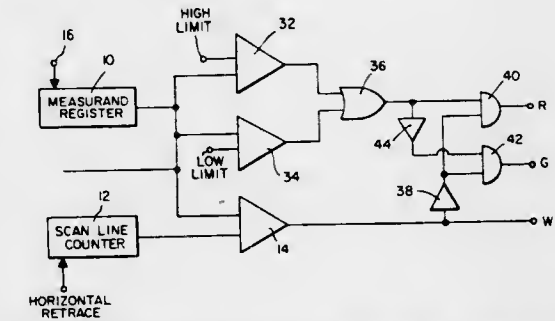
William Marvin Bunker, Ormond Beach, and Walter Hosey Tew, Jr., DeLand, both of Fla., assignors to General Electric Company, New York, N.Y.

Filed Jan. 4, 1971, Ser. No. 103,741

Int. Cl. G06f 3/14

U.S. Cl. 340—324 A

5 Claims



Measurements of a particular parameter are digitized and scaled. The J most recent measurands are displayed as ele-

ments on a raster type display. The J scan lines are assigned magnitudes in accordance with their vertical position. Each scan line magnitude is compared with all J elements which are clocked out of a register one by one for comparison and returned to the register. Each comparison results in a color decision and control signal for the portion of the scan line represented by that particular element. At the completion of each frame the measurand register is updated to include more recent measurands.

3,739,370

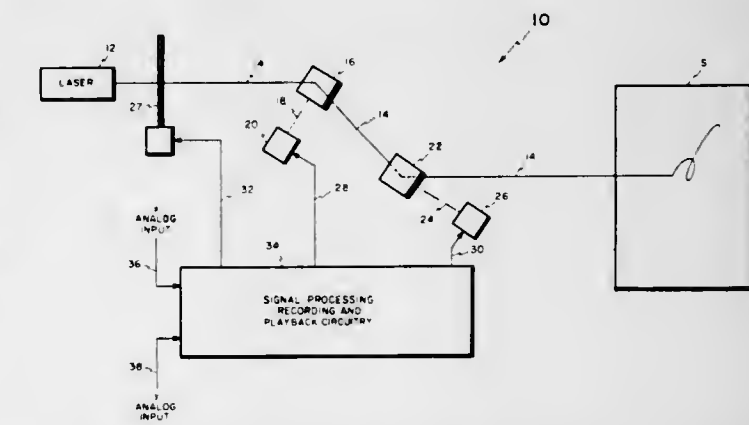
PLOTING PROJECTOR

Hanns H. Wolff, Orlando, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Int. Cl. G08b 5/36

U.S. Cl. 340—324 R

3 Claims



A plotting projector wherein analog signals are periodically sampled, converted to pulse position word form and recorded for repeated playback and demodulation to provide beam deflection signals for describing a periodically updated trace at a repetition rate above the flicker rate.

3,739,371

CROSS ADDRESSED BISTABLE DISPLAY PANEL WITH SELECTABLE BILEVEL SUSTAINING BIAS CIRCUIT
Michael George Hulyer, Croydon, England, assignor to U.S. Phillips Corporation, New York, N.Y.

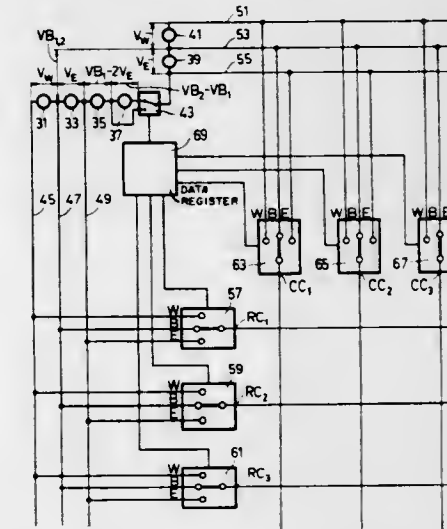
Filed Nov. 2, 1970, Ser. No. 86,147

Claims priority, application Great Britain, Oct. 31, 1969, 53,603/69

Int. Cl. G11c 7/00

U.S. Cl. 340—324

3 Claims



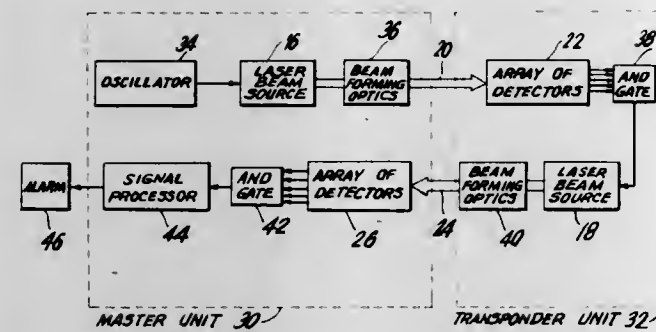
In a cross point display matrix of the storage type means are provided for shifting the common bias voltage to different levels during the write and erase operations. Shifting of the bias voltage permits the application of higher amplitude addressing pulses for both the write and erase operations.

3,739,372

OPTICAL INTRUSION ALARM SYSTEM
Gabor Schlusser, Tenafly, and Julius R. Insler, Bergenfield,
both of N.J., assignors to Holobeam, Inc., Paramus, N.J.
Filed Oct. 27, 1971, Ser. No. 192,926
Int. Cl. G08b 13/18

U.S. Cl. 340-258 B

5 Claims



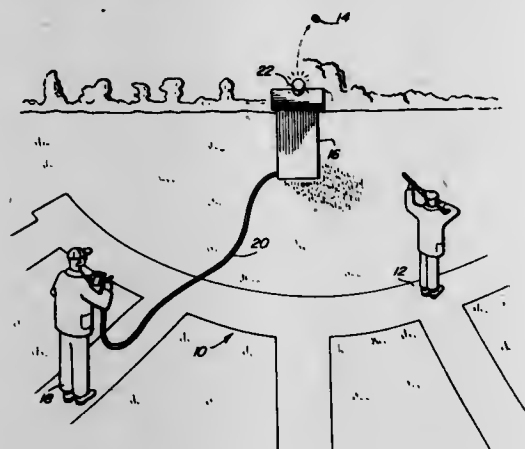
An intrusion alarm system comprises a pair of light sources which produce overlapping light beams that effectively cover the entire area being protected. When either of the beams is interrupted by an intrusion, an alarm is caused to be actuated. In the embodiment of the invention here described, one of the light sources acts as a master unit directed toward a first array of detectors and the second light source directed at a second array of detectors acts as a transponder unit. When each of the detectors in the first array receives light from the master unit, the second source is turned on. The alarm is actuated whenever one of the second array of detectors fails to receive a light beam from the transponder unit.

3,739,373

TIMER CONTROL FOR TRAP RELEASE
Eugene H. Liming, Box 455, Ocala, Ohio, and Robert E. Hefelfinger, 916 Monnett St., Cuyrus, Ohio
Filed Jan. 7, 1972, Ser. No. 216,208
Int. Cl. G08b 5/00

U.S. Cl. 340-309.1 R

13 Claims



An automatic trap release system is provided for timed release of a target trap upon completion of a predetermined time delay interval subsequent to the automatic actuation of a signal to the shooter. As such, each competitive shooter will be afforded the same warning or ready signal followed by automatic release of the trap in the same time interval thereafter.

3,739,374

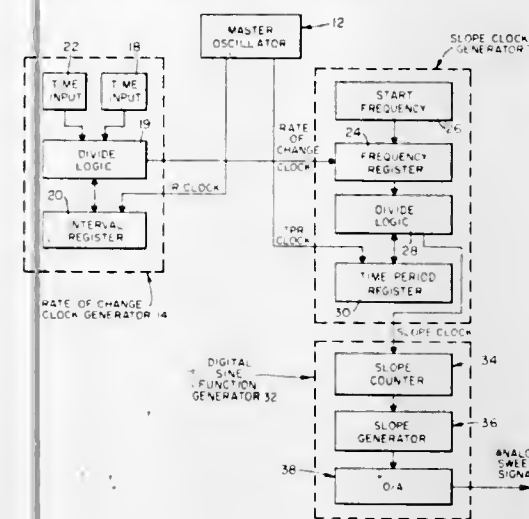
DIGITAL SWEEP GENERATOR FOR GENERATING ANALOG SIGNALS
John W. Klowaki, Houston, Tex., assignor to Mandrel Industries, Inc., Houston, Tex.
Filed Aug. 27, 1971, Ser. No. 175,472
Int. Cl. H03b 23/00

U.S. Cl. 340-347 DA

11 Claims

A digital sweep generator for digitally generating an analog sine wave signal of constant or varying (sweep) frequency,

includes means for generating a rate-of-change clock, a slope clock and a sine function, via digital circuits. The rate-of-change clock determines the rate-of-change in the frequency of a sine wave across a desired range of frequencies for a given time interval. The slope clock occurs at the exact increments selected to produce a given sine wave frequency as determined by the rate-of-change clock. That is, if a sweep sine wave signal is desired, the rate-of-change clock is introduced to modify ac-



cordingly the means for generating the slope clock. The slope clock is then introduced to the means for generating a sine function to digitally produce the sine wave signal as the function of the input slope clock rate. Each slope clock represents a point on the slope of the generated sine wave, corresponding to equal increments of 360° of a sine wave. Two outputs are provided; a digital word corresponding to the sine wave, and the analog sine wave signal delivered therefrom via a digital-to-analog converter.

3,739,375

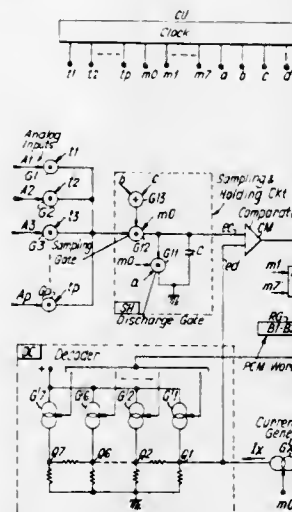
AUXILIARY CIRCUIT FOR ANALOG TO DIGITAL CODER
Andre Edouard Joseph Chatelon, Montrouge, and Marc Andre Regnier, Aulnay-sous-Bois, both of France, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Apr. 10, 1969, Ser. No. 815,016
Claims priority, application France, Apr. 24, 1968, 68149222

Int. Cl. H03k 13/02

U.S. Cl. 340-347 CC

5 Claims



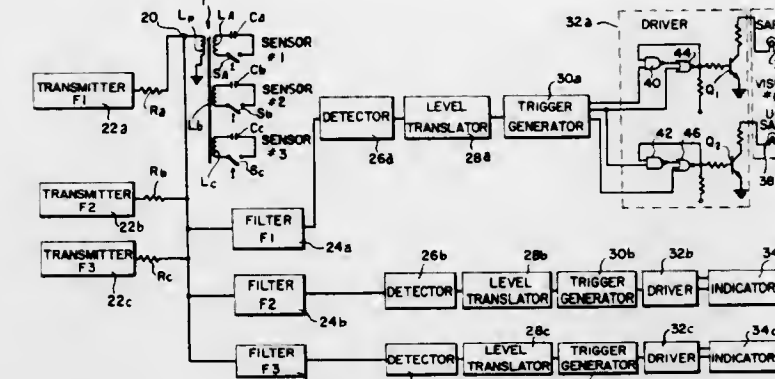
A high-gain differential amplifier is used as a comparator in a PCM coder. The amplifier may oscillate during the time reserved for the charge of the holding capacitor. According to the invention an auxiliary circuit delivers, during that time, a voltage which is higher than the maximum possible value of the signal to be coded. This high voltage is applied to the comparator in order to block it.

3,739,376

REMOTE MONITOR AND INDICATING SYSTEM
Francis C. Keledy, Butler, N.J., assignor to Trodyne Corporation, Teterboro, N.J.
Filed Oct. 12, 1970, Ser. No. 79,797
Int. Cl. G08b 1/08

U.S. Cl. 340-416

11 Claims



A passive parameter-sensing element is disposed at a location remote from an indicator. Upon the occurrence of a predetermined variation in the sensed parameter, an active unit coupled to the passive element produces a signal which operates the indicator. In one embodiment of the invention a plurality of passive sensing elements are housed in the blades of a helicopter. Upon the sensing of a change in the air pressure in one of the blades, the response of the passive element in that blade causes the active unit to produce a signal which has a characteristic uniquely associated with the particular blade in which the failure occurs.

3,739,377

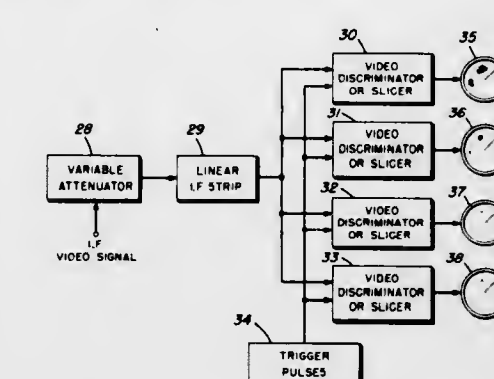
METHOD AND APPARATUS FOR TARGET DISCRIMINATION IN A CLUTTER ENVIRONMENT
Robert A. Kropff, College Park; Isadore Katz, Bethesda; Kenneth F. Tritabaugh, Rockville, and Richard M. Beard, Silver Spring, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 17, 1967, Ser. No. 676,678

Int. Cl. G01s 9/02

U.S. Cl. 343-5 R

9 Claims



A method and apparatus for improved detection of radar targets in a clutter environment are disclosed. Basically, a plurality or series of so-called video slicer circuits are selectively preset to discriminate against all input video signals except those within a specified intensity level band; i.e., whenever the received radar signal is within the band for which a particular slicer is set, this slicer provides a constant voltage output signal, whereas, when the radar video is outside the band, a zero output voltage results. Inasmuch as the radar returns from a target will remain within at least one intensity level band for measurably longer time interval than the surrounding clutter, improved target discrimination is accomplished by sensing the time interval during which the radar returns

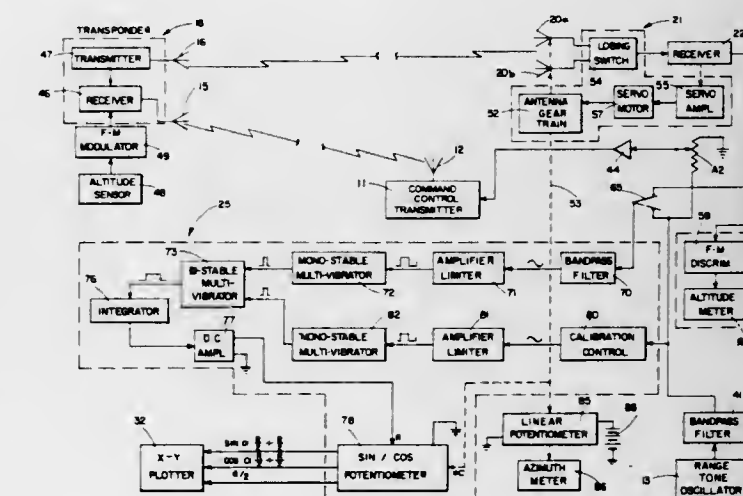
remains within each preset level band and in this manner all clutter outside the preset intensity level band is effectively eliminated. Various methods of processing the slicer output information are also disclosed. For example, in one method, a separate radar scope display is connected to the output of each video slicer; whereas, in two other proposed methods, the video slicer outputs provide automatic discrimination of targets on the basis of intensity fluctuations.

3,739,378

RADIO TRACKING SYSTEM
Richard A. Botzum, Chania, and Donald W. Peck, Newbury Park, both of Calif., assignors to Northrop Corporation, Los Angeles, Calif.
Filed June 14, 1971, Ser. No. 152,765
Int. Cl. G01s 7/04, 9/06

U.S. Cl. 343-6.5 R

9 Claims



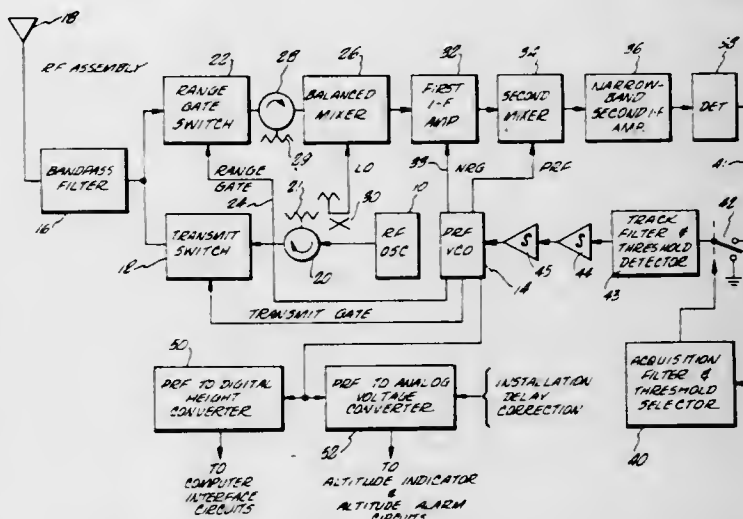
A tracking system suitable for tracking a target and that received by the receiver. The azimuth of the target is determined by means of a servo-control system which automatically locks the receiver antenna onto the target. Signals in accordance with target range and azimuth are processed in a position computer, the output of which is fed to an X-Y plotter which provides a continuous positional plot of the target.

3,739,379

COHERENT PULSE DOPPLER ALTIMETER
Donovan C. Davis, Pasadena, Calif., assignor to Hoffman Electronics Corporation, El Monte, Calif.
Filed Feb. 3, 1971, Ser. No. 112,295
Int. Cl. G01s 9/10, 9/16

U.S. Cl. 343-7.3

12 Claims



A coherent pulse doppler altimeter system employing a single antenna wherein the transmit signal is a generated series of pulses the pulse width and repetition frequency of which are varied keeping the average power high although

peak transmitter power can be low enough to permit utilization of all solid state components. The ground return pulse will have a doppler shift caused by the vertical component of the aircraft velocity and a doppler spread due to the horizontal velocity. The receiver is tuned to receive the first side band of the return signal. The receiver is range gated by a gate pulse which is varied as the pulse repetition frequency (PRF) is varied so that just the leading edge of a return pulse passes through the gate. Variations in PRF are controlled by the tracking of that leading edge by the range gate. The PRF is then counted to give altitude.

3,739,380

SLANT RANGE TRACKING TERRAIN AVOIDANCE SYSTEM

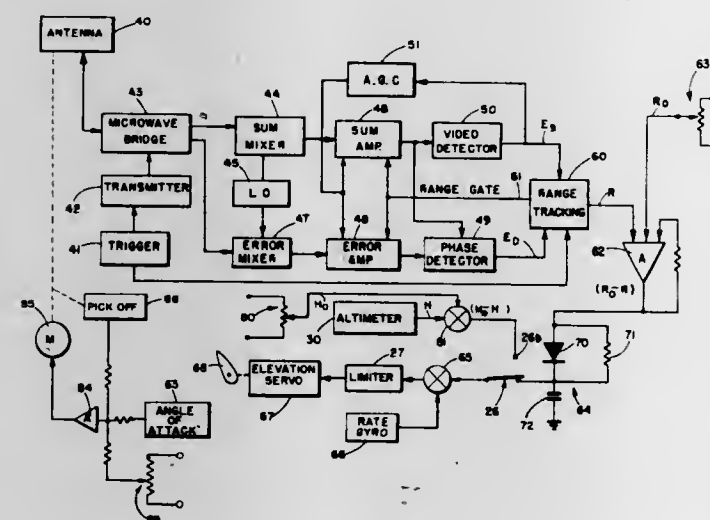
William S. Burdick, Yorba Linda, and Robert O. Case, Jr., La Habra, both of Calif., assignors to North American Aviation, Inc.

Filed Apr. 4, 1960, Ser. No. 19,959

Int. Cl. G01s 9/14, 9/22

U.S. Cl. 343-7 TA

13 Claims

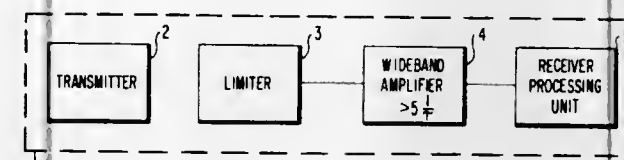


11. In combination with an aircraft, a slant range tracking monopulse radar on said aircraft for producing a range signal proportional to slant range to ground along a boresight axis extending forward of said aircraft at a relatively small depression angle, said radar including an antenna defining said boresight axis, means for sensing angle of attack of said aircraft, means responsive to said sensing means for stabilizing said antenna relative to the flight path of said aircraft, means for generating a reference signal proportional to nominal slant range to a point at a predetermined distance below said flight path, first comparator means responsive to said range and reference signals for producing a first control signal proportional to the difference therebetween, a vertically directed altimeter producing a measured elevation signal, means for generating a second reference signal proportional to a nominal elevation, second comparator means responsive to said elevation and second reference signals for producing a second control signal proportional to the difference therebetween, an aircraft elevation control device, switch means for alternatively coupling said first or second control signals to said control device, a peak rectifier providing a first signal path between said first comparator means and said switch means, a delay device providing a second signal path between said first comparator means and said switch means, said radar including means for generating a range gate, on-target means for detecting coincidence of said gate and a signal received by said radar, and means responsive to said on-target means for operating said switch means to couple said first control signal to said control device when said coincidence is detected and to couple said second control signal to said control device when said coincidence is absent.

3,739,381
PULSE RADAR AND ALTIMETER SYSTEM WITH
IMPROVED CLOSE-IN RESPONSE
William K. Saunders, 8505 Seven Lock Road, Bethesda, Md.
Filed Jan. 28, 1972, Ser. No. 221,716
Int. Cl. G01s 9/06

U.S. Cl. 343-13 R

11 Claims



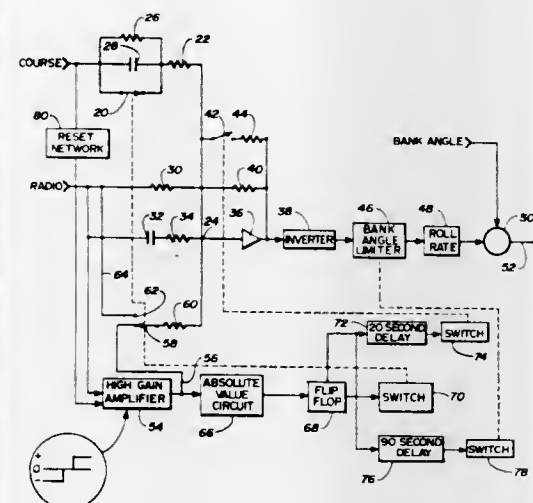
A pulse radar or pulse altimeter system which substantially eliminates the adverse effects of the portion of the transmitted pulses which leak directly into the receiver of the system without first being reflected from a surface, the location of which is to be detected. A wideband amplification and limiting means is provided at the front end of the receiver. The bandwidth of the amplification and limiting means is at least 5 times $1/\tau$ where τ is the duration of the pulses emitted by the transmitter to ensure that the leakage pulses are rapidly cleared out of the receiver circuitry so as not to obscure signals reflected from close-in surfaces. The amplification and limiting means linearly amplifies pulse signals reflected from desired surfaces but limits the much greater leakage pulse signal so that both leakage and signal pulses are presented to the receiver processing circuitry at the same order of magnitude.

3,739,382

AIRCRAFT LATERAL GUIDANCE SYSTEM
James R. Younklin, Mineral Wells, Tex., assignor to Mitchell Industries, Inc., Mineral Wells, Palo Pinto County, Tex.
Filed Sept. 8, 1970, Ser. No. 70,250
Int. Cl. G01s 1/16

U.S. Cl. 343-107

19 Claims



Course and directional radio signals are combined to produce an aircraft guidance signal. The guidance signal is amplified and applied to control the intercept of the aircraft with a directional radio beam. Circuitry is provided which is responsive to the radio signal for decreasing the aircraft angle of intercept to a preset minimum intercept angle as the aircraft approaches the radio beam. Upon intercept with the radio beam, the minimum intercept angle is reduced and the aircraft is directed along the radio beam. Also upon intercept with the radio beam, a cross wind correction is applied to the guidance signal. After a first preselected time interval from the intercept with the radio beam, the gain of the guidance signal is substantially reduced to provide a more comfortable flight. After a second predetermined time interval from intercept with the radio beam, the permissible bank angle of the

aircraft is limited. A novel nonlinear circuit is provided in a feedback circuit to nonlinearly control the roll motor of the aircraft.

3,739,383

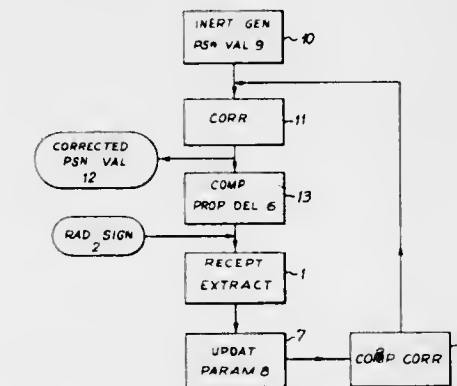
HYBRID NAVIGATION SYSTEM

Gilbert Perot, Versailles; Emile Labin, and Miguel Da Silveira, both of Paris, all of France, assignors to Pechiney-Progil, Lyon, France
Continuation-in-part of Ser. No. 402,966, Oct. 9, 1964, abandoned. This application June 5, 1969, Ser. No. 832,554
Claims priority, application France, Sept. 28, 1963, 63949002

Int. Cl. G01s 5/00

U.S. Cl. 343-112 R

7 Claims



A hybrid navigation system including an inertial navigation system on a vehicle to be located and a time base signal generator and a receiver on the vehicle. The receiver is coupled to the generator and adapted to receive incoming location signals transmitted from remote stations. Phase differences are determined between the location signals and reference signals generated by the generator. A computer computes on the basis of an error formula and from data received from the inertial navigation system, the reference signals and the phase differences, a correction of position issuing from the inertial system and a corrected position. The computer also computes, from the corrected position, values of the phases of the reference signals corresponding to those which would have been received if the corrected position were true. The time base means is responsive to said values and controls the receiver, computer and determination of phase differences. The computer computes from the phase differences and position values updated values of the parameters of the error formula.

3,739,384

SELF-BALANCING RECORDER

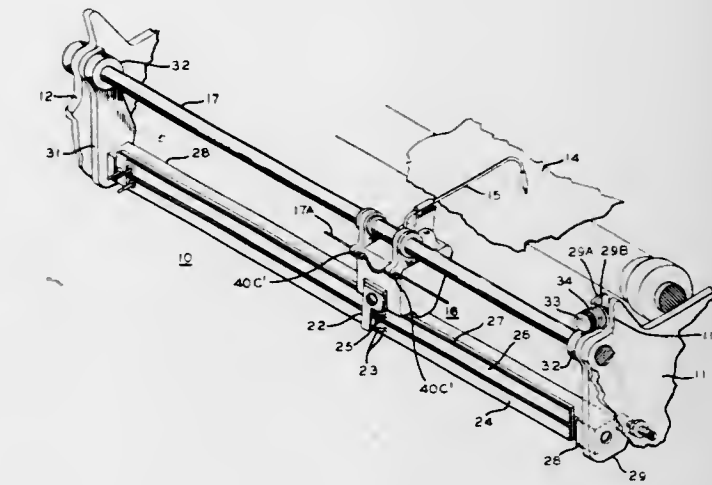
Samuel J. Harkins, Lansdale, Pa., assignor to Leeds & Northrup Company, Philadelphia, Pa.
Filed Mar. 20, 1972, Ser. No. 236,242
Int. Cl. G01d 15/00, 13/00

U.S. Cl. 346-139 C

21 Claims

A strip chart recorder of the self-balancing type characterized by a novel index mounting, pen assembly, and linear slidewire assembly which is movable about a guide shaft for the pen assembly. The pen assembly is comprised of a molded plastic body having a cavity forming an inkwell, integral mounting structure for releasably supporting and precisely positioning a pen in the well, and integral upstanding ears supporting bearings which cooperate with a guide shaft for the pen assembly. The molded plastic body additionally supports electrical contacts of spring material which engage the slidewire and trolley of the movable slidewire assembly and supply pressure for biasing the pen into engagement with the recorder chart. The slidewire contact and pen pressures are simultaneously adjusted by setting the position of the movable slidewire assembly. Means may also be provided for separate adjustment of the pen pressure. The pen assembly additionally

has a part cooperating with a portion of the slidewire assembly so that the pen may be lifted regardless of its position across the chart when the slidewire assembly is swung to a pen lift



position. The index is mounted on a separate loop of a pen carriage drive cable to avoid tipping the index when the pen is lifted.

3,739,385

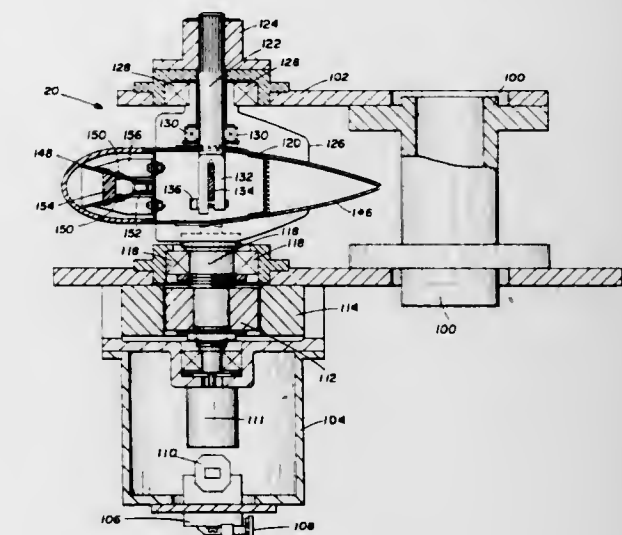
MECHANICALLY SWEEPED RADAR ANTENNA FOR USE WITH AN AIRCRAFT LANDING MONITOR SYSTEM
Bartow Bechtel, Richardson, and Max B. Green, Dallas, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed July 15, 1970, Ser. No. 54,990

Int. Cl. H01q 1/28, 3/06, 13/02

U.S. Cl. 343-705

18 Claims



A radar antenna for use in an aircraft landing monitor which includes an elongated antenna housing mounted on a vertical pivot for horizontal oscillation in the nose of an aircraft. An elongated horn reflector mounted along the housing supports a resonant edge-slotted waveguide array therein for transmitting and receiving radar signals with a radar beam pattern narrower in the azimuth than in the elevation plane. An elongated bar spring is mounted in the housing and is rigidly attached to the vertical pivot in order to tend to maintain the desired oscillation of the antenna housing. A motor oscillates the antenna housing about the vertical pivot to sweep the radar beam over a predetermined azimuth angle. Circuitry is provided to sense the position of the antenna housing and for maintaining the antenna sweep at the predetermined azimuth angle and rate.

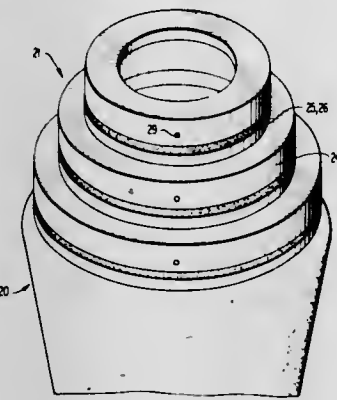
3,739,386

BASE MOUNTED RE-ENTRY VEHICLE ANTENNA
Howard S. Jones, Jr., Washington, D.C., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 1, 1972, Ser. No. 230,672
Int. Cl. H01q 1/28

U.S. Cl. 343-708

10 Claims



A space projectile such as a re-entry vehicle having an antenna comprising a plurality of concentric ring radiating elements at its base. Each radiating element is a plated dielectric loaded cavity having a circumferential radiating slot which extends around the greater part of the circumference of the element. The elements may be either rectangular or L-shaped in cross-section and may be excited out of phase with each other to produce a desired radiation pattern.

3,739,387

DUAL PURPOSE ANTENNA CONTROL

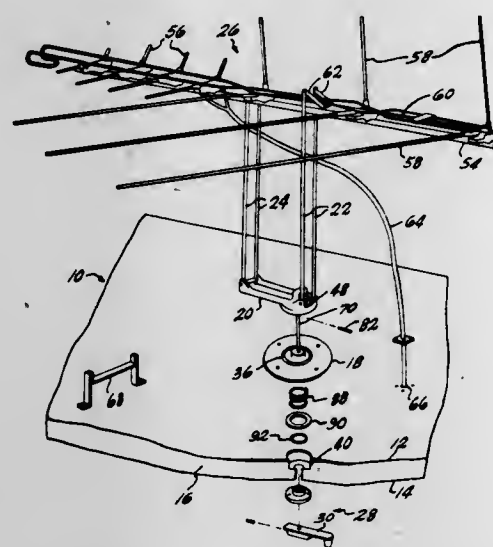
Jack C. Budrow, and Glenn A. Reed, both of Battle Creek, Mich., assignors to Barker Manufacturing Company, Inc., Battle Creek, Mich.

Continuation-in-part of Ser. No. 59,604, July 30, 1970, Pat. No. 3,665,477, which is a continuation-in-part of Ser. No. 789,834, Jan. 8, 1969, Pat. No. 3,587,104. This application July 13, 1971, Ser. No. 162,241

Int. Cl. H01q 1/32

U.S. Cl. 343-714

8 Claims



The invention pertains to an antenna, such as a television antenna, particularly suitable for use with recreational vehicles wherein the signal-receiving components may be elevated to a signal-receiving position, or retracted to a position adjacent the recreational vehicle roof for traveling. The signal-receiving components are mounted upon a linkage which pivots about horizontal axes, and a worm wheel is employed to pivot the linkages about their associated axes. A vertically disposed rotatable shaft mounted upon a rotatable base member includes a worm gear meshing with the linkage worm

wheel, and the shaft is rotatable from within the recreational vehicle interior. The shaft is additionally capable of axial movement whereby the shaft may be keyed to the base member wherein rotation of the shaft directly rotates the base member. A crank handle is mounted to the shaft for producing rotation thereof wherein rotation of the crank selectively raises and lowers the signal-receiving components or rotates the base member and signal-receiving components for directional purposes, the dual function being provided by a single crank handle.

3,739,388

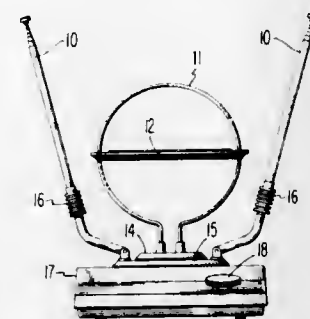
ANTENNA STRUCTURES

John David Callaghan, Cherry Hill, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 16, 1971, Ser. No. 171,868
Int. Cl. H01q 3/02

U.S. Cl. 343-726

8 Claims



There is disclosed an antenna structure utilizing a loop having an annular ring coupled thereto and lying in a substantially horizontal plane transverse to the plane of the loop. The ring has reflector and director elements mounted thereon, and on opposite sides of the ring to offer increased directivity to the structure. A pair of dipoles are also utilized in the antenna structure. The dipoles are mounted on a first rotatable base assembly and the loop is mounted on a second rotatable base assembly. These base assemblies are rotatable with respect to a fixed base member and are controlled in rotation by means of a knob to permit azimuth orientation of the antennas.

3,739,389

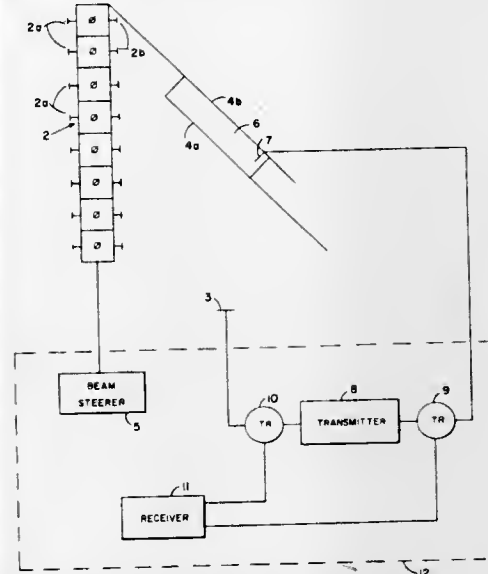
DUAL FUNCTION FEED SYSTEM FOR PHASED-ARRAY RADAR

David F. Bowman, Moorestown, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed June 2, 1972, Ser. No. 259,323
Int. Cl. H01q 3/26

U.S. Cl. 343-729

4 Claims



Both a fan and a pencil beam are derived from a single compact radar antenna. The pencil beam is derived from a first r-f

source feeding the whole array, and the fan beam is derived from a horn feeding a portion of the array. The source for the pencil beam is reflected from two parallel reflectors onto the array. The reflectors are inclined to the array and have sidewalls between them defining a single-tapered horn. This horn is fed from a second r-f source to feed a fan beam onto the array.

3,739,390

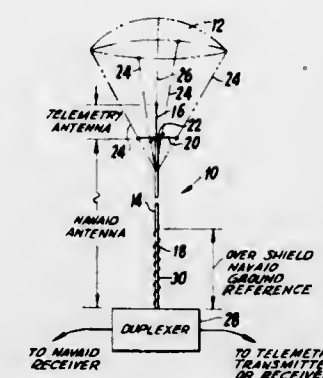
DUPLEXED ANTENNA FOR RETRANSMISSION DEVICES
Martin C. Poppe, Jr., Stoney Brook, and Leon M. Masolan, West Sayville, both of N.Y., assignors to Beukers Laboratories, Inc., Hauppauge, N.Y.

Filed Dec. 14, 1970, Ser. No. 97,674

Int. Cl. H01q 1/00

U.S. Cl. 343-729

2 Claims



A dual antenna system formed on a common structure includes two antennas operating within different frequency ranges. In one embodiment of the invention the central conductor of a coaxial line defines the receiving element of one antenna and the shield of the coaxial line is employed as the receiving element of the second antenna. A ground plane for the first antenna is coupled to the coaxial shield. In a second embodiment of the invention the central conductor of the coaxial line is electrically divided to serve as the receiving element of both antennas, and the shield of the coaxial line forms a part of the ground element of one of the antennas. Duplexing circuitry connected to the antenna separates the signals received at the two antennas and applied the separated signals to the appropriate receiver or transmitter.

3,739,391

METALLIZED CHANNEL GUIDE ANTENNA

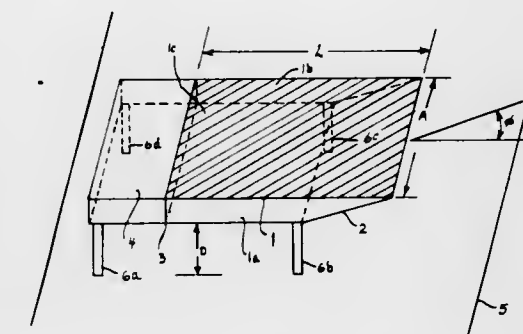
William G. Mavroides, Ipswich, and Robert J. Mailloux, Wayland, both of Mass., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed June 12, 1972, Ser. No. 261,765

Int. Cl. H01q 13/00

U.S. Cl. 343-785

5 Claims



A metallized channel guide antenna is utilized for providing coverage in a sector near the horizon. The antenna has a dielectric slab with metallized sides and bottom forming a waveguide. The waveguide is mounted a fixed distance above

a cylindrical ground plane and in combination therewith results in coverage at the horizon.

3,739,392

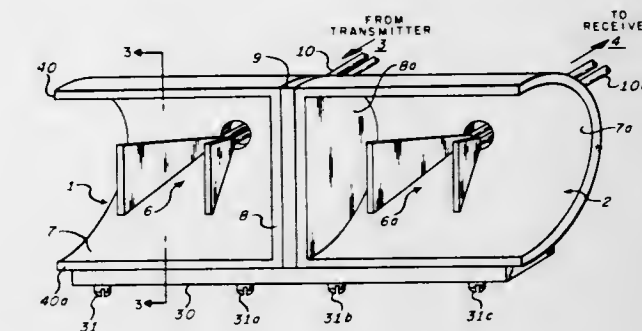
BASE-BAND RADIATION AND RECEPTION SYSTEM
Gerald F. Ross, Lexington, and Kenneth W. Robbins, Wilmington, both of Mass., assignors to Sperry Rand Corporation, New York, N.Y.

Filed July 29, 1971, Ser. No. 167,400

Int. Cl. H01q 19/12

U.S. Cl. 343-840

10 Claims



A base-band transmitter and receiver antenna system for operation in subnanosecond pulse radio systems of the type detecting the presence or range of near-by reflecting objects utilizes directive, dispersionless, broad band traveling wave transmission line radiator and receiver antenna elements arranged cooperatively to limit the effect of base-band energy directly coupled from the transmitter to the receiver.

3,739,393

APPARATUS AND METHOD FOR GENERATION OF DROPS USING BENDING WAVES

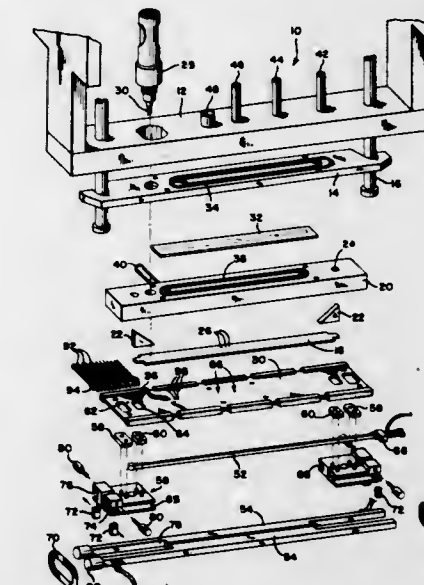
Richard H. Lyon, Belmont, Mass., and John A. Robertson, Chillicothe, Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed Oct. 14, 1971, Ser. No. 189,297

Int. Cl. G01d 15/18

U.S. Cl. 346-1

12 Claims



Apparatus and method for generating drops in a continuous falling curtain by controlled stimulation of a set of fluid streams. The streams are formed by forcing a working fluid under pressure through a set of orifices in an orifice plate, and are stimulated to produce drops by propagating a series of bending waves down the length of the plate. It is shown that this method of stimulation provides regulation of the phase and amplitude of applied stimulation energy and accurately controls the filament length of all streams. There is also disclosed an improved jet drop recording apparatus wherein

graphic printing quality is greatly improved by travelling wave stimulation of a set of digitally switched jets.

3,739,394

METHOD AND APPARATUS FOR STORING INFORMATION IN A MAGNETO-OPTICAL MEMORY

Manfred Becker, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

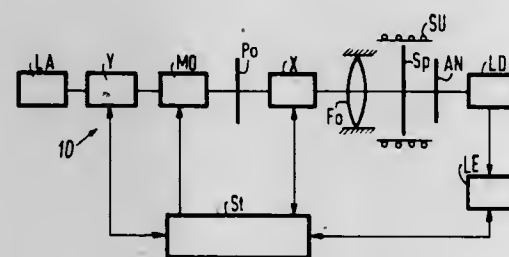
Filed Aug. 26, 1971, Ser. No. 175,101

Claims priority, application Germany, Sept. 3, 1970, P 20 43 766.5

Int. Cl. G11b 7/02

U.S. Cl. 346—74 MT

8 Claims



The present invention is directed to a method and apparatus for recording information in a magneto-optical memory and for retrieving the information therefrom. The method comprises preparing a storage medium of the memory by applying a magnetic field of one polarity to the storage medium, heating the storage medium to a temperature above the Curie temperature to enable the induced magnetism therein to be in a direction according to the polarity of the magnetic field and maintaining the magnetic field as the storage medium cools below the Curie temperature. To record information on the medium, discrete portions of the medium have the direction of magnetism switched which is accomplished by applying a second magnetic field of a different polarity and selectively heating the discrete portions above the Curie temperature to enable switching of the direction of magnetism in the heated portions of the storage medium. To retrieve information from the memory, the medium is scanned with a linearly polarized light beam whose polarization is changed by the switched direction of magnetism which changes in polarization are converted by an analyzer to an intensity modulated light beam detected by a light detecting device which converts the signal into electrical signals. To prepare the storage medium for recording and to record, a laser is utilized to heat the medium above the Curie temperature and during recording the beam is intensity modulated in accordance to the information to be recorded and scanned on the medium in a line by line manner.

3,739,395

LIQUID DROP PRINTING OR COATING SYSTEM

Kenneth O. King, Rolling Hills, Calif., assignor to The Mead Corporation, Dayton, Ohio

Filed Oct. 12, 1971, Ser. No. 188,232

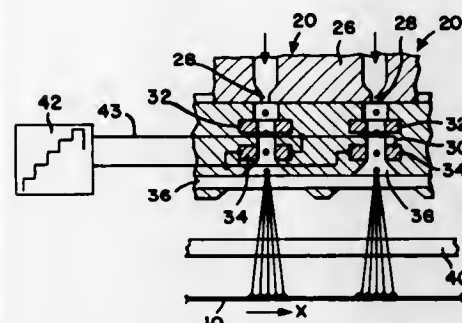
Int. Cl. G01d 15/18

U.S. Cl. 346—75

1 Claim

A plurality of liquid drop generators produce adjacent streams of discrete drops toward a moving web. The drops are binarily and selectively charged by charging electrodes located along the path of each drop. Uncharged drops follow their initial trajectory directly into catchers instead of depositing on the web. Charged drops are deflected by a first deflection field which is cyclically varied in discrete steps in a lateral

direction, transversely of the web, to several scanned trajectories within a lateral plane, and are then deflected again by a second deflection field in a direction along the path of web travel, thereby causing them to miss the catchers and deposit on the moving web. In one embodiment a scanning control correlates the lateral deflection signals, drop generation, and the movement of the web to control the lateral and longitudi-



dinal location of individual deposited drops to form an image or pattern on the web. In another embodiment the web moves intermittently, and during the stationary periods the second deflection field is cyclically varied in discrete steps, correlated to the stepping of the first field, whereby charged drops from each generator can reach appropriate locations within a sub-matrix of the complete image area.

ERRATUM

For Class 346—139 see:
Patent No. 3,739,384

3,739,396

FLUID INJECTION RECORDING SYSTEM UTILIZING ALTERNATING BIAS FIELD

Kosuke Harada, Fukuoka, and Shinjiro Takeuchi, Toda, both of Japan, assignors to Mishima Kusan Co., Ltd., Yawata-ku, Kitakyushu, Fukuoka Prefecture, Japan

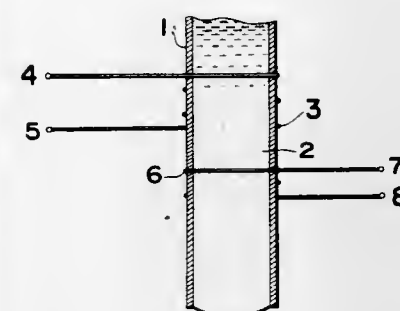
Filed Nov. 15, 1971, Ser. No. 198,517

Claims priority, application Japan, Dec. 14, 1970, 45/11459

Int. Cl. G01d 15/18

U.S. Cl. 346—140

1 Claim



A fluid injection recording system to inject fluid such as magnetic ink from nozzle means on a paper to record a series of dots. Means such as alternating magnetic bias field is applied to the fluid to oscillate the fluid. An input signal is applied to inject the fluid from the nozzle.

DESIGNS

JUNE 12, 1973

227,196

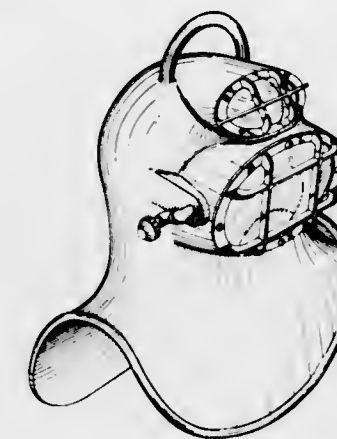
DIVING HELMET

Charles E. Griswold, Box 976, Seattle, Wash. 98111
Filed Dec. 23, 1971, Ser. No. 211,820

Term of patent 14 years

Int. Cl. D2—03

U.S. Cl. D2—232



227,197

BOOT

Tatsuo Fukuoka, 3, 3-ban, 2-chome, Shin-Minami-Fukushima, Tokushima, Japan

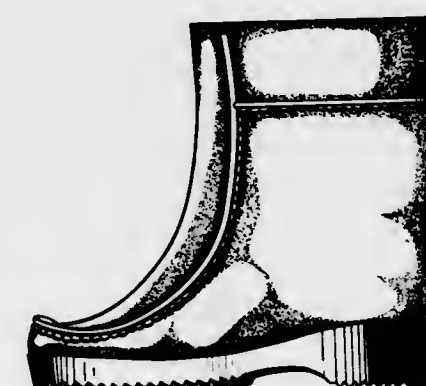
Filed Nov. 4, 1971, Ser. No. 195,897

Claims priority, application Japan Oct. 1, 1971

Term of patent 14 years

Int. Cl. D2—04

U.S. Cl. D2—274



227,198

SANDAL

Tatsuo Fukuoka, 3, 3-ban, 2-chome, Shin-Minami-Fukushima, Tokushima, Japan

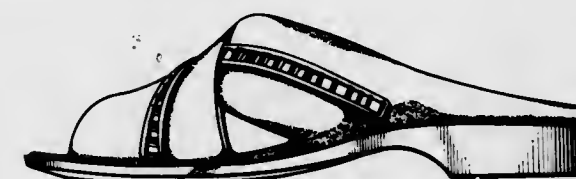
Filed Jan. 31, 1972, Ser. No. 222,462

Claims priority, application Japan Dec. 7, 1971

Term of patent 14 years

Int. Cl. D2—04

U. S. Cl. D2—283



227,199

ANGLE-CUT BROOM

Halbert E. Payne, Riverside, Conn., assignor to The Drackett Company, Cincinnati, Ohio

Filed Dec. 8, 1970, Ser. No. 26,360

Term of patent 14 years

Int. Cl. D4—01

U.S. Cl. D4—3



227,200

STORAGE HOUSING FOR AN ELECTRIC TOOTHBRUSH

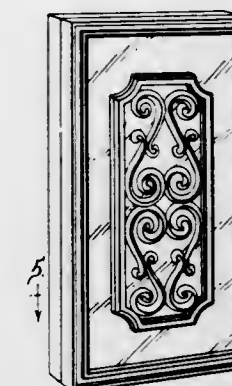
Donald A. De Varco, Cincinnati, Ohio, and Douglas G. Long, Lombard, Ill., assignor to Sunbeam Corporation, Chicago, Ill.

Filed Jan. 3, 1972, Ser. No. 215,279

Term of patent 14 years

Int. Cl. D3—02

U.S. Cl. D4—16



**227,201
CHAIR**

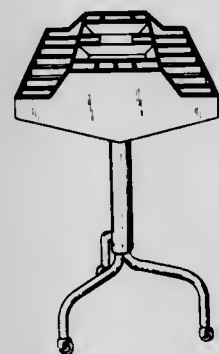
Frederick Scott, London, England, assignor to Hairlok Limited, formerly The Hairlok Company, Limited, Bedford, Bedfordshire, England
Filed May 14, 1971, Ser. No. 143,745
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D6—20



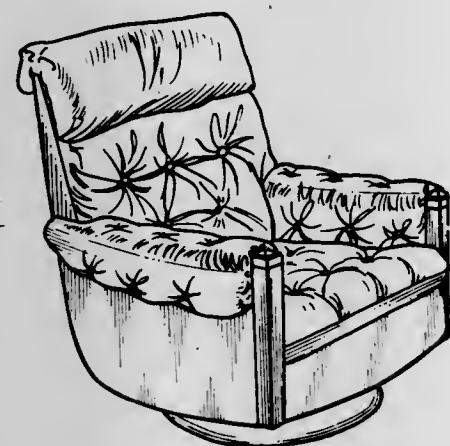
**227,202
HAIR STYLIST'S ACCESSORY TABLE**
Frederic V. Winkler, 14713 Waterway Drive, Rockville, Md. 20853
Filed Sept. 21, 1971, Ser. No. 182,574
Term of patent 14 years
Int. Cl. D6—03

U.S. Cl. D6—25



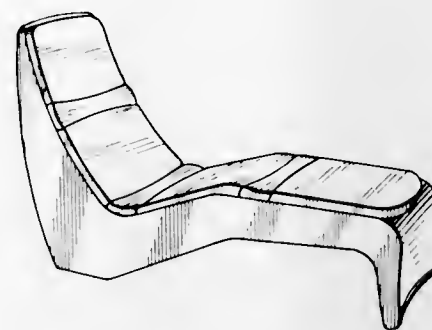
**227,203
CHAIR**
Thomas Winrow, 530 S. Sleight, Naperville, Ill. 60540
Filed Apr. 22, 1971, Ser. No. 136,649
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D6—26

**227,204
CHAIR**

Martin Cunningham Grierson, London, England, assignor to Duncan Walford & Company Ltd., London, England
Filed Dec. 15, 1970, Ser. No. 26,510
Claims priority, application Great Britain July 15, 1970
Int. Cl. D6—02

U.S. Cl. D6—37



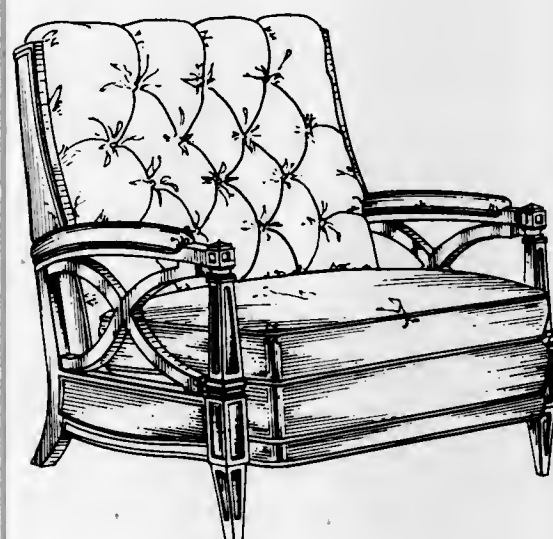
**227,205
CHAIR OR THE LIKE**
Ernst Moeckl, Wangener Hohe-Durrbach 1, 7 Stuttgart-Wangen, Germany
Filed Feb. 1, 1971, Ser. No. 111,781
Claims priority, application Germany Aug. 1, 1970
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D6—66



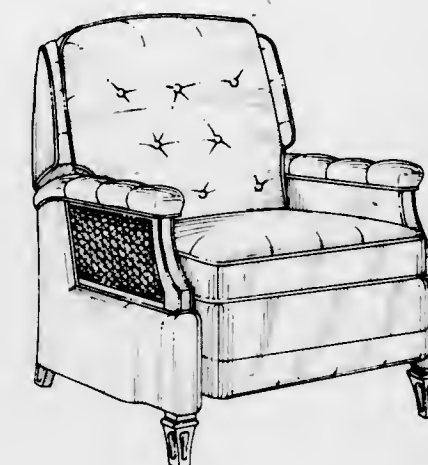
**227,206
CHAIR**
Morris F. Fisher, Carmel, Ind., assignor to Mohasco Industries, Inc., Amsterdam, N.Y.
Filed Apr. 27, 1971, Ser. No. 138,018
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D6—68

**227,207
CHAIR**

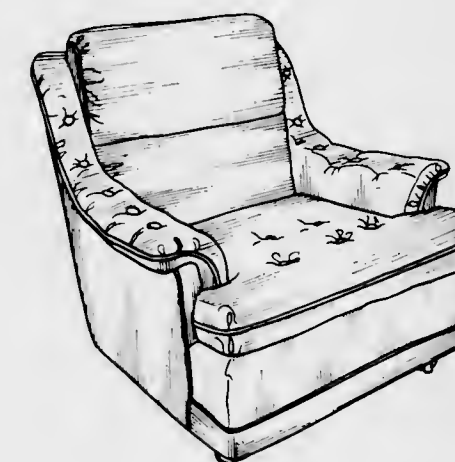
Don Ray Gill, Hammond, Ind., assignor to Mohasco Industries, Inc., Amsterdam, N.Y.
Filed Apr. 22, 1971, Ser. No. 136,636
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D6—71



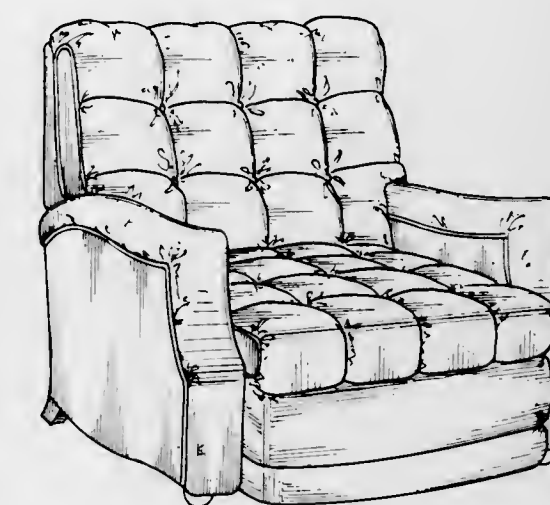
**227,208
CHAIR**
Thomas Winrow, 530 S. Sleight, Naperville, Ill. 60540
Filed Apr. 22, 1971, Ser. No. 136,656
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D6—71

**227,209
CHAIR**

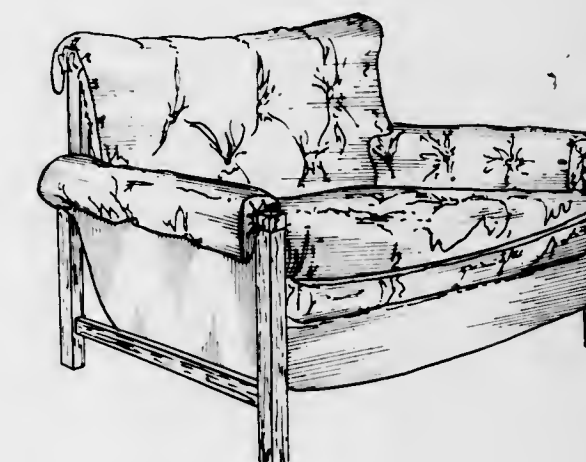
Morris F. Fisher, Carmel, Ind., assignor to Mohasco Industries, Inc., Amsterdam, N.Y.
Filed Apr. 27, 1971, Ser. No. 138,020
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D6—71



**227,210
CHAIR**
Thomas Winrow, 530 S. Sleight, Naperville, Ill. 60540
Filed Apr. 22, 1971, Ser. No. 136,653
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D6—73



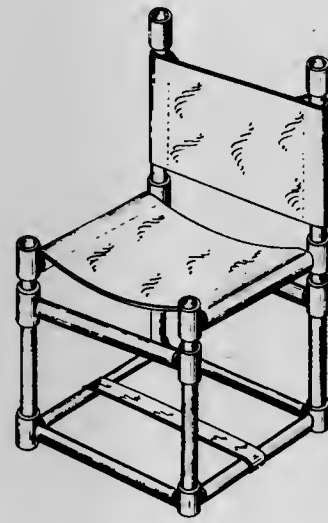
227,211
CHAIR

Jack Klotz and Louise Klotz, Los Angeles, Calif., assignors to Environmental Concepts Products Co., Inc., Beverly Hills, Calif.

Filed Nov. 24, 1971, Ser. No. 202,055
Term of patent 14 years

Int. Cl. D6—01

U.S. Cl. D6—75



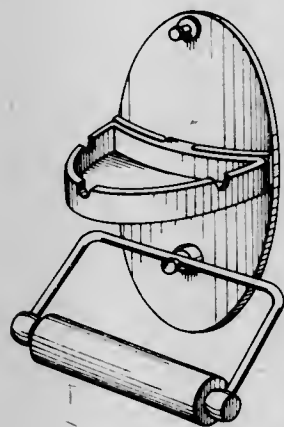
227,212
COMBINED ASHTRAY AND TOILET PAPER HOLDER

Michael M. Graham, 2635 23rd St., Santa Monica, Calif. 90405

Filed July 26, 1971, Ser. No. 166,334
Term of patent 14 years

Int. Cl. D6—06

U.S. Cl. D6—91



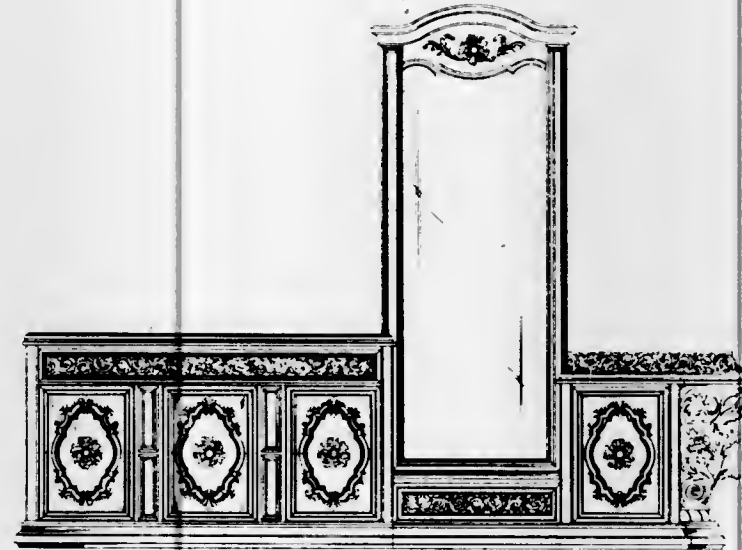
227,213
COMBINATION DRESSER, MIRROR, AND COMMODE OR THE LIKE

Joseph E. Adkinson, 3807 Leland St., Chevy Chase, Md. 20015

Filed Feb. 4, 1972, Ser. No. 223,823
Term of patent 14 years

Int. Cl. D6—04

U.S. Cl. D6—154



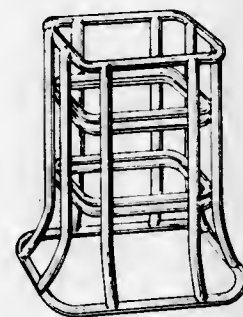
227,214
PEDESTAL FOR A TABLE OR THE LIKE

Tadao E. Inouye, 5724 Falls Grove St., Los Angeles, Calif. 90016

Filed June 3, 1971, Ser. No. 149,880
Term of patent 14 years

Int. Cl. D6—06

U.S. Cl. D6—194



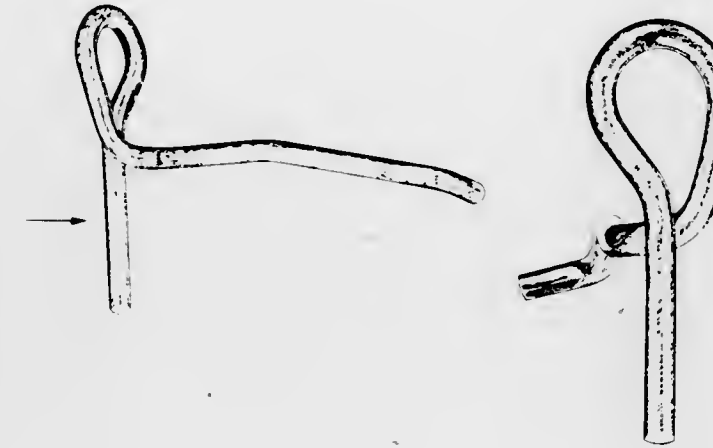
227,215
WIRE STRETCHER

Jean Marie Thevenin, 08-Thilay, Ardennes, France
Filed Feb. 23, 1971, Ser. No. 118,203

Term of patent 14 years

Int. Cl. D8—05

U.S. Cl. D8—44



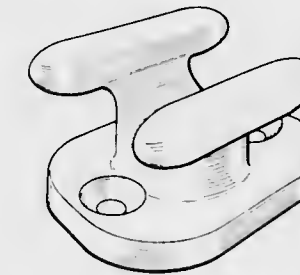
227,216
DOUBLE CLEAT

Albert E. Miller, 413 E. Locust St., Lodi, Calif. 95240
Filed Aug. 13, 1971, Ser. No. 171,784

Term of patent 14 years

Int. Cl. D8—08

U.S. Cl. D8—232



227,217
CLEAT

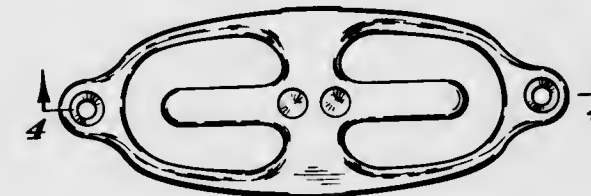
Charles Otto Pick, 10060 SW. Durham Road, Tigard, Oreg. 97223

Filed Nov. 5, 1971, Ser. No. 196,252

Term of patent 14 years

Int. Cl. D8—08

U.S. Cl. D8—232



227,218
POLYGONAL BRACKET FOR ROTATABLE MOUNTING ON A POST AND FOR SUPPORTING A PLURALITY OF RADIAL ARMS

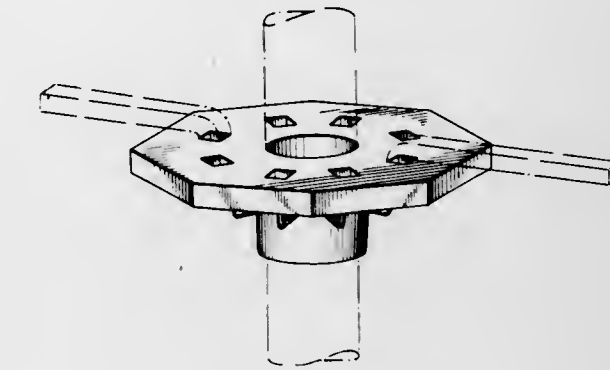
John Rastocny, Cliffside Park, N.J., assignor to Diro Industries Corp., Union City, N.J.

Filed Aug. 31, 1971, Ser. No. 176,776

Term of patent 14 years

Int. Cl. D8—08

U.S. Cl. D8—234



227,219
BRACKET FOR ROTATABLE MOUNTING ON A POST AND FOR SUPPORTING A PLURALITY OF RADIAL ARMS

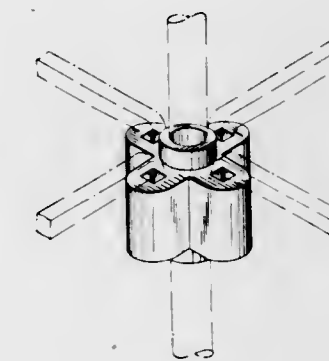
John Rastocny, Cliffside Park, N.J., assignor to Diro Industries Corp., Union City, N.J.

Filed Aug. 31, 1971, Ser. No. 176,775

Term of patent 14 years

Int. Cl. D8—08

U.S. Cl. D8—234



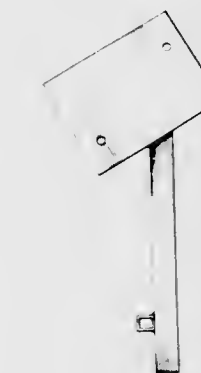
227,220
CONCRETE ROOF SUPPORT

Marvin L. Rich, 1018 Opal, Boise, Idaho 83705
Filed Apr. 9, 1971, Ser. No. 132,923

Term of patent 14 years

Int. Cl. D8—08

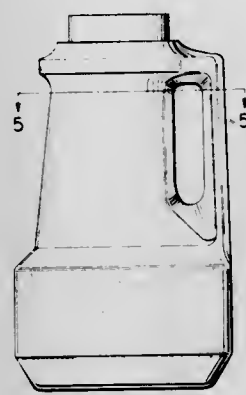
U.S. Cl. D8—235



**227,221
JUG**

Gordon A. Strand, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Jan. 19, 1972, Ser. No. 219,206
Term of patent 7 years
Int. Cl. D9—01

U.S. Cl. D9—40



**227,222
BOTTLE**

James E. Plummer, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Dec. 30, 1971, Ser. No. 214,527
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—44



**227,223
BOTTLE**

Edward J. Kretz, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Mar. 20, 1972, Ser. No. 236,572
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—115



**227,224
BOTTLE**

Peter L. Schweizer, Liberty Center, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Jan. 19, 1972, Ser. No. 219,210
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—137



**227,225
BOTTLE**

Peter L. Schweizer, Liberty Center, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
Filed Jan. 19, 1972, Ser. No. 219,207
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—149

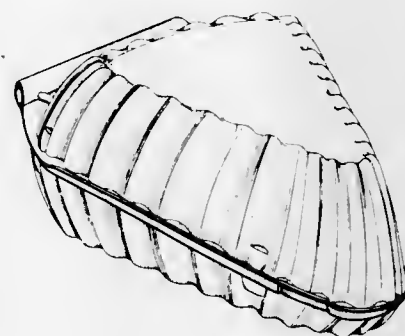


227,226

PACKAGING CONTAINER

Stanford W. Bird, Salt Lake City, Utah, assignor to Plastronics Corporation, Salt Lake City, Utah
Filed Sept. 13, 1971, Ser. No. 180,238
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—182

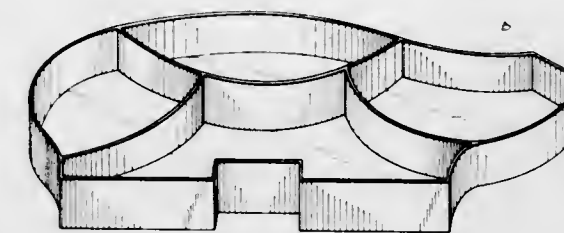


227,227

FOOD PACKAGING TRAY

Frances G. Stamper, Houston, Tex., assignor to General Foods Corporation, White Plains, N.Y.
Filed Jan. 10, 1972, Ser. No. 216,887
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—185

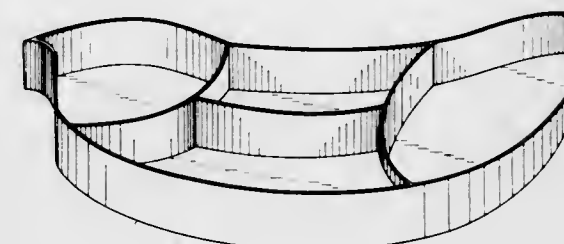


227,228

FOOD PACKAGING TRAY

Frances G. Stamper, Houston, Tex., assignor to General Foods Corporation, White Plains, N.Y.
Filed Jan. 10, 1972, Ser. No. 216,901
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—185

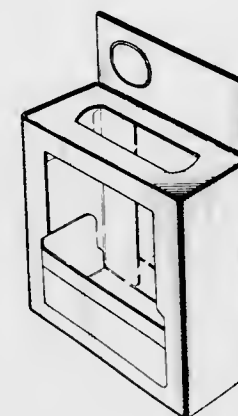


227,229

DISPLAY CARTON OR THE LIKE

Takaji Funahashi, 1, 2-chome, Kitatakascho-machi, Nishi-ku, Nagoya-shi, Aichi-ken, Japan
Filed July 23, 1971, Ser. No. 165,867
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—191

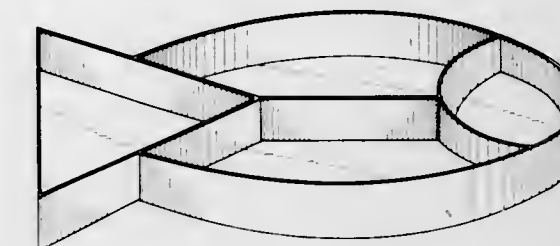


227,230

FOOD PACKAGING TRAY

Frances G. Stamper, Houston, Tex., assignor to General Foods Corporation, White Plains, N.Y.
Filed Jan. 10, 1972, Ser. No. 216,894
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—185

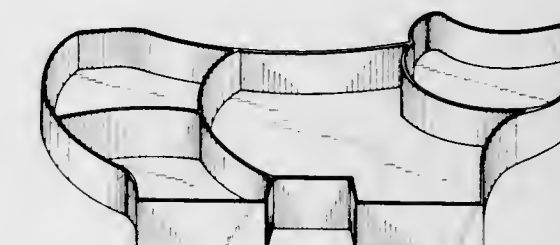


227,231

FOOD PACKAGING TRAY

Frances G. Stamper, Houston, Tex., assignor to General Foods Corporation, White Plains, N.Y.
Filed Jan. 10, 1972, Ser. No. 216,895
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—185



227,232

RAZOR CASE OR SIMILAR ARTICLE

Martin Glaberson, Ardsley, N.Y., and Robert J. Gould, Fairfield, Conn., assignors to Warner-Lambert Company, Morris Plains, N.J.
Filed Apr. 16, 1971, Ser. No. 134,794
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—186



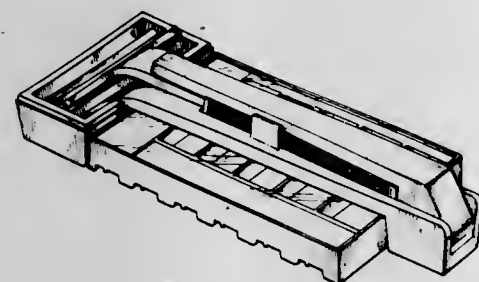
227,233
FLOWER PACKAGE
 Victor Manuel, 491 NW. 44th Ave.,
 Fort Lauderdale, Fla. 33313
 Filed July 22, 1971, Ser. No. 165,429
 Term of patent 14 years
 Int. Cl. D9—03

U.S. Cl. D9—193

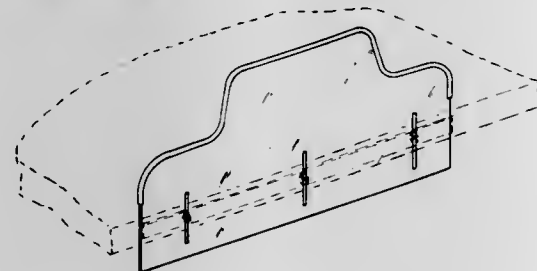


227,234
COMBINED RAZOR, RAZOR BLADE CARTRIDGE
DISPENSER AND HOLDER THEREFOR
 Martin Glaberson, Ardsley, N.Y., assignor to Warner-
 Lambert Company, Morris Plains, N.J.
 Filed Oct. 22, 1971, Ser. No. 191,952
 Term of patent 14 years
 Int. Cl. D9—03

U.S. Cl. D9—193

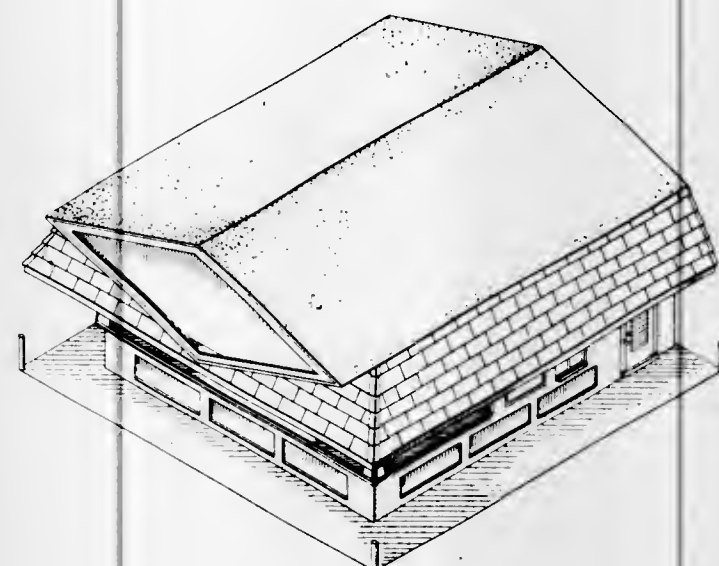


227,235
MEAT BENCH GUARD
 Mervyn Howard Miller, Mississauga, Ontario, Canada,
 assignor to Steinberg's Limited-Steinberg Limitee,
 Montreal, Quebec, Canada
 Filed Jan. 28, 1971, Ser. No. 110,796
 Claims priority, application Canada Sept. 16, 1970
 Term of patent 14 years
 Int. Cl. D7—04, 99; D15—08
 U.S. Cl. D11—2 A



227,236
BUILDING STRUCTURE
 William Selbert, Haddonfield, N.J., assignor to The
 Frostie Company, Camden, N.J.
 Filed Mar. 20, 1972, Ser. No. 236,574
 Term of patent 14 years
 Int. Cl. D25—03

U.S. Cl. D13—1 B



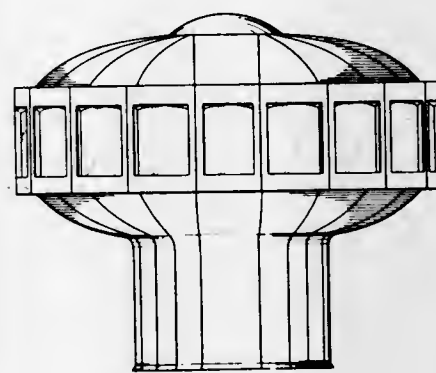
227,237
BUILDING
 Robert F. Seyfang, 909 Phillips, Maumee, Ohio 43537
 Filed Apr. 21, 1972, Ser. No. 246,502
 Term of patent 14 years
 Int. Cl. D25—03

U.S. Cl. D13—1 B



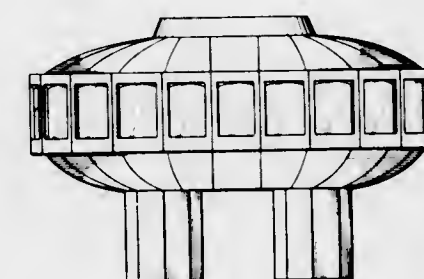
227,238
PEDESTAL BUILDING STRUCTURE
 Alton D. Wheeler, 3940 Fox Meadow,
 Pasadena, Tex. 77502
 Filed May 18, 1972, Ser. No. 254,846
 Term of patent 14 years
 Int. Cl. D25—03

U.S. Cl. D13—1 E



227,239
DOUBLE PEDESTAL BUILDING STRUCTURE
 Alton D. Wheeler, 3940 Fox Meadow,
 Pasadena, Tex. 77502
 Filed May 18, 1972, Ser. No. 254,847
 Term of patent 14 years
 Int. Cl. D25—03

U.S. Cl. D13—1 E



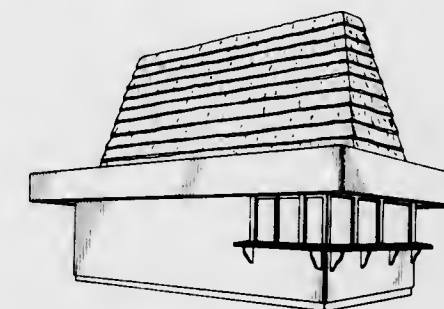
227,240
BUILDING
 John H. Tindall, Laguna Hills, Calif., assignor to
 Diamond Donut, Inc., West Covina, Calif.
 Filed Feb. 14, 1972, Ser. No. 226,361
 Term of patent 14 years
 Int. Cl. D25—03

U.S. Cl. D13—1 B



227,241
BUILDING
 Robert C. Lane, Houston, Tex., assignor to Lane
 Equipment Company, Houston, Tex.
 Filed May 22, 1972, Ser. No. 255,929
 Term of patent 14 years
 Int. Cl. D25—03

U.S. Cl. D13—1 B

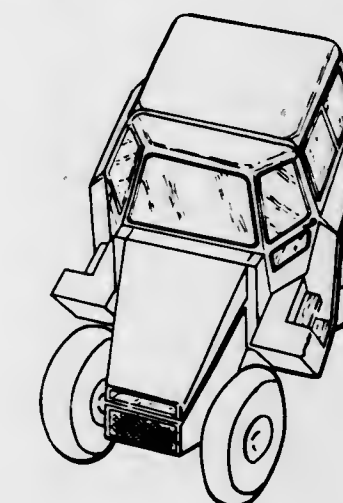


227,242
RECREATION VEHICLE
 Dale M. Hanson, Anaheim, Calif., assignor of a fractional
 part interest to Jim Hanson's Auto Reconstruction,
 Inc., Long Beach, Calif.
 Filed Feb. 26, 1971, Ser. No. 119,447
 Term of patent 14 years
 Int. Cl. D12—08

U.S. Cl. D14—3 J



227,243
TRACTOR
 Samuel M. Highberger, Birmingham, Mich., assignor to
 Massey-Ferguson Inc., Detroit, Mich.
 Filed Apr. 26, 1971, Ser. No. 137,346
 Claims priority, application Great Britain Oct. 28, 1970
 Term of patent 14 years
 Int. Cl. D12—08
 U.S. Cl. D14—3 A



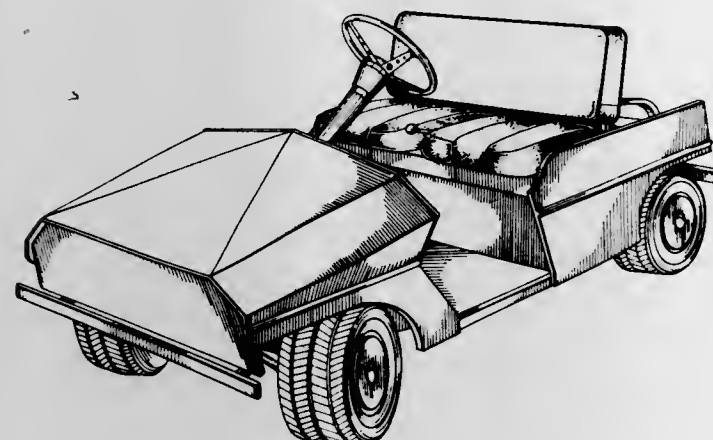
227,244

UTILITY VEHICLE

Charles I. Keene, Fontana, Calif., assignor to Herman P. Smith, Holtville, Calif.
Filed Oct. 22, 1971, Ser. No. 191,963

Term of patent 14 years
Int. Cl. D12—08

U.S. Cl. D14—3 G



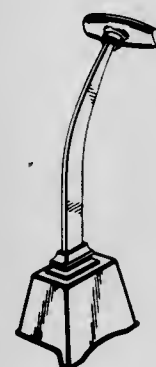
227,245

GEAR SHIFTER

Stanley C. Hess, Temple City, Calif., assignor to Superior Industries, Van Nuys, Calif.
Filed Apr. 26, 1971, Ser. No. 137,728

Term of patent 14 years
Int. Cl. D12—16

U.S. Cl. D14—6 V



227,246

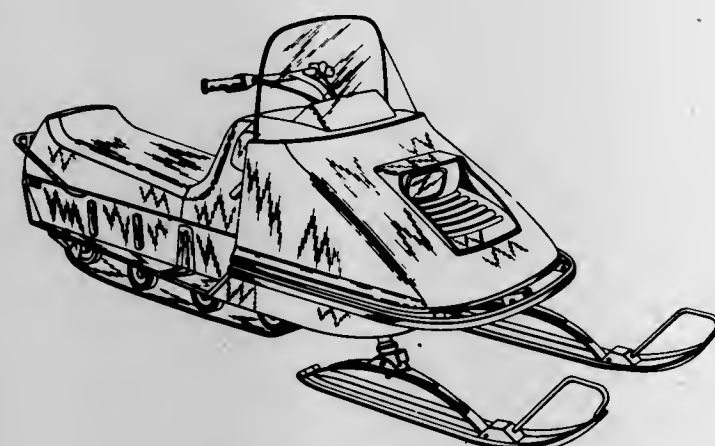
SNOWMOBILE

William F. H. Purcell, 1001 Park Ave., New York, N.Y. 10028; James M. Conner, 14 Leatherstocking Lane, Mamaroneck, N.Y. 10543; and Charles W. Pelly, 51 Pilgrim Road, Scarsdale, N.Y. 10585

Filed Oct. 20, 1971, Ser. No. 191,140
Term of patent 14 years

Int. Cl. D12—14

U.S. Cl. D14—24



227,247

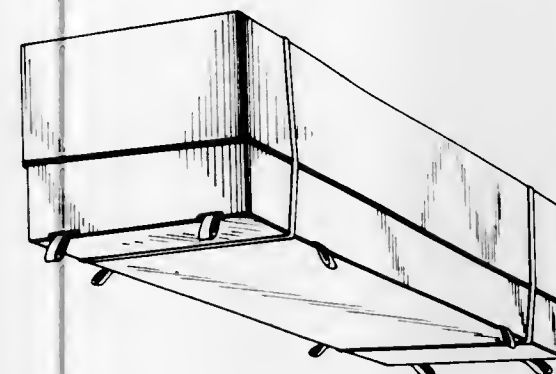
DISPOSABLE AIR TRAY RECEPTACLE FOR ENCLOSING A CASKET FOR PROTECTION DURING AIR SHIPMENT

Clyde A. Dittbenner, Ormond Beach, Fla., assignor to William T. Moore, Jr., and Betty J. Wood, both of Ormond Beach, and Edwin D. Davis, Daytona Beach, Fla., fractional part interest to each

Filed May 21, 1971, Ser. No. 145,989
Term of patent 14 years

Int. Cl. D31

U.S. Cl. D19—1



227,248

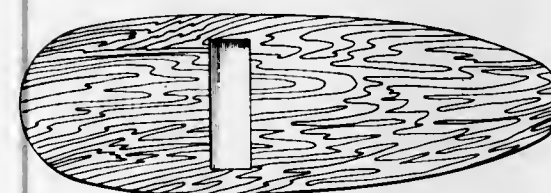
RECOIL PAD FOR FIREARMS

Francesco Cervellati, Bologna, Italy, assignor to Kassnar Imports, Harrisburg, Pa.
Filed May 10, 1971, Ser. No. 142,109

Term of patent 14 years

U.S. Cl. D22—9

Int. Cl. D22—99



227,249

COMBINATION FISH LINE STABILIZER AND SINKER

Ewell J. Harris, Sunset Mobile Homes, Rte. 3, Box 135A, Lot 13, Adrian, Mich. 49221
Continuation-in-part of abandoned design application Ser. No. 23,357, June 8, 1970. This application May 3, 1971, Ser. No. 140,008

Term of patent 14 years
Int. Cl. D22—05

U.S. Cl. D22—27



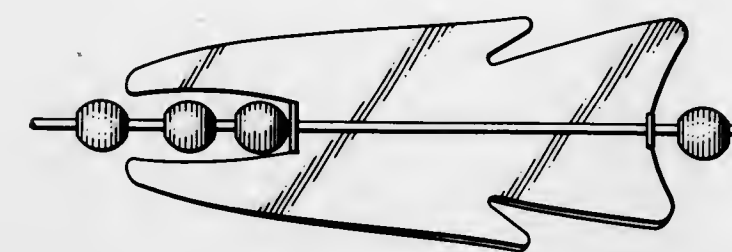
227,250

FISH LURE

Ewell J. Harris, Sunset Mobile Homes, Rte. 3, Box 135A, Lot 13, Adrian, Mich. 49221
Filed Sept. 2, 1971, Ser. No. 177,523

Term of patent 14 years
Int. Cl. D22—05

U.S. Cl. D22—29



227,251

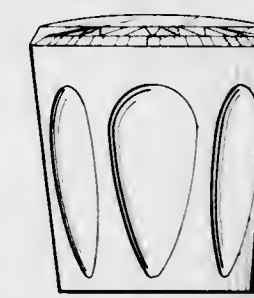
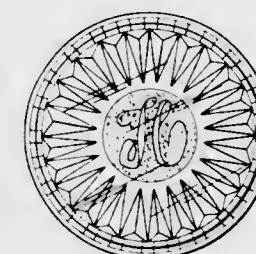
FAUCET HANDLE

Mark B. Botefur, Fullerton, Stephen J. Kelsey, Granada Hills, and Harold J. Valley, Rolling Hills, Calif., assignors to Martin Marietta Aluminum Inc.
Filed Aug. 27, 1971, Ser. No. 175,802

Term of patent 14 years

Int. Cl. D23—01

U.S. Cl. D23—28



227,254

CORROSION PROOF TERMINAL FOR ALUMINUM WIRE CONDUCTOR

Ronald Clarence Hoffman, 414 Elizabeth St., Williamstown, Pa. 17098
Filed Nov. 17, 1970, Ser. No. 26,738

Term of patent 14 years

Int. Cl. D13—03

U.S. Cl. D26—1 A



227,252

PORTABLE AIR PURIFIER

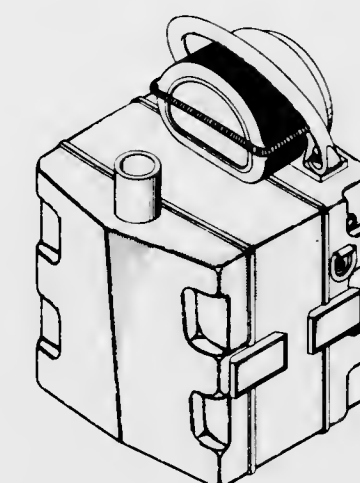
Edward R. Bush, North Hollywood, Calif., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 23, 1972, Ser. No. 237,606

Term of patent 14 years

Int. Cl. D23—09

U.S. Cl. D23—149



227,255

BULLET PLUG CONNECTOR

Ian Bruce Page, Hemel Hempstead, and Alan William Ronald Podmore, St. Albans, England, assignors to AMP Incorporated, Harrisburg, Pa.

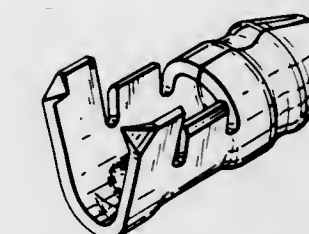
Filed Jan. 11, 1971, Ser. No. 105,773

Claims priority, application Great Britain July 27, 1970

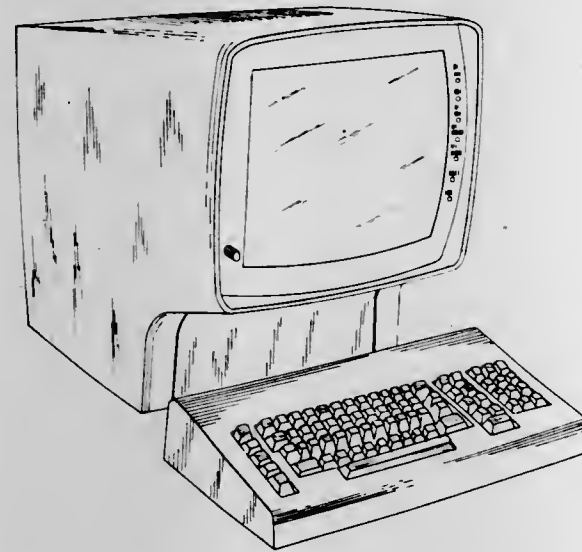
Term of patent 14 years

Int. Cl. D13—03

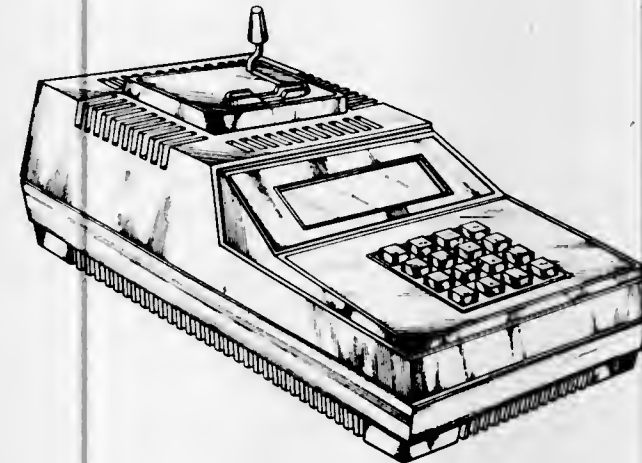
U.S. Cl. D26—1



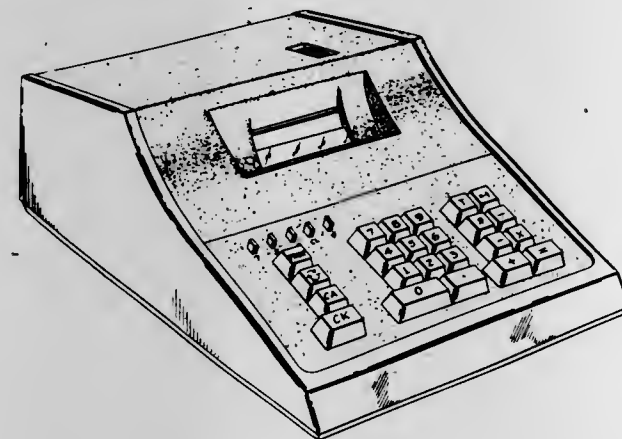
227,256
COMBINED KEYBOARD INPUT TERMINAL AND OUTPUT DISPLAY TERMINAL THEREFOR
 Ronald I. Conway, Port Ewen, Robert V. Jones, Kingston, James J. La Due, Wappingers Falls, and John J. Natoli, Woodstock, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
 Filed Apr. 1, 1971, Ser. No. 130,551
 Term of patent 14 years
 Int. Cl. D14—02
 U.S. Cl. D26—5 C



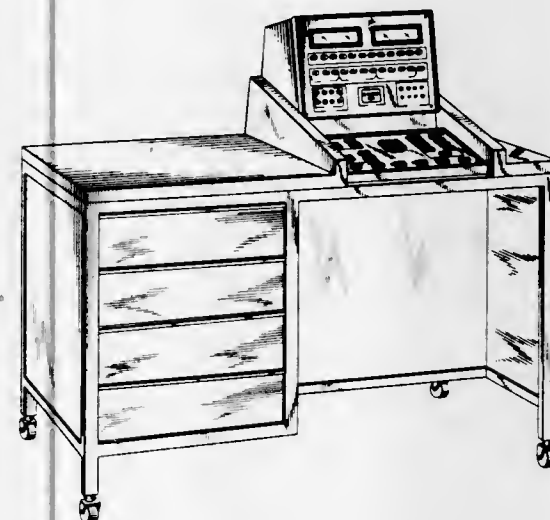
227,258
CARD READING KEYBOARD TERMINAL OR THE LIKE
 Charles T. Inatomi, 10733 Flaxton St., Culver City, Calif. 90230
 Filed Oct. 20, 1971, Ser. No. 191,133
 Term of patent 14 years
 Int. Cl. D14—02
 U.S. Cl. D26—5 C



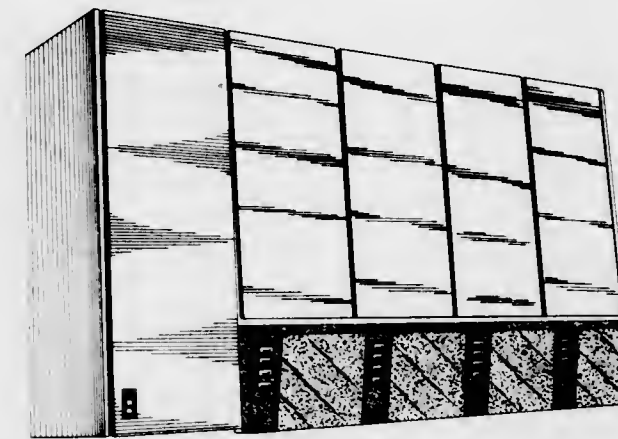
227,257
CALCULATOR
 John G. Clary, Pasadena, F. Gordon Mackay and Allan B. Johnson, Tarzana, and Gerald W. Lee, Montrose, Calif., assignors to Addmaster Corporation, San Gabriel, Calif.
 Filed Sept. 17, 1971, Ser. No. 181,658
 Term of patent 14 years
 Int. Cl. D14—02
 U.S. Cl. D26—5 C



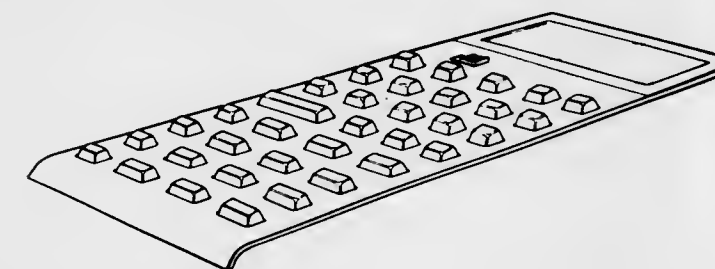
227,259
CONTROL CONSOLE
 Vincent F. Santulli, Manhasset, and John J. Gazzo, Commack, N.Y., assignors to Porta Systems Corp., Roslyn, N.Y.
 Filed June 1, 1972, Ser. No. 258,927
 Term of patent 14 years
 Int. Cl. D14—02
 U.S. Cl. D26—5 C



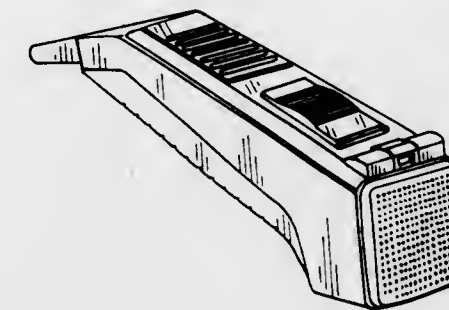
227,260
COMBINED MAGNETIC TAPE DRIVE UNITS AND CONTROL UNIT
 Richard G. Clayton, Detroit, and Thomas C. Abrahamsen, Birmingham, Mich., assignors to Burroughs Corporation, Detroit, Mich.
 Filed June 19, 1972, Ser. No. 264,073
 Term of patent 14 years
 Int. Cl. D14—02
 U.S. Cl. D26—5 C



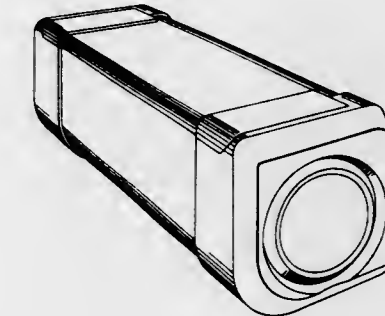
227,261
COMBINED KEYBOARD AND DISPLAY PANEL FOR AN ELECTRONIC CALCULATOR
 Edward T. Liljenwall, Sunnyvale, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.
 Filed June 28, 1972, Ser. No. 266,933
 Term of patent 14 years
 Int. Cl. D14—02
 U.S. Cl. D26—5 C



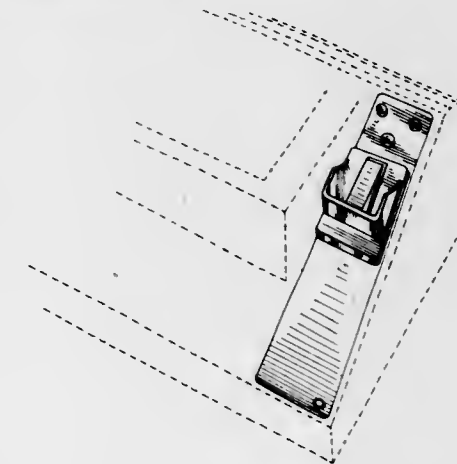
227,262
MICROPHONE
 Rebertus van de Poel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation
 Filed Feb. 4, 1971, Ser. No. 112,844
 Claims priority, application Switzerland Aug. 12, 1970
 Term of patent 14 years
 Int. Cl. D14—01
 U.S. Cl. D26—14



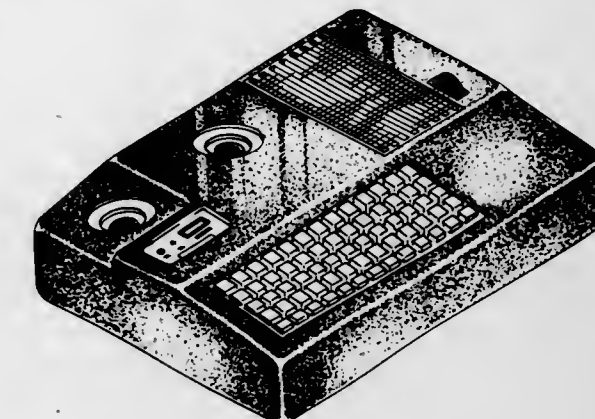
227,263
SNAP-OPEN MAGNETIC TAPE CARTRIDGE
 Gary L. Allison and Vladimir Nejezchleb, Boulder, Helfried O. Rinkleib, Longmont, and Gary L. Switzer, Boulder, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.
 Filed Feb. 9, 1971, Ser. No. 114,104
 Term of patent 7 years
 Int. Cl. D14—02, 99
 U.S. Cl. D26—14 B



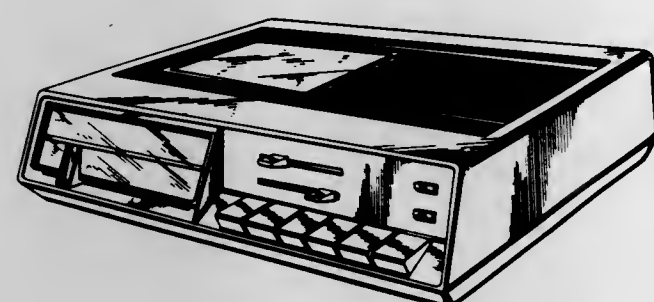
227,264
TELEPHONE HANDSET HOLDER-SWITCH
 John P. Kennedy, 2198 Woodstock Road, Columbus, Ohio 43215
 Filed June 23, 1971, Ser. No. 156,154
 Term of patent 14 years
 Int. Cl. D14—03
 U.S. Cl. D26—14 A



227,265
TELEPHONE TERMINAL
 Robert C. Hagemann, Farmington, John A. McAvoy, Fenton, Joseph L. Prokop, Detroit, and Roger F. Thompson, Fenton, Mich., assignors to Burroughs Corporation, Detroit, Mich.
 Filed Nov. 15, 1971, Ser. No. 199,087
 Term of patent 14 years
 Int. Cl. D14—03
 U.S. Cl. D26—14 A



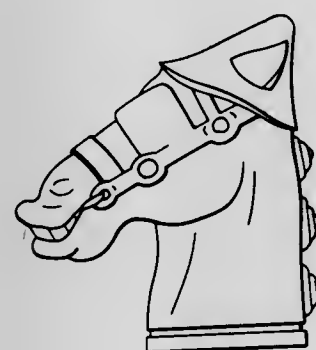
227,266
COMBINED RECORDER AND PLAYBACK UNIT
 OR SIMILAR ARTICLE
 Y. Alan Shimasaki, Tokyo, Japan, assignor to Lanier
 Electronic Laboratory, Inc., Atlanta, Ga.
 Filed Nov. 22, 1971, Ser. No. 201,268
 Term of patent 14 years
 Int. Cl. D14—01
 U.S. Cl. D26—14 B



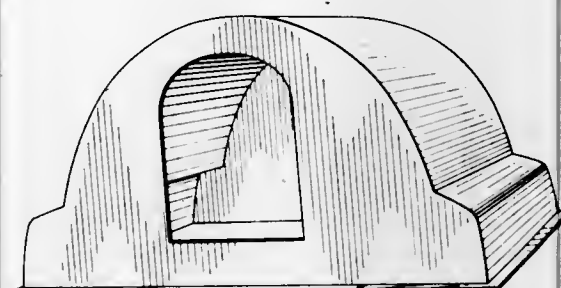
227,267
SOUND TUBE HEAD SET
 Thomas Albert Scanlon, Barrington, R.I., assignor to
 Avid Corporation, East Providence, R.I.
 Filed Dec. 9, 1971, Ser. No. 206,595
 Term of patent 14 years
 Int. Cl. D14—03
 U.S. Cl. D26—14 H



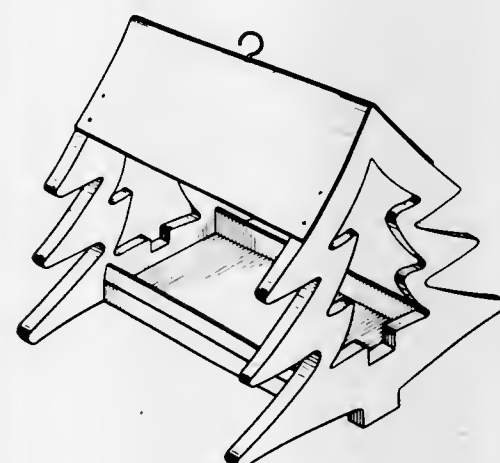
227,268
FIGURINE
 Mary B. Johns, 413 S. 11th St.,
 Cambridge, Ohio 43725
 Substituted for abandoned design application Ser. No.
 10,059, Jan. 4, 1968. This application Feb. 25, 1971,
 Ser. No. 119,073
 Term of patent 14 years
 Int. Cl. D11—02
 U.S. Cl. D29—23 B



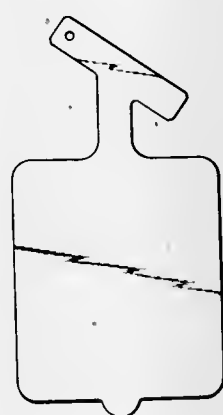
227,269
FARROWING HUT
 William E. Sedgwick, Cameron, Mo., assignor to
 Cameron Industries, Cameron, Mo.
 Filed May 17, 1971, Ser. No. 144,370
 Term of patent 14 years
 Int. Cl. D30—02
 U.S. Cl. D30—1



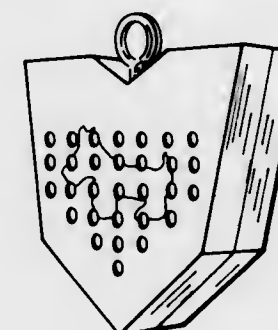
227,270
BIRD FEEDER
 Leonard Onos, 88 Ramapo Hills Blvd.,
 Oakland, N.J. 07436
 Filed Oct. 27, 1971, Ser. No. 193,234
 Term of patent 14 years
 Int. Cl. D30—03
 U.S. Cl. D30—13



227,271
ANIMAL IDENTIFICATION TAG
 Harley E. Nichols, Jr., Hardwick, Vt., assignor to
 C. H. Dana Company, Inc.
 Filed Mar. 4, 1971, Ser. No. 121,239
 Term of patent 14 years
 Int. Cl. D30—08
 U.S. Cl. D30—43



227,272
CHEMICAL CONTAINER FOR ATTACHMENT TO
A DOG'S COLLAR OR SIMILAR ARTICLE
 Arthur W. Bozard, P.O. Box 45,
 Holly Ridge, N.C. 28445
 Filed Nov. 3, 1971, Ser. No. 195,536
 Term of patent 14 years
 Int. Cl. D30—08
 U.S. Cl. D30—43



227,273
DOLL
 Judith Paruolo, Westbury, N.Y., assignor to Ideal Toy
 Corporation, Hollis, N.Y.
 Filed Feb. 10, 1972, Ser. No. 225,367
 Term of patent 14 years
 Int. Cl. D21—01
 U.S. Cl. D34—4 R



227,274
DOLL
 Judith Paruolo, Westbury, N.Y., assignor to Ideal Toy
 Corporation, Hollis, N.Y.
 Filed Feb. 10, 1972, Ser. No. 225,368
 Term of patent 14 years
 Int. Cl. D21—01
 U.S. Cl. D34—4 R



227,275
DOLL
 Judith Paruolo, Westbury, N.Y., assignor to Ideal Toy
 Corporation, Hollis, N.Y.
 Filed Feb. 10, 1972, Ser. No. 225,369
 Term of patent 14 years
 Int. Cl. D21—01
 U.S. Cl. D34—4 R



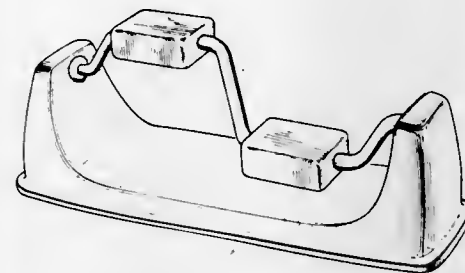
227,276
GOLF BAG STAND
 Howard A. Benzel, 28 Lombardy St.,
 Lancaster, N.Y. 14086
 Filed Apr. 8, 1971, Ser. No. 132,635
 Term of patent 7 years
 Int. Cl. D21-02

U.S. Cl. D34-5 GB



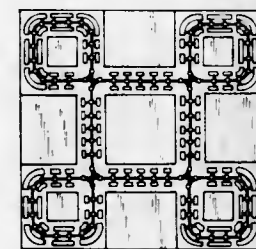
227,278
PEDAL EXERCISER
 Oscar T. Arato, 25 Kensington Ave.,
 Willowdale, Ontario, Canada
 Filed Nov. 26, 1971, Ser. No. 202,049
 Term of patent 7 years
 Int. Cl. D21-02

U.S. Cl. D34-5 K



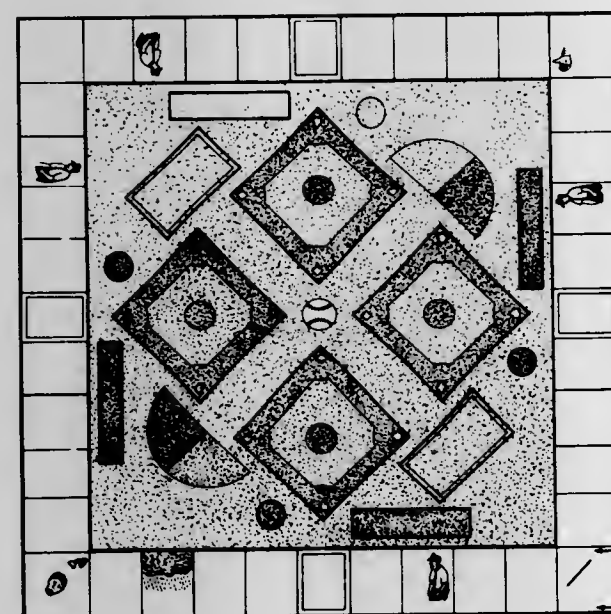
227,279
GAME BOARD OR SIMILAR ARTICLE
 John R. Schlosser, 12 Elmwood Drive,
 Mapleton, Iowa 51034
 Filed Dec. 6, 1971, Ser. No. 205,476
 Term of patent 14 years
 Int. Cl. D21-01

U.S. Cl. D34-5 SS



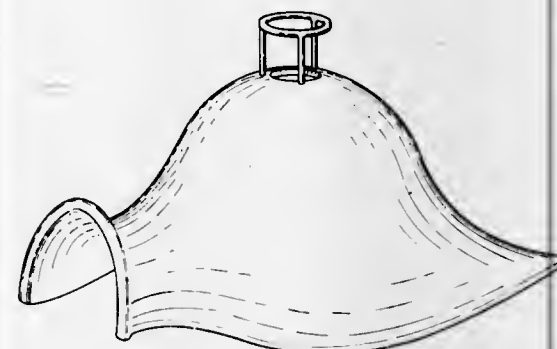
227,277
GAME BOARD
 Raymond E. Reilly, 9308 Convento Terrace,
 Fairfax, Va. 22030
 Filed Sept. 3, 1971, Ser. No. 177,919
 Term of patent 7 years
 Int. Cl. D21-01

U.S. Cl. D34-5 BG



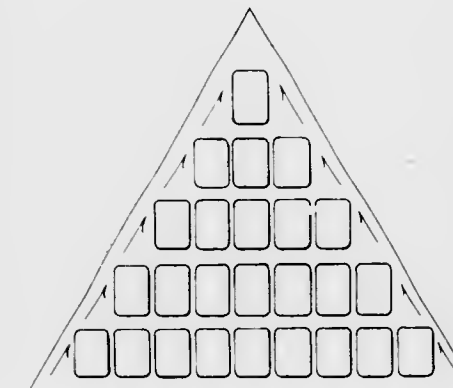
227,280
SLIDE
 Neil H. Silverman, 13 Ursula Drive,
 Roslyn, N.Y. 11576
 Filed Jan. 27, 1972, Ser. No. 221,486
 Term of patent 14 years
 Int. Cl. D21-03

U.S. Cl. D34-5 E



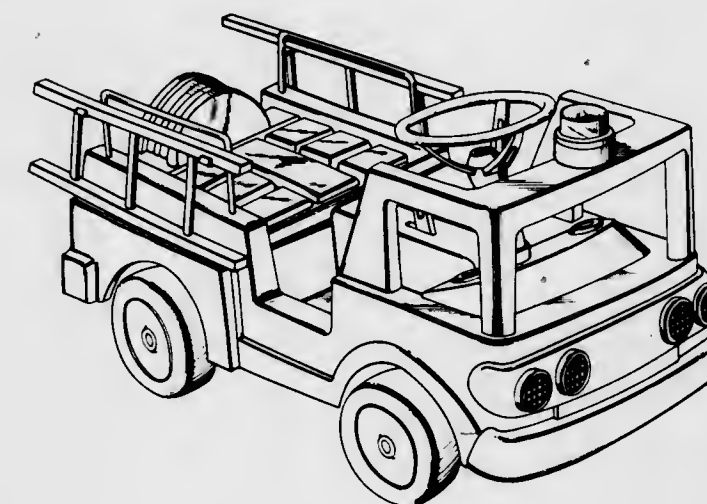
227,281
GAME BOARD
 Robert S. Meyer, 475 Presidential Lane,
 Madison, Wis. 53711
 Filed Feb. 25, 1972, Ser. No. 229,619
 Term of patent 14 years
 Int. Cl. D21-01

U.S. Cl. D34-5 SS



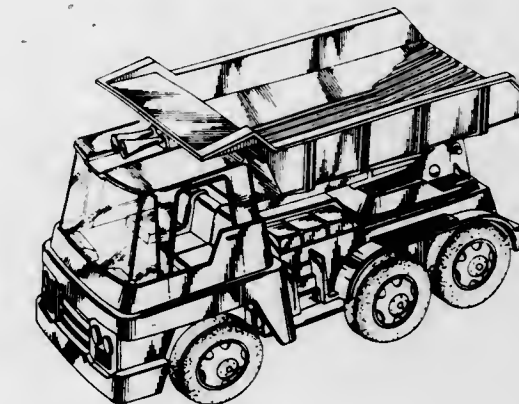
227,282
JUVENILE VEHICLE
 Viktor Schreckengost, Cleveland Heights, Ohio, assignor
 to The Murray Ohio Manufacturing Co., Nashville,
 Tenn.
 Filed June 25, 1971, Ser. No. 157,068
 Term of patent 14 years
 Int. Cl. D21-01

U.S. Cl. D34-15 AJ



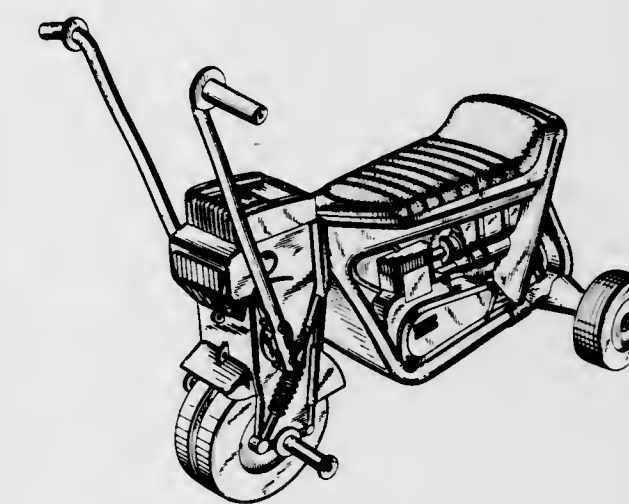
227,283
TOY DUMP TRUCK
 Toyotsugu Ogasawara, Tokyo, Japan, assignor to Tomy
 Kogyo Co., Ltd., Tokyo, Japan
 Filed Aug. 31, 1971, Ser. No. 176,788
 Term of patent 14 years
 Int. Cl. D21-01

U.S. Cl. D34-15 AJ



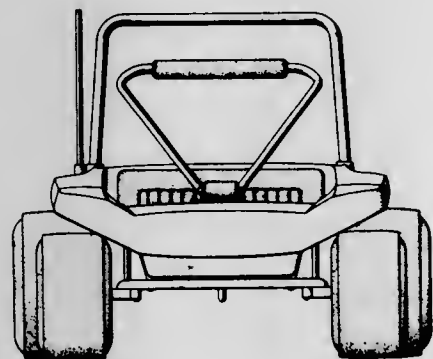
227,284
RIDING TOY
 Laurie J. Campbell, Raymond J. Lohr, Calvin S. Cook,
 and Paul G. Goodwin, Erie, Pa., assignors to Louis
 Marx & Co., Inc. (Delaware), New York, N.Y.
 Filed Nov. 5, 1971, Ser. No. 196,265
 Term of patent 14 years
 Int. Cl. D21-01

U.S. Cl. D34-15 AJ



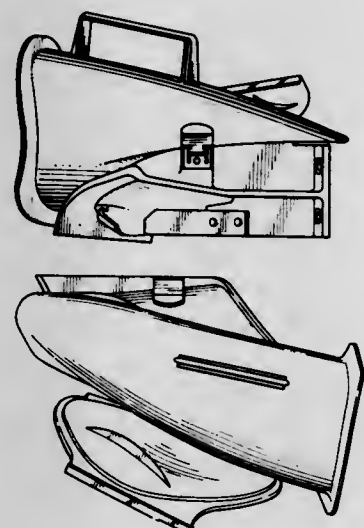
227,285

TOY COASTER WAGON
Leonard Stobar, Granada Hills, Calif., assignor to Kusan, Inc., Nashville, Tenn.
Filed Mar. 13, 1972, Ser. No. 234,466
Term of patent 14 years
Int. Cl. D21-01
U.S. Cl. D34-15 AJ



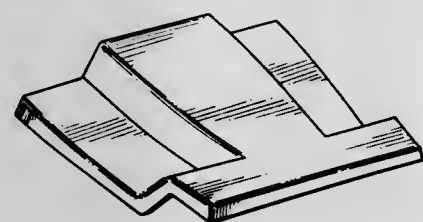
227,286

COMBINED DISCHARGE DEFLECTOR FOR MOWERS AND THE LIKE
Richard A. Thorud, Minneapolis, Minn., assignor to Toro Manufacturing Corporation, Minneapolis, Minn.
Filed Jan. 14, 1971, Ser. No. 106,635
Term of patent 14 years
Int. Cl. D15-03, 99
U.S. Cl. D40-1 B



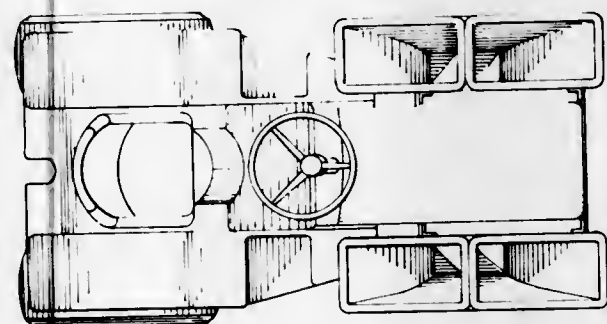
227,287

RIDING MOWER FRAME
Mario F. Fernandez and Robert L. Rydeen, St. Paul, Minn., assignors to Toro Manufacturing Corporation, Minneapolis, Minn.
Filed Aug. 30, 1971, Ser. No. 176,435
Term of patent 14 years
Int. Cl. D15-03
U.S. Cl. D40-1 R



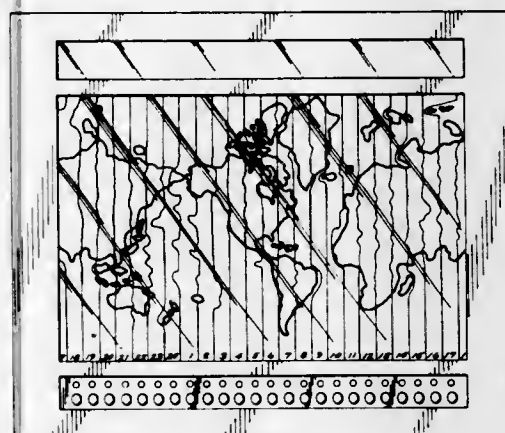
227,288

LAWN TREATING MACHINE
Robert Picardat, 7712 Ridgcrest Drive, Alexandria, Va. 22380
Filed May 6, 1971, Ser. No. 141,088
Term of patent 14 years
Int. Cl. D15-03
U.S. Cl. D40-1 E



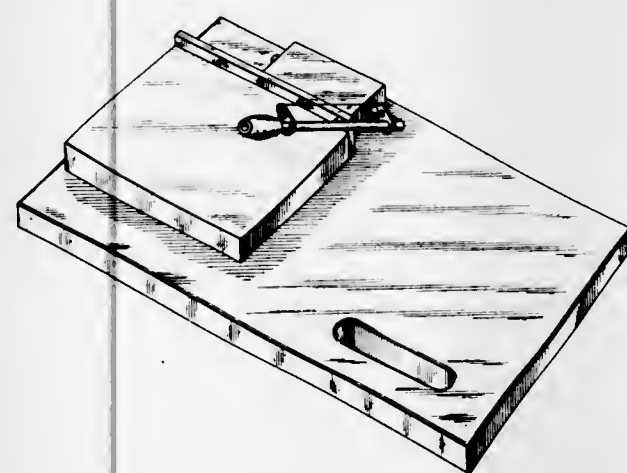
227,289

WORLD CLOCK
Robert M. Eldon, Long Beach, Calif., assignor to California Time Service, Inc., Long Beach, Calif.
Filed Aug. 16, 1971, Ser. No. 176,364
Term of patent 14 years
Int. Cl. D10-01
U.S. Cl. D42-7 F



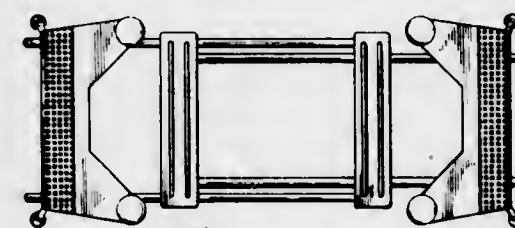
227,290

COMBINED CHEESE CUTTER AND BOARD
Morris T. Bond, 1000 School Drive, Jacksonville, Ark. 72076
Filed July 12, 1971, Ser. No. 161,384
Term of patent 14 years
Int. Cl. D7-04
U.S. Cl. D44-1 A



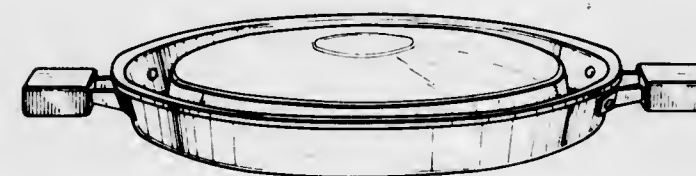
227,291

ADJUSTABLE DISH HOLDER
Pieter Kant, Kort Ambachtlaan 22, Zwijndrecht, Netherlands
Filed Feb. 16, 1971, Ser. No. 115,919
Term of patent 14 years
Int. Cl. D7-99
U.S. Cl. D44-10 B



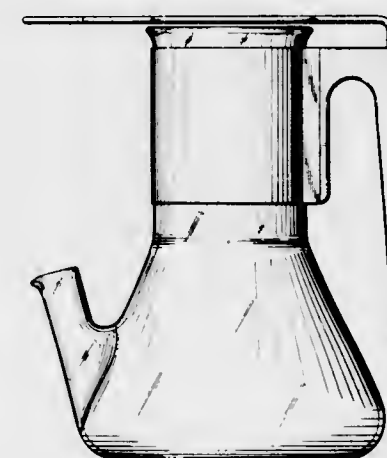
227,292

PAN OR SIMILAR ARTICLE
Yuki Yamamoto, 1343 Ushita-machi, Hiroshima-shi, Hiroshima-ken, Japan
Filed Oct. 7, 1971, Ser. No. 187,596
Term of patent 14 years
Int. Cl. D7-02
U.S. Cl. D44-1 J



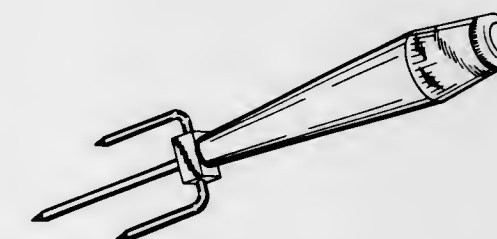
227,293

COFFEE MAKER
Joseph C. Ehrlich, 2440 Sedgwick Ave., Bronx, N.Y. 10468
Filed Sept. 24, 1971, Ser. No. 183,746
Term of patent 14 years
Int. Cl. D7-04
U.S. Cl. D44-26 A



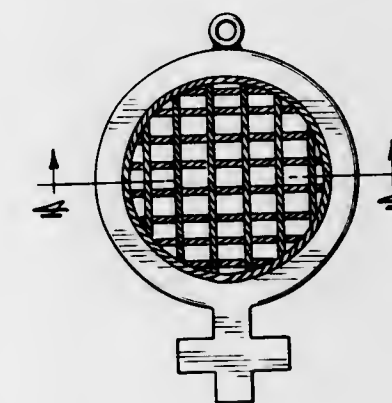
227,294

FORK
Edmund M. Maynard, Santa Monica, Calif., assignor to Gaydell, Inc., Santa Monica, Calif.
Filed June 23, 1972, Ser. No. 265,831
Term of patent 14 years
Int. Cl. D7-02
U.S. Cl. D44-29 E



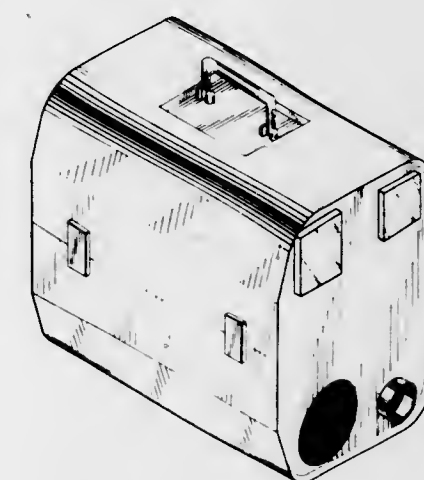
227,295

LOCKET
Michael P. Patterson, Hopkins, Minn., assignor to Great Things Incorporated, Minneapolis, Minn.
Filed Feb. 29, 1972, Ser. No. 230,547
Term of patent 14 years
Int. Cl. D11-01
U.S. Cl. D45-15



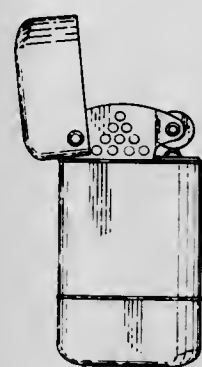
227,296

HOUSING FOR AN AUXILIARY LAMP FOR MOTION PICTURE PROJECTORS
John N. Wilkinson, Duarte, Calif., assignor to Optical Radiation Corporation, Monrovia, Calif.
Filed Oct. 23, 1970, Ser. No. 25,617
Term of patent 14 years
Int. Cl. D26-05
U.S. Cl. D48-20 E



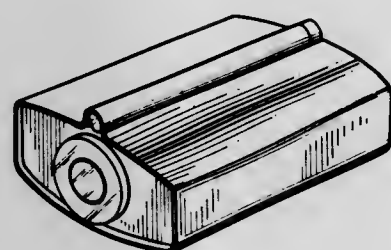
227,297
DUAL-HEADED LIGHTER
 Joseph B. Springel, 1471 W. Nine Mile Road,
 Ferndale, Mich. 48220
 Filed July 7, 1971, Ser. No. 160,581
 Term of patent 14 years
 Int. Cl. D27—05

U.S. Cl. D48—27 R



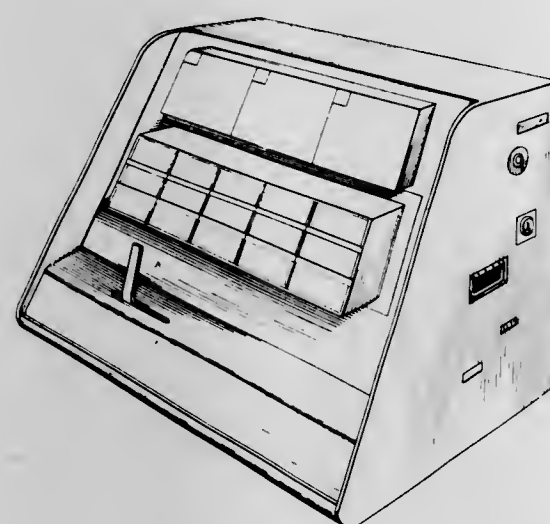
227,298
DISTANCE MEASURING INSTRUMENT
 OR THE LIKE
 Bary R. Mathis, Loveland, Colo., assignor to Hewlett-
 Packard Company, Palo Alto, Calif.
 Filed June 14, 1971, Ser. No. 153,163
 Term of patent 14 years
 Int. Cl. D10—04

U.S. Cl. D52—6 R



227,299
VOTING MACHINE
 Michael Terrance Moldovan, Jr., Lakewood, N.Y.,
 assignor to AVM Corporation, Jamestown, N.Y.
 Filed June 28, 1971, Ser. No. 157,781
 Term of patent 14 years
 Int. Cl. D10—99

U.S. Cl. D52—6 R



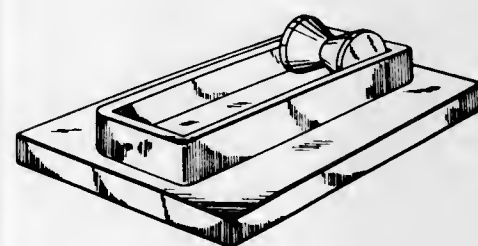
227,300
AUTOMATIC TOKEN VENDING MACHINE
 Fukuju Yamada, Tokyo, Japan, assignor to Jaguar Shokai
 Co., Ltd., Tokyo, Japan
 Filed Dec. 14, 1971, Ser. No. 208,058
 Term of patent 3½ years
 Int. Cl. D20—01

U.S. Cl. D52—3 R



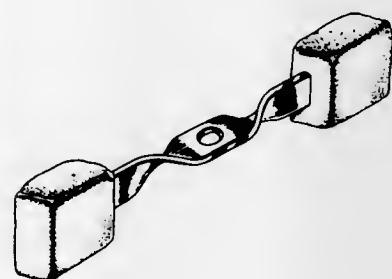
227,301
ROLLER SUPPORT MECHANISM OR THE LIKE
 Willard J. Cobb, Raleigh, N.C., assignor to Perry
 Electronics, Inc., Raleigh, N.C.
 Filed Feb. 3, 1971, Ser. No. 112,510
 Term of patent 14 years
 Int. Cl. D15—99

U.S. Cl. D55—1 H



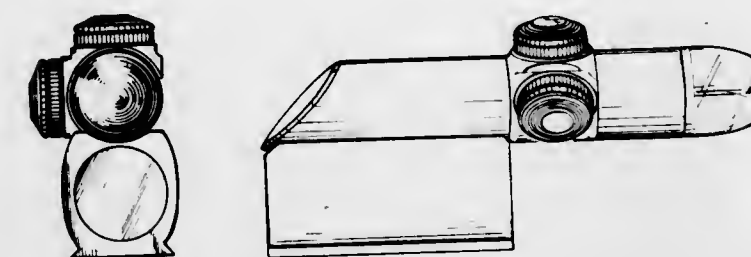
227,302
PROTECTIVE BUMPER FOR MUSICAL DRUMS
 OR SIMILAR ARTICLE
 John J. Morena, Levittown, and Robert N. Grauso, Bay-
 side, N.Y., assignors to C. F. Martin & Co., Nazareth,
 Pa.
 Filed Apr. 30, 1971, Ser. No. 139,307
 Term of patent 14 years
 Int. Cl. D17—04

U.S. Cl. D56—1 E



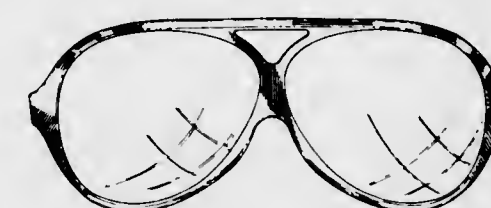
227,303
SIGHTING DEVICE FOR FIREARMS
 William F. Steck III, El Paso, Tex., assignor to
 W. R. Weaver Company
 Filed Mar. 17, 1971, Ser. No. 125,464
 Term of patent 14 years
 Int. Cl. D16—06

U.S. Cl. D57—1 E



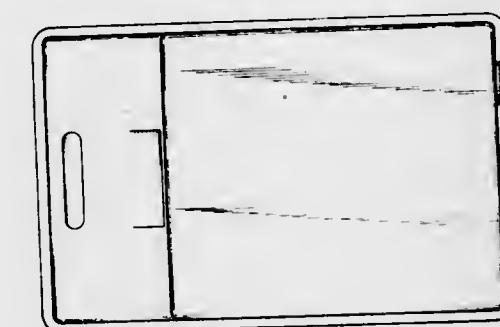
227,304
SUNGLASS FRAME FRONT
 Roger L. McCracken, Chili, N.Y., assignor to Bausch &
 Lomb Incorporated, Rochester, N.Y.
 Original design application Dec. 31, 1969, Ser. No. 20,715,
 now abandoned. Divided and this application Dec. 2,
 1970, Ser. No. 26,252
 Term of patent 14 years
 Int. Cl. D16—06

U.S. Cl. D57—1 D



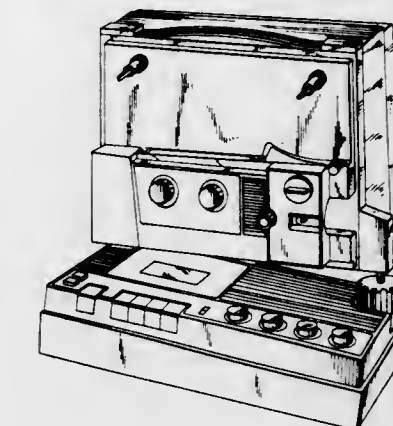
227,305
CHEMICAL CONTAINER FOR PHOTOGRAPHIC
PROCESSING
 George A. Wilke, Rochester, N.Y., assignor to Eastman
 Kodak Company, Rochester, N.Y.
 Filed May 20, 1971, Ser. No. 145,604
 Term of patent 14 years
 Int. Cl. D16—04; D9—99

U.S. Cl. D61—1



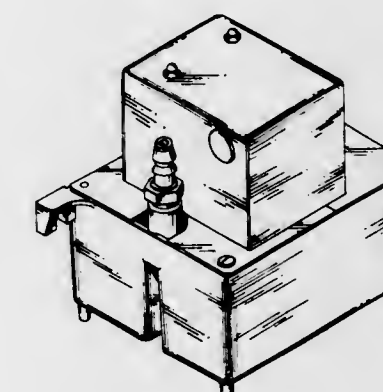
227,306
MOTION PICTURE PROJECTOR
 Max Kotler, Montvale, N.J., assignor to De Jur-Amsco
 Corporation, Long Island City, N.Y.
 Filed Sept. 24, 1971, Ser. No. 183,723
 Term of patent 14 years
 Int. Cl. D16—02

U.S. Cl. D61—1 K



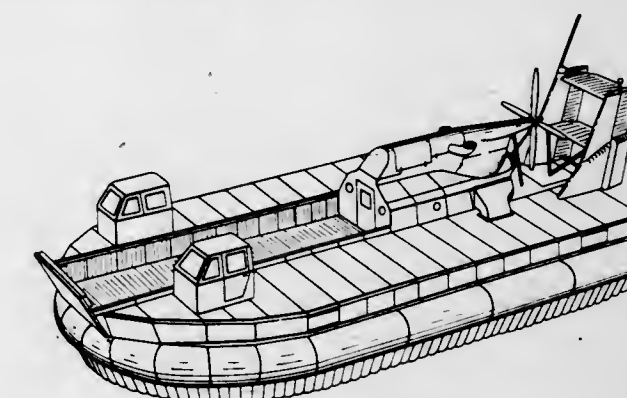
227,307
CONDENSATE PUMP
 Charles B. Wells, Feasterville, Pa., assignor to
 Hartell, Inc., Huntingdon Valley, Pa.
 Filed Sept. 15, 1971, Ser. No. 180,944
 Term of patent 14 years
 Int. Cl. D15—02

U.S. Cl. D65—1 R



227,308
AIR CUSHION VEHICLE
 Raymond Leslie Wheeler, Brovacum, Old Road, East
 Cowes, Isle of Wight, England
 Filed Sept. 8, 1971, Ser. No. 178,851
 Term of patent 14 years
 Int. Cl. D12—14

U.S. Cl. D71—1 M



227,309

TELEPHONE INDEX

Clayton Austin Laughlin, Minneapolis, Minn., assignor to
Standard Packaging Corporation, New York, N.Y.
Filed Sept. 23, 1971, Ser. No. 183,299
Term of patent 14 years
Int. Cl. D19—02

U.S. Cl. D74—1 C



227,310

CEMETERY HEADSTONE

Marian O'Leska, 521 Mitchell Ave.,
Clairton, Pa. 15025
Filed Jan. 22, 1971, Ser. No. 109,083
Term of patent 14 years
Int. Cl. D31

U.S. Cl. D79—2

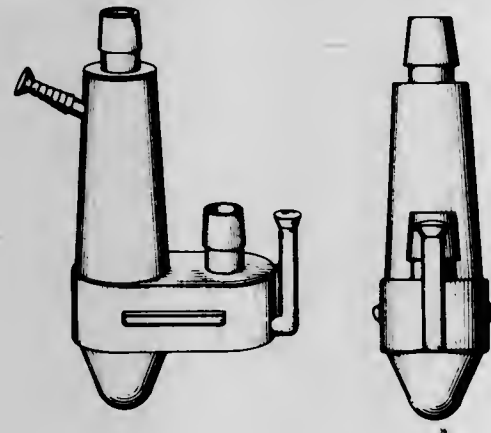


227,311

**DISPOSABLE CONTAINER FOR AN
ULTRASONIC NEBULIZER**

Thomas W. Argy, Chicago, and Michael A. Fanizza,
Mount Prospect, Ill., assignors to Zenith Radio Corpo-
ration, Chicago, Ill.
Filed June 4, 1971, Ser. No. 149,977
Term of patent 14 years
Int. Cl. D23—01; D24—02

U.S. Cl. D83—1 N

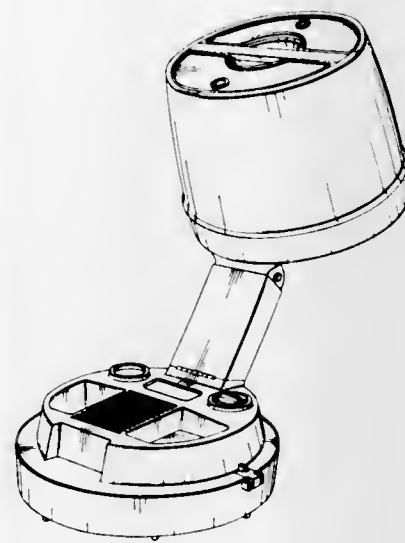


227,312

HAIR DRYER

Tim Cunningham, Pittsburgh, Pa., assignor to Scovill
Manufacturing Company, Waterbury, Conn.
Filed Oct. 20, 1970, Ser. No. 25,568
Term of patent 14 years
Int. Cl. D28—03

U.S. Cl. D86—10 F

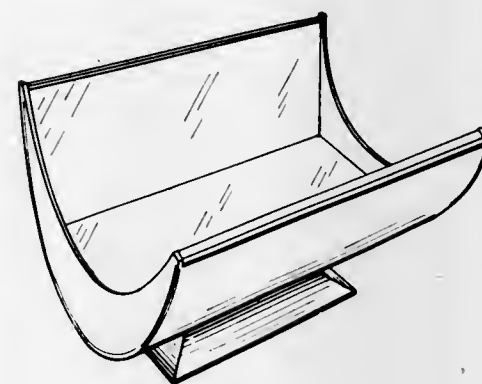


227,313

VANITY MIRROR

Paul B. Elsner, Outrigger East Hotel, 150
Kaiulani Ave., Honolulu, Hawaii 96815
Filed Mar. 22, 1971, Ser. No. 127,071
Term of patent 7 years
Int. Cl. D28—03

U.S. Cl. D86—10 H

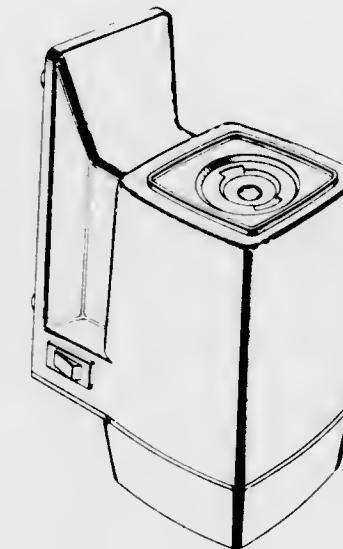


227,314

**ELECTRIC HOUSEHOLD ROTARY
POWER UNIT**

Jean Mantelet, 46-48 Avenue Montaigne,
Paris 8e, France
Filed Dec. 28, 1971, Ser. No. 213,242
Claims priority, application France July 12, 1971
Term of patent 14 years
Int. Cl. D7—04

U.S. Cl. D89—1 B

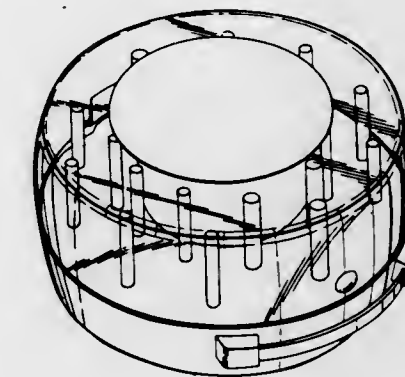


227,316

HAIR ROLLER CARRYING CASE

Stuart Bernard MacKenzie, London, England, assignor to
British Domestic Appliances Limited, Peterborough,
England
Filed Sept. 23, 1971, Ser. No. 183,291
Term of patent 7 years
Int. Cl. D3—99

U.S. Cl. D86—10 E



227,317

DISPLAY SIGN

Reginald Frederick William Hunt, London, England, as-
signor to Harrison & Pinder Limited, London, England
Filed Apr. 12, 1971, Ser. No. 133,479
Claims priority, application Great Britain Nov. 3, 1970
Term of patent 3½ years
Int. Cl. D20—03

U.S. Cl. D96—12

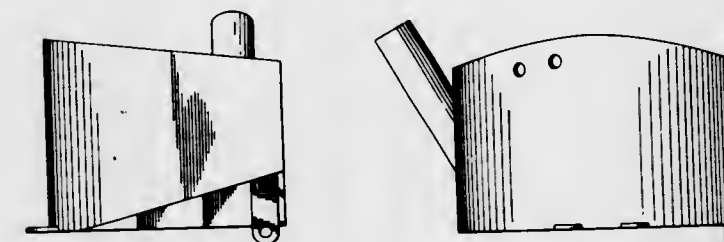


227,315

OIL TANK FOR MOTORCYCLES AND THE LIKE

Robert E. Wills, 1183 Chesapeake Ave.,
Columbus, Ohio 43212
Filed Sept. 22, 1971, Ser. No. 182,929
Term of patent 7 years
Int. Cl. D12—16, 11

U.S. Cl. D90—1



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- Adams, Theodore P.; and Bowers, David L., to General Electric Company. Body organ stimulator function control switch. 3,738,369, Cl. 128-419.00p.
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- Kubo, Seitoku; Mori, Takakazu; Akashi, Teruo; and Hayashi, Chihiro, 3,738,199.
- AKG Akustische u. Kino-Gerate Gesellschaft m.b.H.: *See—*
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- Aktiebolaget Carl Munters: *See—*
Norback, Per Gunnar, 3,738,626.
- Aktiebolaget Overums Bruk: *See—*
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- Aktiengesellschaft Brown, Boveri & Cie: *See—*
Floessel, Dieter, 3,739,074.
- Akzo N.V.: *See—*
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- American Chain & Cable Company: *See—*
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Seaver, Charles W., 3,738,034.

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- Arancio, James A. Safety descent apparatus. 3,738,449, Cl. 182-7.000.
- Archer, Bill. Pipe forming apparatus and method. 3,738,149, Cl. 72-171.000.
- Arctic Enterprises, Inc.: *See—*
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- Arena, Ronald D., to Addressograph-Multigraph Corporation. Method of preparing silver halide emulsions and image processes using same. 3,738,834, Cl. 96-36.000.
- Aries, Graham John; Scott-Smith, Brian; and Malcolm, David, to Tower Housewares Limited. Timer devices for culinary purposes. 3,738,354, Cl. 126-388.000.
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- Armijo, Jimmie Joe. Carpet trimming and finishing device. 3,737,932, Cl. 7-14.100.
- Armour, James: *See—*
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- Arnett, Alan P. Joist supporting device. 3,738,602, Cl. 248-228.000.
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- Arnold, James G.; and Myers, Loyd D. Crystal filter with temperature compensation. 3,739,286, Cl. 325-416.000.
- Arnold, William A. Apparatus and method for dehydrating wet particulate matter and for disposing of waste products therefrom. 3,738,796, Cl. 432-106.000.
- Arrow-Hart, Inc.: *See—*
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- Asahi Kogaku Kogyo Kaishiki Kaisha: *See—*
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- Asahi, Yutaka; and Nakamachi, Hideo, to Takeda Chemical Industries, Ltd. Gibberellin preparations. 3,738,822, Cl. 71-89.000.
- Ashaway Line & Twine Mfg. Co.: *See—*
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- Ashworth Bros. Inc.: *See—*
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- Atchley, Oscar J. Feeder pen for calves. 3,738,326, Cl. 119-20.000.
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- Atkey, Richard E., to Dover Corporation. Jam proof door clutch. 3,738,454, Cl. 187-51.000.
- Atlantic Research Corporation, *mesne: See—*
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- Atlantic Richfield Canada, Ltd.: *See—*
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- Atlantic Richfield Company: *See—*
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- Atsuta, Hisayoshi; and Koetsuka, Yokichi, to Kabushiki Kaisha Komatsu Seisakusho Komatsu Limited. Longitudinally and transversally movable truck. 3,738,284, Cl. 105-177.000.
- Attaway, Julian J., to Miscellaneous Manufacturing Corporation. Conjoint fascia and water dam. 3,738,068, Cl. 52-60.000.
- Auburn Engineering, Inc.: *See—*
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- Auer, Werner; Buschmann, Karl; Hauser, Heinz; and Knobloch, Walter, to Texaco Development Corporation. Method of operating a burner for the partial oxidation of hydrocarbons to synthesis gas. 3,738,940, Cl. 252-373.000.
- Augarten, Sidney; Pande, Kailash C.; and Kallenbach, Stanley E., to Powers Chemico, Inc. Foric acid esters of hydroxy-containing polymers. 3,738,973, Cl. 260-88.10p.
- Australian Wire Industries Pty., Limited: *See—*
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- Automated Optics, Inc.: *See—*
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- Avco Corporation: *See—*
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- Avery, Glen H. Light for hunting weapon. 3,739,167, Cl. 240-2.000.
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- AVM Corporation: *See—*
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- Ayers, Clifton E., to Mallory, P. R., & Co., Inc. Calibrated tension arbor. 3,738,588, Cl. 242-68.300.
- Ayres, Ralph E.; Cleereman, Kenneth J.; and Schrenk, Walter J., to Dow Chemical Company. The Scrapless forming of plastic articles. 3,739,052, Cl. 264-92.000.

- Azoplate Corporation: *See—*
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- Bachmann, Horst, to Fernseh G.m.b.H. Color television cameras. 3,739,080, Cl. 178-5.40e.
- Bachusky, Wayne J.; and Levesque, Rodolphe J. Coloured smoke production. 3,738,278, Cl. 102-90.000.
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- Bahlinger, Walter; Vogt, Herbert; and Fischer, Helmut, to Siemens Aktiengesellschaft. Rectifier bridge. 3,739,210, Cl. 310-68.00d.
- Bahnsen, Gerhard I. W. Camera with film spacer. 3,738,241, Cl. 95-24.000.
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- Bakos, Peter, to International Business Machines Corporation. Electrophoretic photoresist composition and a method of forming etch resistant masks. 3,738,835, Cl. 96-36.000.
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- Ball, Russell C., Jr.; Denkowski, Walter J.; Wadsworth, Kenneth; and Hayashi, Chihiro, to Philadelphia Gear Corporation. Combination drive for valve operator. 3,738,183, Cl. 74-89.150.
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- Bandimere, John C. Fuel pump and method of control therefor. 3,738,344, Cl. 123-139.0af.
- Bandy, Lyle E.: *See—*
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- Banse, George, to National Manufacturing Co. Chain door fastener. 3,738,694, Cl. 292-264.000.
- Barabino, William A., to Safety Research & Engineering Corporation. Alarm system for pneumatic tires. 3,738,308, Cl. 116-34.00r.
- Barber, Mack A., to Reserve Oil and Gas Company. Process of agglomerating ammonium sulfate and making complete fertilizer. 3,738,821, Cl. 71-36.000.
- Barber-Colman Company: *See—*
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- Bard, C. R., Inc., *mesne: See—*
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- Barker Manufacturing Company, Inc.: *See—*
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- Barker, R. E., & Co., Limited: *See—*
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- Barnhill, Charles W.: *See—*
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- Barrett, Robert C., to Chemical Products Corporation. Carbonate composition and process. 3,738,938, Cl. 252-188.30r.
- Barsotti, Leo R., to Kaiser Aluminum & Chemical Corporation. Direct conversion of dawsonite to pseudoboehmite. 3,739,062, Cl. 423-625.000.
- Barstow, Ormond E., to Dow Chemical Company. The Refractometer. 3,738,757, Cl. 356-131.000.
- Bart, Victor R., to United States Steel Corporation. Apparatus for detecting conductive material utilizing a vapor controlled lamp. 3,739,267, Cl. 324-71.00r.
- Barten, Piet Gerard Joseph; and Bathelt, Robert Richard, to U.S. Philips Corporation. Exposure device for manufacturing a display screen of a colour television picture tube. 3,738,234, Cl. 95-1.00r.
- Bartholon, Maurice. Beam-track assembly for air-lift or magnetic-lift vehicles. 3,738,280, Cl. 104-231.00s.
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- Basi, Jagtar Singh, to International Business Machines Corporation. Method for polishing semiconductor gallium arsenide planar surfaces. 3,738,882, Cl. 156-17.000.
- Baswell, Harlen L.: *See—*
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- Bathelt, Robert Richard: *See—*
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- Battarel, Claude, to Techniques et Systemes Informatiques. Shift register operating by propagation of domains in thin films of magnetic material. 3,739,358, Cl. 340-174.0mc.
- Baumrind, Stephen J., 1/2 to Kline, Larry Harold. Permanent or mobile splash-guard. 3,737,921, Cl. 4-148.000.
- Baxter Laboratories, Inc., *mesne: See—*
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- Baychem Corporation, *mesne: See—*
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- Bayshore Concrete Products Corporation: *See—*
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- Beadman, Terence Brockley, to Rolls-Royce Limited. Electronic rate means for a servo driven fuel control. 3,739,250, Cl. 318-610.000.
- Beam, Alden Gamaliel; and Miller, Oscar Neal, to Hoffmann-La Roche Inc. Nicotinic acid derivatives. 3,738,990, Cl. 260-295.50r.
- Bean, Kenneth E.; and Gleim, Paul S., to Texas Instruments, Incorporated. Dielectric isolation processes. 3,738,883, Cl. 156-17.000.
- Bearce, Winfield Scott: *See—*
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- Beatenbough, Paul K., to General Motors Corporation. Automotive refrigerant system. 3,738,120, Cl. 62-229.000.
- Bechtel, Alfred R., Jr., to Ashworth Bros. Inc. Card clothing. 3,737,953, Cl. 19-113.000.
- Bechtel, Bartow; and Green, Max B., to Texas Instruments, Incorporated. Mechanically swept radar antenna for use with an aircraft landing monitor system. 3,739,385, Cl. 343-705.000.
- Bechtel, Peter J., to Quaker Oats Company. The Process for producing a canned egg in meat pet food. 3,738,847, Cl. 99-187.000.
- Becker, Joseph J.; and Cech, Robert E., to General Electric Company. Permanent magnet material powders having superior magnetic characteristics and method. 3,738,876, Cl. 148-105.000.
- Becker, Manfred, to Siemens Aktiengesellschaft. Method and apparatus for storing information in a magneto-optical memory. 3,739,394, Cl. 346-74.0mt.
- Beckmann, Horst: *See—*
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- Becton, Dickinson and Company: *See—*
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- Bed-Well Corporation: *See—*
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- Bednarski, Thaddeus E., to Black and Decker Manufacturing Company. The Method of making an insulated armature. 3,737,987, Cl. 29-596.000.
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- Beil, Ralph G., to Schlumberger Technology Corporation. Acoustic impedance logging using reflection coefficients. 3,739,328, Cl. 340-15.5ac.
- Beiser, Leo, to Columbia Broadcasting System, Inc. Laser systems and laser control systems. 3,739,296, Cl. 331-94.50k.
- Belansky, Rudolph J., to Illinois Tool Works Inc. Limited slip differential mechanisms. 3,738,192, Cl. 74-711.000.
- Bell and Howell Company: *See—*
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- Bell Canada: *See—*
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- Bell, Raymond W. H.: *See—*
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- Bell, Ronald I.; Snyder, David E.; and Hendrickson, Donald Carl, to Datatype Corporation. Paper feeder. 3,738,643, Cl. 271-52.000.
- Bell Telephone Company of Canada, The: *See—*
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- Bell Telephone Laboratories, Incorporated: *See—*
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- Bell, William A., Jr.: *See—*
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- Bellis, Harold Edward, to Du Pont de Nemours, E. I., and Company. Chemical plating solutions. 3,738,849, Cl. 106-1.000.

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Beloit Corporation: See—
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Belter, John W., to United States of America, Interior. Dual pulse-jet system for the combustion of high ash fuel. 3,738,290, Cl. 110-28.00r.

Bender, Friedrich Karl. Method for joining a number of reinforcing bars simultaneously and a tool for carrying out this method. 3,737,968, Cl. 29-200.00r.

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Benjamin, Milton L.; and Miles, Wilbur N., to Erickson Tool Company. Adjustable boring bar. 3,738,767, Cl. 408-161.000.

Bennett, Harry, to B.R. Laboratory. Cigar or cigarette having substitute filler. 3,738,374, Cl. 131-2.000.

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Bertrand, James G. Motorized collapsible tube dispenser. 3,738,533, Cl. 222-102.000.

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Biale, John, to Union Oil Company of California. Polymerization of ethylene with a supported palladium catalyst. 3,738,977, Cl. 260-94.9da.

Bianchini, Giacomo. Fabrics coupling machine. 3,738,897, Cl. 156-498.000.

Bickel, Hans; and Kump, Wilhelm, to Ciba-Geigy Corporation. Antibiotically active compounds. 3,738,980, Cl. 260-239.30p.

Bickler, Donald Bertram, to Globe Union Inc. Energy sensitive readout device. 3,739,182, Cl. 250-219.00c.

Bieber, George. Device for dumping beet boxes. 3,738,707, Cl. 298-18.000.

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Bilco, Arthur, to Raymond Corporation, The. Hydraulic seals. 3,738,665, Cl. 277-3.000.

Billson, John A., to General Electric Company. Reflector alignment apparatus. 3,737,960, Cl. 29-25.150.

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Bishop, Gilbert H. Method and apparatus for forming ice island for drilling or the like. 3,738,114, Cl. 61-46.500.

Bitzer, Donald L.; Bandy, Lyle E.; Johnson, Roger L.; and Skaperdas, Dominic O., to University of Illinois Foundation. Fluid positionable means and fluid control means therefor. 3,738,227, Cl. 91-167.000.

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Blair, Pete, 1/2 to Halliday, Michael and Orr, Samuel J., IV. Separator for new paper money. 3,738,642, Cl. 271-10.000.

Blanz, Eugene J.; and Duperow, Donald E., to Lincoln Brass Works, Inc. Borne structure. 3,738,577, Cl. 239-568.000.

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Bloch, Michael; and Koebner, Adolph, to Rewo Chemische Fabrik G.m.b.H. Process for the preparation of quaternary imidazoline derivatives. 3,738,996, Cl. 260-309.600.

Blomberg, Theodore G. Disposable forceps. 3,738,366, Cl. 128-354.000.

Bobrowicz, Vincent F.; and Stevenson, John E., to Bendix Corporation, The. Method for preparing program medium for multiple controlled element machine. 3,739,157, Cl. 235-151.110.

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Boggs, Jesse K., to Esso Research and Engineering Company. Tertiary alkylation of benzene at atmospheric pressure. 3,739,040, Cl. 260-671.00p.

Boggs, Jesse T., to Esso Research and Engineering Company. Selective tertiary alkylation of aromatic hydrocarbons. 3,739,039, Cl. 260-611.00r.

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Bolante, Jay J.: See—
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- Callaghan, John David, to RCA Corporation. Antenna structures. 3,739,388, Cl. 343-726.000.
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- Carlson, John T. Martin, 25% to Terry K. Particle size distribution analysis. 3,739,180, Cl. 250-218.000.
- Carlsson, Erik Herbert, to Aktiebolaget Overums Bruk. Cleat plate structures for caterpillar belts. 3,738,715, Cl. 305-56.000.
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- Codet, Georges; Dawans, Francois; de Charentenay, Francois-Xavier; and Teyssie, Philippe, to Institut Francais du Pétrole, des Carburants et Lubrifiants. Organic compounds of the transition metals. 3,739,003, Cl. 260-439.00r.
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- Colligan, Francis S. Method of communicating warning information via the intermediate frequency of a superheterodyne radio and/or television receiver. 3,739,283, Cl. 325-373.000.
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- Ebert, Norman J. Parts and tool catching device for outboard motors. 3,738,635, Cl. 269-15.000.
- Ebstrom, Soren E. H., to Gardner-Denver Company. Capacity control valve for screw compressor. 3,738,780, Cl. 417-281.000.
- Eckard, Robert Lewis, to Champion International Corporation. Removable lock panel for cabinet and furniture. 3,738,728, Cl. 312-330.000.
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- Ecomard, Andre: See—
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- Economos, George; Ford, David E., Jr.; and Fillar, John A., to Allen-Bradley Company. Heat dissipating insulating mounting. 3,738,422, Cl. 165-80.000.
- Edelman, Alfred E. Bone implant and method of implantation. 3,738,004, Cl. 32-10.00a.
- Edelman, Alfred E. Expandable dental implant. 3,738,008, Cl. 32-10.00a.
- Edelson, Andrew C. Electronic combination lock. 3,739,233, Cl. 317-134.000.
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- Edmond, William G. Mass transfer device and method of making same. 3,738,813, Cl. 23-258.500.
- Edwards, James D. Apparatus for loading and unloading printing machines. 3,738,519, Cl. 214-652.000.
- Eftax, Daniel S. P.: See—
- Bozer, Keith B.; Brown, Lloyd H.; and Eftax, Daniel S. P., 3,738,955.
- Ege, Hans, to Underwriters Safety Devices Co. Safety disconnect switch. 3,739,109, Cl. 200-4.000.
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- Eifrid, Stephen. Container. 3,738,563, Cl. 229-23.00t.
- Eiler, Peter, to Gottwald, Leo, K.G. Vehicle chassis frame. 3,738,442, Cl. 180-64.00r.
- Eilingsfeld, Heinz: See—
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- El-Hasan, Hasan Afif; and Packard, Roger Erwin, to Burroughs Corporation. Method and apparatus for fault-testing binary circuit subsystems. 3,739,160, Cl. 235-153.0ac.
- Elo Industries, Inc.: See—
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- Electro-Mechanical Instrument Co., Inc.: See—
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- Elian, Arthur: See—
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- Ellinghouse, Edgar A.; and Johnson, George B., to Interstate Drop Forge Co. Power control circuit for resistance heating moving conductors. 3,739,132, Cl. 219-50.000.
- Ellis, Robert O., to Atlas Pacific Engineering Company. Apple orientor. 3,738,474, Cl. 198-33.0aa.
- Ellner, Edwin, to Better Packages, Inc. Digital readout scale with actuated poise. 3,738,438, Cl. 177-25.000.
- Elmer, Arthur Ernest Henry, to Dynair Limited. Wax capsule valves. 3,738,577, Cl. 236-100.000.
- Eltra Corporation: See—
- Grube, Wolfgang Otto; Harris, Joel S.; and Escoli, Uri Z., 3,738,236.
- Elwell, Robert M.; Kruse, Jurgen M.; and Michelove, Leon, to Ittek Corporation. Method of producing low-scatter surfaces on metal substrates. 3,738,858, Cl. 117-64.00r.
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- Engelmann, Herbert F., to Engelmann Microwave Company. Coaxial attenuator assembly having cross-shaped alternator element. 3,739,305, Cl. 333-81.00a.
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- Erickson Tool Company: See—
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- Eschbaugh, John T.; and Grahl, Darwin R., to Parker-Hannifin Corporation. Expansion valve. 3,738,573, Cl. 236-92.00b.
- Eschelbach, Richard E., to Magnavox Company, The. Magneto-optical signal processor. 3,739,362, Cl. 340-174.10m.
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- Esco Manufacturing Company: See—
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- Evans, Evan Franklin; and Nash, John Barry, to Du Pont de Nemours, E. I., and Company. Draw/relax/anneal process for polyesters. 3,739,056, Cl. 264-290.00t.
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- Fairbanks, Henry N., to Ittek Corporation. Cutting mechanism. 3,738,213, Cl. 83-589.000.
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- Farrell, John M., to General Motors Corporation. Permanent magnet armature valve. 3,738,578, Cl. 239-585.000.
- Farrell, John P.; and O'Connell, Edward P., to United States of America. Air Force. Gross leak vacuum and pressure chamber assembly. 3,738,158, Cl. 73-40.700.
- Fathauer, George H., to Dickey-john Corporation. Slow rotational speed alarm. 3,739,367, Cl. 340-271.000.
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- Fish, James F.; and Parks, Bruce C., to United States of America, Navy. Photographic module having acoustic transducer. 3,738,248, Cl. 95-86.000.
- Fishbein, John; Bell, Raymond W. H.; and Clarke, Anthony J., to Dunlop Holdings Limited. Process for making flame retarded polyurethanes foam. 3,738,947, Cl. 260-2.5am.
- Fisher, Martin Allen. Final approach timer. 3,738,166, Cl. 73-178.00t.
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- Forni, Jay S. Fitting for asbestos cement pipe. 3,738,689, Cl. 285-55.000.
- Forsberg, Charles A., to Tektronix, Inc. Cursor for use in performing graphic input in a display. 3,739,347, Cl. 340-172.500.
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Fuchs, Francis J., Jr., to Western Electric Company, Incorporated. Apparatus and method for continuous material feeding and deformation process. 3,738,145, Cl. 72-270.000.

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Galloway, Robert K., to Scranton, R. A., Industries, Inc. Apparatus for cutting and forming leads of electrical components. 3,738,398, Cl. 140-1.000.

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Garver, Robert V., to United States of America, Army. Single diode single sideband modulator. 3,739,301, Cl. 332-16.00r.

Garza, Benito Gonzalez. Fish hook and live bait harness. 3,738,049, Cl. 43-44.400.

Gates, Walter C., Jr., to Texaco Inc. Hydrogenation of nitroparaffins. 3,739,027, Cl. 260-583.00m.

Gautney & Jones: See—
Gautney, George E.; Piombino, John; and Johnson, Rowland S., 3,739,278.

Gautney, George E.; Piombino, John; and Johnson, Rowland S., to Gautney & Jones. Receiver demuting arrangement employing sequential binary code. 3,739,278, Cl. 325-64.000.

Gazda, Edward S., to Dunham-Bush Inc. Compressor unloader indicator and refrigeration system controlled thereby. 3,738,116, Cl. 62-131.000.

Gebelein, Edward F., Jr.; and Dawes, Michael H., to Chandler Evans, Inc. Frequency multiplier. 3,739,156, Cl. 235-150.300.

Gebhart, Herbert J., Jr.: See—
Franz, Raymond A.; Montgomery, Phillip D.; and Gebhart, Herbert J., Jr., 3,739,038.

Gebr. Bohler & Co. Aktiengesellschaft: See—
Plockinger, Erwin; and Holzgruber, Wolfgang, 3,737,981.

Gebr. Saueressig KG: See—
Saueressig, Johann Heinrich, 3,738,265.

Gehringer, Lyle P. Paint pot holder. 3,738,601, Cl. 248-210.000.

Geiger, Rolf: See—
Jager, Georg; and Geiger, Rolf, 3,738,978.

Gell, Dennis; and Hvidsten, Jan Hogbart, to Stibbe-Monk Development Limited. Machine for the preparation of pattern carriers for circular knitting machines. 3,738,553, Cl. 225-97.000.

Gename, John L., to Omeco-St. John Co., mesne. Packing plant conveyor trolley. 3,738,477, Cl. 198-177.000.

General Electric Company: See—
Adams, Theodore P.; and Bowers, David L., 3,738,369.

Anderson, Robert M., 3,739,166.

Becker, Joseph J.; and Cech, Robert E., 3,738,876.

Billion, John A., 3,737,960.

Bunker, William Marvin; and Tew, Walter Hosey, Jr., 3,739,369.

Busby, Llewellyn D., 3,738,033.

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De Bleyker, James R.; and Hickox, William A., 3,739,221.

De Puy, Robert P., 3,739,274.

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Jones, Claude K.; and Martin, Stuart W., 3,739,220.

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General Electric Corporation: See—
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Brumm, Karl; Moos, Jakob; Weber, Jorg; Drott, Helmut; and Stelzig, Russelsheim, 3,738,197.

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General Processing Corporation: See—
Hollis, Russell E., Jr., 3,738,613.

General Steel Industries, Inc.: See—
Burgess, Francis Travers, 3,738,283.

Gennow, Robert A., to Outboard Marine Corporation. Sod cutter cut-off blade mounting. 3,738,431, Cl. 172-20.000.

Genot, Jeanne, nee Delarbre; Le Grives, Emile; and Berland, Guy, to Office National d'Etudes et de Recherches Aerospatiales (par abbreviation: O.N.E.R.A.). Rotor blades of rotary machines, provided with an internal cooling system. 3,738,771, Cl. 416-96.000.

Gentiluomo, Joseph A. Digital controlled golf ball teeing apparatus. 3,738,663, Cl. 253-201.000.

George, William L.: See—
Zoroglu, Demir S.; and George, William L., 3,737,985.

Gerbig, Hans Erwin: See—
Von Starck, Axel; and Gerbig, Hans Erwin, 3,738,778.

Gerbig, Hans-Erwin: See—
Von Starck, Axel; and Gerbig, Hans-Erwin, 3,738,777.

Gerke, Peter; Bock, Helmut Joachim; and Sennfelder, Anton, to Siemens Aktiengesellschaft. Cross field system with bistable polarized relays. 3,739,101, Cl. 179-180.00e.

Gerod, John T. Steam control method and apparatus for fabric pressing machine. 3,738,385, Cl. 137-606.000.

Geyer, Howard M., to Pneumo Dynamics Corporation. Device for controlled lowering of mass load. 3,738,459, Cl. 192-8.00r.

Ghers, Jean-Claude: See—
Eyzat, Pierre; Ecomard, Andre; Stephant, Claude; and Ghers, Jean-Claude, 3,738,332.

Ghirga, Marcello: See—
Di Fiore, Lucio; Divo, Claudio; and Ghirga, Marcello, 3,738,915.

Gier, Delta W.; and Wasleski, Daniel M., to Baychem Corporation, mesne. Process of killing undesired weeds. 3,738,823, Cl. 71-108.000.

Gill, Thomas R., to GS Equipment Company. Variable speed hydraulic drive system. 3,738,501, Cl. 212-125.000.

Gillet, Roger: See—
Koelbel, Robert; De Vaulx, Joseph; Gillet, Roger; and Lehuen, Christian, 3,739,212.

Gilliom, John W., to Tappan Company, The. Pyrolytic oven. 3,739,146, Cl. 219-393.000.

Gintz, Francis Paul, to BP Chemicals (U.K.) Limited. Vinyl ester/isobutene copolymer dispersion. 3,738,954, Cl. 260-29.60r.

Girault, Pierre: See—
Allais, Andre; and Girault, Pierre, 3,738,987.

Girling Limited: See—
Ingram, Brian; Harries, David Anthony; and Phoenix, Lancelot, 3,738,387.

Williams, Malcolm Clarence, 3,738,406.

Giuliani, Karl. Hinges and more particularly to hinges suitable for adjustable back rests of seating means. 3,737,946, Cl. 16-139.000.

Giunta, Joseph S.; Nicely, Thomas E.; and Patula, Edward J., to United States Steel Corporation. Strip load simulator for shape-measuring roll. 3,738,151, Cl. 73-1.00b.

Glancy, John J. Shoe heel with cushion wedge. 3,738,373, Cl. 128-585.000.

Glaser, Hans Joachim; and Beckmann, Horst, to Flachglas AG Delog-Detag. Sputter-coating apparatus with end feed. 3,738,928, Cl. 204-298.000.

Glatti, Flaviano; and Sanmartin, Pierantonio, to Montecatini Edison S.p.A. Polyvinyl chloride covering for a plant enclosure containing surface active agents to modify water-condensate droplet contact angle. 3,738,956, Cl. 260-41.00r.

Glatzel, Erhard; and Konschack, Erwin, to Carl-Zeiss-Stiftung, d/b/a Zeiss, Carl. High light intensity photographic lens of the extended Gauss type. 3,738,739, Cl. 350-214.000.

Gleim, Paul S.: See—
Bean, Kenneth E.; and Gleim, Paul S., 3,738,883.

Glesmann, Herbert C., to Bed-Well Corporation. Concrete finishing machines. 3,738,763, Cl. 404-119.000.

Globe-Union Inc.: See—
Bickler, Donald Bertram, 3,739,182.

Tigerman, Louis, 3,738,490.

Gloge, Dettlef Christoph, to Bell Telephone Laboratories, Incorporated. Integrating electromagnetic beam position sensor. 3,739,174, Cl. 250-201.00r.

Gober, William C., Jr. Method and apparatus for formulating inks. 3,738,758, Cl. 356-189.000.

Godbey, John K.; Hawk, Daniel E.; and Slover, Vase R., Jr., to Mobil Oil Corporation. Logging-while-drilling apparatus. 3,739,331, Cl. 340-18.0ld.

Gohde, Wolfgang: See—
Dittrich, Wolfgang; and Gohde, Wolfgang, 3,738,759.

Gokey, Phillip E.; and Rose, Frederick A., to Polar Ware Corporation. AC/DC supply circuit for an appliance. 3,739,186, Cl. 307-23.000.

Goldsworthy Engineering Inc.: See—
Goldsworthy, William B.; and Bunnell, John A., 3,738,637.

Goldsworthy, William B.; and Bunnell, John A., to Goldsworthy Engineering Inc. Method and apparatus for filament winding about three axes of a mandrel and products produced thereby. 3,738,637, Cl. 269-61.000.

Golembeck, Gerald A., to United States Bedding Company, The. Mattress assembly. 3,737,929, Cl. 5-345.000.

Goodale, Richard J. Apparatus for trimming the stems of cut flowers. 3,738,212, Cl. 83-602.000.

Goodale, Richard J. Apparatus for trimming the ends off vegetables. 3,738,258, Cl. 99-643.000.

Goodman, Johnny, 1/2 to Bristoni, Joseph J. Vehicle internal-combustion engine fuel control and signal device. 3,738,346, Cl. 123-198.0db.

Goodrich, B. F., Company, The: See—
Coffman, Alfred M., 3,738,971.

Goodyear Tire & Rubber Company, The: See—
Wilson, Farris H., Jr., 3,739,026.

Goto, Hiro: See—
Tomiyama, Shinichi; Susuki, Rinnosuke; Hoshi, Hiroshi; Saito, Jiro; Goto, Hiro; Umehara, Kenji; and Murakami, Keiichi, 3,739,060.

Goto, Kenji; Shibata, Norio; and Mizuno, Kiyohiko, to Toyota Jidosha Kogyo Kabushiki Kaisha. Safety device for an engine equipped with an exhaust gas purifier. 3,738,108, Cl. 60-277.000.

Gottlieb, D., & Company: See—
Garbark, Roman F., 3,739,311.

Gottscho, Adolph, Inc.: See—
Navi, Menashe; and Levy, Murray N., 3,738,260.

Gottwald, Leo, K.G.: See—
Eiler, Peter, 3,738,442.

Gould Inc.: See—
Mayhew, William K.; and Disbrow, Wendell E., 3,739,147.

Gould, James J., to Duro Paper Bag Manufacturing Company. Handle means. 3,737,945, Cl. 16-125.000.

Gracey, Jerome B.: See—
Miller, Arthur J.; Perkins, Raymond; and Sullivan, Harold E., 3,737,941.

Gradnik, Boris; Pedrazzoli, Andrea; and Dall'Asta, Leone, to Societe d'Etudes de Recherches et d'Application Scientifiques et Medicales E.R.A.S.M.E. 2-Hydroxy-5-amino-benzamide derivatives. 3,739,030, Cl. 260-559.00s.

Graff, Kenneth W.; and Sherman, Albert H., to ICI America Inc. Textile treating compositions, process of treating textiles and textile articles. 3,738,981, Cl. 260-239.30r.

Grager, Robert J. Combination holder for skis and ski poles. 3,737,956, Cl. 24-81.0sk.

Grahl, Darwin R.: See—
Eschbaugh, John T.; and Grahl, Darwin R., 3,738,573.

Grainger, Lewis M. D. Anti-pollution portable oil heater. 3,738,798, Cl. 432-222.000.

Granati, Salvatore. Adapter for fitting oversized spools of thread on a spool mount. 3,738,590, Cl. 242-130.000.

Granberg, Eloff. Grinding apparatus and method. 3,738,200, Cl. 76-25.00a.

Grandrud, Ebenhard S. Rotary drive mechanism. 3,738,181, Cl. 74-13.000.

Granger, Edward H., to Phillips, F. C., Incorporated. Shoe outsole unit. 3,738,026, Cl. 36-59.00r.

Grant, Alan, & Partners: See—
Grant, Alan Barnett; and Sherman, Ralph, 3,738,112.

Grant, Alan Barnett; and Sherman, Ralph, to Grant, Alan, & Partners. Bridging or spanning of bodies of water. 3,738,112, Cl. 61-43.000.

Gravel, Charles: See—
Kurtz, Anthony D.; Mallon, Joseph; and Gravel, Charles, 3,739,315.

Gray, Richard W.; Rumball, Paul G.; and Brett, Oliver C., Jr., to USM Corporation. Top sheet separating, hold-back-down mechanism. 3,738,645, Cl. 271-97.000.

Gray, Robert M.: See—
Lieberman, Irving; and Gray, Robert M., 3,737,976.

Great Atlantic & Pacific Tea Company: See—
Hillhouse, Arthur S.; and Fanthorp, Alvin J., 3,739,339.

Great Atlantic & Pacific Tea Company, Inc.: See—
Copeland, John R.; and Reid, James F., 3,739,346.

Grebe, Ludwig, to Kramer & Grebe KG Maschinen-und Modellfabrik. Apparatus for guiding a foil web. 3,738,556, Cl. 226-173.000.

Green, Franklin C. Electro-mechanical free pistol. 3,738,043, Cl. 42-69.00a.

Green, Joseph, to Thiokol Chemical Corporation. High burning rate solid propellant having a silicon-carboranyl copolymer fuel binder. 3,738,878, Cl. 149-19.000.

Green, Max B.: See—
Bechtel, Bartow; and Green, Max B., 3,739,385.

Green, Talmage O., to Snap-On Tools Corporation. Pointers, dials, and method of calibrating dials for measuring instruments. 3,738,152, Cl. 73-1.00c.

Greenebaum, James E., II, to Seaquist Valve Company. Spr-mate overcap. 3,738,541, Cl. 222-402.100.

Gref, Hans: See—
Herzoff, Peter; Gref, Hans; Schweicher, Wolfgang; Heidenreich, Max; and Frenken, Hans, 3,738,018.

Gregory, Edward G., to Rockwell Manufacturing Company. Hinge butt template assembly. 3,738,013, Cl. 102-87.000.

Grenier, Andre. Jacket and trousers combination. 3,737,916, Cl. 2-70.000.

Gribble, Maurice Woolmer, to Ferranti, Limited. Means for producing relative movement between two bodies. 3,738,764, Cl. 408-3.000.

Griffey, Donald E., to Motorola, Inc. Gaseous light firing circuit for television receivers. 3,739,094, Cl. 178-7.30r.

Griffin, William C.; Barker, Lynn; and Foote, Kenneth R., to United States of America, Navy. Pyrotechnic apparatus to assist in the tracking of aircraft. 3,738,277, Cl. 102-87.000.

Griffith Laboratories, Inc., The: See—
Neubeck, W. H., Jr.; and Kloska, Anthony J., 3,738,554.

Grimsrud, Lars: See—
Cappelen, Christian, Jr.; and Grimsrud, Lars, 3,738,382.

Griswold and Rauma, Architects, Inc.: See—
Rauma, John G., 3,738,724.

Grodinsky, Robert M. Controlled carrier amplitude modulated signal transmitting and receiving system. 3,739,280, Cl. 325-144.000.

Grollich, Ekkehard: See—
Rach, Heinz-Dieter; and Grollich, Ekkehard, 3,738,408.

Gronberg, Sven Jorgen Gerhard. Device in striking cutters. 3,738,584, Cl. 241-190.000.

Grosbard, Gregory, to Radion Development Corporation. Projectile. 3,738,272, Cl. 102-38.000.

Gross Cash Registers Limited: See—
Gross, Henry; and Gross, Samuel, 3,739,161.

Gross, Franz: See—
Veith, Werner; Gross, Franz; and Pobl, Konrad, 3,739,303.

Gross, Henry; and Gross, Samuel, to Gross Cash Registers Limited. Cash registers and other accounting machines keyboard-operated. 3,739,161, Cl. 235-156.000.

Gross, Samuel: See—
Gross, Henry; and Gross, Samuel, 3,739,161.

Grosseau, Albert, to S.A. Automobiles Citroen. Device for driving a passive element according to a predetermined law of movement. 3,738,110, Cl. 60-368.000.

Grossi, Giuseppe: See—
Camiciotti, Roberto; and Grossi, Giuseppe, 3,739,098.

Grossman, Norman J.; Heid, Kermit K. W.; and Pittman, Richard D., to Northrop Corporation. Interconnected electrical circuit board assembly and method of fabrication. 3,739,232, Cl. 317-101.0cp.

Groundwater, Fergus M.: See—
Eyre, Frank W.; and Groundwater, Fergus M., 3,738,279.

Grube, Wolfgang Otto; Harris, Joel S.; and Escoli, Uri Z., to Eltra Corporation. Photo composing machines. 3,738,236, Cl. 95-4.500.

Gruenwald, Bjorn J., to Alpha Press Electronics, Inc. Reversible programmer for electric circuits. 3,739,113, Cl. 200-38.00r.

GS Equipment Company: See—
Gill, Thomas R., 3,738,501.

Guardian Packaging Corporation: See—
White, Jerome R., 3,739,130.

Gulf Oil Canada Limited: See—
Kaminsky, Victor Paul, 3,738,930.

Gulf Research & Development Company: See—
Clinton, Russell M.; and Puzniak, Thomas J., 3,738,810.

Cunningham, Glenn P.; and Larson, John G., 3,738,808.

Heavin, Leonard J., 3,738,976.

Legally, Ralph W.; and Schulz, Johann G. D., 3,739,028.

Guntow, Herbert A., to Briggs & Stratton Corporation. Safety device for small gasoline engines. 3,738,345, Cl. 123-169.00r.

Gundlach, Robert W., to Xerox Corporation. Induction imaging system. 3,738,855, Cl. 117-17.500.

Gunn, William J., to United States Steel Corporation. Method and apparatus for cold working seamless tubes. 3,738,146, Cl. 72-283.000.

Gunter, Colie Walton: See—
O'Neal, James Everett; Gunter, Josef Karl; and Gunter, Colie Walton, 3,737,952.

Gunter, Josef Karl: See—
O'Neal, James Everett; Gunter, Josef Karl; and Gunter, Colie Walton, 3,737,952.

Guntersdorfer, Max; and Heywang, Walter, to Siemens Aktiengesellschaft. Apparatus for atomizing fluids with a piezoelectrically stimulated oscillator system. 3,738,574, Cl. 239-102.000.

Guntersdorfer, Siegfried: See—
Heberle, Wolfgang; Guntersdorfer, Siegfried; and Klein, Peter, 3,739,090.

Gunther, Wolfgang H. H. Chalcogen organic compounds used in electrophotographic plates and processes. 3,738,831, Cl. 96-1.500.

Gusdorf & Sons, Inc.: See—
Gusdorf, Walter; and Camilleri, Charles F., 3,738,287.

Gusdorf, Walter; and Camilleri, Charles F., to Gusdorf & Sons, Inc. Hub and leg mounting for pedestal stands. 3,738,287, Cl. 108-150.000.

Gutshall, Charles E., to Elco Industries, Inc. Drilling and thread forming fastener. 3,738,218, Cl. 85-47.000.

Guyton, Hayward T.: See—
Hazelhurst, Gerald D.; Fussell, Don L.; and Guyton, Hayward T., 3,739,330.

Gwyn, Childress B., Jr., to Contacts Incorporated. Method for making cold bonded electrical composite contacts. 3,737,999, Cl. 29-630.000.

Haas, Gunter, to Kalle Aktiengesellschaft. Process and apparatus for increasing the charge density of insulators. 3,739,246, Cl. 317-262.00a.

Haaser, Walter L. Photographic developing tray. 3,738,251, Cl. 95-95.000.

Hackstein, Karl-Gerhard: See—
Rachor, Lothar; and Hackstein, Karl-Gerhard, 3,738,912.

Haegert, Clarence B. Battery terminal clamp. 3,739,322, Cl. 339-230.00r.

Hage, Joseph C., to Singer Company. The. Automatic adjuster for clutch and brake. 3,738,462, Cl. 192-18.00r.

Hagemann, Walter; and Zimmermann, Erwin, to Siemens & Henschel. Pump unit for conveying high temperature media. 3,738,781, Cl. 417-423.00r.

Hager, Klaus, to Bosch, Robert, Photokino G.m.b.H. Photographic apparatus with means for obstructing the passage of light through the viewfinder. 3,738,238, Cl. 95-11.00v.

Hakim, Louise Z. Blanket holder with stable and protected safety pin. 3,737,955, Cl. 24-72.500.

Hakki, Moustafa I.: See—
Costales, Manuel; and Hakki, Moustafa I., 3,738,094.

Hale, Elden A., Sr., to Koppers Company, Inc. Seal assembly for goggle valves. 3,738,610, Cl. 251-167.000.

Haley, Richard L. Spring hanger bracket and leaf spring intermediate support. 3,738,631, Cl. 267-52.000.

Hall, Bernard Arthur; and Hollins, Stanley Peter, to Lucas, Joseph, (Industries) Limited. Spark erosion machining. 3,739,138, Cl. 219-69.00d.

Hall, John F., to Chrysler Corporation. Five-way control valve and system. 3,738,384, Cl. 137-493.900.

Hall, Mitchell A., to Monarch Tool & Manufacturing Company. Lock box construction. 3,738,134, Cl. 70-86.000.

Hall, Walter L.: See—
Webb, Jimmy L.; and Hall, Walter L., 3,739,035.

Hall, William K., Jr. Air flow control system. 3,738,572, Cl. 236-49.000.

Hallett, Stanley Augustus. Splint. 3,738,358, Cl. 128-85.000.

Hallcrafters Co., The: See—
Schneider, Robert J.; and Levy, William I., 3,739,277.

Halliday, Michael: See—
Blair, Pete, 3,738,642.

Halm, Roland L.: See—
Valicenti, John A.; Halm, Roland L.; and Stark, Forrest O., 3,739,036.

Halpern, William J.; and Damm, Carl A., to United States of America, Navy. Safety pin assembly. 3,738,222, Cl. 89-1.50d.

Hamamatsu TV Co., Ltd.: See—
Kurasawa, Kazuo, 3,739,091.

Hamamoto, Hiroshi: See—
Kimura, Takashi; Abe, Yoshihiko; and Hamamoto, Hiroshi, 3,738,830.

Hammes, Paul A.; Everson, Charles W.; and Danner, Wilson E., to Merck & Co., Inc. Process for preparing cured sausages. 3,738,842, Cl. 99-109.000.

Hanagarth, Wolfgang; and Schafer, Richard, to Klein, Schunzlin & Becker Aktiengesellschaft. Housing for centrifugal pumps. 3,738,769, Cl. 415-110.000.

Hanaoka, Masafumi: See—
Noda, Toshimasa; Hanaoka, Masafumi; and Kouno, Akiyoshi, 3,739,079.

Hancock, John, Furniture Manufacturing Co.: See—
Hermanson, Lloyd H., 3,737,926.

Hand, Albert E. Sled ski. 3,738,676, Cl. 280-22.000.

Handley, Norman C. Replaceable towel rod. 3,738,498, Cl. 211-105.100.

Hansen, Raymond J. Aircraft takeoff abort indicator. 3,738,165, Cl. 73-178.001.

Hanson, Alden B.; and Hanson, Chris A., to Hanson Industries Inc. Ski boot having variable stiffness. 3,738,025, Cl. 36-2.5al.

Hanson, Chris A.: See—
Hanson, Alden B.; and Hanson, Chris A., 3,738,025.

Hanson Industries Inc.: See—
Hanson, Alden B.; and Hanson, Chris A., 3,738,025.

Hanton, Daniel, to Compagnie de Saint-Gobain. Process for expanding polystyrene. 3,738,020, Cl. 34-217.000.

Hanway, John E., Jr., to Chicago Bridge & Iron Company. Counter-flow sludge burner. 3,738,289, Cl. 110-8.00r.

Hara, Hisashi, to Tokyo Shibaura Electric Co., Ltd. Semiconductor device with a field effect transistor. 3,739,238, Cl. 317-235.00r.

Harada, Kotsuke; and Takeuchi, Shinjiro, to Mishima Kosan Co., Ltd. Fluid injection recording system utilizing alternating bias field. 3,739,396, Cl. 346-140.000.

Hardel, Hans-Joachim: See—
Sennwald, Kurt; Ohorodnik, Alexander; Mittler, Werner; Hundel, Joachim; and Hardel, Hans-Joachim, 3,739,023.

Harding, Edward B.: See—
Kalb, Henry T.; Crosswy, Frank L.; and Harding, Edward B., 3,738,750.

Hardinge Brothers, Inc.: See—

Parsons, Hubert J., 3,738,206.

Hardwick-Etter Company: See—
Neitzel, Joseph C.; and Strandberg, Robert C., 3,739,266.

Hardy, John C., to Angelica Corporation. Patient garment with temperature control. 3,738,367, Cl. 128-379.000.

Hargett, Richard L.; and Humphrey, Samuel A., to United States of America, Navy. Homing depth bomb for searching for an underwater target. 3,738,270, Cl. 102-7.000.

Harkins, Bruce F. Monetary decoding device. 3,739,068, Cl. 35-2.000.

Harkins, Samuel J., to Leeds & Northrup Company. Self-balancing recorder. 3,739,384, Cl. 346-139.00c.

Harkness, Eric Harold: See—
Fuchshuber, Karlheinz Herbert; and Harkness, Eric Harold, 3,739,245.

Haron, James D., to Inland Service Corporation. Dredging head with pivotally mounted mud shield. 3,738,029, Cl. 37-66.000.

Harper, Bruce Melvin. Universal mounting bracket. 3,738,600, Cl. 248-121.000.

Harries, David Anthony: See—
Ingram, Brian; Harries, David Anthony; and Phoenix, Lancelot, 3,738,387.

Harris, Arthur Winslow; and Adkins, Robert Louis, to Chicago Bridge & Iron Company. Self-centering turntable for machining large circular objects. 3,738,205, Cl. 82-4.00r.

Harris, Elwyn Dean, to Commander Industries, Inc. Machine for loading strips into boxes. 3,738,505, Cl. 214-6.00d.

Harris, Ewell J. Combination fish lure and swivel. 3,738,045, Cl. 43-42.120.

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Kluge, Willi; and Kluge, Reinhard, 3,738,644.

Kluge, Willi; and Kluge, Reinhard. Apparatus for separating a row of tierlike superposed flat articles, particularly newspapers. 3,738,644, Cl. 271-64.000.

Knapp, Edward Ronald, to Timken Company. The. Roller bearing rings. 3,737,965, Cl. 29-148.40r.

Knapp, Robert E. Salad serving combination including container for salad ingredients and cups for dressings or garnishes removably supported thereby. 3,738,525, Cl. 220-234.000.

Knapsack Aktiengesellschaft: See—
Sennewald, Kurt; Ohorodnik, Alexander; Mittler, Werner; Hundenck, Joachim; and Hardel, Hans-Joachim, 3,739,023.

Knauer, Kuno: See—
Butter, Karl; and Knauer, Kuno, 3,738,916.

Knebel, William J., to General Electric Corporation. Spool with means for start wire insulation. 3,739,312, Cl. 336-192.000.

Knickerbocker, Karl. Coin mechanism for vending machines. 3,738,466, Cl. 194-18.000.

Knobloch, Walter: See—
Auer, Werner; Buschmann, Karl; Hauser, Heinz; and Knobloch, Walter, 3,738,940.

Knorr-Bremse GmbH: See—
Pollinger, Hans; Pohla, Alfred; and Kirchlechner, Hans, 3,738,680.

Knudson, Kay L.: See—
Thorne, Gale H.; Wood, Orin Lew; and Knudson, Kay L., 3,738,914.

Knyazatov, Andrei Serafimovich: See—
Nastjukha, Alexandr Ivanovich; Bepalov, Oleg Georgievich; Knyazatov, Andrei Serafimovich; Smirnov, Pavel Alexandrovich; and Udovenko, Alexandr Nikolaevich, 3,739,227.

Ko, Wen H., to North American Manufacturing Company. Light sensitive control. 3,739,177, Cl. 250-206.000.

Kobayashi, Teruo: See—
Kamano, Hideo; Kato, Hiroetetu; Kobayashi, Teruo; and Inoue, Kazuo, 3,738,846.

Koch, Claude V., to AMF Incorporated. Electrical timer switch assembly with improved switch operator means for automatic and manual tripping. 3,739,112, Cl. 200-38.00f.

Koebner, Adolph: See—
Bloch, Michael; and Koebner, Adolph, 3,738,996.

Koehring Company: See—
Wilke, Raud A., 3,738,379.

Koelbel, Robert; De Vaulx, Joseph; Gillet, Roger; and Lehuen, Christian, to Societe Generale de Constructions Electriques et Mecaniques (Alsthom). Device for the wedging of coils of rotors of electric machines. 3,739,212, Cl. 310-194.000.

Koetsuka, Yokichi: See—
Atsuta, Hisayoshi; and Koetsuka, Yokichi, 3,738,284.

Kogure, Motoo: See—
Ando, Yuzo; and Kogure, Motoo, 3,738,838.

Kohl, Hans: See—
Wolf, Erhard; Kohl, Hans; and Hartfelder, Gunter, 3,738,982.

Kojima, Isao; Takahashi, Tetsuya; Sasaki, Takeshi; and Yosimura, Tatuwo, to Hitachi, Ltd. Voltage multiplying rectifier device. 3,739,254, Cl. 321-15.000.

Koltz, John M.; and Scerbo, Frank J., to Bendix Corporation. The. Stored energy gyro. 3,738,179, Cl. 74-5.700.

Komaki, Takao: See—
Matsumoto, Seiji; Tamai, Yasuo; and Komaki, Takao, 3,738,832.

Koncz, Tihamer: See—
Koncz, Tihamer; and Zimmerli, Max (said Zimmerli assor. to said), 3,739,050.

Koncz, Tihamer; and Zimmerli, Max, said Zimmerli assor. to said Koncz, Tihamer. Process and apparatus for making large-area concrete panels. 3,739,050, Cl. 264-39.000.

Konishiroku Photo Industry Co., Ltd.: See—
Ando, Yuzo; and Kogure, Motoo, 3,738,838.

Kuwabara, Yoshimi; Matsuo, Shunji; Ishikawa, Hidehiko; and Sato, Mikio, 3,738,837.

Konschack, Erwin: See—
Glatzel, Erhard; and Konschack, Erwin, 3,738,739.

Kooiman, Pieter L., to Algemene Scandinavische Import Steel Maatschappij (A.S.I. Staal) N.V. Device of the self-leveling type for storing and dispensing a stack of articles. 3,738,722, Cl. 312-71.000.

Koppers Company, Inc.: See—
Hale, Elden A., Sr., 3,738,610.

Kopville, Olaf; and Mac Lean, James W., to Shell Oil Company. Articles produced by casting of sulfur asphalt. 3,738,853, Cl. 106-274.000.

Kortenhaus, Dieter, to NSM Apparatebau GmbH. Selective retrieval and memory system. 3,739,342, Cl. 340-162.000.

Kostenbader, Paul D., to Bethlehem Steel Corporation. Method for treating acid water containing metallic values. 3,738,932, Cl. 210-46.000.

Kostora, Lothar: See—
Biesinger, Erwin; Kostora, Lothar; and Sohnchen, Karl, 3,738,129.

Kotkins, Henry L., to Skyway Luggage Company. Method of manufacturing luggage cases and the like and products produced thereby. 3,737,980, Cl. 29-515.000.

Kouno, Akiyoshi: See—
Noda, Toshimasa; Hanaoka, Masafumi; and Kouno, Akiyoshi, 3,739,079.

Kozu, Isao: See—
Hino, Tetsuo; Orita, Takao; Kozu, Isao; Fujisawa, Kiyoji; and Nishiyama, Akio, 3,738,021.

Kraemer, George P., II. Anti-pollution recirculation tank for marine and similar use. 3,738,489, Cl. 210-94.000.

Kraft, Uno Ingemar, to Svenska Aktiebolaget Bromsregulator. Hydraulically operated cylinder-piston unit. 3,738,229, Cl. 92-17.000.

Kraftco Corporation: See—
Nezbed, Robert L.; and Zamzow, William H., 3,738,412.

Krambeck, Robert Harold, to Bell Telephone Laboratories, Incorporated. Buried channel charge coupled devices. 3,739,240, Cl. 317-235.00r.

Kramer & Grebe KG Maschinen-und Modellfabrik: See—
Grebe, Ludwig, 3,738,556.

Krapcho, John; and Bernstein, Jack, to Squibb, E. R., & Sons, Inc. 2,3,4,5-Tetrahydro-2-phenyl-1,4-benzothiazepine, hydrochloride. 3,738,999, Cl. 260-327.00b.

Kratochvil, Frank: See—
Zundel, Arthur P.; Patarini, Leon M.; Nickel, Warren A.; and Kratochvil, Frank, 3,738,526.

Krekow, Iniz I. Radiation sensitive traffic warning system. 3,739,179, Cl. 250-216.000.

Kretschmer, Horst: See—
Pusching, Klaus-Dieter; Patzwahl, Hans-Jurgen; and Kretschmer, Horst, 3,738,891.

Kronman, Albert F.: See—
Kline, John C.; and Kronman, Albert F., 3,737,927.

Kronseder, Hermann: See—
Pusching, Klaus-Dieter; Patzwahl, Hans-Jurgen; and Kretschmer, Horst, 3,738,891.

Kropfli, Robert A.; Katz, Isadore; Tritabaugh, Kenneth F.; and Beard, Richard M., to United States of America, Navy, mesne. Method and apparatus for target discrimination in a clutter environment. 3,739,377, Cl. 343-5.00r.

Kruse, Jurgen M.: See—
Elwell, Robert M.; Kruse, Jurgen M.; and Michelove, Leon, 3,738,858.

Kubatec Kunststoff- und Bautechnik AG: See—
Brandenberger, Ernst, 3,738,288.

Kubo, Moritada. Control system for the travel of a goods trolley. 3,738,443, Cl. 180-98.000.

Kubo, Naoshi: See—
Inoue, Gilchi; Kubo, Naoshi; and Hatano, Shogo, 3,738,115.

Kubo, Seitoku; Hashimoto, Mashanao; Akashi, Teruo; and Hayashi, Chihiro, to Toyota Jidosha Kogyo Kabushiki Kaisha. Control system for an automatic transmission. 3,738,182, Cl. 74-866.000.

Kubo, Seitoku; Hashimoto, Mashanao; and Hayashi, Chihiro, to Toyota Jidosha Kogyo Kabushiki Kaisha. Control system for an automatic transmission. 3,738,196, Cl. 74-866.000.

Kubo, Seitoku; Mori, Takakazu; Akashi, Teruo; and Hayashi, Chihiro, to Toyota Jidosha Kogyo Kabushiki Kaisha. Shift control system for automatic transmission. 3,738,199, Cl. 74-869.000.

Kubo, Tomitaro: See—
Sugaie, Suezio; Watanabe, Masayuki; and Kubo, Tomitaro, 3,738,863.

Kufirin, Robert J.: See—
Horowitz, Samuel I.; and Kufirin, Robert J., 3,738,807.

Kuhlman, Lorraine O., to Laco Manufacturing Company. Flow nozzle and valve. 3,738,399, Cl. 141-21.00s.

Kuhn, Russell P. Tap wrench with swivel drive. 3,738,768, Cl. 408-240.000.

Kulczycki, Stanley N.: See—
Betts, Edward E.; and Kulczycki, Stanley N., 3,738,497.

Kulicke and Soffa Industries, Inc.: See—
Kulicke, Frederick W., Jr.; and LePone, John J., 3,738,560.

Kulicke, Frederick W., Jr.; and LePone, John J., to Kulicke and Soffa Industries, Inc. Semiconductor die bonder. 3,738,560, Cl. 228-10.000.

Kulite Semiconductor Products Inc.: See—
Kurtz, Anthony D.; Mallon, Joseph; and Gravel, Charles, 3,739,315.

Kumon, Osamu: See—
Osada, Mitsuo; Kumon, Osamu; and Nishimoto, Tatsuya, 3,738,936.

Kump, Wilhelm: See—
Bickel, Hans; and Kump, Wilhelm, 3,738,980.

Kundo (Kieninger & Obergfell): See—
Scheer, Erich, 3,738,098.

Kunimatsu Sangyo Co., Ltd.: See—
Kunimatsu, Takateru, 3,738,703.

Kunimatsu, Takateru, to Kunimatsu Sangyo Co., Ltd. Sunshade for foldable chair or bed. 3,738,703, Cl. 297-184.000.

Kunsi, Helmut; and Wasels, Heinrich, to Institute fur Harterei Technik and Wasels, Heinrich, Trade Representative. Brake or clutch lining. 3,738,463, Cl. 192-107.00m.

Kurasawa, Kazuo, to Hamamatsu TV Co., Ltd. Method and apparatus for displaying image and measuring object therein. 3,739,091, Cl. 178-68.000.

Kurgan, Walter V.: See—
Gallaoreis, Alfred P.; and Kurgan, Walter V., 3,738,581.

Kurihara, Hirono: See—
Takehisa, Masaaki; Senrui, Shiro; Kurihara, Hirono; Maruyama, Yoshio; Watanabe, Hiromasa; Nakajima, Hayato; Touhei, Masamichi; Simada, Takeo; Suwa, Takesi; Takasaka, Yoshio; and Hashiba, Hideyuki, 3,738,974.

Kurtz, Anthony D.; Mallon, Joseph; and Gravel, Charles, to Kulite Semiconductor Products Inc. Semiconductor transducers having H shaped cross-sectional configurations. 3,739,315, Cl. 338-3.000.

Kurze, Ulrich J.: See—
Ver, Istvan L.; and Kurze, Ulrich J., 3,738,448.

Kushner, Bernard N. Multi-window teaching device. 3,738,022, Cl. 35-9.00r.

Kuwabara, Yoshimi; Matsuo, Shunji; Ishikawa, Hidehiko; and Sato, Mikio, to Konishiroku Photo Industry Co., Ltd. Light-sensitive color photographic material. 3,738,837, Cl. 96-84.00r.

Kuwada, Edward A. Rule and compass device. 3,738,009, Cl. 33-27.00c.

Kyowa Hakko Kogyo Kabushiki Kaisha: See—
Uzu, Keltzo; Nakane, Kinichi; and Takakashi, Toshinaka, 3,738,998.

La Costa, Nicholas J., to United States of America, Army, mesne. Grenade round with means giving forward momentum to the fired case. 3,738,271, Cl. 102-38.000.

Labbe, Francis Auguste Maurice; and Powell, Gordon Francis Wellington, to Molins Machine Company Limited. Manufacture of cigarettes and other tobacco-filled rod-like articles. 3,738,376, Cl. 131-21.00b.

Labin, Emile: See—
Perot, Gilbert; Labin, Emile; and Da Silveira, Miguel, 3,739,383.

Lace, Melvin A., to Motorola, Inc. Flowmeter for engine cooling system. 3,739,366, Cl. 340-239.00r.

Lacklison, David Edward, to U.S. Philips Corporation. Method of magnetic data storage. 3,739,360, Cl. 340-174.0vc.

Laco Manufacturing Company: See—
Kuhlman, Lorraine O., 3,738,399.

Lacombat, Michel: See—
Marcy, Raymond; and Lacombat, Michel, 3,738,754.

Ladenberger, Volker: See—
Bronstert, Khuis; Hofmann, Alfred; Fahrbach, Gerhard; and Ladenberger, Volker, 3,738,907.

Laigally, Ralph W.; and Schulz, Johann G. D., to Gulf Research & Development Company. Preparation of amines. 3,739,028, Cl. 260-585.00a.

Laigo, Ben M. Broiler. 3,738,255, Cl. 99-450.000.

L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procédes Georges Claude: See—
Simonet, Guy; and Rico, Hubert, 3,738,084.

Laker, Abraham, to RCA Corporation. Method of making a semiconductor device. 3,738,880, Cl. 156-17.000.

Lambert, Raymond H.: See—
Chandra, Subhash; and Lambert, Raymond H., 3,738,731.

Lambert, Ronald D., to Fall, Herbert S. Anti-creep ball bearing retainer for a drawer slide. 3,738,716, Cl. 308-3.800.

Lanas, Frances J.: See—
Lunas, Francis J.; Burroughs, Edward E.; and Smith, Franklin G. (said Burroughs and Smith assors. to said), 3,738,363.

Lancy Laboratories, Inc., mesne: See—
Lancy, Leslie E., 3,738,868.

Lancy, Leslie E., to Lancy Laboratories, Inc., mesne. Waste treatment of aluminum containing solution. 3,738,868, Cl. 134-13.000.

Landsinger, Edmund E.; Nagus, Wilfred; Papavasiliou, Prodromos; and Stewart, George W. Jr., to Mattel, Inc. Globule display toy. 3,738,036, Cl. 40-106.210.

Landsman, Robert M., to Perkin-Elmer Corporation. The. Printing plate production method and apparatus. 3,739,088, Cl. 178-6.6tp.

Lane, Robert E.: See—
Terry, Ruel C.; and Lane, Robert E., 3,738,929.

Lange, Gerhard, to Siemens Aktiengesellschaft. Overvoltage arrester. 3,739,230, Cl. 317-62.000.

Langekepp, Erhard. Blow-moulding machines. 3,738,788, Cl. 425-326.000.

Langley London Limited: See—
Melluish, Anthony George, 3,738,591.

Langner, Gerhard, to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation. Ball bearing. 3,738,719, Cl. 308-189.00a.

Lapointe, Lloyd J. Electrical switch. 3,739,310, Cl. 335-207.000.

Lapp, John; and Weiler, Norbert R., to McGraw-Edison Company. Method of making an impregnated plastic dielectric capacitor. 3,737,961, Cl. 29-25.420.

Larkin, Wallace K. Amphibious apparatus for conventional land aircraft. 3,738,598, Cl. 244-105.000.

Larson, John G.: See—
Cunningham, Glenn P.; and Larson, John G., 3,738,808.

Larson, Lawrence L.: See—
Ruger, William B.; and Larson, Lawrence L., 3,738,042.

Lassy, Carl O. Workpiece supporting clip on parallels and roller bearing type hold-down jaws. 3,738,638, Cl. 269-136.000.

Latall, Roy C., to Conco Inc. Apparatus for and method of locating leaks in a pipe. 3,739,089, Cl. 178-6.800.

Latash, Yury Vadimovich: See—
Medovar, Boris Izrailevich; Latash, Yury Vadimovich; Bondarenko, Oleg Petrovich; and Bogachenko, Alexsey Georgievich, 3,738,825.

Lau Incorporated: See—
Ranz, James R., 3,737,966.

Lauer, James L., to Sun Research and Development Co. Shock wave reactions. 3,739,063, Cl. 423-648.000.

Lawrence Brothers, Inc.: See—
Newlon, Robert L., 3,738,133.

Lawson, Alfred C., to Sybron Corporation. Automatic loading and unloading apparatus for washers, sterilizers and like vessels. 3,738,508, Cl. 214-23.000.

Lawson, Dale W.: See—
Scherer, Carl A.; and Lawson, Dale W., 3,738,119.

Layne, Ronald Paul. Photographic film processor. 3,738,250, Cl. 95-89.00r.

Lazar, Ferenc, to Tatabanyai Szenbanyak. Treatment of aluminate digester liquor. 3,738,411, Cl. 159-47.00r.

Lazar, Ralph M.: See—
Rockwood, Albert M.; Lemieux, Robert W.; Lutz, Allen; and Lazar, Ralph M., 3,738,656.

Le Grives, Emile: See—
Genot, Jeanne, nee Delarbre; Le Grives, Emile; and Berland, Guy, 3,738,771.

Le Roy, Guy, to Societe Lannionnaise d'Electronique et Compagnie Industrielle des Telecommunications. Variable capacity memory. 3,739,354, Cl. 340-173.00r.

Leach, Rex, Jr., to Horn, Paul, Farms, Inc. Batch weighing machine. 3,738,077, Cl. 53-59.00w.

Lear Siegler, Inc.: See—
Motz, Carl H.; Anthony, Russell W.; and Peterson, George C., 3,738,140.

Lecomte, Alexandre, to Regie Nationale des Usines Renault and Automobiles Peugeot. Methods of manufacturing steering wheels. 3,738,885, Cl. 156-172.000.

Lectron Industries, Inc.: See—
Branz, Weldon K.; Pennington, John C.; and Terpening, Leslie E., 3,738,660.

Lee, Barry T.; Wimmer, Gunther W.; and Hyatt, Gilbert P. Adaptive illumination source intensity control device. 3,738,242, Cl. 95-12.000.

Lee, Kirkwood M.; and Liddell, Arlyn G., to Eaton Corporation, mesne. Conveyor system. 3,738,475, Cl. 198-38.000.

Leeds & Northrup Company: See—
Harkins, Samuel J., 3,739,384.

Lefferdink, Theodore B.: See—
Anorga, Carlos J.; Chess, Samuel; and Lefferdink, Theodore B., 3,738,953.

Legler, Ernst, to Fernseh G.m.b.H. Television signal blanking. 3,739,092, Cl. 178-7.100.

Lehmann, Hans-Gunter; and Zollner, Georg, to Schering Aktiengesellschaft. 14,15-Beta-epoxycardenolides. 3,738,984, Cl. 260-239.570.

Lehuen, Christian: See—
Koelbel, Robert; De Vaulx, Joseph; Gillet, Roger; and Lehuen, Christian, 3,739,212.

Leiboff, Teague N.; and Powers, Joseph W., Jr., to Northrop Corporation. Digital system for band width reduction of video signals. 3,739,083, Cl. 178-6.000.

Leistner, Rudolf, to Braun Aktiengesellschaft. Camera with automatically operating exposure means. 3,738,244, Cl. 95-31.0fs.

Lemieux, Robert W.: See—
Rockwood, Albert M.; Lemieux, Robert W.; Lutz, Allen; and Lazar, Ralph M., 3,738,656.

Lemon, Lucien W.; and Palsson, Kristjan H., to Pacific Car and Foundry Company. Convertible railway hopper car. 3,738,511, Cl. 214-82.000.

- Lenz, Conrad. False bottom for straining vats. 3,738,496, Cl. 210-488.000.
- Leonard, Didier, to Compagnie Industrielle des Telecommunications CIT-Alcatel. Transmitter receiver for radio telephone network. 3,739,102, Cl. 179-41.00a.
- LePone, John J.: See—
Kulicke, Frederick W., Jr.; and LePone, John J., 3,738,560.
- Leppert, Dale V. High frequency ferroresonant transformer. 3,739,255, Cl. 321-16.000.
- Les Fabriques d'Assortiments Reunies: See—
Simon-Vermot, Andre, 3,738,101.
- Lessig, William R., III: See—
Dietzen, William H.; Lessig, William R., III; Alsrue, Leonard U.; and Younger, Howard I., 3,738,003.
- Lester, Robert W., to Recognition Devices, Inc. Electronic system for locating. 3,739,329, Cl. 340-16.00r.
- Lestrade, Marguerite Elise; and Herret, Jean, to Etat Francais. Anodic oxidation of aluminum and alloys thereof to form hard anodized coatings thereon. 3,738,921, Cl. 204-58.000.
- Lever Brothers Company: See—
Priestley, Hill M.; and Wilson, James H., 3,739,031.
- Levesque, Rodolphe J.: See—
Bachusky, Wayne J.; and Levesque, Rodolphe J., 3,738,278.
- Levine, Samuel W.: See—
Frobosilo, Raymond C.; and Levine, Samuel W., 3,738,413.
- Levy, Murray N.: See—
Navi, Menashe; and Levy, Murray N., 3,738,260.
- Levy, William I.: See—
Schneider, Robert J.; and Levy, William I., 3,739,277.
- Lewakowski, John Janusz. Engine exhaust recirculation. 3,738,342, Cl. 123-119.00a.
- Lewis, James G.; and Hughes, Thomas A., to United States of America. Interior. Automatic stereoscopic profiling system. 3,738,746, Cl. 355-22.000.
- Leybold-Heraeus Verwaltung GmbH: See—
Ermold, Edgar; Schwarz-Domke, Hans F. W.; Scheidig, Helmut; and Redel, Karl-Georg, 3,739,066.
- Leyburn, Derek; Ahmad, Khurshid; and Thomas, Robert, to Bell Telephone Company of Canada, The. Telephone message accounting system. 3,739,097, Cl. 179-7.10r.
- Licentia Patent-Verwaltungs-G.m.b.H.: See—
Bruch, Walter; and Scholz, Werner, 3,739,282.
- Liddell, Arlyn G.: See—
Lee, Kirkwood M.; and Liddell, Arlyn G., 3,738,475.
- Lieberman, Irving; and Gray, Robert M., to Whittaker Corporation. Method of forming filament reinforced metallic sheets. 3,737,976, Cl. 29-470.100.
- Liebrand, Jerome T., to Pfizer Inc. Process for the manufacture of sugar confections. 3,738,845, Cl. 99-134.00r.
- Lief, Arthur: See—
D'Agostino, Michael V., 3,739,200.
- Lilly, Eli, and Company: See—
Hayes, Harold B.; and Huff, Gerald L., 3,739,002.
- Liming, Eugene H.; and Heffelfinger, Robert E. Timer control for trap release. 3,739,373, Cl. 340-309.10r.
- Lincoln Brass Works, Inc.: See—
Blanz, Eugene J.; and Duperow, Donald E., 3,738,577.
- Lincoln Manufacturing Company, Inc.: See—
Joeckel, Stanley V., 3,738,256.
- Linder, Jerome; Maravetz, Lester L.; Schmit, George N.; and Newman, Neil F., to Esso Research and Engineering Company. Process for the preparation of cyclopropylmethyl alkyl amines. 3,739,025, Cl. 260-563.00d.
- Lindquist, Julius A.; and Sommers, Jay R., to Johnson & Johnson. Non-slip instrument pad. 3,738,359, Cl. 128-132.00d.
- Lindros, Charles Jerome: See—
Moldovan, Michael Terrance, Jr.; Lindros, Charles Jerome; Wescott, Robert Dean; and Anderson, Lawrence Levi, 3,739,151.
- Linsig, Andre, to UNELEC. Device for detecting the thermal overloads of a rotating member. 3,738,175, Cl. 73-362.0cp.
- Lion Fat & Oil Co., Ltd.: See—
Tomiyama, Shinichi; Susuki, Rinnosuke; Hoshi, Hiroshi; Saito, Jiro; Goto, Hiro; Umehara, Kenji; and Murakami, Keiichi, 3,739,060.
- Lippel, Bernard, to United States of America, Army. Ordered dither system. 3,739,082, Cl. 178-6.000.
- Lipscomb, Walter Peter; and Turner, Garland Linwood, to Allied Chemical Corporation. Foraminal apparatus for splaying and depositing nonwoven filamentary structures. 3,738,894, Cl. 156-441.000.
- Litchfield, Mason Raleigh; and Scott, Floyd Logan, Jr., to Smith International Inc., mesne. Mud saver valve and method. 3,738,436, Cl. 175-65.000.
- Little, Carl H., to Weber-Knapp Company. Two lid counterbalance mechanism. 3,737,947, Cl. 16-190.000.
- Litton Systems, Inc.: See—
Kawakami, Kenneth Nobuo, 3,739,298.
- Watts, James E., 3,738,351.
- Livingston, Clarence N., to Sunkist Growers, Inc. Bin for accumulating spherical articles. 3,738,507, Cl. 214-16.00r.
- Livingston, William L., to Factory Mutual Research Corporation. System and method of fluid flow control utilizing a dynamic shutoff valve. 3,738,430, Cl. 169-13.000.
- Lock, James A.: See—
Violette, Glenn M.; Paquin, Leon J.; and Lock, James A., 3,738,790.
- Lodolini, Marcello; and Maggiulli, Cataldo A., to Eastman Kodak Company. Process for preparing aminotriphenylmethane leuco bases. 3,739,000, Cl. 260-391.000.
- Loehle, Max Joseph, to General Electric Company. Bearing locking means. 3,738,720, Cl. 308-236.000.
- Lohest, Hans, to Barmag Barmer Maschinenfabrik Aktiengesellschaft. Textile machines with uniform deceleration of its drive motors. 3,738,095, Cl. 57-100.000.
- Lojinger, Robert I. Self-adjusting shirt collar support. 3,738,548, Cl. 223-83.000.
- Long, Eric L.; and Cherry, Walter L., to Cherry Electrical Products Corporation. Keyboard pulse switch. 3,739,127, Cl. 200-160.000.
- Long, William C.: See—
Hoover, Michael C.; and Long, William C., 3,738,484.
- Long, William W., III, to Carborundum Company, The. Work handling apparatus. 3,738,521, Cl. 214-658.000.
- Loos, Cornelis Henricus, to U.S. Philips Corporation. Device for controlling the air-fuel ratio in a combustion engine. 3,738,341, Cl. 123-119.00r.
- Lopez, Oscar: See—
Lopez, Oscar; and Valdes, Juan C., 3,738,006.
- Lopez, Oscar; and Valdes, Juan C., to Lopez, Oscar. Dental impression material injecting syringe. 3,738,006, Cl. 32-17.000.
- L'Oreal: See—
Kalopissis, Gregoire; and Bugaut, Andree, 3,738,799.
- Morane, Bruno P., 3,738,540.
- Lorence, Ervin W., to Lorence Manufacturing Corporation. Speed reducing transmission. 3,738,194, Cl. 74-805.000.
- Lorence Manufacturing Corporation: See—
Lorence, Ervin W., 3,738,194.
- Loro, Alberto, to Microsystems International Limited. Semiconductor switching device. 3,739,236, Cl. 317-235.00r.
- Los Angeles Miniature Products Inc.: See—
Carley, James A., 3,739,219.
- Lotspeich, Joseph A., to Coin Acceptors, Inc. Coin pay-out means for coin changers. 3,738,377, Cl. 133-2.000.
- Lott, Walter E., to Westinghouse Air Brake Company. Resiliently mounted elevator drive housing. 3,738,031, Cl. 37-8.000.
- Loudas, Basil L.; and Vogel, Herward A., to Minnesota Mining & Manufacturing Company. Cyanurates of cyanophenyl-terminated polyethylene ethers. 3,738,962, Cl. 260-47.00r.
- Loughlin, James E.: See—
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- Loustalet, Pierre, to Etat Francais represente par le Ministre Charge de la Defense Nationale Delegation Ministerielle pour l'Armement. Apparatus for selective engagement and disengagement between a traction means and a mechanical unit. 3,738,693, Cl. 287-19.00r.
- Lowe, Paul E.; and Pool, Byron K., to Natmar, Inc. Apparatus for bonding materials with heat settable adhesive. 3,738,898, Cl. 156-498.000.
- Lowe, William H.: See—
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- Lozano, Luis J.: See—
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- Lucas, Joseph, (Industries) Limited: See—
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- Lucke, Charles H., Jr.; and Fee, Andrew R., to American Chain & Cable Company. Microficial hardness tester indenter. 3,738,161, Cl. 73-85.000.
- Luckenbill, Lawrence F., to Mueller Co. Fire hydrant. 3,738,390, Cl. 137-797.000.
- Ludlow, John L.: See—
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- Ludwig, Reinhard, to Electroacoustic Gesellschaft m.b.H. Method and device for evaluating echo signals with echo sounding systems having digital indication. 3,739,325, Cl. 340-3.00r.
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- Lunas, Francis J.; Burroughs, Edward E.; and Smith, Franklin G., said Burroughs and Smith assors. to said Lanass, Frances J. Breast pump. 3,738,363, Cl. 128-281.000.
- Luse, Joe R. Pickup camper loading arrangement. 3,738,517, Cl. 214-515.000.
- Lusk, Grady L. Transportable vehicle. 3,738,684, Cl. 280-491.00r.
- Lussier, Ephrem A., to North American Rockwell Corporation. Weft storage device. 3,738,396, Cl. 139-122.000.
- Luteran, Frank K., to Sparton Corporation. Interconnection matrix board. 3,739,231, Cl. 317-101.0ce.
- Lutz, Allen: See—
Rockwood, Albert M.; Lemieux, Robert W.; Lutz, Allen; and Lazar, Ralph M., 3,738,656.
- Lutz, Kenneth V. Asphalt mixer tip and shank assembly. 3,738,774, Cl. 416-210.000.
- Lyon, Remy Blanc; Hess, Willy; and Ramier, Georges, to S.T.X., Graipement d'Interet Economique. Dyeing of textile fibers in a solvent medium. 3,738,803, Cl. 8-93.000.

- Lyon, Richard H.; and Robertson, John A., to Mead Corporation. The. Apparatus and method for generation of drops using bending waves. 3,739,393, Cl. 346-1.000.
- Lyons, Bob G.: See—
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- Lytton, Kenneth G.: See—
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- Mabee, Crawford D.; and Turner, Alvin M., to Honeywell Inc. Inc. Photo sensitive star sensing array. 3,739,175, Cl. 250-203.00r.
- Mabuchi, Kenichi, to Mabuchi Motor Co., Ltd. Model plane having radiating means. 3,738,058, Cl. 46-243.0av.
- Mabuchi Motor Co., Ltd.: See—
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- Macchione, John M. Machine for assembling laminations. 3,737,971, Cl. 29-203.00l.
- MacKenzie, Elbert K., to Electro-Mechanical Instrument Co., Inc. Weatherproof electric altimeter. 3,739,275, Cl. 324-156.000.
- Mackenzie, Harold B. Method of and means for classification of heterogeneous shredded refuse materials. 3,738,483, Cl. 209-12.000.
- Mackie, Arthur Patrick Pringle, to Mackie, James, & Sons Limited. Card clothing. 3,737,951, Cl. 19-97.000.
- Mackie, James, & Sons Limited: See—
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- Madeira, John W., to Plasti-Kate Company. Paint touch-up container. 3,738,760, Cl. 401-4.000.
- Mader, Fred. Process for producing a dried split pea or dried lentil product. 3,738,848, Cl. 99-204.000.
- Madonia, Anthony F. Dough conditioning apparatus. 3,738,617, Cl. 259-185.000.
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- Maeda, Haruo; and Miyazaki, Eiichi, to Matsushita Electric Industrial Co., Ltd. Electronic printing device. 3,738,266, Cl. 101-153.000.
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- Manly, Ron. Automatic editing method. 3,739,348, Cl. 340-172.500.
- Mansell, Dennis N., to United States of America, Air Force. Laser beam scanning device. 3,738,168, Cl. 73-190.00r.
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- Maremont Corporation: See—
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- Marelli, Guido; Martelli, Nerio; and Martelli, Francesco. Apparatus for severing articles from a continuous thermoplastic web molded on rotary vacuum-forming machines. 3,738,787, Cl. 425-142.000.
- Margittai, Thomas, 1/2 to Yuter, Seymour. Sequential drying system. 3,738,016, Cl. 34-92.000.
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- Marquis, Edward Thomas: See—
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- Schlegel, Franz, 3,738,735.
- Orita, Takao: See—
- Hino, Tetsuo; Orita, Takao; Kozu, Isao; Fujisawa, Kiyoji; and Nishiyama, Akio, 3,738,021.
- Orr, John E. Adjustable preformed necktie. 3,737,917, Cl. 2-150.000.
- Orr, Samuel J., IV: See—
- Blaire, Pete, 3,738,642.
- Orris, John A., to United Engineering and Foundry Company. Adjustable beam turn-up and beam turn-down arms for cooling bed service. 3,738,143, Cl. 214-1.0ag.
- Ortheil, Hans: See—
- Snider, Orville E.; Loughlin, James E.; and Ortheil, Hans, 3,738,804.
- Ortlip, Earl W.; and Smith, Wallace M. Drop boot to prevent wind loss of finely-divided fluent materials. 3,738,464, Cl. 193-25.000.
- Orts, Donald H., to Armco Steel Corporation. Method of manufacturing thermocouples. 3,737,996, Cl. 29-612.000.
- Orwin Associates, Inc.: See—
- Symer, Orten Henry; and Bearce, Winfield Scott, 3,739,223.
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- Inoue, Giichi; Kubo, Naoshi; and Hatano, Shogo, 3,738,115.
- Osaka Consulting Engineers, Ltd.: See—
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- Osaka, Takatoshi, to Citizen Watch Company Limited. Power driven type action in electric typewriter. 3,738,470, Cl. 197-17.000.
- Osborn, Fred; and Kinney, Selwyn P., to Kinney, S. P., Engineers, Inc. Method of and apparatus for the processing of molten slag. 3,738,820, Cl. 65-19.000.
- Osmun, Dean W.; Johnson, Charles W.; and Plummer, Ray A., to Big Three Industries, Inc. Method for controlling offshore petroleum wells during blowout conditions. 3,738,424, Cl. 166-298.000.
- Ossenkop, Robert J.; and Wilson, Alfred L., to AMF Incorporated. Doorway gym bars. 3,738,650, Cl. 272-62.000.
- Ostapchenko, George Joseph: See—
- Ikeda, Richard Masayoshi; and Ostapchenko, George Joseph, 3,738,904.
- Ostbergs Fabriks AB, mesne: See—
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- Ostling, William Delano: See—
- Coleman, Theodore John; Jenkins, Richard Alan; and Ostling, William Delano, 3,738,500.
- Oswald, Joseph V. Non-oscillating arcless switching of inductive D.C. loads. 3,739,192, Cl. 307-136.000.
- Outboard Marine Corporation: See—
- Gennow, Robert A., 3,738,431.
- Owens-Illinois, Inc.: See—
- Richie, Carlton A., 3,738,524.
- Oxford, John A. Prefabricated bed structure. 3,737,925, Cl. 5-131.000.

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- Pacific Car and Foundry Company: *See*—
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- Packaging Corporation of America: *See*—
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- Packard, Roger E., to Burroughs Corporation. Variable word width processor control. 3,739,352, Cl. 340-172.500.
- Packard, Roger Erwin: *See*—
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- Packler, Mel A.; and Cokee, Jordan. Emblems which will glow in the dark and the method of making them. 3,738,299, Cl. 112-439.000.
- Padjen, George; Helman, Robert W.; and Brugger, Joseph A., to Bethlehem Steel Corporation. Molten metal bath level maintenance system. 3,738,312, Cl. 118-2.000.
- Paige, Edward George Sydney: *See*—
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- Pakswier, Serge, to Zenith Radio Corporation. Secondary electron multipliers with single layer cermet coatings. 3,739,216, Cl. 313-95.000.
- Palm, Johan Ingemar: *See*—
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- Palman, Leonard. Security devices. 3,739,114, Cl. 200-44.000.
- Palsson, Kristjan H.: *See*—
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- Pande, Kailash C.: *See*—
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- Panizza, Gustavo A.: *See*—
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- Pannetti, Romolo. Device for grinding long undulation waves of railway rails. 3,738,066, Cl. 51-178.000.
- Panzer, Hans Peter; and Dixon, Kenneth Wayne. Polyquaternary flocculants. 3,738,945, Cl. 260-2.0bp.
- Pap, Geza: *See*—
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- Papavasilou, Prodromos: *See*—
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- Parenti, Giorgio, to Sial-Marchetti S.p.A. Oscillating plate for helicopters. 3,738,772, Cl. 416-114.000.
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- Parker, Joe B.; and Mc Casland, Thomas A., to Colorado Valve Co. Valve system. 3,738,388, Cl. 137-627.000.
- Parker-Hannifin Corporation: *See*—
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- Rosaen, Nils O.; Rosaen, Borje O.; and Rosaen, Oscar E., 3,738,310.
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- Parsons, Ronald, to Singer Company (U.K.) Limited, The. Tufting machines. 3,738,293, Cl. 112-79.00r.
- Partridge, Mildred F. Auto racing board game apparatus. 3,738,659, Cl. 273-134.0ag.
- Pass & Seymour, Inc.: *See*—
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- Patarini, Leon M.: *See*—
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- Patel, Pravin K.: *See*—
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- Patsch, Manfred: *See*—
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- Patula, Edward J.: *See*—
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- Patzwahl, Hans-Jurgen: *See*—
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- Paul, Henry N., III, to Thiokol Chemical Corporation. Synergistic flame retarding composition for polypropylene of 1,2,3,4, 5-pentabromo-6-chlorocyclohexane, tetrabromophthalic anhydride and antimony trioxide. 3,738,958, Cl. 260-45.75b.
- Paul, William, to Switchpack Systems, Inc., mesne. Electromagnetic switching device with movable ratchet. 3,739,308, Cl. 335-140.000.
- Pauls, Edward A. Ski equipped crutch. 3,738,674, Cl. 280-11.37b.
- Paustian, John E.: *See*—
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- Pauze, Denis R.: *See*—
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- Pawlek, Franz: *See*—
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- Pawloski, Chester E.; and Stewart, Russell L., to Dow Chemical Company. Reactor for removing olefins from acetylenic and olefin-containing gaseous hydrocarbon mixtures. 3,738,815, Cl. 23-260.000.
- Pawloski, Chester E., to Dow Chemical Company, The. Substituted 1,3-dioxepins. 3,738,997, Cl. 260-338.000.
- Paxhia, Vincent B.: *See*—
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- Payen, Jean-Pol, to Merlin Gerin, Societe Anonyme. High speed vehicle current collecting device. 3,739,108, Cl. 191-58.000.
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- Paymal, Jean, to Compagnie de Saint-Gobain. Apparatus for making laminated structural panel of cellular foamed resin. 3,738,895, Cl. 156-443.000.
- Pechiney-Progil: *See*—
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- Peck, Donald W.: *See*—
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- Peeples, Maurice E. Golf practice range. 3,738,664, Cl. 273-176.00k.
- Peirsman, Mathieu Adrien Roger: *See*—
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- Pejcha, Ivan, to Information Storage Systems, Inc. Centering device. 3,737,969, Cl. 29-203.00p.
- Pell, Lawrence W.: *See*—
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- Penner, David. Note pad device using paper rolls. 3,738,685, Cl. 281-8.000.
- Pennington, John C.: *See*—
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- Peppel, William Jennings; Schulze, Heinz; and Marquis, Edward Thomas, to Jefferson Chemical Company, Inc. Continuous preparation of nitrilotriacetic acid. 3,739,021, Cl. 260-531.00c.
- Periard, John Neil, to Dow Chemical Company, The. Production of a paper pigment grade magnesium hydroxide product. 3,739,038, Cl. 423-161.000.
- Perkin-Elmer Corporation, The: *See*—
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- Landsman, Robert M., 3,739,088.
- Perkins, Raymond: *See*—
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- Perminov, Evgeny Mikhailovich. Die and method of making the same. 3,738,148, Cl. 72-362.000.
- Perot, Gilbert; Labin, Emile; and Da Silveira, Miguel, to Pechiney-Progil. Hybrid navigation system. 3,739,383, Cl. 343-112.00r.
- Peroy, Francois: *See*—
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- Perry, Blanche: *See*—
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- Persson, Karl Rune, to Sprinter Pack AB. Hexagonal package unit. 3,738,564, Cl. 229-36.000.
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- Perugia, Marco, to Fiat Societa per Azioni. Vehicle anti-skid braking apparatus. 3,738,713, Cl. 303-21.00f.
- Peters, Albert: *See*—
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- Peterson, Earl A. Hoisting apparatus employing unitary clutch and brake assembly. 3,738,614, Cl. 254-187.000.
- Peterson, George C.: *See*—
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- Petrusek, Victor. Animal action toy. 3,738,054, Cl. 46-141.000.
- Pettit, Alexander, to Pilkington P.E. Limited. Optical display systems. 3,738,733, Cl. 350-174.000.
- Pfaff Industriemaschinen GmbH: *See*—
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- Pfaff Industriemaschinen GmbH, Firma: *See*—
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- Pfau, Jean; and Schaidt, Hubert, to Ateliers des Charmilles S.A. Electro-erosion machining apparatus. 3,739,135, Cl. 219-69.00g.
- Pfizer Inc.: *See*—
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- Phelps Dodge Cooper Products Corporation: *See*—
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- Phelps Dodge Copper Products Corporation: *See*—
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- Philadelphia Gear Corporation: *See*—
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- Phillips, Bernard C.: *See*—
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- Phillips, F. C., Incorporated: *See*—
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- Cywinski, Norbert F., 3,739,037.
- Middlebrook, Terence C., 3,738,951.
- Poux, Robert J.; and Deutsch, Peter R., 3,738,420.
- Phoenix, Lancelot: *See*—
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- Physical Electronics Industries, Inc.: *See*—
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- Physics International Company: *See*—
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- Picard, Jean P.; Voigt, H. William, Jr.; and Pell, Lawrence W., to United States of America, Army. Container with controllably desensitized explosive mixtures. 3,738,276, Cl. 102-7.200.
- Picciola, Giampaolo; and Rovati, Luigi, to Rotta Research Laboratory S.p.A. Method of preparing alpha amides. 3,739,013, Cl. 260-471.00r.
- Pierzchala, Chester E., to Reliable Electric Company. High voltage arc extinguishing circuit interrupter. 3,739,122, Cl. 200-146.00r.
- Pietroski, Alex J., to General Motors Corporation. Blending device. 3,737,984, Cl. 29-567.00r.
- Pilkington P.E. Limited: *See*—
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- Pineau, Andre Lucien. Shock and vibration damper. 3,738,633, Cl. 267-141.000.
- Pinkerton, Lyle C. Reversing mechanism for inboard-outboard boat drive. 3,738,306, Cl. 115-35.000.
- Piombino, John: *See*—
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- Pitney-Bowes, Inc., mesne: *See*—
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- Pittman, Richard D.: *See*—
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- Plant Industries, Inc.: *See*—
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- Planten, James M. Method of molding articles and reclaiming the foundry sand used. 3,738,415, Cl. 164-5.000.
- Plasmachem, Inc.: *See*—
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- Plasti-Kate Company: *See*—
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- Plockinger, Erwin; and Holzgruber, Wolfgang, to Gebr. Bohler & Co. Aktiengesellschaft. Process of manufacturing forged or rolled rod steel from ledeburitic tool steel. 3,737,981, Cl. 29-527.700.
- Ploeger, Kenneth C., to Rupert Manufacturing Company, Inc. Vehicle lamp and terminal therefor. 3,739,168, Cl. 240-7.10r.
- Plummer, Ray A.: *See*—
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- Pneumo Dynamics Corporation: *See*—
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- Pohla, Alfred: *See*—
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- Point, Marcel, to Air Industrie. Apparatus for testing electrical contact between metallic objects. 3,739,228, Cl. 317-3.000.
- Pokrinchak, Jordan J.; and Corris, Charles J., to Jordan Research Corporation. Electronic trailer brake actuator. 3,738,710, Cl. 303-20.000.
- Polar Ware Corporation: *See*—
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- Pollinger, Hans; Pohla, Alfred; and Kirchlechner, Hans, to Knorr-Bremse GmbH. Pneumatic suspension system for vehicles. 3,738,680, Cl. 280-124.00f.
- Polymer Processing Research Institute, Ltd.: *See*—
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- Pommier, Pierre, to Societe Anonyme dite: Cefilac. Device for setting fire rings in cylinder head gaskets. 3,737,967, Cl. 29-200.00b.
- Ponder, Billy W.; and Barnhill, Charles W., to United States of America, Army. Synthesis ferrocenyl butadiene compounds. 3,739,004, Cl. 260-439.0cy.
- Pool, Byron K.: *See*—
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- Poppe, Martin C., Jr.; and Masoian, Leon M., to Beukers Laboratories, Inc. Duplexed antenna for retransmission devices. 3,739,390, Cl. 343-729.000.
- Porsche, Dr.-Ing. H.C.F., K.G., Firma: *See*—
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- Posey, J. Thornton, d/b/a Posey Company: *See*—
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- Post, John S.; and Reed, Frederick P., to United States of America, Army. Obturator-extractor device for firearms. 3,738,223, Cl. 89-26.000.
- Post, John S.; and Reed, Frederick P., to United States of America, Army. Obturated firearm breech safety device. 3,738,224, Cl. 89-26.000.
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- Pottle, Arthur Richard, to AMP Incorporated, mesne. Remote switching system. 3,739,187, Cl. 307-29.000.
- Poux, Robert J.; and Deutsch, Peter R., to Phillips Petroleum Company. Apparatus and method for controlling temperature in a feed screw. 3,738,420, Cl. 165-1.000.
- Powell, Conrad M.: *See*—
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- Powell, Gordon Francis Wellington: *See*—
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- PPG Industries, Inc.: *See*—
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- Franz, Helmut, 3,738,867.
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- Price, Maynard L. Control device for parenteral liquid feed apparatus. 3,738,361, Cl. 128-214.00e.
- Priestley, Hill M.; and Wilson, James H., to Lever Brothers Company. Dodecyl 2-hydroxyethyl sulfonate. 3,739,031, Cl. 260-607.00a.
- Prill, Robert S.; Metzger, Marshall A.; and Eaton, Bradley C., to Singer Company, The. Track and hold buffer amplifier. 3,739,197, Cl. 307-238.000.
- Process Evaluation and Development Corporation: *See*—
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- Procter & Gamble Company, The: *See*—
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- Prolo, Donald J. Cervical stabilization device. 3,737,923, Cl. 5-82.000.
- Proops, William Alfred; and Bridges, Stuart Apsley, to United Kingdom of Great Britain and Northern Ireland, Minister of State for Defense in Her Britannic Majesty's Government of the. Metal working. 3,738,139, Cl. 72-69.000.
- Prost, Hans: *See*—
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- Prumm, Georg. Tester for different types of coins. 3,738,469, Cl. 194-101.000.
- Prumm, Margot. Coin checking device. 3,738,468, Cl. 194-100.00a.
- Pryor, Michael J.; Crane, Jacob; and Winter, Joseph, to Olin Corporation. Method for adding solid metal to molten metal. 3,738,827, Cl. 75-76.000.
- Pryor, Richard Lee, to RCA Corporation. Logic circuit. 3,739,193, Cl. 307-205.000.
- Psyrras, Hippocrates G.: *See*—
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- Pugsley, Peter C.; and Dobouny, Mouayed E., to Crosfield Electronics Limited. Apparatus for reproducing coloured images. 3,739,078, Cl. 178-5.20a.
- Pusching, Klaus-Dieter; Patzwahl, Hans-Jurgen; and Kretschmer, Horst, to Kronseider, Hermann. Labeling machine with speed adjusting mechanism. 3,738,891, Cl. 156-363.000.
- Puzniak, Thomas J.: *See*—
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- Quaker Oats Company, The: *See*—
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- Bozer, Keith B.; Brown, Lloyd H.; and Eftax, Daniel S. P., 3,738,955.
- Quarles, Richard W., Jr., to Du Pont de Nemours, E. I., and Company. Perfluoro-phenoxypropionic acid and esters and salts thereof. 3,739,016, Cl. 260-473.00g.
- Quemerais, Philippe, to Regie Nationale des Usines Renault and Automobiles Peugeot. Pressure-fluid electromagnetic valves. 3,738,386, Cl. 137-625.640.
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- Race, Martin L.; and Martiniak, Leonard J., to General Electric Company. Appliance anti-tip device. 3,738,727, Cl. 312-276.000.
- Rach, Heinz-Dieter; and Grollich, Ekkehard, to Continental Gummi-Werke Aktiengesellschaft. Pneumatic tire with an asymmetrical folded belts. 3,738,408, Cl. 152-361.0fp.
- Rachor, Lothar; and Hackstein, Karl-Gerhard, to Nukem Nuklear-Chemie und-Metallurgie, GmbH. Fuel element for high temperature reactor. 3,738,912, Cl. 176-71.000.
- Racine, William H., to Test Tools, Inc. Quick mount fitting. 3,738,688, Cl. 285-312.000.
- Radcliffe, Arthur J., Jr., to Burroughs Corporation. Sense amplifier for high speed memory. 3,739,355, Cl. 340-173.00r.
- Raddi, William J.; Johnson, Robert W.; and Smithmyer, Joseph W., to ESB Incorporated. Cardiac pacers with source condition-responsive rate. 3,738,371, Cl. 128-419.00p.

- Raddell, Eugene A.; Rauner, Frederick J.; and Houle, James F., to Eastman Kodak Company. Lithographic plate desensitizer formulations. 3,738,850, Cl. 106-2.000.
- Radion Development Corporation: See—
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- Ragosine Oil Company, Limited: See—
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- Ragout, Bernard: See—
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- Rakich, Antone F.; Lozano, Luis J.; and Nehmes, John A., to Anaconda American Brass Company. Method of manufacturing longitudinally welded strips of different thicknesses and widths. 3,737,979, Cl. 29-480.000.
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- Ranz, James R., to Lau Incorporated. Method of constructing a bladed blower wheel. 3,737,966, Cl. 29-156.8cf.
- Raschle, Josef, to Heberlein & Co., AG. Yarn heating apparatus. 3,738,017, Cl. 34-154.000.
- Rash, Kenneth E., Jr.; Colmery, John C.; and Zanzig, Charles E., to Foremost-McKesson, Inc. Confections containing low-ash demineralized white solids. 3,738,844, Cl. 99-134.00r.
- Rathbun, Robert R., to Aeronca, Inc. Brazing method. 3,737,978, Cl. 29-472.300.
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- Ratts, Kenneth Wayne. Dimethylsulfonium-2-(alkoxycarbonyl) carbonyl phenacylides and derivatives thereof. 3,739,012, Cl. 260-470.000.
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- Rauner, Frederick J.: See—
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- Reid, Jack McNeill, Sanford A.; Mason, David M.; and Staats, William R., to Institute of Gas Technology, The. Illumination burner. 3,738,793, Cl. 431-328.000.
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- Sato, Stephens N., to Ivac Corporation. Temperature sensing probe and disposable probe cover. 3,738,173, Cl. 73-343.00r.
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- Schaetti, Norbert, to Maschinenfabrik Oerlikon. Method of manufacturing composite superconductor. 3,737,989, Cl. 29-599.000.
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- Schut, Hendrik P., to Boeing Company. The. Method of making a coil for an electromagnetic high energy impact apparatus. 3,737,990, Cl. 29-605.000.
- Schwab, Michel: *See—*
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- Schwartz, James W., to Zenith Radio Corporation. Camera process for color tube screen printing. 3,738,233, Cl. 95-1.00r.
- Schwartz, Lawrence. Electrical cable terminating and grounding connector. 3,739,076, Cl. 174-78.000.
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- Schweitzer, Gordon. Poultry feeder. 3,738,329, Cl. 119-63.000.
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- Sciffer, Jack Pryor; and Roxby, Harrie, to Australian Wire Industries Pty., Limited. Method of wiping galvanised wire or strip. 3,738,861, Cl. 117-102.00m.
- Scotchmur, Ronald R., to Binks Manufacturing Company. Controller and control system. 3,738,627, Cl. 261-119.00r.
- Scott & Fetzer Company, The: *See—*

- Wooley, Lee A., 3,738,185.
- Scott, Floyd Logan, Jr.: *See—*
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- Scott, Hubert D., to Texaco Inc. Gamma ray spectroscopy with quantitative analysis. 3,739,171, Cl. 250-83.30r.
- Scott-Smith, Brian: *See—*
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- Scranton, R. A., Industries, Inc.: *See—*
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- Seekins, Harold L., to General Electric Company. Inspection machine using a master and follower to guide a probe at a predetermined angle relative to a test piece. 3,739,262, Cl. 324-40.000.
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- Seidewand, Edward H., to General Motors Corporation. Gating mechanism for cylinder lock assembly. 3,738,135, Cl. 70-362.000.
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- Shah, Jagdeep Chandravadan, to Bell Telephone Laboratories, Incorporated. Laser with means for suppressing back-ground fluorescence in the output. 3,739,295, Cl. 331-94.500.
- Shannon, John Martin, to U.S. Philips Corporation. Methods of manufacturing insulated gate field effect transistors. 3,739,237, Cl. 317-235.000.
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- Shimizu, Yoshiyuki, to Nippon Kogaku K.K. Photographic lens system of great relative aperture. 3,738,736, Cl. 350-215.000.
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- Thompson, Robert M.; and Duling, Irl N., to Sun Research and Development Co. Polysulfonate polymers from adamantane bisphenols. 3,738,965, Cl. 260-49.000.
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Armco Steel Corp.: See—
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Ayers, David T., Jr., to Kelsey-Hayes Co. Trailer safety brake construction. Re. 27,667, 6-12-73, Cl. 803-7.
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Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: See—
Fernholz, Hans, Schmidt, and Wunder. Re. 27,663.
Fernholz, Hans, H. Schmidt, and F. Wunder, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the manufacture of vinyl esters of carboxylic acids. Re. 27,663, 6-12-73, Cl. 260-497.
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150	3,737,917	155R	3,737,964	106.21	3,738,037	39.28R	3,738,106	425.4R	3,738,176		3,738,236
197	3,737,918	156.8CF	3,737,966	106.52	3,738,036	39.28T	3,738,104	429	3,738,177	10CT	3,738,237
1	CLASS 3	182.5	3,738,817	111	3,738,035	39.31	3,738,105		CLASS 74		3,738,239
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	3,737,921	203P	3,737,969			368	3,738,110	89.15	3,738,183	31AC	3,738,243
13	CLASS 5	401	3,737,974	66	3,738,042	452	3,738,111	110	3,738,184	31FS	3,738,244
82	3,737,922	407	3,737,973	69A	3,738,043			116	3,738,185	42	3,738,245
108	3,737,923	421	3,737,975	75B	3,738,044	43	3,738,112	191	3,738,186	53R	3,738,247
131	3,737,924	453	3,737,972			46.5	3,738,113	231C	3,738,187		3,738,246
191	3,737,925	470.1	3,737,976	CLASS 43	42.12	3,738,045	3,738,114	234	3,738,188	86	3,738,248
260	3,737,926	472.3	3,737,978	42.39	3,738,046	63	3,738,115	242.15R	3,738,189	89R	3,738,249
312	3,737,927	472.9	3,737,977	43.12	3,738,047			411	3,738,190		3,738,250
345	3,737,928	480	3,737,979	44.2	3,738,048	131	3,738,116	531	3,738,191	95	3,738,251
348WB	3,737,929	515	3,737,980	44.4	3,738,049	173	3,738,117	731	3,738,193		
	3,737,930	527.7	3,737,981	53.5	3,738,050	192	3,738,118	731	3,738,191	CLASS 96	
12A	CLASS 6	567R	3,737,984			217	3,738,119	805	3,738,194	1.2	3,738,832
	3,737,931	573	3,737,982	4	3,738,819	229	3,738,120	819	3,738,195	1.5	3,738,831
14.1	CLASS 7	574	3,737,983	CLASS 44		378	3,738,121	865	3,738,197	1.6	3,738,833
	3,737,932	578	3,737,985	7	3,738,819			866	3,738,198	36	3,738,834
10.2	CLASS 8	589	3,737,986	7	3,738,819	29	CLASS 64	3,738,122	868	3,738,196	
15	3,738,799	596	3,737,987	51	3,738,819	19	CLASS 65	3,738,820	869	3,738,198	43
21C	3,738,804	599	3,737,988	74D	3,738,819					3,738,199	84R
	3,738,800	603	3,737,989	135R	3,738,819	149S	3,738,123	100C	3,738,824	87	3,738,837
41B	3,738,801		3,737,991	141	3,738,819	163	3,738,124	75	3,738,826	99	3,738,839
93	3,738,802		3,737,992	178	3,738,819	170	3,738,125	76	3,738,827	100	3,738,840
137.5	3,738,805	805	3,737,990	243AV	3,738,819	18C	3,738,127	126F	Re.27,671	139	3,738,846
			3,737,995	243	3,738,819	18F	3,738,126	170	3,738,829	2.1	3,738,252
120.5	CLASS 12	606	3,737,994	26	3,738,819	18F	3,738,126	211	3,738,828	86	3,738,253
	3,737,933	612	3,737,996	38.1	3,738,819	18F	3,738,126	214	3,738,830	119	3,738,254
9	CLASS 13	624	3,737,997	50	3,738,819	145	3,738,129	25A	3,738,200	90R	3,738,841
26	3,739,066	627	3,737,998	55	3,738,819	154	3,738,130	112R	3,738,201	109	3,738,842
	3,739,067	630	3,737,999			177	3,738,131			134R	3,738,843
21E	CLASS 15	32	3,738,000	50R	3,738,819						3,738,844
100	3,737,934	171	3,738,001	93	3,738,819	49	3,738,132	121B	3,738,202	187	3,738,845
147A	3,737,941	251	3,738,002	101LG	3,738,819	86	3,738,134	185	3,738,203	204	3,738,848
169	3,737,935	392	3,738,003			108	3,738,133			229	Re.27,670
182	3,737,936		3,737,991	249	3,738,819	362	3,738,135	1C	3,738,204	400	3,738,256
231	3,737,938	10A	3,738,004	178	3,738,819	363	3,738,136	4R	3,738,205	450	3,738,255
244A	3,737,939	14B	3,738,005			428	3,738,137	14R	3,738,207	547	3,738,257
302	3,737,940	17	3,738,006	60	3,738,819			37	3,738,206	643	3,738,258
339	3,737,942		3,738,006	73	3,738,819	36	3,738,821				
87.2	CLASS 16	18R	3,737,943	115	3,738,819	89	3,738,822	76	3,738,208	295	3,738,259
110	3,737,944	27C	3,738,007	130	3,738,819	108	3,738,823	98	3,738,209		
125	3,737,945		3,738,009	159	3,738,819			175	3,738,210	35	3,738,260
139	3,737,946	107	3,738,010	169	3,738,819	60	3,738,138	289	3,738,215	91	3,738,261
190	3,737,947	169F	3,738,011	170	3,738,819	69	3,738,139	522	3,738,211	93C	3,738,262
		172B	3,738,012	547	3,738,819	94	3,738,140	589	3,738,213		3,738,263
11	CLASS 17	197	3,738,013	582	3,738,819	171	3,738,149	602	3,738,212	110	3,738,264
	3,737,948	289	3,738,014	718	3,738,819	176	3,738,141	761	3,738,214	152	3,738,265
21	3,737,949	379	3,738,015			239	3,738,142			153	3,738,266
65T	CLASS 19	3,737,950		54	3,738,819	255	3,738,144	1.19	3,739,071	269	3,738,267
97	3,737,951	92	3,738,016	59W	3,738,819	270	3,738,145	291	3,739,072	367	3,738,269
107	3,737,952	154	3,738,017	66	3,738,819	283	3,738,146	433	3,738,216	415.1	3,738,268
113	3,737,953	155	3,738,018	180	3,738,819	344	3,738,147				
		210	3,738,019	329	3,738,819	362	3,738,148				
2.7	CLASS 21	217	3,738,020			410	3,738,150				
60.5A	3,738,806										
	3,738,807										
230PC	CLASS 23	2	3,739,068	31	3,738,819	1A	3,738,152				
	3,738,808	8A	3,738,021	35	3,738,819	1B	3,738,151	1.5D	3,738,222		
230B	3,738,810	9E	3,739,069	48	3,738,819	3	3,738,153	1.73	3,738,219	70	3,738,274
232R	3,738,809	9R	3,738,022	58	3,738,819	19	3,738,154	1.87	3,738,220	70.2GA	3,738,275
253R	3,738,811	48A	3,739,070	104	3,738,819	32	3,738,155	12	3,738,221	70.2R	3,738,273
258.5	3,738,812	72	3,738,023	310	3,738,819	40.5A	3,738,156	26	3,738,223	87	3,738,277
260	3,738,813			349	3,738,819	40.7	3,738,158			90	3,738,278
270	3,738,815	2.5AL	3,738,025	367	3,738,819	67.9	3,738,159			94	3,738,279
277C	3,738,816	2.5R	3,738,024	349	3,738,819	81	3,738,160	3	3,738,225		
		50	3,738,027	12.1	3,738,092	85	3,738,161	11.64	3,738,226	23FS	3,738,280
31C	CLASS 24	59R	3,738,026			88.5R	3,738,162	21C	Re.27,665	249	3,738,281
72.5	3,737,955			36	3,738,093	95	3,738,163	95	Re.27,665		3,738,282
815K	3,737,956	8	3,738,028	37	3,738,094	170A	3,738,164			CLASS 102	
188	3,737,957	6	3,738,029	75	3,738,094	178T	3,738,165			7.2	3,738,276
230AK	3,737,958	8	3,738,030	100	3,738,095					38	3,738,271
279	3,737,959	117.5	3,738,032	149	3,738,096	181	3,738,167			70	3,738,272
		142A	3,738,032			190R	3,738,168			70.2GA	3,738,275
25.15	CLASS 29	77.83	3,738,033	5	3,738,098	194A	3,738,169			87	3,738,277
25.42	3,737,961			22.5	3,738,098	217	3,738,170			94	3,738,279
123	3,737,962			58	3,738,099	339R	3,738,172			CLASS 104	
				88SC	3,738,100					23FS	3,738,280
				116	3,738,101	362AR	3,738,174			249	3,738,282
										CLASS 105	
										136	3,738,283
										177	3,738,284
										215C	3,738,285
										CLASS 106	
										1	3,738,849
										2	3,738,850
										14	3,738,851
										274	3,738,853
										277	3,738,852

144	CLASS 108	3,738,286	85	3,738,358	CLASS 189	2E	3,738,409	CLASS 181	80.5	3,738,486	CLASS 225	3,738,552	
150	3,738,287	132D	3,738,359	13B	3,738,410	5AG	3,738,446	5R	3,738,445	3,738,487	3,738,553	3,738,553	
1R	3,738,288	214E	3,738,361	47R	3,738,411	33A	3,738,447	42	3,738,448	46	3,738,932	CLASS 226	3,738,554
8R	3,738,289	280	3,738,362	48R	3,738,412	42	3,738,448	53	3,738,933	104	3,738,554	3,738,554	3,738,554
28R	3,738,290	281	3,738,363	35	3,738,413	7	3,738,449	73	3,738,934	168	3,738,555	3,738,555	3,738,555
		285	3,738,364	35OR	3,738,414	48	3,738,450	94	3,738,935	173	3,738,556	3,738,556	3,738,556
		354	3,738,366	345	3,738,415	155	3,738,451	145	3,738,936	177	3,738,557	3,738,557	3,738,557
25	CLASS 112	3,738,291	379	3,738,367	CLASS 160	3,738,413	7	3,738,449	169	3,738,937	CLASS 228	3,738,559	
65	3,738,292	400	3,738,372	42	3,738,901	CLASS 161	3,738,901	196	3,738,492	1	3,738,560	3,738,560	3,738,560
79R	3,738,293	418	3,738,368	89	3,738,902	6.12	3,738,452	198C	3,738,493	10	3,738,561	3,738,561	3,738,561
121.15	3,738,294	419D	3,738,370	113	3,738,903	6.16	3,738,453	321	3,738,494	15	3,738,562	3,738,562	3,738,562
126	3,738,295	419P	3,738,369	117	3,738,904	15	3,738,455	488	3,738,496	23BT	3,738,563	3,738,563	3,738,563
219A	3,738,297	585	3,738,371	127	3,738,905	51	3,738,454	105.1	3,738,497	23C	3,738,564	3,738,564	3,738,564
219R	3,738,296		3,738,373	217	3,738,907	184	3,738,456	120	3,738,499	55	3,738,565	3,738,565	3,738,565
254	3,738,298					218XL	3,738,457	66	3,738,500	62	3,738,566	3,738,566	3,738,566
439	3,738,299	CLASS 131	3,738,374	80	3,738,908	49	3,738,458	125	3,738,501	43	3,738,569	3,738,569	3,738,569
		10.3	3,738,375	181A	3,738,910	58	3,739,108	145	3,738,502	CLASS 234	3,738,569	3,738,569	3,738,569
		21B	3,738,376	374	3,738,911	CLASS 190	3,739,108	145	3,738,502	CLASS 235	3,738,569	3,738,569	3,738,569
		CLASS 114	3,738,377	5	3,738,415	CLASS 191	3,739,108	145	3,738,502	CLASS 236	3,738,569	3,738,569	3,738,569
66.5P	3,738,301	2	3,738,377	5	3,738,415	CLASS 192	3,739,108	145	3,738,502	CLASS 237	3,738,569	3,738,569	3,738,569
72	3,738,302	CLASS 133	3,738,377	5	3,738,415	CLASS 193	3,739,108	145	3,738,502	CLASS 238	3,738,569	3,738,569	3,738,569
73	3,738,303	CLASS 134	3,738,377	5	3,738,415	CLASS 194	3,739,108	145	3,738,502	CLASS 239	3,738,569	3,738,569	3,738,569
77R	3,738,303	13	3,738,377	5	3,738,415	CLASS 195	3,739,108	145	3,738,502	CLASS 240	3,738,569	3,738,569	3,738,569
126	3,738,304	CLASS 135	3,738,377	5	3,738,415	CLASS 196	3,739,108	145	3,738,502	CLASS 241	3,738,569	3,738,569	3,738,569
219	Re.27,666	2	3,738,378	5	3,738,415	CLASS 197	3,739,108	145	3,738,502	CLASS 242	3,738,569	3,738,569	3,738,569
		CLASS 115	3,738,306	14	3,738,869	CLASS 198	3,739,108	145	3,738,502	CLASS 243	3,738,569	3,738,569	3,738,569
35	3,738,307	42	3,738,307	22	3,738,870	CLASS 199	3,739,108	145	3,738,502	CLASS 244	3,738,569	3,738,569	3,738,569
		CLASS 116	3,738,308	65	3,738,871	CLASS 200	3,739,108	145	3,738,502	CLASS 245	3,738,569	3,738,569	3,738,569
34R	3,738,309	70	3,738,310	90	3,738,872	CLASS 201	3,739,108	145	3,738,502	CLASS 246	3,738,569	3,738,569	3,738,569
63P	3,738,310		3,738,311	202	3,738,873	CLASS 202	3,739,108	145	3,738,502	CLASS 247	3,738,569	3,738,569	3,738,569
		CLASS 117	3,738,312	106	3,738,874	CLASS 203	3,739,108	145	3,738,502	CLASS 248	3,738,569	3,738,569	3,738,569
8	3,738,313	17.5	3,738,313	115	3,738,875	CLASS 204	3,739,108	145	3,738,502	CLASS 249	3,738,569	3,738,569	3,738,569
35.5	3,738,314	36.1	3,738,314	199	3,738,876	CLASS 205	3,739,108	145	3,738,502	CLASS 250	3,738,569	3,738,569	3,738,569
64R	3,738,315	64R	3,738,315	340	3,738,877	CLASS 206	3,739,108	145	3,738,502	CLASS 251	3,738,569	3,738,569	3,738,569
76T	3,738,316	93.9	3,738,316	381	3,738,878	CLASS 207	3,739,108	145	3,738,502	CLASS 252	3,738,569	3,738,569	3,738,569
95	3,738,317	409.6	3,738,317	493.9	3,738,879	CLASS 208	3,739,108	145	3,738,502	CLASS 253	3,738,569	3,738,569	3,738,569
102M	3,738,318	625.64	3,738,318	603	3,738,880	CLASS 209	3,739,108	145	3,738,502	CLASS 254	3,738,569	3,738,569	3,738,569
126GE	3,738,319	625.65	3,738,319	603	3,738,881	CLASS 210	3,739,108	145	3,738,502	CLASS 255	3,738,569	3,738,569	3,738,569
127	3,738,320	626.1	3,738,320	603	3,738,882	CLASS 211	3,739,108	145	3,738,502	CLASS 256	3,738,569	3,738,569	3,738,569
138.8F	3,738,321	626.1	3,738,321	603	3,738,883	CLASS 212	3,739,108	145	3,738,502	CLASS 257	3,738,569	3,738,569	3,738,569
212	3,738,322	797	3,738,322	797	3,738,884	CLASS 213	3,739,108	145	3,738,502	CLASS 258	3,738,569	3,738,569	3,738,569
232	3,738,323	823	3,738,323	823	3,738,885	CLASS 214	3,739,108	145	3,738,502	CLASS 259	3,738,569	3,738,569	3,738,569
		CLASS 118	3,738,324	46	3,738,886	CLASS 215	3,739,108	145	3,738,502	CLASS 260	3,738,569	3,738,569	3,738,569
		12	3,738,325	94.3	3,738,887	CLASS 216	3,739,108	145	3,738,502	CLASS 261	3,738,569	3,738,569	3,738,569
16	3,738,326	122	3,738,326	122	3,738,888	CLASS 217	3,739,108	145	3,738,502	CLASS 262	3,738,569	3,738,569	3,738,569
49.5	3,738,327	149R	3,738,327	149R	3,738,889	CLASS 218	3,739,108	145	3,738,502	CLASS 263	3,738,569	3,738,569	3,738,569
		CLASS 119	3,738,328	122	3,738,890	CLASS 219	3,739,108	145	3,738,502	CLASS 264	3,738,569	3,738,569	3,738,569
2	3,738,329	159	3,738,329	159	3,738,891	CLASS 220	3,739,108	145	3,738,502	CLASS 265	3,738,569	3,738,569	3,738,569
3	3,738,330	CLASS 120	3,738,330	122	3,738,892	CLASS 221	3,739,108	145	3,738,502	CLASS 266	3,738,569	3,738,569	3,738,569
4	3,738,331	1	3,738,331	1	3,738,893	CLASS 222	3,739,108	145	3,738,502	CLASS 267	3,738,569	3,738,569	3,738,569
5	3,738,332	CLASS 121	3,738,332	122	3,738,894	CLASS 223	3,739,108	145	3,738,502	CLASS 268	3,738,569	3,738,569	3,738,569
14.03	3,738,333	73	3,738,333	73	3,738,895	CLASS 224	3,739,108	145	3,738,502	CLASS 269	3,738,569	3,738,569	3,738,569
14.45	3,738,334	215	3,738,334	215	3,738,896	CLASS 225	3,739,108	145	3,738,502	CLASS 270	3,738,569	3,738,569	3,738,569
15	3,738,335	CLASS 122	3,738,335	122	3,738,897	CLASS 226	3,739,108	145	3,738,502	CLASS 271	3,738,569	3,738,569	3,738,569
18	3,738,336	18	3,738,336	18	3,738,898	CLASS 227	3,739,108	145	3,738,502	CLASS 272	3,738,569	3,738,569	3,738,569
20	3,738,337	34R	3,738,337	34R	3,738,899	CLASS 228	3,739,108	145	3,738,502	CLASS 273	3,738,569	3,738,569	3,738,569
51R	3,738,338	197	3,738,338	197	3,738,900	CLASS 229	3,739,108	145	3,738,502	CLASS 274	3,738,569	3,738,569	3,738,569
51.13	3,738,339	249B	3,738,339	249B	3,738,901	CLASS 230	3,739,108	145	3,738,502	CLASS 275	3,738,569	3,738,569	3,738,569
63	3,738,340	312	3,738,340	312	3,738,902	CLASS 231	3,739,108	145	3,738,502	CLASS 276	3,738,569	3,738,569	3,738,569
143	3,738,341	CLASS 123	3,738,341	123	3,738,903	CLASS 232	3,739,108	145	3,738,502	CLASS 277	3,738,569	3,738,569	3,738,569
		8.09	3,738,342	8.09	3,738,904	CLASS 233	3,739,108	145	3,738,502	CLASS 278	3,738,569	3,738,569	3,738,569
325P	3,738,343	325P	3,738,343	325P	3,738,905	CLASS 234	3,739,108	145	3,738,502	CLASS 279	3,738,569	3,738,569	3,738,569
32R	3,738,344	32R	3,738,344	32R	3,738,906	CLASS 235	3,739,108	145	3,738,502	CLASS 280	3,738,569	3,738,569	3,738,569
34A	3,738,345	34A	3,738,345	34A	3,738,907	CLASS 236	3,739,108	145	3,738,502	CLASS 281	3,738,569	3,738,569	3,738,569
41.35	3,738,346	41.35	3,738,346	41.35	3,738,908	CLASS 237	3,739,108	145	3,738,502	CLASS 282	3,738,569	3,738,569	3,738,569
73R	3,738,347	73R	3,738,347	73R	3,738,909	CLASS 238	3,739,108	145	3,738,502	CLASS 283	3,738,569	3,738,569	3,738,569
90.12	3,738,348	90.12	3,738,348	90.12	3,738,910	CLASS 239	3,739,108	145	3,738,502	CLASS 284	3,738,569	3,738,569	3,738,569
90.27	3,738,349	90.27	3,738,349	90.27	3,738,911	CLASS 240	3,739,108	145	3,738,502	CLASS 285	3,738,569	3,738,569	3,738,569
117R	3,738,350	117R	3,738,350	117R	3,738,912	CLASS 241	3,739,108	145	3,738,502	CLASS 286	3,738,569	3,738,569	3,738,569
118	3,738,351	118	3,738,351	118	3,738,913	CLASS 242	3,739,108	145	3,738,502	CLASS 287	3,738,569	3,738,569	3,738,569
119A	3,738,352	119A	3,738,352	119A	3,738,914	CLASS 243	3,739,108	145	3,738,502	CLASS 288	3,738,569	3,738,569	3,738,569
119R	3,738,353	119R	3,738,353	119R	3,738,915	CLASS 244	3,739,108	145	3,738,502	CLASS 289	3,738,569	3,738,569	3,738,569
		139AF	3,738,354	139AF	3,738,916	CLASS 245	3,739,108	145	3,738,502	CLASS 290	3,738,569	3,738,569	3,738,569
169R	3,738,355	169R	3,738,355	169R	3,738,917	CLASS 246	3,739,108	145	3,738,502	CLASS 291	3,738,569	3,738,569	3,738,569

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D 2—	232 227,196		227,217		227,238		227,258		227,278	D52—	3 227,300
	274 227,197	234	227,218		227,239		227,259		227,279		6 227,298
	283 227,198		227,219		227,240		227,260		227,280	D55—	1 227,299
D 4—	3 227,199	235	227,220		227,241		227,261		227,281		1 227,301
	16 227,200	40	227,221	D14—	3 227,242		227,262	14	227,282	D56—	1 227,302
D 6—	20 227,201	44	227,222		227,243		227,263		227,283	D57—	1 227,303
	25 227,202	115	227,223		227,244		227,264		227,284		1 227,304
	26 227,203	137	227,224		227,245		227,265		227,285	D61—	1 227,305
	37 227,204	149	227,225		227,246		227,266	D40—	1 227,286		1 227,306
	66 227,205	182	227,226	D19—	1 227,247		227,267		227,287	D65—	1 227,307
	68 227,206	185	227,227	D22—	9 227,248		227,268	D29—	23 227,288	D71—	1 227,308
	71 227,207		227,228		227,249		227,269	D30—	1 227,289	D74—	1 227,309
	227,208		227,230		227,250		227,270		227,290	D79—	2 227,310
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	75 227,211	191	227,233	D26—	1 227,253	D34—	4 227,273		227,293		1 227,313
	91 227,212	193	227,234		227,254		227,274		227,294		1 227,314
	154 227,213		227,235		227,255		227,275	D45—	15 227,295	D89—	1 227,315
	194 227,214	D11—	2 227,236		227,256		227,276	D48—	20 227,296	D90—	1 227,316
D 8—	44 227,215	D13—	1 227,237		227,257		227,277		227,297	D96—	12 227,317
	232 227,216		227,237								

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PATENTS

1 : 3,738,220	3,738,258	3,738,844	9 : 3,739,104	3,738,149	3,738,113
3,738,593	3,738,273	3,738,871	3,737,979	3,739,386	3,738,133
3,738,820	3,738,277	3,738,935	3,737,999	3,737,971	3,738,152
3,739,004	3,738,281	3,738,937	3,738,001	3,738,000	3,738,154
3,739,068	3,738,302	3,738,953	3,738,012	3,738,039	3,738,191
3,739,081	3,738,320	3,738,977	3,738,015	3,738,121	3,738,192
2 : 3,738,363	3,738,334	3,739,005	3,738,042	3,738,166	3,738,201
4 : 3,737,985	3,738,337	3,739,018	3,738,044	3,738,226	3,738,218
3,738,877	3,738,340	3,739,029	3,738,106	3,738,318	3,738,227
3,739,276	3,738,348	3,739,062	3,738,116	3,738,374	3,738,233
3,739,286	3,738,365	3,739,076	3,738,161	3,738,466	3,738,289
5 : 3,738,070	3,738,404	3,739,083	3,738,178	3,738,516	3,738,299
3,738,295	3,738,421	3,739,086	3,738,367	3,738,551	3,738,313
3,738,519	3,738,434	3,739,099	3,738,416	3,738,602	3,738,326
Re. 27,664	3,738,474	3,739,121	3,738,438	3,738,603	3,738,328
Re. 27,666	3,738,479	3,739,130	3,738,472	3,738,643	3,738,346
3,737,920	3,738,487	3,739,142	3,738,549	3,738,647	3,738,366
3,737,923	3,738,497	3,739,152	3,738,609	3,738,819	3,738,389
3,737,926	3,738,504	3,739,153	3,738,638	3,738,964	3,738,390
3,737,932	3,738,505	3,739,154	3,738,671	3,738,968	3,738,412
3,737,939	3,738,507	3,739,159	3,738,676	3,739,175	3,738,414
3,737,959	3,738,518	3,739,160	3,738,710	3,739,302	3,738,428
3,737,969	3,738,523	3,739,179	3,738,768	3,739,369	3,738,440
3,737,975	3,738,529	3,739,182	3,738,827	3,739,370	3,738,441
3,737,976	3,738,535	3,739,196	3,738,834	3,737,925	3,738,465
3,737,977	3,738,538	3,739,211	3,738,866	3,737,982	3,738,467
3,738,009	3,738,543	3,739,219	3,738,890	3,738,030	3,738,477
3,738,014	3,738,576	3,739,232	3,738,945	3,738,035	3,738,482
3,738,033	3,738,594	3,739,233	3,738,946	3,738,068	3,738,483
3,738,036	3,738,598	3,739,298	3,739,088	3,738,362	3,738,493
3,738,055	3,738,600	3,739,308	3,739,156	3,738,498	3,738,526
3,738,092	3,738,614	3,739,332	3,739,164	3,738,664	3,738,539
3,738,114	3,738,620	3,739,333	3,739,306	3,738,684	3,738,541
3,738,127	3,738,637	3,739,348	3,739,310	3,738,758	3,738,547
3,738,136	3,738,649	3,739,352	3,739,320	3,738,938	3,738,550
3,738,165	3,738,652	3,739,362	3,739,321	3,739,300	3,738,554
3,738,168	3,738,654	3,739,379	3,738,050	15 : 3,738,775	3,738,558
3,738,172	3,738,670	3,739,380	3,738,350	16 : 3,739,072	3,738,563
3,738,173	3,738,672	3,739,395	3,738,849	17 : 3,737,922	3,738,567
3,738,174	3,738,689	3,738,025	3,738,923	3,737,929	3,738,568
3,738,177	3,738,711	3,738,089	3,738,957	3,737,930	3,738,586
3,738,187	3,738,723	3,738,137	3,738,960	3,737,934	3,738,612
3,738,195	3,738,730	3,738,155	3,738,965	3,737,997	3,738,616
3,738,200	3,738,753	3,738,251	3,738,981	3,737,998	3,738,624
3,738,202	3,738,755	3,738,306	3,738,995	3,738,031	3,738,627
3,738,212	3,738,756	3,738,344	3,739,008	3,738,040	3,738,628
3,738,215	3,738,774	3,738,388	3,739,011	3,738,043	3,738,630
3,738,241	3,738,816	3,738,456	3,739,016	3,738,046	3,738,646
3,738,242	3,738,818	3,738,601	3,739,043	3,738,054	3,738,666
3,738,248	3,738,821	3,738,741	3,739,359	3,738,061	3,738,669
3,738,257	3,738,824	3,739,057	3,738,011	3,738,082	3,738,694

3,738,748	3,738,102	3,738,254	3,739,339	3,739,390	3,738,186
3,738,779	3,738,164	3,738,283	3,739,372	3,738,003	3,738,222
3,738,780	3,738,296	3,738,287	3,739,376	3,738,317	3,738,312
3,738,793	3,738,308	3,738,309	3,739,388	3,738,395	3,738,310
3,738,811	3,738,396	3,738,399	3,739,389	3,738,476	3,738,353
3,738,913	3,738,397	3,738,451	3,739,067	3,738,500	3,738,371
3,738,931	3,738,430	3,738,699	3,738,207	3,738,514	3,738,385
3,738,939	3,738,448	3,738,701	3,738,662	3,738,728	3,738,391
3,738,955	3,738,645	3,738,709	3,737,927	3,738,823	3,738,409
3,738,983	3,738,686	3,738,806	3,737,947	3,738,902	3,738,420
3,739,089	3,738,720	3,739,012	3,737,972	3,739,056	3,738,447
3,739,094	3,738,858	3,739,024	3,737,992	3,739,148	3,738,509
3,739,109	3,738,889	3,739,038	3,738,010	3,739,279	3,738,545
3,739,117	3,738,920	3,739,128	3,738,022	3,738,048	3,738,559
3,739,122	3,738,922	3,739,155	3,738,037	3,738,290	3,738,560
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3,739,132	3,739,085	3,739,226	3,738,041	3,737,954	3,738,569
3,739,145	3,739,095	3,739,261	3,738,062	3,737,960	3,738,631
3,739,192	3,739,220	3,739,313	3,738,064	3,737,966	3,738,642
3,739,198	3,739,224	3,739,319	3,738,086	3,737,978	3,738,698
3,739,201	3,739,225	3,738,403	3,738,087	3,737,996	3,738,705
3,739,209	3,739,291	3,738,657	3,738,091	3,738,019	3,738,731
3,739,216	3,739,392	3,738,707	3,738,100	3,738,076	3,738,792
3,739,258	3,739,393	3,738,075	3,738,104	3,738,107	3,738,801
3,739,268	Re.27,667	3,738,679	3,738,119	3,738,118	3,738,808
3,739,277	3,737,928	3,738,687	3,738,120	3,738,126	3,738,810
3,739,280	3,737,970	3,738,763	3,738,132	3,738,208	3,738,843
3,739,287	3,737,984	3,738,621	3,738,135	3,738,228	3,738,867
3,739,299	3,738,045	3,738,405	3,738,158	3,738,263	3,738,868
3,739,311	3,738,047	3,738,075	3,738,204	3,738,267	3,738,874
3,739,336	3,738,059	3,737,941	3,738,206	3,738,269	3,738,875
3,739,366	3,738,074	3,737,944	3,738,213	3,738,336	3,738,881
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3,738,360	3,738,380	3,738,167	3,738,319	3,738,525	3,738,952
3,738,373	3,738,384	3,738,179	3,738,347	3,738,548	3,738,958
3,738,407	3,738,458	3,738,217	3,738,357	3,738,555	3,738,986
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3,738,546	3,738,481	3,738,256	3,738,413	3,738,613	3,739,034
3,738,580	3,738,485	3,738,260	3,738,444	3,738,629	3,739,063
3,738,588	3,738,491	3,738,274	3,738,449	3,738,702	3,739,073
3,738,678	3,738,503	3,738,275	3,738,450	3,738,712	3,739,105
3,738,691	3,738,531	3,738,276	3,738,508	3,738,737	3,739,113
3,738,706	3,738,577	3,738,286	3,738,544	3,738,760	3,739,120
3,738,716	3,738,578	3,738,324	3,738,565	3,738,767	3,739,129
3,738,726	3,738,615	3,738,355	3,738,575	3,738,773	3,739,190
3,738,809	3,738,622	3,738,356	3,738,581	3,738,791	3,739,235
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3,739,267	3,738,655	3,738,419	3,738,617	3,738,898	3,739,288
3,739,307	3,738,656	3,738,462	3,738,635	3,738,906	3,739,297
3,737,931	3,738,667	3,738,492	3,738,663	3,738,950	3,739,304
3,737,949	3,738,688	3,738,494	3,738,665	3,738,971	3,739,324
3,738,111	3,738,692	3,738,527	3,738,673	3,739,006	3,739,384
3,738,130	3,738,696	3,738,592	3,738,695	3,739,020	3,738,008
3,738,223	3,738,725	3,738,604	3,738,697	3,739,064	3,738,069
3,738,224	3,738,757	3,738,650	3,738,700	3,739,119	3,737,953
3,738,325	3,738,784	3,738,651	3,738,744	3,739,126	3,738,052
3,738,517	3,738,815	3,738,743	3,738,745	3,739,146	3,738,096
3,738,579	3,738,847	3,738,752	3,738,751	3,739,150	3,738,125
3,738,766	3,738,909	3,738,782	3,738,762	3,739,165	3,739,202
3,739,067	3,738,943	3,738,807	3,738,789	3,739,166	3,737,921
3,739,264	3,738,961	3,738,842	3,738,790	3,739,177	3,738,093
3,739,284	3,738,997	3,738,856	3,738,817	3,739,205	3,738,124
3,738,330	3,739,036	3,738,862	3,738,831	3,739,221	3,738,461
3,738,976	3,739,052	3,738,878	3,738,833	3,739,252	3,738,690
3,739,322	3,739,058	3,738,880	3,738,835	3,739,253	3,738,873
3,738,007	3,739,147	3,738,884	3,738,836	3,739,255	3,738,361
3,738,134	3,739,157	3,738,892	3,738,841	3,739,257	3,737,935
3,738,322	3,739,231	3,738,899	3,738,845	3,739,262	3,737,938
3,738,427	3,739,270	3,738,918	3,738,850	3,739,317	3,738,171
3,737,955	3,739,309	3,738,949	3,738,855	3,739,346	3,738,205
3,738,611	3,739,334	3,738,959	3,738,869	3,739,373	3,738,454
3,738,721	3,739,355	3,738,988	3,738,876	3,739,425	3,738,640
3,737,924	3,739,387	3,738,990	3,738,882	3,738,682	3,738,750
3,738,253	3,737,919	3,738,993	3,738,888	3,738,683	3,738,802
3,737,671	Re.27,671	3,737,937	3,738,924	3,738,951	3,737,917
3,737,987	3,737,952	3,738,999	3,738,967	3,738,402	3,737,974
3,737,988	3,737,956	3,739,017	3,738,969	3,738,417	3,737,983
3,738,063	3,738,029	3,739,022	3,738,970	3,738,510	3,738,028
3,738,162	3,738,077	3,739,025	3,738,973	3,738,513	3,738,049
3,738,252	3,738,078	3,739,031	3,738,975	3,738,520	3,738,094
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3,738,271	3,738,285	3,739,059	3,739,007	3,738,765	3,738,153
3,738,495	3,738,377	3,739,082	3,739,027	3,738,797	3,738,163
3,738,521	3,738,431	3,739,125	3,739,033	3,739,061	3,738,209
3,738,530	3,738,464	3,739,140	3,739,035	3,739,077	3,738,211
3,738,610	3,738,480	3,739,174	3,739,042	3,739,347	3,738,392
3,738,813	3,738,658	3,739,193	3,739,151	3,739,368	3,738,424
3,739,070	3,738,674	3,739,197	3,739,158	Re.27,662	3,738,426
3,739,141	3,738,714	3,739,200	3,739,208	Re.27,669	3,738,432
3,739,269	3,738,724	3,739,217	3,739,213	3,738,005	3,738,435
3,739,273	3,738,962	3,739,218	3,739,223	3,738,016	3,738,437
3,739,283	3,739,143	3,739,222	3,739,249	3,738,053	3,738,445
3,739,301	3,739,170	3,739,240	3,739,272	3,738,056	3,738,484
3,739,377	3,739,180	3,739,271	3,739,291	3,738,079	3,738,552
3,739,381	3,739,265	3,739,274	3,739,296	3,738,142	3,738,572
3,737,958	3,737,968	3,739,293	3,739,318	3,738,143	3,738,634
3,738,023	3,737,918	3,739,295	3,739,329	3,738,151	3,738,641
3,738,026	3,738,051	3,739,305	3,739,338	3,738,183	3,738,660
3,738,034	3,738,188	3,739,315	3,739,341		

3,738,661	3,739,326	50 : 3,738,221	3,739,278	54 : 3,739,188	3,738,490
3,738,883	3,739,328	3,739,356	3,739,312	3,738,300	3,738,608
3,738,929	3,739,330	Re.27,665	3,739,335	3,738,812	3,738,625
3,738,934	3,739,331	3,737,942	3,739,340	3,738,991	3,738,677
3,738,979	3,739,349	3,738,013	3,739,350	3,737,961	3,738,717
3,739,021	3,739,363	3,738,176	3,739,351	3,737,962	3,738,727
3,739,037	3,739,364	3,738,203	3,737,980	3,738,194	3,738,796
3,739,039	3,739,374	3,738,214	3,737,990	3,738,338	3,738,905
3,739,040	3,739,382	3,738,746	3,738,255	3,738,345	3,738,910
3,739,046	3,739,385	3,738,786	3,738,410	3,738,364	3,739,001
3,739,047	49 : 3,738,349	3,738,798	3,738,511	3,738,369	3,739,112
3,739,107	3,738,351	3,738,804	3,738,515	3,738,379	3,739,116
3,739,115	3,738,381	3,738,864	3,738,606	3,738,398	3,739,186
3,739,167	3,738,433	3,738,872	3,738,659	3,738,418	3,739,229
3,739,171	3,738,475	3,738,894	3,738,704	3,738,422	3,739,323
3,739,172	3,738,740	3,739,178	3,738,848	3,738,489	3,739,327
3,739,266	3,738,914	3,739,181	3,739,118		

DESIGN PATENTS

5 : 227,290	8 : 227,296	26 : 227,213	36 : 227,232	39 : 227,200	44 : 227,312
6 : 227,211	227,263	227,243	227,234	227,221	227,267
227,212	227,298	227,249	227,246	227,222	227,267
227,214	227,199	227,250	227,256	227,223	227,227
227,216	227,233	227,260	227,259	227,224	227,228
227,240	227,247	227,265	227,273	227,225	227,231
227,242	227,313	227,297	227,274	227,237	227,238
227,244	227,286	227,287	227,275	227,264	227,239
227,245	227,203	227,287	227,276	227,268	227,241
227,251	227,208	227,295	227,280	227,282	227,303
227,252	227,210	227,309	227,293	227,315	227,226
227,257	227,311	227,269	227,299	227,217	227,271
227,258	227,206	227,218	227,302	227,254	227,277
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PATENT OFFICE NOTICES

Protests to the Grant of a Patent

[37 CFR Part 1]

Notice of Proposed Rule Making

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), as amended Oct. 5, 1971, Public Law 92-132, 85 Stat. 364, the Patent Office proposes to amend title 37 of the Code of Federal Regulations by revising §§ 1.11(b) and 1.291.

All persons are invited to present their views, objections, recommendations, or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C., 20231, on or before Oct. 31, 1973, on which date a hearing will be held at 9:30 a.m. in Room 11C24, Building 3, 2021 Jefferson Davis Highway, Arlington, Va. All persons wishing to be heard orally at the hearing are requested to notify the Commissioner of Patents of their intended appearance. Any written comments or suggestions may be inspected by any person, upon written request, a reasonable time after the closing date for submitting comments.

The underlying purpose of the proposed rule change is to assure that the best art and information relevant to the patentability of an application for patent are brought to the Patent Office's attention. Under present procedures, ex parte examination of patent applications is conducted as thoroughly and in as effective a manner as possible. However, it is noted that a significant number of patents involved in litigation are held invalid because prior art or other information having a bearing on patentability, which was not known to the examiner during the prosecution of the case, is brought to the court's attention.

The proposed rule change is designed to elicit this additional prior art or other information. An applicant would be given the opportunity to open his application to public inspection prior to issuance of a patent. The public would then have the opportunity to bring to the attention of the Office information which bears on the question of patentability of the pending patent application. Presumably, interested and affected members of the public may be aware of relevant prior art which the Office did not find, or might know of other information unavailable to the Office, bearing on the question of patentability. If in the opinion of the Commissioner, consideration of such new evidence would lead to a more complete appraisal of patentability, the Commissioner may reopen prosecution of the application.

It is believed that there are several benefits which this proposed procedure would bring about. First, applicants would benefit from a more meaningful presumption of validity where a patent is issued after appropriate consideration of evidence submitted by the public under this procedure. Second, potential competitors of the applicant would benefit from having the opportunity to call to the attention of the Office information that could either prevent a patent from issuing or lead to claims of more restricted scope. And by use of the proposed procedure such determinations would be helpful in avoiding the more expensive conventional procedure following the issue of the patent, of litigating the questions of validity and scope of such patent on the same grounds at a later date. Finally, the public would benefit from the resultant strengthening of the presumption of validity of patents granted on applications which underwent this procedure and the strengthening of the patent system for its intended purposes.

Paragraph (b) of § 1.11 is proposed to be amended to allow the Patent Office to open the file of a pending patent application to the public in accordance with a written authorization from the applicant as specified in the proposed § 1.291(b).

It is proposed to amend present § 1.291 by incorporating a new paragraph (a) which provides that protests filed by the public to the grant of a patent, including the identity of the protesting party, be made of record in the patent application concerned, if such application is identified by the protesting party. The proposed rule change would also afford the examiner an opportunity to ask the protesting party for submission of additional evidence bearing on the question of patentability. Any such evidence received would be forwarded to the appli-

cant. Under § 1.291(a) the protesting party would not be permitted to inspect the application file.

In paragraphs (b), (c) and (d) of § 1.291, a new procedure is proposed whereby an applicant, whose application for patent has been indicated as being allowable by the examiner (Form PO-327), may within thirty days of such indication authorize the Office to open his application to public inspection. The application would be available for inspection for a period of three months from the time a notice to that effect appeared in the OFFICIAL GAZETTE. The notice would be in the form of a publication of data necessary to identify the application in question and would include a representative illustration of the invention, the most comprehensive claim, and a listing of references cited by the Patent Office. The applicant would be charged a fee of \$25.00 to defray the print-cost of this notice in the OFFICIAL GAZETTE.

On the basis of such notice, any person would be permitted access to the application in question and could obtain copies of any papers contained therein (see proposed amendment to § 1.11(b)).

If any person, after inspection of an application, is of the opinion that the relevant prior art of record is not complete, he can notify the Commissioner and the applicant in writing, of any grounds, including additional publications or patents, which he believes have a bearing on the patentability of any claim contained in such application, together with an explanation of the relevance of such publications or patents to the allowed claims. He would, in addition or alternatively, have the opportunity to comment on the manner in which the prior art of record was applied and raise any other matter which could affect the patentability of the claimed invention.

All evidence and comments received in this fashion, including the identity of the protesting party, would be made of record in the application after the time period for protest had elapsed. The protesting party would thereafter be privy to all further proceedings in the Patent Office insofar as they relate to the evidence he submitted. If, in the opinion of the Commissioner, such evidence constituted a prima facie showing of non-patentability of the subject matter as claimed, or unenforceability of a patent if granted, prosecution of the application would be reopened.

As a result of any reexamination of the application, the applicant would be permitted to present amended or new claims which would be subject to a determination of patentability by a primary examiner. The protesting party who made evidence of non-patentability available to the Patent Office would be informed of any action taken by the Office and given the opportunity to comment thereon.

In cases involving evidence of prior public use or sale of the invention, the procedure outlined in present § 1.292 would be utilized to provide the person presenting such evidence with an opportunity to be heard.

An adverse determination to the patentability of any claim may, of course, be appealed by the applicant to the Board of Appeals under § 1.191.

Applications considered under the above procedure and ultimately allowed after a decision by the Board of Appeals would not be reconsidered under this proposed procedure. If, after the three-month period from the date of publication, no evidence was received or if in the opinion of the Commissioner the evidence submitted does not bar the granting of a patent on grounds of patentability or enforceability, a notice of allowance (Form POL-85) would be transmitted in due course. This determination would be final and not subject to petition by the protesting party.

The text of the proposed amended sections is as follows:

§ 1.11 Files open to the public.

(b) Applications in which the Office has accepted a request filed under § 1.139 or received an authorization under § 1.291 (b), are open to inspection by the general public, and copies may be furnished upon paying the fee therefor.

§ 1.291 Protests to the grant of a patent.

(a) The patent statutes do not provide for protests to the grant of a patent as a matter of right on the part of the public. Where protests to the grant of a patent are filed with

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the Office, and the protesting party identifies the application, the protest papers will be referred to the examiner having charge of the application. In such case, the protest papers, including the identity of the protesting party, will be placed in the application file and a copy will be forwarded to the applicant. The examiner may request submission of further evidence from the protesting party, and any further evidence adduced will be made of record and also forwarded to the applicant. However, the protesting party will not be permitted to inspect the application file unless the Office has received an authorization under paragraph (b) of this section or § 1.14 (a). Where the protesting party cannot identify the application, the protest will be acknowledged and referred to the examiner having charge of the subject matter involved for his information.

(b) Applications may be voluntarily opened to public inspection. Within thirty days from the mailing date of a notice of allowability from the examiner, an applicant may waive his right to have his pending application for patent kept in confidence (§ 1.14). Such waiver may be accomplished by filing in the Office a written authorization, signed by the applicant and assignee of record or by the attorney or agent of record, to open the complete application to inspection and protest by the general public to the granting thereof, together with a fee of \$25.00.

(c) Upon receipt of an authorization under paragraph (b) of this section, the Office shall publish suitable notice of such fact in the OFFICIAL GAZETTE together with a representative illustration of the invention, the most comprehensive claim, and a listing of references cited by the Patent Office. At any time up to three months thereafter, any person may protest the grant of a patent by filing with the Commissioner and serving the applicant with publications, patents or any other information which might have a bearing on the patentability of any claims contained in the patent application or on the enforceability of any patent issuing on said application; said protest must include a memorandum explaining the relevance of the submitted evidence. All protest papers filed, together

with the identity of the real party in interest originating the protest shall be made of record in the application after the time period for protest has elapsed. Examination of the application shall be reopened if, in the opinion of the Commissioner, it appear that any claim thereof may not be patentable or any patent granted on said application would be unenforceable in view of such evidence. In the event that examination is reopened, the protesting party shall be apprised of all further proceedings in the Patent Office insofar as they relate to or are concerned with the evidence submitted by the protesting party, and accorded the opportunity to comment thereon. All further papers received from the protestor will be made of record. If the examination of the application is not reopened, the protesting party shall be so apprised. A decision by the Commissioner not to reopen an application for examination after the close of the protest period, shall be final and not subject to petition by the protesting party. In cases involving evidence of public use or sale of the invention more than one year before the filing of the application, the procedure outlined in § 1.292 shall be followed.

(d) The transmittal of a formal notice of allowance shall be held in abeyance until the patentability of the claimed invention has been determined in light of such evidence. If no protest to patentability is submitted to the Commissioner within the time specified, or if he determines that no further examination is necessary, a notice of allowance shall be transmitted to the applicant, his attorney or his agent in due course. A copy of said notice of allowance will also be forwarded to the protesting party.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Date: May 15, 1973.

Approved:
DR. BETSY ANCKER-JOHNSON,
Assistant Secretary for
Science and Technology.

(Pub. FR 1469, June 4, 1973)

Erratum

All reference to Patent Number 3,727,649 to Edward A. Obuch et al., Hand Tool for Tensioning and Cutting Wire Tie Straps, appearing in the OFFICIAL GAZETTE of April 17, 1973, should be deleted as the application inadvertently issued.

Certificates of Correction for the Week of June 19, 1973

Re. 27,565	3,684,448	3,703,955	3,711,732
D. 225,426	3,684,813	3,704,295	3,711,815
3,471,396	3,685,296	3,704,419	3,712,298
3,485,539	3,685,337	3,704,599	3,712,542
3,520,119	3,686,890	3,705,010	3,712,760
3,552,161	3,687,849	3,705,157	3,712,769
3,558,218	3,688,594	3,705,227	3,712,856
3,564,587	3,688,667	3,705,329	3,712,857
3,588,449	3,689,358	3,705,501	3,712,951
3,589,277	3,689,838	3,705,722	3,712,979
3,595,905	3,690,417	3,705,811	3,713,144
3,608,380	3,690,962	3,705,813	3,713,298
3,614,169	3,691,268	3,705,839	3,713,368
3,614,892	3,692,769	3,706,028	3,713,442
3,624,081	3,693,070	3,706,854	3,713,672
3,624,125	3,693,290	3,706,876	3,713,876
3,626,993	3,693,611	3,706,853	3,714,208
3,627,808	3,694,221	3,706,963	3,714,259
3,642,387	3,694,255	3,707,093	3,714,277
3,645,652	3,694,680	3,707,364	3,714,313
3,646,050	3,695,276	3,707,533	3,714,350
3,647,887	3,695,324	3,707,575	3,714,489
3,649,129	3,695,731	3,707,711	3,714,607
3,651,227	3,695,831	3,708,352	3,715,031
3,657,497	3,696,110	3,708,544	3,715,233
3,659,024	3,697,226	3,708,546	3,715,307
3,665,285	3,697,299	3,708,707	3,715,320
3,672,898	3,697,482	3,708,716	3,715,371
3,673,179	3,697,814	3,708,944	3,715,386
3,676,426	3,698,066	3,708,959	3,715,527
3,677,843	3,699,102	3,709,715	3,715,888
3,679,536	3,700,418	3,710,242	3,716,415
3,679,945	3,701,439	3,710,286	3,716,458
3,681,355	3,701,640	3,710,693	3,716,852
3,681,499	3,702,320	3,710,706	3,717,232
3,682,202	3,702,478	3,710,915	3,717,592
3,683,731	3,702,549	3,710,956	3,717,701
3,683,758	3,702,852	3,711,350	3,717,756
3,683,997	3,703,226	3,711,675	3,732,638
3,684,260	3,703,378	3,711,683	

Disclaimers

3,432,810.—*Humberto R. Cordero*, Endicott, N.Y. ADDRESSING SYSTEM FOR A COMPUTER EMPLOYING A PLURALITY OF LOCAL STORAGE UNITS IN ADDITION TO A MAIN MEMORY. Patent dated Mar. 11, 1969. Disclaimer filed Jan. 22, 1973, by the assignee, *International Business Machines Corporation*.

Hereby enters this disclaimer to claims 1, 2, 3 and 4 of said patent.

3,650,743.—*Robert W. Hallman*, Utica, and *Gary W. Kurtz*, Southfield, Mich. METHODS FOR MAKING LITHOGRAPHIC OFFSET PLATES BY MEANS OF ELECTROMAGNETIC RADIATION SENSITIVE ELEMENTS. Patent dated Mar. 21, 1972. Disclaimer filed Jan. 24, 1972, by the assignee, *Teeg Research, Inc.*

Hereby disclaims the portion of the term of the patent subsequent to Jan. 25, 1969.

3,666,363.—*Hiroshi Tanaka*, *Katsumi Nagamatsu*, *Giichi Marushima*, and *Shinkichi Takahashi*, Tokyo, Japan. ELECTROPHOTOGRAPHIC PROCESS AND APPARATUS. Patent dated May 30, 1972. Disclaimer filed Feb. 18, 1972, by the assignee, *Canon Kabushiki Kaisha*.

Hereby disclaims the portion of the term of the patent subsequent to Apr. 15, 1966.

3,666,397.—*Keshav V. Datye*, Goregaon-Bombay, India and *Branimir Milicevic*, Riehen, and *Hermann Werdenberg*, Basel, Switzerland. TRANSFER PRINTING WITH FIBRE-REACTIVE DYES. Patent dated May 30, 1972. Disclaimer filed Feb. 3, 1972, by the inventors, the assignee, *Ciba-Geigy AG*, assenting.

Hereby disclaim the portion of the term of the patent subsequent to Jan. 4, 1969.

3,681,064.—*Shu-Hsiung Yeh*, Iowa City, Iowa. PHOTOELECTROPHORETIC IMAGING PROCESS EMPLOYING MULTICOMPONENT ELECTRICALLY PHOTOREACTIVE PARTICLES. Patent dated Aug. 1, 1972. Disclaimer filed Feb. 18, 1972, by the assignee, *Xerox Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to May 21, 1965.

3,693,945.—*James Donald Brock*, Chattanooga, Tenn. ASPHALT PREPARATION PLANT. Patent dated Sept. 26, 1972. Disclaimer filed June 23, 1972, by the assignee, *CMI Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to Oct. 19, 1968.

3,699,963.—*Alejandro Zaffaroni*, Atherton, Calif. THERAPEUTIC ADHESIVE PATCH. Patent dated Oct. 24, 1972. Disclaimer filed May 5, 1972, by the assignee, *Alza Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to Aug. 10, 1968.

3,719,515.—*Edward R. Degginger*, Convent Station, N.J. FIRE FIGHTING METHOD EMPLOYING SOLUTIONS OF PVA AND ALKALI METAL BORATE. Patent dated Mar. 6, 1973. Disclaimer filed May 24, 1973, by the assignee, *Allied Chemical Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to Nov. 3, 1967.

Patents Available for Licensing or Sale

2,970,783. COMPOSITE WEARING PARTS FOR CRUSHERS AND THE LIKE. A. H. Flyer, 55 E. Monroe, Chicago, Ill., 60603.

3,652,997. CONTROL SYSTEM FOR MULTIPLE SIGNAL CHANNELS. Ralph G. Cromleigh, P.O. Box 751, La Canada, Calif., 91011.

3,664,061. METHOD OF AND APPARATUS FOR THE DEVELOPMENT OF PLANT GROWTH. Holman & Stern, 2401 15th St., NW., Washington, D.C., 20009.

3,675,616. FLAG STORAGE AND DISPLAY DEVICE. George L. McInnis, 291 Brighton St., Belmont, Mass., 02178.

3,680,834. PRY BAR AND NAIL PULLER. Wilbur Holloway, 345 Davis Ave., Mount Ephraim, N.Y., 08059.

3,697,046. COMBINED JACK AND CLAMP. SURE CLAMP. Ferdinand F. Sur, R.R. #3, Effingham, Ill., 62401.

3,698,261. ACCELERATION SELECTOR UNIT FOR AUTOMOBILE ACCELERATORS. J. F. Kinney, P.O. Box 122, Humboldt, Kans., 66748.

3,712,104. APPARATUS FOR CLAMPING WORKPIECES IN DRAW BENCHES OR THE LIKE. Th. Kieserling & Albrecht, Solingen, Germany. Correspondence to: Michael S. Striker, 380 Lexington Ave., New York, N.Y., 10017.

3,712,688. MODIFICATION MEANS FOR CHANGING WHEEL VEHICLES TO ALL TERRAIN-VEHICLES. Kenneth M. Russell, 5530 Caroline Drive, Helena, Mont., 59601.

3,724,126. TOY HOOP WITH STABLE PLATFORM FOR DECORATIVE DISPLAYS. Alfred C. La Grow, 3615 N. Harvard, Peoria, Ill., 61614.

3,724,760. ADJUSTABLE SHOWER FIXTURE. Earl W. Smith, 716 North A St., Lake Worth, Fla., 33460.

3,729,749. TOILET FACILITY. Charles E. Rosecrans. Correspondence to: Clarence M. Crews, 4706 N. Pacific Highway, Central Point, Oreg., 97501.

General Motors Corporation is prepared to grant non-exclusive licenses under the following 6 patents upon reasonable terms.

Applications for license may be addressed to: The Director, Patent Section, General Motors Building, 3044 W. Grand Blvd., Detroit, Mich., 48202.

3,545,339. DAMPING.

3,546,598. CONTROL CIRCUIT FOR LIMITING OUTPUT PARAMETERS.

3,554,663. COOLED BLADE.

3,560,107. COOLED AIRFOIL.

3,563,669. VARIABLE AREA NOZZLE.

3,565,386. MOUNT FOR A BODY AND COUPLING UNIT THEREFOR.

RCA Corporation offers to grant non-exclusive licenses on reasonable terms and conditions under the following 22 patents.

Inquiries respecting licenses under the following patents should be addressed to: RCA Corporation, Staff Vice President, Domestic Licensing, 1133 Avenue of the Americas, New York, N.Y., 10036.

3,724,734. WEB TRANSPORT.

3,725,065. METHOD FOR MAKING A KINESCOPE COMPRISING A COLOR SELECTION MASK WITH TEMPORARY CORRIDORS.

3,725,577. COMMON BASE AMPLIFIER TERMINATING CIRCUIT FOR HIGH IMPEDANCE DETECTING APPARATUS.

3,725,582. SIMULTANEOUS DIGITAL TRANSMISSION IN BOTH DIRECTIONS OVER ONE LINE.

3,725,801. VOLTAGE DRIVER CIRCUIT.

3,725,817. HIGH POWER LASER SYSTEM.

3,725,822. PHASE SHIFT OSCILLATORS USING INSULATED-GATE FIELD-EFFECT TRANSISTORS.

3,725,831. MAGNETIC BEAM ADJUSTING ARRANGEMENTS.

3,727,072. INPUT CIRCUIT FOR MULTIPLE EMITTER TRANSISTOR.

3,727,080. SWITCHING CIRCUITS.

3,727,116. INTEGRAL THYRISTOR-RECTIFIER DEVICE.

3,727,865. SUSPENSION SYSTEM.

3,728,236. METHOD OF MAKING SEMICONDUCTOR DEVICES MOUNTED ON A HEAT SINK.

3,728,532. CARRY SKIP-AHEAD NETWORK.

3,728,555. SIGNAL TRANSFER SYSTEM FOR PANEL IMAGE SENSOR.

3,728,589. SEMICONDUCTOR ASSEMBLY.

3,728,591. GATE PROTECTIVE DEVICE FOR INSULATED GATE FIELD-EFFECT TRANSISTOR.

3,728,594. ELECTROLUMINESCENT DEVICE COMPRISING A TRANSISTOR METAL OXIDE DOPED WITH A TRIVALENT RARE EARTH ELEMENT.

3,728,682. COMPUTER INPUT-OUTPUT CHAINING SYSTEM.

3,728,686. COMPUTER MEMORY WITH IMPROVED NEXT WORD ACCESSING.

3,728,716. DIGITAL SIGNAL DECODER USING TWO REFERENCE WAVES.

3,729,261. STABILIZED MULTIPASS INTERFEROMETER.

General Electric Company is prepared to grant non-exclusive licenses under the following 50 patents upon reasonable terms to domestic manufacturers.

Applications for licensing under the following patent may be addressed to: Francis K. Richwine, Patent Counsel, Ordnance Systems Dept., General Electric Co., 100 Plastics Ave., Pittsfield, Mass., 01201.

3,292,449. POWER SYSTEM CONTROL.

Applications for license under the following patent may be addressed to: General Electric Company, Transportation Systems Business Division, 2901 E. Lake Road, Erie, Pa., 16501. Attn: Patent Counsel.

3,719,869. THRUST CONTROL FOR LINEAR MOTORS.

Applications for license under the following patent may be addressed to: General Electric Co., Construction Materials Division, 1701 College St., Fort Wayne, Ind., 46804. Attn: Division Patent Counsel.

3,720,155. FRYING APPARATUS WITH REMOTE CONTROL THERMOSTAT.

Applications for license under the following 2 patents may be addressed to: General Electric Co., Division Patent Counsel, Houseware Business Division, 1285 Boston Ave., Bridgeport, Conn., 06602.

3,658,050. ELECTRIC OVEN TOASTER DOOR OPERATING MECHANISM.

3,703,170. ORAL HYGIENE APPARATUS.

Applications for license under the following 3 patents may be addressed to: Division Patent Counsel, Space Division, General Electric Co., P.O. Box 8555, Philadelphia, Pa., 19101.

3,714,431. SOLAR FLARE WARNING DEVICE.

3,711,794. SURGE SUPPRESSION TRANSMISSION MEANS.

3,721,837. TUNNEL DIODE SUPPLY VOLTAGE CONTROL.

Applications for license under the following 4 patents may be addressed to: Division Patent Counsel, Switchgear Equipment Business Div., General Electric Company, 6901 Elmwood Ave., Philadelphia, Pa. 19142.

3,506,061. APPARATUS FOR VACUUM-CASTING A PLURALITY OF METAL PARTS IN A SINGLE MOLD.

3,713,101. THYRISTOR TURN-ON CIRCUIT.

3,718,852. PHASE ANGLE REGULATOR FOR HIGH FREQUENCY INVERTER.

3,725,770. STARTING CIRCUITRY FOR SERIES/PARALLEL COMPENSATED, CURRENT-FED INVERTER.

Applications for license under the following 8 patents may be addressed to: Patent Counsel, General Electric Company, 1 River Road, Bldg. #43, Schenectady, N.Y., 12305.

3,677,338. SURFACE CONDENSER.

3,704,762. GAS TURBINE EXHAUST SILENCER AND SUPPORT.

3,705,502. LIQUID COOLED SEAL LUBE COUPLING.

3,709,319. RESONATOR CHAMBER SILENCER FOR GAS TURBINE.

3,710,478. BRUSH REPLACEMENT DEVICE.

3,713,676. PREFORMED RABBIT JOINT.

3,714,478. GAS COOLED DYNAMOELECTRIC MACHINE.

3,716,598. HARDENABLE EPOXY RESIN COMPOSITIONS.

Applications for license under the following 29 patents may be addressed to: Patent Counsel, General Electric Company, Industrial and Power Capacitor Products Department, John St., Hudson Falls, N.Y., 12839.

2,905,787. OPERATING MECHANISM FOR AN ELECTRIC SWITCH.

2,931,869. ELECTRIC SWITCH.

3,178,622. ELECTRICAL CAPACITOR WITH THERMAL FUSE.

3,219,892. ELECTRIC CAPACITOR COOLING MEANS.

3,299,333. ELECTRICAL CAPACITOR.

3,340,446. ELECTRICAL CAPACITOR.

3,389,311. SEALED CAPACITOR AND METHOD OF SEALING THEREOF.

3,415,098. METHOD OF EXTRUDING CAPACITOR CASES.

3,429,020. PROCESS FOR CONSTRUCTION OF HIGH TEMPERATURE CAPACITOR.

3,447,218. METHOD OF MAKING A CAPACITOR.

3,454,842. CAPACITOR COOLING MEANS.

3,454,848. ELECTRICAL CAPACITOR.

3,463,992. ELECTRICAL CAPACITOR SYSTEMS HAVING LONG-TERM STORAGE CHARACTERISTICS.

3,480,846. CRYOGENIC CAPACITOR.

3,516,132. PROCESS FOR PRODUCING CRYOGENIC CAPACITORS.

3,522,496. COMBINATION CAPACITOR HAVING A POROUS DIELECTRIC STRIP BETWEEN A METALLIZED DIELECTRIC STRIP AND A FOIL STRIP ELECTRODE.

3,522,498. COMBINATION CAPACITOR HAVING A MARGINAL METALLIZED DIELECTRIC STRIP AND A FOIL ELECTRODE.

3,530,344. ELECTRICAL CAPACITOR.

3,530,561.	IMPREGNATED DIELECTRIC SYSTEMS.	3,704,390.	COMBINED CAPACITOR-INDUCTOR REACTOR DEVICE HAVING TRANSFORMER CHARACTERISTICS.
3,533,149.	PROCESS FOR INCREASING THE DIELECTRIC STRENGTH OF INS. LIQUID.	Re. 27,533.	IMPREGNATED DIELECTRIC SYSTEMS.
3,579,061.	INDIVIDUAL CURRENT-LIMITING FUSE FOR THE ROLLS OF A MULTIPLE ROLL CAPACITOR.	3,724,043.	METHOD OF MAKING A CAPACITOR WITH A PREIMPREGNATED DIELECTRIC.
3,579,062.	ELECTRICAL CAPACITOR WITH THERMAL FUSE.		
3,622,847.	FLAG TAP RETENTION MEANS IN CAPACITORS.		
3,656,035.	HEAT PIPE COOLED CAPACITOR.		
3,665,269.	CAPACITOR HAVING A PHOTOPOLYMERIZED DIELECTRIC FILM.		
3,691,435.	WOUND IMPEDENCE DEVICE.		

Erratum

In the OFFICIAL GAZETTE of May 8, 1973, the following patent listed as being available for non-exclusive licensing under reasonable terms to domestic manufacturers by: General Electric Co., Bldg. 43, Rm. 529, 100 Woodlawn Ave., Pittsfield, Mass., 01201, should read as follows:

2,930,841. SEALING ARRANGEMENT FOR ELECTRICAL INSULATING BUSHINGS.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MAY 29, 1973

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director.....	1-27-72
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director.....	4-07-72
Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERGOVITZ, Director.....	4-03-72
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pre-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding; Shaping; and Treating Processes.	
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director.....	3-01-72
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director.....	2-02-73
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director.....	10-18-72
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director.....	9-05-72
Ordnance, Firearms and Ammunition; Radar, Underwater Signaling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director.....	7-03-73
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
RECEPTACLES, SANITATION AND CLEANING, WINDING AND MEASURING, GROUP 240—L. FORMAN, Director.....	2-09-72
Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director.....	5-08-72
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
DESIGNS, GROUP 290—R. L. CAMPBELL, Director.....	7-06-71
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director.....	6-05-72
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director.....	3-03-72
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director.....	5-23-72
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationary; Information Dissemination.	
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director.....	2-06-72
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director.....	4-24-72
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	
Expiration of patents: The patents within the range of numbers indicated below expire during June 1973, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.	
Patents.....	Numbers 2,748,388 to 2,752,594, inclusive
Plant Patents.....	Numbers 1,481 to 1,491, inclusive

REISSUES

JUNE 19, 1973

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

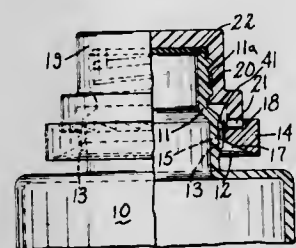
27,673

BOTTLE SAFETY CLOSURE

William J. Landen, Cheshire, Conn., assignor to Eyelet Specialty Company, Wallingford, Conn.
Original No. 3,567,057, dated Mar. 2, 1971, Ser. No. 29,400, Apr. 17, 1970. Application for reissue Dec. 29, 1971, Ser. No. 213,759

U.S. Cl. 215—9 Int. Cl. B65d 55/02

23 Claims



This disclosure relates to a safety cap for a bottle which may contain hazardous material and which is simple for an adult to open, but essentially impossible for a child of limited strength to open.

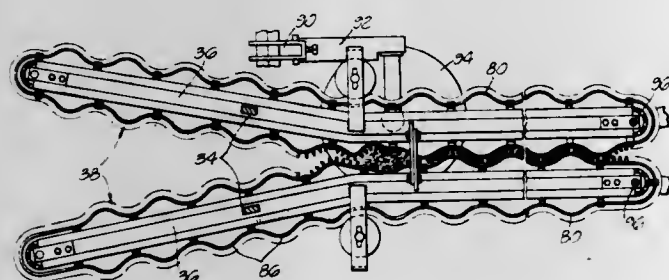
27,674

CELERY HARVESTER

Tobias Grether, Camarillo, and Roger M. Donlon, Carpinteria, Calif., assignors to Hi-Gear Harvester Company, Oxnard, Calif.
Original No. 3,587,216, dated June 28, 1971, Ser. No. 755,099, Aug. 26, 1968. Application for reissue June 19, 1972, Ser. No. 264,074

U.S. Cl. 56—327 R Int. Cl. A01d 45/00

2 Claims



A celery or other row crop harvester on a vehicle including pick-up conveyor and a crop cutter wherein the conveyor comprises a pair of endless conveyor elements having facing runs, the conveyor elements including flexible belts each of which comprises a series of bulges away from a conveyor chain, the bulges of one belt being disposed longitudinally between the bulges of the other belt; and conveyor chains on supporting beams, the beams carrying guides for the chains and the beams and guides being provided with wear strip means to hold the chains out of contact with the beams and portions of the guides.

766

27,675

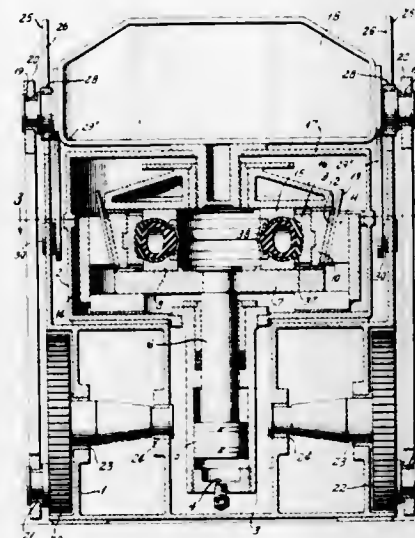
METHOD OF PRINTING AN EMBOSSED PATTERN ALONG THE PERIPHERAL BAND OF A TOROIDAL ARTICLE

Antonio Pacciarini and Dario Gilletta, Milan, Italy, by Industries Pirelli S.p.A., Milan, Italy, assignee
Original No. 3,458,612, dated July 29, 1969, Ser. No. 632,839, Jan. 5, 1967, which is a division of Ser. No. 438,825, Mar. 3, 1965, which is a continuation-in-part of Ser. No. 342,865, Feb. 4, 1964, which in turn is a continuation-in-part of Ser. Nos. 206,088 and 206,089, both June 28, 1962. Application for reissue Mar. 23, 1971, Ser. No. 127,416

Claims priority, application Italy, July 7, 1961, 12,473/61; Feb. 10, 1962, 2,639/62; Aug. 4, 1964, 17,022/64

U.S. Cl. 264—94 Int. Cl. B29h 5/02

20 Claims



A method of forming an embossed pattern upon the peripheral surface of an article of toroidal cross section comprising the steps of first enclosing all the exterior surfaces of said article except the peripheral surface thereof within rigid surfaces, and subsequently bringing at least one additional rigid surface into contact with said peripheral surface in order to enclose said article completely. The additional rigid surface has a plurality of projections extending therefrom which produce cavities in the peripheral surface thereof in accordance with the embossed pattern.

27,676

SKI MOUNTING APPARATUS FOR SNOWMOBILES

Albin R. Erickson, Roseau, Minn., assignor to Textron Inc., Providence, R.I.
Original No. 3,525,412, dated Aug. 25, 1970, Ser. No. 765,160, Oct. 4, 1968. Application for reissue Dec. 27, 1971, Ser. No. 212,442

U.S. Cl. 180—5 R Int. Cl. B62d 13/12; B62n 27/02

8 Claims

The nose portion of a snowmobile is shown including a pair of spaced steering shafts extending downwardly therefrom for mounting a pair of skis. A mounting is provided for each ski that permits limited pivotal movement of the ski. A flexible rubber snubber member is included

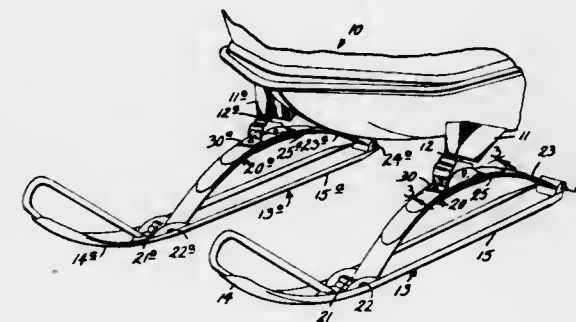
JUNE 19, 1973

U. S. PATENT OFFICE

767

as a part of the ski mounting apparatus to oppose the pivotal movements of the ski and to provide a restoring

deformed die threads must be located at a proper distance from the end of the die so that the self-locking ribs formed in the threads of the screw will not be subsequently wiped out by encounter with the undeformed



force to the ski tending to return the ski to a normal position.

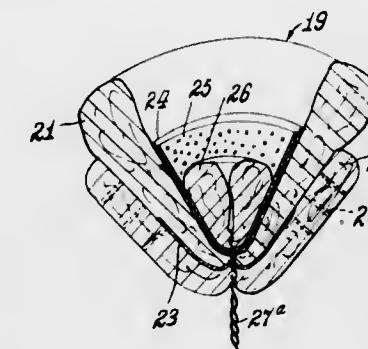
27,677

CATAMENIAL TAMPON

Jacob A. Glassman, 1680 Meridian Ave., Miami Beach, Fla. 33139
Original No. 3,618,605, dated Nov. 9, 1971, Ser. No. 875,903, Nov. 12, 1969, which is a continuation-in-part of Ser. No. 800,983, Feb. 20, 1969. Application for reissue Dec. 22, 1971, Ser. No. 211,128

U.S. Cl. 128—270 Int. Cl. A61f 13/20

7 Claims



A normally compacted tampon comprised of a laminated structure which embodies the arrangement of highly fluid absorbent layers that allow the menstrual wastes to be initially directed into a central absorbent core to thereby cause the core to expand and insure maximum expansion of the tampon as a whole so as to insure maximum absorption of the menstrual waste without outflow or strike-through, thus maintaining a blood-dry tampon exterior to the very end of its useful life.

27,678

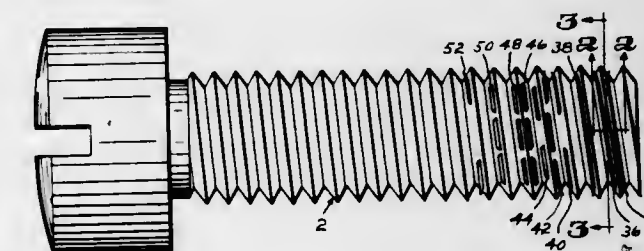
SELF-LOCKING SCREWS

Roger W. Orlomoski, North Brookfield, Mass., assignor to Reed Rolled Thread Die Co., Holden, Mass.
Original No. 3,517,717, dated June 30, 1970, Ser. No. 734,833, May 3, 1968, which is a continuation-in-part of Ser. No. 701,944, Jan. 31, 1968. Application for reissue Jan. 7, 1972, Ser. No. 216,298

U.S. Cl. 151—22 Int. Cl. F16b 39/30

31 Claims

Self-locking screws wherein the self-locking result is achieved by forming one or more outwardly turned ribs, continuous or discontinuous, in the flank or flanks of one or more turns of the threads over a selected length of the screw. The screw threads and ribs therein may be made by the use of conventional thread rolling dies (flat or circular) in which certain selected threads in one of the dies (preferably the movable die), over a suitable length have been deformed in a particular manner. The



threads in the other die. Preferably, however, the ribs should have the leading and trailing ends thereof faired back into the flank of the screw thread sufficiently to facilitate entry into and removal from the internal thread.

27,679

PROCESS FOR THE MANUFACTURE OF RAPIDLY DISINTEGRATING SOLID DOSAGE UNIT FORMS

Svend A. R. Bentholt, Nuland, and Wilhelm Engelinus Koenen, Oss, Switzerland, assignors to Akzona Incorporated, Asheville, N.C.
Original No. 3,679,794, dated July 25, 1972, Ser. No. 181,588, Sept. 17, 1971, which is a continuation-in-part of Ser. No. 799,061, Feb. 13, 1969. Application for reissue Aug. 22, 1972, Ser. No. 282,869

U.S. Cl. 424—148 Int. Cl. A61j 3/10

4 Claims

A solid dosage unit tablet or pill which is stable at high relative humidities and capable of disintegrating rapidly in the presence of moisture comprises an active ingredient, conventional tableting excipients and/or lubricants, and as a disintegrating agent from about 0.3 to about 3 percent by weight of an alkali metal salt of carboxymethylcellulose having a degree of polymerization between about 100 and about 2000, and a degree of substitution between 0.02 and 0.17 at polymerization degree 100, and between 0.02 and 0.57 at polymerization degree 2000.

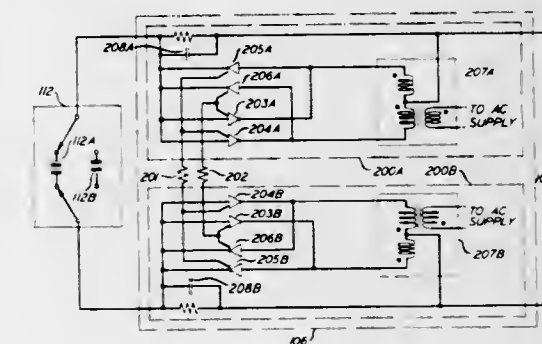
27,680

POLARITY SENSITIVE VOLTAGE INSERTION CIRCUIT FOR LONG SUBSCRIBER LOOPS

Irving Maxwell McNair, Jr., Colts Neck, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Original No. 3,531,598, dated Sept. 29, 1970, Ser. No. 675,853, Oct. 17, 1967. Application for reissue Apr. 22, 1971, Ser. No. 136,480

U.S. Cl. 179—16 F Int. Cl. H04q 1/30

18 Claims

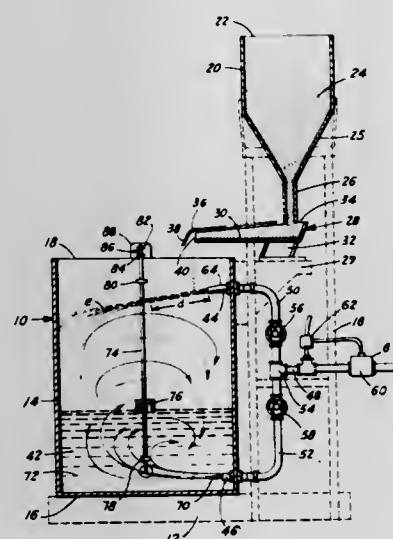


Circuitry is disclosed whereby a voltage in addition to that of the central office battery may be inserted in high resistance telephone lines, particularly those employed in step-by-step central offices which employ reverse battery signaling. The circuitry senses the instantaneous polarity

of the central office battery and inserts the additional voltage in the line with the proper polarity so as to increase the applied potential to the line.

27,681 DRY CHEMICAL FEEDER METHOD AND APPARATUS

Preston G. Gaddis, 203 S. Osage, Bartlesville, Okla. 74003
Original No. 3,425,669, dated Feb. 4, 1969, Ser. No. 682,410, Nov. 13, 1967. Application for reissue Sept. 24, 1970, Ser. No. 75,307
Int. Cl. B01f 5/00
U.S. Cl. 259—18 22 Claims



A method and means for feeding and mixing a dry chemical of the free flowing type, such as agglomerative polymers with a liquid, to provide a smooth, clear solution which can be proportioned and added directly into a primary or secondary system with accuracy. The chemical is separated into small individual particles which are dropped into a gentle wetting plane whereby each particle is completely wetted. The wetted particle enters the mixing solution and is quickly dissolved into a smooth, clear mixture.

27,682 PROCESS FOR THE PRODUCTION OF THERMO-PLASTIC POLYCARBONATES

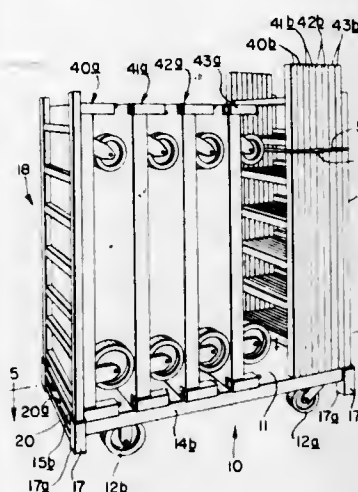
Hermann Schnell, Krefeld-Uerdingen, and Ludwig Bottenbruch, Kurt Weirauch, Wilhelm Hechelhammer, Hugo Strelb, and Gerhard Fritz, Krefeld-Bockum, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Original No. 3,544,514, dated Dec. 1, 1970, Ser. No. 644,106, June 7, 1967, which is a continuation-in-part of Ser. No. 520,653, Jan. 14, 1966. Application for reissue Sept. 9, 1971, Ser. No. 179,241
Claims priority, application Germany, Jan. 15, 1965, F 44,973; June 8, 1966, F 49,420
Int. Cl. C08g 17/13
U.S. Cl. 260—47 XA 16 Claims
Branched chain high molecular weight thermoplastic polycarbonates containing the residues of monohydric

phenols and polyhydric phenols having more than two hydroxy groups in the molecule.

27,683 CART STORAGE ASSEMBLY

Richard J. Rubin, 39 Dolphin Road, Newton, Mass. 02159

Original No. 3,608,920, dated Sept. 28, 1971, Ser. No. 858,342, Sept. 16, 1969, which is a continuation-in-part of Ser. No. 784,131, Dec. 16, 1968. Application for reissue Sept. 30, 1971, Ser. No. 185,446
Int. Cl. B62d 39/00
U.S. Cl. 280—33.99 15 Claims



A cart storage assembly including one assembled cart which includes a substantially horizontal platform member, rollers for moving it along the floor and a pair of opposite end members extending upwardly from the platform member, a plurality of detached end members supported on the platform of the assembled cart in substantially parallel relationship to each other and to one end member of the assembled cart and a plurality of platform members detached from their end members, the detached platform members being supported on the platform of the assembled cart in substantially parallel relationship to each other and to one end member of the assembled cart.

27,684 CATHODE MATERIAL FOR SOLID STATE BATTERIES

Demetrios V. Louzos, Rocky River, and Geoffrey W. Mellors, Strongsville, Ohio, assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Original No. 3,655,453, dated Apr. 11, 1972, Ser. No. 55,624, July 16, 1970. Application for reissue Sept. 26, 1972, Ser. No. 292,345
Int. Cl. C01c 3/08; H01m 13/02, 15/06
U.S. Cl. 136—121 6 Claims
The reaction product of elemental iodine and cyanides of zinc, cadmium or alkali metal produced by heating equimolar proportions of iodine and the cyanide at a temperature of about 220° C. in a sealed vessel in the absence of water is a good cathode material for solid electrolyte cells.

PLANT PATENTS

GRANTED JUNE 19, 1973

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,360

PEACH TREE

David L. Armstrong, Upland, Calif., assignor to Armstrong Nurseries, Inc., Ontario, Calif.
Filed June 4, 1971, Ser. No. 150,246
Int. Cl. A01h 5/03

U.S. Cl. Plt.—43

1 Claim
A peach tree characterized in its tendency to bear large crops of fruits which ripen quite early, namely, during the latter half of the month of May in Wasco, Calif. The habit of growth is fairly vigorous; the leaves are rather long and distinctly wavy and crinkled. The leaves bear a mixture of globose and reniform glands both on the petiole and on the margin of the leaf just above the petiole. The fruit is yellow-fleshed with little or no red coloration. The flesh, which is of melting texture, adheres closely to the stone until the fruit is fully ripe, and then loosens somewhat. The fruits are about ten percent larger than comparable varieties ripening in the same time interval, even though they are nearly ten percent smaller in diameter than some of the later-ripening varieties.

3,361

CONIFER PLANT

Antonius Petrus Johannes de Beer, Bosscheweg 165, Tilburg, Netherlands
Filed July 1, 1971, Ser. No. 159,071
Int. Cl. A01h 5/00

U.S. Cl. Plt.—50

1 Claim
A new and distinct variety of conifer obtained as a cultivated seedling, derived from seeds of an unidentified and unpatented *Chamaecyparis lawsoniana* genus.

3,362

AZALEA PLANT

Howard Kerrigan, 25783 Mission Blvd., Hayward, Calif.
Filed Oct. 18, 1971, Ser. No. 190,240
Int. Cl. A01h 7/00

U.S. Cl. Plt.—55

1 Claim
A new and distinct variety of azalea plant of the Belgian Indica type substantially as herein shown and de-

scribed primarily characterized by: abundant, long lived, dark green foliage; fully double pure white buds and blooms with buds of classical rosebud form, borne on a vigorous, well-branched plant which flowers profusely over a long period and which retains its peak bloom for an exceptionally long period of time, which results in an unusually long marketability period.

3,363

AZALEA PLANT

Howard Kerrigan, 25783 Mission Blvd., Hayward, Calif.
Filed Oct. 18, 1971, Ser. No. 190,237
Int. Cl. A01h 5/00

U.S. Cl. Plt.—56

1 Claim
A new and distinct variety of azalea plant, of the Belgian-Indica type substantially as herein shown and described primarily characterized by: a combination of full, double, salmon pink blooms borne in profusion on a vigorous, but well branched plant which blooms much later than any double varieties now in the florist trade.

3,364

AZALEA PLANT

Howard Kerrigan, 25783 Mission Blvd., Hayward, Calif.
Filed Oct. 18, 1971, Ser. No. 190,239
Int. Cl. A01h 5/00

U.S. Cl. Plt.—56

1 Claim
A new and distinct variety of azalea plant of the florists' forcing type, substantially as illustrated and described herein and characterized primarily by its unique four inch wide, soft pink star-shaped flowers, which are reliably produced in unusual profusion on a bushy vigorous plant with a long forcing season.

PATENTS

GRANTED JUNE 19, 1973

GENERAL AND MECHANICAL

3,739,397

SHOULDER PAD APPARATUS

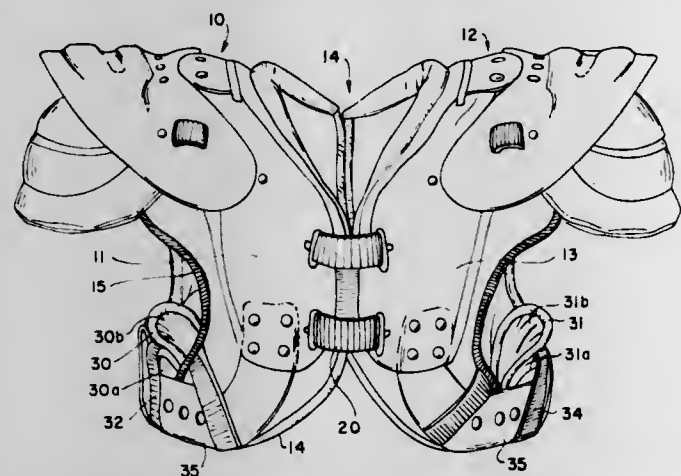
John H. Truelove, Vernon, Tex., assignor to Protective Products, Inc., Grand Prairie, Tex.

Filed Jan. 6, 1972, Ser. No. 215,776

Int. Cl. A41d 13/00

U.S. Cl. 2-2

5 Claims



Disclosed is a shoulder pad apparatus comprised of opposed U-shaped members adapted to be worn over the shoulder and attached to form a protective pad for the wearer's shoulders and upper chest and back. The ends of the U-shaped members are interconnected by an adjustable bridge which supports a pad for protecting the wearer's sides and ribs.

3,739,398

PANTY-TYPE GARMENT AND PROCESS OF MAKING SUCH GARMENT

Louis Sarmiento, Hasbrouck Heights, N.J., assignor to International Stretch Products, Inc., New York, N.Y.

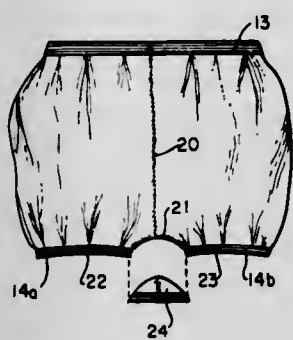
Continuation of Ser. No. 10,770, Feb. 12, 1970, abandoned.

This application Jan. 5, 1972, Ser. No. 215,633

Int. Cl. A41b 9/04

U.S. Cl. 2-224 R

3 Claims



The invention is directed to a panty-type garment, (for example, a panty or panty girdle) which is constructed of a single section of warp knit fabric joined along two seams to form a completed garment. The fabric is knitted, advantageously on Raschel equipment, to provide integral elastic areas lengthwise of the fabric web, usually at the edges but also in other areas where desired (and possibly throughout for panty girdle constructions). A section of such fabric is cut from the web and sewed together at its end edges to provide a tubular garment pre-form with elastic portions at the top and bottom. A crotch seam is placed in the lower portion of the garment, dividing the lower area into two separate, elastically encircled leg portions. The invention enables extraordinary economies to be realized in the manufacture of panty-type garments.

3,739,399

NEONATAL WRAP

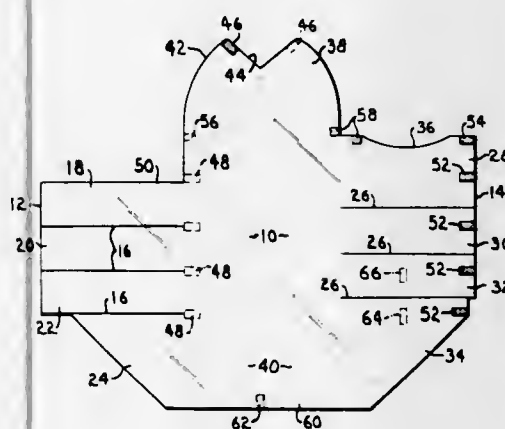
John A. Sheahon, 7037 Lakeshore Drive, Raytown, Mo.

Filed Apr. 14, 1972, Ser. No. 244,072

Int. Cl. A41d 3/00

U.S. Cl. 2-69.5

9 Claims



A wrap particularly adapted to keep a newborn baby warm until such time that his thermoregulatory mechanism gains stability. The wrap comprises a specially shaped and cut sheet of flexible plastic material which is nonabsorbent, transparent, thermally insulating, and suffocation proof. A series of flaps on each side of the sheet fold over the front of the baby as he lies supine on the central area thereof. Opposing flaps are offset and overlap so that air gaps are not created by slits in the sheet that form the flaps on each side. A closed pocket is formed for receiving the feet, and a hood is provided for the head. Any of the flaps, pocket or hood may be selectively folded back or opened for access without exposing other parts of the baby's body, in order to permit medical examination, surgical procedures, or facilitate the changing of diapers.

3,739,400

WORK GLOVES

William S. Colehower, Center Square, Pa., assignor to Jomac, Inc., Warrington, Pa.

Filed Mar. 20, 1972, Ser. No. 236,430

Int. Cl. A41d 19/00

U.S. Cl. 2-161 R

3 Claims



A pair of work gloves in which each glove of the pair is reversible so as to permit its being worn on either the right hand or the left hand. The glove is fabricated from a pair of blanks sewn together along their periphery to form the glove.

JUNE 19, 1973

GENERAL AND MECHANICAL

771

The glove blanks are fabricated from a knitted terry cloth fabric and are assembled so that when the glove is everted to place the seams on the inside, the smooth surfaces of the base fabric are on the interior of the glove and the terry pile surfaces are on the exterior of the glove. A knitted cuff is joined to the blanks around the wrist opening and a reinforcing path is cemented to the pile surface of the completed glove in the crotch between the thumb stall and the index finger stall of the glove. The reinforcing patch is likewise knitted terry cloth with the smooth surface inwardly and the pile surface outwardly. The patch is generally oval and is cut from the knitted material so that the minor axis of the oval is substantially parallel to the machine direction of the knitted fabric and in a similar manner the blanks making the body of the glove are cut so that the finger stalls are substantially parallel to the machine direction of the fabric so that when the components are assembled the body blanks and the reinforcing patch are assembled with their wales parallel to one another.

3,739,401

COLLAPSIBLE HAT WITH RETAINING MEANS

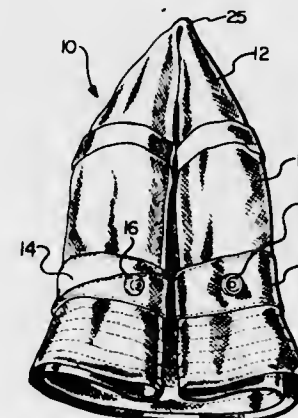
Joseph Fekete, 501 N. 17th St., Richmond, Va.

Filed June 21, 1971, Ser. No. 154,876

Int. Cl. A42b 1/20

U.S. Cl. 2-175

8 Claims



This is a roll up hat in which provision is made on the hat itself by means of snap fastener elements to hold the hat in its rolled up condition and so that it can be stored in a small space. Cooperating snap fastener elements are respectively provided upon opposite sides of the hat and upon the band. The hat is collapsed along the forward and rearward edges and one of the snap fastener elements is located on one side of the hat adjacent to the rear edge and the other snap fastener element is located on the other side of the hat intermediate the front and rear edge. To secure the hat when it is rolled, the sides of the hat are collapsed upon one another and the end of the hat bearing the respective cooperative fastener elements are rolled from opposite directions until the fastener elements are aligned with one another so as to be joined. The snap fastener elements are then readily joined together and as a result the hat is kept rolled from the opposite directions and will take up little space when stored.

3,739,402

BICUSPID FASCIA LATA VALVE

Denton A. Cooley; Domingo S. Liotta, both of Houston, Tex., and Paul Kahn, San Francisco, Calif., assignors to Cutter Laboratories, Inc., Berkeley, Calif.

Filed Oct. 15, 1970, Ser. No. 81,064

Int. Cl. A61f 1/22

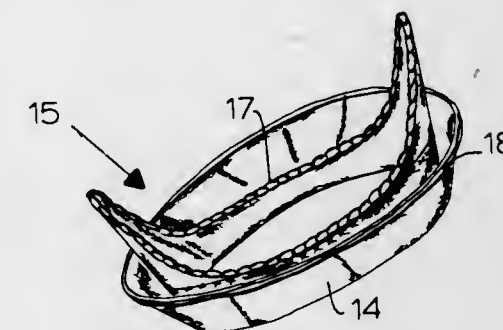
U.S. Cl. 3-1

12 Claims

A graft-support for homograft and heterograft tissue valve implantation comprising a ring base, two struts extending from one side of the ring base and generally parallel to its axis, and a fabric layer covering the entire surface of the ring and struts.

The fabric layer has a thickened portion at the apex of each strut, a second thickened portion along the top edge of the ring and a third thickened portion extending circumferentially of the ring. These thickened portions provide means for suturing the graft-support to the valve tissue and to the host heart, respectively. In one very advantageous embodiment, the ring is generally oblong in shape having a long diameter and a short diameter and the struts are disposed opposite to each other, one at each end of the oblong ring, i.e., at each end of the long diameter thereof or on a line parallel thereto.

In effecting the transplantation, animal tissue, such as fascia lata derived from the patient, is wrapped around the upstanding struts and joined at the ends by suturing to form a closed



ring of tissue, and forming also two cusps thereof supported by the struts. Each cusp is then sutured at its base to the covering at the top surface of the ring and along the sides of the struts, and a pledget of the fabric or suture is affixed around the top of the strut, the fabric thereover and the tissue to ensure coaptation of the cusps. The tissue, especially fascia lata from the patient, can also be extended to cover the side of the third thickened portion, or sewing ring, which is exposed to the ventricle so that, when the valve is emplaced, the entire ventricular surface is covered with autologous tissue. The device is then placed in the mitral valve position with struts extending into the ventricle and the host heart is sutured to the peripheral thickened flange, i.e., the third thickened portion.

3,739,403

PROSTHETIC JOINT HAVING A TISSUE INGROWTH PREVENTIVE CAPSULE

Frederick Villeneuve Nicole, 35 Ossington St., London, England

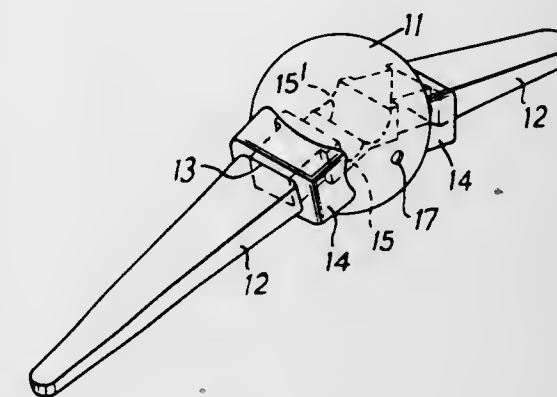
Filed Oct. 4, 1971, Ser. No. 186,144

Claims priority, application Great Britain, Oct. 9, 1970, 48,206/70

Int. Cl. A61f 1/24

U.S. Cl. 3-1

4 Claims



A prosthetic joint comprises two relatively rigid intramedullary arms interconnected by an integral hinge portion to allow articulation of the arms. The hinge portion is located within a capsule of relatively resilient and deformable material which protects the hinge portion from ingrowing body tissues.

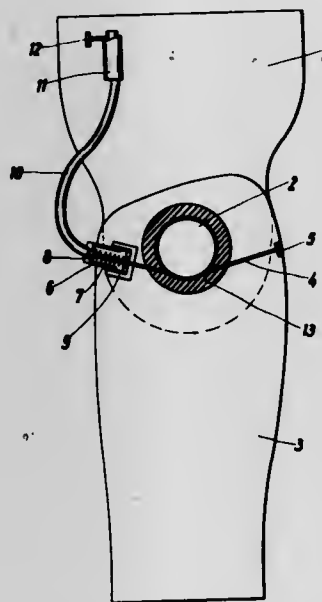
3,739,404

BRAKED JOINT FOR PROSTHESES AND ORTHOSES
 Franz Gelbenegger, Hamburg-Volksdorf, Germany, assignor to IPOS Kommanditgesellschaft, Luneburg, Germany
 Filed Nov. 29, 1971, Ser. No. 202,978
 Claims priority, application Germany, Jan. 5, 1971, P 21 00 261.9

Int. Cl. A61f 1/04, 1/08

U.S. Cl. 3-27

3 Claims



A braked joint for artificial limbs of prostheses and orthoses comprising a shaft rigidly mounted on one of the limb members and a brake cable wrapped around the shaft and mounted with its ends at the other of the limb members in an adjustable spring bias arrangement allowing to selectively adjust any desired motion resistance against pivotal movement of the limb members.

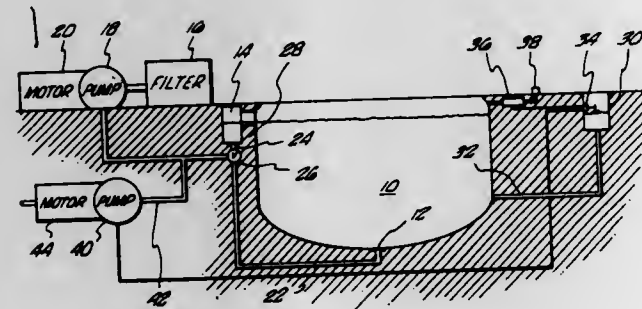
3,739,405

WATER LEVEL MAINTENANCE DEVICE FOR SWIMMING POOLS

Clinton R. Schmidt, 611 N. Geneva St., Glendale, Calif.
 Filed Feb. 7, 1972, Ser. No. 223,861
 Int. Cl. E04h 3/16, 3/18

U.S. Cl. 4-172.15

13 Claims



A device for maintaining the water in a swimming pool at an established level, is disclosed. The subject device involves a water-level tank which has a fluid connection to the swimming pool such that water in both the water-level tank and the swimming pool are at the same level. A double-pole float switch is mounted within the water-level tank to continually sense the water level therein. Whenever the water level is below a selected fill level, the float switch activates an electrical solenoid valve which permits water to be added to the pool. Whenever the water level is above a selected level, the double-pole float switch operates to energize a drain pump which extracts water from the pool until the established water level is attained.

3,739,406

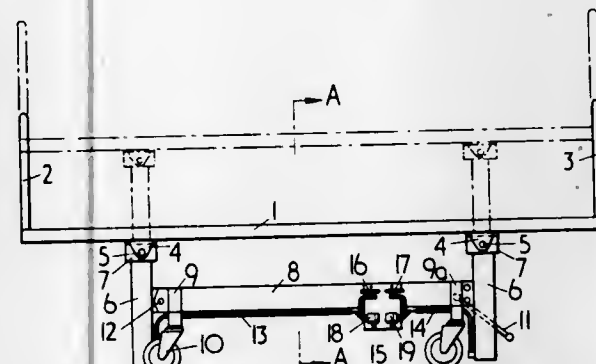
ADJUSTABLE BED

Helmuth Koetter, Schweicheln-Barmbeck/Westphalia, Germany, assignor to Joh. Stieglmeier & Co. GmbH, Herford, Germany

Filed May 28, 1971, Ser. No. 147,734
 Claims priority, application Austria, Sept. 16, 1970, 8387
 Int. Cl. A47c 3/32; A61g 7/10, 7/06

U.S. Cl. 5-68

3 Claims



An adjustable bed particularly for use in hospitals and nursing homes in which a chassis is provided with at least one telescopically extendable span, a bed frame tiltable relative to the chassis includes a middle portion and two end portions hinged to the middle portion, with at least one lifting assembly being disposed on the chassis at each end of the middle portion of the bed frame for adjusting the bed frame to various elevated and inclined positions, and at least one foot for each extendable part of the span.

3,739,407

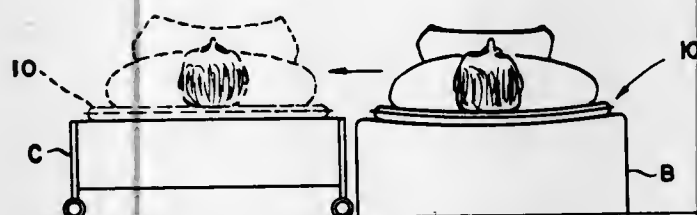
INVALID TRANSFER APPARATUS

Paul F. Stiller, Clarence, N.Y., assignor to Cornell Aeronautical Laboratory, Inc., Buffalo, N.Y.

Filed Jan. 18, 1971, Ser. No. 107,196
 Int. Cl. A61g 7/08; A47c 27/08

U.S. Cl. 5-81 B

2 Claims



An invalid transfer apparatus having a plurality of air cells, the upper surfaces of which are flexible to conform to the shape of a patient resting thereon, the lower surface of which contains a plurality of restricted orifices passing therethrough and is supported by a substantially horizontal surface such as a mattress, air is supplied through the restricted orifices to the boundary layer between the lower surfaces and the horizontal support surface to greatly reduce the coefficient of friction therebetween.

3,739,408

CONTOURED BED SHEET

Rolf W. Pagels, Camas, Wash., assignor to Crown Zellerbach Corporation, San Francisco, Calif.

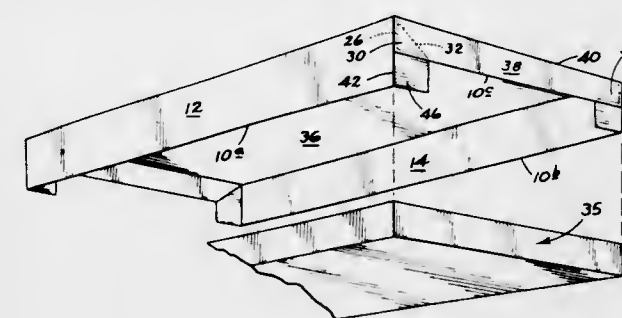
Filed Apr. 14, 1971, Ser. No. 133,991
 Int. Cl. A47g 9/00

U.S. Cl. 5-334 C

7 Claims

A contoured bed sheet made from a single, substantially rectangular expanse of flexible material by folding over flaps adjacent opposite edges to form a rectangular article having double-ply edge margins. An outer corner portion of an edge

margin thus formed is folded over against remainder portions of such edge margin, along a line extending diagonally of the fold line for the flap in such edge margin. The corner is adhe-



sively secured to the underlying remainder portions. When the flaps are lifted from the central expanse of the sheet, they form side panels, and the end of the expanse which has the folded over corner portions forms an end panel.

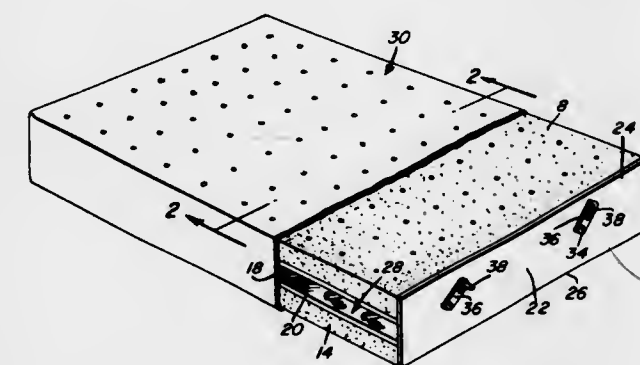
3,739,409

ADJUSTABLE MATTRESS

Calvin N. Johnson, Mt. Airy, N.C., assignor to Kenneth M. Chilton, Winston-Salem, N.C., a part interest
 Filed Aug. 3, 1971, Ser. No. 168,552
 Int. Cl. A47c 23/04

U.S. Cl. 5-345

3 Claims



A bed mattress embodying top and bottom compressible resilient pads aligned with each other and having adjacent surfaces defining an intervening space. These pads, susceptible of use in either single or double mattresses, can be made of foam rubber and are confined within the limits of an encasing cover made of ticking or the like. Pad adjusting means is confined in the space between the pads and is capable of moving the top and bottom surfaces toward and from each other in a manner to vary the expansible and contractible cushioning properties of the pads at will. The adjusting means is captive and operable within the space, is mechanical, is optionally manually regulatable, and capable of compressing and stiffening the pads in a manner to provide a firm or soft mattress, as desired.

3,739,410

COLLAPSIBLE BOAT WITH V-SHAPED PNEUMATIC FLOAT

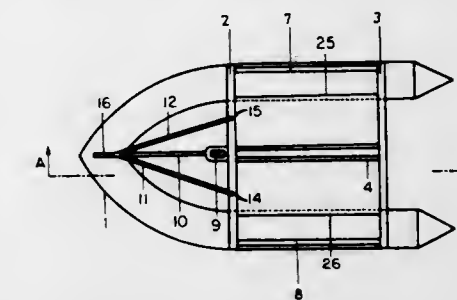
Bernard Marie Charles Fortin, 16, rue Dinanderie, Rouen, France

Filed Dec. 23, 1970, Ser. No. 100,927
 Claims priority, application France, Jan. 20, 1970, 7001841
 Int. Cl. B63b 7/08

U.S. Cl. 9-2 A

10 Claims

This invention relates to a boat intended mainly for sail navigation, comprising a v-shaped pneumatic float forming part of a collapsible structure comprising a forward and a stern transversal board resting on the float and which are



positioned in accordance with the edges of a pyramid having its summit fixed on the forward tip of the float and its base fixed to the structure.

3,739,411

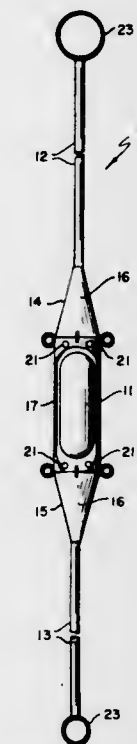
LOW FREQUENCY WAVE ABSORBING DEVICE

John O. Ess, Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 9, 1971, Ser. No. 196,892
 Int. Cl. B63b 21/52, 51/02

U.S. Cl. 9-8 R

3 Claims



This disclosure is directed to a spar buoy system within which a compressible air bag or container has been installed to stabilize a platform. The compressible bag is positioned with its center at the center of gravity within a fixed area and pressurized such that the bag collapses or expands due to surrounding water pressure. The surrounding water applies a pressure onto the bag such that the pressure within the bag is equal to the pressure outside the bag.

3,739,412

BOOK-BINDING AND MACHINES THEREFOR

George Card, Harpenden; John Luckins, Caterham, and Elles Joseph Tidmarsh, Andover, all of England, assignors to IPC Services Limited, London, England

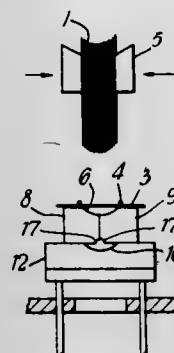
Filed May 5, 1971, Ser. No. 140,449
 Claims priority, application Great Britain, May 6, 1970, 21,919/70

U.S. Cl. 11-5

13 Claims

Separate leaves to be bound together are arranged to provide a book body, the body being supported and the leaves

relatively displaced to round the back of the body and to produce a corresponding concave shaping along the front of the body. Adhesive is then applied to the rounded back so as adhesively to secure the separate leaves of the body together.



Longitudinal string elements may be secured along opposite sides of the body adjacent to the back to form shoulders which, upon completion of the binding operation, cooperate in retaining the body firmly within a case of the binding.

3,739,413

TREATMENT OF FOOTWEAR

Alfred Freeman, 94 Orlingbury Road, Isham, England

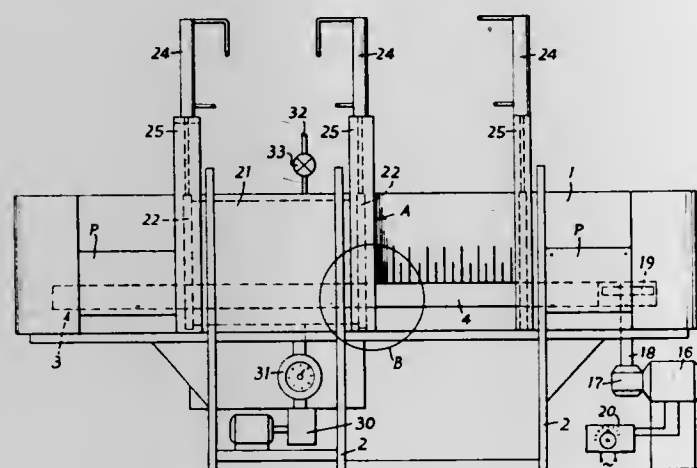
Filed July 2, 1971, Ser. No. 159,247

Claims priority, application Great Britain, July 4, 1970, 32,526/70

Int. Cl. A43d

12 Claims

U.S. Cl. 12-1 A



Footwear treatment system comprising a conveyor made up of a plurality of chain sections each to carry a batch of footwear to be treated. Chain passes through modular footwear treatment zones in which the footwear is first heat set and then dried by vacuum. Timed meter steps conveyed to transfer batches from zone to zone at equal intervals.

3,739,414

SHOE MANUFACTURE

Ronald Walter Thomas Skelham, Kettering, England, assignor to The Shoe and Allied Trades Research Association, Kettering, Northamptonshire, England

Filed Nov. 23, 1971, Ser. No. 201,371

Claims priority, application Great Britain, Nov. 30, 1970, 56,676/70

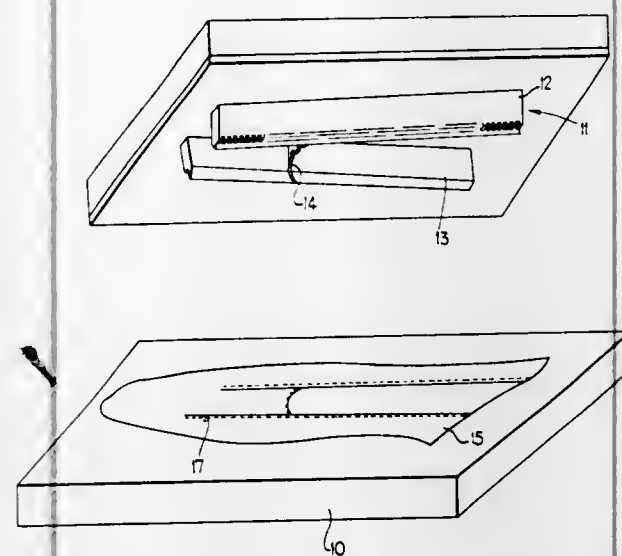
Int. Cl. A43d 9/00

17 Claims

U.S. Cl. 12-142 R

A method of shoe manufacture involving welding together component parts of a blank and subsequently preforming and finishing. In one form the lining is joined to the outer by a tear-seal weld extending along the top line so that at least some lining extends unbroken across the weld line to permit preform-

ing, the waste material being subsequently torn away. Another feature involves joining an insole portion to an outer portion, preforming and removing a gusset from the insole so as to give



to the insole the requisite shape and area of a finished shoe insole. Lasting procedures are reduced and closing shop operations performed upon the flat blank before preforming.

3,739,415

PORTABLE CLEANING TOOL FOR ELECTRICAL CONDUCTORS

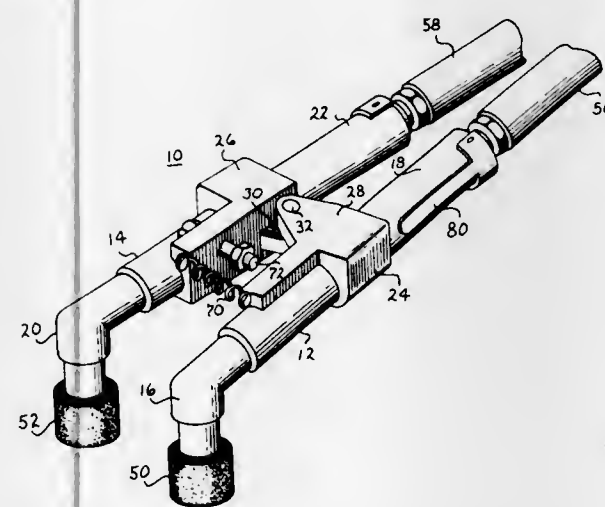
Raymond Lee Larson, Erie, Pa., assignor to General Electric Company, New York, N.Y.

Filed May 5, 1972, Ser. No. 250,722

Int. Cl. A46b 13/02

U.S. Cl. 15-23

10 Claims



A portable cleaning tool for stripping an electrical conductor includes a pair of pivotably interconnected support members each having a drive shaft projecting therefrom and each having independent drive means for driving its drive shaft. The support members and the drive shafts are relatively oriented such that relative pivotal movement of the support members in a first direction moves the drive shafts, and cleaning elements such as wire brushes mounted thereon, toward each other and such that relative pivotal movement of the support members in a second direction moves the drive shafts, and cleaning elements mounted thereon, away from each other.

3,739,416

HYGIENICALLY SHIELDED ROTARY TOOTHBRUSH

Masami Mike Kurachi, 311 High Street, Modesto, Calif.

Filed Jan. 17, 1972, Ser. No. 218,302

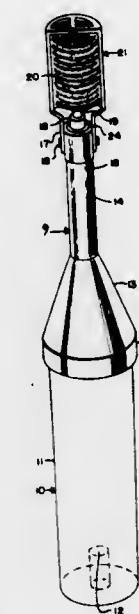
Int. Cl. A61c 17/00; A46b 13/02

U.S. Cl. 15-23

8 Claims

A hygienically shielded rotary toothbrush having a brush shield comprising a substantially open structural network to

reduce the deposit and transfer from person to person of remnant toothpaste, bacteria and organic matter. Internal switches on the motor casing are triggered by a protruding nub



affixed to the interior of the shaft shield to actuate the motor to drive the rotary brush either in a clockwise or in a counter-clockwise direction.

3,739,418

LITTER SCOOP

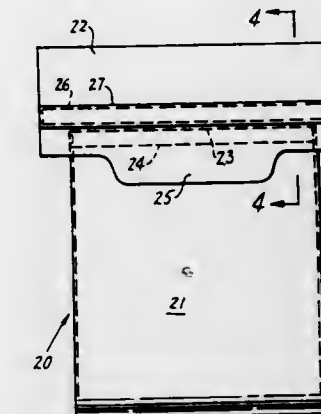
Gary A. Yonaites, and Rosemary C. Yonaites, both of 1529 Greenleaf St., Evanston, Ill.

Filed July 29, 1971, Ser. No. 167,118

Int. Cl. A47i 13/52

U.S. Cl. 15-104.8

5 Claims



A disposable litter scoop formed of a flexible paper or plastic bag having scoop panels secured to the upper edge thereof in spaced apart opposed relation to permit the scooping of litter therebetween after which the panels and bag are inverted to drop the litter into the bag. The panel scoop members may be turned inwardly of the bag to seal the bag and to form a handle for carrying the bag.

3,739,419

NON-SNAGGING HAIRBRUSH

Solomon Natman, Brooklyn, and Robert A. Cohen, Kew Gardens, both of N.Y., assignors to Stance Industries, Inc., Brooklyn, N.Y.

Filed Dec. 7, 1970, Ser. No. 95,477

Int. Cl. A46b 3/22, 5/00

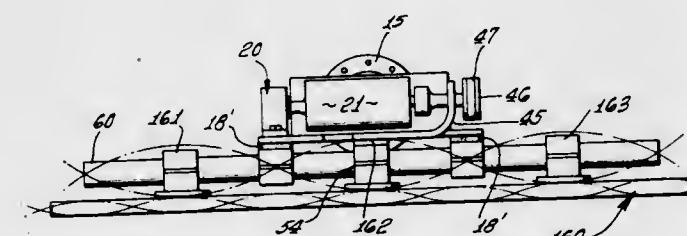
U.S. Cl. 15-187

23 Claims

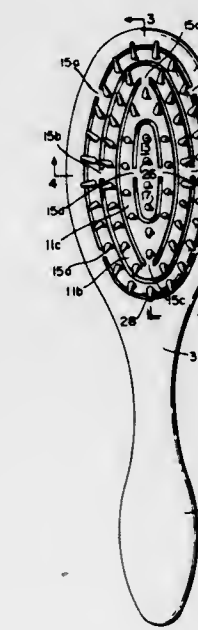
3,739,417
INDUSTRIAL CARPET AND FLOOR CONDITIONER
Harold T. Sawyer, Pacific Palisades, Calif., assignor to Vernon D. Boehler, Los Angeles, Calif., a part interest
Filed June 4, 1971, Ser. No. 150,075
Int. Cl. A47i 11/03

U.S. Cl. 15-92

4 Claims



A single transversely aligned floor conditioning plate or a group of transversely aligned floor conditioning plates are mounted on a tubular support which in turn is carried by an appropriate vehicle. For vibrating the plates at or near one of their modes of natural frequency, a single source of sinusoidal energy vibrating in the low sonic range is mounted midway between opposite ends of a resonant tubular support, at an antinodal point. When more than one resonant plate is employed, the other plates are also mounted at antinodal points by means of pedestal supports. A work shoe below each plate has an accumulator chamber for reception of cleaning liquid located above the work shoe and separated from the work shoe by a series of resilient spring mounts located at antinodal points which alone and/or in combination with the liquid transfer the sinusoidal acoustic resonant energy from the source through the tubular support and plate thereon into the conditioning fluid. The fluid medium is transformed into a state of cavitation and continues after it leaves the chamber. Subsequently a suction apparatus draws the spent and soiled conditioning fluid away from the conditioning operation.



A hairbrush includes a plurality of concentric rings forming carrier plates for the bristles. The concentric rings are flexibly connected by hinges to allow the rings to move with respect to each other. The bristles carried by the concentric rings are stiff, allowing deep penetration of the hair. The flexibly mounted concentric rings allow the bristles to easily slip past any snags or knots encountered in the hair.

3,739,420

DEVICE FOR SWABBING THE BORE OF A MUSICAL INSTRUMENT

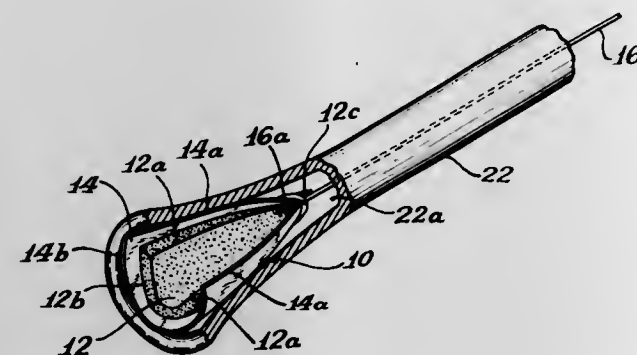
Nicholas H. Kaffis, Chicago, Ill., assignor to Reco Corporation, Pittsburgh, Pa.

Filed Mar. 10, 1972, Ser. No. 233,585

Int. Cl. B08b 9/02; G10d 9/00

U.S. Cl. 15-211

7 Claims



A device for removing moisture from, and cleaning the bore of, a clarinet, saxophone, or the like, musical instrument. In its preferred form, the device comprises a generally triangularly shaped body portion formed of a flexible foamed plastics material such as polyurethane, and a similarly shaped cover sheet formed of a moisture-absorbent material such as chamois. The cover sheet is of a size such that the side margins thereof extend beyond the corresponding margins of the body portion. The body portion and the cover sheet are secured to one another at an apex thereof, and a flexible cord is provided for the device to enable it to be pulled through the bore of a musical instrument.

3,739,421

AUTOMATIC SUCTION CLEANER

Hiroshi Fukuba, No. 320-82, Matsugaoka 2-chome, Nagareyama-shi, Chiba-ken, Japan

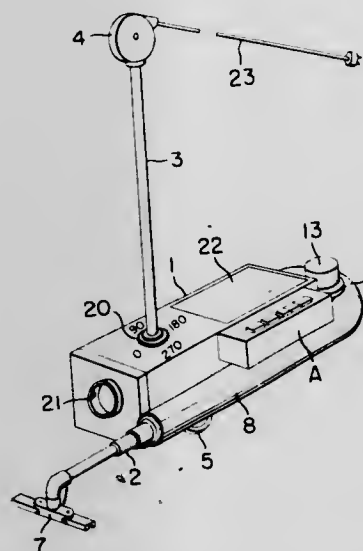
Filed Jan. 13, 1971, Ser. No. 106,094

Claims priority, application Japan, Jan. 14, 1970, 45/4006

Int. Cl. A47i 5/00

U.S. Cl. 15-319

9 Claims



An automatic suction cleaner is provided with a suction air-current producer and a suction nozzle connected to said suction air-current producer, said suction nozzle being so devised as to automatically reciprocate to the extent of a specified distance from said suction air-current producer by virtue of the working of a coiler in order to rub the floor surface, the reversal in the reciprocating motion of said suction nozzle is effected by the switchover of the motion of said coiler which takes place whenever said coiler is overloaded.

3,739,422

SHAG RUG CLEANING TOOL FOR USE WITH VACUUM CLEANERS

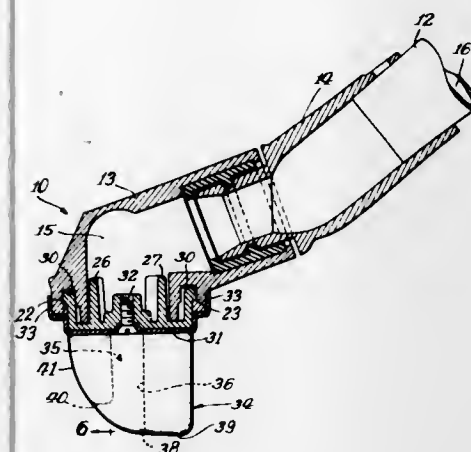
Robert E. Johnson; Donald F. Swanson, both of St. Paul, and George A. Westergren, White Bear Lake, all of Minn., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed Sept. 28, 1971, Ser. No. 184,525

Int. Cl. A47i 9/06

U.S. Cl. 15-397

11 Claims



A tool for use with a canister-type vacuum cleaner wherein a wand is provided at one end with a suction dirt pick up tool and is connected through suitable flexible tubing to the suction means of the canister wherein the picked up dirt is deposited in the vacuum cleaning operation. The pick up tool is adapted for use in cleaning high pile material such as shag rugs and defines a rake structure having a plurality of hollow teeth for improved cleaning of the rug pile.

3,739,423

BASE AND BORDER ASSEMBLIES FOR FLOOR COVERINGS AND THE LIKE

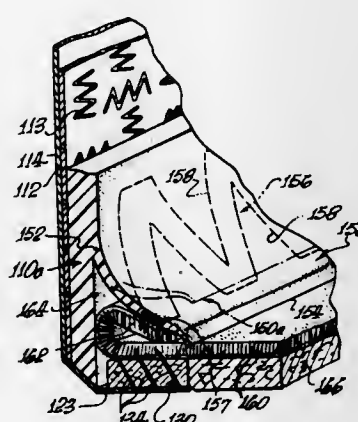
Clyde T. Denton, West Covina, Calif., assignor to Resilient Services Incorporated, Los Angeles, Calif.

Division of Ser. No. 667,705, Sept. 14, 1967, Pat. No. 3,549,471. This application Sept. 16, 1970, Ser. No. 72,657

Int. Cl. A47g 27/04

U.S. Cl. 16-16

10 Claims



Base and border assemblies include a flexibly joined tack bar for securing a carpet. Flexible cove structures may be lifted to insert a carpet edge. Improved fit between the base and border assembly and the field covering is secured by means of tapered shim stock that extends from the border under the field covering. Fit between sections of base is facilitated by an overlap, with the front flange longer than the back flange.

3,739,424

SUSPENDED TROLLEY

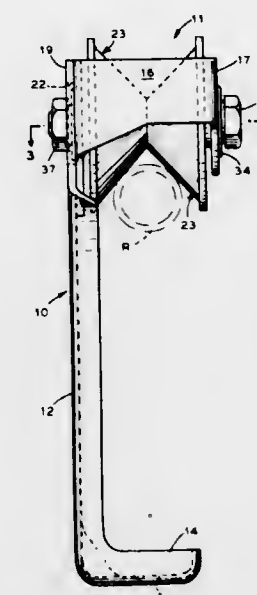
George E. Gonsalves, and Felice Dosso, both of 623 Bergen St., Brooklyn, N.Y.

Filed May 6, 1971, Ser. No. 140,781

Int. Cl. B60b 37/00; B61b 3/00; B61f 11/00

U.S. Cl. 16-98

11 Claims



A wheel construction of the type of suspended trolley which moves on rail means and is mounted on hanger means for moving a load along the rail means; the wheel construction comprising wheel members formed as steel stampings to withstand heavy loads and to extend the normal life thereof.

3,739,425

HINGE

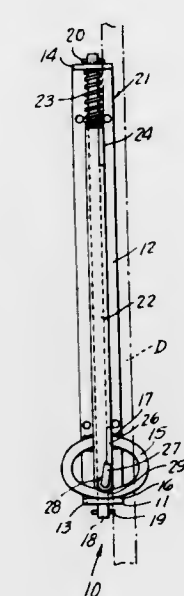
Selfred Moen, Route No. 1, Madison, Minn.

Filed July 30, 1971, Ser. No. 167,590

Int. Cl. E05f 1/12

U.S. Cl. 16-189

5 Claims



A hinge having an elongate pintle and an elongate tubular hinge member mounted on the pintle for rotary movement thereon and vertical sliding movement thereon. An inclined generally circular track surrounds the lower end of the tubular member and the pintle. A roller on the tubular member rides the circular track to raise the tubular member on the pintle as the tubular member revolves on the pintle. A compression spring bearing against the top of the tubular member normally urges the tubular member downwardly on the pintle to normally maintain the hinge in a closed door position.

3,739,426

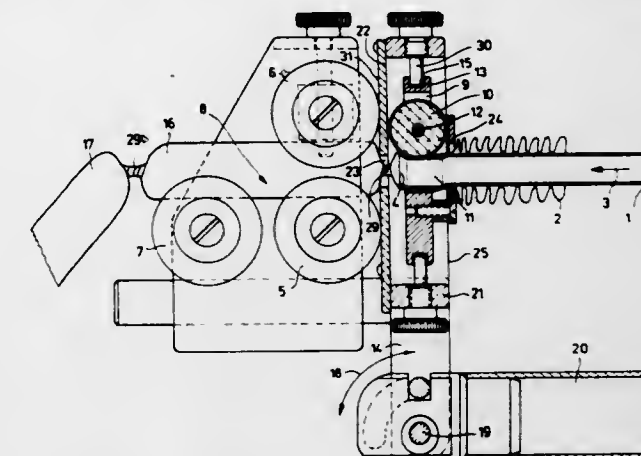
SAUSAGE MACHINEKarl Schnell, 7065 Winterbach, Germany
Filed May 18, 1971, Ser. No. 144,528

Claims priority, application Germany, May 26, 1970, P 20 25 620.6

Int. Cl. A22c 11/02, 11/10

U.S. Cl. 17-33

14 Claims



A machine for filling sausage meat into tubular casings, such as skins and the like, has a filling spout rotatable about its longitudinal axis, a braking mechanism for the discharging casing surrounding the spout in the range of its discharge end, and a retaining device preventing rotation of the formed sausage. The spout has a polygonal, and preferably triangular, cross-section at least in the range of the braking mechanism, and elastic braking rollers, or elastically applicable braking rollers, are mounted for rotation in axial planes of the spouts, each roller being aligned longitudinally with a respective polygonal face forming an entraining surface for the associated braking roller. The rollers are rotatably mounted in a rotatable retaining ring, for rotation about axes which are perpendicular to axial planes through the spout, and the rotatable ring is mounted on an arm for swinging away from the spout discharge end for placing a folded casing over the spout. The discharge end of the spout terminates in a circular cross section of the spout. A fold drawing ring surrounds the spout just upstream of the braking rollers, and has radially inwardly protruding tongues corresponding to the number of braking rollers and located angularly midway between adjacent rollers. A supporting plate for the rear end of the formed sausage is positioned between the braking mechanism and the retaining device.

3,739,427

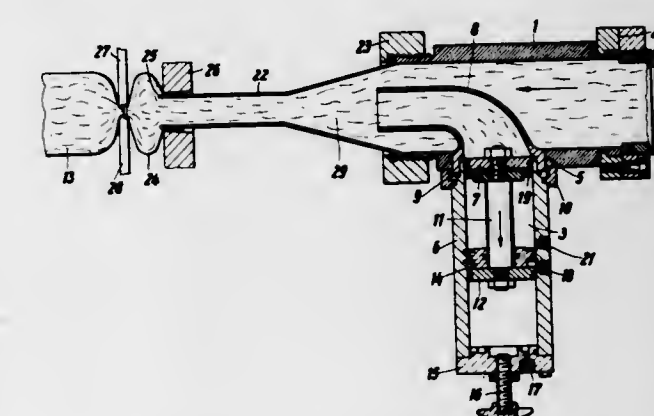
SAUSAGE FILLING PROCESS AND APPARATUSHerbert Niedercker, Am Ellerhang 6, Falkenstein, Germany
Filed Nov. 5, 1971, Ser. No. 196,165

Claims priority, application Germany, Nov. 5, 1970, P 20 54 389.9; July 26, 1971, P 21 37 278.1

Int. Cl. A22c 21/00

U.S. Cl. 17-49

11 Claims



In a sausage filling process, when the sausage casing is filled it is constricted near the end at a location where it contains

filling material. Thus, nearly no air is locked into the casing. Upstream of the constriction suction is applied through the filling spout so that the material is sucked up or backsucked, rather than being left in the tail outside end of the filled casing. The sucked up material is discharged into the next casing to be filled so waste of filling material is also minimized.

3,739,428

SKINNING MACHINE FOR FISH FILLETS

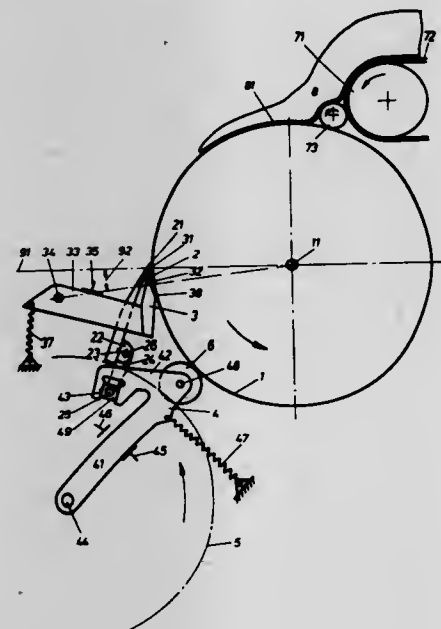
Alfred Bartels, Lubeck-Israelsdorf; Jurgen Drews, and Gunther Pinkernell, both of Lubeck, all of Germany, assignors to Nordischer Maschinenbau Rnd. Baader, Lubeck, Germany

Filed June 21, 1971, Ser. No. 155,191

Int. Cl. A22c 25/17

U.S. Cl. 17-62

3 Claims



A skinning machine for fish fillets, particularly fish fillets of flat fish including a power driven skinning roller, an oscillating skinning knife arranged in parallel relation to the axis of the skinning roller and a pressure pad arranged below the skinning knife and extending in spaced relation along the circumference of the skinning roller forming a passage for the skin of the fish fillet. The skinning knife is pivotally supported on a shaft extending in parallel spaced relation to the axis of the skinning roller. In its position of rest the cutting edge is kept in adjustable spaced relation to the circumference of the skinning roller within a range of five to 10 times the thickness of the skin of the fish fillet. The skinning knife is coupled with means shiftable by the resistance experienced in the drive of the skinning roller when initiating the skinning process, whereby the cutting edge of the skinning knife is moved toward the circumference of the skinning roller into its cutting position wherein it is spaced from the circumference of the skinning roller a distance corresponding to the thickness of the skin of the fish fillet.

3,739,429

BUNDLING STRAP

Stephen J. Kohke, Bridgewater Township, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed Feb. 14, 1972, Ser. No. 226,176

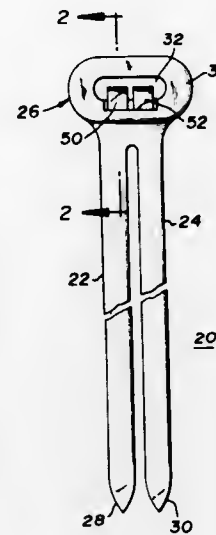
Int. Cl. B65d 63/00

U.S. Cl. 24-16 PB

23 Claims

A bundling strap formed preferably of plastic material having a plurality of body portions individually insertable within a head portion having an aperture comprising, in one embodiment, at least two independently deflectable locking members each engageable with an associated one of said body portions to permit the convenient restraint of a plurality of individual articles such as tubular members, cable breakouts, and the

like, with a single strap. In another embodiment, a twist type arrangement is provided wherein the strap head portion comprises pairs of opposed recessed portions each pair being selectively contoured to accept a planarly displaced segment



of an associated strap body portion. The independently deflectable locking members may be disposed in juxtaposed, offset, or opposed relationship within the head portion aperture and may be formed either integrally therewith or supplied as discrete inserts.

3,739,430

BUNDLING STRAP

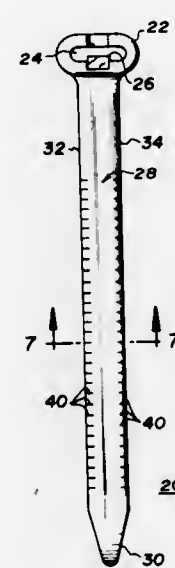
Stephen Kohke, Bridgewater Township, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.

Filed Sept. 17, 1971, Ser. No. 181,347

Int. Cl. B65d 63/00

U.S. Cl. 24-16 PB

9 Claims



An improved self-locking bundling strap comprising, in one form, a plurality of pairs of spaced, generally transverse narrow slits of predetermined length extending from the edges of the strap inwardly towards the center of the width of the strap, each pair being separated by a selectively proportioned center portion, to facilitate the severance of an excess portion thereof by rotatably twisting said portion while substantially preserving the initial strap strength and flexibility. Other embodiments include obliquely angled slits having either a straight or curvilinear contour.

3,739,431

TRASH CAN HOLDER

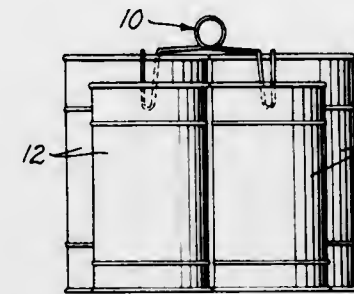
Joseph D. Sciolero, 14620 Rath, La Puente, Calif.

Filed Mar. 17, 1971, Ser. No. 125,106

Int. Cl. A44b 21/00

U.S. Cl. 24-81 C

3 Claims



A trash can holder in the form of a double end clip, preferably fabricated from slender metal rod stock, for releasably joining a group of three or four trash cans to restrain the cans against overturning. The clip has a central connecting portion providing a handle and terminating in pairs of depending arms for straddling the rims of adjacent trash cans to hold the latter against separation and thereby overturning.

3,739,432

CHAIN SAFETY HOOK

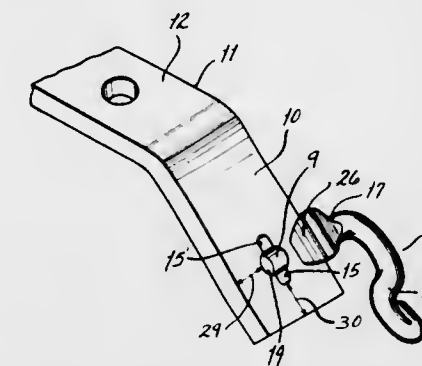
Benjamin Sander; Robert C. Rueff, and Herschel E. Woltzen, all of St. Louis County, Mo., assignors to Nixdorff-Krein Mfg. Co., St. Louis, Mo.

Filed Apr. 5, 1971, Ser. No. 131,093

Int. Cl. A44b 17/00; A43c 11/08

U.S. Cl. 24-201 HE

10 Claims



A chain safety hook connected to one end of a length of chain, being of general U-shape formation, and having a locking head integrally formed on one end of the hook; said head being flattened and having a transverse extent greater than the cross section of the hook stock. The locking head is transversely arcuated substantially intermediate its length to provide a tongue, the plane of which forms an obtuse angle with the axis of the adjacent hook portion to permit said hook to be latchingly acceptable within a bracket opening or within a chain link for disposition of the locking head so as to prevent inadvertent displacement of the hook when in operative position.

3,739,433

SNAP CLASP FOR BRACELETS

Bernard Druskin, 33-27 91st St., Jackson Heights, N.Y.

Filed Dec. 16, 1971, Ser. No. 208,759

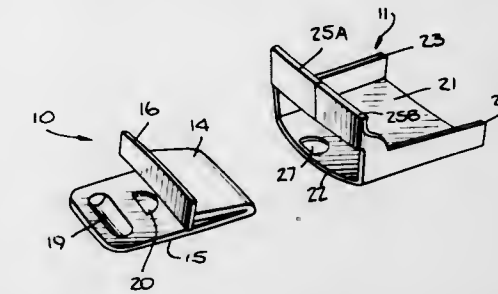
Int. Cl. F16g 7/04

U.S. Cl. 24-230 CF

8 Claims

A snap clasp for a bracelet or other article of jewelry, the clasp being constituted by a compressible male element insertable in a female element. The male element is formed by a

strip of resilient metal folded to define a tongue having upper and lower sections, the rear end of the upper section being bent upwardly to form a limit wall which overlies the rear end of the lower section. One end of the bracelet is attached to the back of the limit wall. The female element is formed of sheet metal cut and bent to define a base wall, a pair of parallel side walls and a front wall extending between the upper front cor-



ners of the side walls, the space between the base and front walls serving as an inlet for the tongue. The upper section of the male element includes a raised dimple which falls behind the front wall of the female element when the tongue is fully inserted and prevents withdrawal of the male element unless the tongue is first squeezed to reduce the angle between the upper and lower sections.

3,739,434

CLAMP FOR WELL PIPE

Eugene F. Wheeler, Franktown, Colo.

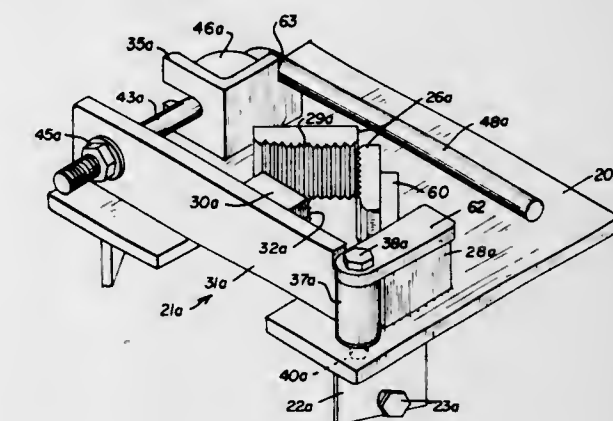
Continuation-in-part of Ser. No. 85,360, Oct. 30, 1970, Pat. No. 3,637,011. This application Nov. 3, 1971, Ser. No.

195,091

Int. Cl. E21b 33/03

U.S. Cl. 24-249 DP

4 Claims



A clamp for holding a string of pipe suspended in a well. The clamp is mounted upon a flat plate which is secured to the well casing to prevent it from rotating. The plate has a throat at one side to receive a pipe suspended in the well and vertically-splined jaws form a V-notched abutment at the crotch of the throat. A clamp arm having a horizontally-splined head is pivotally mounted upon the plate to be pulled against a pipe in the throat to engage the pipe between the jaws and the head. A cammed pull rod connecting with the arm engages a cam seat on the plate to lock the jaws and head onto the pipe and prevent it from slipping and rotating in the clamp.

3,739,435

QUICK RELEASE, TOGGLE LATCHING, SPRING CLIP FOR HOLD-OPEN PROP

Ralph F. Baker, San Diego, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Filed Apr. 17, 1972, Ser. No. 244,533

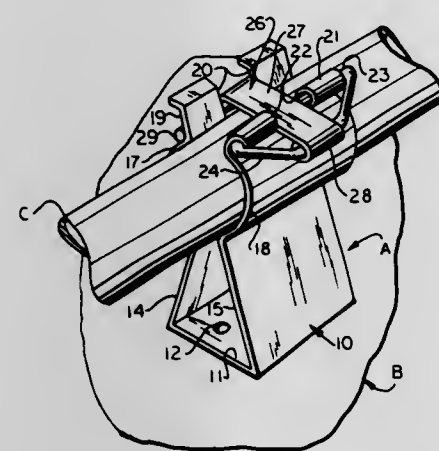
Int. Cl. A44b 21/00

U.S. Cl. 24-257 R

4 Claims

For retaining in stowed position a rod-like member, such as a hold-open prop for an airplane engine nacelle panel, a

generally U-shape spring clip member provides for temporary retention of the prop during such time as the airplane is on the ground, and toggle latch means hingedly mounted on one leg



of the clip member may be swung over to engage the other leg and securely latch the prop in the clip to insure against its accidental release during flight.

3,739,436

PROCESS AND APPARATUS FOR THE CONTINUOUS TREATMENT OF PILE FABRICS

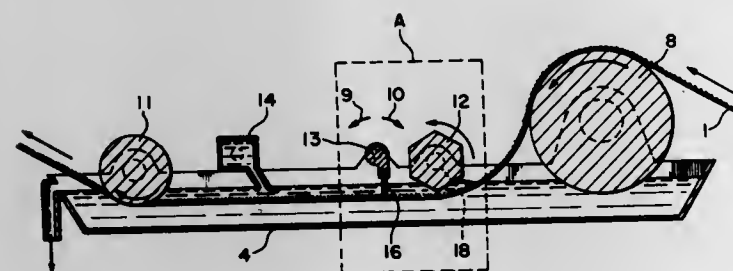
Erich Naujoks, Jesteburg, and Heinz Rommel, Maschen, both of Germany, assignors to Artos Dr.-Ing. Meier-Windhorst Kommandit-gesellschaft, Hamburg, Germany
Filed Apr. 22, 1971, Ser. No. 136,463

Claims priority, application Germany, Apr. 25, 1970, P 20 365.0

Int. Cl. D06c 29/00; D06q 1/00

U.S. Cl. 26—2 R

3 Claims



A process for the continuous treatment of webs of material having an upright nap consisting of at least partially of thermoplastic fibers, and in particular for restoring the upright nap of velvet, velours, plush and the like, which comprises subjecting the web of material to a temperature above the softening point of the thermoplastic fibers and moving the webs substantially vertically with respect to the direction of travel of the web, and subsequently cooling it to a temperature below the softening point of the fibers before exposing the web to any mechanical or hydrodynamic pressure. Apparatus for carrying out the treatment is also described.

3,739,437

WEAVING DEVICE

Gisela M. Alberici, 2362A Folsom St.; Lilly U. Botta, 764 7th Avenue, and Henry W. Jahrens, 715 45th Avenue, all of San Francisco, Calif.

Filed May 17, 1971, Ser. No. 144,107

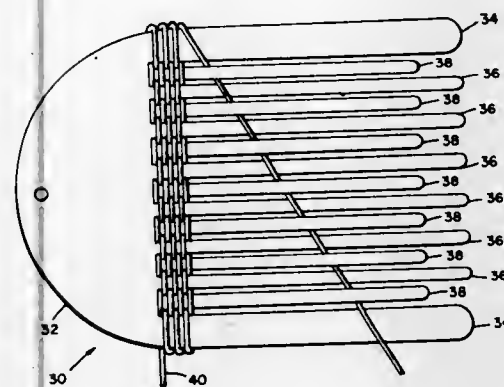
Int. Cl. D03d 29/00

U.S. Cl. 28—15

1 Claim

A weaving device having a plurality of substantially parallel, elongate resilient fingers carried at one end by a base portion, alternate of the fingers being somewhat longer than the others of the fingers. Yarn may readily be interwoven under and over

alternate of the fingers by applying a bending force to the end portions of the longer fingers to deflect them, thus permitting



the yarn to be inserted along a substantially straight-line path. Yarn may thereafter be inserted parallel to, and in the place of, the fingers to create a woven fabric or article.

3,739,438

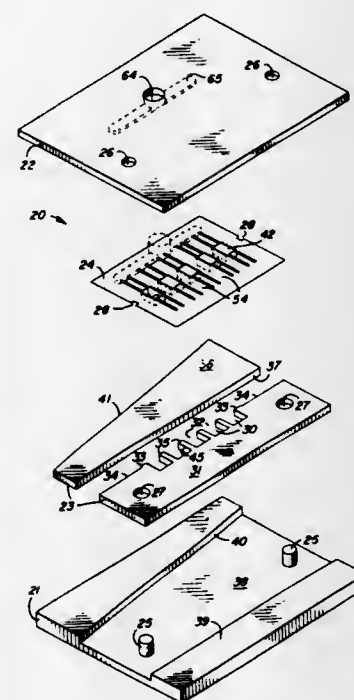
SYSTEM FOR MOLDING ELECTRONIC COMPONENTS

Richard A. Lambrecht, Greenville, S.C., assignor to Union Carbide Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 13,956, Feb. 25, 1970, Pat. No. 3,650,648. This application Nov. 18, 1971, Ser. No. 199,904

Int. Cl. H01g 13/00

U.S. Cl. 29—25.42

4 Claims



System for injection molding components including process and an apparatus consisting of at least two mold parts having molding cavities formed therein when the parts are brought together, a sheet-like frame member disposed between the mold parts and having a pattern of cutouts therein defining central openings in registry with mold cavities and pairs of slots in the sheet extending from the openings to form elongated prong-like strips which extend into the cavities and support the electronic components therein, and a passage in one of the mold parts overlying the slots in the sheet whereby fluid molding material can be flowed through said slots and into the cavities to encapsulate the components therein.

3,739,439

METHOD OF MANUFACTURING DISPLAY SCREENS FOR CATHODE-RAY TUBES

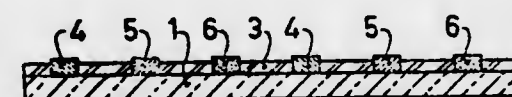
Hand Dignus Duinker, Emmasingel, Eindhoven, Netherlands, and Eric Raymond Leng, Accrington, England, assignors to U.S. Phillips Corporation, New York, N.Y.

Filed June 10, 1971, Ser. No. 151,941

Int. Cl. H01j 9/00

U.S. Cl. 29—25.18

5 Claims



After the development of the image of hardened pva obtained by exposure on the face plate panel of a cathode-ray tube and before the screen can be completely dried, the image is partly destroyed owing to the film of developing liquid which is left on the screen. This results in a poorly defined image and an upset colour balance. A sharply defined image is obtained by treating the screen with acetone immediately after, or even during, development.

3,739,440

OZONE GENERATOR AND METHOD OF MAKING SAME

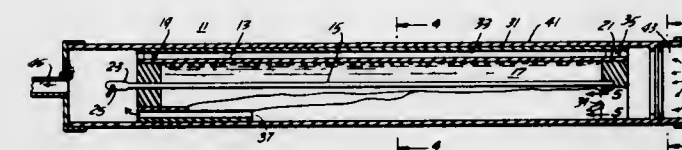
Norman S. Lund, and Norman W. Lund, both of P.O. Box 246, 6511 New Haven Ave., Melbourne, Fla.

Filed June 2, 1971, Ser. No. 149,234

Int. Cl. H01j 9/18

U.S. Cl. 29—25.13

3 Claims



An ozone generator apparatus and method of making same having inner and outer tubes connected together with spacers therebetween leaving air space between the tubes. The smaller tube has a copper rod attached along its axis and is filled with a brine solution and the larger tube is either metal or has a metallic coating with a voltage source connected between the larger tube and the copper rod. Air is forced and directed between the larger and smaller tubes where ozone is generated.

3,739,441

APPARATUS AND METHOD TO FILL FLASHLAMPS

Peter Kaufmann, Stadtbergen, and Reinhold Liepert, Wortelstetten, both of Germany, assignors to Patent-Treuhand-Gesellschaft für elektrische Glühlampen mbH, Munich, Germany
Division of Ser. No. 18,875, March 12, 1970, Pat. No. 3,630,650. This application Oct. 13, 1971, Ser. No. 189,037
Claims priority, application Germany, Mar. 17, 1969, P 19 13 417.9

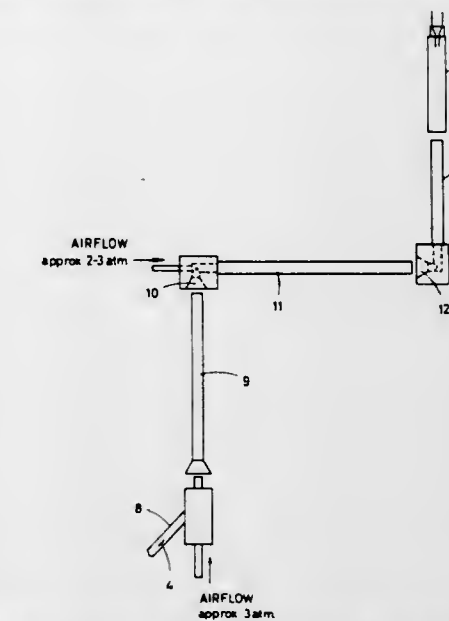
Int. Cl. H01j 9/18

U.S. Cl. 29—25.13

7 Claims

To make flashlamps in which the filler material has sharply bent foil shreds, which are buckled, the shreds are sucked through a supply tube by an air flow, preferably of about 3 at and accelerated in the first conduit, which terminates in a chamber, or end wall against which the threads are flung so that they will buckle by the impact; the buckled foil shreds are then removed by an air flow of, for example from 2 to 3 at, in a direction essentially perpendicular to the original direction of flow, the second conduit terminating in a second chamber

having another end wall against which the already buckled shreds are flung to be again buckled to form final sharp bends.



The sharply bent shreds are then moved by means of residual air flow into a lamp bulb, and then sealed into the bulb.

3,739,442

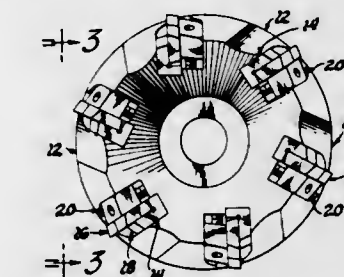
CUTTING TOOLS

Norman H. Lovendahl, 814 Clinton, River Forest, Ill.
Filed Dec. 27, 1971, Ser. No. 212,115

Int. Cl. B26d 1/12

U.S. Cl. 29—105 R

3 Claims



A cutting tool having a rotatable cutter body provided with spaced apart slots around its periphery. In each slot a cutter blade is accurately positioned by an anvil and a locating spacer and then locked into place by a wedge. The locating spacers provide a maximum support area for the cutter blades and are prevented from turning by a shoulder on its locating surface. Also the locating spacers can be of different sizes and selected to accurately control the cutting tool location dimensions.

3,739,443

METHOD OF FORMING A SHELL-AND-TUBE HEAT EXCHANGER

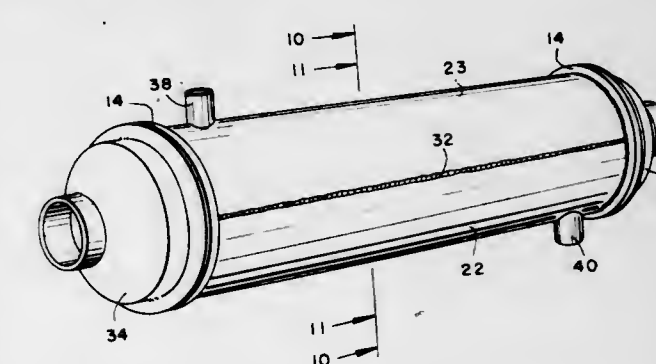
Irwin R. Friedman, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis.

Filed Feb. 9, 1972, Ser. No. 224,868

Int. Cl. B21d 53/02

U.S. Cl. 29—157.3 R

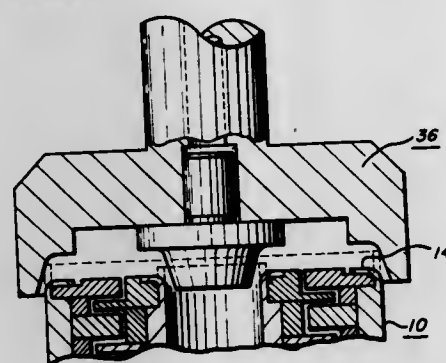
5 Claims



This specification discloses a series of steps useful in manufacturing a shell-and-tube heat exchanger in which one or

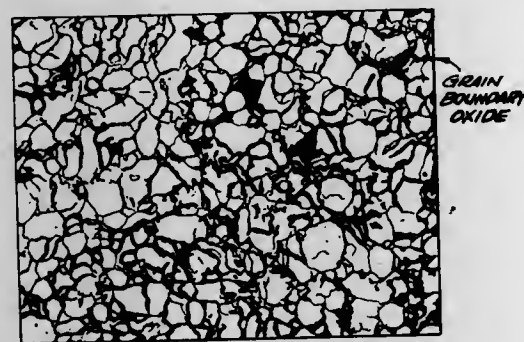
more baffles are disposed. Particular emphasis is given to those steps which are used to provide a good seal between the baffle and the internal wall of the shell.

3,739,444
METHOD OF MAKING A LABYRINTH SEAL
 E. James Vargo, 345 Balmoral Drive, Richmond Heights, Ohio
 Filed Feb. 16, 1971, Ser. No. 115,498
 Int. Cl. B23p 11/00, 19/00
 U.S. Cl. 29—148.4 S 8 Claims



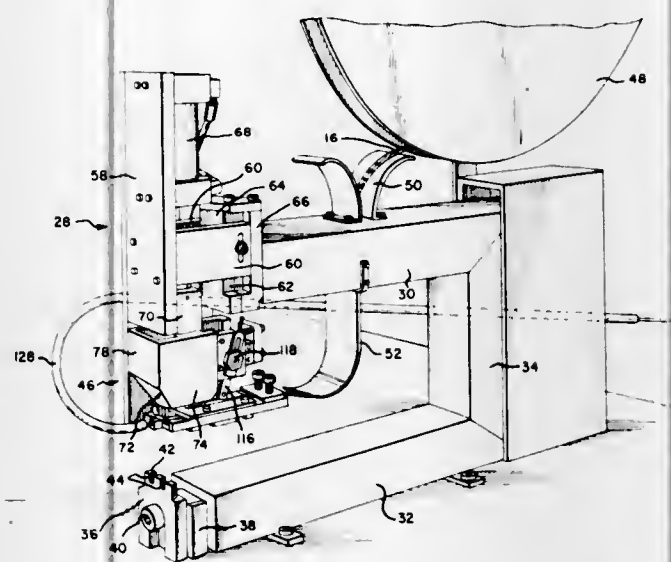
The present disclosure involves an improvement in the method of forming a labyrinth seal which has an outer member comprising a hollow cylindrical housing containing a plurality of stacked annular first plates positioned apart by means of annular first spacers. An inner member is provided which comprises a plurality of stacked annular second plates which interleave with the first plates and are positioned apart by means of second annular spacers. The improvement comprises the provision of a hollow housing with a first cover affixed thereto and with the axial length of the housing being sufficient to permit the upper portion to be bent over to form a flange. An inner cylindrical support member is inserted into the hollow in the housing. The first and second plates and spacers are then stacked in the housing and the first plates interleave with the second plates of the inner member. The upper portion of the housing and the upper portion of the support member are then bent over to position the first and second plates and the first and second spacers in the housing.

3,739,445
POWDER METAL MAGNETIC POLE PIECE
 James M. Gabriel, Monsey, N.Y., and William Reilly, Fort Lee, N.J., assignors to Chromalloy American Corporation, New York, N.Y.
 Filed Dec. 29, 1970, Ser. No. 102,364
 Int. Cl. C22c 3/00
 U.S. Cl. 29—182.5 5 Claims



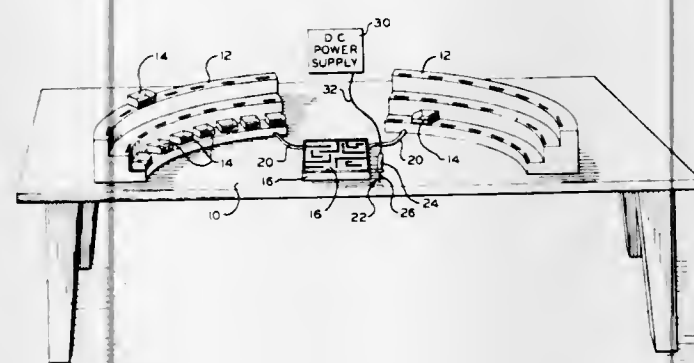
A powder metallurgy produced wear resistant magnetic pole piece for use as a pickup head with magnetic playback tapes is provided made of a magnetically soft ferrous alloy containing effective amounts of silicon and aluminum. A powder of the alloy is oxidized to provide a thin oxide on the particles thereof. The powder is then hot pressed in vacuum at an elevated temperature into a dense sintered body. The presence of oxide in the grain boundaries confers wear resistant properties to the alloy. An oxygen content of about 3,400 to 4,400 ppm is preferred.

3,739,446
APPARATUS FOR INSERTING TERMINALS INTO PANEL MEMBERS
 Alden Owen Long, Jr., and Mervin Leonard Shughart, both of Carlisle, Pa., assignors to AMP Incorporated, Harrisburg, Pa.
 Filed Jan. 26, 1972, Ser. No. 220,860
 Int. Cl. H05k 13/04
 U.S. Cl. 29—203 B 7 Claims



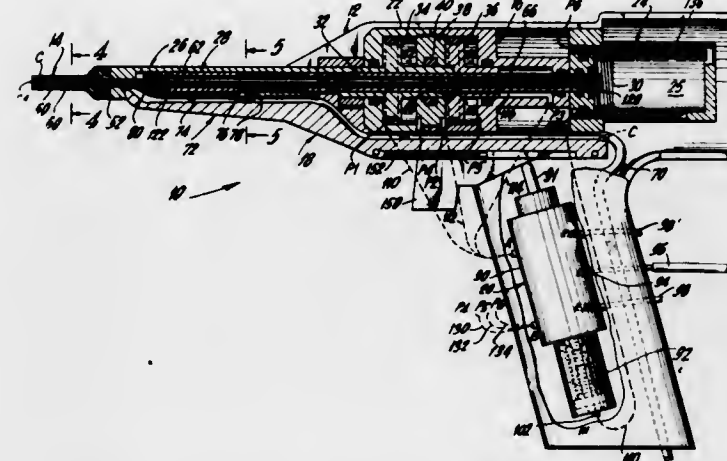
Apparatus for inserting terminals, in the form of a continuous strip, into a panel-like member comprises strip feeding means, a means for partially severing the individual terminals from the strip, and a means, in the form of an inserting ram, which completes the severing operation and inserts a terminal into a panelboard.

3,739,447
PRINTED CIRCUIT BOARD ASSEMBLY AID
 Robert B. Halliday, Chenango Forks, N.Y., assignor to The Singer Company, New York, N.Y.
 Filed Apr. 30, 1971, Ser. No. 139,054
 Int. Cl. H05k 13/04
 U.S. Cl. 29—203 B 8 Claims



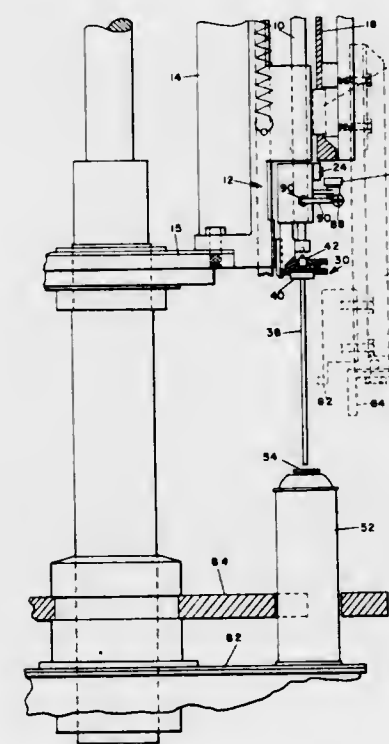
Apparatus for assisting an operator in the selection, from a plurality of individual bins, of each component to be assembled on a conventional printed circuit board. A probe is provided for manual insertion by the operator through the holes in the p. c. board. The latter is held in a fixture in superimposed relation to conducting paths which have been prepared for the particular board to be assembled. An electrical power supply is connecting through the probe, and the conducting path contacted thereby when inserted through any particular hole in the board, to a lamp on the bin containing the component whose leads are to be inserted through that hole.

3,739,448
SEMI-AUTOMATIC HAND TOOL FOR EXTRUDING ELECTRICAL CONNECTORS
 Peter Garner, Bernardsville, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.
 Filed Oct. 18, 1971, Ser. No. 189,994
 Int. Cl. H01r 43/04
 U.S. Cl. 29—203 H 11 Claims



A semi-automatic hand tool for extruding electrical connectors in order to connect a wire to a post of an integrated circuit panel includes extruding means which are actuated by an air-operated actuating means, and which includes means for feeding the electrical connectors to the extruding tip. The operation of the extruding means, the actuating means, and the feeding means are coordinated by a multi-valve control system which is air operated. In addition, a sensing means is provided in conjunction with the extruding means for insuring that the hand tool does not recycle prematurely.

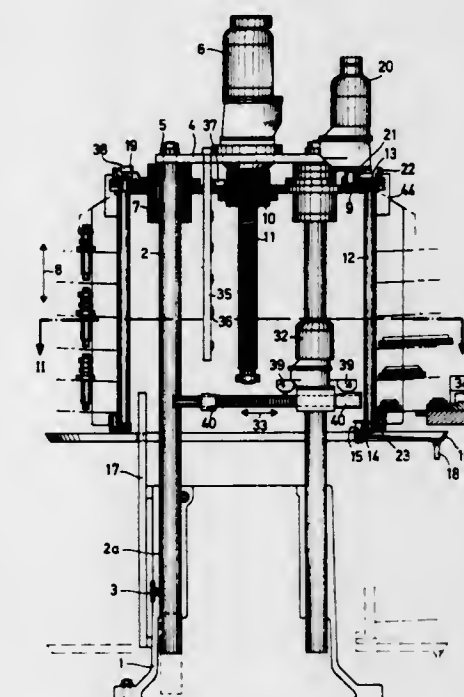
3,739,449
VALVE INSERTING DEVICE FOR AEROSOL CONTAINERS
 Alfred L. Bergerson, Quincy, Mass., assignor to Pneumatic Scale Corporation, Quincy, Mass.
 Filed May 28, 1971, Ser. No. 147,867
 Int. Cl. B23p 19/04
 U.S. Cl. 29—208 B 10 Claims



A reciprocally mounted support on which there are mounted a valve gripper and a keeper for movement with the

support toward and from a container and for movement relative to the support, springs holding the gripper and keeper distended and in tandem relation to each other such that the support when moving toward the container is capable of continuing movement toward the container following engagement of the gripper supported valve with the container to move the keeper into engagement with the valve and of movement relative to the keeper following engagement of the keeper with the valve a distance corresponding to the distention of the keeper. There is a cam operable following engagement of the keeper with the valve to separate the jaws of the gripper and a cam operable during the initial movement of the support away from the container to retract the separated jaws of the gripper from the valve before the keeper is withdrawn from engagement with the valve element.

3,739,450
WORKPIECE MAGAZINE
 Erwin Delbel, Rastatt, Germany, assignor to Maschinenfabrik Lorenz Aktiengesellschaft, Ettlingen/Baden, Germany
 Filed Aug. 25, 1971, Ser. No. 174,644
 Claims priority, application Germany, Sept. 4, 1970, G 70 32 993.0
 Int. Cl. B23q 7/10
 U.S. Cl. 29—211 R 8 Claims



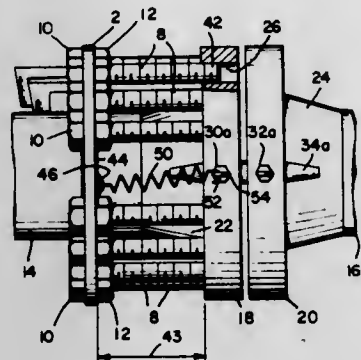
A workpiece magazine, for storing a relatively large number of workpieces before and after they are machined on an adjacent machine tool, has a vertically displaceable storage drum rotatable past a feeding arrangement for the machine tool. The workpieces are arranged in groups on intermediate floors in separate cassettes, one above the other, and the cassettes can be interchangeably suspended on the outer surface of the drum. The drum has two vertically spaced coaxial annular elements united by perpendicular struts, and the elements have holes spaced around their peripheries receiving pins on the ends of the cassettes. The upper element is constructed as an internal ring gear engageable with the pinion of a positioning motor, and the lower ring element forms a roller guide for an oil drip tray which is suspended non-rotatably therefrom. The cassettes are in the form of shaped angle sheet metal funnels or shells having apertures through which a workpiece injector may project into the cassette to eject a workpiece from a floor in the cassette.

3,739,451 MULTIPLE-BOLT INSTALLATION JIG

Roger Jacobson, 1200 Ocean Dock Road, Anchorage, Alaska
Filed Sept. 29, 1972, Ser. No. 293,593
Int. Cl. B23p 19/04

U.S. Cl. 29-237

15 Claims



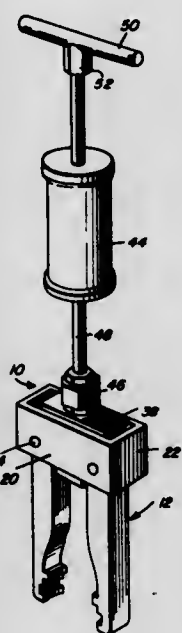
A jig comprising a frame with a plurality of bolts rigidly affixed therein and extending longitudinally therefrom parallel to one another is shown. The jig is mounted on a flanged pipe with the bolts seated in holes in the flange. The frame is then moved forward along the pipe to simultaneously install the bolts into holes in a flange of an abutting pipe.

3,739,452 DIESEL ENGINE INJECTOR PULLER

William A. Gadberry, 1280 Folsom Court, Coquille, Oreg.
Filed Sept. 24, 1971, Ser. No. 183,309
Int. Cl. B23p 19/04

U.S. Cl. 29-254

6 Claims



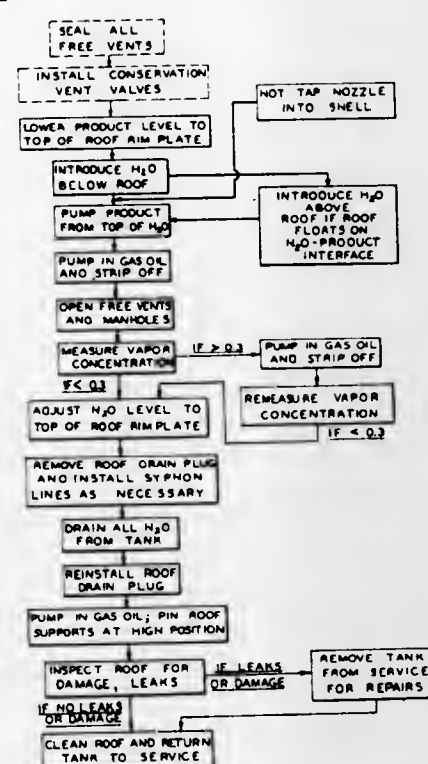
A pair of elongated pivotally mounted jaws depend from a mounting housing wherein a camming member is vertically adjustable so as to engage the jaws above the points of pivotal mounting thereof and effect a corresponding inward swinging of the lower gripping ends. The camming member is adjusted by an elongated adjusting bolt passing through a retaining bar fixed to the lower part of the housing and extending upwardly in threaded engagement with the camming member. A hammer mounting pulling shaft can be coupled to the upper end of the adjusting bolt.

3,739,453 REFLOATING SUNKEN FLOATING ROOFS

Joseph C. Vankoski, Wilmington, Del., assignor to Sun Oil Company, Philadelphia, Pa.
Filed Sept. 7, 1971, Ser. No. 178,259
Int. Cl. B23p 7/00

U.S. Cl. 29-401

4 Claims



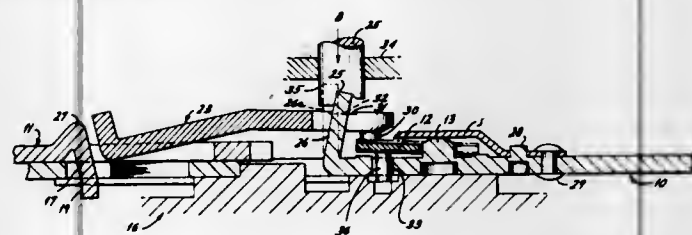
When the floating roof in a covered floating roof tank has sunk and it is desired to refloat the same, the tank is first "safed" by lowering the product level to the top of the rim plate on the roof, introducing water into the tank below the roof (or above, if necessary), pumping the product from the top of the water, then pumping in gas oil to absorb any product, and stripping this off. After safing of the tank, the roof drain plug is removed and the water completely removed from the tank. Then, after reinstalling the drain plug, gas oil is pumped in to raise the roof to a suitable level for inspection thereof. If there is no visible damage and no leaks, the tank may be returned to service after cleaning the roof.

3,739,454 PUSH-BUTTON KEY ASSEMBLY

Alvin E. Thompson, North Wales, Pa., assignor to Philco-Ford Corporation, Philadelphia, Pa.
Division of Ser. No. 81,897, Oct. 19, 1970, Pat. No. 3,680,394.
This application Dec. 21, 1971, Ser. No. 210,506
Int. Cl. B23q 17/00; B23p 9/00

U.S. Cl. 29-407

3 Claims



Push-button key structure, for use in adjustable radio tuning apparatus. The parts of the key structure are constructed and arranged to enable mechanized assembly of the push-button keys. Each key assembly comprises a pair of elongate slide members one of which carries an adjustable and lockable cam engageable with a treadle bar the angular position of which determines the tuning of associated radio apparatus. The keys are so designed that they may be completely assembled by interlocking engagement of the component parts thereof, using automatic machinery capable of only rectilinear movements. Provision is made for forcible "sizing" of parts of the key to maintain them in proper position and establish the tolerances required to insure proper operation of the cam.

3,739,455 METHOD OF MAKING FRESNELLED OPTICAL ELEMENT MATRIX

Luis W. Alvarez, Berkeley, Calif., assignor to Humphrey Research Associates, Oakland, Calif.
Filed Apr. 5, 1971, Ser. No. 131,156
Int. Cl. B23p 17/00

U.S. Cl. 29-425

5 Claims



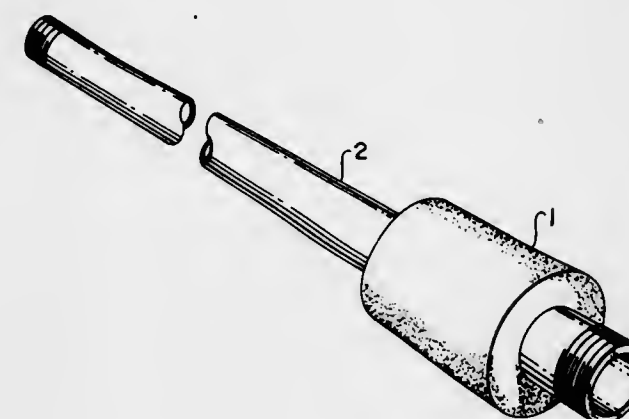
A process for producing the matrix of a fresnelled optical element is disclosed. Discrete elongate elements are first aligned and held in side-by-side relation so that the element ends together can be formed to the shape of a continuous optical surface. Thereafter the elements are released and realigned, typically on a surface, to form the matrix of a fresnelled lens element. Techniques of changing the angular alignment of the discrete faces of the lens elements are described.

3,739,456 METHOD FOR FORMING A SACRIFICIAL ANODE

John G. Scherer, and Lewis W. Taggart, both of Tulsa, Okla., assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.
Filed Apr. 30, 1971, Ser. No. 138,969
Int. Cl. B23p 11/02

U.S. Cl. 29-447

1 Claim



The present invention is directed to an improved method for protecting ferrous pipe from corrosion and comprises affixing in intimate contact with said pipe a length of magnesium tubing. The magnesium tubing, having sacrificial anode properties, is slipped over a length of ferrous pipe while at an elevated temperature. The tubing is then compressed by external pressure until it is in intimate contact with the ferrous pipe throughout its length and it is allowed to cool in place.

3,739,457 METHOD OF CONNECTING ATTACHMENTS TO FIBERGLASS RODS

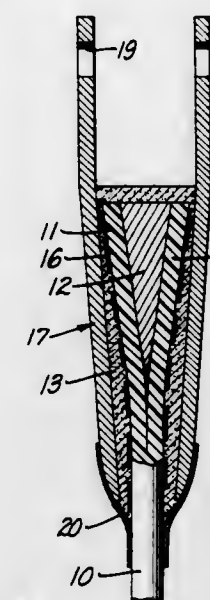
Elbert Davis, Glendale, Calif., assignor to Nupla Corporation, Sun Valley, Calif.
Continuation-in-part of Ser. No. 835,135, June 20, 1969, Pat. No. 3,660,887. This application Dec. 27, 1971, Ser. No. 212,615
Int. Cl. B23p 3/00, 19/04

U.S. Cl. 29-460

4 Claims

A method of connecting an attachment to the end of a fiberglass rod, tube or other profile. The end of the rod is first separated into a plurality of segments which are held apart

from each other by a spacer-spreader. A tetrafluoroethylene tape is wound around the outside of the rod segments, with a substantial amount of separation between the edges of the adjacent tape windings. The rod end is then placed within a fitting and potting compound is poured into the end of the



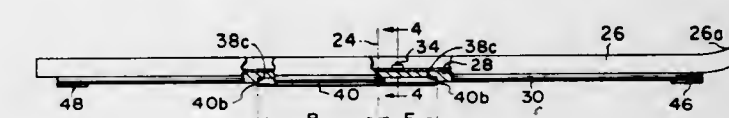
fitting to form simultaneously a plug which completely fills the area between the segments and a socket which completely fills the area between the rod and fitting. The tape forms a slip plane along which the rod is moved within the fitting to convert longitudinal tension into lateral compression and thereby transfer the load across the entire cross-section of the rod.

3,739,458 METHOD OF MAKING A SKI RAIL

Donald G. Reedy, Route 2, and George R. Pattullo, 1570 Pinecrest Street, both of Caro, Mich.
Filed Dec. 20, 1971, Ser. No. 209,569
Int. Cl. B23p 21/00

U.S. Cl. 29-469

4 Claims



A snowmobile ski and a method of making a ski which is adapted to be mounted on a snowmobile for movement about a vertical steering axis interjacent opposite ends of the ski. The ski comprises an elongate ski runner, a wear rod mounted on the underside of the ski runner, a slot, of a length substantially less than the length of the wear rod, cut in the underside of the wear rod, and a wear rail received in the slot and having a rear end in abutting relation with the rear wall of the slot, a portion of the wear rod underlying the wear rail to secure the rail thereto.

3,739,459 METHOD OF MANUFACTURE OF A RIBBED PILE

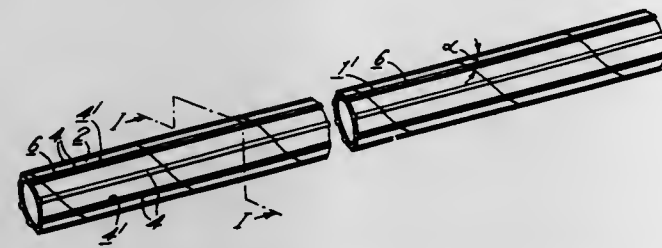
Akemesa Otani, 4, 2-chome, Asakusa Hashiba-cho, Tokyo, Japan
Division of Ser. No. 806,918, March 13, 1969, Pat. No. 3,621,663. This application June 7, 1971, Ser. No. 150,661
Int. Cl. B23k 31/02

U.S. Cl. 29-477.3

5 Claims

This low-cost, light-weight, high-strength, hollow cylindrical pile having longitudinal ribs is manufactured by rolling an elongated metal plate of predetermined width so as to produce spaced ridges thereon extending at a predetermined angle between lateral edges. The ridged metal plate is spirally wound so that the ridges register to produce longitudinally-ex-

tending ribs and the juxtaposed lateral edges are joined, preferably by welding, to form a continuous spiraled joint.



When driven into a penetrable medium, the ribs provide directional control and means for joining adjacent piles into a unitary structure.

3,739,460

METHOD OF JOINING CONCENTRIC MEMBERS

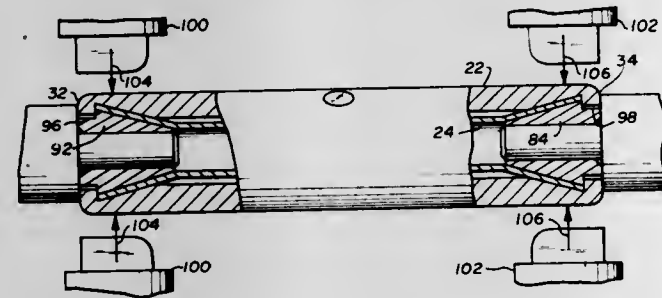
Gilbert I. Addis, Plainfield, and George M. Fairbanks, Piscataway, both of N.J., assignors to Thomas & Betts Corporation, Elizabeth, N.J.

Filed June 1, 1971, Ser. No. 148,707

Int. Cl. B21d 39/00; B23p 11/00

U.S. Cl. 29—516

13 Claims



A concentric member assembly and an improved method of fabrication thereof including inserting a hollow, externally conically tapered, preferably shouldered wedge means into each end of a preferably metallic, permanently deformable inner elongate tubular member generally centrally aligned within an elongate, preferably metallic tubular outer member to selectively expand the inner member ends into intimate contacting engagement with adjacent internally cinically tapered portions of the outer member inner surface. The wedge means may be suitably arranged either for removal from the inner member after use, or, alternatively, for retention therewithin to provide additional support therefore. The outer member may be inwardly deformed adjacent each of its ends to engage either the adjacent inner member end or the wedge means retained therewithin. The resulting structure may be advantageously employed as a multiple sleeve connecting device or the like.

3,739,461

METHOD OF PRODUCING CLEAN WALLED BORES IN LAMINATES WORKPIECES

John A. Cupler, II, Cupler Drive, La Vale, Cumberland, Md.

Filed Aug. 3, 1971, Ser. No. 168,649

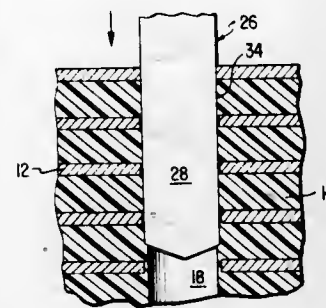
Int. Cl. B23p 13/04

U.S. Cl. 29—557

8 Claims

A method of enlarging or reaming a bore in a laminated workpiece which consists of selecting a straight fluted reaming

tool whose diameter just exceeds that of the bore to be reamed. The reamer is held against rotation while being axially infed into the bore to, concomitantly, kerf the bore wall with its cutting edges. The reamer is then held against further



axial movement and rotated to produce a finished bore which does not exhibit that workpiece smear or migration between adjacent laminae which is characteristic of bores formed in a laminated workpiece by infeding a rotating tool.

3,739,462

METHOD FOR ENCAPSULATING DISCRETE SEMICONDUCTOR CHIPS

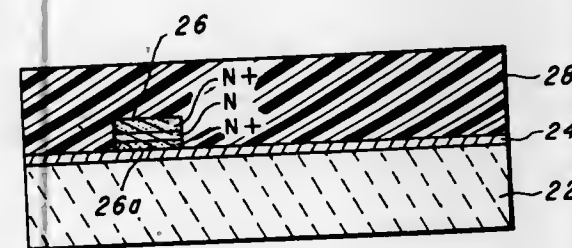
Turner Elijah Hasty, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 6, 1971, Ser. No. 104,316

Int. Cl. B01j 17/00

U.S. Cl. 29—577

2 Claims



Disclosed is a method for encapsulating one or more discrete semiconductor chips to expose one surface thereof for metallization. The method includes forming a layer of a soft metal to overlie a relatively large substrate, pressing a surface of each discrete semiconductor chip with suitable encapsulating material. The substrate and soft metal layer attached thereto are then removed from the encapsulated semiconductor chip exposing a surface of the chip. In one embodiment a heat sink is electroplated to the chip and the encapsulating material is removed, leaving a discrete semiconductor chip. In a different embodiment, the encapsulated semiconductor chip is utilized as a part of an integrated circuit.

3,739,463

METHOD FOR LEAD ATTACHMENT TO PELLETS MOUNTED IN WAFER ALIGNMENT

Alanson D. Aird, and Sami I. Gabrail, both of Syracuse, N.Y., assignors to General Electric Company, Owensboro, Ky.

Continuation of Ser. No. 838,213, July 1, 1969, abandoned.

This application Oct. 18, 1971, Ser. No. 190,249

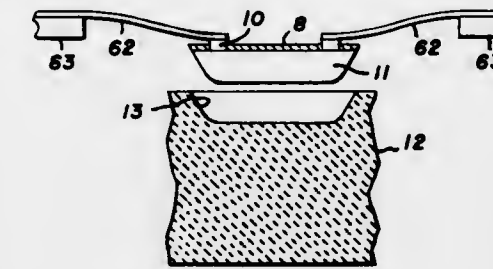
Int. Cl. B01j 17/00

U.S. Cl. 29—580

10 Claims

A semiconductor wafer is sub-divided into pellets and the pellets held in their wafer alignment by using a molding compound to form a holder for the pellets. A heated bonding tool

is aligned with and used to simultaneously bond a set of external leads to each semiconductor pellet in sequence. Each pel-



let after the external leads are bonded thereto is lifted from the holder by the leads.

3,739,464

MAKING DISPOSABLE ELECTRIC DEVICES

Stanley D. Ellenberger, Middletown, Conn., assignor to Progressive Products Corporation, Kensington, Conn.

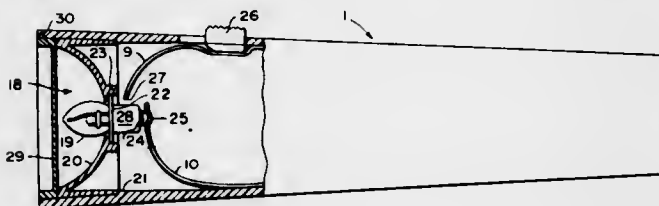
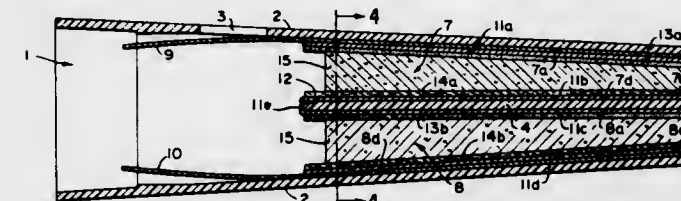
Division of Ser. No. 844,592, July 24, 1969, Pat. No.

3,601,601. This application Feb. 8, 1971, Ser. No. 113,163

Int. Cl. H01m 1/00

U.S. Cl. 29—592

16 Claims



A method for making disposable electric devices, such as flashlights, which includes providing a casing having one or more battery compartments; coating one or more surfaces of each compartment with an electrode overlay, such as zinc; coating one or more surfaces of each compartment with another electrode overlay such as carbon; providing serial or parallel electric connection between the compartments; filling the compartments with a battery mix; inserting the operative electrical elements of the device, such as a bulb and lens assembly, in connection with the electrodes and sealing the device.

3,739,465

METHOD OF MAKING AN ELECTROMAGNETIC DEVICE

Kurt Romer, Altbach/Neckar; Josef Schmid, and Adolf Krajc, both of Wernau/Neckar, all of Germany, assignors to Junkers & Co. GmbH, Wernau/Neckar, Germany

Division of Ser. No. 883,004, Dec. 8, 1969, abandoned. This

application Aug. 20, 1971, Ser. No. 173,592

Claims priority, application Germany, July 5, 1969, P 19 34

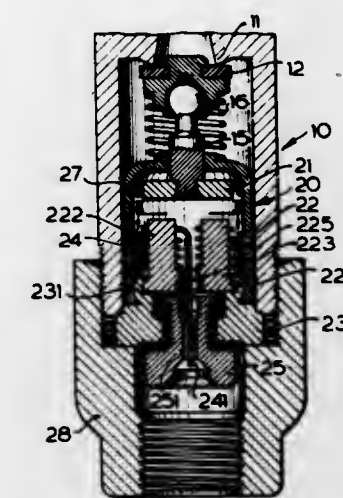
163.0

Int. Cl. H02k 15/00, 15/14, 15/16

U.S. Cl. 29—596

7 Claims

A bifurcated magnetic core in an electromagnetic device having an armature plate is formed with a fixedly mounted



same. The inherent frequency of the fundamental oscillation of the magnet core prior to application of a winding onto the same is in excess of 25 kilohertz.

3,739,466

METHOD OF MANUFACTURING AN EXTENDED-TAB MEMORY FRAME

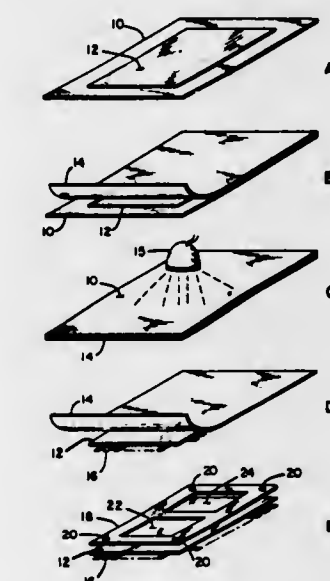
Kenneth L. Schoettle, Hudson, Minn., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Nov. 22, 1967, Ser. No. 684,992

Int. Cl. H01f 7/06

U.S. Cl. 29—604

6 Claims



An improved extended-tab core memory array frame and method for manufacture are described. The structure includes embedded extended-tab and pads. The method includes preforming extended-tab arrays for bonding to a laminated epoxy glass frame.

3,739,467

METHOD OF FABRICATING A WIRED MAGNETIC MEMORY PLANE

Guy Antier, St-Martin le-Vinoux, and Gerard Nicolas, Grenoble, both of France, assignors to Commissariat A L'Energie Atomique, Paris, France

Filed May 17, 1971, Ser. No. 144,114

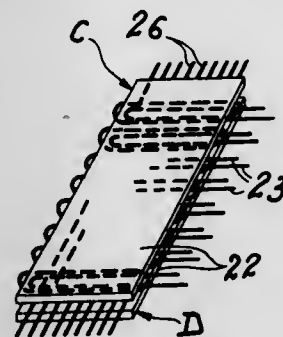
Int. Cl. H01f 7/06

U.S. Cl. 29—604

13 Claims

The method consists in forming a layer of substantially parallel lead-wires which are insulated with respect to each

other and in forming by molding between the two faces of said layer which is folded in two a series of housings in the form of



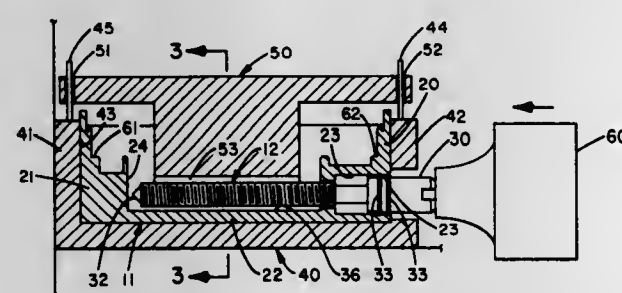
tunnels which are substantially parallel to each other but perpendicular to said lead-wires and are each adapted to accommodate a magnetic wire.

3,739,468

METHOD OF MAKING A VARIABLE RESISTOR
Robert D. Hill, Jr., West Covina, Calif., assignor to Spectrol Electronics Corporation, City of Industry, Calif.
Filed Jan. 28, 1972, Ser. No. 221,628
Int. Cl. H01c 1/02, 17/00

U.S. Cl. 29—613

5 Claims



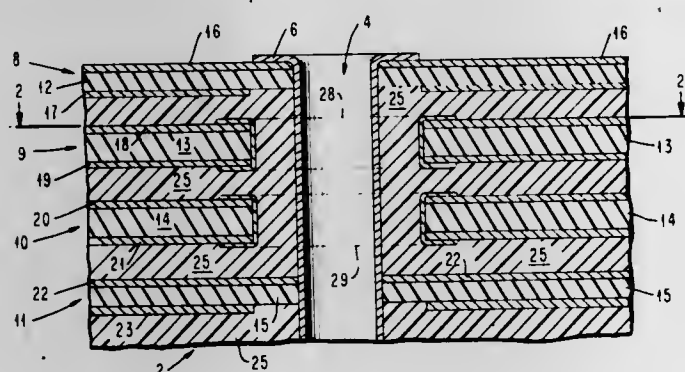
A variable resistor having a lead screw is provided with front and rear journals for the lead screw which are simultaneously formed by ultrasonically vibrating the lead screw and forcing a conical tip thereof to penetrate the rear wall of the resistor housing while the head of the lead screw is forming a front journal. A fixture is inserted in the housing to hold the lead screw in accurately aligned position while the journals are formed. Thereafter the housing is ultrasonically deformed to hold the resistance carrying substrate assembled with the housing and a potting agent is used to seal the substrate to the housing.

3,739,469

MULTILAYER PRINTED CIRCUIT BOARD AND METHOD OF MANUFACTURE
William Edwin Dougherty, Jr., Fishkill, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 27, 1971, Ser. No. 212,293
Int. Cl. H05k 3/16

U.S. Cl. 29—625

4 Claims



A multilayer printed circuit board wherein via holes, which extend from one surface to the other of one layer of the board,

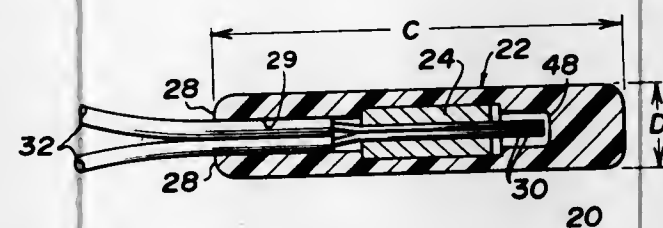
are arranged to be concentric with through holes, which extend from the top surface of one layer to the bottom surface of another layer. The via holes are equal in size to the clearance space which would normally surround a through hole. In the manufacturing process, the large via holes are made for individual layers of the printed circuit board. During lamination, prepreg will be extruded into the via holes. After lamination, the through holes will be drilled through the center of the via holes. The prepreg which had been extruded into the via holes will insulate them from the concentric through holes.

3,739,470
CONNECTOR

Daniel Eppler, Elizabeth, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.
Filed Sept. 16, 1971, Ser. No. 181,008
Int. Cl. H01r 43/00

U.S. Cl. 29—628

4 Claims



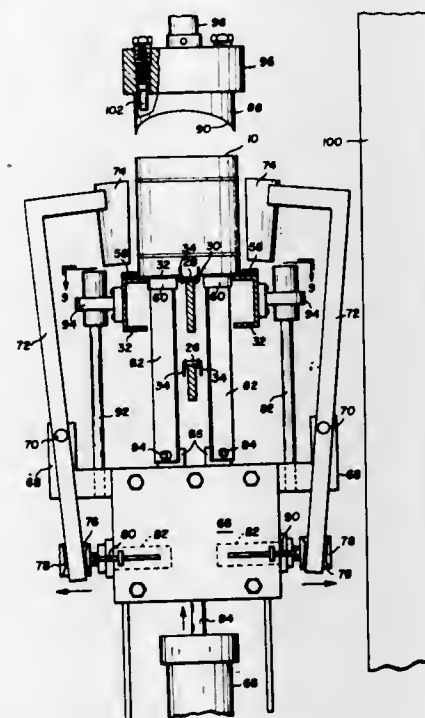
An improved connector comprising, in one embodiment, an extrudably deformable hollow metallic inner member disposed within a suitably orificed extrudably deformable insulating outer member, said members being selectively adapted for extrudable constriction about the free end of one or more conductors inserted within the inner member, as said connector is forcibly urged through a preferably successively restrictive orifice, resulting in an essentially sealed insulated assembly. The inner member may be formed of hollow stock, appropriately wound elongate material, or annular elements in stacked arrangement.

3,739,471

APPARATUS FOR AUTOMATICALLY OPENING AND EMPTYING CONTAINERS INTO A BLENDING TANK
Anthony R. Peres, Bristol, N.Y., assignor to Peres Electronic Machinery, Inc., Rochester, N.Y.
Filed June 17, 1971, Ser. No. 153,942
Int. Cl. B67b 7/38, 7/44

U.S. Cl. 30—4 R

6 Claims



A method and apparatus for automatically opening containers and emptying product contained therein into a blend-

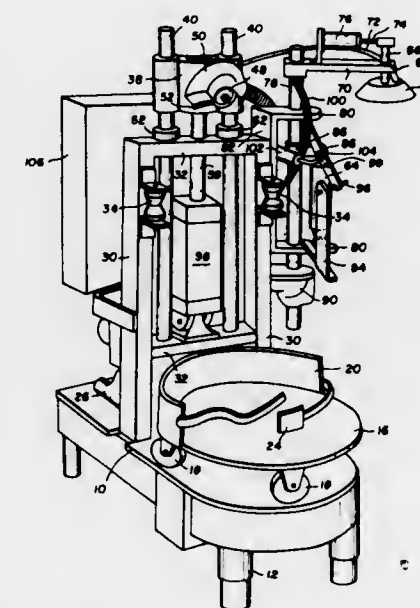
ing tank where it may be blended with other ingredients. An intermittently operated transport mechanism transports the containers in succession through a series of work stations comprising a cleaning station, an opening station, a top removing and wiping station, an emptying, heating and washing station, a rinsing station, and discharge station. The product emptied from the containers, the adhering product wiped off the container tops, the heating and rinsing water, and any added ingredients are blended together in the blending tank.

3,739,472
BARREL OPENER

Anthony R. Peres, Bristol, N.Y., assignor to Peres Electronic Machinery, Inc., Rochester, N.Y.
Filed June 17, 1971, Ser. No. 154,023
Int. Cl. B67b 7/38

U.S. Cl. 30—6.4

19 Claims



A method and apparatus for opening barrels comprising a table for rotatably supporting a barrel and a cutting blade movable in response to a source of low fluid pressure into engagement with the top of the barrel, and then movable in response to a source of high fluid pressure causing the cutting blade to pierce the barrel top. Rotation is imparted to the barrel in timed relation to the application of the high pressure source to assure movement of the barrel before the high pressure is applied to the cutting blade. The barrel opener has a brush and vacuum source for cleaning off the barrel top up stream of the cutting blade. Rotation of the barrel through a little over one revolution causes the blade to sever the circular top from the barrel. The barrel opener is further provided with a gripping mechanism for releasably gripping the severed barrel top, and mechanical apparatus for sequentially (1) simultaneously lowering and tilting the severed barrel top to relieve the pressure in the barrel, (2) raising and tilting the barrel top in the opposite direction for leveling the barrel top (3) positioning a wiper blade in a barrel top wiping position, (4) swinging the gripping mechanism and severed barrel top gripped thereby across the wiper blade for wiping off the excess product from the undersurface of the barrel top, and (5) deactivating the gripping mechanism for releasing the barrel top into a storage bin after it has been moved clear of the barrel body.

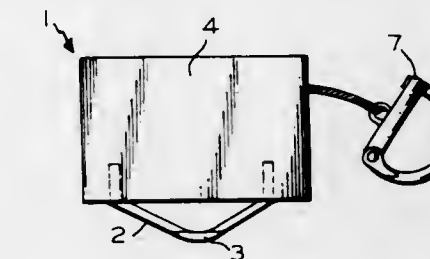
3,739,473
CREASE CUTTER

J. Grant Wildman, Boca Beach Apts., Apt. 7, 2531 S. Ocean Boulevard, Boca Raton, Fla.
Filed Dec. 3, 1971, Ser. No. 204,528
Int. Cl. B26b 3/08

U.S. Cl. 30—164.9

12 Claims

A novel pressure cutting device of simple construction and improved safety to the user. It is a novel combination of han-



die and cutting edge, fabricated of wire. A cutting edge is formed in the wire and is confined to a rounded portion or curvature in the wire. The cutting edge is formed so as to face away from the curvature in the wire. The cutting device can be drawn across paper or any other thin and/or flexible sheet material in any desired pattern to score the paper and

facilitate tearing or separation of the paper according to the scored pattern. The device is ideally suited to cut out news items from newspapers and magazines, to open packaged foods such as meats and cheese, to prepare pages in photograph albums for insertion of pictures, to cut out colored paper in any desired design, etc.

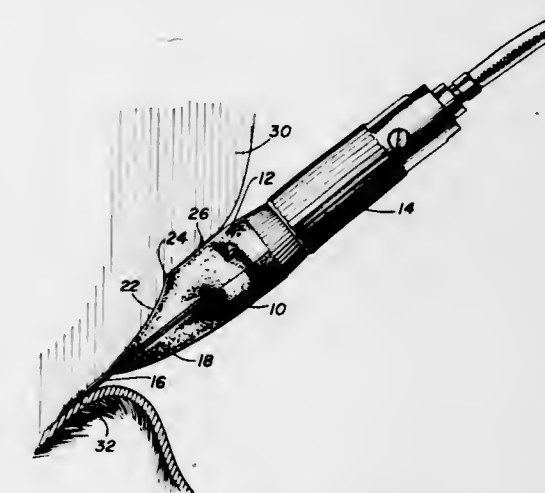
3,739,474

POWER SKINNING KNIFE

Franklyn G. Umholtz, Shutesbury, Mass., assignor to Russell Harrington Cutlery, Inc., Southbridge, Mass.
Filed Sept. 23, 1971, Ser. No. 183,154
Int. Cl. B26b 19/14

U.S. Cl. 30—215

1 Claim



A power operated skinning knife of the type utilizing a pair of counter-oscillating circular toothed blades in close association, a frame for mounting said blades, a handle for the frame, said frame having a continuous external smooth surface which is rounded from adjacent the blades rearwardly towards the handle in two directions, and a cover for the frame and the blades, said cover member having a guiding surface on a generally concave curve in one direction and a convex curve in the transverse direction, this surface then merging into a flat unencumbered top surface.

3,739,475

CHAIN SAW SAFETY METHOD AND APPARATUS
Harold Edward Moore, Torrance, Calif., assignor to McCulloch Corporation, Los Angeles, Calif.
Filed Oct. 19, 1971, Ser. No. 190,574
Int. Cl. B27b 17/02; B27g 19/06

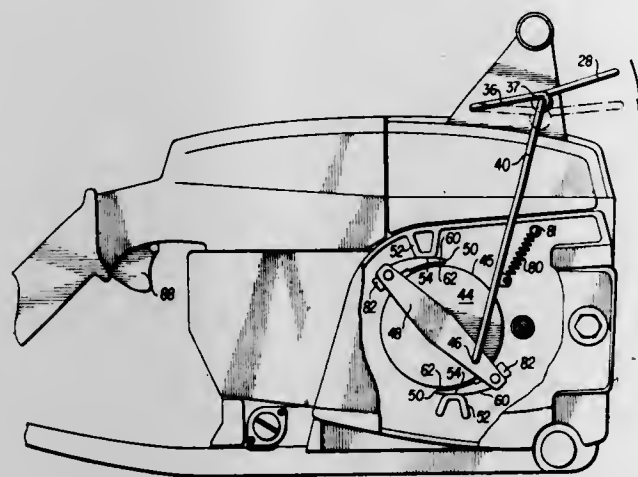
U.S. Cl. 30—383

3 Claims

A method and apparatus for preventing injury to the hand of an operator working with a chain saw, of the type having a frame with a frame handle and a control handle, a guide rail or more conventionally termed a "guide bar," a cutting chain

and power means mounted on the frame and operably connected to the cutting chain for driving the cutting chain on the guide rail.

The apparatus includes a bail handle actuation system which performs the dual function of blocking movement of the operator's hand toward the cutting chain and actuating a



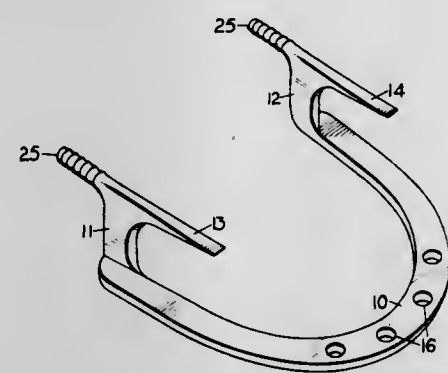
brake to immediately stop movement of the chain. The brake is self-locking and upon actuation jams to instantly stop movement of the chain and stall out the chain saw power means.

The method includes the steps of blocking movement of the operator's hand toward the cutting chain, actuating a self-locking brake and braking the cutting chain to an immediate stop.

3,739,476
PERMANENT SUPPORT FRAME FOR UPPER JAW DENTURE AND METHOD OF MOUNTING THE SAME
Harold Devere Roberts, 2717 N.E. Knott St., Portland, Oreg.
Filed June 19, 1972, Ser. No. 264,351
Int. Cl. A61c 13/00

U.S. Cl. 32-10 A

6 Claims

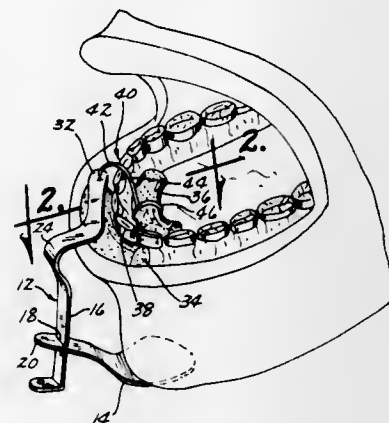


The denture support frame comprises a rigid bar, the main portion of which is sized and shaped to correspond to the alveolar ridge of the maxilla. At each end this main portion is turned approximately 90° to extend a short distance upwardly and is again turned approximately 90° so as to extend forwardly to form an implant which is driven anteriorly into the posterior tuberosity of the maxillary ridge. In the front or anterior part of the main portion of the bar a plurality of holes are provided in which the top ends of single implant posts are secured. The exposed portion of the bar is spaced a slight distance below the epithelium and provides a permanent inlay-mounted frame for removably supporting an artificial denture. If there is a remaining natural front tooth to which a bridge can be secured, a portion of the frame may be used as a bridge for one side of the jaw only. When the posterior of the alveolar ridge of the maxilla has deteriorated extensively a rear extension is added to the implant to bear in a groove on the pterygoid bone.

3,739,477
COTTON ROLL HOLDER
Jack E. Strudivant, Oakwood Road, Route No. 4, Ames, Iowa
Filed Dec. 17, 1971, Ser. No. 209,263
Int. Cl. A61c 5/12

U.S. Cl. 32-35

8 Claims

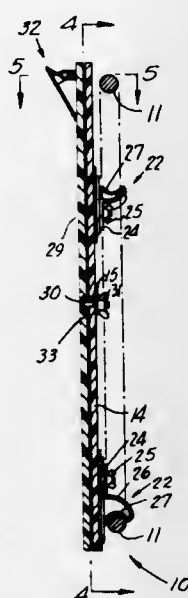


A cotton roll holder includes a support for a labial cotton roll and a lingual cotton roll. The labial support includes a single wire skewer while the lingual support includes a single wire having only one eye portion engaging a cotton roll intermediate its opposite ends. An alternate cotton roll holder supports a pair of oppositely disposed buccal cotton rolls and a lingual cotton roll. A U-shaped portion has laterally extending arches at the outer ends of its legs and return portions are provided on the inner ends of the arches. Skewers are provided on the return portions to hold the lingual cotton roll. An eye on the end of one of the return portions engages the lingual cotton roll intermediate its ends. Skewers on each of the legs of the U-shaped portion hold the oppositely disposed buccal cotton rolls. Each of the cotton roll holders are formed from wire material which may be deformed to selectively position the cotton rolls as desired.

3,739,478
STEERING WHEEL MOUNTED CLIPBOARD
Richard V. Elenberger, 7480 Bradburn Boulevard, Westminster, Colo.
Filed Feb. 8, 1972, Ser. No. 224,564
Int. Cl. B43I 5/00

U.S. Cl. 33-75 R

4 Claims



A clipboard for detachable connection to the steering wheel of an automobile to provide a firm base for the preparation of field sketches and notes in a motor vehicle. The clipboard includes a circular base plate having adjustable spring clips secured thereto for snapping over a steering wheel. A circular board is secured to the base plate by means of an axial pivot

pin to permit the board to rotate on the plate. A spring pressed clamp is provided on the edge of the board for securing papers to the board. An optional feature provides a protractor on the board for use of an engineer in making field sketches.

3,739,479
CAMERA CARRIAGE PRECISION POSITIONING SYSTEM

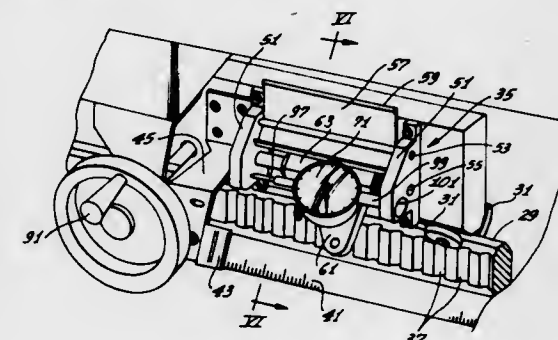
Delbert T. Blatherwick, Arcadia, Calif., assignor to Acti Products, Inc., Arcadia, Calif.

Filed June 8, 1970, Ser. No. 44,243

Int. Cl. B23q 17/02; G01b 3/22

U.S. Cl. 33-125

2 Claims



A precision positioning device may be mounted on each of two or more carriages which are movable relative to one another. Such movable carriages are positioned for movement along a track or similar device and a notched bar is fixedly mounted in position relative to the track. Each notch in the bar is situated at a carefully defined, predetermined location. Each positioning device comprises a sub-carriage assembly upon which is pivotally mounted a dial indicator which is actuated by a position indicator pin. An engagement pin is also attached to the dial indicator for selective engagement with notches in the notched bar when the dial indicator is properly positioned relative thereto. A cover is provided which, when closed, causes the dial indicator and engagement pin to be pivoted so as to prevent contact between the engagement pin and the notched bar. When the cover is opened, a biasing spring causes the engagement pin to enter into engagement with the selected notch. The sub-assembly is limited to a predetermined amount of lateral movement when the engagement pin is engaged in a notch and the dial indicator describes the precise position of the carriage relative to the selected notch.

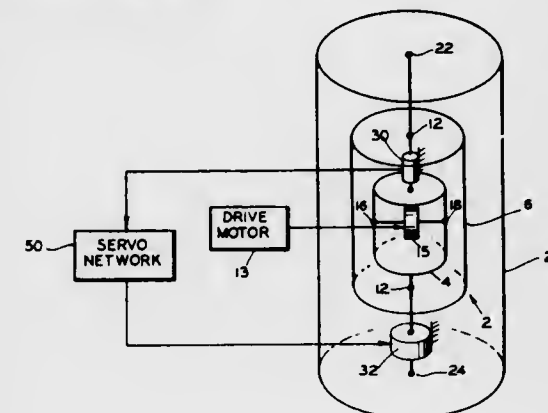
3,739,480
GYRO COMPASSING APPARATUS AND METHOD
Frank A. Hanusek, Glen Rock, and George Galuschak, Hasbrouck Heights, both of N.J., assignors to The Bendix Corporation, Teterboro, N.J.

Filed Mar. 30, 1970, Ser. No. 23,547

Int. Cl. G01c 19/38

U.S. Cl. 33-226 Z

8 Claims



Gyro compassing apparatus and method for automatically providing a reference position for ground based vehicles. A

3,739,481
METHOD AND AN ARRANGEMENT FOR DRYING OF DISPERSIONS BY ATOMIZING

Jan Putterlik, Janackovo Nabrezi, Czechoslovakia, assignor to Ceskoslovenska akademie ved, Praha, Czechoslovakia

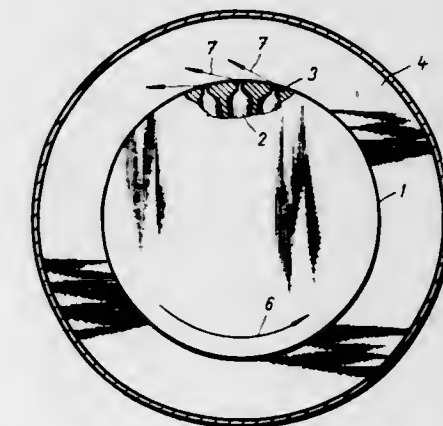
Filed June 9, 1971, Ser. No. 151,203

Claims priority, application Czechoslovakia, June 15, 1970, 4163/70

Int. Cl. F26b 5/08

U.S. Cl. 34-8

8 Claims



A dispersion of fine material in a liquid is first concentrated in a centrifuge to a paste like consistence. It is subsequently atomized by ejecting it under centrifugal force with a high overpressure into a stream of hot gas, where it is dried and supplied together with the drying gas to a separator.

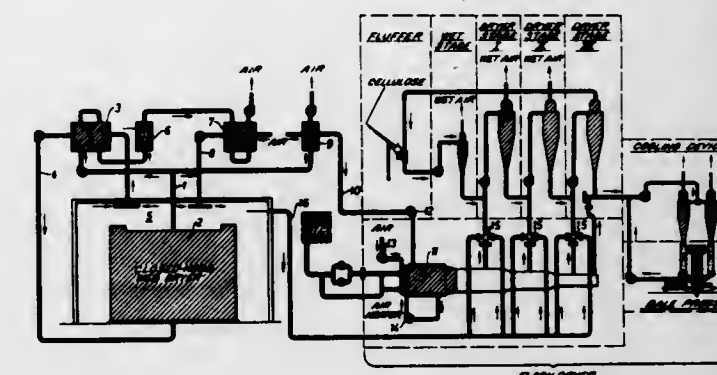
3,739,482
PROCEDURE FOR DRYING OF CELLULOSE
Bengt Berg, Nacka, Sweden, assignor to Aktiebolaget Svenska Flaktfabriken, Nacka, Sweden

Filed Apr. 13, 1971, Ser. No. 133,598

Int. Cl. F26b 7/00

U.S. Cl. 34-12

2 Claims



Procedure for drying cellulose in a plant consisting of a web dryer, combined with a parallel-working flash dryer in which disintegrated cellulose is caused to pass through a wet stage and through a series of dryer stages and finally taken to a bale press in which procedure the outgoing hot wet air from the web dryer is used for preheating replacement air and also is used for heating ventilation air which partly is discharged into the atmosphere and partly is conducted away for use in the flash dryer for heating the drying air for the various drying stages of said flash dryer.

3,739,483

PROCESS AND APPARATUS FOR CONTINUOUS HEAT TREATMENT OF POROUS HEAVY WEBS

Christian August Meier-Windhorst, Hamburg, Germany, assignor to Artos Dr. Ing. Meier-Windhorst Kommanditgesellschaft, Hamburg, Germany

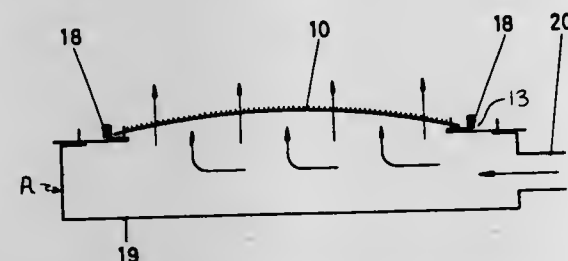
Filed Mar. 16, 1970, Ser. No. 19,610

Claims priority, application Germany, Mar. 19, 1969, P 19 13 932.3

Int. Cl. F26b 3/00

U.S. Cl. 34—23

5 Claims



A process for the continuous heat treatment of heavy porous webs including rugs, carpets, heavy fiber fleeces, furniture coverings and the like, having a nap which comprises guiding said webs after having undergone a pretreatment, such as dyeing, to heat transfer zones of high effectiveness by passing a gaseous medium, for instance air, through said webs under pressure in a sense opposite to the weight pressure of the webs, or in some cases, from the underside of the web and additionally from above. The invention also relates to an apparatus for carrying out the process of the invention.

3,739,484

PRESSURE REGULATING SYSTEM FOR A DRYER APPARATUS

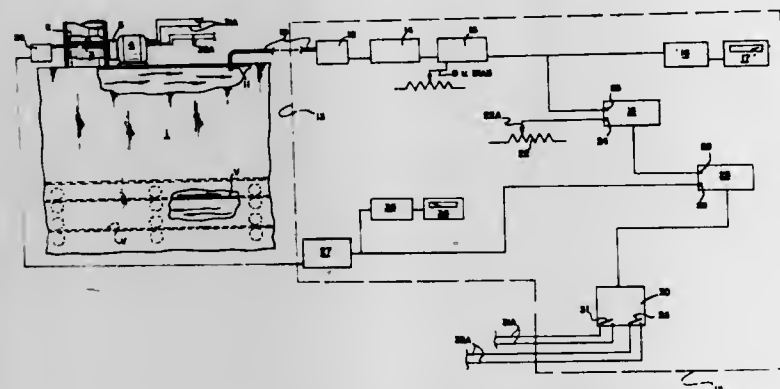
Gail A. Wilkening, Beaverton, and Ervin R. Hefley, both of Portland, Oreg., assignors to E. V. Prentice Co., Portland, Oreg.

Filed Apr. 24, 1972, Ser. No. 247,033

Int. Cl. F26b 21/06

U.S. Cl. 34—51

10 Claims



A system for regulating internal dryer vapor pressure to provide a continuous, optimum pressure for the wood veneer being dried. A voltage proportional to dryer pressure is compared with a settable voltage corresponding to optimum dryer pressure with the potential difference therebetween being detected by a first differential amplifier. The output signal of said amplifier constitutes an error signal to a second differential amplifier. Said second differential amplifier compares said error signal with a voltage proportional to the position of a power operated damper. Switch means in circuit with said second amplifier includes high and low voltage actuated relays which energize a damper motor for operation in opposite directions for opening and closing the damper to decrease or increase dryer pressure. In a balanced condition wherein the dryer is operating within an optimum pressure range the output of said second amplifier is such as to cause the high and low relays to remain open and hence the damper and dryer pressure being static.

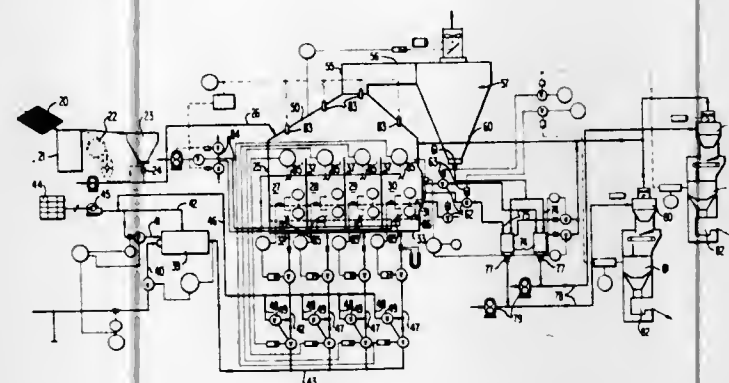
3,739,485

APPARATUS FOR DRYING RUBBER CRUMB AND THE LIKE

John P. Tallor, Box 587, Davenport, Iowa
Filed Dec. 3, 1968, Ser. No. 780,734
Int. Cl. F26b 3/08

U.S. Cl. 34—57 A

3 Claims



A polyolefin or rubber crumb is fed into the first of plural serially arranged drying compartments having separating partitions and having restricted flow communication beneath the partitions so that gradual downstream compartment-to-compartment product flow will exist. The compartments have opposing inclined side walls for the formation of downwardly tapering product beds in the several compartments and each has a perforated bottom wall through which upwardly flowing drying gas is directed and diffused into the beds to fluidize the beds and sweep over the total surfaces of the rubber crumbs to effectively dry the product increasingly in the downstream direction. Gas and fines are continuously drawn off at the tops of the compartments and the dried product is discharged from the final downstream compartment for weighing and baling. The system contains a built-in fire extinguishing system. An automatic control system is provided.

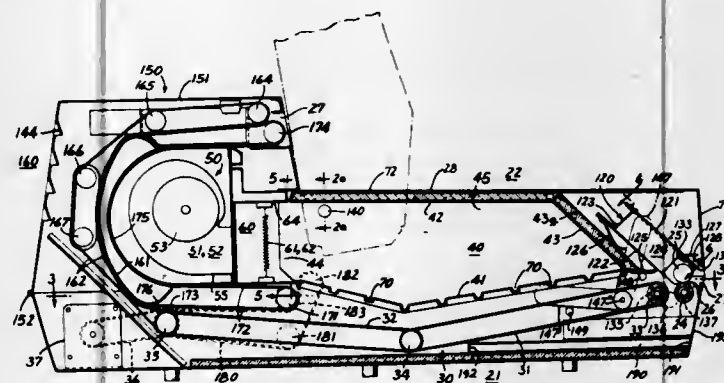
3,739,486

DRYER FOR PHOTOGRAPHIC PRINTS AND THE LIKE

Karl J. Kallenberg, Evanston, Ill., assignor to Apeco Corporation, Evanston, Ill.
Filed Nov. 17, 1971, Ser. No. 199,504
Int. Cl. F26b 19/00

U.S. Cl. 34—70

25 Claims



A dryer intended for the drying of prints consisting of a photographic emulsion on a paper backing and particularly where the printing paper is of the resin-coated or "RC" type. The prints are fed into the entryway of a box-like frame or enclosure where they first encounter a pair of driven "squeegee" rollers. The upper squeegee roller, which contacts the emulsion side, is constantly wiped, over its entire length, by a wet sponge for insuring that the roller contacting the emulsion is wet when it begins to act upon the face of the print and for insuring that the roller remains clean and perfectly free of deposits. The upper squeegee roller and cooperating sponge are mounted in a removable cartridge which is received in the upper portion of the enclosure. A belt assembly formed of a

set of laterally spaced driven belts transports the prints through the machine. The upper portion of the enclosure, having an associated blower and heating element, blows heated air downwardly upon the face of the prints during transport. At the rear end of the belt assembly the print is reversed through 180° for discharge of the dried prints forwardly upon the top of the machine. The two portions of the enclosure are hinged so that the squeegee rollers are biased together during use but capable of swinging apart for removal of the cartridge and to provide access to the interior.

3,739,487

DRYING APPARATUS

Ronald John Clark, 17 Bream Down Avenue, Weston-Super-Mare, England

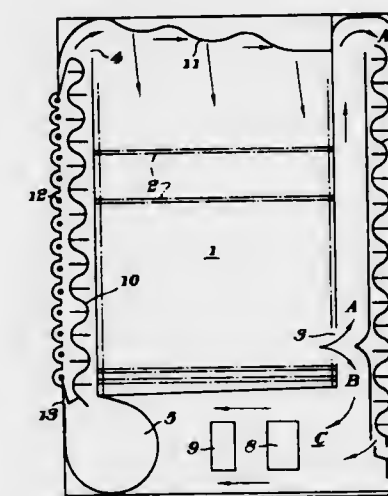
Filed May 25, 1971, Ser. No. 146,666

Claims priority, application Great Britain, Jan. 28, 1971, 3390/71; Jan. 28, 1971, 3391/71

Int. Cl. F26b 21/06

U.S. Cl. 34—77

7 Claims



A drying apparatus comprising a cabinet for housing articles to be dried and an air conditioning plant including air cooling means to condense water from water vapor-laden air drawn in from the cabinet by a circulating fan and means to heat the air recycled back into the cabinet, the air cooling means and air heating means being the evaporator and condenser respectively of a refrigeration plant, a metered part of the circulating air only being passed over the evaporator by a second fan and part of the heat produced by the condenser being lost externally to the apparatus.

3,739,488

HEATED SAND DRYER

Amir U. Khan, Okemos, Mich., assignor to The United States of America as represented by the Secretary of State and the Secretary of Agriculture, Washington, D.C.

Filed Nov. 26, 1971, Ser. No. 202,120

Claims priority, application Philippines, Nov. 26, 1970, 11989

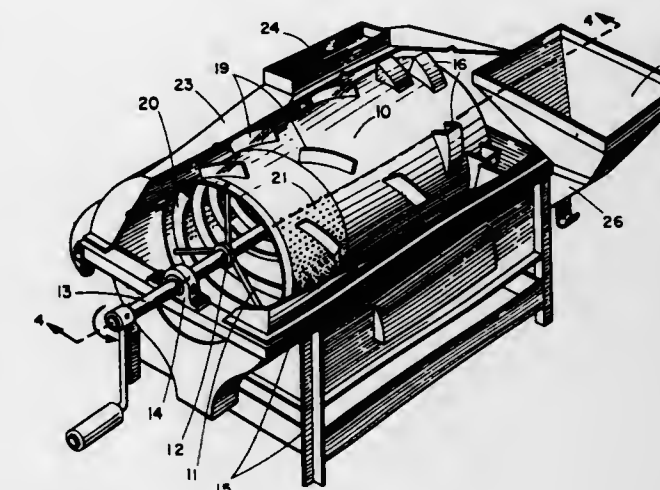
Int. Cl. F26b 13/26

U.S. Cl. 34—95

6 Claims

A dryer for agricultural crops, such as rice, corn, sorghum, or the like is disclosed in which the crop to be dried is mixed

with heated sand in a mixing zone of a rotating cylinder, then transferred to a drying zone of the cylinder, and finally to a



separating zone. The sand is returned to a pan beneath the cylinder to be reheated.

3,739,489

PHOTOGRAPHIC FILM PROCESSING INTERVAL TIMING DEVICE

Frederick W. Macone, Carlisle, Mass., assignor to Avant Incorporated, Lincoln, Mass.

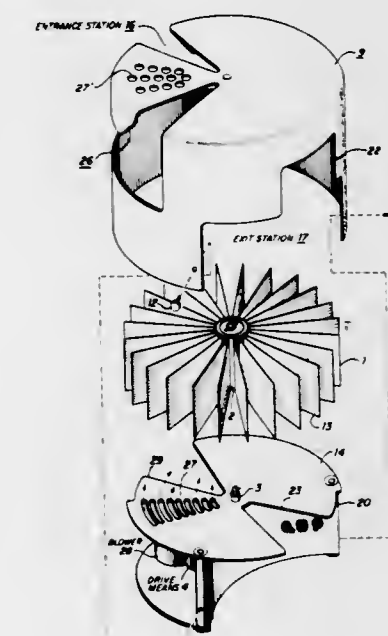
Continuation of Ser. No. 764,772, Oct. 3, 1968, abandoned.

This application Aug. 9, 1971, Ser. No. 170,357

Int. Cl. F26b 11/02

U.S. Cl. 34—109

4 Claims



This disclosure is drawn to a timing device having an entrance station, an exit station and a plurality of movable compartments for conveying exposed film being developed between said stations for a predetermined timed interval.

3,739,490 ORIFICE PATTERN FOR JET DRYERS

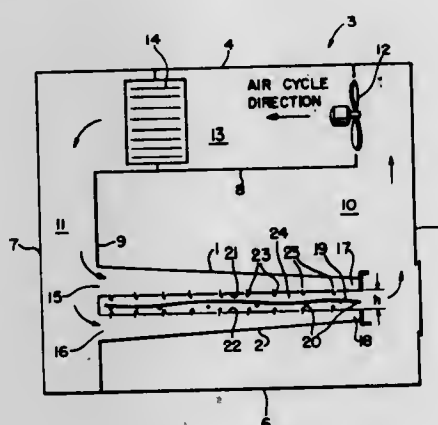
Gilbert L. Comstock, Longview, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.

Filed June 1, 1971, Ser. No. 148,363

Int. Cl. F26b 9/00

U.S. Cl. 34—162

5 Claims



An impinging jet air dryer generally utilizes a plurality of opposed jet dryer boxes having a plurality of spaced orifices therein. Suitable formulas are disclosed which offers a method of selecting the optimum orifice pattern for repeating row units which result in a uniform heat transfer over the entire surface of the sheet material as well as maximizing the overall rate of heat transfer to the sheet material. A means for providing a uniform moisture profile across the sheet material is disclosed which allows more air to be supplied to the sheet material toward the cooler end of the jet dryer boxes. This can be done by varying either orifice spacing or orifice size. The combination of the above-mentioned orifice placement methods gives a jet dryer box which provides the fastest most uniform drying for an impinging jet air dryer.

3,739,491 HIGH VELOCITY AIR WEB DRYER

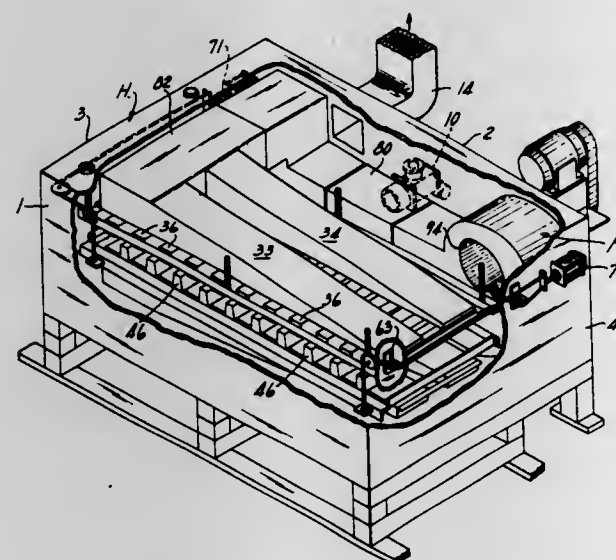
Ralph W. Creapo, Roy E. Downham, both of Neenah, Wis.; Jack F. Eckelaert, Depere; John W. Frost, Appleton, and David M. Klein, Kaukauna, all of Wis., assignors to TEC Systems, Inc., De Pere, Wis.

Filed Sept. 22, 1971, Ser. No. 182,639

Int. Cl. F26b 13/00

U.S. Cl. 34—156

17 Claims



A dryer for drying a running web by causing high-velocity, heated air to be impinged on the running web. High-velocity

nozzles are located on opposite sides of the running web and arranged transversely to the direction of the web movement, and one set of nozzles is movable relative to the other set so as to readily vary the distance of the air nozzles from the web. The transversely arranged nozzles are supported on the air supply ducts and thus form an integral unit which is not subject to warpage and, consequently, the precise spacing of the nozzles from the web can be maintained. Means are provided for accurately and easily adjusting the position of the movable set of nozzles relative to the other set of nozzles. The device also includes a wall having a slideable seal and located between the inlet side of the air supply fan and one side of the web whereby the entire arrangement can be made very compact while at the same time insuring that the web will not be pulled into the air supply fan. An air make-up door is provided for controlling the source of make-up air and which also serves to keep the doors cool. The device also includes an easily replaceable gasket in the air plenum which eliminates the necessity of dismantling the air duct to replace the seal.

3,739,492 PORTABLE CLOTHES DRYER

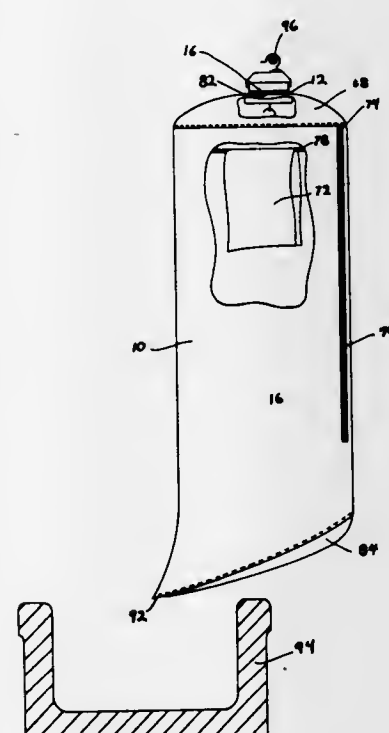
Elgin C. Brooks, Toledo, Ohio, assignor to Helb, Inc., Toledo, Ohio

Filed May 26, 1971, Ser. No. 147,074

Int. Cl. F26b 9/00

U.S. Cl. 34—163

3 Claims



A portable dryer for clothes or the like having an inflatable bag made from a material which is impervious to air and moisture, in which are placed the clothes or other articles to be dried, and a motor-driven fan within the bag for inflating the bag and blowing a current of air downwardly over the clothes to dry the same rapidly, thus maintaining the bag in the fully inflated state, out of contact with the articles being dried, without any supporting framework.

3,739,493 GRAIN DRYING APPARATUS

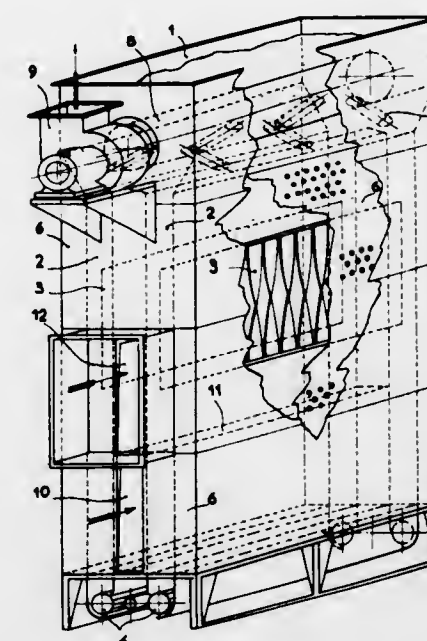
Edmond Nlvon, La Pergola 26, Saint Didier-de-Charpey, France

Filed May 4, 1971, Ser. No. 140,100

Int. Cl. F26b 17/12

U.S. Cl. 34—167

6 Claims



An apparatus for drying grain in a continuous operation comprising an upper feeding box into which grain is fed, and a vertical passageway in communication with the feeding box and through which the grain falls under gravity. Means are provided for sucking air through the grain during its fall in the passageway and for axially inverting the flow of the grain during its fall.

3,739,494 DISCHARGING DEVICE FOR CONTAINERS IN WHICH PARTICULATE MATERIAL IS TREATED WITH GASES IN COUNTER-CURRENT FLOW

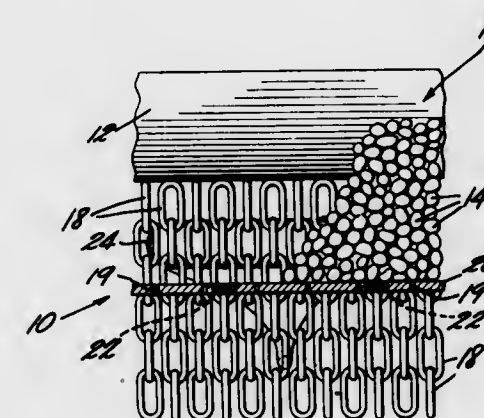
Erik Qvale Dahl, and Ole Hustvedt, both of Kristiansand S., Norway, assignors to Elkem A/S, Oslo, Norway

Filed Aug. 17, 1971, Ser. No. 172,494

Int. Cl. F26b 17/12

U.S. Cl. 34—174

3 Claims



A discharge device for containers in which lumpy material or agglomerated bodies are treated with gases in counter-current flow is disclosed. The device comprises a holding chamber comprising trap door in spatial relation to openings in the bottom of the discharge apparatus and chains as sidewalls of the holding chamber.

3,739,495 APPARATUS FOR COOLING HOT MATERIAL IN BULK

Walter Cremer, and Walter Stanke, both of Essen, Germany, assignors to Head Wrightson and Company, Limited, Yarm, Yorkshire, England

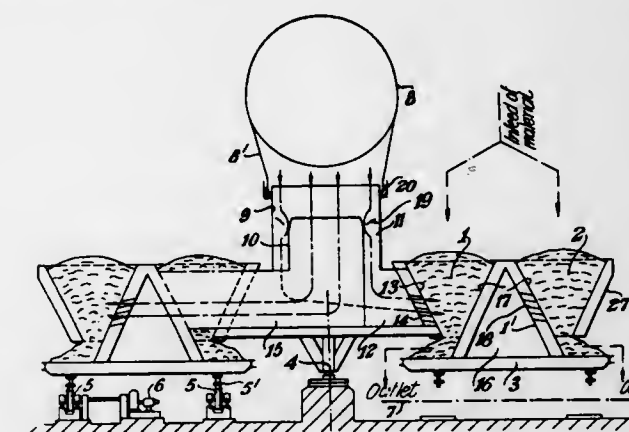
Filed Dec. 21, 1970, Ser. No. 100,276

Claims priority, application Germany, Dec. 23, 1969, P 19 64 323.3

Int. Cl. F26b 11/08

U.S. Cl. 34—187

9 Claims



Apparatus for the cooling of iron ore sinter or other hot material in bulk comprising a frame structure mounted to revolve about a vertical axis, at least two concentrically arranged annular troughs supported on said frame structure, each of which troughs is of downwardly tapering cross-section, said troughs being of open formation at the top and bottom, means for introduction of material to be cooled into the open top of each trough as it revolves, a platform on said structure and positioned to receive material as it discharges therefrom, stripping means by which material is discharged from the platform and means for introduction of cooling medium through a side wall of each trough.

3,739,496 STEAM AIR CABINET FINISHER

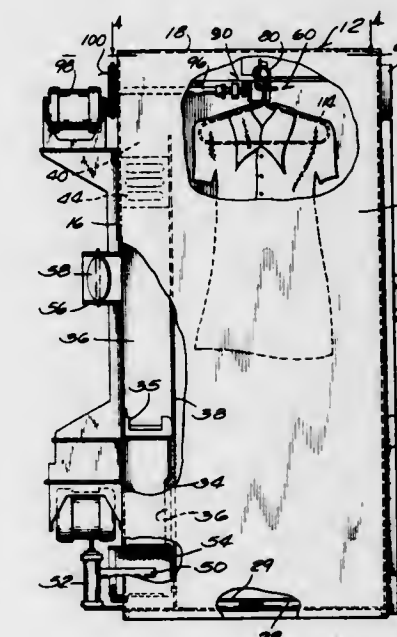
Norman A. Buckley, Wauwatosa, and Peter D. Rasmussen, Cedarburg, both of Wis., assignor to McGraw-Edison Company, Elgin, Ill.

Filed Mar. 24, 1971, Ser. No. 127,471

Int. Cl. F26b 19/00

U.S. Cl. 34—210

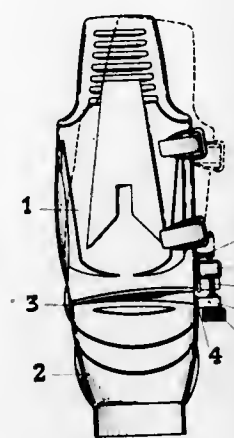
13 Claims



A steam air finisher having an enclosure defining cabinet including a door that can be opened to provide access to the enclosure, a garment support rack or holder and means mount-

ing the rack to move between an outer loading and unloading position generally outside the cabinet enclosure and an inner operating position and linkage connecting the door to the rack that causes such rack movement upon movement of the door between its open and closed positions, whereby garments to be finished are typically hung on conventional hangers which in turn are hooked on the rack and carried thereon, shaker mechanism located within the cabinet which cooperates with the rack when the latter is in the inner position to mechanically reciprocate the hanger crosswise to the normal plane of the hung garment, steam inlet means located near the bottom of the enclosure also including an opening for admitting outside air into the enclosure concurrently with and upon the discharge of steam for cooling the steam yet providing a high humidity conditioning atmosphere, means for circulating drying fluid over the garments including a blower having an inlet located near the bottom of the enclosure and an outlet to a passage separate from the enclosure with a heat exchanger in the passage between the blower outlet and the passage return to the enclosure near the top thereof effective for circulating heated fluid, such as air downwardly over and past the garments, and a normally closed bleed damper provided to vent part of the circulating fluid when the blower is operated.

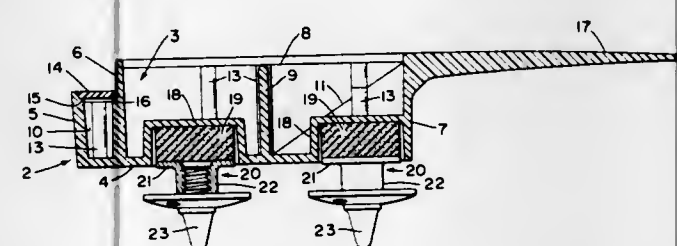
lateral inclination of the leg with respect to the body, and an adjusting mechanism mounted to the body and the leg and



located exteriorly of the body and the leg for effecting the adjustment of the lateral inclination of the leg with respect to the body.

3,739,499
MOLDED GOLF SHOE HEEL AND INSTEP STRUCTURE AND METHOD OF MAKING SAME
Eugene P. Morin, Brackett Road, RFD 1, Gorham, Maine
Filed Aug. 31, 1972, Ser. No. 285,249
Int. Cl. A43b 3/12

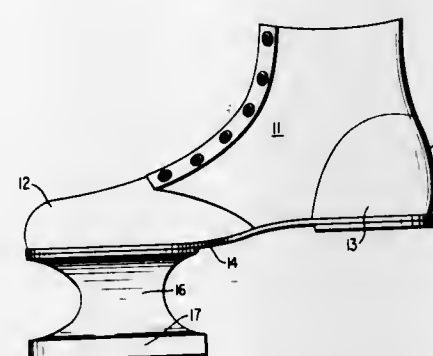
U.S. Cl. 36—2.5 AH 10 Claims



A golf shoe heel filler having a plurality of spike retainers secured to the outer face of a plurality of resilient pads mounted on the bottom of the heel filler. The body is substantially hollow and made of hard, heat-resistant plastic. Each of the pads is compressed and held in place by a heel injection molded to the filler.

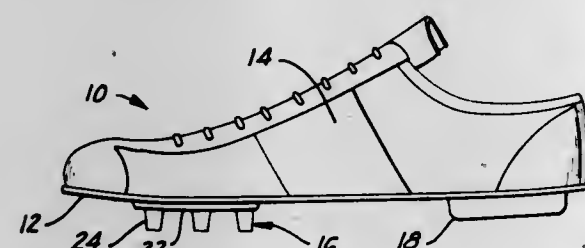
3,739,500
EXERCISE SHOE
Paul L. Cox, Jackson, Miss., assignor to Cox Athletics, Inc., Jackson, Miss.
Int. Cl. A43b 3/10

U.S. Cl. 36—2.5 A 10 Claims



A flexible pillar sole member is provided for attachment to the front portion of a shoe thereby causing the wearer to stand, walk and run without touching his heels to the ground. The resultant shoe provides for dynamic exercise.

3,739,497
ATHLETIC SHOE
Bruce M. Cameron, 5220 Travis, Houston, Tex.
Filed Mar. 15, 1971, Ser. No. 123,945
Int. Cl. A43b 00/00; A43c 15/00
U.S. Cl. 36—2.5 AG 10 Claims



An athletic shoe having a sole with an upper secured thereto and a turntable having traction means thereon being rotatively mounted to the underside of the sole, said turntable being secured to a plate which is retained by structure associated with said sole but is rotatable about an axis perpendicular to said sole and including sealing means to prevent the entry of deleterious material between said turntable and said sole and a heel having rearwardly extending traction means.

This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

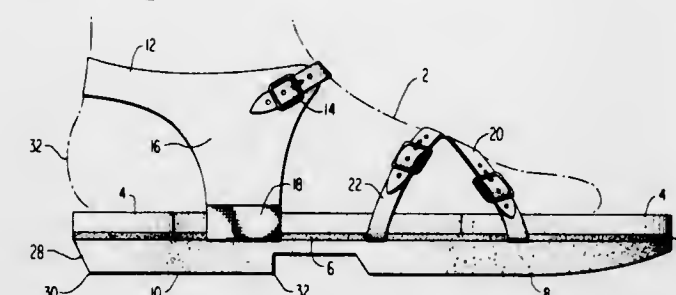
3,739,498
SKI BOOT
Vanio Tessaro, Caerano S. Marco, Treviso, Italy
Filed Feb. 4, 1972, Ser. No. 223,655
Int. Cl. A43b 3/10

U.S. Cl. 36—2.5 AL 6 Claims

A ski boot formed of a body, a leg located above the body and so mounted to the body as to permit adjustment of the

3,739,501
FOOTWEAR ARTICLE AND METHOD FOR FACILITATING WALKING
John P. Barrett, Jr., 40 Fairfax St., Burlington, Mass.
Filed June 23, 1972, Ser. No. 265,913
Int. Cl. A43b 3/12

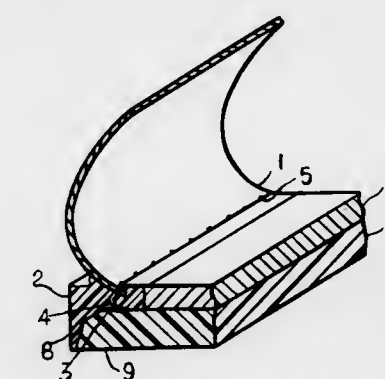
U.S. Cl. 36—11.5 14 Claims



Rheumatoid arthritic patients and others are enabled to walk by means of an article of footwear which has an unbendable platform provided on its upper surface with padding material and provided on its lower surface with a tread having heel and sole portions. The tread surface assumes a stable non-rocking condition when at rest on a flat ground surface. The heel portion has the entirety of its ground-contacting surface located forwardly of the anatomical rear edge of the patient's foot to reduce impact loading of the forefoot at the foot flat portion of gait; and, the sole portion is inclined forwardly and upwardly to reduce the shear forces on the patient's foot during the push-off portion of gait.

3,739,502
FOOTWEAR, ITS METHOD OF MANUFACTURE, AND WELT MATERIAL THEREFOR
Horace R. Auberry, Waynesville, N.C., assignor to Ro-Seach, Incorporated, Waynesville, N.C.
Continuation-in-part of Ser. No. 861,429, Sept. 26, 1969, abandoned. This application Aug. 25, 1971, Ser. No. 174,893
Int. Cl. A43b 13/18

U.S. Cl. 36—17 R 9 Claims



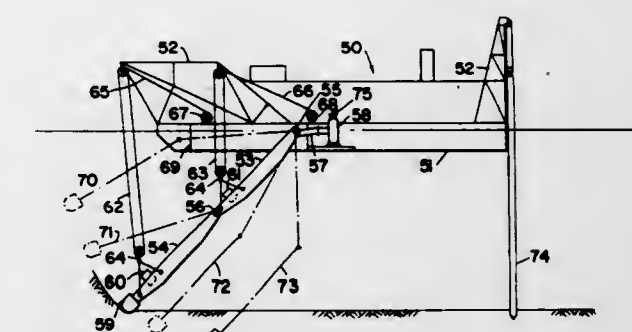
Footwear, its method of manufacture, and welt material therefor, wherein the welt material is a strip of moldable elastomer which may include for better stitching a strand of textile material, the strip being first secured such as by stitching to the upper and thereafter molded to form a welt bonded to the upper and to the thread of the stitching.

3,739,503
HYDRAULIC DREDGE HAVING ARTICULATED LADDER AND SWELL COMPENSATOR
George P. Barker, "Belmar," 85 Sauchenbush Rd., Kirkcaldy, Scotland, and Cameron E. McKay, 1632 Coronado Way, Burlingame, Calif.
Filed Aug. 11, 1970, Ser. No. 62,962
Int. Cl. E02f 3/88

U.S. Cl. 37—67 7 Claims

A deep-digging floating hydraulic dredge having an articulated ladder with two or more sections pivoted together for

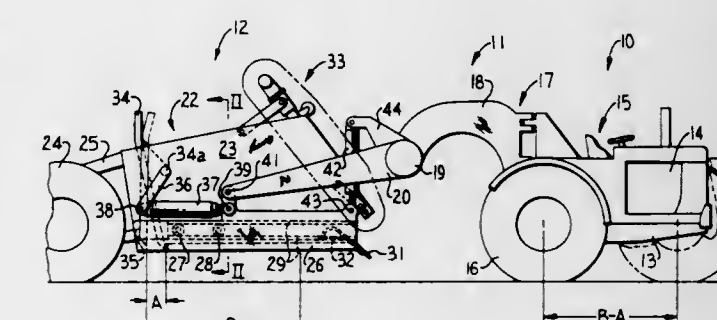
relative swinging movement in a vertical plane only with a cutter head or other digging device and pump pipeline supported by the ladder. For sea-going use the dredge may have sounding means for determining instantaneously the height of the hull above the bottom of the water on which the hull is



floating, angle sensing means for determining instantaneously the fore-and-aft angle to the horizontal of the dredge hull, and control means receiving an input depth signal and an input angle signal controlling the suspension length of the articulated ladder sections and accommodating it to swells in the water level on which the hull floats.

3,739,504
TRACTOR-SCRAPER WITH MOVEABLE FLOOR
Lawrence J. Miller, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed July 19, 1971, Ser. No. 163,930
Int. Cl. E02f 5/00

U.S. Cl. 37—124 8 Claims



A tractor-scraper combination includes a scraper having a bowl supported by a rear axle, and a floor slidable on the bowl and attached to and supported by hitch means on the tractor. Power means is provided for sliding the floor and tractor forwardly with respect to the scraper bowl and axle, providing an opening in the bottom of the bowl through which material is expelled.

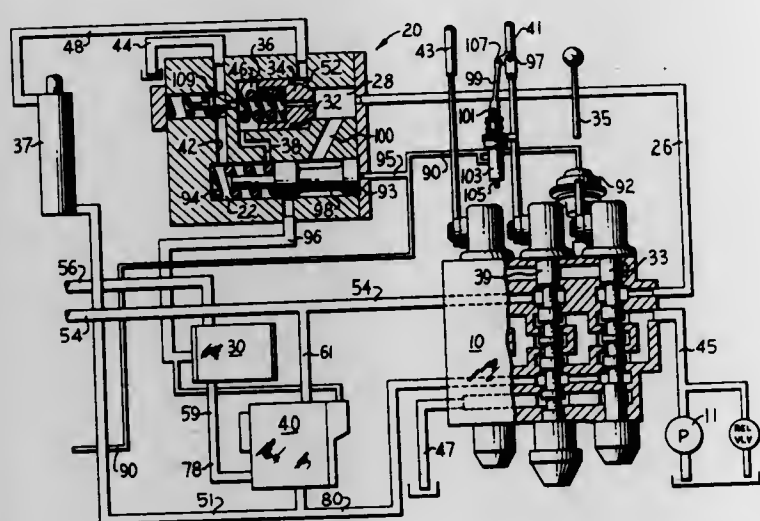
3,739,505
SYSTEM FOR AUTOMATIC OSCILLATION OF AN APRON TIP
Leon E. Hicks, Joliet, and Henry J. Jessen, Wilmington, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Dec. 14, 1970, Ser. No. 97,779
Int. Cl. E02f 9/20

U.S. Cl. 37—126 AD 6 Claims

A hydraulic control system for an articulated scraper apron

having an articulated apron tip which provides automatic oscillation to the apron tip and thereby facilitates the closing

above and substantially parallel to an ironing surface such that the platform is movable in a direction parallel to the longitu-



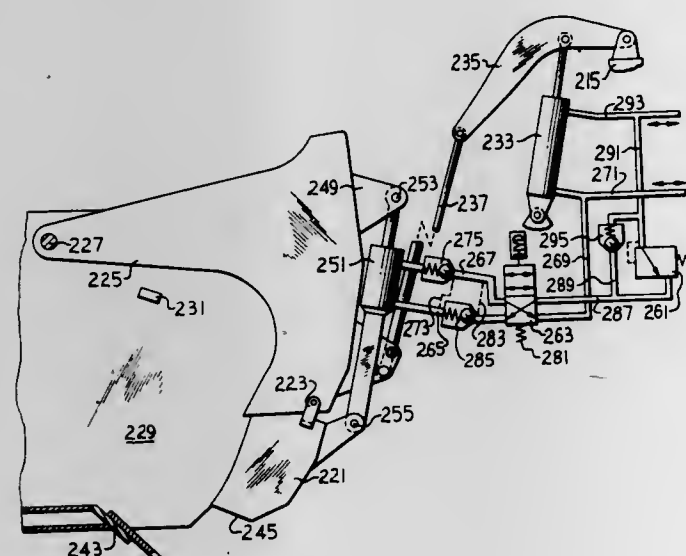
of the apron through material which would otherwise prevent the apron from closing completely.

3,739,506

SCRAPER APRON CLOSING MECHANISM
Gene R. Klett, Joliet, Ill.; Joseph Kokaly, Phoenix, Ariz.; Norman E. Risk, Peoria, and Roger M. Smith, Joliet, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Continuation of Ser. No. 831,500, June 9, 1969, abandoned.
This application Nov. 8, 1971, Ser. No. 196,817
Int. Cl. E02f 3/75, 3/87

U.S. Cl. 37-126 AA

5 Claims



An articulated scraper apron in which the apron lip is pivoted to the support arms. The apron and arms are controlled by fluid actuators such that the apron lip actuator is controlled responsive to a predetermined pressure in the support arms actuator.

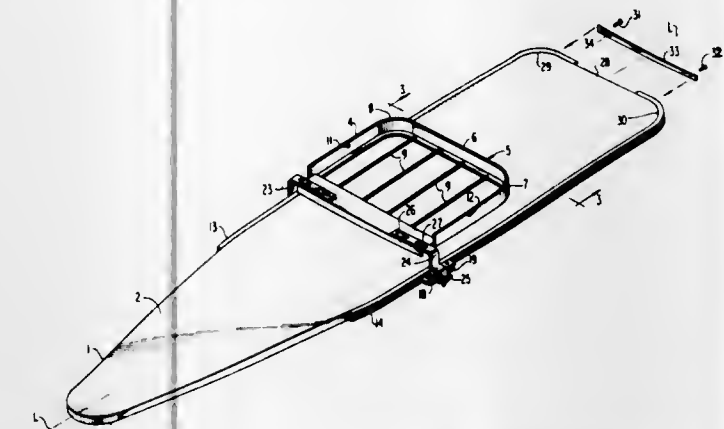
3,739,507

CLOTHES IRON REST FOR IRONING BOARDS
Francisco Bilbao, 5501 S.W. 6 St., Miami, Fla.
Filed June 30, 1971, Ser. No. 158,211
Int. Cl. D06f 81/00

U.S. Cl. 38-107

2 Claims

A clothes ironing rest including a platform for a clothes iron having means for at least partially restricting movement of the iron on the platform, and means for mounting the platform



dinal axis of the ironing surface. The clothes iron rest is useful in domestic and commercial clothes ironing operations.

3,739,508

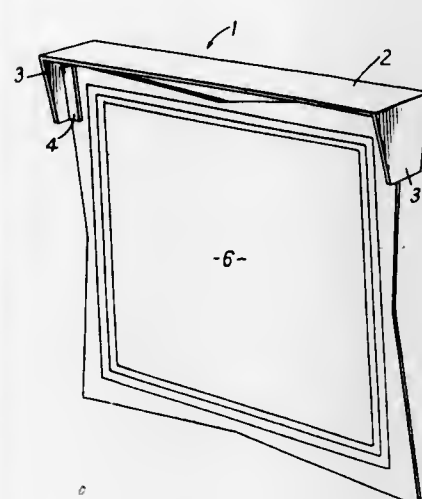
DISPLAY DEVICE

George Albert Lyles, Stanmore, England, assignor to Trendmark Limited, London, England
Filed Apr. 6, 1971, Ser. No. 131,634
Claims priority, application Great Britain, Apr. 17, 1970, 18,530/70

Int. Cl. G09f 3/18

U.S. Cl. 40-10

6 Claims



A mounting bracket for a showcard, the bracket having arms which converge towards their free ends and cooperate with similarly shaped edge portions of the showcard which is introduced between the arms by flexing the bracket. The showcard has a number of such edge portions to allow it to be variously engaged with the bracket so that printing on it will be properly displayed no matter whether the bracket is attached to an upright surface or stands on or depends from a horizontal surface.

3,739,509

TITLE DISPLAY FOR A COIN OPERATED PHONOGRAPH

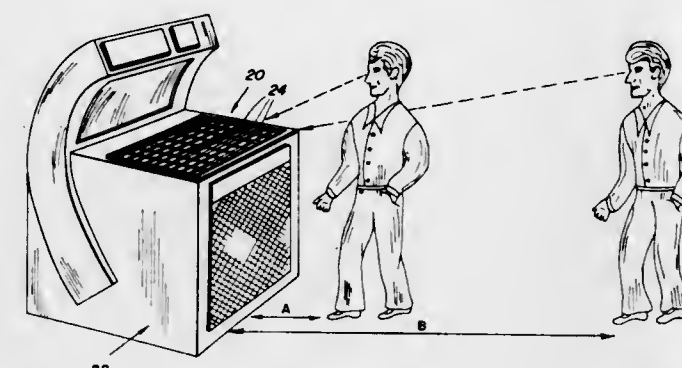
Robert A. O'Neill, Glen Ellyn, Ill., assignor to The Seeburg Corporation of Delaware, Chicago, Ill.
Filed Sept. 10, 1971, Ser. No. 179,280
Int. Cl. G09f 19/12

U.S. Cl. 40-64 R

6 Claims

A title display for a coin operated phonograph provides easy access to record title strips and selective viewing of the record title strips. A matrix of individual frames, each of which is formed from raised ribs and borders a title strip, prevents the title strips from being visible to persons who are not im-

mediately adjacent the coin-operated phonograph. Easy access to the record title strips for removal or replacement is provided by mounting the supporting assembly for the matrix of frames securely to the underside of a horizontally disposed cabinet lid, which may be raised by means of a hinge attached to the phonograph at the back edge of the lid (i.e., the edge



furthest away from the front of the coin-operated phonograph). Removal of the title strips is effected by raising the cabinet lid and pivoting a program holder carrying the title strips upwardly 180° away from the supporting assembly until the title strips are facing the front of the coin-operated phonograph, thereby providing easy access to the title strips.

3,739,510

CONTROL DEVICE FOR SELECTIVELY REMOVING AND RETURNING ADJACENT ITEMS CONTAINED IN A MAGAZINE

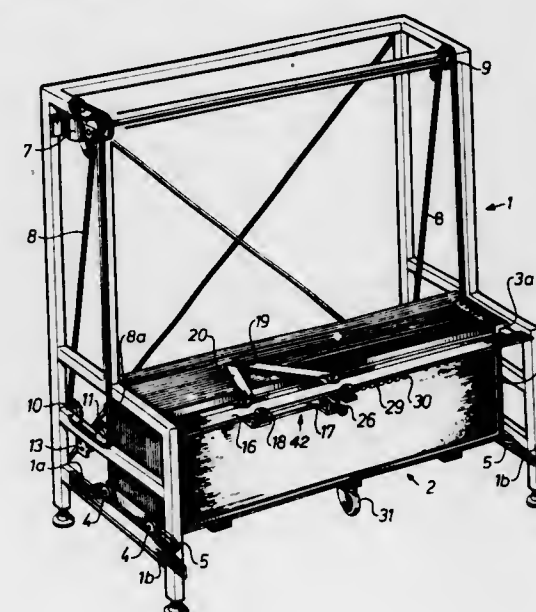
Carl-Eric Ohlson, and Eric Oscar Ohlson, both of Solna, Sweden, assignors to Swift & Company, Chicago, Ill.
Filed Oct. 8, 1970, Ser. No. 79,133

Claims priority, application Sweden, Dec. 23, 1969, 17908/69

Int. Cl. B42f 17/00

U.S. Cl. 40-78.05

10 Claims



A control device for selectively removing a number of adjacent items contained in a magazine and returning them thereto comprises a movement transfer mechanism for displacing the magazine relative to a fixed stand and a lift which upon actuation dependent upon the position of the magazine relative to the stand engages and lifts a desired item. The movement transfer mechanism is displaceable between different positions along a guide forming an angle of substantially 90° with the direction of movement of the magazine and comprises a handle which is pivotable around a horizontal shaft and adapted to take a desired number of different positions along the guide. The handle is also adapted for actuating a switch which, dependent upon the direction of pivoting the

handle starts or reverses a driving motor for the lift engaging one item. The handle is mounted on a carriage guide bar and a support arm and together with the carriage form a movement transfer member of substantially triangular shape.

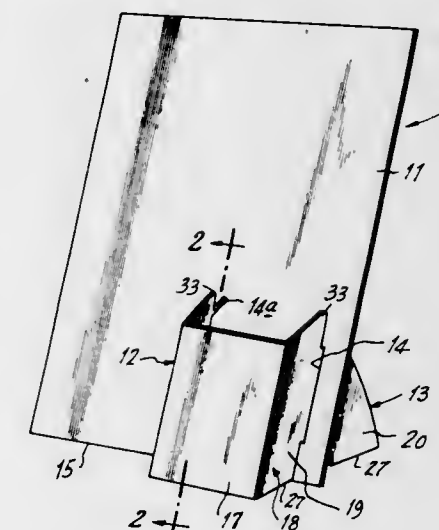
3,739,511

DISPLAY UNIT

William B. Freedman, New York, N.Y., assignor to Freedman Cut-Outs, Inc., New York, N.Y.
Filed Dec. 1, 1971, Ser. No. 203,645
Int. Cl. G09f 1/00

U.S. Cl. 40-124.1

6 Claims



A display unit comprises a display card with an upwardly open container at the front of the display card having side walls which project through slots in the display card and have integral extensions disposed rearwardly of the display card to form an easel for maintaining the display card and container substantially erect on a supporting surface.

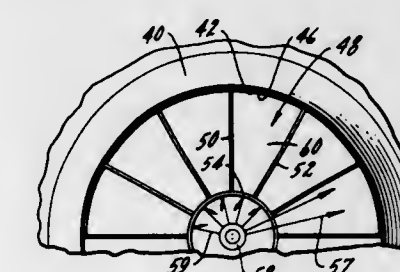
3,739,512

REFLECTIVE READOUT DEVICE

Albert L. Ruppert, Middleton, Wis., assignor to Oak Electro-Netics Corp., Crystal Lake, Ill.
Continuation of Ser. No. 868,854, Oct. 23, 1967, abandoned.
This application Nov. 19, 1971, Ser. No. 200,624
Int. Cl. G09f 09/00

U.S. Cl. 40-130 K

3 Claims



A display device including a body having a plurality of light producing or color changing areas. The light producing or color changing areas are arranged, relative to each other, to provide an information display, for example an alpha-numeric readout, or a visual indication of the operational characteristics of a machine or instrument. Each light producing area includes a source of light or color copy and means for spreading, via reflective surfaces, the light or color.

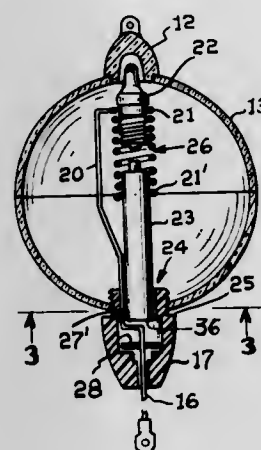
ERRATUM

For Class 42-75 C see:
Patent No. 3,739,515

3,739,513 FISHING FLOAT

George M. Durham, Jr., 6931 Luck, Dallas, Tex.
Filed Oct. 26, 1970, Ser. No. 83,785
Int. Cl. A01k 93/00, 97/12
U.S. Cl. 43-17

10 Claims

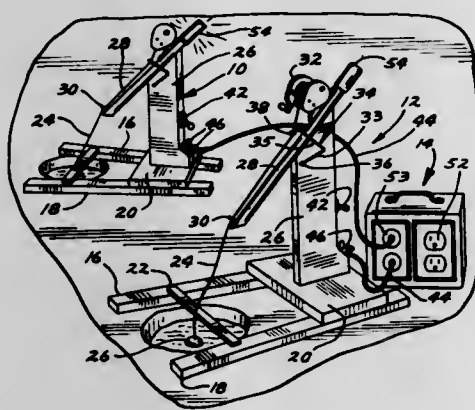


A fishing float associated with a fishing line comprising a hollow body in which is disposed a battery, a bulb, and a shaft. The shaft is formed at its interior end as a spiral spring which encloses a marginal end of the battery and engages the bulb in a manner to space the end of the bulb from the battery. The other end of the shaft extends through a seal member to the exterior of the float and has means thereon for connecting the fishing line thereto. A pull on the line moves the shaft to move the bulb into contact with the battery to light the bulb and signal the bite of a fish.

3,739,514 FISHING DEVICE

Erling Odney, 2604 W. Oak St., Sioux Falls, S. Dak.
Filed Nov. 12, 1971, Ser. No. 198,370
Int. Cl. A01k 97/12
U.S. Cl. 43-17

4 Claims

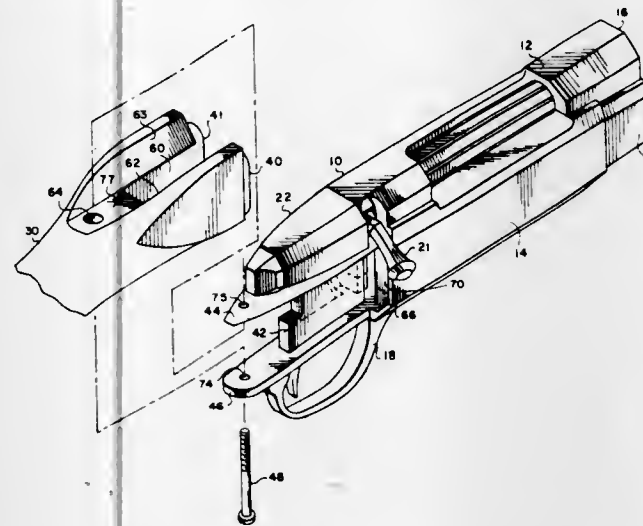


A fishing device including a support stand for positioning a fishing line in a fishing area and a signaling system indicating the presence of a fish striking the bait. The signaling system provides an audible signal which may be actuated by any one of several similar support stands while each individual stand may be provided with a visual signal. The fishing device support stand is comprised of a pair of legs outwardly extending from a base to which a support tower is secured. From the support tower, a generally downwardly extending fishing line supporting member extends to a position generally over the fishing area. The signaling system is actuated by movement of a normally slack fishing line from the slack position to a relatively taut position thereby moving a lever arm of a switch causing connection of electrical contacts.

3,739,515 SHOULDER STOCK AND RECEIVER COMBINATION FOR FIREARMS

Homer E. Koon, Jr., Gainesville, Tex., assignor to Firearm Development, Inc., Denton, Tex.
Filed Apr. 7, 1971, Ser. No. 132,046
Int. Cl. F41c 23/00
U.S. Cl. 42-75 C

2 Claims

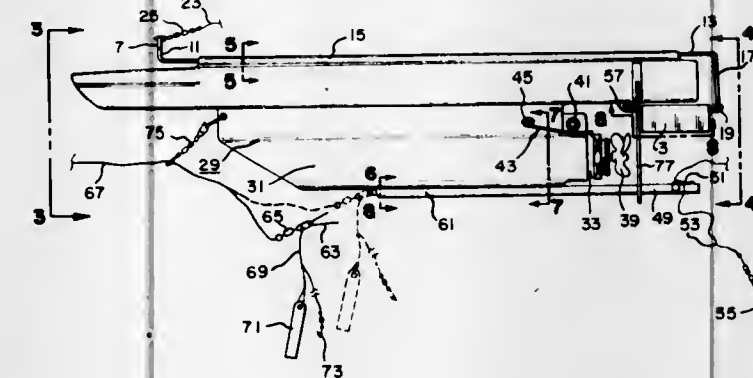


A receiver for a firearm includes broad area recoil surfaces at the rear thereof, and a shoulder stock having a pair of large area recoil shoulders is attached to the receiver so that the recoil shoulders abut against the recoil surfaces of the receiver. Substantially all of the mass of the firearm other than the shoulder stock is disposed forward of the receiver recoil surfaces, so that recoil is reduced. The shoulder stock is readily detachable, whereby easy access can be had to the trigger mechanism.

3,739,516 LINE CONTROLLABLE BOAT

John H. Holling, 416 Grove Avenue, Ukiah, Calif.
Filed Nov. 3, 1971, Ser. No. 195,241
Int. Cl. A01k 89/00
U.S. Cl. 43-26.1

4 Claims



A toy size boat having a rudder remotely controllable by means of a line and adapted for use in carrying a baited fish line to remote locations from shore or for trolling purposes.

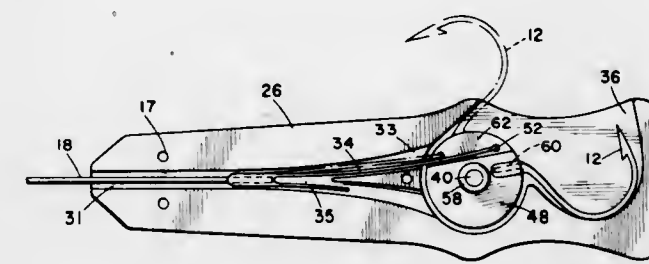
3,739,517 RETRACTABLE FISH HOOK APPARATUS

George H. Schielf, 4030 Chamoune, San Diego, Calif.
Filed Dec. 6, 1971, Ser. No. 204,964
Int. Cl. A01k 83/02
U.S. Cl. 43-35

4 Claims

A retractable fish hook apparatus comprising a body with a fish hook pivotally positioned therein. A movable line attached to the body and fish hook and to the fishing line, allows pull on the fishing line in combination with a fish biting the body to move the hook portion of the fish hook outwardly

from the body in the direction of movement of the body and into the path of movement through the water. A resilient spring in the body causes the fish hook to hold in the retracted

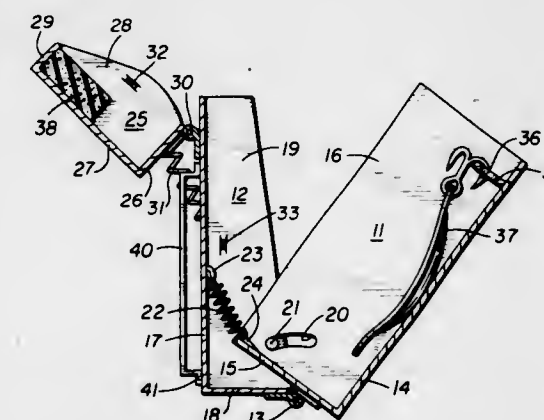


position when moving through the water, but allows the fish hook to move outwardly from the body when a fish bites and holds the body.

3,739,518 FISHING TACKLE BOX

Raymond J. Ziegler, 16185 W. 14th Place, Golden, Colo.
Filed Aug. 16, 1971, Ser. No. 172,053
Int. Cl. A01k 97/06
U.S. Cl. 43-57.5 R

3 Claims

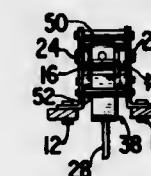


A fishing tackle box or the like comprising front and rear box members hingedly connected at their bottoms, an exterior cover which engages both front and rear box members in closed position, and a mounting bar for fish hooks and other equipment. The mounting bar extends longitudinally of the front panel of the front box member near its upper edge, and a resilient pad in the cover overlies the mounting bar when the cover is closed to thereby retain said hooks and other equipment in intended positions. The rear panel of the rear box member is provided with a pair of spaced apart clips fastened at their ends to the said panel and spaced from the panel for reception of the belt of a user. A slot and pin arrangement limits relative pivotal movement of the front and rear box members.

3,739,519 PRESSURE OPERATED RETRACTABLE LANDING GEAR

Romano Garaballo, Brooklyn, N.Y., assignor to Rom-Air International, Inc., Brooklyn, N.Y.
Filed Dec. 2, 1971, Ser. No. 203,971
Int. Cl. A63h 27/02
U.S. Cl. 46-78

6 Claims



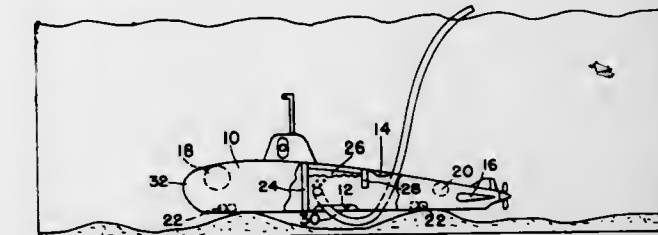
The present invention provides a retractable landing gear system for model aircraft comprising a double-acting, fluid-

pressure-operated piston and cylinder means, said piston being connected to a link which link is pivotally connected to a pivoted landing gear, the ends of the said connecting link being guided in straight-line movement by a pair of opposed parallel slots, a reservoir for the fluid under pressure, means for supplying the pressurized fluid to the piston and cylinder means controlled by servo-operated valve means to extend and retract the landing gear.

3,739,520 DIVING TOY

Samuel E. Hill, Jr., 142 Adams St., Waltham, Mass.
Filed June 29, 1972, Ser. No. 267,456
Int. Cl. A63h 23/04
U.S. Cl. 46-94

8 Claims

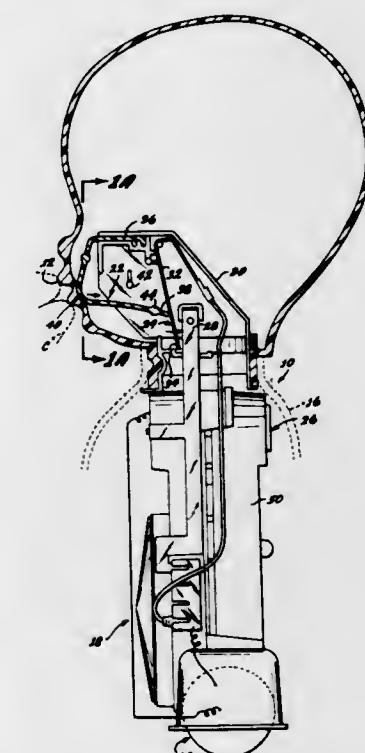


A diving toy having no moving parts but having a special bulkhead configuration receiving air from a pump, whereby the toy will tilt downwardly and sink under influence of loss of said air and when on the bottom will rise from the bottom to the top, the motion being continuous as long as the air is pumped to the interior of the diving toy.

3,739,521 STARTING SWITCH FOR TOYS

James H. Fox, Torrance, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Nov. 30, 1971, Ser. No. 203,239
Int. Cl. A63h 33/26, 5/00
U.S. Cl. 46-232

4 Claims



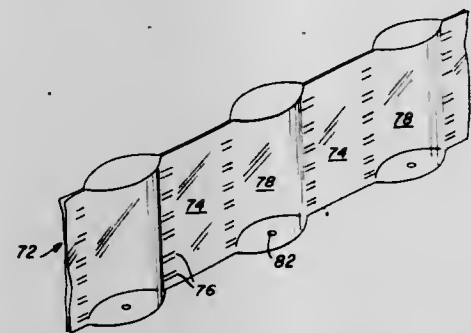
A doll with a phonograph that plays each time the lip portion is depressed, the doll being constructed to enable large dimensional tolerances in the location of the switch that is operated by depressing the lips, and the phonograph being constructed to sequentially play different recordings. An electrical switch that turns on the phonograph when the lips are depressed includes a relaxation member extending from the lips to a switch contact, to push the contact against another

when the lips are depressed. The relaxation member is constructed of material that soon relaxes under back pressure of the switch and allows the switch to open.

within the tubular member draws water upwardly through it and passes through sidewall openings to water the surrounding soil.

3,739,522
HORTICULTURAL CELL SYSTEM AND METHOD OF MANUFACTURE
George Greenbaum, 790 Boylston St., Boston, Mass.
Filed July 22, 1971, Ser. No. 165,277
Int. Cl. A01g 9/02
U.S. Cl. 47-34.13

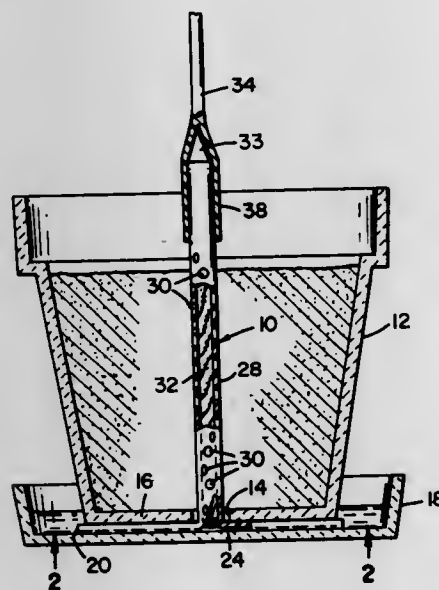
7 Claims



A cell system for use in horticulture comprises a belt of sheet material such as plastic, folded in half longitudinally and having its two layers sealed along lines transverse to and spaced apart along the belt. The sheet forms a series of spaced web portions in which the layers are contiguous, and an alternating series of cells each suitable for receiving the root system of a mature plant. Cover means for the mouths of the cells may comprise a cover strip separate from the belt, or edge portions of the belt may be folded over the mouths. The seals in the web portions may be discontinuous and localized to allow water and nutrient to flow between the cells; or unsealed edge portions of the webs may form a liquid conduit between cells.

3,739,523
PLANT HOLDER AND WATERING DEVICE FOR POTTED PLANTS
Jon Martin Tuffi, 17 Maple Avenue, Kentfield, Calif.
Filed Aug. 5, 1971, Ser. No. 169,293
Int. Cl. A01g 27/00
U.S. Cl. 47-38.1

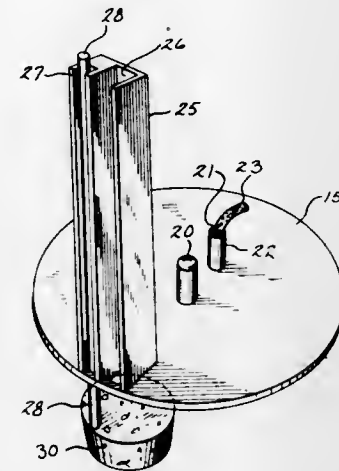
2 Claims



A device for supporting a potted plant as well as supplying moisture to it comprises a base member, a tubular member extending upright from it and an upper support member that is removably attached to the tubular member. The base member is adapted to be positioned below the bottom of the pot which is normally located in a water filled vessel. A wick member

3,739,524
PLANT-HOLDING RECEPTACLES
Harry J. Rose, 12247 N. Fairview Avenue, Milwaukee, Wis.
Filed June 23, 1971, Ser. No. 155,776
Int. Cl. A01g 27/00
U.S. Cl. 47-38.1

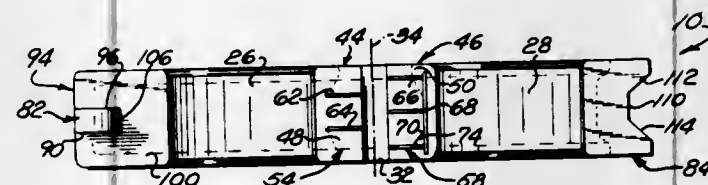
3 Claims



A plant container having a false bottom forming a water-containing compartment therebelow, the upper portion of said container being adapted to have a plant or flower planted therein, there being a wick projecting upwardly through said false bottom to automatically introduce water into said container upper portion by capillary action, and there being a channel member extending upwardly from said false bottom adjacent the container inner wall permitting water to be poured directly into said lower water-containing compartment, said upright channel member having a vertically-movable rod projecting therefrom with a float element on its lower end within said water compartment, said rod visually indicating when water should be added to said container.

3,739,525
PLANT SUPPORT DEVICE
Richard A. Rybak, Dunedin, Fla., assignor to The Hansen Manufacturing Company, Cleveland, Ohio
Filed Jan. 3, 1972, Ser. No. 214,775
Int. Cl. A01g 17/14
U.S. Cl. 47-44

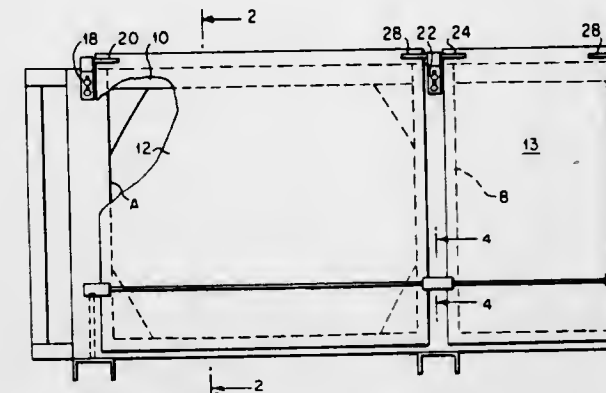
7 Claims



An improved plant support device or clip is adapted to be utilized with an upright support strand of wire or twine. The clip includes a pair of arcuate arms which are closed to encircle the stem of the plant. As the arms are closed, the support strand is gripped by a clamp which holds the clip against movement along the strand. The clamp has gripping surfaces with offset elongated clamp ribs which securely grip the strand. A retaining rib extends transversely to the clamp ribs to prevent the strand from moving along the clamp ribs and becoming disengaged from the clamp. The arms of the clip are held in the closed position by a latch which can be readily released by resiliently deforming one of the clip arms.

3,739,526
UP AND OVER DOOR MOUNT
George E. Nelson, 201 Mountain Avenue, North Caldwell, N.J.
Filed May 26, 1971, Ser. No. 146,909
Int. Cl. E05d 15/38
U.S. Cl. 49-197

12 Claims



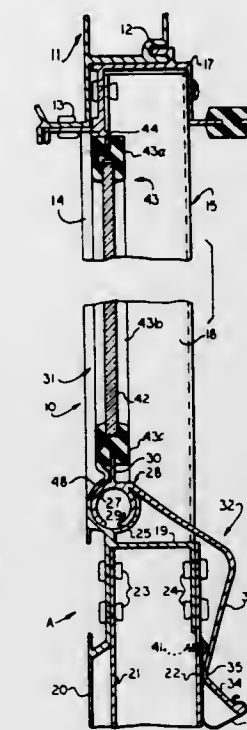
An up and over door mount particularly for a frame for equipment such as a motor generator set, a refrigeration unit and the like for transport equipment including vehicles such as refrigerated trailers and containers used in the trucking and shipping industry. It includes a suitably supported upstanding projection or door support rail, e.g., an angle iron constituting part of the frame for the equipment and having one arm vertical and the other horizontal at the bottom of the vertical arm. The door comprises a panel of suitable material such as reinforced plastic in which the reinforcement can be expanded metal, glass fibers, and the like which has a rearward projection along the upper end thereof and, preferably, a forwardly extending projection on the lower portion of the door. The rearward projection rests on the upstanding projection when the door is in the closed or normal upright position and retaining means located in front of and above said upstanding projection a distance at least equal to the thickness of the door are provided to prevent the door from being moved off the upstanding projection while permitting it to be swung from vertical to horizontal position and then moved bodily inwardly, i.e., over the top. The distance of inward travel of the door is preferably restricted, e.g., by engagement of the forward projection with the retaining means. In this position the door is out of the way so that free access to the interior of the frame is provided. Preferably guide rails are provided in the frame to guide the door during its inward motion so that it does not become canted. The framework may provide one or more access openings to be covered by such up and over doors and the completed frame may be suitably mounted on a vehicle or container, e.g., by suspension from the underside of the chassis or floor of the vehicle or by resting on the upper side of the floor, depending upon circumstances and the structure of the vehicle or container. Suitable means to secure the frame to the vehicle body or chassis may be provided so as to leave a storage space for the door between the frame and the part of the vehicle where the frame is suspended. Where the frame rests upon the floor of the vehicle a top wall is secured to the frame a sufficient distance above the door support rail to protect the equipment within the frame from dust, dirt, water, etc. and to provide the door storage space beneath it.

3,739,527
KNOCKOUT WINDOW FOR VEHICLE
Theodor C. Schubach, Bonita, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.
Filed Nov. 26, 1971, Ser. No. 202,504
Int. Cl. E06b 7/18
U.S. Cl. 49-466

6 Claims

A knockout window for a vehicle, such as a bus or mass transit car, has a surrounding marginal seal and is held in closed, sealing position between a fixed retaining element mounted on one side of a window frame structure, and an ec-

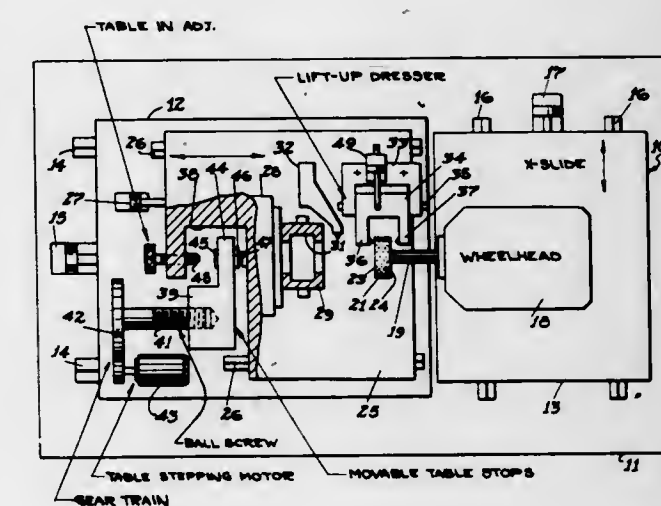
centric element provided on a rocker mounted on the other side of the window frame structure. Actuating means having a substantial mechanical advantage are provided for swinging the rocker in a direction to tilt the rocker so as to swing the ec-



centric element outwardly, thereby forcing the portion of the window with which it is in engagement outwardly free of the eccentric element and the frame structure, whereupon the window either falls free, or may be easily pushed open, allowing escape through the window opening.

3,739,528
GRINDING MACHINE
Edward G. Robillard, Cherry Valley, and Herbert R. Uhtenwoldt, Worcester, both of Mass., assignors to Cincinnati Milacron-Heald Corp., Worcester, Mass.
Filed May 17, 1971, Ser. No. 143,930
Int. Cl. B24b 5/06
U.S. Cl. 51-5

5 Claims



A grinding machine in which the abrasive wheel grinds not only a cylindrical surface, but also spaced radial surfaces of a workpiece, and in which a dressing apparatus is provided for dressing the end surfaces of the wheel.

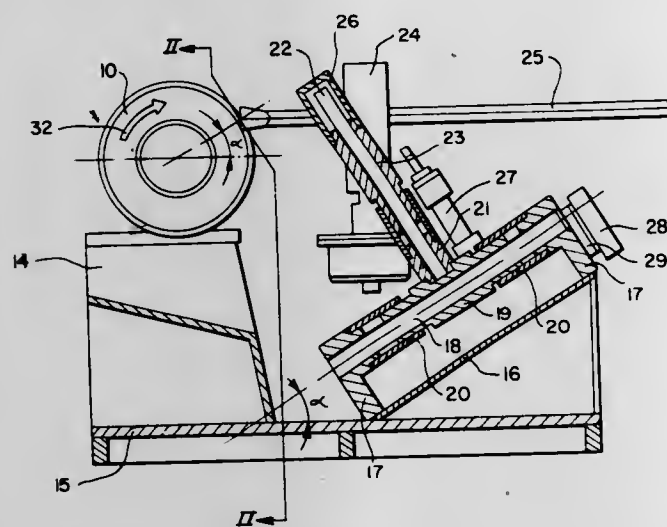
3,739,529
MACHINE FOR THE SHARPENING OF IMPACT ROCK
DRILLS WITH CHISEL CUTTING EDGES
 Burje Oskar Lundberg, Tyreso, Sweden, assignor to AB Grindex, Handen, Sweden

Filed June 25, 1971, Ser. No. 157,041
 Claims priority, application Sweden, June 26, 1970, 8904/70

Int. Cl. B24b 3/33

U.S. Cl. 51-92 R

4 Claims



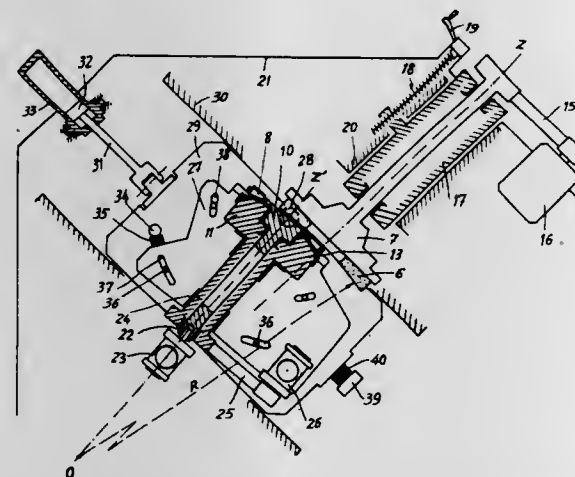
A machine for sharpening of impact rock drills having a number of radially directed chisel cutting edges around the axis of the drill crown comprising a grinding wheel with a double-conically shaped peripheral surface and a holding chuck for the drill during the sharpening operation, said grinding wheel being mounted on a horizontal shaft and the chuck being guided in a bi-directional grinding movement.

3,739,530
APPARATUS FOR MACHINING BODIES OF
REVOLUTION HAVING A CIRCULAR GENERATRIX
 Jean Beauchet, Annecy, France, assignor to Societe Nouvelle De Roulements, Annecy (Haute Savoie), France
 Division of Ser. No. 872,968, Oct. 31, 1969, Pat. No. 3,664,067. This application Nov. 18, 1971, Ser. No. 199,995
 Claims priority, application France, Nov. 6, 1968, 68172174

Int. Cl. B24b 5/26, 5/32

U.S. Cl. 51-105 R

5 Claims



The apparatus of this invention comprises a cup-shaped rotary grinding wheel adapted to move in its axial direction and having a sphero-concave working surface, a circular rotary driving cage formed along its outer periphery with radial cavities adapted to receive the workpieces to be machined in a continuous cycle, these workpieces being so disposed as to have a common point of intersection with the axis of rotation of the driving cage, and a rotary track supporting and carrying along the workpieces with a movement of rotation about their

axes, the cage revolving concentrically to the track and being adapted to bring the workpieces beneath the working zone of the grinding wheel.

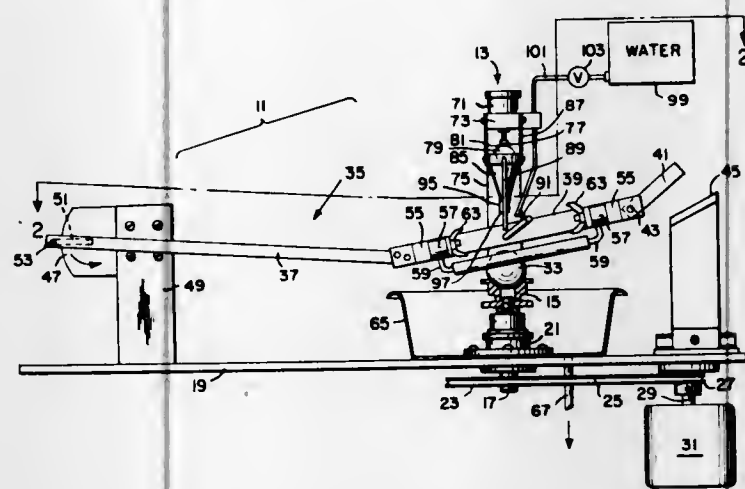
3,739,531
AUTOMATIC SPHERE GRINDER WITH AUTOMATIC
FEEDER

Joseph C. Sharbaugh, 164 Warrior Road, Drexel Hill, Pa.
 Filed May 17, 1971, Ser. No. 143,799

Int. Cl. B24b 1/110

U.S. Cl. 51-105 R

7 Claims



Lapidary apparatus for grinding rocks or stones into polished spheres, which are attractive works of art, comprising an automatic sphere grinder with automatic feeder, said apparatus including a grinding cup rotatable about a vertical axis and adapted to receive a work object to be ground into a sphere, a travelling boom, a pair of legs mounted on the boom and adapted to contact and rotate the work object, the legs contacting the work object on each side of the vertical axis of the cup to hold the work object in the cup, a motor crank arm connected to one end of the boom for reciprocally moving the boom and legs in a direction generally along the longitudinal axis of the boom so as to move the length of the legs over the work object to rotate it about a horizontal axis, a lift member mounted on the other end of the boom adapted to contact a stop member to momentarily lift the legs from the work object to allow the cup to spin the work object to another grinding position, a grit hopper having a feed port, a grit receiving member having an arcuate surface positioned below the feed port a distance such that when in normal position the arcuate surface receives a pile of grit having a positive angle of repose that shuts off the feed port, a shaft rotatably supporting the grit receiving member and having a handle extending downwardly therefrom of sufficient length to be heavy enough to support the arcuate surface in position beneath the feed port, a funnel mounted beneath the grit receiving member and over the work object, an actuating arm mounted on the boom and positioned so as to strike the handle to move the arcuate surface back and forth beneath the feed port to receive and dispense grit material into said funnel, and a water system with a water feed port positioned over the work object for feeding water thereto, the water feed port being positioned away from the funnel tube to prevent water from entering the funnel and clogging it with wet grit.

3,739,532
APPARATUS FOR TRANSFERRING AND OPERATING ON
ARTICLES

John E. Scott, Columbus, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
 Filed June 30, 1971, Ser. No. 158,376

Int. Cl. B24b 21/00

U.S. Cl. 51-135 R

15 Claims

The features of the invention are illustrated in a preferred embodiment which provides novel apparatus for automati-

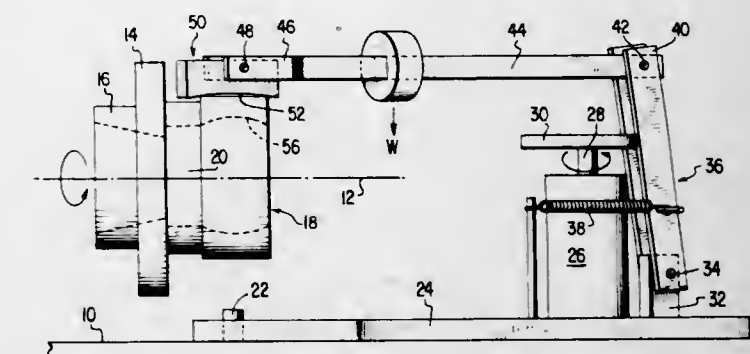
cally beveling the edges or rims of television picture tube funnel or viewing panel components. The components are delivered to an input station from which they are successively transferred to an edge beveling station. Each component is clamped at the beveling station with the rim at a predetermined height. The rim edges are contacted with edge beveling means also located to bevel at the same predetermined height. The edge beveling means and the rim are moved with respect to each other at the predetermined height until the beveling is completed to obtain a uniform bevel completely around the

3,739,534
METHOD OF PRODUCING TORIC LENS ELEMENTS
WITH ASPHERIC SURFACES
 David L. Fuller, Atlanta, Ga., assignor to Scripto, Inc., Atlanta, Ga.

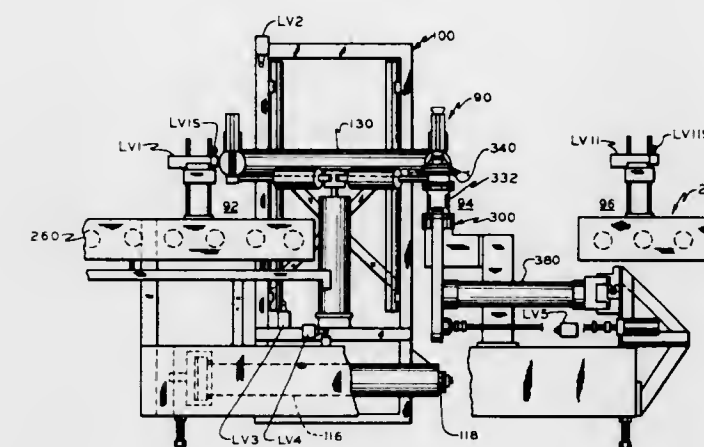
Filed Oct. 8, 1971, Ser. No. 187,605
 Int. Cl. B24b 13/02

U.S. Cl. 51-284

5 Claims



A toric lens element is provided with an aspheric surface by first generating a cylindrical surface of revolution on a body of optical material and then honing this surface to aspherize it. While the work is being rotated about the axis of the cylinder, a honing member having a cutting surface of fixed radius is reciprocated back and forth along a path contained within a plane passing symmetrically through the work at an angle to the cylindrical axis. By controlling the curvature of the honing surface and the angle of honing, an aspheric surface is generated which approximates a fourth order sag plot effect. The particular relation is one in which the honing surface is formed with a radius of curvature which is equal to $1/R_1 \cos^2 \phi + 1/R_2 \sin^2 \phi$; where R_1 is the instantaneous radius of curvature of the ellipse defined by the intersection of the cylindrical work surface and the plane in which the hone is reciprocated at that point of the ellipse at which the ellipse is intersected by its minor axis, R_2 is the radius of the cylindrical surface, ϕ is equal to 90° minus the angle of the plane, $R_1 = R_2 \cos^2 \phi + R_2 \sin^2 \phi$ with respect to the axis of rotation, and R_2 is the radius of the honing surface.



rim. The completion of the beveling operation is sensed to release the clamping of the component at the beveling station and the beveled component is transferred to a discharge station. A component to be beveled is advantageously transferred from the input station to the beveling station while a beveled component is being transferred from the beveling station to the discharge station. Each component is aligned at the input station to insure proper orientation for transferring the component to the beveling station to enable clamping. The beveling of components is limited in accordance with the requirements of a successive operation station.

3,739,533
METHOD FOR OPTIMIZING TIRE UNIFORMITY
 Yoshihiko Iida, and Yasushi Goto, both of Tokyo, Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan

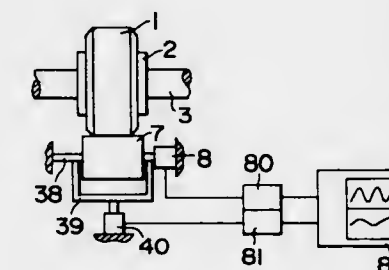
Filed Sept. 14, 1971, Ser. No. 180,283

Claims priority, application Japan, Sept. 25, 1970, 45/83458

Int. Cl. B24b 1/00

U.S. Cl. 51-281 R

7 Claims



A method for optimizing the uniformity of a pneumatic tire by selectively partially removing either or both edges of tire tread shoulder rubber. The amount of the tire tread rubber being removed and the specific edge at which the rubber is removed are determined based on the measured value of lateral force deviation and/or radial force variation of the tire.

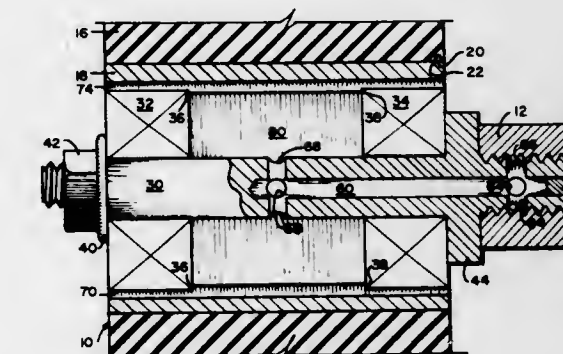
3,739,535
FLUID COOLED HUB ASSEMBLY FOR A CONTACT
WHEEL

Joseph L. Fournier, Andover, Conn., assignor to Red-Lee Metal Finishing Company, Inc., Manchester, Conn.
 Filed Mar. 3, 1971, Ser. No. 120,600

Int. Cl. B24b 21/14

U.S. Cl. 51-356

6 Claims



A contact wheel hub assembly for a surface finishing machine is provided with cooling fluid conduits to remove heat generated by the contact wheel and a cooperating abrasive belt during grinding, sanding, buffing and similar finishing operations. The contact wheel of the assembly is composed of a rotatable support sleeve and a contact wheel tread over which the abrasive belt moves in driving contact. The support

sleeve is provided with a plurality of axially extending internal grooves which serve as conduits for a cooling fluid supplied to the wheel during a finishing operation. The cooling fluid exhausts to the ambient environment through the grooves to remove heat generated by the finishing operation from the sleeve and contact wheel tread.

3,739,536

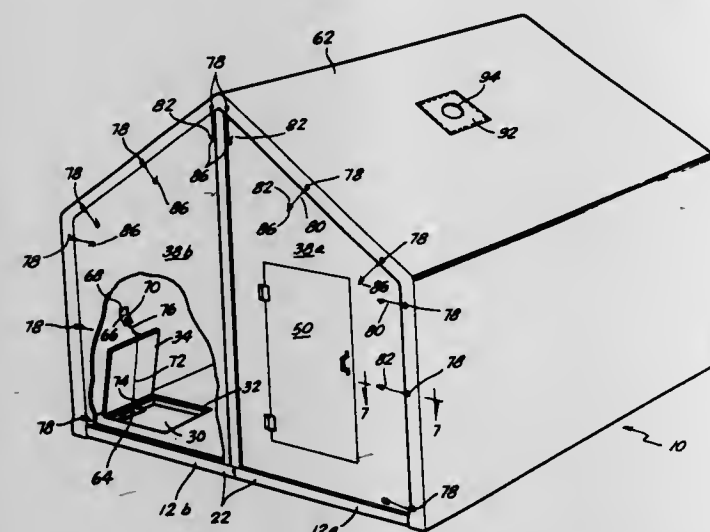
KNOCK-DOWN SHELTER

Harlan R. Ward, 215 West 52nd St., Minneapolis, Minn.
Filed Jan. 13, 1971, Ser. No. 106,011

Int. Cl. E04b 1/347

U.S. Cl. 52—63

17 Claims U.S. Cl. 52—108



The opposite end walls of the erected shelter include at least one rigid panel, the lower edges of these panels being releasably received in a groove at the front and rear, respectively, of the shelter. A plurality of elongated rail members have L-shaped angle elements at each end which detachably engage over the upper edges of the panels and also the vertical braces secured thereto. A canvas sheet overlies the upper edges of the panels and the rail members to form the top and side walls of the structure. The edges of the canvas are anchored by means of flexible ropes. The flexible ropes that anchor the lower side edges of the canvas pass through openings in the floor which enable the shelter to be used as a fish house during winter months. A hinged lid is associated with each floor opening.

3,739,537

AIRCRAFT HANGAR

William A. Barnes, Hamilton, Ontario, Canada, assignor to H. Robertson Company, Pittsburgh, Pa.

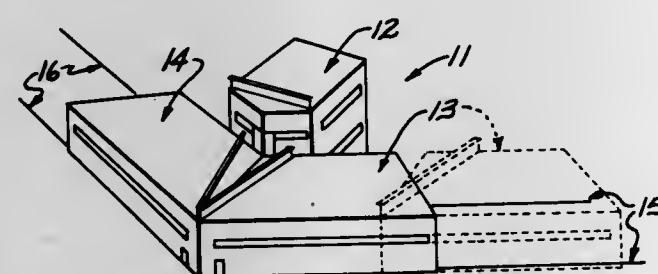
Filed May 20, 1971, Ser. No. 145,202

Claims priority, application Canada, July 15, 1970, 88,334

Int. Cl. E04b 1/342; E04h 6/44

U.S. Cl. 52—64

3 Claims



An aircraft hangar for housing modern extremely large aircraft, such as, the Boeing 747, the Boeing 747 extended and the Lockheed 1011. The hangar comprises a central, static building unit and two movable building units including guide means for establishing the locus of movement of the two build-

ing units along intersecting lines. The movable building units are separated. The central, static building unit receives the tail section and a portion of the fuselage of an aircraft. The movable units are brought together and enclose the wings and the remainder of the fuselage.

3,739,538

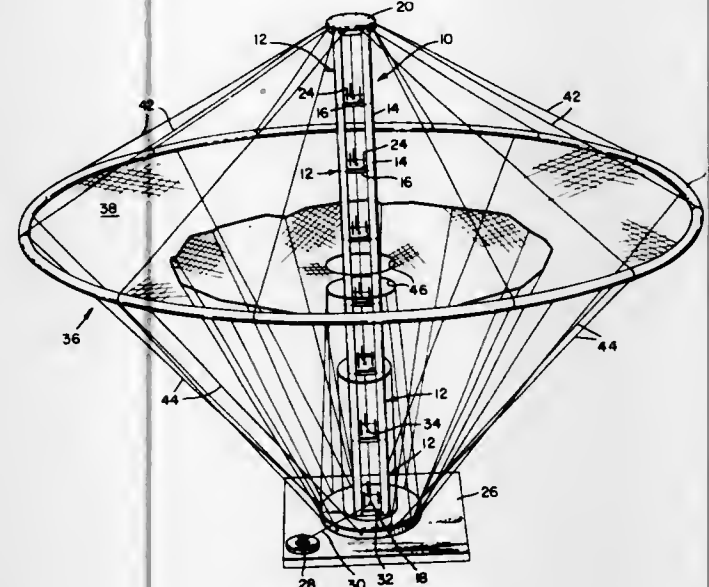
NON-ROTATABLY EXTENDIBLE MAST

Charles P. Rubin, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Apr. 29, 1970, Ser. No. 32,946

Int. Cl. E04h 12/10; H01q 1/00

2 Claims



The mast is extendible along its axis from a collapsed position to a fully extended position and is useful as an antenna mast or boom, such as may be used to support an electromagnetic wave energy reflecting surface and/or to support transmitting and receiving equipment. The mast comprises three or more longitudinal members of spring material which have been preformed with a curvature in their transverse direction and are supported by a plurality of spaced platforms. The separation between platforms is determined by the buckling load required for the longitudinal members and the material is selected as to type and size to obtain the desired spring bias. Packaging is achieved by buckling each of the longitudinal members inwardly to permit the platforms to be brought together. Mechanical stops between the platforms prevent the introduction of excessive curvature into the buckled longitudinal members. Deployment occurs by releasing the collapsed mast. The stored internal energy in the bent longitudinal members is sufficient to completely erect the mast to its fully extended position.

3,739,539

BELOW GROUND SWIMMING POOL

Irving H. Popsnick, Minneapolis, Minn., assignor to Aqualand Pool Co., Inc., Minneapolis, Minn.

Filed June 15, 1971, Ser. No. 153,177

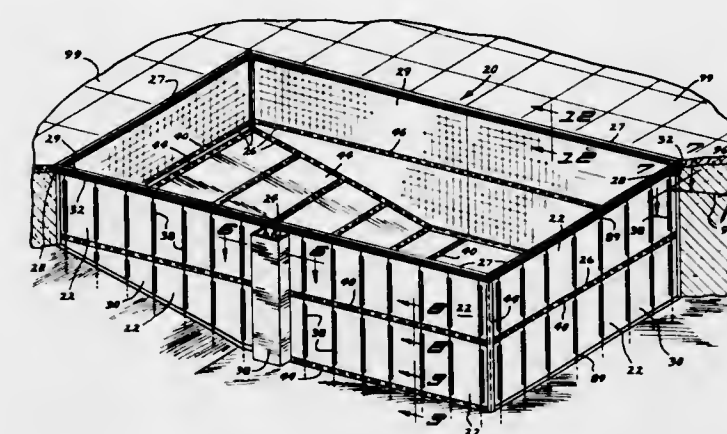
Int. Cl. E04h 3/16, 3/18

U.S. Cl. 52—169

6 Claims

A plurality of preformed modular, thermoplastic panels are solvent welded to each other to form a unitary swimming pool structure in place in an excavation only slightly larger than the final pool dimensions. Vertical stiffener ribs previously solvent welded to the outside of the walls of the pool are utilized to stiffen the walls and to anchor them by passing reinforcing bars therethrough. The bars are anchored into the ground. To join abutting vertical edges of adjacent panels, an elongated clamp is used to hold the panels and an overlying weld plate during the hardening of the solvent weld. This clamp is in two severable parts including an outside plank member having upper and lower legs which are temporarily clamped to

cooperating legs of an inside plank member respectively above and below the panels. After the weld is complete and the clamp removed, adjacent ribs and reinforcing bars on either side of the vertical weldment are at least temporarily encompassed by a vertical concrete form and concrete is



poured therein to additionally strengthen the bond between the panels. A finish coping is positioned around the top edge of the pool and has a flexible downwardly extending plane so that the bottom flange edge rests in generally sealing relation to the top edge portion of the vertical pool wall even though there are minor undulations in this top edge portion.

3,739,540

GARAGE CONSTRUCTION

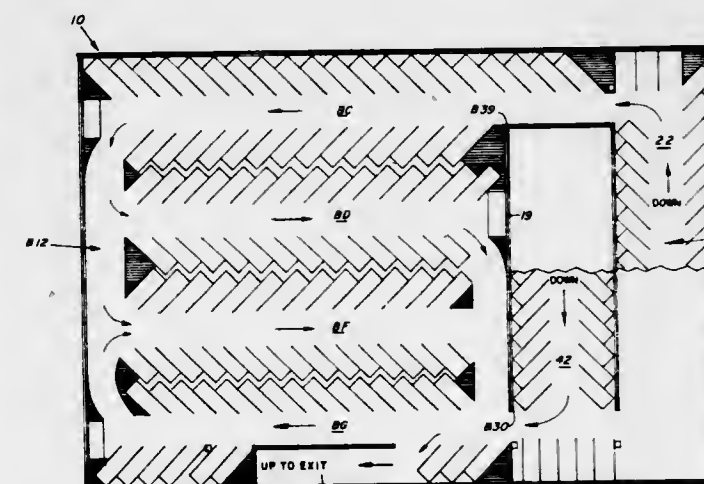
Charles W. Ennis, Jr., P.O. Box 16083, San Antonio, Tex.

Filed Sept. 3, 1971, Ser. No. 177,792

Int. Cl. E04h 6/10

U.S. Cl. 52—175

9 Claims



A multi-storied building for the compact and efficient storage of automobiles having a plurality of ingress and egress areas of street level and said ingress areas having direct access to below ground parking areas, to above ground parking areas and to a street level area. The incoming circulation flow pattern is such that vehicles will not interfere with the outgoing flow of vehicles.

3,739,541

BUILDING COMPONENT CONSTRUCTION

Lamont F. Andrews, 821 S. 129th Avenue, Omaha, Nebr.

Filed Feb. 25, 1971, Ser. No. 118,675

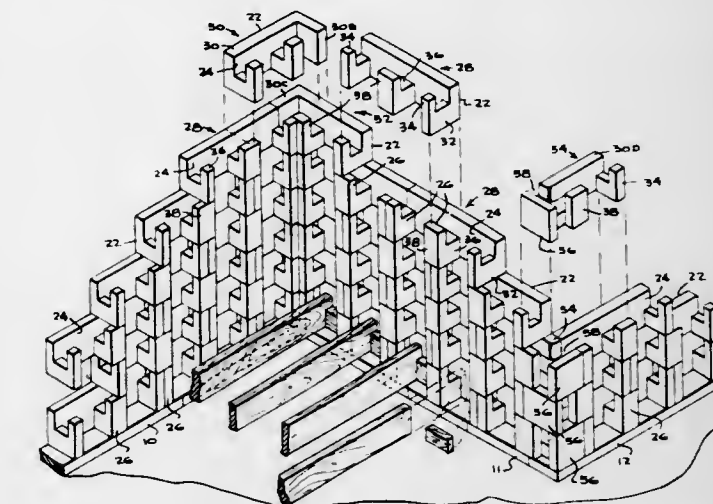
Int. Cl. E04c 1/39

U.S. Cl. 52—220

7 Claims

A unitary wall or floorlike building component is provided in the form of a main wall element connected to a plurality of parallel stud members by parallel connector portions perpendicular to the wall element and the stud members between which horizontally extending access openings for heating, plumbing or electrical components are provided. The building

component can be either of unitary poured construction or can be formed of plural component block units held together by mortar or adhesive with another feature residing in having block units formed of plastic box frames with internal plate bracing fixed on the interior of the box frames for lightness



and strength; another aspect of the invention resides in a thin brick plate facade attached to the outer surface of the wall element with the brick plates being embedded in a mortar surface and being of substantially thin construction while having the appearance of full size bricks.

3,739,542

SHUTTERING AND REINFORCING ELEMENT FOR CONCRETE STRUCTURES

Horst Glatz, Eldagsen Hanover, Germany, assignor to Deumu Deutsche Erz-und Metall-Union Gesellschaft mit beschränkter Haftung, Hanover, Germany

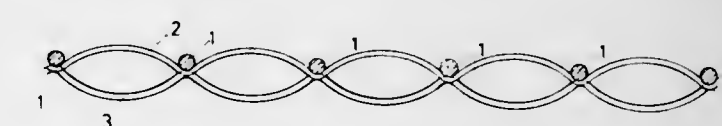
Filed Mar. 16, 1971, Ser. No. 124,826

Claims priority, application Germany, Apr. 4, 1970, P 20 16 225.8; May 13, 1970, P 20 23 243.3

Int. Cl. E04c 2/42, 5/04

U.S. Cl. 52—669

11 Claims



The invention relates to structural elements used as shuttering and as reinforcing elements in the production of concrete structures. The structural elements are basically plate-like in form and built up from an assembly of longitudinal rods in one plane, the rods being connected by a series of cross-ribs of strip form, the portion of each strip between each rod being curved out of the plane of the plate, the curvature of alternate cross-ribs being in opposed directions. The longitudinal rods are of reinforcing steel while the strips for the cross-ribs may be of steel or synthetic material and all cross-ribs may be fastened to the same side of the longitudinal rods. Where cross-ribs of synthetic material are used additional strengthening ribs of strip-like or rod-like reinforcing steel also arranged transversely to the longitudinal rods may be connected to the latter.

3,739,543

ENVELOPE OPENING APPARATUS AND METHOD

Roland G. Harris, Haddonfield, N.J., assignor to Automated Mail Systems, Inc., Cherry Hill, N.J.

Filed June 21, 1971, Ser. No. 154,827

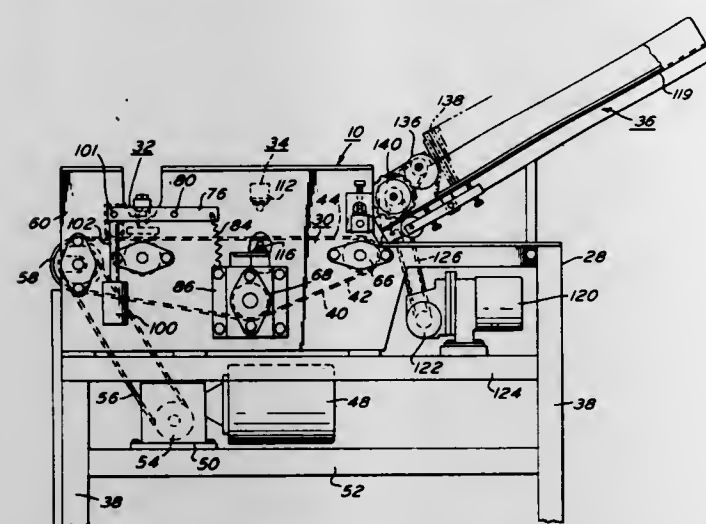
Int. Cl. B65b 43/26

U.S. Cl. 53—3

34 Claims

Envelopes are opened through frictional engagement and a resultant tension action along preweakened edges. An en-

velope is driven onto a moving belt and the envelope is detected in its path by a photocell. A time delay circuit allows the envelope to be moved to a predetermined station where shoes contact the envelope. The shoes move through an en-



velope plane intersecting path to frictionally engage the envelope only once. The shoe normal force in combination with the moving belt force cause the envelope to burst open at the preweakened edges after which it passes under a pair of rollers.

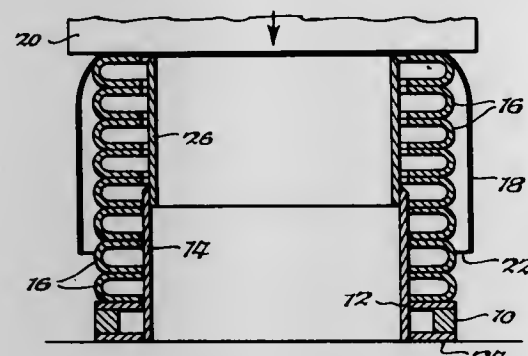
3,739,544 METHOD AND APPARATUS FOR THE SHRINK-WRAPPING OF PACKAGES

Walter Hanemann, Frankfurt/Main, Germany, assignor to Feldmühle Aktiengesellschaft, Dusseldorf-Oberkassel, Germany

Filed Feb. 12, 1971, Ser. No. 114,824
Int. Cl. B65b 1/24, 13/20, 53/02

U.S. Cl. 53-24

2 Claims



A method for packaging frame, coil or ring shaped articles stacked on a pallet with a shrink film wrapping. The articles are stacked on the pallet over a guide element which projects upwardly through a recess in the pallet. In some embodiments the articles are compressed after being covered with a shrink film wrapping. The wrapping is heat-shrunk about the stack of articles and portions of the pallet. In some embodiments the guide element is telescoping and is removed through the pallet recess after the wrapping is heat-shrunk.

3,739,545 METHOD AND APPARATUS FOR PACKAGING ARTICLES

Horst G. Latke, Middletown, Conn., assignor to Emhart Corporation, Bloomfield, Conn.

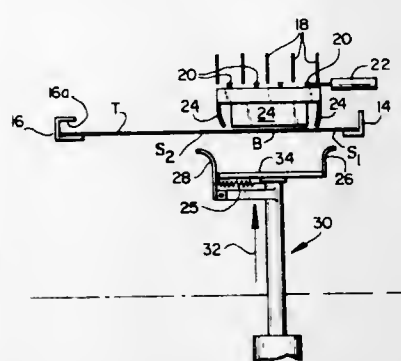
Filed May 19, 1971, Ser. No. 144,804
Int. Cl. B65b 5/02, 11/26

U.S. Cl. 53-29

10 Claims

An automatic machine is disclosed for packaging an array, or slug, of articles, such as cans, in a paperboard carton,

wherein the carton is first provided in a flat blank form, is then preliminarily formed into a U-shaped configuration, and then final wrapped around the array of articles, to be subsequently glued up and sealed so as to form a very compact paperboard carton for the articles. The machine includes a frame having a vertically movable elevator structure which is equipped with laterally opposed plows for engaging side panels of the paperboard blank, and for folding the side panels upwardly into a U-shaped configuration around the funnel portion of a packer in which the articles are held prior to being dropped onto the



bottom panel of the blank. After the articles are positioned thereon, the elevator structure lowers the U-shaped blank, together with the articles, onto a pocket chain conveyor where the carton is fed laterally off the elevator to fold the top panel, and to fold the end panels associated with the side panels, as well as those associated with the top and bottom panels, into place. A conventional vertical compression unit is also used, and the manufacturer's tab or flap is glued and folded in this portion of the machine.

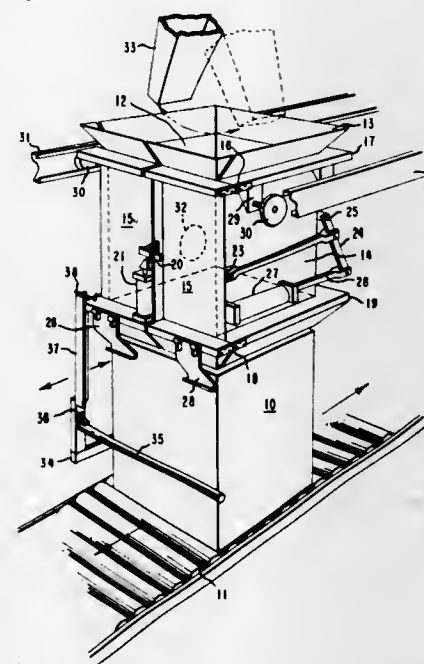
3,739,546 APPARATUS FOR PACKAGING TOW INTO CARTONS

Joseph Thomas O'Neill, Gananoque, Ontario, Canada, assignor to Du Pont of Canada Limited, Montreal, Quebec, Canada

Filed Nov. 23, 1971, Ser. No. 201,425
Claims priority, application Canada, Apr. 5, 1971, 109,660
Int. Cl. B65b 63/04

U.S. Cl. 53-116

6 Claims



In an apparatus for packaging tow into cartons in which tow is fed from a spout reciprocating in a first plane into a carton reciprocating in a second plane at right angles to the first plane, there is provided a filler sleeve to facilitate the filling of the cartons. The filler sleeve fits over the top of the carton and has four sides which are adapted to form a vertical extension of the four sides of the carton. The filler sleeve has a flexible

locating means adapted to hold the filler sleeve to the carton while the carton reciprocates. The filler sleeve has its own support means so that it may be moved either dependently or independently of the carton. At least one side of the filler sleeve may be opened by a means designed to keep the side in the opened or closed position.

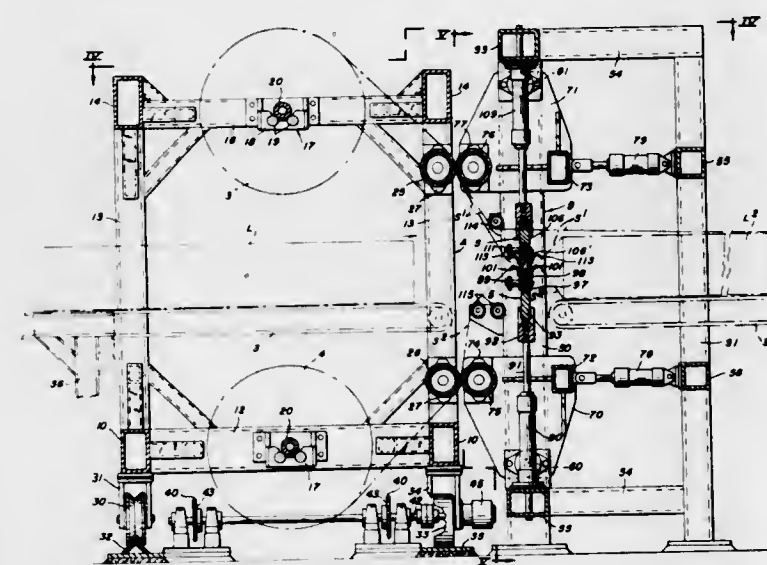
3,739,547 SHRINK-WRAPPING METHOD AND APPARATUS

Robert Brevko, Peters Township, Washington County; Peter Viviano, Pittsburgh; Regis M. Rudman, North Braddock Borough, and Lawrence D. Adams, Pleasant Hills Borough, all of Pa., assignors to Auburn Engineering, Inc., Pittsburgh, Pa.

Filed Jan. 28, 1971, Ser. No. 110,684
Int. Cl. B65b 9/02, 41/12

U.S. Cl. 53-182

17 Claims



In a shrink film method and apparatus for enveloping successive articles in plastic film preparatory to shrinking it there are upper and lower rolls of film at one end of a shuttle frame on the pass-line through the machine and when these rolls are exhausted, the frame is moved crosswise and upper and lower rolls of film at the other end of the frame are then centered on the pass-line while replacement of the used ones from the first end is performed without interfering with the operation of the machine. Initially the ends of the upper and lower film sheets of the replacement rolls are joined together by a portable sealer before the frame is shifted to bring them into position on the pass-line. In the operation of wrapping the load or article to be wrapped is moved horizontally against the jointed ends of the upper and lower films and as its travel continues the lower sheet is pulled along under the load and the upper sheet is pulled over the top thereof. At the trailing end of the load seal-cut-seal bars seal the upper and lower film sheets at the trailing end sever both films and fuse the sheets together behind the line of cut, leaving them joined together across the path of the leading end of the load to be wrapped. After the front ends of the load, and preferably the entire load, has cleared the plane of the seal-cut-seal bars, the side margins of the top and bottom film sheets are folded into overlapping relation and are fused together, normally without any stopping of the machine.

3,739,548 METHOD AND APPARATUS FOR REMOVING DISTILLATE FROM PHYSICAL SOLVENTS

Arnold M. Hegwer, Houston, Tex., assignor to Fish Engineering & Construction, Inc., Houston, Tex.

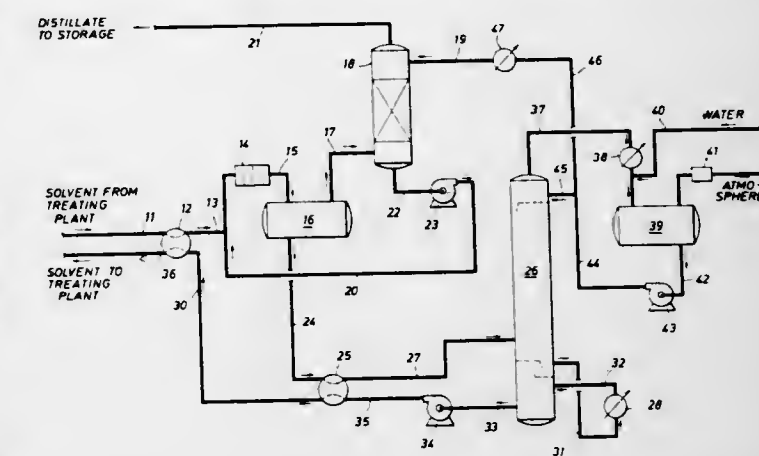
Filed Jan. 28, 1972, Ser. No. 221,684
Int. Cl. B01d 19/00

U.S. Cl. 55-45

4 Claims

Water is mixed with a stream of physical solvent used for acid gas removal which contains distillate. The mixture

separates into an aqueous phase containing the physical solvent and water and an organic phase containing the distillate.



The two phases are separated mechanically and the water and solvent are separated by fractional distillation.

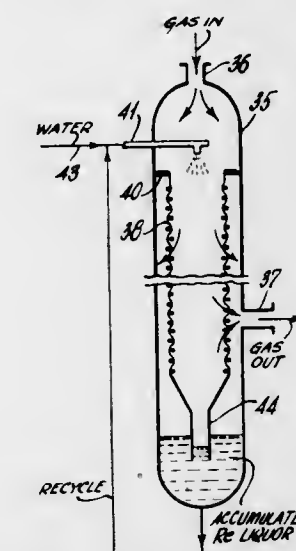
3,739,549 RHENIUM EXTRACTION PROCESS

Rafael J. Hevia, Camino El Alba 8568, and Luis Soto-Krebs, Fernando de Aragon 4240, both of Santiago, Chile

Filed Oct. 28, 1971, Ser. No. 193,459
Int. Cl. B01d 53/14

U.S. Cl. 55-72

26 Claims



The recovery of rehenium from roaster gases is improved in extraction efficiency in that, following the removal of solids from the gas, the dust-cleaned gaseous effluent remaining which contains particles of rehenium oxide ranging down to submicron size is then subjected to wet-filtering, whereby to effect a substantial improvement in the recovery of rehenium in the gas.

3,739,550 ADSORBENT FOR DESULFURIZATION OF SULFUR DIOXIDE CONTAINING WASTE GASES

Kruel Martin, Essen-Bergerhausen; Dieter Zurawsky, Gladbeck, and Harald Juntgen, Essen-Heisingen, all of Germany, assignors to Bergwerksverband GmbH, Essen, Germany

Filed Oct. 7, 1968, Ser. No. 765,690
Claims priority, application Germany, Oct. 6, 1967, P 16 19 840.6
Int. Cl. B01d 53/04; C01h 17/51

U.S. Cl. 55-73

9 Claims

A carbon containing adsorbent for the desulfurization of carbon dioxide containing waste gases is impregnated with a mixed catalyst, the catalyst comprising (a) a vanadium compound and (b) at least one compound of the elements potassium, lithium or barium. The catalyst has considerably improved regeneration values.

3,739,551 METHOD OF GAS ABSORPTION AND APPARATUS THEREFOR

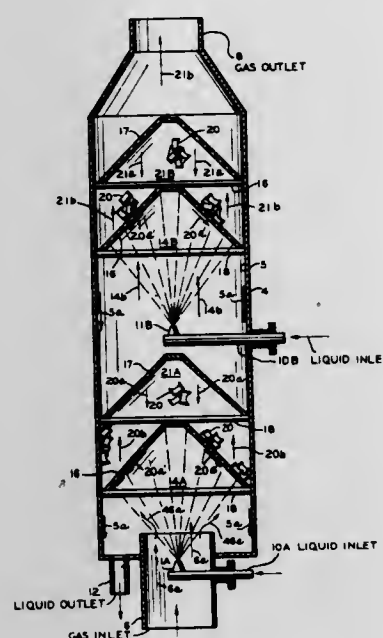
John S. Eckert, Silver Lake, Ohio, assignor to Norton Company, Akron, Ohio

Filed Nov. 16, 1970, Ser. No. 90,087

Int. Cl. B01d 47/06

U.S. Cl. 55-90

18 Claims



A liquid-gas contacting apparatus has a liquid spray-nozzle which sprays liquid cocurrently with the gas to be contacted, a packed bed adapted to detain the liquid and trickle it in counter-current flow against the gas, and an unpacked section of the apparatus providing a falling film of liquid along the walls to counter-currently contact the gas. The method comprises carrying out in a single item of equipment, by the sequence of cocurrent spray contacting, followed by counter-current contacting in a packed bed, and counter-current falling film contacting by means of a wetted wall technique. Vertical and horizontal scrubbers are provided which are adapted to remove noxious fumes from air.

3,739,552 AIR FILTER UTILIZING SPACE TRAPPING OF CHARGED PARTICLES

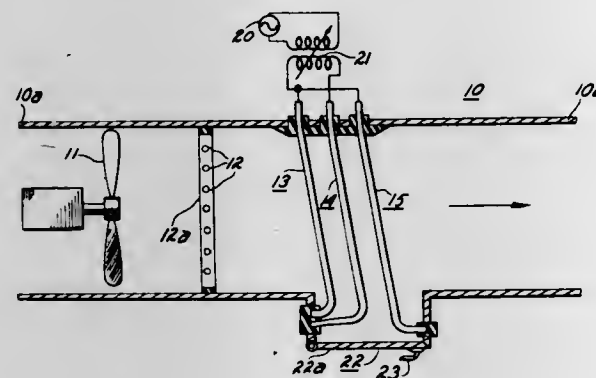
Harold F. Webster, Scotia, and N. Rey Whetten, Burnt Hills, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 1, 1971, Ser. No. 203,798

Int. Cl. B03c 3/04

U.S. Cl. 55-123

26 Claims



A duct for the transmission of an air flow therethrough is provided with parallel planar arrays of electrical conductors

which are angularly positioned relative to the axis of the air flow. The conductors are parallel to each other and connected to a source of alternating current voltage for generating two dimensional multipolar alternating current electrodynamic fields across the duct. The electrical forces generated by the multipolar fields trap charged particles in the air flow and the orientation of the air flow relative to the angular position of the conductor planar arrays causes the particles to be directed to a side of the duct for collection and subsequent removal. The trapping of the particles is enhanced by coating the conductors with a high dielectric strength material.

3,739,553 EXHAUST EMISSION CONTROL MEANS FOR INTERNAL COMBUSTION APPARATUS

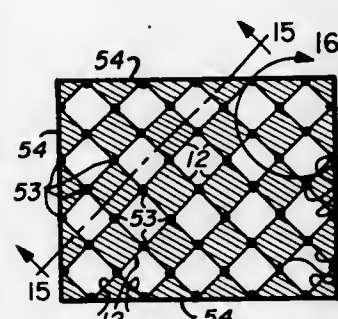
Harry E. Aine, 4008 Twyla Lane, Campbell, Calif.

Filed June 14, 1971, Ser. No. 152,676

Int. Cl. B01d 13/00

U.S. Cl. 55-158

2 Claims



An exhaust emission control means for removing smog producing constituents from the exhaust gases of an internal combustion chamber is disclosed which employs a membrane gas separator disposed in gas communication with the flow of exhaust gases at essentially atmospheric pressure. The gas separator causes unburned hydrocarbons and other smog producing constituents of the exhaust gas to go into solution with the membrane material, which is a barrier to permanent gases, and to diffuse from the membrane material into a stream of fresh air at substantially atmospheric pressure which is thence fed back to the combustion chamber or to an after-burner for completing the combustion of such smog producing constituents. A relatively large area of membrane material is provided in a relatively small volume by pleating or folding the membrane. Alternatively, a large area membrane is provided in a small volume by bonding together adjacent sheet portions of membrane in a certain pattern of bond lines to provide a honeycomb of alternating exhaust and fresh air gas passageways when the bonded structure is expanded.

3,739,554 AIR FILTER UTILIZING ALTERNATING CURRENT ELECTRIC FIELDS

N. Rey Whetten, Burnt Hills, and Harold F. Webster, Scotia, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 1, 1971, Ser. No. 203,809

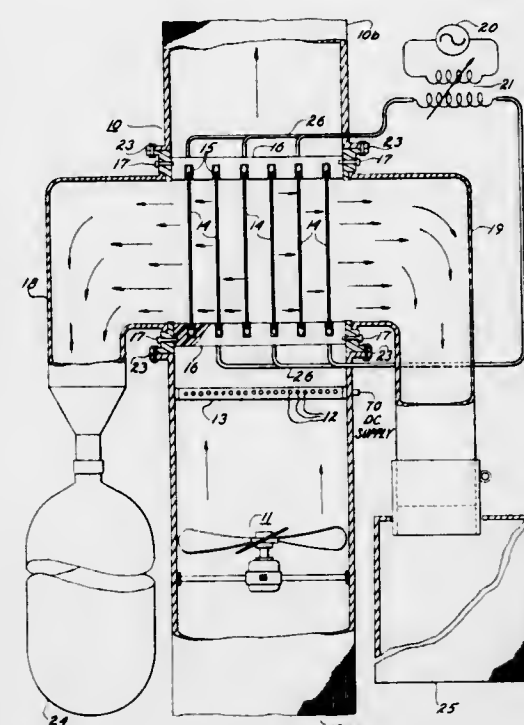
Int. Cl. B03c 3/08

U.S. Cl. 55-123

25 Claims

A duct for the transmission of an air flow therethrough is provided with a plurality of parallel plates oriented parallel to the air flow. The plates have aligned holes therethrough and are connected to a source of alternating current voltage for generating alternating current electric fields in the region of the holes. The electrical forces generated by the electric fields

trap charged particles in the air flow and direct them through the holes to the sides of the duct for collection and subsequent



removal. The trapping of the particles is enhanced by coating the plates with a high dielectric strength material.

3,739,555 MODULAR AIR POLLUTION CONTROL SCRUBBER BED

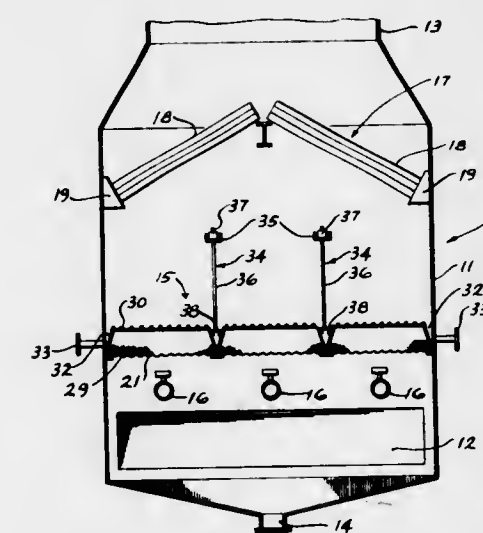
Preston Dean Liebig, West Hartford, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 30, 1971, Ser. No. 213,857

Int. Cl. B01d 47/14

U.S. Cl. 55-233

10 Claims



A gas cleaner incorporating a wet scrubber wherein the scrubber bed is made from self-contained basket-like modules which when in assembled relationship, are capable of carrying off water overflowing from the modules and thereby maintaining the desired turbulent level within the scrubber bed. The facing sides of adjacent modules are inclined inward so as to form a trough which catches the overflowing water, and which communicates with means for disposing of the overflowing water. A cover grill is provided for each bed module for the purpose of containing the filter material.

3,739,556 WATER COOLING TOWERS

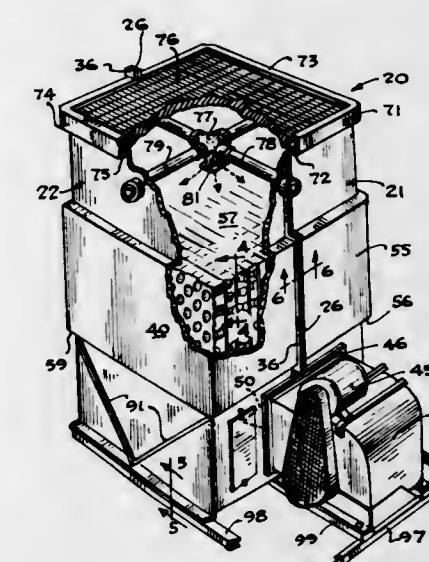
Charles E. Waters, Barrington, Ill., assignor to Application Engineering Corporation, Elk Grove Village, Ill.

Filed Dec. 30, 1970, Ser. No. 102,776

Int. Cl. B01f 3/04

U.S. Cl. 55-257

9 Claims



An evaporative water cooling tower of the counterflow type, of all-plastic construction, in which the tower housing is formed of two symmetrical mating shells each vacuum-formed from a single sheet of high-impact ABS or other resin material, bonded together at flanged mating edges, having internal shelves formed integrally with the housing shells for supporting plastic evaporator and moisture eliminator grids in the housing, and including a water inlet comprising two intersecting PVC pipes, connected to a spray nozzle at the intersection, between the evaporator and eliminator grids.

3,739,557 BAG FILTER ARRANGEMENT

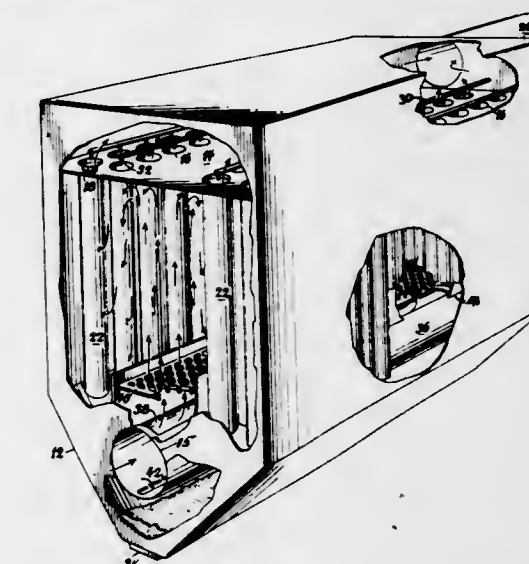
William M. Anderson, and Ronald J. Renko, both of Wellsville, N.Y., assignors to The Air Preheater Company, Inc., Wellsville, N.Y.

Filed Dec. 20, 1971, Ser. No. 209,806

Int. Cl. B01d 46/04

U.S. Cl. 55-302

5 Claims



A bag filter apparatus that removes entrained particulate matter from a carrier gas stream is disclosed. The bag filter has a novel flow arrangement that provides for a sudden expansion of the carrier gas to thereby lower its velocity and thus reduce its capacity to carry particulate matter while it precludes direct impingement of entrained particulate matter upon the fabric filter bags to reduce abrasion of the fabric.

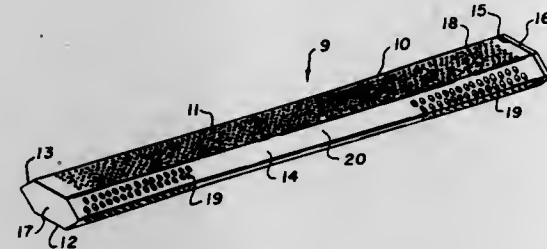
The flow arrangement defined also increases the collecting efficiency of the filter bag by eliminating the re-entrainment of filtered dust in the gas stream after it has been once removed therefrom.

3,739,558 ODOR ADSORBER

Frank W. Hurson, North Vancouver, British Columbia, Canada, assignor to Canadian Char-Co. Ltd., Burnaby, British Columbia, Canada
Filed Dec. 6, 1971, Ser. No. 205,153
Int. Cl. B01d 53/04

U.S. Cl. 55—387

1 Claim



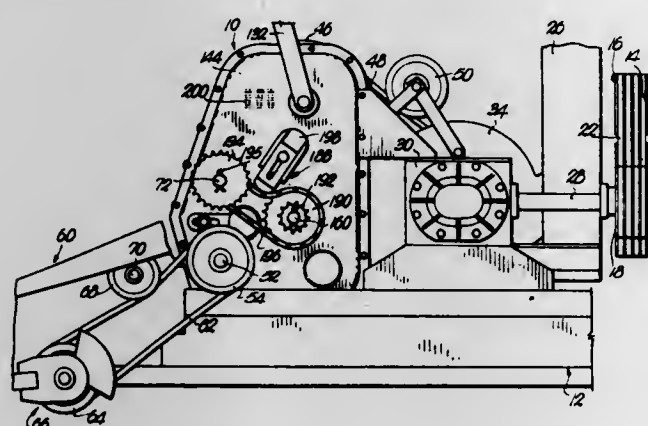
An odor adsorbing device in the form of a perforated elongated container filled with activated carbon particles. A cap is removably mounted on the container, allowing the device to be refilled.

3,739,559 TRANSMISSION FOR FORAGE HARVESTERS AND THE LIKE

William D. Long; Ferol S. Fell; Bernard L. Wells, and John P. Prichard, all of Hesston, Kans., assignors to Hesston Corporation, Hesston, and Field Queen Incorporated, Maize, Kans. part interest to each
Division of Ser. No. 107,090, Jan. 18, 1971, Pat. No. 3,670,590. This application Feb. 4, 1972, Ser. No. 223,441
Int. Cl. A01d 55/26

U.S. Cl. 56—13.9

3 Claims



A transmission on a forage harvester permits the gathering chains, sickle, and feed rolls thereof to be selectively shifted into forward, neutral, or reverse drive conditions without affecting the operation of the power source, chopper, and blower of the harvester. Components of the transmission are operably coupled in such a manner that the rotative speeds of the feed rolls may be varied relative to the chopper without correspondingly varying the speeds of operation of the sickle and gathering chains, and rockable shifter mechanism journaling the input shaft of the transmission is geometrically arranged such that the transmission tends to remain in its forward drive condition.

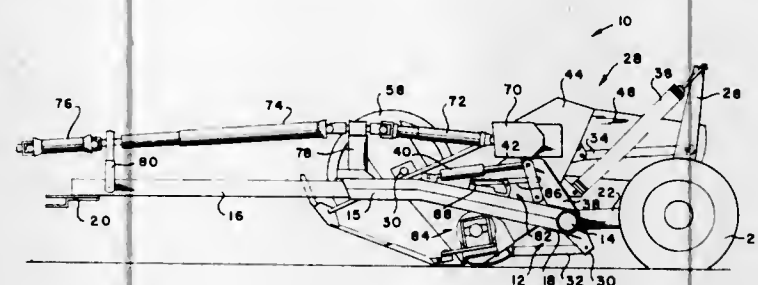
3,739,560 TRANSPORT LOCK LINK FOR A MOWER CONDITIONER

Wilbur L. Slaymaker, Kinzers, and John H. Long, Narvon, both of Pa., assignors to Sperry Rand Corporation, New Holland, Pa.

Filed Mar. 28, 1972, Ser. No. 238,857
Int. Cl. A01d 75/22

U.S. Cl. 56—228

5 Claims



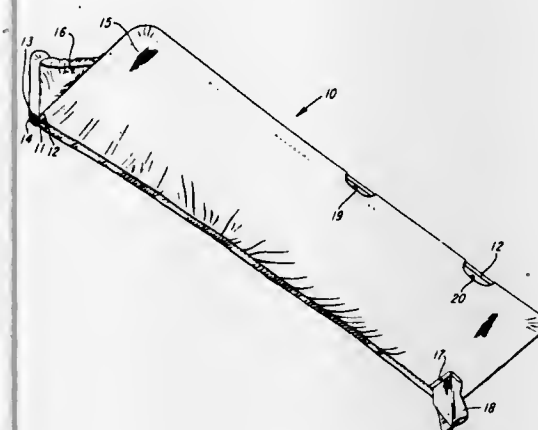
A transport lock link assembly for a pull type mower conditioner having an L-shaped main frame and a header moveably supported thereby via an actuating linkage structure interconnected between said header and said main frame. The lock link assembly of the present invention particularly comprises a lock link having one end operatively connected to said actuating linkage structure and the other end confined and moveable within a generally L-shaped slot structure having removable stop means associated therewith for selectively maintaining the end of the lock link confined within said slot in either an operating mode or a transport lock mode.

3,739,561 PORTABLE, LIGHT-WEIGHT FRUIT GATHERING DEVICE

Robert J. Boudeman, Hickory Corners, Mich., assignor to Wells Manufacturing Corporation, Three Rivers, Mich.
Filed Apr. 17, 1972, Ser. No. 244,736
Int. Cl. A01g 19/06

U.S. Cl. 56—329

4 Claims



A portable, light-weight fruit gathering device, suitable for use in conjunction with mechanical fruit harvesting means, comprises a rigid articulated frame made up of an elongated central member and a pair of opposed, U-shaped frame members with depending legs pivotally mounted at the terminal portions thereof on said central member, a flexible sheet material coextensively mounted on said frame and provided with a fruit discharge opening, flexible web means attached at both ends of said frame and limiting the pivot of the frame members to less than 180° relative to each other, and a fruit discharge chute attached to the flexible sheet material around the periphery of the discharge opening.

3,739,562 GARDEN TOOL

Gerald J. McNamara, Birchrun, Mich., assignor to the Raymond Lee Organization, Inc., New York, N.Y.
Filed Feb. 29, 1972, Ser. No. 230,339
Int. Cl. A01d 7/10

U.S. Cl. 56—400.06

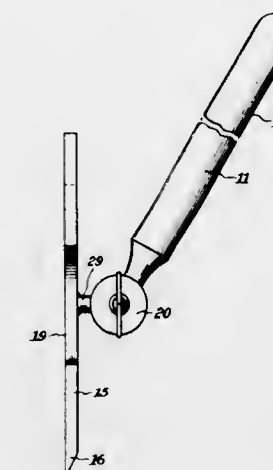
2 Claims

3,739,564 YARN GUIDE

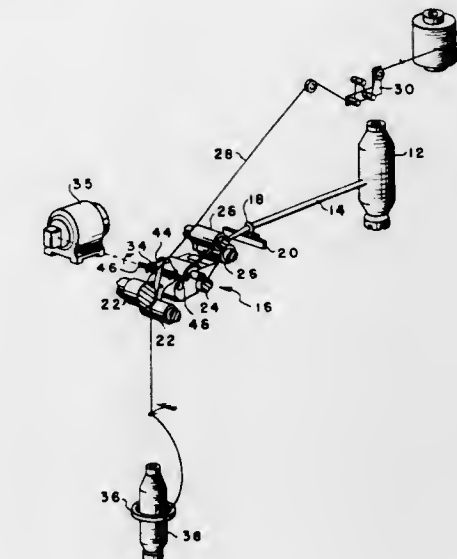
Herbert P. King, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.
Filed Apr. 24, 1972, Ser. No. 247,089
Int. Cl. B65h 57/16; D01h 5/78; B65h 27/00

U.S. Cl. 57—36

4 Claims



An improved tool for use in landscaping work consisting of a handle attached to a tool by means of an angularly adjustable joint, said tool consisting of a set of rake teeth on one edge of the tool surface, and a hoe blade on the opposed edge of the tool surface. The adjustable joint permits the locking of the tool surface at any desired angle to the handle to permit use of either the rake or the hoe edges and at the angle required for the particular task. With the tool surface locked at right angles to the handle, the device may be employed as a tamping tool.



A yarn guide for a spinning system which employs a spreader roll to separate the filaments of a continuous multifilament yarn to allow staple yarn to be placed among the separated elements.

3,739,565 METHOD AND APPARATUS FOR CLEANING THE SPINNING ROTORS OF OPEN-END SPINNING EQUIPMENT

Ernst Nagel, Weislingen, Switzerland, assignor to Luwa AG, Zurich, Switzerland
Filed Jan. 24, 1972, Ser. No. 220,325
Claims priority, application Switzerland, Jan. 29, 1971, 1376/71

U.S. Cl. 57—58.89

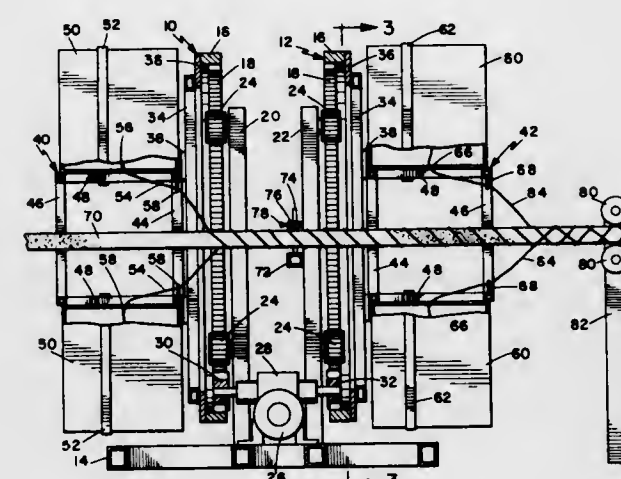
Int. Cl. D01h 11/00

13 Claims

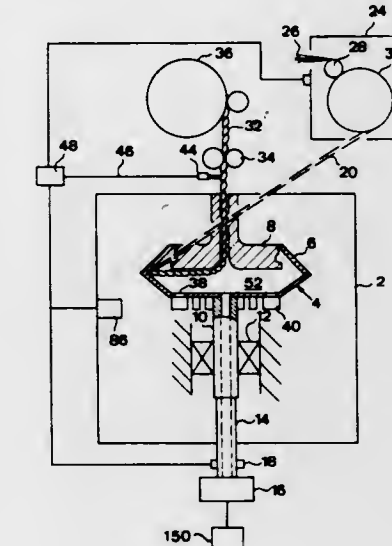
3,739,563 CORE WRAPPING MACHINE

U.S. Cl. 57—15

10 Claims



A machine for wrapping fibrous reinforcing material around a core member of a somewhat fragile nature, such as foam plastic. Multiple strands of reinforcing material are wrapped helically in opposite directions as the core member passes through the machine, the reinforcing being fed from stock cartons secured on simple supporting frames which are rotated about the core member. The frame units are circumferentially supported and have open center portions for passage of a variety of core members through adjustable guide means.

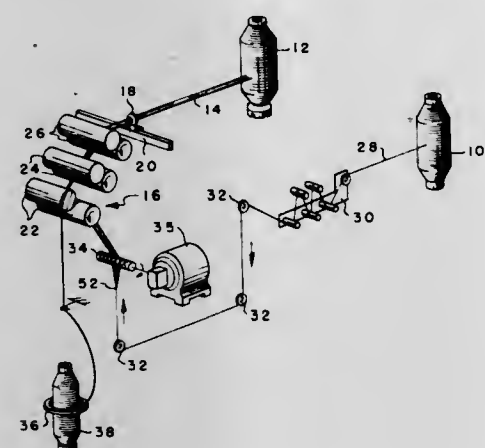


A method of, and apparatus for, cleaning the spinning rotors of open-end spinning equipment, wherein the air flow through the spinning rotor upon the occurrence of a yarn rupture condition is reversed. Fibers are detached from the wall of the spinning rotor by virtue of the reverse flow of such air current, the fibers placed in a state of suspension and then removed, preferably by suction, from the spinning rotor.

3,739,566

APPARATUS TO PRODUCE YARN

Philip N. Smith, 216 Emory Road, Spartanburg, S.C.
 Filed July 1, 1971, Ser. No. 158,896
 Int. Cl. D02j 1/18; B65h 27/00; D01h 5/78
 U.S. Cl. 57-90 4 Claims



A double threaded spreader roll to separate the filaments of a continuous multifilament yarn to allow staple yarn to be placed among the separated filaments and the yarns to be twisted together to form a yarn having the strength of filament yarn and the appearance of spun staple yarn.

3,739,567
COATED YARNS

David Vincent Stewart Williamson, Geneva, Switzerland, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 19, 1971, Ser. No. 107,839
 Claims priority, application Great Britain, Jan. 20, 1970, 2,795/70

Int. Cl. D02g 3/36

U.S. Cl. 57-153

26 Claims

Coated yarns suitable for use in woven piled fabrics comprising a synthetic organic polymeric base yarn, such as polyolefin, polyamide or polyester yarns, coated with a hot-melt synthetic resin adhesive composition comprising copolymers of ethylene with a vinyl ester of a carboxylic acid or with an alkyl acrylate or methacrylate, and wax. Process for the preparation of and woven piled fabrics made of such coated yarns are also provided.

3,739,568
SETTING MECHANISM FOR SECONDARY CLOCKS

Egbert Van Haaften, Closter, N.J., assignor to Bulova Watch Company, Inc., New York, N.Y.

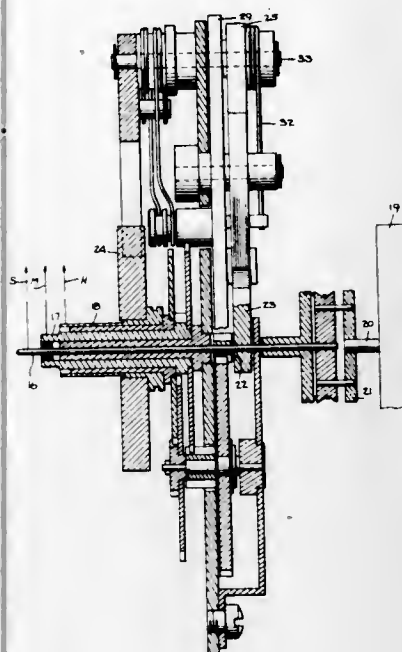
Filed Feb. 14, 1972, Ser. No. 225,834
 Int. Cl. G04c 13/02

U.S. Cl. 58-24

8 Claims

A master-secondary clock system in which a master clock having a high order of accuracy, acts to regulate the operation of a plurality of remotely disposed secondary clocks. This is accomplished by means of a direct-current control pulse which is transmitted to the secondary clocks from the master clock, and is received at each secondary clock by an electromagnetic setting mechanism adapted to reset the seconds hand of the secondary clock to bring it into registration with the seconds hand of the master clock. The setting mechanism is also adapted to shift the hour hand of the secondary clock one hour ahead or back, depending on whether a transfer is to be made from Standard to Daylight Savings time or vice versa, this action being effected concurrently with the resetting of

the seconds hand, but only when the control pulse is transmitted during a predetermined interval in the course of the

3,739,569
TIMEPIECE

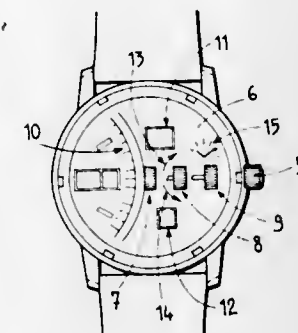
Daniel Rochat, Neuchatel, Switzerland, assignor to Ebauches S.A., Neuchatel (Canton of Neuchatel), Switzerland
 Filed Feb. 1, 1972, Ser. No. 222,581

Claims priority, application Switzerland, Feb. 17, 1971, 2302/71

Int. Cl. G04b 19/24, 27/02

U.S. Cl. 58-58

3 Claims



A timepiece, especially a wrist-watch, comprising at least one control mechanism operable manually and capable of occupying several working positions, characterized by the fact that the bottom carries indications of the several positions of the control mechanism and of the corresponding functions thereof.

3,739,570
COLUMN-WHEEL TIMER

Peter Bachmann, Bettlach, (Canton of Soleure), Switzerland, assignor to Ebauches Bettlach S.A., Bettlach, Switzerland
 Filed Feb. 24, 1972, Ser. No. 228,842

Claims priority, application Switzerland, Mar. 10, 1971, 3501/71

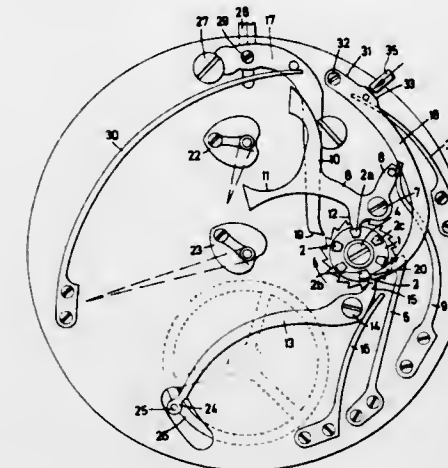
Int. Cl. G04f 7/04

U.S. Cl. 58-76

12 Claims

A column-wheel timer or timepiece having at least one hand rotatably mounted on a housing base, and including a return-to-zero hammer, a stopping lever, a push-piece, a control lever

and re-engaging lever, which cooperate with a column-wheel for stopping the timepiece movement, returning the hand to a zero indicating position, and re-engaging the timepiece movement with the hand.

3,739,571
LAMINATED CHAIN LINK CONSTRUCTION

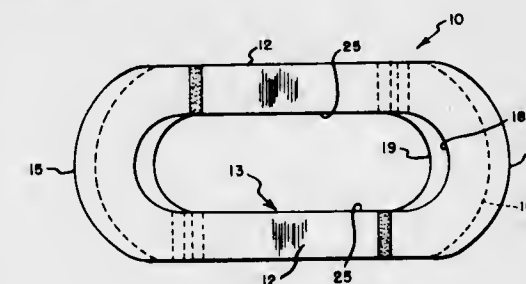
Walter B. Lashar, Jr., York, Pa., assignor to American Chain & Cable Company, Inc., New York, N.Y.

Filed May 4, 1971, Ser. No. 140,224

Int. Cl. F16g 15/12

U.S. Cl. 59-84

10 Claims



A chain link having multiple layers joined together to form a composite laminated link. Each layer of the link has two J-shaped link plates joined together at their ends to form the various layers of the link with the joints between the link plates of each layer arranged in offset relationship with respect to each other, thereby minimizing cross-sectional variation in the strength of the link. A plurality of these links can be attached end to end to form a chain or combined with alternate links made of solid layers.

3,739,572
ENGINE TURBOCHARGER DRIVE SYSTEM

Bruno A. Duerr, La Grange Park, Ill., assignor to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 159,210, July 2, 1971. This application

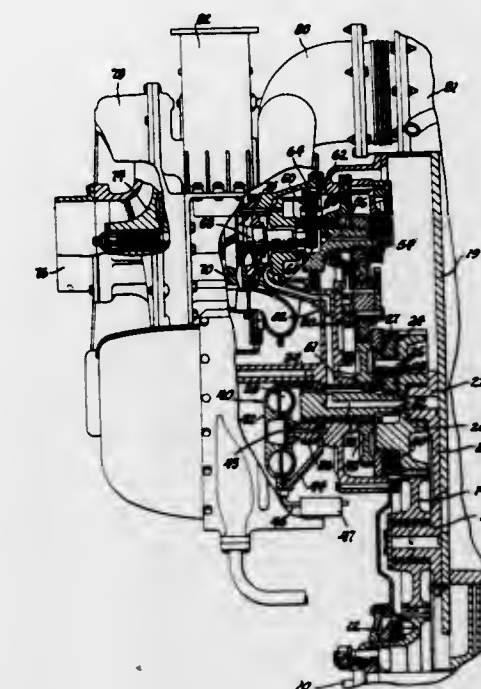
July 19, 1972, Ser. No. 273,097

Int. Cl. F02b 37/04

U.S. Cl. 60-13

5 Claims

Turbocharger drive having planetary gear units in a gear train between an engine crankshaft and a compressor rotor, which rotates to supply air to an engine for combustion. The reaction member of a planetary unit of the gear train is connected to the pump of a hydrodynamic unit while the turbine member is grounded so that the stall torque of the unit retards rotation of the reaction member to permit the engine crankshaft to drive the rotor through the gear train. The hydrodynamic unit having an infinite number of spring rates provides an infinitely flexible device for reducing transmission of engine torsionals and shock loads through the gear train. The mechanical drive is assisted by a gas drive from the engine exhaust which progressively increases as the engine ap-

3,739,573
DEVICE FOR CONVERTING ELECTRICAL ENERGY TO MECHANICAL ENERGY

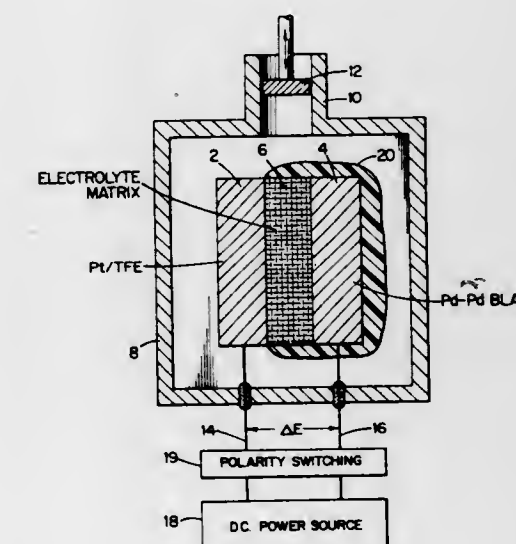
Jose Giner, Sudbury, Mass., assignor to Tyco Laboratories, Inc., Waltham, Mass.

Filed Oct. 20, 1970, Ser. No. 82,440

Int. Cl. F01k 25/08

U.S. Cl. 60-37

23 Claims



An electrochemical energy conversion device comprising a container, one or more electrochemical cells in said container adapted to produce a gas or to consume said gas according to the polarity of current passed by said one or more cells, polarity reversible means for passing current through said one or more cells, and pressure-responsive moveable mechanical means arranged for movement according to changes in the gas pressure in said container. Each cell comprises a gas producing and consuming electrode, a counter electrode, and an electrolyte contacted by both electrodes.

3,739,574

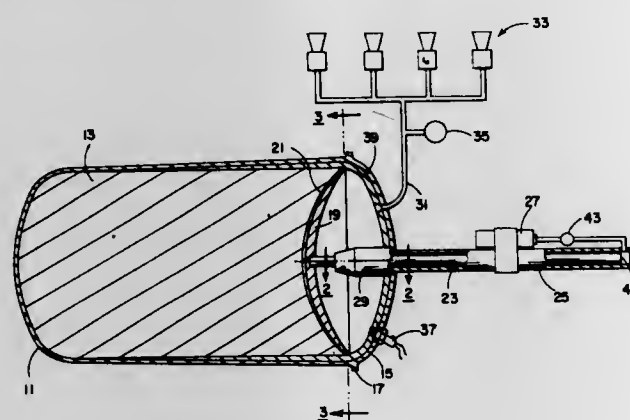
GAS GENERATOR METHOD AND APPARATUS

John N. Godfrey, Asheville, N.C., assignor to Northrop Carolina, Inc., Swannanoa, N.C.

Continuation-in-part of Ser. No. 797,038, Feb. 6, 1969, abandoned. This application Dec. 3, 1969, Ser. No. 881,667
Int. Cl. F02k 9/04

U.S. Cl. 60—39.03

10 Claims



A gas generator method and apparatus comprising an enclosed pressure chamber having an exit port, a solid combustible material disposed in the chamber, a catalyst which can increase the decomposition rate of the combustible material which has been previously ignited, the catalyst being supported in the chamber adjacent to a surface of the combustible material. Means is provided for sensing the pressure in the chamber when the combustible material is decomposing and means is provided for moving the catalyst relative to the combustible material to maintain approximately constant chamber pressure during decomposition.

3,739,575

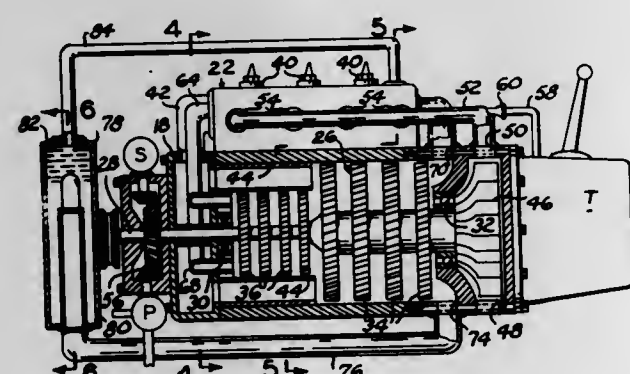
COMBUSTION GAS RECIRCULATING TURBINE ENGINE

David E. Falk, 3974 Norton Avenue, Oakland, Calif.

Filed Apr. 5, 1972, Ser. No. 241,168
Int. Cl. F02c 1/04

U.S. Cl. 60—39.18 B

5 Claims



An axial flow turbine is journaled within a housing having a manifold divided to form combustion and steam generating chambers mounted thereon. The exhaust ports of chambers are connected by tubing and communicate with the forward end of the housing. A turbine driven fan supplies air and fuel is supplied by a turbine driven pump to the intake ports of the combustion chambers. A portion of the gas exhaust and steam passing through the turbine is recirculated through the steam generating chambers. The major portion of the exhaust gas and steam from the turbine is discharged through a heat exchanger in a fluid containing chamber in communication, by piping, with the steam generating chambers.

3,739,576

COMBUSTION SYSTEM

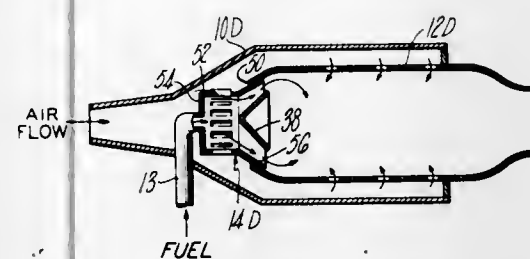
John Chamberlain, Lake Park, Fla., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Aug. 11, 1969, Ser. No. 848,797

Int. Cl. F02c 3/24

U.S. Cl. 60—39.74 R

1 Claim



A combustion system for turbine engines wherein a plurality of ejector units are placed around the circumference of an annular burner. The airflow enters the inlet pipes of the ejector units and the air flow passing through these inlet pipes pumps fuel from an annular manifold in proportion to the local air flow thereby attempting to maintain a constant fuel-air ratio around the entire annular burner where ignition occurs.

3,739,577

HYDRAULIC SYSTEMS

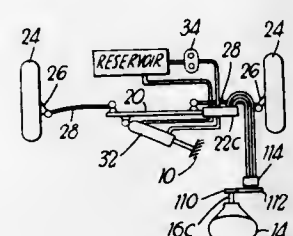
Yukihiko Nagase, Mitsutoshi Yoshida, Yohichi Kimoto, and Toyoshi Sakano, all of Nagoya, Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 19, 1971, Ser. No. 134,966

Claims priority, application Japan, Apr. 21, 1970, 45/33465; Apr. 21, 1970, 45/33466

Int. Cl. F15b 15/18

U.S. Cl. 60—52 S

17 Claims



The invention is a hydraulic system which includes a hydraulic pump, which is adapted to discharge a predetermined amount of oil per unit displacement of an actuating means, connected to a control unit. The control unit includes a housing in which there are two oil chambers, a communicating path interconnecting the oil chambers and permitting restricted flow of oil between the oil chambers, a movable member and resilient means tending to restore the movable member to a neutral position with respect to the housing. In operation when the hydraulic pump is actuated by the actuating means oil enters one of the oil chambers, creating a pressure difference between the oil chambers and giving rise to a force which displaces the movable member by an amount proportional to the velocity of displacement of the actuating means. The hydraulic system is useful with a steering system of a vehicle.

3,739,578

SYNCHRONIZING CLUTCHING ARRANGEMENT FOR HYDROSTATIC TRANSMISSION

Eugene A. Roeske, Chicago, Ill., assignor to Wire Sales Company, Chicago, Ill.

Filed Mar. 3, 1972, Ser. No. 231,537

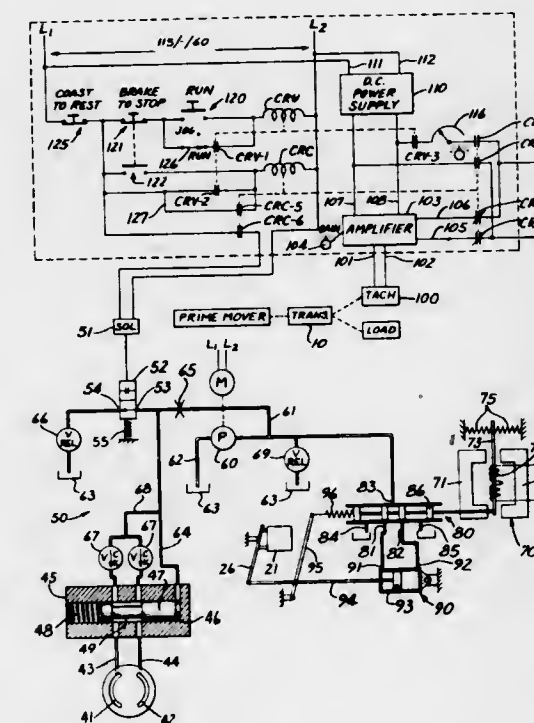
Int. Cl. F16h 39/10

U.S. Cl. 60—53 A

13 Claims

A synchronized clutching arrangement for a transmission having an hydraulically interconnected pump and motor of

the swash plate type with provision for short circuiting the hydraulic connection for effectively declutching the motor, including a servo device connected to the swash plate and a tachometer on the output shaft connected to the input of the servo device so that when the transmission is unclutched the servo device thereafter trackingly maintains the swash plate at an angle corresponding to the currently existing speed of the output shaft. A source of variable control voltage is provided for the servo calibrated in terms of output speed with means for simultaneously clutching the transmission and switching the input of the servo device from the tachometer to the



source of variable control voltage for shockless clutching followed by automatic subsequent change of the speed of the output shaft to the speed for which the variable control voltage has been set. Means are provided for braking the load to a stop by reducing the control voltage to zero with the transmission in clutched condition or for allowing the load to coast to a stop by putting the transmission into its unclutched condition. The arrangement is fail-safe in that the controls may be operated in any desired sequence and regardless of the condition of the load without establishing an unwanted or dangerous condition.

3,739,579

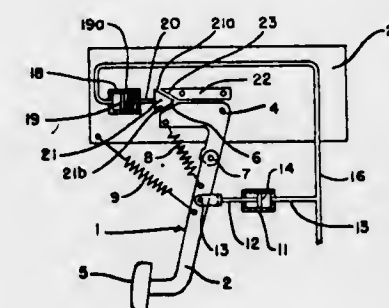
HYDRAULIC BRAKE MECHANISM

Russell L. Lutz, R.D. No. 1, Mohnton, Pa.

Continuation-in-part of Ser. No. 36,362, May 11, 1970, abandoned. This application July 26, 1971, Ser. No. 166,180
Int. Cl. F15b 7/00

U.S. Cl. 60—54.6 R

8 Claims



A hydraulic system actuator including a lever and structure defining a fulcrum for the lever and a link attached to the lever for actuating a pressure cylinder. The fulcrum of the lever is shifted relative to the lever in response to changing pressure within the hydraulic system created by rotation of the lever.

The movement of the fulcrum increases the mechanical advantage of the lever as it approaches the end of its travel. The actuator has particular adaptability to vehicular brake systems.

3,739,580

PROPULSION SYSTEM CONTROL

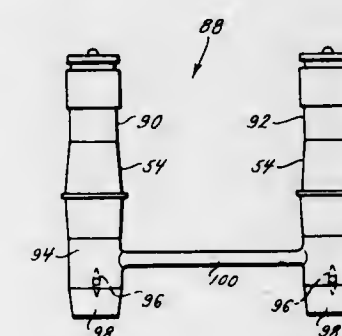
Aubrey M. Bland, St. Louis, and Vincent H. Zimmermann, Olivette, both of Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo.

Filed, Mar. 10, 1971, Ser. No. 122,698

Int. Cl. B61c 29/04

U.S. Cl. 60—204

11 Claims



A propulsion and control system that includes gas generator means which discharges high energy gases into ducting which is connected to at least two thrust units for converting the high energy gases into propulsive thrusts. A separate pressure controller is associated with each thrust unit for restricting the flow of high energy gases to the thrust unit and thereby increasing back pressure in the ducting upstream from the pressure controllers and at the discharge end of the gas generator means. The two pressure controllers are operable independently of each other and the operation of either one increases the back pressure. Contemporaneously, with the increase in back pressure the gas generator means automatically discharges gases at an even higher energy level and as a result the thrust unit downstream from the pressure controller which is not operated delivers greater thrust, while the thrust unit downstream from the operated pressure controller delivers about the same amount of thrust.

3,739,581

METHOD AND APPARATUS FOR PROVIDING JET PROPELLED VEHICLES WITH A HEAT SINK

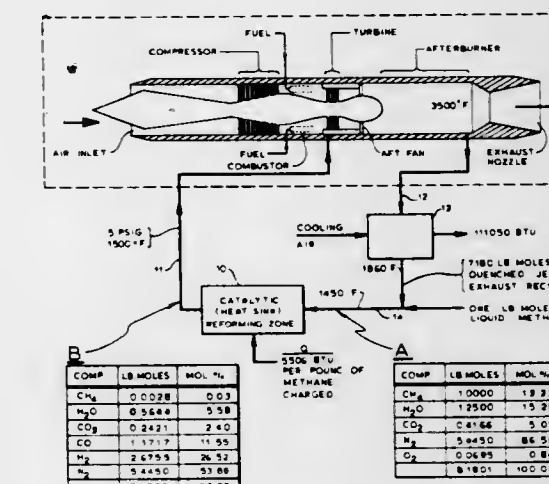
Ellyahu Talmor, 1737 Minert Road, Concord, Calif.

Filed Jan. 19, 1972, Ser. No. 218,919

Int. Cl. F23r 1/08; C06d 5/04; F02k 3/10

U.S. Cl. 60—206

8 Claims



Use is made in a jet propelled vehicle of the catalytic reforming of a hydrocarbon with steam and carbon dioxide, as supplied by the exhaust from the afterburner of the jet engine.

to generate heat sink capacities of the order of 6,000 BTU per pound of the fuel, e.g., methane, which is combined with the exhaust gases for passage to the reforming zone, or zones, which serve the desired heat sink function. In operation, a portion of the extremely hot exhaust gases from the engine afterburner, which contain steam and carbon dioxide but are as lean as practicable in oxygen, is first quenched by external or internal cooling and then admixed with the hydrocarbon fuel, which provides still further cooling. The resulting gaseous mixture is then passed over a catalyst in a reforming zone which operates endothermally. The gases from this zone are then passed to the aft fan of the engine which propels them into the afterburner for combustion and resulting thrust augmentation. The heat sink provided by the reforming zone can be utilized to take up heat from any desired points in the vehicle including the engine, wing surfaces, or the like, using direct or indirect methods of heat exchange.

3,739,582

THRUST REVERSING APPARATUS

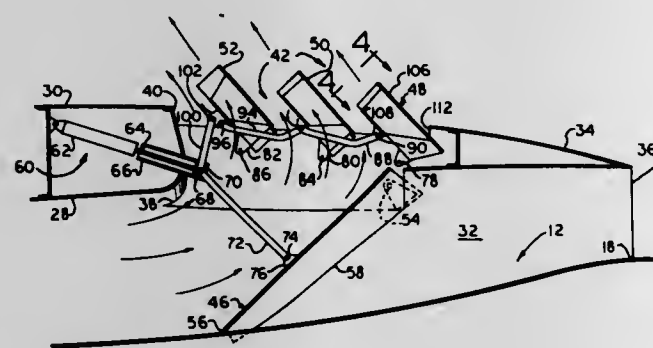
Richard L. Maison, San Diego, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Continuation of Ser. No. 45,138, June 10, 1970. This application Apr. 13, 1972, Ser. No. 243,881

Int. Cl. F02k 3/02

U.S. Cl. 60-226 A

8 Claims



Fan jet engine has cowl surrounding engine and terminating in jet exhaust nozzle. ELongate stream-lined shroud surrounds fan and engine to define annular duct for fan air terminating forward of exit end of nozzle. Reverser includes peripherally arranged outflow passage means extending through inner and outer walls of shroud forward of its trailing edge. Plurality of sets of control doors peripherally arranged in passage means. Each set includes a blocker door pivoted aft to converge forward toward axis of engine, and combination of blocker doors forms frusto-cone when deployed to block rearward flow and divert it laterally to passage means. Each set also includes two or more deflector doors at outer wall of shroud pivoted aft to deploy to forward diverging attitude to produce cascade effect and direct exiting air outward with forward flow component to produce reverse thrust. Deflector doors deploy through a greater angle than blocker doors and passage means has greater flow area than duct to prevent back pressure in duct.

3,739,583

CONTROL OF NITROGEN OXIDES EMISSION FROM ENGINES

John F. Tourtellotte, Westfield, John S. Negra, South Plainfield; Abe Warshaw, Matawan, and John F. Villiers-Fisher, Kendall Park, all of N.J., assignors to Chemical Construction Corporation, New York, N.Y.

Filed Feb. 25, 1972, Ser. No. 229,276

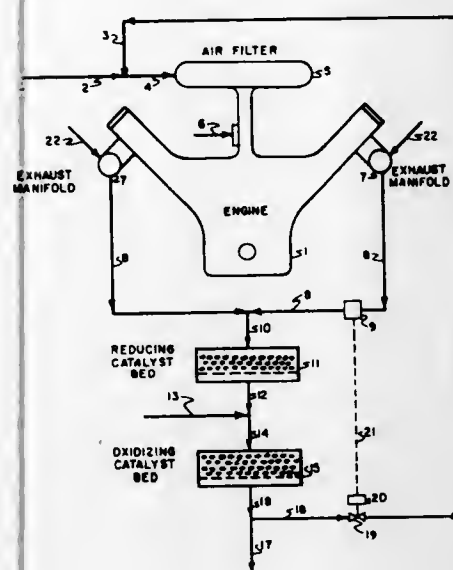
Int. Cl. F02b 75/10; G01n 3/14; F01n 3/16

U.S. Cl. 60-274

14 Claims

The emission of nitrogen oxides in engine exhaust gas is curtailed, by passing the engine exhaust gas through a catalyst

bed for selective reduction of nitrogen oxides to nitrogen, and recycling a minor portion of the treated exhaust gas to the engine intake, so that the recycled exhaust gas is present during fuel combustion in the engine and nitrogen oxides formation is reduced.



3,739,584

FLOATING BARRIER FOR CIRCUMSCRIBING OIL POOLS OR LIKE REFUSE

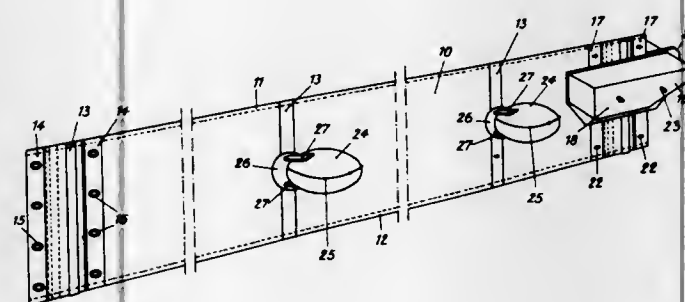
Marcel Andre Bellin, 11 rue Voltaire, Nantes (44 Loire Atlantique), France

Filed June 1, 1971, Ser. No. 148,473

Int. Cl. E02b 15/04

U.S. Cl. 61-1 F

3 Claims



A floating barrier for circumscribing and trapping oil films or like refuse in harbors and other bodies of water comprises a strip of noncorrodible material such as stainless steel and pair of buoyant floats removably fitted at intervals on opposite sides of the strip so as to support it vertically in the body of water. Junction means interconnect the floats pairwise and are removably engaged through the strip. A pair of watertight stabilizing compartments is removably secured to opposite sides of an end portion of the strip and are connectible to a hauling or towing craft.

3,739,585

AUTOMATIC WATER GATE CONSTRUCTION

Jacques L. Dubouchet, Larchmont, N.Y., assignor to Societe Generale De Constructions Electriques Et Mechaniques (ALSTHOM), Grenoble, France

Filed Apr. 1, 1971, Ser. No. 130,419

Claims priority, application France, Apr. 3, 1970, 7012267

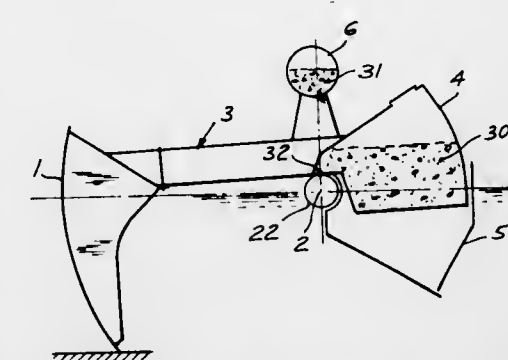
Int. Cl. E02b 7/42

U.S. Cl. 61-25

11 Claims

The gate pivot is formed by a rotatably mounted tubular beam on which the frame is mounted by means of bearing members which are provided on the frame and engage peripheral surface portions of the tubular beam spaced apart

at a sufficient angle, and which members are locked in such engagement by bolts that are secured to the frame and extend therefrom and into securement with the tubular beam along



lines located between radial lines through such surface portions. A tank for the sector float of the gate is supported at one end by the walls of the water course and at its other end by rollers engaging the peripheral surface of the tubular beam.

3,739,586

SELF-ADVANCING COAL FACE SUPPORT SYSTEM

Karl-Heinz Wehner, Castrop-Rauxel; Willy Watermann, Dortmund-Lanstop, and Gunter Bell, Horneburg, all of Germany, assignors to Klockner-Werke AG, Duisburg, Germany

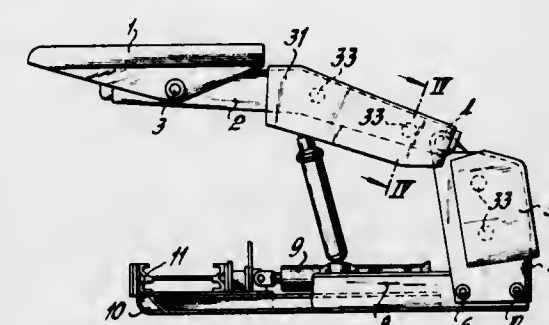
Filed June 1, 1972, Ser. No. 258,867

Claims priority, application Germany, June 5, 1971, P 21 28 023.9

Int. Cl. E21d 23/00

U.S. Cl. 61-45 D

3 Claims



A self-advancing coal face support system includes support shields arranged side-by-side, each support shield comprising a front roof shield, a caving shield, a packing shield and a floor sill pivotally connected together. Each support shield is movable relative to a supporting frame for the face conveyor by means of hydraulic cylinders, the floor sill including a tapered front end portion which engages bearers on the frame. The packing shield and the caving shield both include laterally movable side shields movable under the action of hydraulic thrust pistons when a correction is to be effected in the direction of advance of the support system.

3,739,587

MINING APPARATUS

Horst Linke, Ahtuenen; Werner Karsten, Gelsenkirchen, and Helmut Albrecht, Duellmen, all of Germany, assignors to Gewerkschaft Eisenhutte Westfalia, Westfalia, Germany

Filed Sept. 10, 1971, Ser. No. 179,350

Claims priority, application Germany, Sept. 23, 1970, P 20 46 797.4

Int. Cl. E21c 29/02

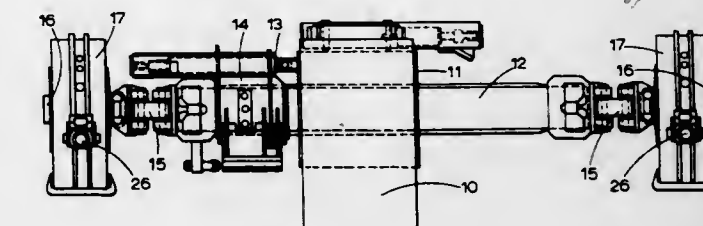
U.S. Cl. 61-45 D

9 Claims

Mining apparatus usable with a conveyor and composed of a beam accommodating a conveyor drive unit and housings operably connected to each end of the beam.

Each housing either supports, or is connected to, a telescopic prop which enables the housing to be clamped in a fixed position. Each housing contains a piston and cylinder unit hav-

ing its cylinder connected to a slide member guided for movement between two resilient guide rails. Two end plates connect to the beam, possible via articulated joints, and extend



through recesses in the housings. Each end plate is connected to the slide member in the associated housing so that the conveyor can be tensioned by extending the piston and cylinder units to displace the beam when the housings are clamped.

3,739,588

RESILIENT RETAINING WALL

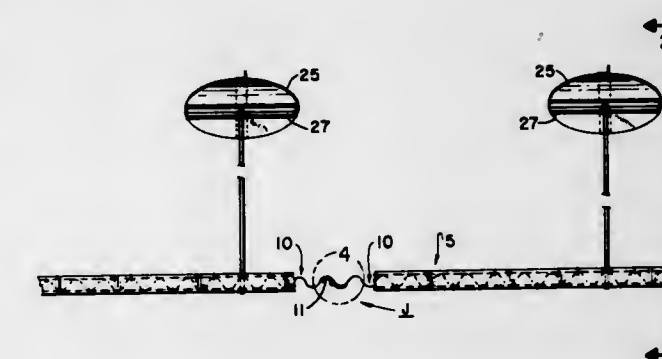
Richard C. Schroter, Orinda, and David C. Thomas, Moraga, both of Calif., assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.

Filed June 30, 1971, Ser. No. 158,188

Int. Cl. E02d 5/06

U.S. Cl. 61-49

2 Claims



A marine retaining wall and the like comprised of a series of hingedly interconnected corrugated metal sheets anchored in place by adjustable earth anchors, whereby adjacent corrugated sheets can move relative to each other in response to the normal movement of water, wave and soil without becoming disengaged from each other, fracturing, or losing their effectiveness in sealing the land off from the water.

3,739,589

MATING SHEAR SEAL DEVICE FOR CONNECTING VESSELS AND THE LIKE TOGETHER

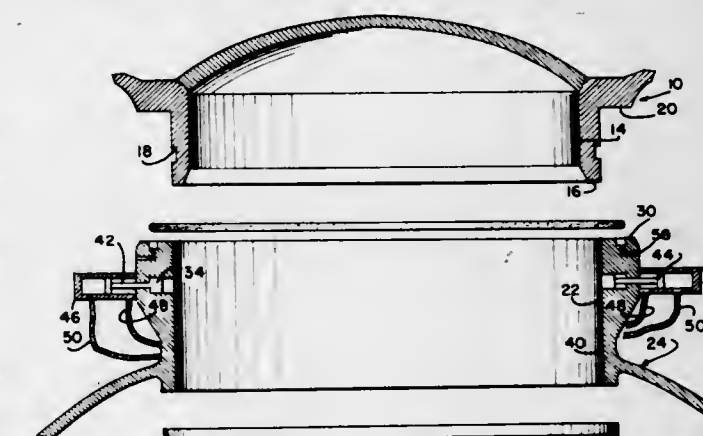
Russell C. Wolfe, Baltimore, Md., assignor to Dixie Manufacturing Company, Inc., Baltimore, Md.

Filed June 1, 1971, Ser. No. 148,378

Int. Cl. E05c 1/00; B63c 11/32

U.S. Cl. 61-69 R

2 Claims



Means for quickly connecting two vessels and the like together in which one vessel is provided with a top hatch aperture.

ture generally of cylindrical configuration, and in which another vessel is provided with a complementary extending tubular member which is inserted into the top hatch aperture. The other vessel is provided with outwardly extending flange means that contact the opposing surface of the top hatch aperture so that the two vessels mate in a position to be locked together. The top hatch aperture is provided with a plurality of arcuate shear slab members disposed in arcuate recesses on the inner periphery of the top hatch aperture. Radially extending piston means having their inner ends secured to the shear slab members are operatively connected to the shear slab members to retract them into their respective recesses and to actuate them radially inwardly toward the extending cylindrical portion of the second mentioned vessel, and into complementary peripheral recesses therein so as to lock the two vessels together. The top hatch aperture is further provided with liquid sealing means including resilient gasket means which bear against the shoulder of the other vessel and with fluid pressure supply means in communication with a recess in which said gasket means is disposed so as to force the gasket means into contact with the other vessel to provide a fluid tight and liquid tight seal there between.

3,739,590

STINGER CONNECTION

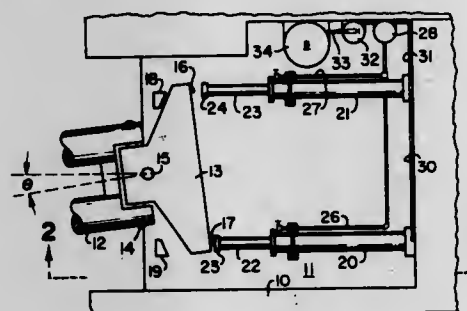
John H. Whitfield, Jr., Houston, Tex., assignor to Esso Production Company, Houston, Tex.

Filed Sept. 7, 1971, Ser. No. 177,974

Int. Cl. B63b 35/04; F16I 1/00

U.S. Cl. 61—72.3

9 Claims



Apparatus for connecting a pipe discharge ramp or stinger to a lay barge or similar vessel comprises a connecting member mounted on said vessel for pivotal movement in a horizontal plane, means for applying substantially constant force to said connecting member to retard said movement, and means on said connecting member for attaching a stinger to said member for pivotal movement of the stinger in a vertical plane.

3,739,591

METHOD AND APPARATUS FOR EVALUATING OFFSHORE PIPELINE LAYING OPERATIONS

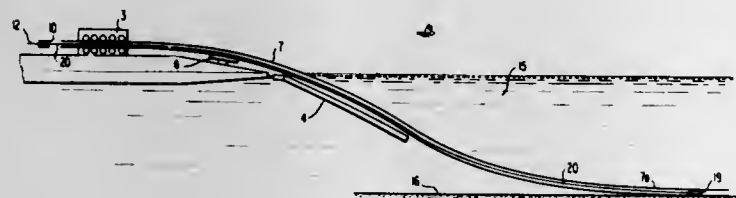
Raymond E. Jones, Houston, Tex., assignor to Brown & Root, Inc., Houston, Tex.

Filed May 28, 1971, Ser. No. 147,834

Int. Cl. F16I 1/00

U.S. Cl. 61—72.3

22 Claims



Methods and apparatus for conducting evaluations of offshore pipe-line laying operations and characterized by the performance of inspection operations, in relation to sub-

merged pipeline means, prior to the termination of a pipeline laying operation. The inspection operation is performed while a floating vessel means, effecting the pipeline laying operation, remains operable to lay and/or retrieve pipeline increment means containing a defect detected during the inspection operation.

3,739,592

CONICAL STABBING GUIDE AND CLAMP SYSTEM FOR RISER PIPE INSTALLATION

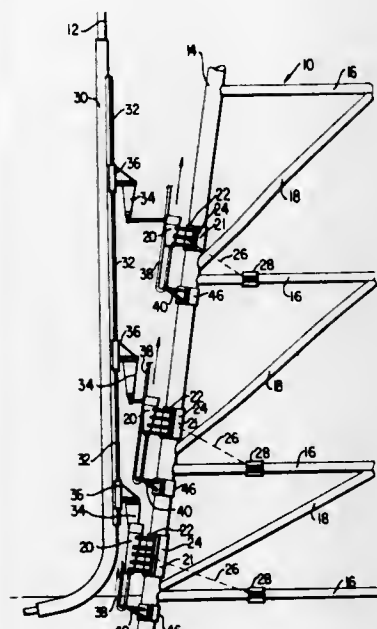
William Edgar Plake, Beaumont, Tex., assignor to Brown & Root, Inc., Houston, Tex.

Filed Sept. 29, 1971, Ser. No. 184,692

Int. Cl. F16I 1/00; E05d 1/00

U.S. Cl. 61—72.1

29 Claims



An apparatus and method are herein provided for installing a riser pipe on an offshore platform. A plurality of vertically aligned female cone members may be clamped along the length of the platform. A monorail may be secured to the riser pipe and aligned along the axis thereof. Mating male cone members may be slidably mounted on the monorail of the riser and roughly positioned for insertion into the female cones. A guide line may be run from a surface winch through a dead man ring or sheave mounted on the platform beneath a female cone member and up through the cone member to connect with the lower end of the mating male cone member. The riser pipe may be supported by a surface crane and disposed with the lower end of each male cone positioned generally above a female cone. The riser pipe is lowered so that the male cones are partially inserted within the female cones. In this step, the guide line may be utilized as a positive control means of bringing the cones into alignment for proper mating engagement. After the cones are properly engaged, locking pins may be inserted through the lower portions of the male cones and a frictional connection between each male cone and the monorail released to slide the riser pipe downwardly to its final position. The riser pipe may be jetted into the water bed in the conventional manner. With the riser pipe buried in the water bed in the final position, a diver may retighten the frictional connection to lock the male cones to the monorail. Additional means may be provided for universally adjusting the connection so as to cure minor misalignments after the riser is in a final position. The relationship of the male and female cone members may be reversed so that the female cone is slidably mounted on the monorail of the riser pipe and the male cone is mounted on the platform. In this last configuration, it may be preferable to mount the mating cone members so they extend in an upwardly direction.

3,739,593

GAS SEPARATION SYSTEM

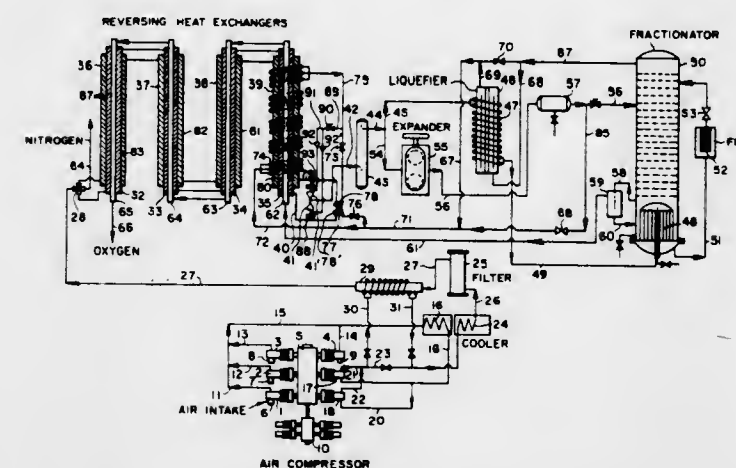
James J. Schauls, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis.

Filed Dec. 4, 1968, Ser. No. 781,201

Int. Cl. F25j 3/04, 3/03, 5/00

U.S. Cl. 62—14

6 Claims



In a gas separation system utilizing reversing heat exchangers which employ a reheat stream to facilitate heat exchanger temperature control and cleaning, the improvement including at least a pair of particulate filters placed at the heat exchanger feed stream outlets arranged to automatically be cleaned by a portion of the reheat stream without producing objectionable pressure differentials within the gas separation system.

3,739,594

METHOD AND APPARATUS FOR DRYING COMPRESSED AIR

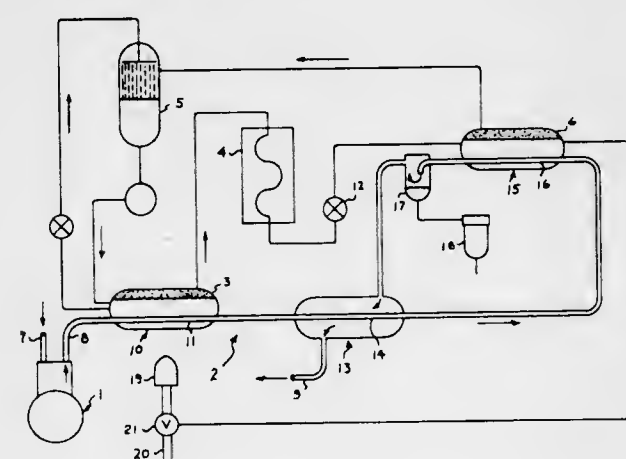
Charles E. Freese, 2916 Homer Avenue, Erie, Pa.

Filed Jan. 21, 1972, Ser. No. 219,657

Int. Cl. F25b 15/00

U.S. Cl. 62—93

4 Claims



The heat of compression of compressed air heats the generator of an absorption refrigeration system to dry the air. An auxiliary heater for the generator supplies stand by heat when the compressor is not operating.

3,739,595

FLEXIBLE MOLD ICE MAKER CONTROL

Leland L. Learn, Pittsburgh, and William C. Moreland, II, Export, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 24, 1971, Ser. No. 183,433

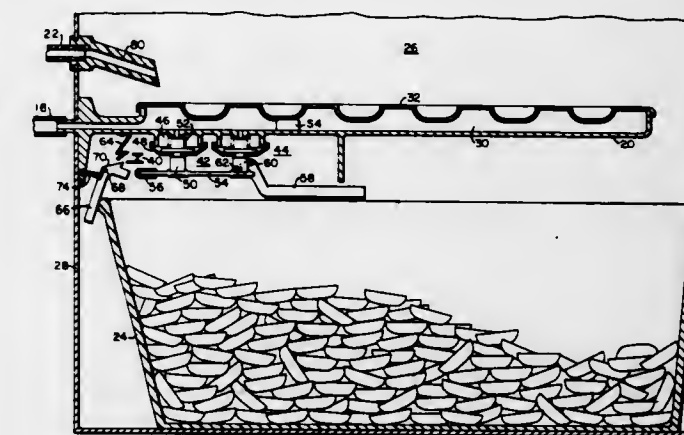
Int. Cl. F25c 1/00

U.S. Cl. 62—135

7 Claims

Energization of a thermostat reset heater for a flexible mold ice maker is controlled in accordance with the application of

vacuum and pressure to the flexible mold so that premature termination of harvesting and fill operation is avoided. Energization of the reset heater is also controlled in accordance with the level of ice cubes in the receiving bin, and in accordance with the bin position.



gization of the reset heater is also controlled in accordance with the level of ice cubes in the receiving bin, and in accordance with the bin position.

3,739,596

REFRIGERATION SYSTEM INCLUDING HEAD PRESSURE CONTROL MEANS

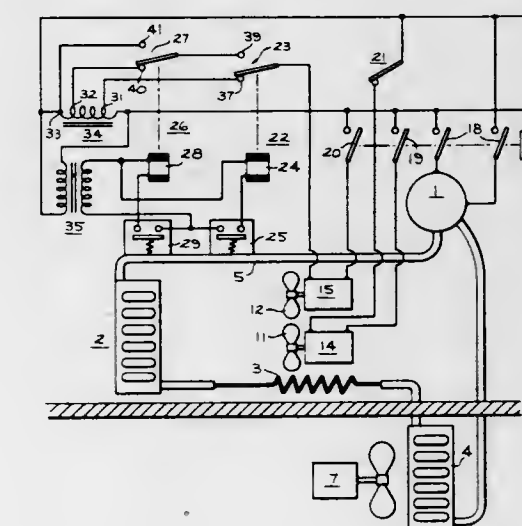
James L. Ballard, Ellicott City, Md., assignor to General Electric Company, Louisville, Ky.

Filed Nov. 10, 1971, Ser. No. 197,295

Int. Cl. F25d 17/00

U.S. Cl. 62—158

3 Claims



A refrigeration system comprising an air cooled condenser, fan means for passing outdoor air over the condenser including a first fan operative only at higher outdoor temperatures, a second, multi-speed fan and control means responsive to the system high side pressure for controlling the second fan speed; the control means including a time delay relay means for assuring a high speed operation of the fan upon initial operation of the system regardless of outdoor temperatures.

3,739,597

APPARATUS FOR ADDING MOISTURE TO AIR

James L. Schulze, Sr., Middletown, Ky., assignor to General Electric Company, Louisville, Ky.

Division of Ser. No. 34,495, May 4, 1970, Pat. No. 3,643,930.

This application Aug. 16, 1971, Ser. No. 172,255

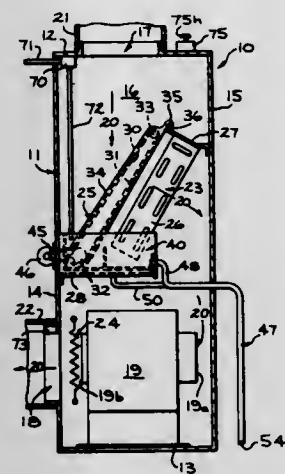
Int. Cl. F25d 5/00

U.S. Cl. 62—311

9 Claims

Improved apparatus is provided for adding moisture to air. The apparatus includes hollow cabinet means, having an air inlet and outlet, and humidifier means for adding moisture to an air stream flowing between the inlet and outlet. The humidifier means includes evaporative media means mounted

for movement across the air stream and through a moisture reservoir that is supplied with liquid, such as tap water or the like. In accordance with the present invention, means are provided for purging or draining fluidized material, such as tap



water and the mineral salts precipitated therefrom, from the reservoir and these drain means include a fluid inlet that is connected to the reservoir via siphon means comprising conduit means including an inverted generally U-shaped section.

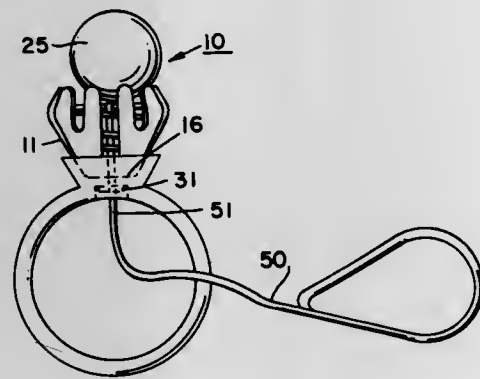
3,739,598

JEWELRY ARTICLE FOR INTERCHANGEABLE ORNAMENTS, AND MEANS FOR DISENGAGING SAID ORNAMENT

Edward Postel, 6330 Azalea Lane, Dallas, Tex.
Division of Ser. No. 824,504, May 14, 1969, Pat. No. 3,643,467. This application Aug. 16, 1971, Ser. No. 172,283
Int. Cl. A44c 17/02

U.S. Cl. 63—29 R

3 Claims



Disclosed is an interchangeable ornament mount for an article of jewelry having a head member defining a plurality of substantially separately operable pronged sections for gripping a removably inserted ornament inserted therein, a conically shaped spring disposed within said head member urging said ornament against the indented gripping surfaces of the prongs, an aperture being provided in a base portion of said head member for insertion of a tool to eject the ornament.

3,739,599

RESILIENT EARRING INCLUDING MEANS LIMITING PRESSURE ON THE EAR LOBE

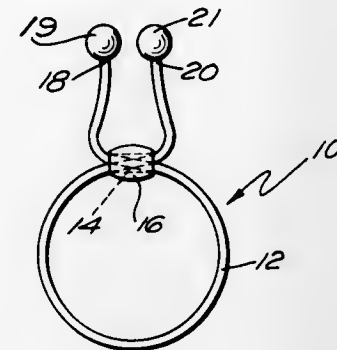
Anthony Melone, 40 Poppy Drive, Cranston, R.I.
Filed June 9, 1972, Ser. No. 261,447
Int. Cl. A44c 7/00

U.S. Cl. 63—14 D

6 Claims

An ear ornament having a length of wire bent upon itself to form a spring loop with each of the ends thereof bent upwardly in a curvature reversed from that of the spring loop. A tubular sleeve encircles the wire in the area where the ends of

the wire pass each other in forming said loop, thereby preventing the loop from springing open and the ends of the wire passing back by each other. Structure is formed on each of the ends of the wire for engaging the ear lobe of a wearer therebetween, and this structure may be in the form of spheri-



cal balls or substantially flat plate members. Additional ornamental structure may be added to the ear ornament such as a second loop of wire that is slidably secured to the bottom of the spring loop or such as ornamental structure attached to the bottom of the tubular sleeve.

3,739,600

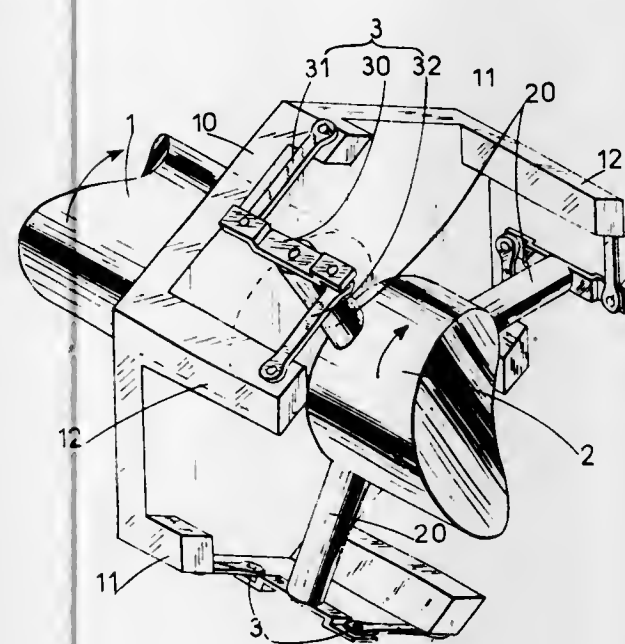
COUPLING FOR JOINING TWO SHAFTS LIABLE TO NON-ALIGNMENT AND TO DISPLACEMENT ALONG THEIR AXES, ABOUT A MEAN POSITION

Gerard Pere, Le Breuil, France, assignor to Creusot-Loire, Paris, France

Filed Sept. 28, 1971, Ser. No. 184,558
Int. Cl. F16d 23/00

U.S. Cl. 64—19

8 Claims



A coupling for joining two shafts liable to non-alignment and to displacement along their axes, comprising a plurality of deformable articulated systems for connecting the shafts, each having a lever pivoted at its centre on a radial pivot fixed to a first shaft, and two rods of equal lengths, each pivoted at one end on one end of the lever, extending in opposite directions on each side of the lever and having their other ends pivotably connected to the second shaft, the lengths of the rods and of the lever and the positions of the pivots being selected so that

the rods are substantially parallel to one another and perpendicular to the axis of the shaft to which they are connected when the shafts are in their mean relative positions.

3,739,601

JACQUARD-PATTERN ARRANGEMENT FOR CIRCULAR KNITTING MACHINES

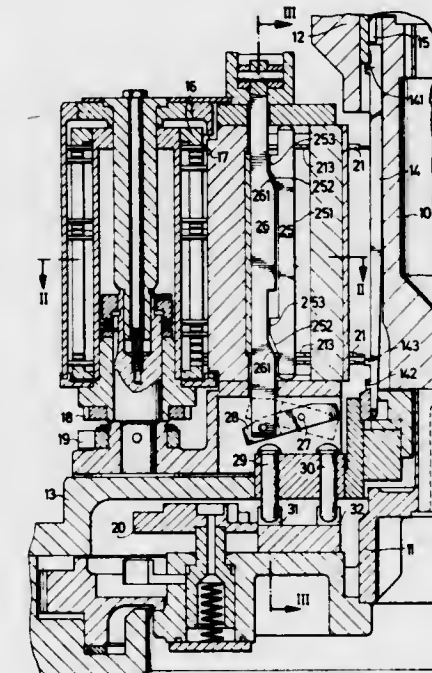
Ernst-Dieter Plath, Taillfingen/Wuertt, Germany, assignor to Mayer & Cie, Taillfingen/Wuertt, Germany
Filed Nov. 9, 1970, Ser. No. 87,949

Claims priority, application Germany, Nov. 11, 1969, P 19 56 581.2

Int. Cl. D04b 15/74

U.S. Cl. 66—50 B

4 Claims



In a Jacquard-pattern arrangement for circular knitting machines, a pattern drum is provided for each knitting system of the circular knitting machine. This pattern drum supports on its periphery a plurality of rods which are disposed thereon in accordance with a preselected pattern. These rods act on the pattern feet of needle jacks disposed on the periphery of the cylinder of the circular knitting machine via a corresponding plurality of slidable actuating members, which are disposed in two rows and parallel with respect to each other. Each one of the slidable actuating members has a projection which is adapted to cooperate with a movable control member disposed between two adjacent rows of slidable actuating members. This movable control member coacts with cam means rotating jointly with the cylinder of the circular knitting machine and which is positioned in front of a second cam also rotating jointly with the cylinder of the circular knitting machine, said second cam controlling the movement of the pattern drum.

3,739,602

DRIVING DISC FOR TOOTHED YARN CONTROLLER RING

Paul J. Haas, High Point, N.C., assignor to The Singer Company, New York, N.Y.

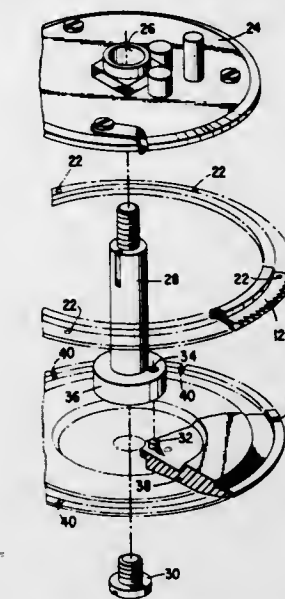
Filed Apr. 5, 1971, Ser. No. 131,239

Int. Cl. D04b 15/02, 15/61

U.S. Cl. 66—95

3 Claims

An inexpensive simply constructed disc member is provided to drive the toothed yarn controller ring of a circular hosiery



knitting machine in place of the conventionally used bit-carrying dial member, when the knitting operation does not require the use of bits, the disc member being adapted to couple directly to the yarn controller ring and being formed without bit-carrying grooves.

3,739,603

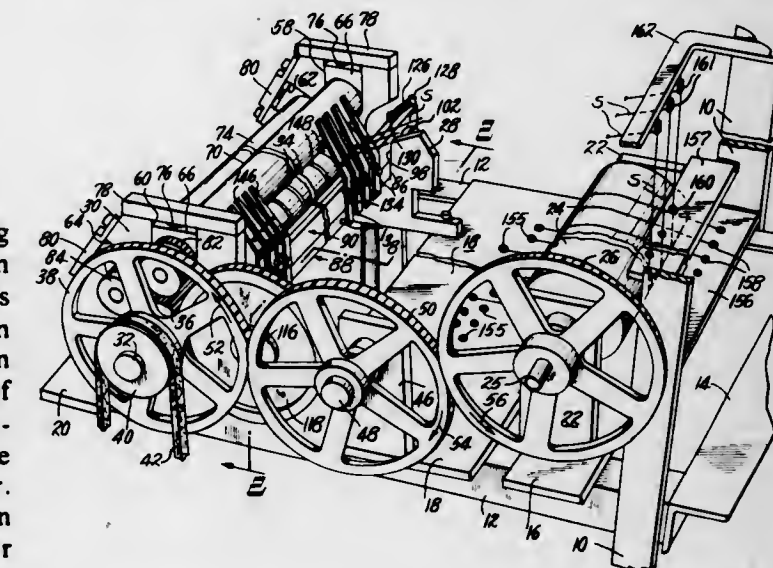
APPARATUS AND METHOD FOR FEEDING STRANDS, AND ELEMENTS THEREOF

Morris Philip, 2519 Grand Avenue, Bronx, N.Y.
Filed Apr. 26, 1971, Ser. No. 137,430

Int. Cl. D04b 15/48

U.S. Cl. 66—132

30 Claims



The apparatus comprises rotatable tension equalizing cylinder, guides directing strands from a strand supply about and in contact with at least a portion of the cylinder so that the cylinder acts as a windlass to substantially equalize the tension in the strands, an assembly of feed rollers having axially spaced apart strand feeding sections and strand non-feeding sections, a movable bar parallel to the axis of the feed rollers, a plurality of guides pivotally mounted on and along the length of the movable bar, a cam for oscillating the movable bar along its length part of the distance through which it is movable, a lever for adjusting the position of the movable bar in a normal position where the cam can oscillate the movable bar and the guides direct the strands to the feeding sections of the rollers, or in an adjusting position where the guides can be individually pivoted to be aligned with either a feeding section or a non-feeding section, or in a non-feeding position where all the guides are aligned with non-feeding sections, the strands being guided from the feed rollers to the knitting stations of a multifeed knitting machine, and drive means for rotating the cylinder and rollers, the cylinder being rotated at a lineal rate greater than that of the feed rollers.

3,739,604

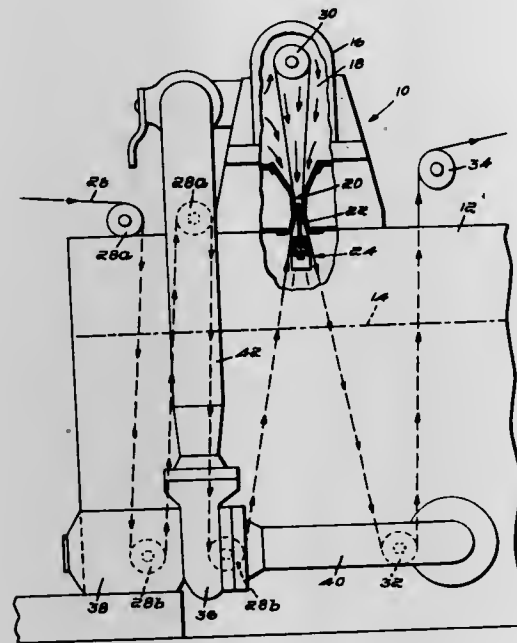
WET PROCESSING APPARATUS

Jerome M. O'Toole, Orange, and John B. McManus, Jr., Worcester, both of Mass., assignors to Rodney Hunt Company, Orange, Mass.

Filed Aug. 23, 1971, Ser. No. 174,024
Int. Cl. B05c 3/05

U.S. Cl. 68—3 SS

3 Claims



An apparatus for subjecting moving material to a liquid treatment, including a treatment zone defined in part by spaced opposed non-parallel wall members lying in planes which converge at a location exterior of the treatment zone. A flexible reed member extends into the treatment zone from support means located at said exterior location. Both the material being treated and the processing liquid are passed through the treatment zone, with the position of the reed member being such that the flow of processing liquid causes the reed member to vibrate laterally between the non-parallel wall members.

3,739,605

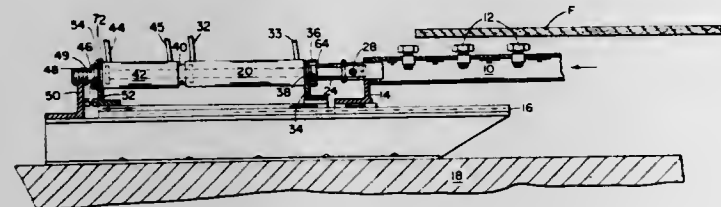
CLEANING APPARATUS FOR MATERIALS MOVING IN ENDLESS PATH

Donald Brooks Baker, Foxboro, Mass., assignor to Bird Machine Company, Inc., South Walpole, Mass.

Filed Dec. 30, 1971, Ser. No. 214,016
Int. Cl. B05b 13/04

U.S. Cl. 68—20

18 Claims



Apparatus for cleaning materials moving in an endless path by the application and/or extraction of liquid, has a cleaning member with ports through which the liquid passes that is reciprocated across the path of travel of the material, and reversal control means that causes the reversals of direction of the reciprocatory movement of the cleaning member to take place at a plurality of different points across the path.

3,739,606

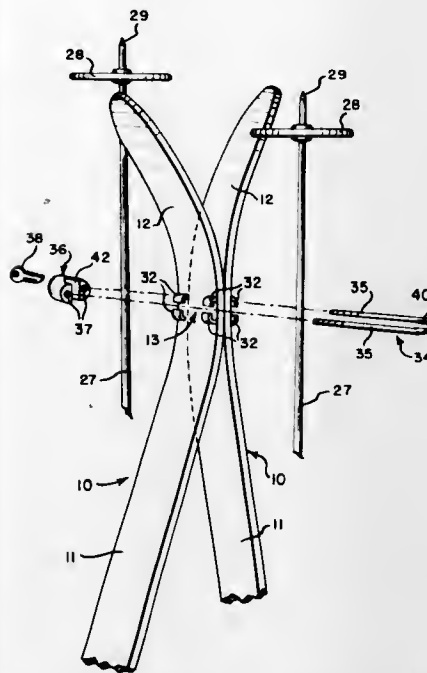
ANTI-THEFT DEVICE FOR SKIS

Ewald D. Pyzel, 3430 Cashill Boulevard, Reno, Nev.

Continuation-in-part of Ser. No. 121,736, March 8, 1971, abandoned. This application Feb. 11, 1972, Ser. No. 225,485
Int. Cl. E05b 73/00

U.S. Cl. 70—58

9 Claims



An anti-theft device for skis comprises a U-shaped bolt that is received and releasably locked in place in transverse bolt-receiving slots secured to the upper surface of each ski, said bolt-receiving slots being disposed at an intermediate point on the upwardly curved forward end portions of said skis, whereby the relatively flat main portions of the skis are maintained at an acute angle with respect to each other thereby rendering the skis conspicuous and awkward to carry. The transverse portion of the U-shaped bolt and the corresponding portion of the lock means are advantageously each formed with a perpendicular pole-receiving slot, each slot receiving the shaft of one pole of a pair of ski poles thereby locking the poles to the skis.

3,739,607

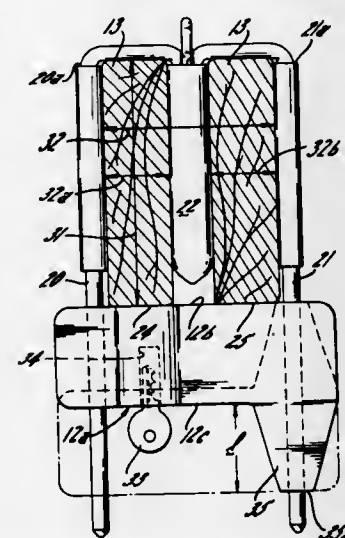
LOCK FOR SKIS

Richard W. Smedley, 1008 Alann Drive, Joliet, Ill.

Filed Mar. 6, 1972, Ser. No. 231,908
Int. Cl. E05b 67/22, 73/00

U.S. Cl. 70—18

12 Claims



An improved lock for skis is provided, the lock including a shackle shaped to fit snugly around the midportions of the skis and a detachable body for locking engagement with the shackle to prevent removal of the skis from the lock. The lock body includes a projection extending away from the retained skis and outwardly from the side of the body into which the lock key is inserted (or the side which carries a combination dial or the like). The projection facilitates proper orientation

3,739,610

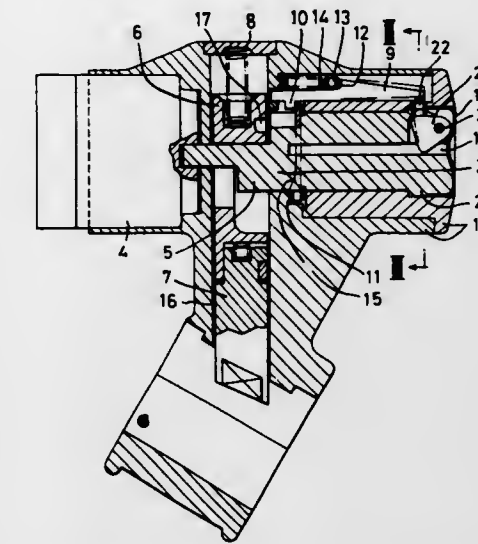
LOCKING APPARATUS COMBINED WITH IGNITION SWITCH IN A MOTORCAR

Shigenobu Kuroki, Miyazaki, Japan, assignor to Kabushiki Kaisha Honda Rokku, Miyazaki-gun, Miyazaki-ken, Japan

Filed July 16, 1971, Ser. No. 163,302
Claims priority, application Japan, July 22, 1970, 45/63519
Int. Cl. B60r 25/02

U.S. Cl. 70—252

9 Claims



A locking apparatus in a motorcar comprises an operating portion connected between a cylinder lock and an electric ignition switch, the operating portion acting on a locking member which is moved back and forth by rotation of the operation member between a locking position and a released position. An engaging member is advanced by the rotation of the cylinder lock to engage the locking member in the released position and prevent movement thereof to the locking position. A stop member is arranged to project when a key is inserted into the lock to block return movement of the engaging member. When the key is removed, the stop member returns to its original position and allows the engaging member to move and free the locking member for movement to its locking position.

3,739,611

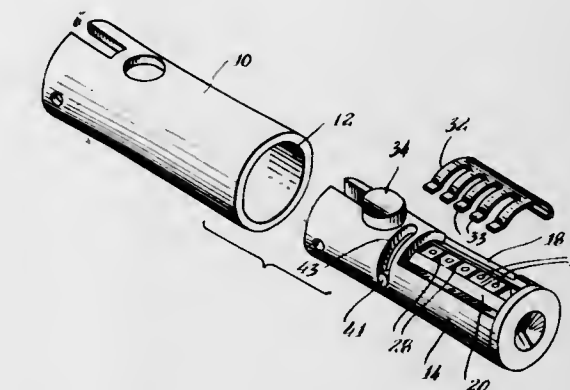
TAMPER RESISTANT LOCK

Vladimir Ignatjev, 39 Ledgewood Drive, Norwalk, Conn.

Filed July 31, 1972, Ser. No. 276,741
Int. Cl. E05b 47/00, 29/02

U.S. Cl. 70—364 R

12 Claims



A tamper-proof key-operated lock is provided. The check point for the lock is displaced from the locked position, and the lock tumblers, while biased when the lock is in the locked position, are not biased at the check point. For preferred embodiments, a holding force is applied to the tumblers as they are moved from the locked position to the check point to prevent spurious movement of the tumblers. A one-piece, stationary biasing spring is also provided to reduce the cost of the lock.

3,739,608

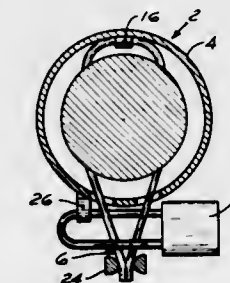
AUXILIARY DOOR LOCK

Henry J. Young, 1541 N.E. 27 Street, Wilton Manors, Fla.

Filed Aug. 18, 1971, Ser. No. 172,718
Int. Cl. E05b 13/00

U.S. Cl. 70—209

3 Claims



An auxiliary door lock including a generally cup-shaped door knob cover, a resilient band held along the inner wall surface of the cover, and a locking means connectable adjacent the ends of the band that project from the cover to hold the band in tension in engagement with the door knob shaft behind the door knob. The door knob cover includes a band connecting means for holding one portion of the band against a portion of the inner wall surface opposite the band exit opening.

3,739,609

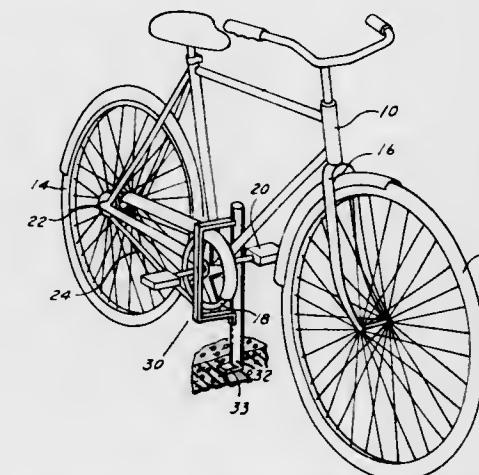
BICYCLE LOCK

Edward A. Kaufmann, 2785 N. Speer Boulevard, Denver, Colo.

Filed Feb. 4, 1972, Ser. No. 223,419
Int. Cl. E05b 71/00

U.S. Cl. 70—234

7 Claims



A bicycle lock assembly, which is secured to the ground or bicycle stand, having a strap metal retainer, locks around the bicycle frame and pedal sprocket, making unauthorized removal of the bicycle extremely difficult.

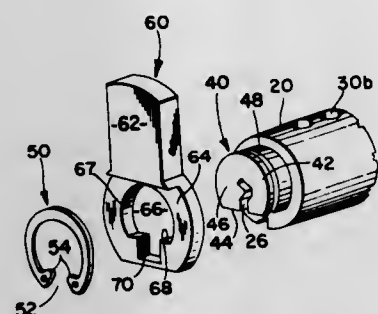
3,739,612 KEY PLUG ASSEMBLY

Jerald Schultz, Woodmere, N.Y., assignor to Eaton Corporation, Cleveland, Ohio

Filed July 22, 1971, Ser. No. 165,007

Int. Cl. E05b 9/00

U.S. Cl. 70—380



This invention is embodied in a pin tumbler lock having a multiplicity of pin tumbler chambers. The pin chambers comprise two portions, an upper portion in the lock housing and a lower, normally aligned portion in the key plug. The key plug is rotatably mounted in the lock housing but is restrained from axial motion relative thereto. The key plug has a keyway axially extending therethrough. The rear end of the key plug is of partially circular cross-section having a substantially straight surface formed by the chord joining the two ends of the arc formed by the partially circular section. The straight surface is generally perpendicular to and bisected by the keyway. The rear end of the key plug has an annular recess in which a retainer is received. The retainer has a side opening defined by two inwardly extending lugs which coact with the straight surface of the key plug rear end to register the side opening with the keyway for all rotational positions of the key plug.

3,739,613 AUTOMATIC DRAFT COMPENSATION FOR REVERSING MILL EDGER DRIVE

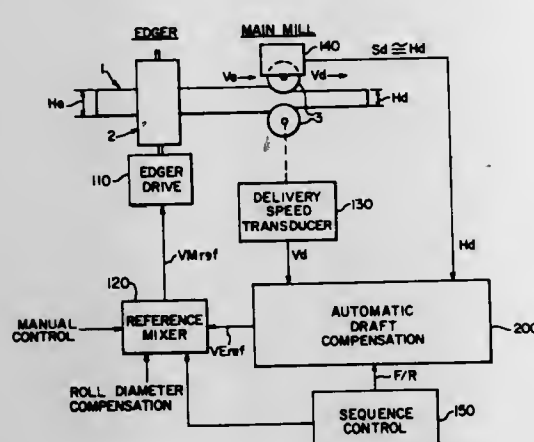
Leonard P. Gripp; Norman L. Kincaid, and Melvin A. Hensleigh, all of Buffalo, N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 9, 1972, Ser. No. 224,893

Int. Cl. B21b 37/00

U.S. Cl. 72—19

9 Claims



An edger mill velocity reference signal is developed as a function of the draft which occurs during the forward or odd pass through a reversing mill where the entry thickness of the material to be rolled is set during the reverse or even pass of the mill. The draft compensation necessary to adjust the edger drive speed is obtained, in the preferred embodiment, by computing the ratio of the reverse pass screwdown position to the following forward pass screwdown position.

3,739,614 EXPLOSIVE METAL-WORKING PROCESS

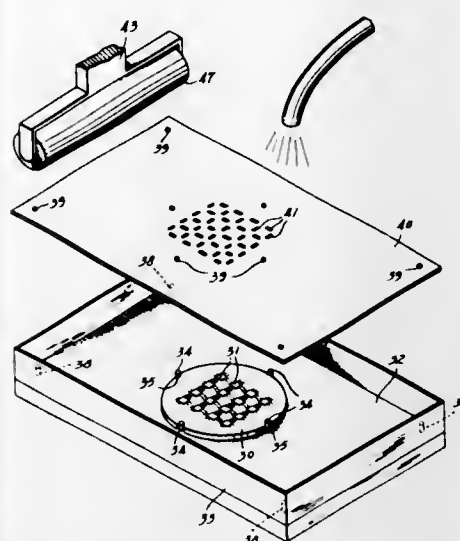
Benjamin Howell Cranston, Trenton, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.

Division of Ser. No. 68,431, Aug. 31, 1970, which is a continuation-in-part of Ser. No. 6,829, Jan. 29, 1970, abandoned. This application Nov. 26, 1971, Ser. No. 202,304

Int. Cl. B21d 26/02; B21j 5/04

U.S. Cl. 72—56

13 Claims



First workpieces, for example, beam-leaded integrated circuits, and the like, are bonded to second workpieces, for example, metallized ceramic substrates by first depositing a quantity of primary explosive, such as lead azide, onto each beam lead and then detonating the explosive to explosively bond the integrated circuits to the substrate. In another embodiment of the invention, the explosive bonding force is applied through a buffer sheet of plastic or metallic material which protects the surface of the substrate from contamination and which, in addition, dampens the shock of the explosion. In yet another embodiment of the invention, metal conductive paths are explosively bonded directly to a ceramic or glass substrate to form a "printed circuit pattern." The same techniques are used to manufacture resistors, capacitors, inductors, etc. In another embodiment in an explosive metal-working process the explosive charge is applied to the workpiece through apertures in a stencil or through windows of a silk-screen to form a plurality of discrete explosive charges.

3,739,615 METHOD OF MAKING WRINKLE-FREE THIN-WALLED COILED TUBING

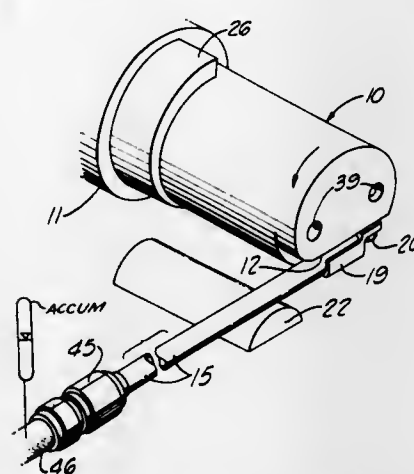
Ronald F. Tressel, 6132 N. Starcrest Drive, Glendora, Calif.

Filed June 1, 1971, Ser. No. 148,406

Int. Cl. B21d 39/08; B21f 3/04

U.S. Cl. 72—57

7 Claims



A method of coiling thin-walled tubing into a small diameter coil free of wrinkles or distortion from end to end thereof.

Tubing of the required length is maintained pressurized with liquid to substantially the yield point of the material thereby placing the tube wall in high tensile stress longitudinally and circumferentially and maintaining the tubing straight until it is progressively formed into a coil without the use of clamps, dies or tools other than a rotary mandrel. The method technique permits the formation of multiple layer coils using an inner layer to support the formation of a second layer of convolutions.

3,739,616 APPARATUS FOR AND METHOD OF FORMING A TUBULAR METAL BLANK INTO A TAPERED TUBE ON A TAPERED MANDREL

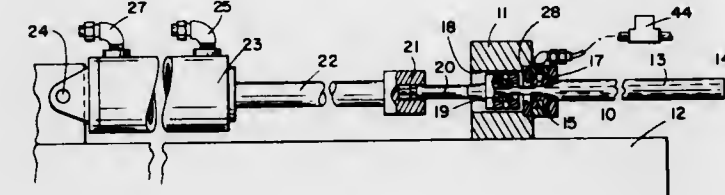
Raymond A. Matthews, Palos Verdes Estates, Calif., assignor to Reynolds Metals Company, Richmond, Va.

Filed Sept. 21, 1971, Ser. No. 182,403

Int. Cl. B21d 39/08; B21c 1/24, 3/06

U.S. Cl. 72—57

7 Claims



Apparatus for forming a tubular metal blank into a tapered tube on a tapered mandrel, comprising a tapered mandrel and a die assembly through which the tapered mandrel with the tubular metal blank thereon is adapted to be advanced to form the blank into a tapered tube, the die assembly comprising a die having a passage therethrough, the die being composed of non-metallic plastic material capable of being repeatedly deformed from its condition of repose during the forming operation and returned to its condition of repose, a housing in which the die is mounted and means for applying fluid pressure in the housing against the outside of the die to collapse the tubular metal blank about the mandrel as the blank and mandrel pass through the die, the transverse size of the passage in the die when the die is in repose being intermediate, preferably substantially halfway between, the transverse size of the mandrel with the blank collapsed thereabout at the smaller end of the tapered mandrel and the transverse size of the mandrel with the blank collapsed thereabout at the larger end of the tapered mandrel. Also a method of forming a tubular metal blank into a tapered tube on a tapered mandrel, comprising disposing the tubular metal blank about the tapered mandrel, relatively advancing the tapered mandrel with the tubular metal blank thereon and a die as above described so that the tapered mandrel with the tubular metal blank thereon moves through the passage in the die and the die collapses the tubular metal blank about the mandrel, applying fluid pressure to the die when the portion of the mandrel of smallest transverse size is within the passage in the die to contract the die from its condition of repose to collapse the tubular metal blank about that portion of the mandrel and controlling the fluid pressure when the portion of the mandrel of greatest transverse size is within the passage in the die to permit the die to expand from its condition of repose yet effectively collapse the tubular metal blank about that portion of the mandrel. Preferably the fluid pressure applied to the die is controlled so that the die is in its condition of repose when the mid portion of the tapered mandrel with the tubular metal blank thereon is within the passage in the die yet the die effectively collapses the tubular metal blank about that portion of the mandrel.

The housing preferably has an opening therethrough constituting a guideway through which the tapered mandrel with the tubular metal blank thereon passes in advancing to the die,

the guideway having a transverse size and shape of the tubular metal blank whereby to remove or flatten down outwardly projecting shear fins at the ends of the tubular metal blank to prevent the shear fins from damaging the die. The guideway desirably flares from a transverse size and shape substantially the same as the transverse size and shape of the tubular metal blank adjacent the die to relatively great transverse size more remote from the die.

3,739,617 HIGH TEMPERATURE VACUUM CREEP FORMING FIXTURE

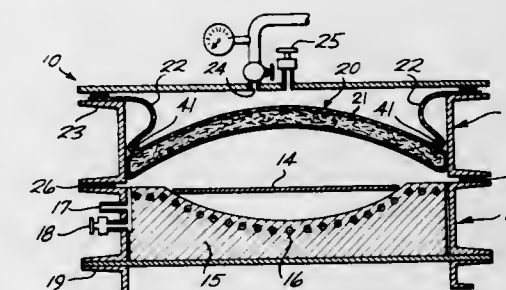
Ladislav M. Stejskal, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Sept. 21, 1970, Ser. No. 73,927

Int. Cl. B21d 22/12

U.S. Cl. 72—63

4 Claims



A high temperature vacuum creep forming fixture is disclosed comprising a vacuum chamber, a die with heating electrodes therein for receiving a metallic blank, and a high heat resistant forming diaphragm for pressing the metallic blank over said hot die for forming the blank into the desired part, and for raising the diaphragm clear of the die. A new heat resistant diaphragm per se, is disclosed comprising a plurality of interconnected elongated modules of high heat resistant insulating material secured to a plurality of two sheets of heat resistant materials, one sheet being of aluminized asbestos cloth for reflecting the heat back and the other sheet or sheets being of fiberglass reinforced silicone rubber for providing high strength and flexibility in the diaphragm for forming and lifting a highly efficient heat insulating diaphragm. Alternatively, a ring spring may be placed over the diaphragm for urging the periphery thereof outwardly.

3,739,618 AUTOMATIC CLAMPING AND LOCKING APPARATUS

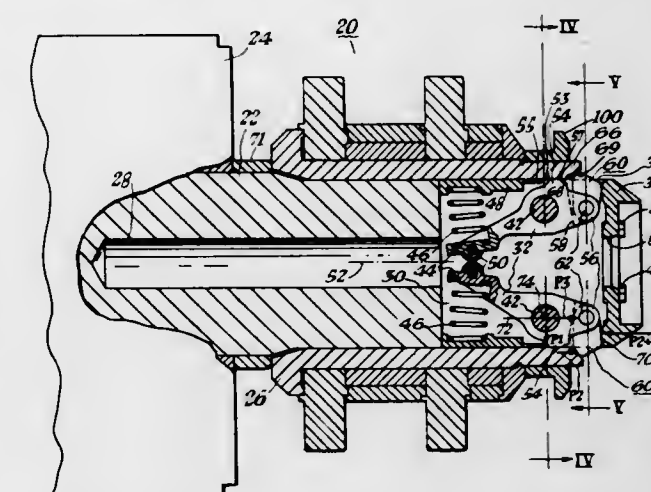
Herbert Lemper, Bethel Park, Pa., assignor to Mesta Machine Company, Pittsburgh, Pa.

Filed Feb. 22, 1972, Ser. No. 228,121

Int. Cl. B21b 31/08

U.S. Cl. 72—239

15 Claims



An automatic clamping arrangement for clamping a sleeve and the like onto a shaft and the like includes at least two

levers pivotally mounted on said shaft and disposed in chamber means therein. The levers are disposed for generally opposed movement toward and away from the sleeve when the latter is mounted upon the shaft. Biasing means are coupled to each of the levers for angularly displacing the levers about their pivot mountings such that a portion of each of the levers is advanced toward an adjacent surface of the sleeve. A clamping projection on each of the lever portions is disposed for bearing contact with said sleeve surfaces upon pivoting of the levers by the biasing means. The chamber means communicate through recess means opening onto a surface of the shaft for insertion of a tool generally between opposed second portions of the levers to pivot the levers in an opposite direction against the action of the biasing means to withdraw the clamping projections from the sleeve surfaces.

3,739,619

AUTOMATIC EXTRUSION HANDLING SYSTEM

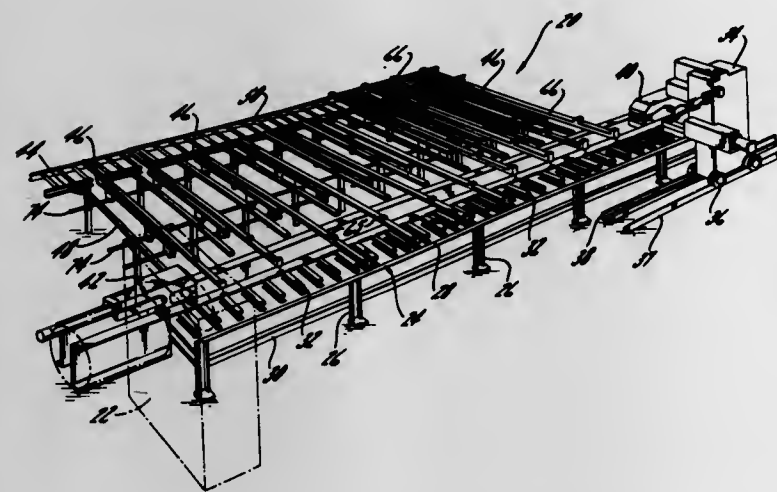
Richard D. Follrath, Greenville, and Russell L. Race, Ada, both of Mich., assignors to Clark Automation, Inc., Belding, Mich.

Filed Dec. 16, 1971, Ser. No. 208,577

Int. Cl. B21c 23/00; B21d 25/00

U.S. Cl. 72-255

8 Claims



An automatic extrusions handling system which requires a minimum of plant space and labor and wherein extrusions are cooled, cut and stretched on and directly next to the run-out table associated with the extrusion press. Also disclosed is an extrusion loading and unloading apparatus for removing cooled extrusions from the run-out table, transferring them directly to the stretchers and simultaneously removing stretched extrusions from the stretchers with the transfer motions being in a generally rectangular path that prevents joggling of the extrusions out of alignment.

3,739,620

PROCESS FOR FORMING A FLARED END TUBULAR METAL PART

William D. Jesmore, Huntingdon, and Joseph A. Simon, Grosse Pointe Farms, both of Mich., assignors to U.S. Manufacturing Corporation, Detroit, Mich.

Filed Jan. 6, 1972, Ser. No. 215,850

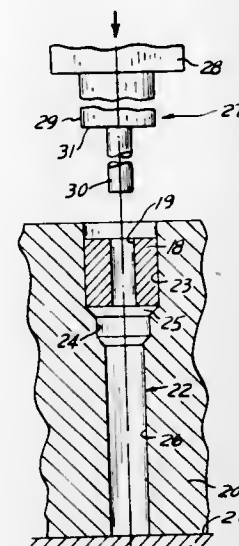
Int. Cl. B21c 23/00; B21b 17/02

U.S. Cl. 72-256

3 Claims

A two-step cold forming process for forming a flared end tubular metal part in a press having a lower fixed support and a downwardly movable upper press ram, comprising the step of extruding the lower portion of a short tubular blank, whose diameter is approximately equal to the diameter of the flared end of the part, into approximate finished length and diameter by means of pressing downwardly an elongated, cylindrical

punch, mounted upon the press ram, against and through the blank positioned in a flared diameter, vertically axised, die opening in a die mounted upon the press support, and thereafter, the step of expanding the upper portion of the



blank to the exterior and internal diameters of the flared portion of the part in a second die opening in a press support mounted die, with a second ram mounted, flared diameter punch pressed downwardly through the extruded part.

3,739,621

METAL DRAWING MACHINE

Hans Pfeiffer, Solingen-Wald, Germany, assignor to Th. Kieserling & Abrecht, Solingen, Germany

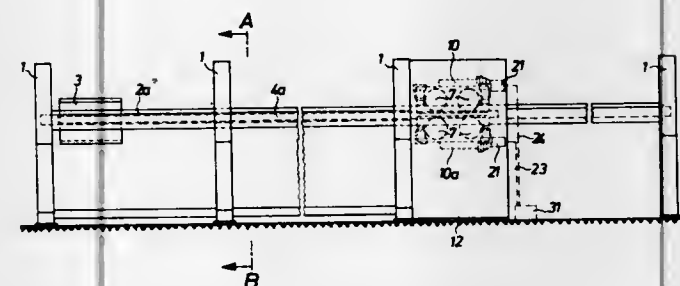
Filed May 13, 1971, Ser. No. 143,019

Claims priority, application Germany, May 19, 1970, P 20 24 273.3

Int. Cl. B21c 1/28

U.S. Cl. 72-287

9 Claims



Draw bench for rods and pipes having a carriage movable axially on a bed. The carriage is moved back and forth by compression and tension rods arranged in the machine bed. One end of the rods connects to the carriage and the opposite end is interposed between a frictional roller drive secured at a fixed location.

3,739,622

MACHINE FOR FORMING PISTON RING SPACER-EXPANDERS FROM STRIP STOCK

Roy E. Overway, Grand Haven, Mich., assignor to Sealed Power Corporation, Muskegon, Mich.

Division of Ser. No. 39,498, May 21, 1970, Pat. No. 3,646,797.

This application Nov. 24, 1971, Ser. No. 202,037

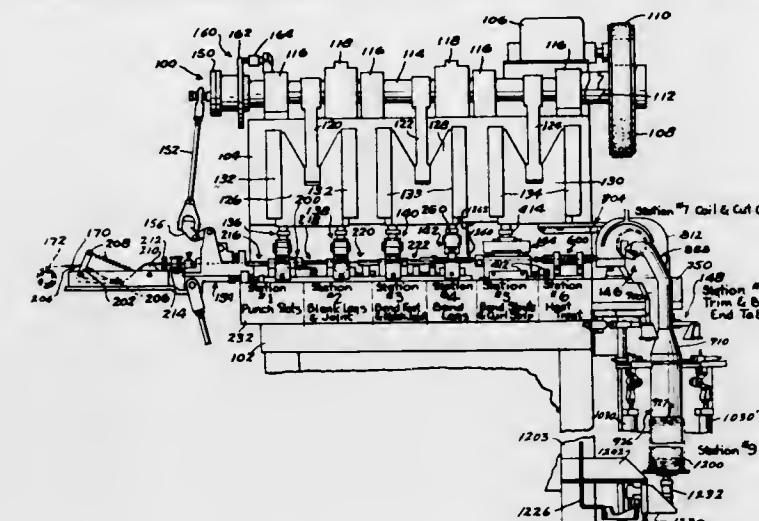
Int. Cl. B21d 41/02, 28/00

U.S. Cl. 72-316

7 Claims

A machine for making spacer-expanders for piston oil rings of the type described in United States Pat. No. 3,477,732. The machine comprises a punch press having a plurality of stations through which strip stock is fed progressively in accurately predetermined increments, the strip stock being worked

between dies at each station to transform the strip stock into completed rings. The press includes one or more punching stations where the strip stock is pierced and blanked, one or more forming stations where the pierced and notched strip is bent to form the spring legs of the spacer-expander and then curled into a channel-shaped cross-section, a coiling station where the channel-shaped stock is fashioned into a coil, and a



cut-off station where each coil is sheared from the strip to form the semi-finished ring. The press also includes a special transfer apparatus for transferring the semi-finished ring to a final work station wherein the end joints are trimmed and formed to final configuration, after which the finished rings are loaded automatically in stacked relation on a cylindrical mandril.

3,739,623

METHOD OF MAKING HINGE BRACKETS

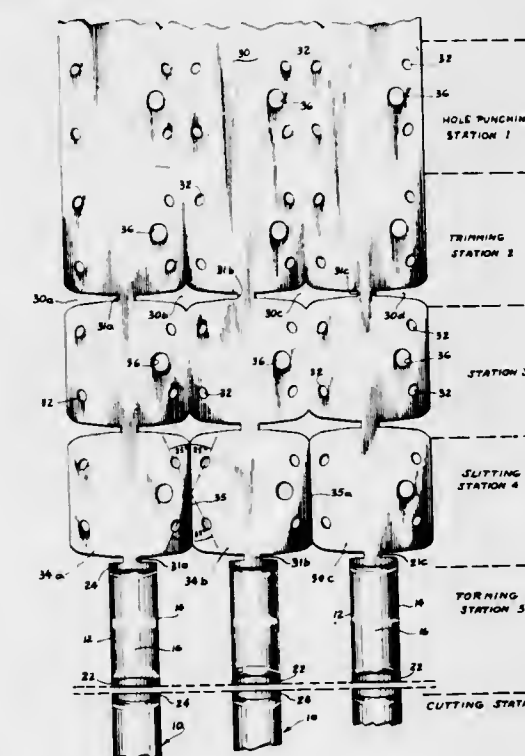
Hyman Kramer, c/o Hy Kramer Enterprise Inc., 1457 Basset Avenue, Stamford, Conn.

Filed May 26, 1971, Ser. No. 143,710

Int. Cl. B21d 28/00

U.S. Cl. 72-339

8 Claims



A method of making stamped and formed hinge brackets for tubular metal furniture and other metal stampings having circular (cylindrical) holes, featuring the formation of circular holes in the finished product by performing the steps of punching elliptical holes in a metal blank and then compressing the blank along the major axes of the elliptical holes in order to induce a flow of metal in the direction of the minor axes of said holes, thereby shortening the major axes and transforming the holes into circular configuration.

3,739,624

PIPE BLANK CLAMP

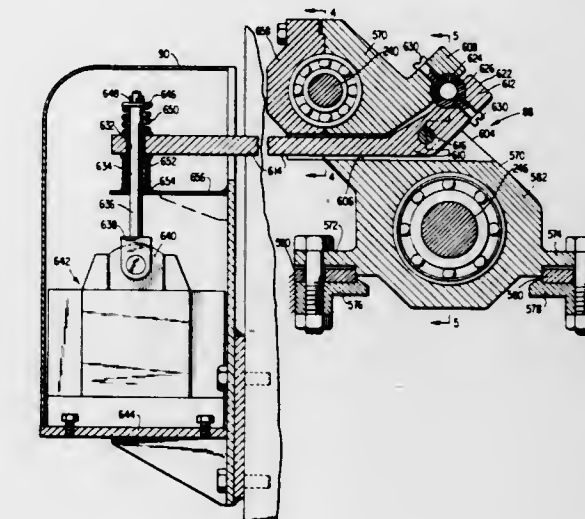
Alexandr Ivanovich Tselkov; Vsevolod Vladimirovich Nosai, and Vadim Anatolievich Verderevsky, all of Moscow, U.S.S.R., assignors to Vsesojuzny Nauchno-Issledovatel'sky and Proektnokonstruktorsky Institute Metallurgicheskogo Mashinostroyeniya, Moscow, U.S.S.R.

Filed May 25, 1970, Ser. No. 40,131

Int. Cl. B21b 25/00

U.S. Cl. 72-422

15 Claims



A pipe blank clamp assembly, as part of a cold rolling, thin-walled pipe mill assembly, is located between the end of the blank feed chuck feed path and the input side of the mill working zone to clamp a pipe blank against axial displacement during certain intermediate mill operations. The clamp has a heavy body part which includes flanges to mount the clamp on a mill table and contains retainers for end bearings for various mill operating shafts. The heavy body part and a short arm of a long operating lever provide powerful jaws for gripping the exterior of a pipe blank. The operating lever is attached via a resilient lost motion spring connection to a solenoid operator.

3,739,625

SHOCK TESTING MACHINE

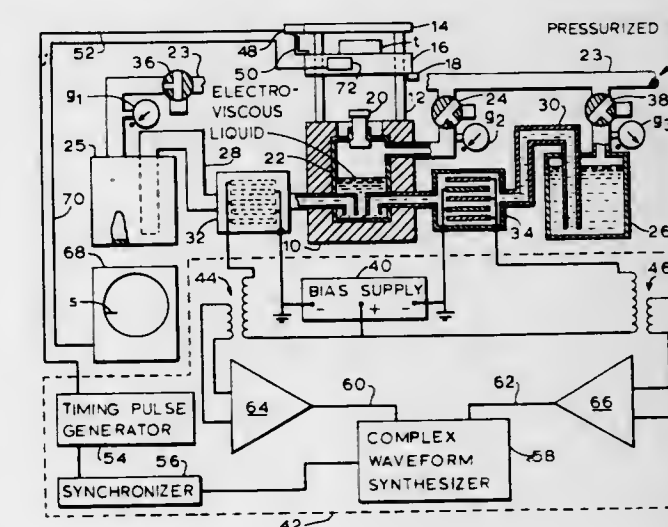
Carroll R. Roberts; Ramon L. Gildeden, both of Tulsa, Okla., and Patrick C. Molloy, North Edwards, Calif., assignors to Avco Corporation, Tulsa, Okla.

Filed Sept. 21, 1971, Ser. No. 182,422

Int. Cl. G01n 3/08

U.S. Cl. 73-12

13 Claims



A shock testing machine is described which has the capability of selectively programming an infinite variety of shock pulse forms to be induced into a test specimen. The test specimen is mounted on a carriage which impacts a piston

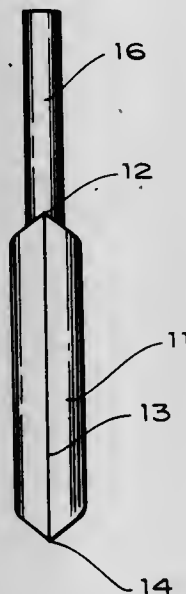
slidably mounted in a cylinder forming a part of the reaction mass base of the machine. Gas pressure, within the cylinder, provides a resilient force on the piston and is controlled by the scheduled flow of an electro-viscous liquid into and out of the cylinder under the influence of variable electrical field means.

3,739,626 METHOD FOR MEASURING LIQUID PROPELLANT STABILITY

George W. Brudette, and Dean H. Couch, both of China Lake, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Sept. 22, 1971, Ser. No. 182,607
Int. Cl. G01f 17/00

U.S. Cl. 73-16

1 Claim



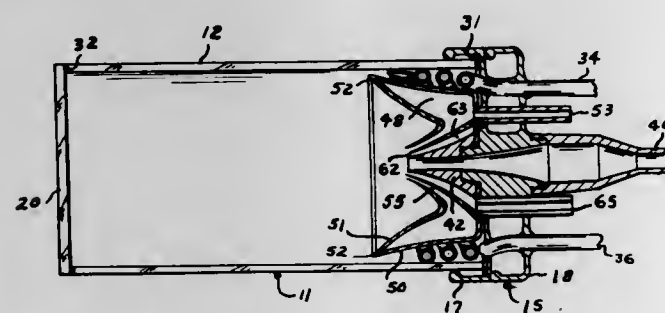
Metal, weld-sealed apparatus for use in studying the stability of liquid rocket propellants is disclosed. Pressure data on liquid propellants are obtained by placing a known volume of propellant in apparatus of known volume, bringing the apparatus and its contents to thermal equilibrium at a predetermined temperature and measuring the volume change of the apparatus.

3,739,627 GAS PARTICLE ACCUMULATOR, TREATING AND TEST APPARATUS

George A. Klingler, 300 Patterson Road, Dayton, Ohio
Filed Nov. 4, 1971, Ser. No. 195,551
Int. Cl. B01d 45/12

U.S. Cl. 73-28

2 Claims



A particle accumulator/display having a closed transparent chamber with a plurality of input nozzles to provide a vortex flow within the chamber. An ejection nozzle is centrally located within the chamber at the same end as the input nozzles. A flow stabilizer is positioned between the input nozzles and the ejection nozzle. The flow stabilizer is spaced from the ejection nozzle to provide an annular channel adjacent the ejection

nozzle. A tubular member communicates with the annular channel to permit material to be inserted into the closed chamber to treat the collected column for various tests. In a second embodiment, a second channel and access tube is provided so that temperature, pressure, other probes can be inserted into a chamber adjacent the collected column.

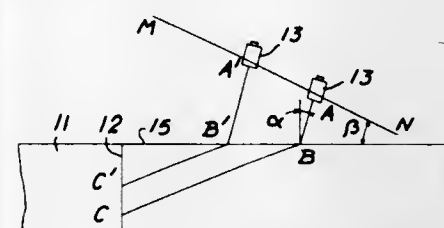
3,739,628 ULTRASONIC TESTING OF WELDS

Robert Saglio, Massy, France, assignor to Commissariat A L'Energie Atomique, Paris, France
Filed June 10, 1971, Ser. No. 151,718
Claims priority, application France, June 12, 1970, 7021747

U.S. Cl. 73-67.7

Int. Cl. G01n 29/04

12 Claims



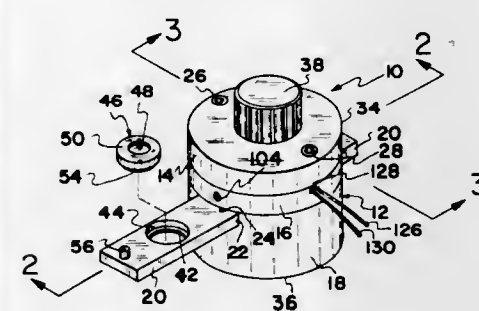
In a method of testing for flaws in metallurgical welds using ultrasonic waves, the interval of time between sending a wave and receiving a flaw echo is made constant by appropriately moving the or each ultrasonic wave sensor relative to the workpiece under inspection, for each measurement. The or each sensor is moved along a rectilinear path forming an angle with the surface of the workpiece which is a function of the angle of incidence of the ultrasonic waves and of the speeds of the waves in the workpiece and the medium above the surface.

3,739,629 PSYCHROMETER AND METHOD

Eric C. Campbell, Providence, Utah, assignor to Wescor, Inc., Logan, Utah
Filed Feb. 9, 1971, Ser. No. 113,846
Int. Cl. G01n 25/62

U.S. Cl. 73-77

9 Claims



Apparatus and method for use in the measurement of the water or solvent potential of selected samples. The apparatus utilizes a psychrometer principle, which, broadly speaking, relies upon comparison between wet and dry bulb temperatures in a controlled system for obtaining desired measurements. A thermocouple utilized in making psychrometer measurements is concealed within a small psychrometer chamber and is exposed to the sample during testing, being sealed from surrounding environment. The psychrometer chamber is formed by a sample holder and metal heat sink components respectively disposed above and below the sample holder and serve to achieve rapid thermal equilibrium. The interior water potential measuring apparatus including the thermocouple is also thermally insulated to minimize ambient temperature effects. Samples to be analyzed are placed within a cup of a disc-shaped sample holder resting in a slide which can be displaced from side-to-side to position the sample and sample holder

medially within the measuring apparatus at the psychrometer chamber. The tightening of a screw insures that the psychrometer chamber is sealed from the surrounding environment, following which vapor pressure equilibration and temperature equilibrium result. A second thermocouple may be provided giving a temperature reading for use in analysis of the electrical output of the psychrometer thermocouple. The output of the psychrometer thermocouple is presented in usable information form at a microvoltmeter which comprises a readout device for the sampling psychrometer.

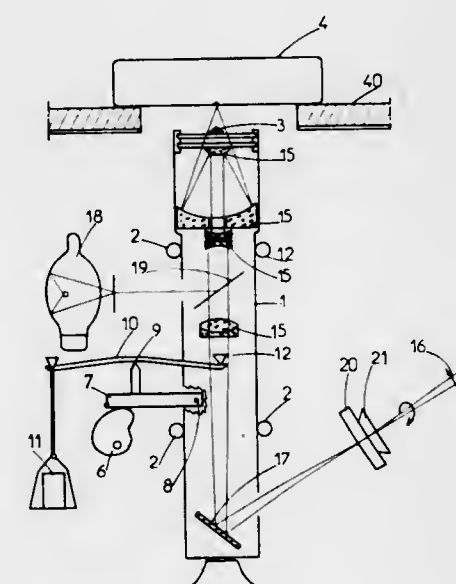
3,739,630 MICRODUROMETER WITH AUTOMATIC CALCULATION

Helenio Llop, Montreuil, France, assignor to Creusot-Loire, Paris, France
Filed Mar. 3, 1972, Ser. No. 231,490
Claims priority, application France, Mar. 5, 1971, 7107616; Sept. 28, 1971, 7134874

U.S. Cl. 73-81

Int. Cl. G01n 3/42

11 Claims



A microdurometer for measuring the hardness of a sample by the production of an impression therein by means of a pyramidal diamond with four faces which is applied to the sample under a predetermined force P , the hardness being proportional to P/d^2 where d is the length of the diagonal of the impression, the microdurometer including means for applying the diamond to the sample, means for linearly displacing a sighting grid between the ends of an impression made in a sample, a first voltage generator coupled to the grid displacing means producing a voltage inversely proportional to the square of the displacement of the grid, a second voltage generator for producing a voltage proportional to the force of application of the diamond and connected to the first voltage generator to produce an analogue product of the two voltages proportional to the hardness of a sample and a voltmeter calibrated in units of hardness to indicate the product.

3,739,631 SKI BINDING TESTER ADAPTED FOR TESTING HEEL BINDINGS

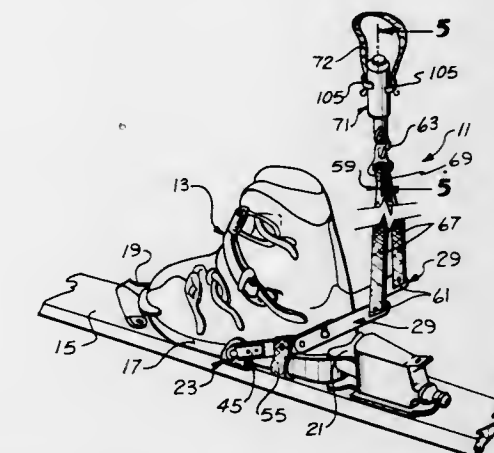
Gloria L. Clifford, and Richard P. Clifford, both of 201 Via Orvieto, Newport Beach, Calif.
Filed June 10, 1971, Ser. No. 151,687
Int. Cl. G01l 5/03

U.S. Cl. 73-133 A

14 Claims

A ski binding tester for determining the force required to release a ski boot from a ski binding comprising at least one lever mounted for pivotal movement, a force applying

member drivingly connected to the lever for applying a force to the ski boot, a flexible tension element connected to the



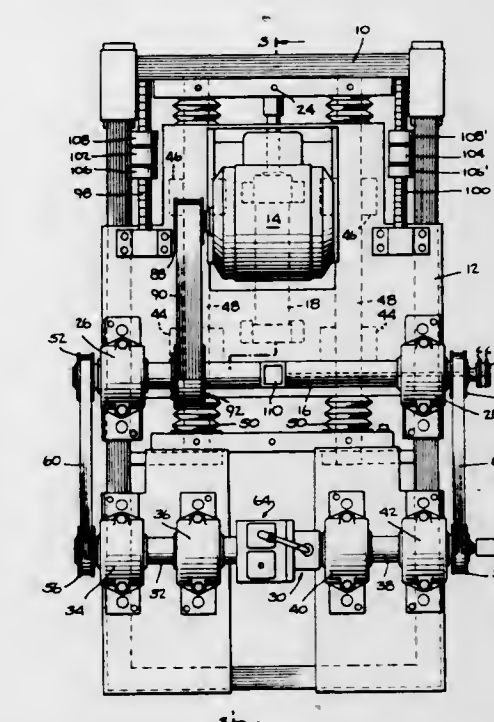
lever for applying a force thereto, and a scale for providing an indication related to the force at which the binding releases.

3,739,632 DEVICE FOR TESTING POWER TRANSMISSION COMPONENTS

Henry F. Miller, Clifton, and Robert L. Bredimus, Wayne, both of N.J., assignors to Uniroyal, Inc., New York, N.Y.
Filed Aug. 30, 1971, Ser. No. 175,984
Int. Cl. G01m 13/02

U.S. Cl. 73-136 A

29 Claims



An apparatus for testing a plurality of transmission components such as positive transmission belts, V-type transmission belts, gears and the like under static, dynamic and slow rotational conditions. The apparatus comprises two driven shafts arranged end-to-end and driven by a hydraulic actuator to rotate the shafts in respective opposite directions up to a predetermined number of degrees. A drive shaft is arranged parallel to the two shafts and the test transmission components are affixed at the outer ends of the respective shafts and the associated ends of the parallel drive shaft. The drive shaft and the associated drive motor therefor are mounted on a base movable on a fixed frame which carries the two driven shafts. The base is connected to a drive motor in the form of a fluid pressure actuator piston and cylinder combination for shifting the base along the frame in order to preload the transmission components which are to be tested. The hydraulic rotary actuator applies a constant or programmed torque loading to the

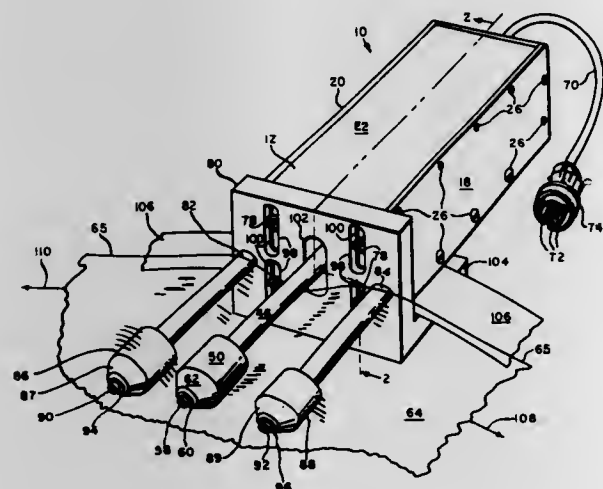
individual transmission components being tested to thereby duplicate actual power transmission conditions. After the torque is applied, the two driven shafts are rotated together. The arrangement permits the complete separation of the torque loading from the rotational speed, thereby eliminating the necessity for using high capacity prime mover-dynamometer combinations.

3,739,633 APPARATUS FOR MEASURING TENSION IN WEB-TYPE MATERIALS

Erwin J. Saxl, P.O. Box 185, Harvard, Mass.
Filed Sept. 15, 1971, Ser. No. 180,660
Int. Cl. G011 5/04

U.S. Cl. 73-144

17 Claims



Device for measuring tension in web-type materials such as tape, cloth, paper, felt, plastic film and the like which are under tension load, the device including three substantially parallel elongated rods carrying rotatively mounted sleeves for engaging the surfaces of the web-type material, the center rod being a load feeler member extending from the deflection portion of a load deflection beam which incorporates means for measuring the beam deflection in terms of tension in the web-type material, the other two rods being reference members on respective sides of the feeler member and rigidly fixed to a reference plate which is adjustable in perpendicular relation to the plane of the web-type material to compensate for thickness of the web-type material whose tension is being measured. The rotatively mounted sleeves are tapered at the ends farthest from the load deflection beam to facilitate edgewise insertion onto the surfaces of the material for making the tension measurement. Edgewise insertion may also be facilitated by separation of the reference sleeves with respect to the feeler sleeve in perpendicular relation to the web-type material by adjustment of the reference plate.

3,739,634 APPARATUS FOR GENERATING ULTRA HIGH TOTAL ENTHALPY GASES WITH MULTICOMPONENT FLOW

Elmer G. Johnson, Fairborn, and Hans P. Von Ohain, Dayton, both of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

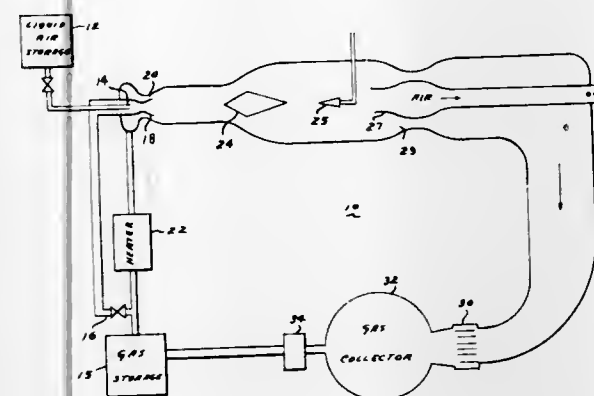
Filed July 6, 1972, Ser. No. 269,357
Int. Cl. G01m 9/00

U.S. Cl. 73-147

9 Claims

An apparatus for generating ultra high total enthalpy gases, having means for injecting solid or liquid particles into a flow of low molecular weight gas expanding through a high pressure ratio nozzle thereby accelerating the particles to the high speed of the low molecular weight carrier gas. At the exit of the nozzle the particles enter an additional flow of expanding low molecular weight gas of higher stagnation temperature

and consequently greater speed. During this acceleration process the particles are separated from the bulk of the low molecular weight carrier gas by inertial effects. Further



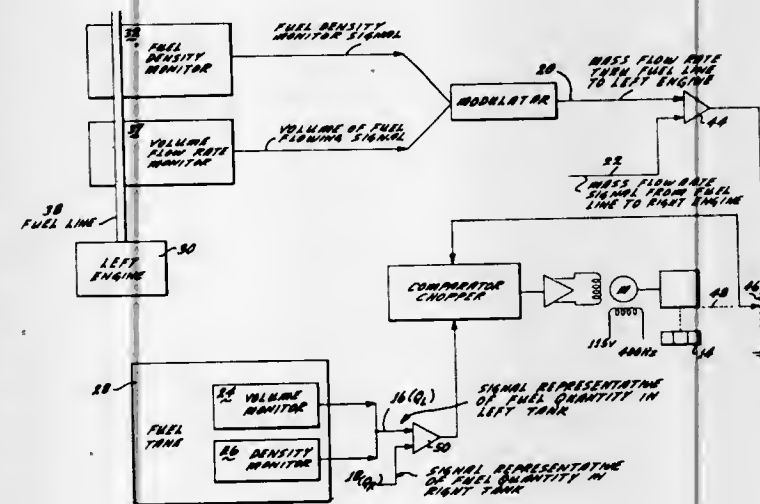
downstream, the kinetic energy of the particles is converted into kinetic energy of an airflow which is ducted into a test section in which re-entry flow conditions are duplicated.

3,739,635 FUEL MANAGEMENT SYSTEM

Douglas E. Stuart, Middlebury, Vt., assignor to Simmonds Precision Products, Inc., Tarrytown, N.Y.
Filed May 12, 1971, Ser. No. 142,525
Int. Cl. G01f 1/02, 9/00

U.S. Cl. 73-194 M

2 Claims



An aircraft fuel management system providing accurate and comparable measurement and display of on-board fuel quantity, fuel rate and flight time remaining. This system utilizes capacitance method of fuel gaging and fuel mass flow rate derived from both volumetric flow measurement and capacitance density compensation. These separate measurements — fuel gaging and mass flow rate — are combined electronically to obtain "flight time remaining" under prevailing flight conditions.

3,739,636 LINEAR READOUT FLOWMETER

Antonio A. Versaci, Schenectady, N.Y., and Paul Zucchini, Princeton, N.J., assignors to said Versaci, by said Zucchini, Schenectady, N.Y.

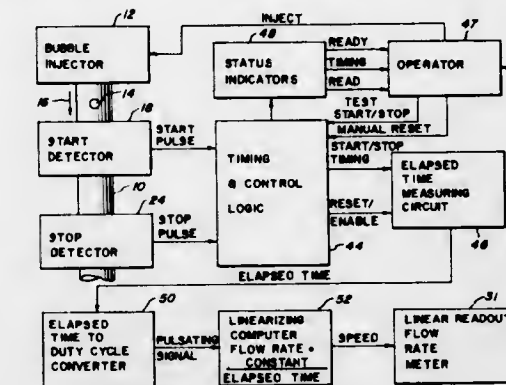
Filed Jan. 22, 1971, Ser. No. 108,717
Int. Cl. G01f 1/00

U.S. Cl. 73-194 E

20 Claims

A flow meter for determining the rate of flow of fluid through

a conduit and indicating the flow rate on a linear scale. A signal having a magnitude inversely proportional to the time



elapsed for a substance carried by the fluid to travel a fixed distance is produced and converted into a flow rate indication.

3,739,637 PNEUMATIC PRESSURE INDICATOR

Greg

ing coil and is adapted to produce a magnetic field extending across a stream of blood, flowing along a blood vessel, or a stream of some other conductive liquid. The movement of the blood across the magnetic field generates a voltage which is picked up by first and second electrodes. Normally, the coil is energized with an alternating or pulsating current. A first output lead is connected to the first electrode, while second and third output leads are connected to the second electrode. The second and third output leads are on opposite sides of a plane including the electrodes and the first output lead, such plane being parallel to the magnetic field. To minimize transformer-type coupling between the coil and the leads, a potentiometer is connected to the second and third leads. The adjustable tap of the potentiometer and the first output lead are employed as the output connections from the electrodes, the tap being adjusted for minimum error signal output. A grounded electrostatic shield is employed between the coil and the leads. Moreover, a ground electrode is positioned to engage the blood vessel at a neutral point between the first and second electrodes. A second adjustable potentiometer is connected across the supply leads for the coil. The tap of the second potentiometer is grounded and is adjusted for minimum error signal output. One or more adjustable balancing capacitors are connected between at least one of the supply leads and at least one of the output connections. Such capacitors are adjusted for minimum error signal output and are effective to neutralize the distributed capacitances between the coil and the output leads. A soft resilient material, such as silicon rubber, is employed to encapsulate the electromagnet and the output leads. Such material is adapted to be compressed by the pulsations of the blood vessel around which the flowmeter probe or pickup is mounted. Thus, the provision of such soft material prevents damage to the walls of the blood vessel.

3,739,641

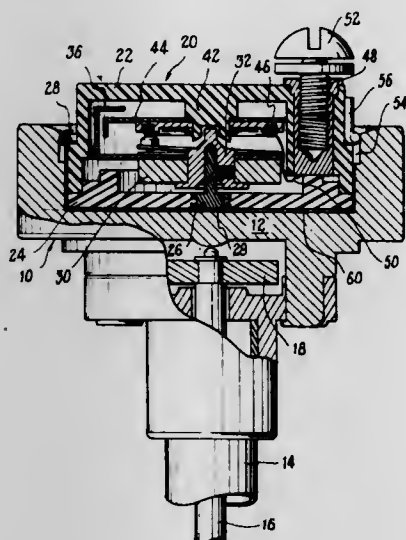
REMOTE READING GAUGE INDICATOR UNIT

Leta S. Taylor; Paul B. Johnson, and Eugene D. Huskey, all of Box 529, Garland, Tex.

Filed May 5, 1971, Ser. No. 140,334
Int. Cl. G01F 23/10

U.S. Cl. 73-313

7 Claims



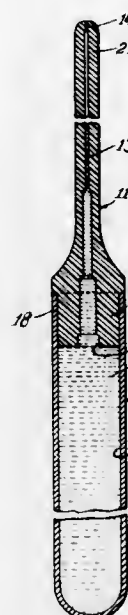
A remote reading indicator unit for a liquid level gauge in which a magnet, rotated by movement of a float, actuates a magnet within a sealed indicator unit, said unit including a variable resistance element to be electrically connected in a circuitry connected to a gauge dial at a remote point.

3,739,642
OPEN END THERMOMETER
Josef F. Klingler, Wilmette, Ill., assignor to Thermex, Inc., Chicago, Ill.

Filed Mar. 5, 1971, Ser. No. 121,269
Int. Cl. G01k 5/08, 5/12; G01d 3/00

U.S. Cl. 73-371

26 Claims



A low cost clinical disposable thermometer formed primarily of molded plastic. The thermometer includes a capillary bore having an open end permitting the indicating liquid to be exposed to ambient pressure while precluding flow of liquid indicator outwardly therethrough under normal ambient conditions. An indicator is provided in association with the thermometer to indicate to the user a condition wherein the thermometer had been subjected to a high temperature causing loss of indicating liquid through the open end of the capillary bore.

3,739,643

BIMETALLIC SNAP DISC OR THE LIKE

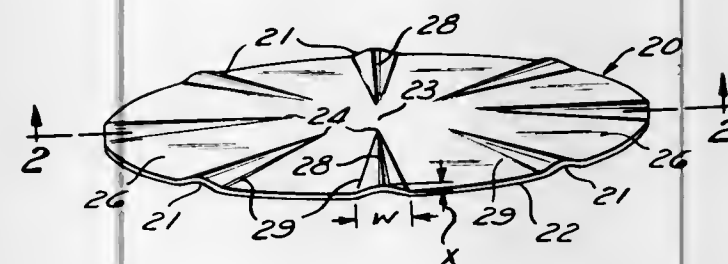
Anton J. Gerich, Mansfield, Ohio, assignor to Therm-O-Disc Incorporated, Mansfield, Ohio

Continuation of Ser. No. 859,853, Sept. 22, 1969, abandoned.
This application Dec. 6, 1971, Ser. No. 204,882

Int. Cl. G01k 3/12, 5/10

U.S. Cl. 73-378.3

12 Claims



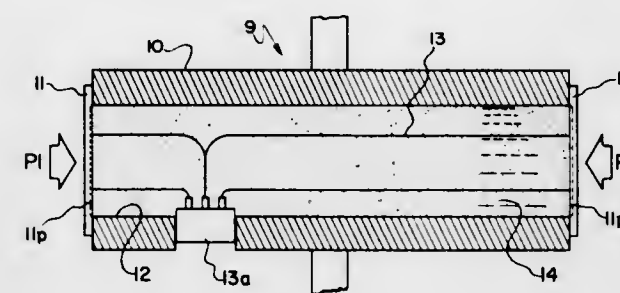
A snap disc is disclosed having peripherally spaced radially extending scallops which stiffen the disc independently of the chord height of the disc. Because of the stiffening scallops it is not necessary to utilize a large chord height when manufacturing a disc for high force or temperature operation. The disc, when formed of bimetal, can operate at high or low temperatures with a narrow temperature differential of operation. Tools for forming the disc with scallops are also disclosed.

3,739,644
LINEARIZATION OF DIFFERENTIAL PRESSURE
INTEGRAL SILICON TRANSDUCER
Joe B. Underwood, and Alexander J. Yerman, both of Scotia, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed June 30, 1972, Ser. No. 267,916
Int. Cl. G011 9/02

U.S. Cl. 73-398 AR

10 Claims



An integral silicon transducer suitable for measuring low differential fluid pressures utilizes a pair of pressure-biased silicon diaphragms coupled by a fill liquid. When sensing a differential pressure, the diaphragms flex to respectively increase and decrease the strain level. By subtracting the individual output signals of the two diaphragms, a more linear transducer output signal is obtained even though the individual diaphragm output signals are nonlinear. A special strain gage pattern is not required, but a unitary fully active bridge is desirable.

3,739,645

DIFFERENTIAL PRESSURE INDICATING APPARATUS

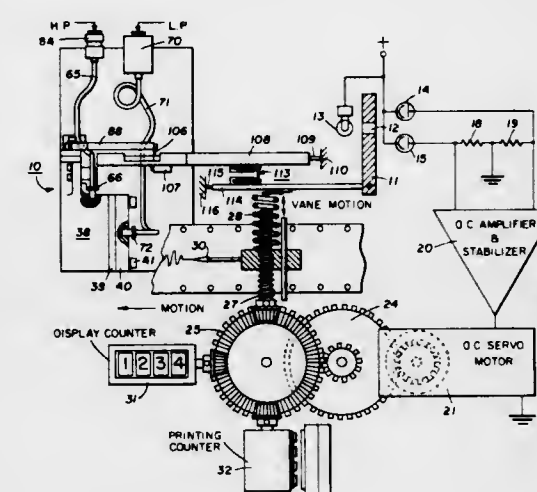
Joseph E. Gorgens, Trumbull; William A. Heske, Fairfield, and Randall Goff, Weston, all of Conn., assignors to Dresser Industries, Inc., Dallas, Tex.

Continuation-in-part of Ser. No. 859,246, Sept. 17, 1969, which is a continuation of Ser. No. 732,472, April 12, 1968, abandoned, which is a continuation-in-part of Ser. No. 565,857, July 18, 1966, abandoned. This application Apr. 22, 1971, Ser. No. 136,457

Int. Cl. G011 13/02

U.S. Cl. 73-407 R

9 Claims



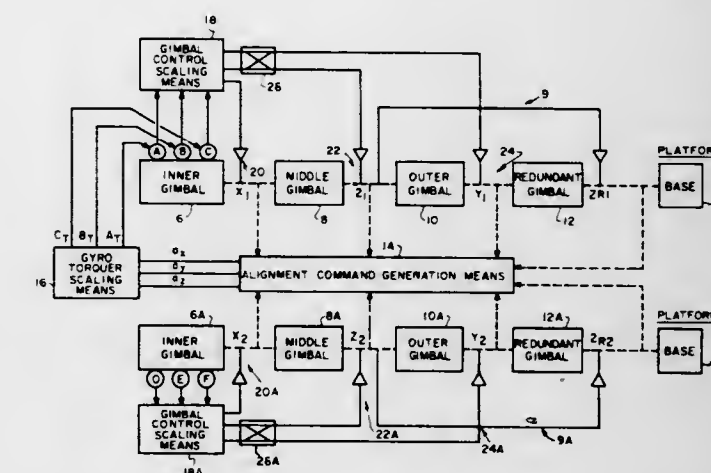
Apparatus for effecting differential pressure sensitivity of a pressure measuring device. A pressure sealed housing having a relatively high pressure inlet connection contains an expansion bellows having a relatively low pressure inlet connection. The bellows' free end moves in proportion to the pressure differential between the high and low pressure supply. A lever connected to the free bellows end to outward of the housing, transmits the bellows output force to an external pressure measuring apparatus.

3,739,646
FAILURE DETECTION AND CONTROL MEANS FOR
IMPROVED DRIFT PERFORMANCE OF A GIMBALED
PLATFORM SYSTEM
Bernard J. O'Connor, Eastchester, N.Y., and Frank S. De Carlo, Westwood, N.J., assignors to The Bendix Corporation, Teterboro, N.J.

Filed Feb. 12, 1971, Ser. No. 114,772
Int. Cl. G01c 19/02

U.S. Cl. 74-5.34

10 Claims



Apparatus for detecting excessive drift of one or more gyros in a gimbaled platform system and for controlling the system to maintain desired accuracy by applying torquing signals to the gyros proportional to the angular misalignment of platform inner gimbal references.

3,739,647

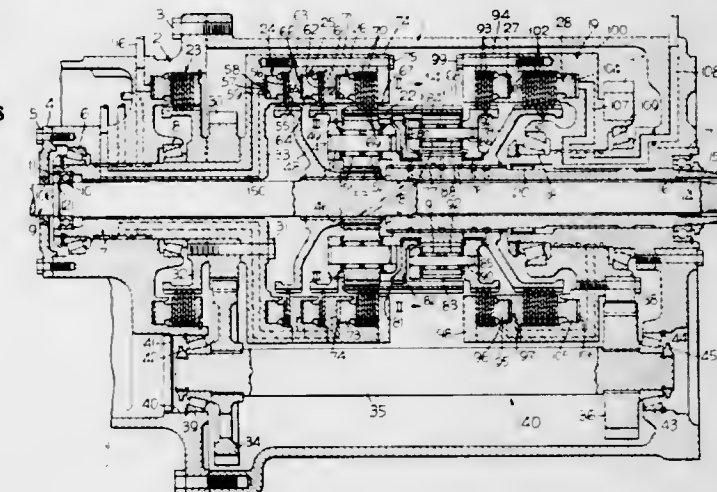
PLANETARY TRANSMISSION

James W. Crooks, Milwaukee, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Oct. 12, 1971, Ser. No. 188,261
Int. Cl. F16h 37/00, 37/06, 57/10

U.S. Cl. 74-15.63

10 Claims



A power shift transmission having planetary and countershaft gearsets, and clutch carriers for selectively transmitting power to and from the elements of the gearsets to selectively provide one of a multiplicity of speed ratios through the transmission.

3,739,648

ROLLER BAND RECIPROCATING DRIVE MECHANISM

Michael W. Payst, Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 21, 1971, Ser. No. 145,653

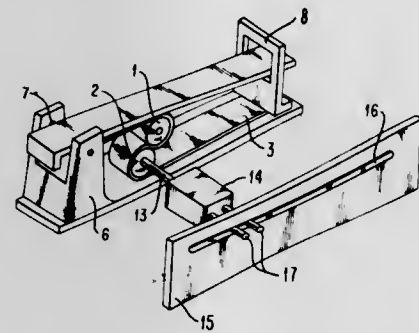
Int. Cl. F16h 27/02

U.S. Cl. 74-89.2

8 Claims

A drive mechanism for converting small amplitude linear motion of a driving member into large amplitude linear rolling

motion of a driven element is disclosed. The drive mechanism consists of an improved roller band, or "rolamite" device



which has a pivotable roller guide member and a resiliently tensioned band.

3,739,649

LINEAR POSITION CONVERTER

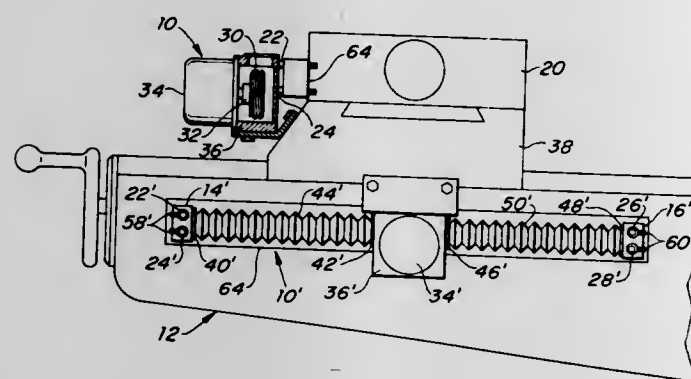
Elmo J. Pacini, Sudbury, Mass.; Alford H. Johnson, Pittsford, N.Y., and Robert B. Turner, Jr., Needham, Mass., assignors to CSI Liquidating Corporation, Boston, Mass.

Filed Oct. 20, 1970, Ser. No. 82,403

Int. Cl. F16h 27/02

U.S. Cl. 74-89.22

2 Claims



A linear position encoder including a spool adapted for connection with a rotary transducer and having guide means about its periphery, means for mounting the spool and transducer to one of two rectilinearly, relatively movable members, first and second spaced support means mounted on the other of the two relatively movable members; and a wire tautly held between the first and second spaced support means and looped about the spool within the guide means for converting rectilinear relative motion between the spool and wire to rotary motion of the spool for driving the rotary transducer.

3,739,650

UHF TUNER

Etsuzo Mohri, Osaka; Hiroshi Saito, Hirakata; Toshio Hayakawa, Kodoma, and Shigeru Ochiai, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 15, 1971, Ser. No. 124,353

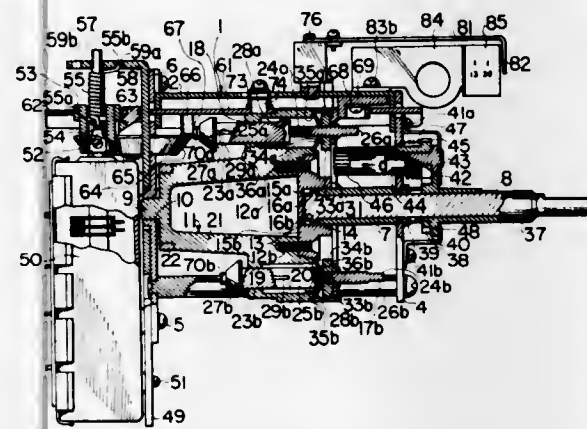
Claims priority, application Japan, Apr. 16, 1970, 45/32788; Apr. 16, 1970, 45/32789; Apr. 16, 1970, 45/32790; Apr. 16, 1970, 45/37125; Apr. 16, 1970, 45/37126; Apr. 16, 1970, 45/37127

U.S. Cl. 74-10.6

4 Claims

A presettable type UHF tuner to tune in UHF television channels. It comprises a channel switch-over shaft mounted in a tuner chassis, a rotary drum assembly rotatably disposed within the tuner chassis and rotatable with the channel switch-over shaft, a plurality of fine tuning screws carried by the rotary drum assembly and displaceable in the direction parallel to

the axis of the rotary drum assembly, a slide member slidably mounted in the tuner casing and slidable in the direction of displacement of the fine tuning screws, said slide member being provided with an integral engagement piece adapted to be successively engaged by the fine tuning screws as the rotary drum assembly rotates, and a tuner rotor shaft coupled to the



3,739,651

VARIABLE SPEED PULLEY ASSEMBLY

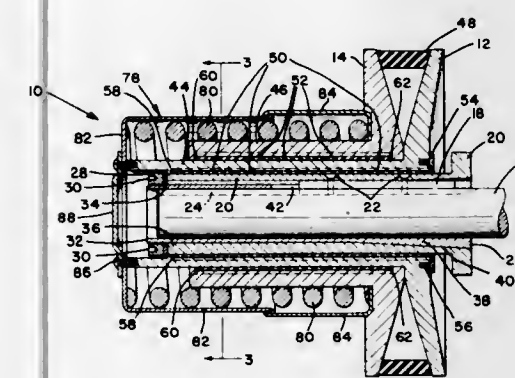
William L. Lewis, Sanford, N.C., assignor to Roberts Company, Sanford, N.C.

Filed May 5, 1971, Ser. No. 140,320

Int. Cl. F16h 55/52

U.S. Cl. 74-230.17 M

7 Claims



A variable pitch pulley includes flanges associated with inner and outer sleeves concentrically mounted for axial displacement relative to each other. The flange sleeves are supported by non-metallic inserts which serve as bearing surfaces between adjacent members displaceable relative to each other and also serve to key adjacent members together to prevent angular relative displacement therebetween.

3,739,652

SWING TRANSMISSION FOR EXCAVATORS

Samuel I. Caldwell, Aurora, and Lawrence R. Cline, Oswego, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 23, 1972, Ser. No. 237,377

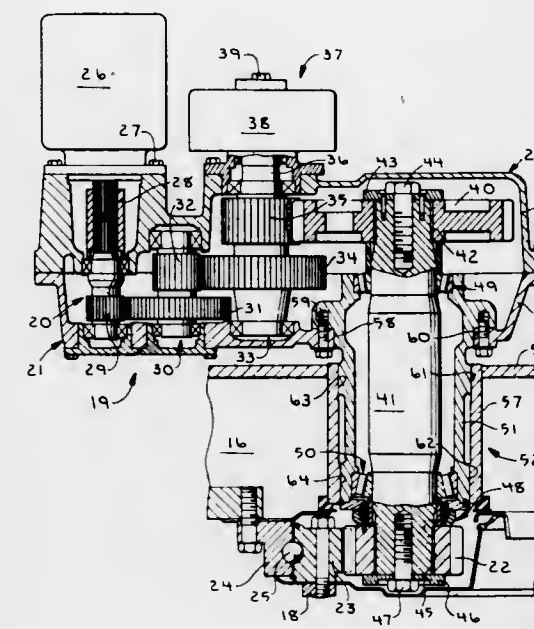
Int. Cl. F16h 1/20; B66c 23/84

U.S. Cl. 74-421 A

29 Claims

An excavator comprises a revolving upper unit rotatably mounted on a tracked undercarriage. The upper unit has a power transmission removably mounted thereon comprising a speed reduction gear train and an operatively connected car-

tridge assembly which terminates at a swing pinion. The upper unit is revolved on the undercarriage by selectively rotating the swing pinion against a reaction ring gear secured to the un-



dercarriage. The cartridge assembly is removably mounted in the transmission and has axially spaced piloting lands formed thereon to facilitate expeditious and precise installation of the transmission on a support housing.

3,739,653

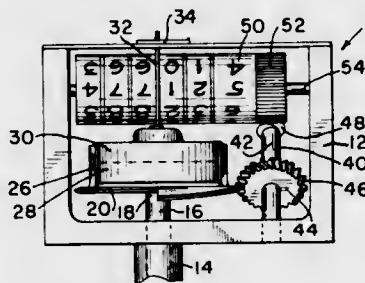
SPEEDOMETER DRIVES

Donald Bogosh, 2646 Willow, Franklin Park, Ill.

Filed July 28, 1971, Ser. No. 166,828

Int. Cl. F16h 1/18, 37/00

U.S. Cl. 74-424.5



An apparatus disposed in a speedometer-odometer drive assembly for transferring and translating the rotation of a speedometer drive cable to a speedometer needle registering speed and an odometer registering distance, having an annular plate means disposed at one end of a drive shaft in communication with the speedometer cable and rotatable about a central axis with this shaft. The annular plate means is discontinuous at at least one point about its periphery by virtue of a cut or split generally directed toward its center, the facing edges of this cut or split being upset with respect to the radial plane of the surface of the annular plate means. These cut or split edges of the annular plate means act to engage successive threads or teeth on a gear means driving the odometer as the annular plate means rotates. Flanges are cut or formed from the surface of the annular plate means and bent to a position substantially perpendicular to the surface in such a manner that a magnet acting to drive the speedometer may be inserted between the flanges and the wall of a flux cup passed between the end of the magnet and each flange.

3,739,654

INTERMITTENT GEARING ARRANGEMENT

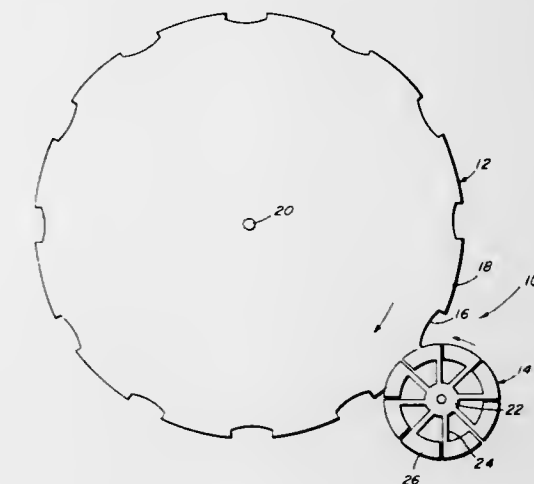
Samuel M. DeToma, Natick, Mass., assignor to Eduj Corporation, Boston, Mass.

Filed Jan. 24, 1972, Ser. No. 220,174

Int. Cl. F16h 27/04, 55/14, 55/04

U.S. Cl. 74-461

5 Claims



A pair of cooperating gears provides an intermittent indexing action. One rotary gear member is formed with peripheral spaced indents while another rotary gear member, in mesh with the first member, is provided with a plurality of radially extending resilient arms adapted to engage drivingly the indents of the first member during part of a cycle. The arms disengage the indents during another part of a cycle by bending out of the plane of the gear to ride along smooth lands formed between indents on the first gear.

3,739,655

VECTOR FORCE-BALANCING MECHANISMS

Peter Standidge Boden, Harpenden, England, assignor to Kent Instruments Limited, Luton, Bedfordshire, England

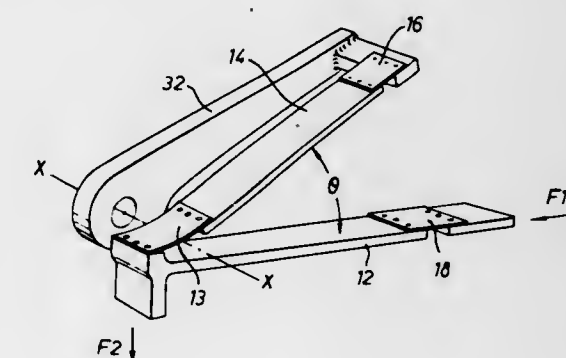
Filed Sept. 24, 1971, Ser. No. 183,353

Claims priority, application Great Britain, Sept. 28, 1970, 46,078/70

Int. Cl. G05t 1/00

U.S. Cl. 74-469

2 Claims



A vector force-balancing mechanism comprising a first rigid member connected to a frame for receiving an input force to be balanced, a second rigid member connected to the first member by a flexure strip for relative pivotal movement, and a third rigid member lockably pivotally mounted on the frame about an axis which is perpendicular to the plane of the relative movement and extends transversely through the flexure strip when the first and second rigid members are relatively angularly positioned so that the flexure strip is unstrained, the third rigid member being pivotally attached to the second member at a position remote from the axis.

3,739,656

SHIFT CONTROL MECHANISM

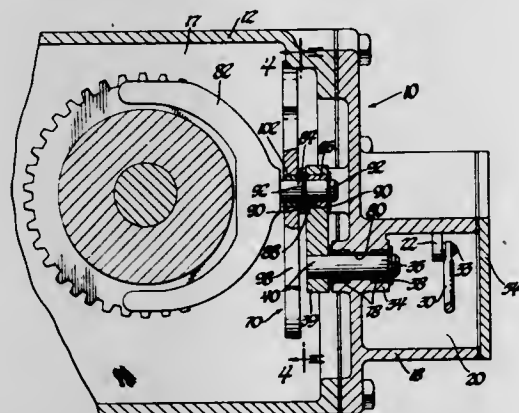
Richard D. Williams, Fairport, and Fred G. Michaels, Pittsford, both of N.Y., assignors to General Motors Corporation, Detroit, Mich.

Filed May 13, 1971, Ser. No. 143,091

Int. Cl. G05g 9/00

U.S. Cl. 74—473 R

3 Claims



A transmission shift control mechanism for a standard three-speed and four-speed synchromesh transmission including a single cable connected to a shift lever mounted on the exposed end of a single pivotable shaft extending through a wall of the transmission. On the end of the single pivotable shaft within the transmission housing there is mounted a disc-like element having a pair of contoured cam grooves formed therein for receiving the respective extensions of two conventional shift forks. As the disc-like element is pivoted in response to manual movement of the cable, the cam grooves move the shift fork extensions laterally as required to alternately position one of the shift forks in one of the available speed ratio positions and the other in Neutral.

3,739,657

CONNECTING ROD LUBRICATION OIL HOLE

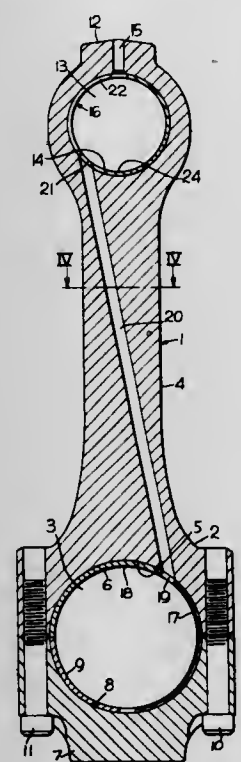
Paul J. Patchen, Chicago, and Jerome L. Berti, Chicago Heights, both of Ill., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Jan. 7, 1972, Ser. No. 216,155

Int. Cl. F16c 7/02

U.S. Cl. 74—587

10 Claims



A connecting rod with a diagonal lubrication hole to improve the load carrying capacities of the rod end bearings and improve the fatigue life of the connecting rod.

3,739,658

TRANSMISSION

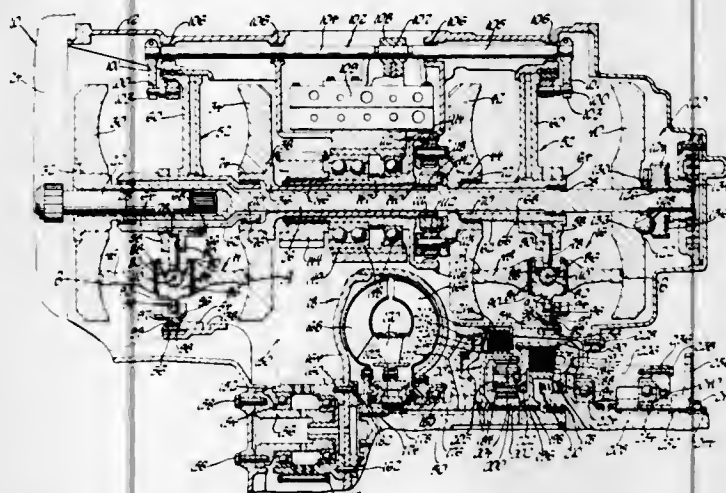
Milton H. Scheiter, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed June 7, 1971, Ser. No. 150,515

Int. Cl. F16h 47/00, 37/06, 15/08

U.S. Cl. 74—730

15 Claims



A continuously variable transmission including a prime mover driven input shaft connected by a first transfer drive to drive two spaced toric transmission units which are connected by a second transfer drive combining the outputs from both units to drive a fluid torque converter driving the output shaft. A chain and sprocket transfer drive is connected intermediate the two toric units in one transmission for transferring the combined output from the two toric units to the fluid torque converter and output shaft on an axis parallel to that of the input shaft and toric units, and in another transmission for transferring the output of the input shaft to the two toric units whose combined output is transferred axially to the fluid torque converter such that the in-line transmission is parallel to the input shaft. Further embodiments provide for dual output shafts which may be operated together or independently of one another.

3,739,659

AUTOMATIC SPEED SHIFT FOR POWER TOOL

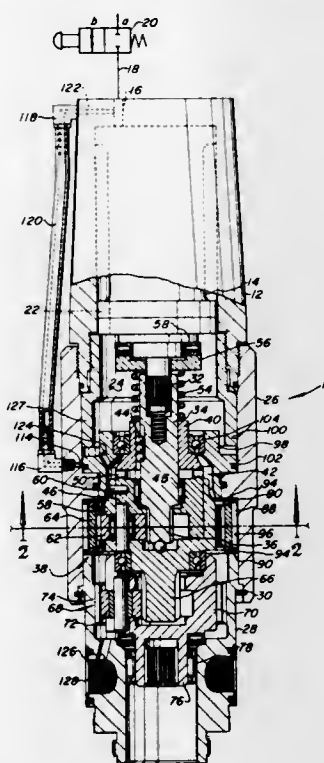
William Workman, Jr., Spring Lake, Mich., assignor to Gardner-Denver Company, Quincy, Ill.

Filed Dec. 30, 1971, Ser. No. 213,970

Int. Cl. F16h 3/74; B23q 5/36; F16d 43/20

U.S. Cl. 74—751

9 Claims



A two-speed shift device for a power tool such as a wrench or nutsetter comprising a planetary gear set having a planet

gear carrier connected to the driven member of a torque responsive clutch and a ring gear mounted in a one-way clutch for unidirectional rotation. The driving member of the torque responsive clutch comprises a piston which is axially movable to uncover a pressure fluid port in response to a predetermined torque to cause pressure fluid to disengage the torque clutch to provide for the planetary gear set to become operative to reduce the output speed of the tool.

first signal to the input of the summing amplifier only when the throttle setting of the vehicle exceeds a predetermined value. The arrangement being such that when the second signal exceeds the third signal or the third and first signals together, the circuit will operate to effect a ratio change to reduce the engine speed for a given road speed and vice versa.

3,739,660

SPINDLE CARRIER LOCKING AND CLAMPING MECHANISM IN MULTIPLE SPINDLE MACHINE TOOL

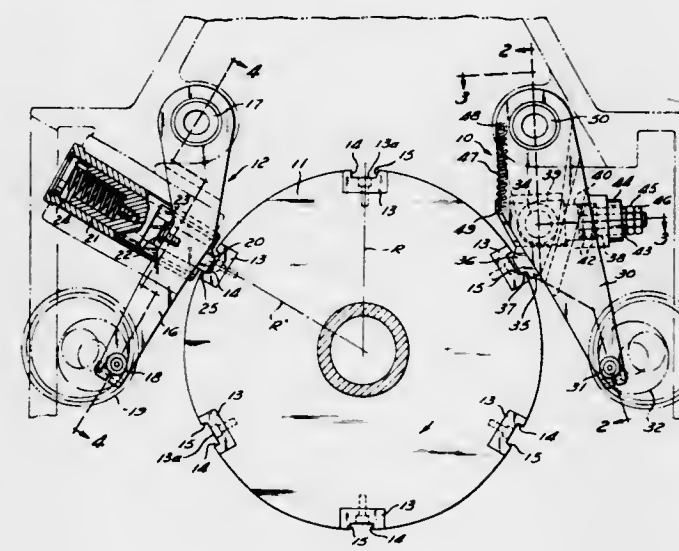
Karl P. Schubert, Mayfield Heights, Ohio, assignor to Acme-Cleveland Corporation, Cleveland, Ohio

Filed Sept. 15, 1971, Ser. No. 180,698

Int. Cl. B23b 29/32

U.S. Cl. 74—815

7 Claims



In a multiple-spindle machine tool, a cam-operated locking pin assembly which, at the end of an indexing rotation of the spindle carrier, turns the spindle carrier a slight additional amount in the same rotational direction against a locating pin assembly and then clamps the spindle carrier in this position. The foregoing abstract is merely a resume of one general application, is not a complete discussion of all principles of operation or applications, and is not to be construed as a limitation on the scope of the claimed subject matter.

3,739,661

AUTOMATIC TRANSMISSION SYSTEM

David Blackburn Harrison, Kenilworth, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

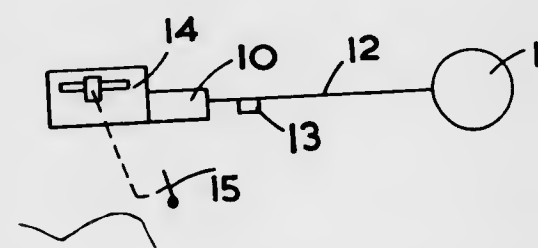
Filed Mar. 1, 1972, Ser. No. 230,841

Claims priority, application Great Britain, Mar. 5, 1971, 6,208/71

Int. Cl. B60k 21/00; F16h 3/74

U.S. Cl. 74—866

5 Claims



A circuit for controlling an automatic transmission system for an engine includes a resistor for supplying a third signal to the input of a summing amplifier, means for supplying a second signal representative of the speed of the vehicle, to the input of the summing amplifier and a transistor for supplying a

3,739,662

RETREAD TIRE MARKING METHOD AND APPARATUS

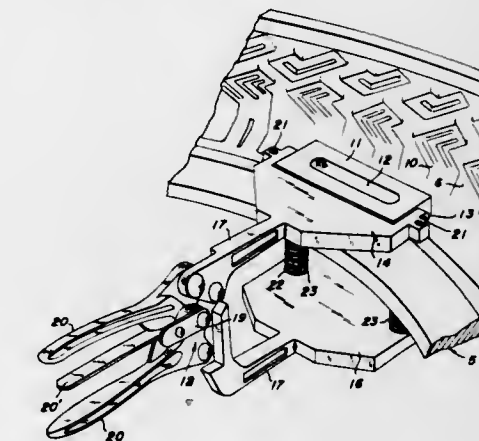
Earl A. Windelman, and Paul A. Fitzsimmons, both of Glenshaw, Pa., assignors to Jas. H. Matthews & Co., Pittsburgh, Pa.

Filed Jan. 15, 1971, Ser. No. 106,653

Int. Cl. B21k 5/20

U.S. Cl. 76—107 R

8 Claims



A method and apparatus for application of interchangeable markings on existing tire retreading molds is disclosed wherein a slotted guide member is first clamped to a mold and a milling cutter in a hand held motor driven tool is first run back and forth in the slot to cut a flat surface in the mold. A jig which has a snug fit in the slot is placed in the slot and spaced holes are drilled to a slight depth in the mold. The guide member and jig are then removed, internally threaded plugs are driven into the holes that have been so drilled and a screw is entered into each plug. A metal tag which has previously been embossed with the required information has slotted ends that may be inserted under the heads of these screws is put in place on the flat surface and the screws are tightened down. When the mold is used the indicia on the tag is molded into the retread rubber. To replace a tag, the screws are partly unscrewed, the old tag removed, and the replacement is slipped into place.

3,739,663

CHAIN ACTUATED PIPE TONGS

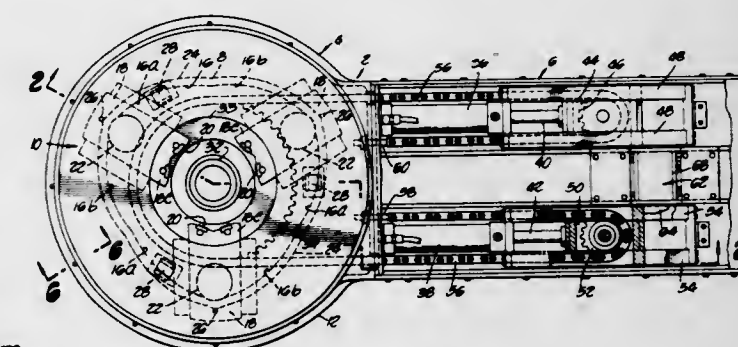
Carl Alfred Wilms, La Habra, Calif., assignor to Byron Jackson Inc., Long Beach, Calif.

Filed Apr. 16, 1971, Ser. No. 134,553

Int. Cl. B25b 13/46

U.S. Cl. 81—57.39

6 Claims



A chain actuated well pipe tong having a body adapted to receive pipe and pipe gripping means mounted with the body,

the pipe gripping means having jaws adapted to positively converge into gripping engagement with pipe and to retract away from such pipe in response to relative rotation of the pipe gripping means with respect to the body. The improvement comprises chain sprocket means connected to rotate the pipe gripping means with respect to the body, chain means connected with the sprocket means, and linearly extending actuator means connected with the chain means and the body for pulling the chain means to rotate the sprocket means and actuate the pipe gripping means.

3,739,664

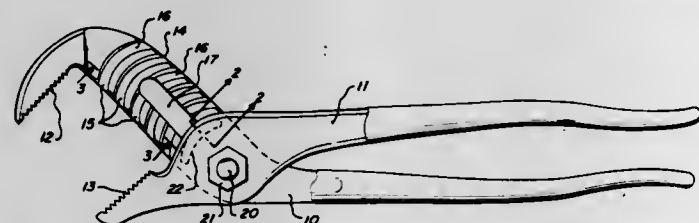
TOOLS AND MACHINE PARTS AND METHODS FROM INVERSE DRAFT FORGING

John E. Swanstrom, Jr., 217 S. 36th Avenue East, Duluth, Minn.

Filed Oct. 14, 1971, Ser. No. 189,126
Int. Cl. B21k 5/00

U.S. Cl. 81-414

10 Claims



The disclosure is directed to the use of forging tools and machine parts by employing a method and structure in the form of a negative draft angle and larger positive draft angle to form tongue or groove elements in the tools and machine parts as forged from the dies. Employment of the negative draft angle with a greater positive draft angle permits tools and machine parts to be formed so that the metal being worked is formed with a continuous uncut and uninterrupted grain flow extending longitudinally of the working member being formed. A negative draft angle of substantially 5 degrees when used with a positive draft of substantially more than 5 degrees has been found to produce excellent results.

3,739,665

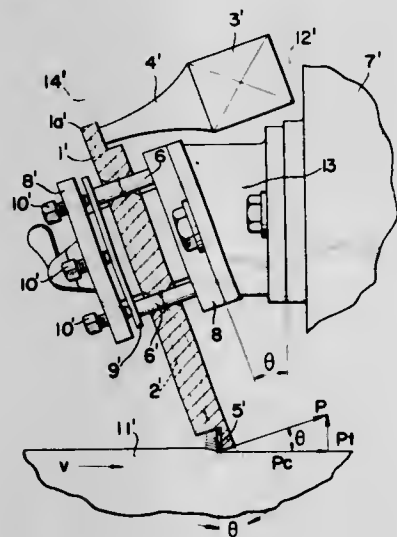
VIBRATING CUTTING METHOD AND APPARATUS

Junichiro Kumabe, Tokyo; Koichiro Kitamura, Tokaoka, and Osamu Taniguchi, Tokyo, all of Japan, assignors to Rikagaku Kinkyusho, Saitama-ken, Japan

Filed Apr. 5, 1971, Ser. No. 131,357

Claims priority, application Japan, Apr. 8, 1970, 45/29997
Int. Cl. B23b 1/00, 29/00; B26d 1/00

2 Claims



This invention is to provide novel vibrating cutting method and apparatus in which vibrating tool holder in vibrating

cutting machine tools is inclined at an angle to the direction of cutting so that the direction of a resultant force of cutting resistance force is at substantially right angle to the center axis of vibration of the bending vibration tool holder.

3,739,666

TUBE CUTTING HEAD STRUCTURE

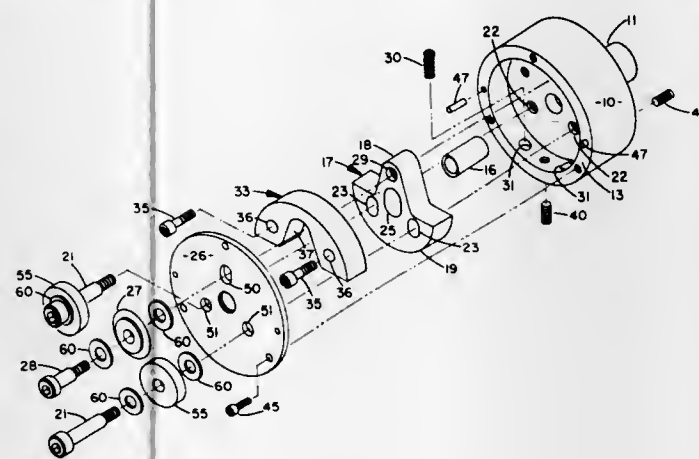
William Wright, East Syracuse, and Myron Mathewson, Syracuse, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Jan. 17, 1972, Ser. No. 218,074

Int. Cl. B23b 5/14

U.S. Cl. 82-59

8 Claims



A rotary tube cutting head structure has only one movable element in the form of a cutter support carrying a cutter at one side of the tube and having a weighted portion at the opposite side of the tube. Upon rotation of the head, the weighted portion of the support effects movement of the cutter by centrifugal force transversely of the tube to sever the same. Means is provided to yieldingly oppose movement of the cutter support by centrifugal force. There is stop means to limit movement of the cutter toward the tube and also in a direction from the tube. A counterweight is provided to reduce vibration of the head at high speed rotation thereof.

3,739,667

LABEL STACKING APPARATUS

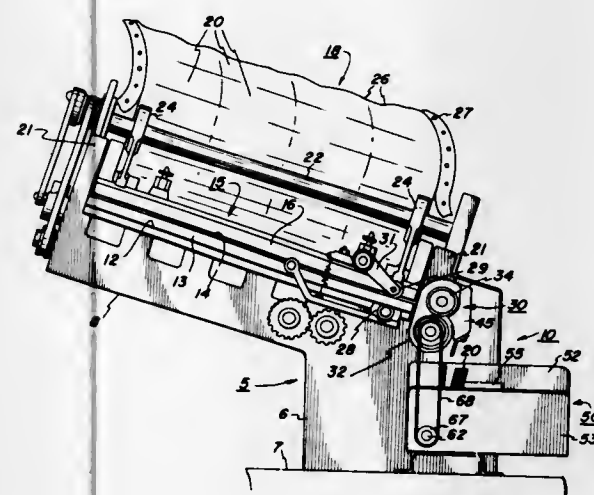
Richard J. Ernst, Palatine, Ill., assignor to Xerox Corporation, Stamford, Conn.

Filed Mar. 19, 1971, Ser. No. 125,984

Int. Cl. B26d 9/00; B65h 35/08

U.S. Cl. 83-92

2 Claims



A label stacking apparatus including a tray for stacking individual labels in succession on edge and in a generally upright position. Label feeder means supply the labels in succession to

the stacking tray, there being guide means opposite the feeder means outlet to guide the labels to the stacking tray inlet. In entering the stacking tray, the bottom portion of the labels tends to offer greater resistance to movement into the tray with the result that succeeding labels tend to become more and more canted. To obviate this, cyclically operated cam means are provided to push against the lower portion of the labels as each label enters the stacking tray to thereby force the label lower portion into the tray and assure proper stacking of the labels in the tray.

3,739,668

APPARATUS FOR CUTTING AND HANDLING BLOCK-LINE ARTICLES

Alfred E. Comstock, Frontenac, Minn., and Burdall Gardner Wilcox, Oakland, Calif., assignors to Safeway Stores Incorporated, Oakland, Calif.

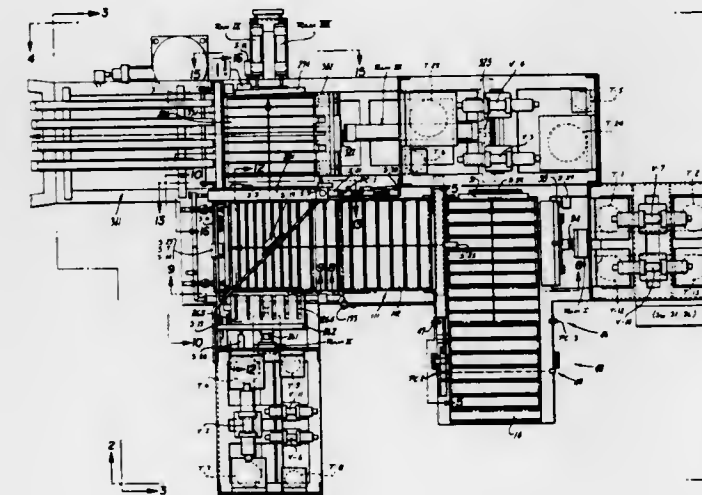
Continuation of Ser. No. 36,718, May 13, 1970, abandoned, which is a division of Ser. No. 780,009, Nov. 29, 1968, which is a division of Ser. No. 402,746, Oct. 9, 1964. This application

June 28, 1971, Ser. No. 157,747

Int. Cl. B26d 3/24, 7/06, 7/18

U.S. Cl. 83-102

10 Claims



Apparatus for cutting articles by measuring one dimension of the article and cutting the article into a plurality of separate parts, each of which has a dimension which is proportional to the dimension measured.

Apparatus for cutting and handling articles having a platform with means for advancing the articles onto the platform. Dies engage the article on the platform to cut parts of predetermined shapes from the article. Means is provided for ejecting the articles from the dies and then for rotating the articles for cutting additional parts from the article.

3,739,669

SHEARING PRESS OF OPPOSING DIE TYPE

Yasuharu Seki, Hamamatsu, Japan, assignor to Suzuki Motor Company Limited, Hamana-gun, Shizuoka Prefecture, Japan

Filed May 17, 1971, Ser. No. 144,082

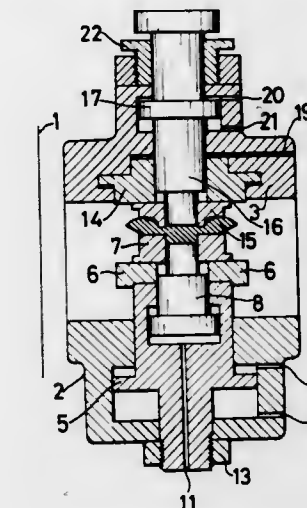
Claims priority, application Japan, May 29, 1970, 45/46464
Int. Cl. B26d 5/42; B26f 1/14

U.S. Cl. 83-123

1 Claim

A press of the opposite die type has a hydraulically actuated main piston in a pressure cylinder operably mounted in a supporting press table. A main bolster carries the lower die and is mounted on the piston. A hydraulically actuated ejector is inserted coaxially in the main piston. A floating bolster carries the upper die that has an annular cutting protrusion opposite

to the lower die and that reciprocates through a short stroke movement. A hydraulically actuated break-out punch that is



coaxially positioned in the floating bolster cooperates with the ejector to cut off a blank from a workpiece held by the die members.

3,739,670

AUTOMATIC FEEDING, POWER-OPERATED ENVELOPE OPENER

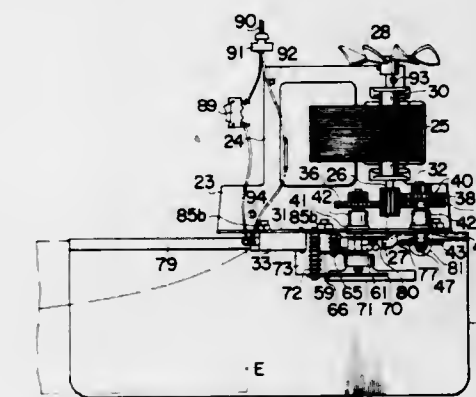
Saichi Amakawa; Osamu Miyamoto, both of Moriguchi; Akito Kawamoto, Neyagawa, and Hiroshi Kawai, Moriguchi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 16, 1970, Ser. No. 89,554

Claims priority, application Japan, June 1, 1970, 45/47366
Int. Cl. B26d 5/26; B23d 19/04

U.S. Cl. 83-210

14 Claims



An automatic feeding, power-operated envelope opener which is operative in such a manner that, when a switch actuating lever is operated by an envelope travelling on an envelope mounting table, an on-off switch of the opener is actuated to set an electric motor in motion and two rotary cutter elements whose shafts are slightly inclined relative to each other are driven by the drive of said motor through a transmission gearing, with the peripheral edge portions thereof in contact with each other at an acute angle, whereby the envelope is cut at one edge by the coaction of said rotary cutter elements.

3,739,671

INTERLEAVING PAPER FEEDER

Earl G. Keith, and Clarence E. Keith, both of Route No. 1, Box 1295, Quarryville, Pa.

Filed May 5, 1972, Ser. No. 250,647

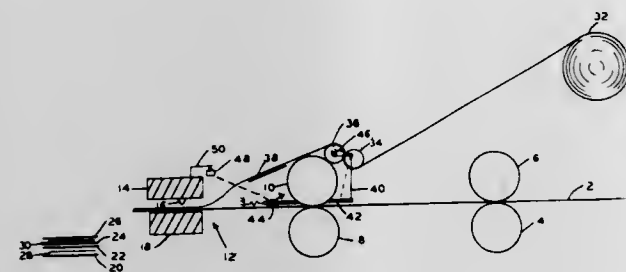
Int. Cl. B26d 5/20

U.S. Cl. 83-230

3 Claims

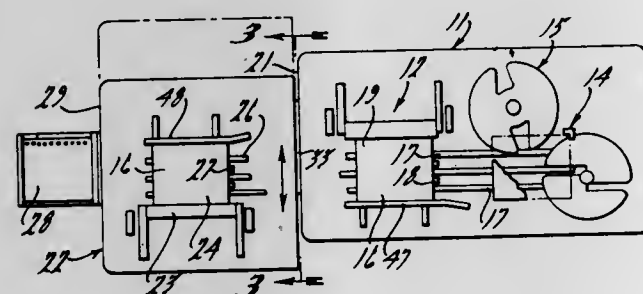
A plurality of pieces of painted metal are cut from a roll of material. Pieces of paper are placed between the individual cut pieces of metal to prevent them from scratching the sur-

faces of each other. The paper feeder automatically feeds paper during every other feeding cycle of the metal to a cutter reduce its width when a predetermined pressure is exerted against the outer end of the capsule so that one contact will



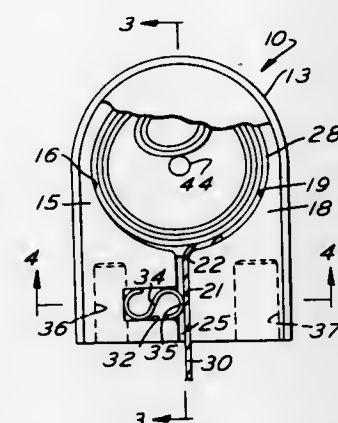
to automatically provide the required amount of paper spacing material.

3,739,672
PAPER PUNCHING MACHINE
Ernst Pfaffle, Neuffen, Germany, assignor to Hans Sickinger Company, Pontiac, Mich.
Filed Apr. 25, 1972, Ser. No. 247,411
Int. Cl. B26f 1/02
U.S. Cl. 83—256



engage the other contact. The switch is especially suitable for closing an electric circuit connected with electrical firing means in an explosively actuated cable cutter.

3,739,674
CASSETTE FOR COILED KNIFE BLADE
Edward Zychal, Cornwells Heights, and Barry L. Neuhard, Philadelphia, both of Pa., assignors to Zyco Manufacturing, Inc., Cornwells Heights, Pa.
Continuation-in-part of Ser. No. 774,720, Nov. 12, 1968, Pat. No. 3,545,322. This application July 9, 1970, Ser. No. 53,353
Int. Cl. B63d 61/18
U.S. Cl. 83—651



A cassette for housing a coiled elongated flexible electrically conductive knife blade which is withdrawn therefrom through an opening at one end. A resilient spring is biased against the knife blade to complete a circuit through the knife blade so that the cassette can be installed in a circuit that will indicate when the knife blade is exhausted.

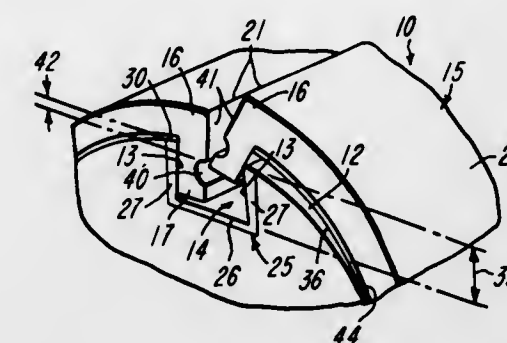
3,739,673
WATER PRESSURE ACTUATED ELECTRIC SWITCH FOR CABLE CUTTER
Ernest E. Temple, Murrysville, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa.
Filed Jan. 12, 1972, Ser. No. 217,116
Int. Cl. B26d 5/12
U.S. Cl. 83—639

A sealed hollow capsule having inner and outer ends and a side wall contains a pair of electric contacts spaced lengthwise of the capsule, the outer end of which supports one of the contacts. The side wall has an annular groove in it reducing the thickness at that point to a thin band that is compressible to

3,739,675
ROTARY ANVIL CONSTRUCTION
John C. Duckett; Rufus Neal Ensley, both of Clyde; Leland E. Williams, and Arthur D. Logan, both of Waynesville, all of N.C., assignors to Dayco Corporation, Dayton, Ohio
Filed Feb. 7, 1972, Ser. No. 223,903
Int. Cl. B26d 7/20
U.S. Cl. 83—659

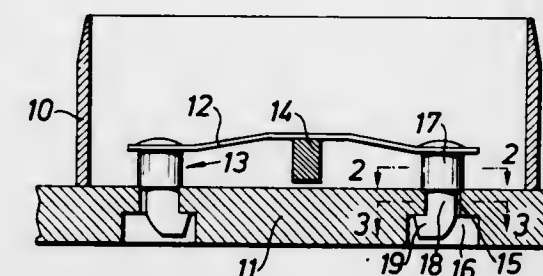
A rotary anvil construction is provided which comprises a cylindrical anvil and a die-cutting mat attached in position

thereagainst with the mat being made of a compressible resilient elastomeric material and having opposite end portions provided with a pair of identical locking flanges which extend within a groove in the anvil wherein the groove is comprised of a pair of spaced holding surfaces. A wedge is pro-



vided between the flanges and serves to urge the flanges tightly against the holding surfaces and thereby tighten and lock the mat against the anvil while simultaneously moving associated outer edges of the mat firmly against each other to provide a single line contact therebetween.

3,739,676
MEANS FOR FASTENING CUTTING DIES ON A BASE PLATE
Yngve Gerdin, Mjallom, Sweden, assignor to Sandvik Aktiebolag, Sandviken, Sweden
Filed Dec. 10, 1971, Ser. No. 206,801
Claims priority, application Sweden, Dec. 14, 1970, 16877/70
Int. Cl. B26f 1/14
U.S. Cl. 83—698

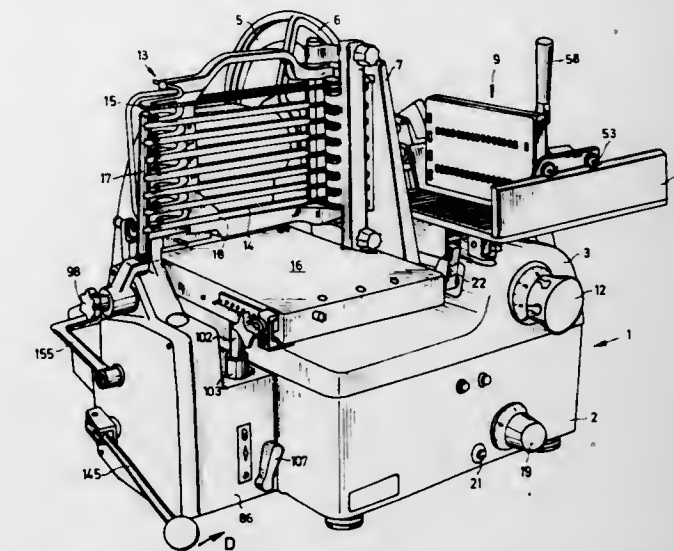


A die is secured to a base plate by a resilient yoke which has hooks engaging recesses in the base plate. This mode of fastening permits the die to yield somewhat in the lateral direction and hence promotes automatic adjustment of adjacent knives.

3,739,677
SLICING MACHINE
Ernst Muller, and Albrecht Maurer, both of Balingen, Germany, assignors to Bizerba-Werke Wilhelm Kraut KG, Balingen/Wurtemberg, Germany
Filed Dec. 7, 1970, Ser. No. 95,552
Claims priority, application Germany, Dec. 5, 1969, P 19 61 069.6
Int. Cl. B26d 1/28
U.S. Cl. 146—102 B

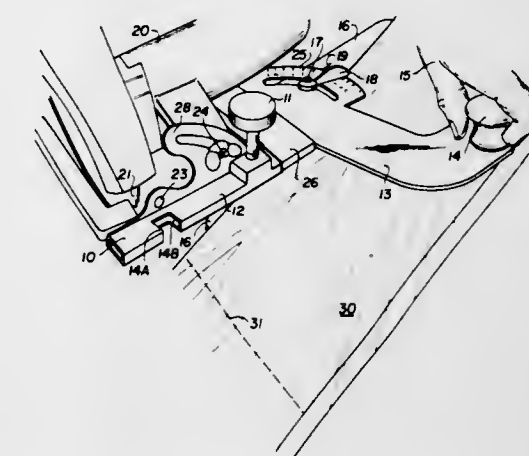
A slicing machine which can produce slices of varying thicknesses has a rotating circular blade mounted on a machine housing. Carriage means are mounted on the machine housing for holding a material to be sliced adjacent the blade and for reciprocating movement in a direction parallel to the plane of the blade. A stacking table is mounted so as to be vertically displaceable in the downward direction during each movement of the carriage by a distance corresponding to

the desired thickness of the slice. The slices are then stacked onto the stacking table by a conveying device and a kicker.



The slices can either be stacked vertically on the stacking table or in a shingle-like fashion. In the latter case, the stacking tables moves horizontally instead of vertically.

3,739,678
POWER SAW GUIDE ATTACHMENT
Arvo M. Kankaanpaa, Elmont, N.Y., assignor to Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed Feb. 29, 1972, Ser. No. 230,328
Int. Cl. B27b 9/04
U.S. Cl. 83—745

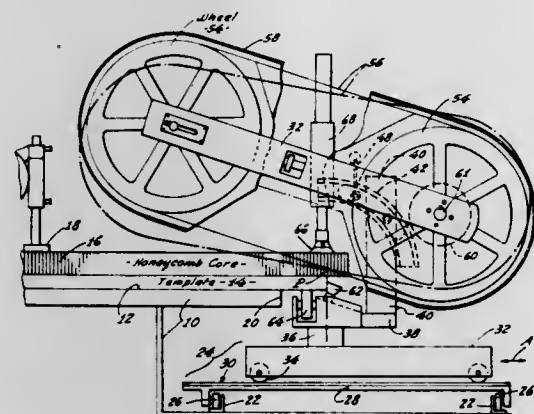


A guide for a portable power saw, attachable to such a saw, which enables the operator to make straight cuts with said power saw at a uniform angle to the sides of the work being sawed. A fixed bearing member of the guide is attached to the portable power saw, with a slidable mating member fitting into said bearing member, said slidable mating member being equipped with a rotatable end stop for alignment with the work being sawed. The rotatable end stop may be locked in place by means of a screw fastener, and the angle of said stop member to the plane of the saw cut is displayed on a protractor scale fixed to the sliding member.

3,739,679
CHAMFERING SAW
Francis R. Schwend, Thousand Oaks, Calif., assignor to Northrop Corporation, Los Angeles, Calif.
Filed Oct. 4, 1971, Ser. No. 185,937
Int. Cl. B23d 53/08; B27b 13/04
U.S. Cl. 83—789

A profile chamfering saw facility usable in chamfering the edges of honeycomb filler material for sandwich structures,

reinforced panels and the like. The facility includes an elongated work support surface and provides means for mounting an inclined band saw for lateral and longitudinal movement



with respect to the support surface along a template edge directing the band saw with respect to the filler material enabling its edges to be chamfered. Chamfer angle is adjustable by tilting the band saw in a vertical plane.

3,739,680

HARP CONSTRUCTION

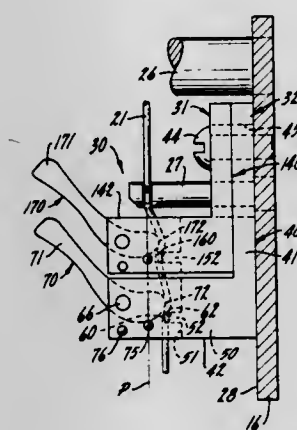
Henning Christiansen, Oak Lawn, Ill., assignor to Lyon & Healy, Inc., Chicago, Ill.

Filed Aug. 24, 1971, Ser. No. 174,393

Int. Cl. G10d 1/04

U.S. Cl. 84-266

10 Claims



A lever mechanism for manually fretting the strings of a harp from a flat to either a natural or a sharp note. A pair of fret blocks are fastened to the neck of the harp for longitudinal adjustment relative to each harp string. Each block includes a fret bar extending transversely of the string, beneath it, and having a generally Vee-shaped fret formed therein. A lever is mounted on the block over the string and in position to have a cam surface brought to bear, upon manual pivoting of the lever, against the string to force it into seated relationship in the fret. The cam surface has a decreasing radius of curvature as it contacts the strings so that initial travel of the lever results in relatively little displacement of the string whereby the final travel of the lever results in a substantial displacement of the string into engagement with the fret.

3,739,681

FINGER PICK FOR STRINGED MUSICAL INSTRUMENTS

James Dunlop, 126 Dartmouth Place, Benicia, Calif.

Filed Nov. 17, 1972, Ser. No. 307,484

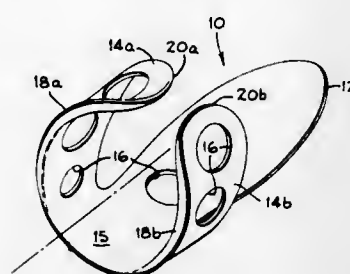
Int. Cl. G01d

U.S. Cl. 84-322

3 Claims

A finger pick comprising the conventional string-actuating part of sheet material and tapering conformation; and extending in opposite directions from the base of said tapering part

means for securing the pick to the player's finger tips in the form of annular wings. Segments of the outer edges of said wings, i.e., the edges opposite the side where the string-actuating part is located, are flared outwardly with respect to the center line of the annulus defined by said wings to reduce



discomfort to, and tiring of, the fingers during use of the pick formerly caused by the outer edges of the wings cutting into the back of the player's fingers in reaction to the force applied to the strings of the instrument through the string-actuating part of the pick.

3,739,682

SELF DRILLING, REAMING AND TAPPING SCREW

George Siebol, Orange, and Robert F. Kolec, Wittier, both of Calif., assignors to Olympic Fastening Systems, Inc., Downey, Calif.

Continuation-in-part of Ser. No. 815,825, April 14, 1969, Pat. No. 3,578,768. This application Feb. 25, 1971, Ser. No.

118,693

Int. Cl. F16b 25/00

U.S. Cl. 85-41

1 Claim



A fastener comprising a screw having a head adapted to be engaged by means whereby it may be rotated so as to force it into a workpiece or the like at one end and a workpiece engaging point at the other end. This fastener is designed to have the maximum tensile strength in the total fastener. To this end the shank of the screw, between the point and head, is formed into three sections. The first section, moving from the point towards the head, is of relatively small diameter and is provided with a pair of cutting edges having flutes extending therefrom whereby this section functions as a pilot drill. The next or intermediate section is of larger diameter. The aforementioned grooves or flutes may extend into this section and define a second pair of cutting edges. This intermediate section is provided with its own cutting edges and flutes whereby this intermediate section constitutes a reaming section having multiple cutting edges with flutes extending therefrom. These drilling and reaming sections are designed to give a positive round hole of the proper diameter so that the threaded section can engage the sides of the hole and distort the sheet metal enough so that a firm fastening is accomplished. The third section, therefore, that immediately adjacent the head, is provided with self tapping screw threads of substantially constant diameter and uninterrupted by any grooves, flutes or the like.

3,739,683

EXPANSION FASTENING DEVICE

Jerald W. Bishop, 1506 Highway 56, Dodge City, Kans.

Filed Jan. 27, 1972, Ser. No. 221,302

Int. Cl. F16b 13/06

U.S. Cl. 85-70

4 Claims



An expansion fastening device for fastening objects to a sheet metal wall consisting of a screw adapted to be inserted through a hole formed in the wall, a cover plate larger than the hole and disposed at one side of the wall, the screw being rotatably mounted in the cover plate, a tubular resilient metal cage normally proportioned to be inserted axially through the hole, but being transversely expandable to a size too large to pass through the hole, a rubber block confined in the cage, and a draw bar engaging the surface of said block opposite said cover plate, the screw extending through the block and being threaded in the draw bar.

3,739,684

EXPANSION HANGER DEVICE

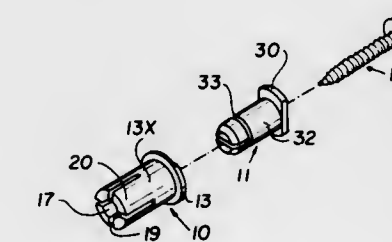
John A. Vitkevich, 57 Griduy St., West Islip, N.Y.

Filed Nov. 12, 1971, Ser. No. 198,371

Int. Cl. F16b 13/06

U.S. Cl. 85-73

1 Claim



This invention relates to a device for hanging frames or fixtures to a dry wall of a building. More particularly the device comprises a body portion which is inserted into a suitable aperture of a relatively thin, dry wall and expanded there behind, by an insertion of a unique plug portion. Lastly, a conventional screw or other suitable hanger element is inserted into said plug portion for holding a fixture thereto.

3,739,685

CARTRIDGE CATCHER

Ken C. Lundgren, 6837 Huntale St., Long Beach, Calif.

Filed Oct. 22, 1969, Ser. No. 868,522

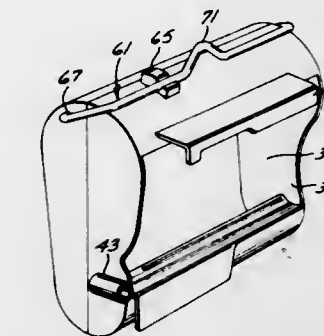
Int. Cl. F41d 11/00

U.S. Cl. 89-33 F

2 Claims

A cartridge catcher for use with a gun having a receiver formed with a side opening cartridge ejector outlet and including a pivot pin-receiving bore. The catcher includes a lobe-

shaped housing formed with a storage receptacle having an inlet registered with said ejector outlet. A mounting flange is carried from the housing for clipping over the top of the receiver and a boss is also carried from the housing and is formed with a through passage for registration with the pivot



pin-receiving bore to receive a mounting stud whereby the pivot pin may be removed from the receiver and the mounting flange clipped over the top of the receiver and the mounting stud inserted through the passage and into the bore for mounting such catcher on the gun without modification thereof.

3,739,686

METHOD AND MACHINE FOR SHAVING A CONICAL GEAR

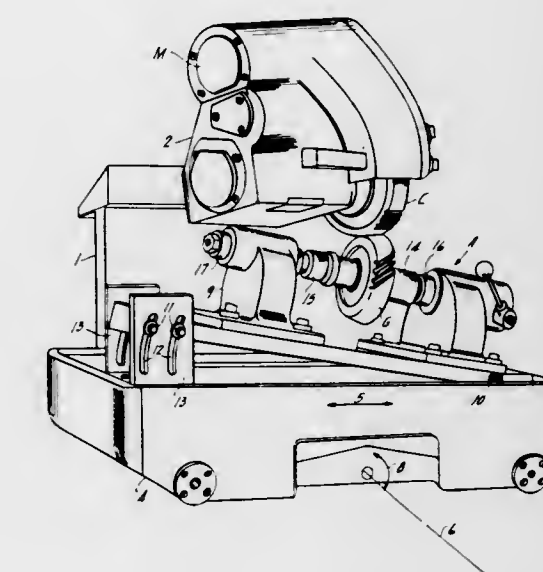
Louis G. Marano, Racine, Wis., assignor to Twin Disc, Incorporated, Racine, Wis.

Filed Feb. 2, 1972, Ser. No. 222,922

Int. Cl. B23f 19/06

U.S. Cl. 90-1.6

7 Claims



A method of and machine for shaving a conical gear, such as for example, a conical spur gear or a conical helical gear, and using only a standard cylindrical shaving cutter. The invention includes arranging the axis of the conical gear at an angle to the axis of the cylindrical shaving cutter so that the pitch line of the gear adjacent the cutter is generally parallel to the pitch line of the cylindrical cutter during the shaving operation.

3,739,687

MACHINE FORMING TEETH AT BOTH FACES AND THE PERIPHERY OF A ROTARY BLANK

Evangelos Bougiouris, Worcester, Mass., assignor to John Sagarion, Auburn, Mass.

Filed Jan. 28, 1972, Ser. No. 221,547

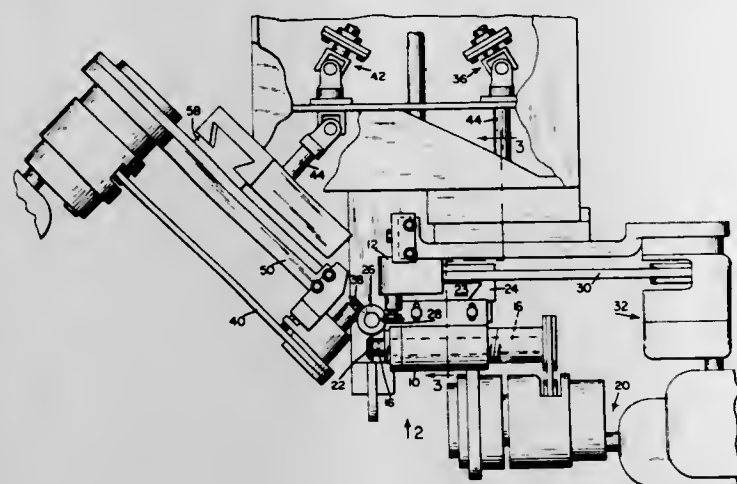
Int. Cl. B23c 3/36

U.S. Cl. 90-15.1 R

15 Claims

An automatic machine for forming cutting teeth in a rotary blank, said machine including three separately operated ro-

tary cutters, and means for driving and reciprocating them in timed relation, two of the cutters operating on the blank at opposite side faces thereof, said side faces being convergent,



and the third cutter operating on the peripheral edge of the blank; together with indexing means for the rotary blank after the completion of each of the three part teeth.

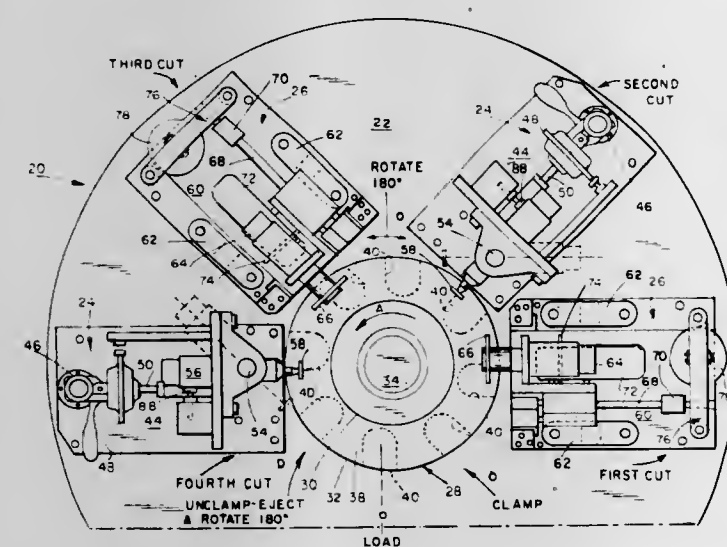
3,739,688 MILLING MACHINE HAVING A PLURALITY OF MILLING STATIONS

Walter Bell, Monroe, and William A. Eager, Cornwell, both of N.Y., assignors to Star Expansion Industries Corporation, Mountainville, N.Y.

Filed Sept. 3, 1971, Ser. No. 177,662
Int. Cl. B23c 9/00

U.S. Cl. 90—21 R

13 Claims



A milling machine for forming drilling extremities on screw blanks. The milling machine comprises a plurality of article-milling stations, each of which is provided with milling-cutters respectively which are pivotally displaceable relative to each of the stations. A feeding assembly is utilized for continuously feeding articles in dwell-free relation successively to each of the milling stations and is controlled by a motor unit so as to feed the articles to and away from the article-milling stations respectively in dwell-free relation at a rapid accelerating withdrawal rate away from each of the article-milling stations and a rapid decelerating approach rate toward each of the article-milling stations. The milling-cutters are pivoted into a cutting position respectively and remain in the position as the article-feeding unit feeds screw blanks slowly into contact with each of the cutters at a rate suitable for material removal. The cutters are then pivotally displaced away from the cutting positions and the screw blanks are rapidly displaced away from the cutting station to again be acted upon at a second milling station, wherein the rate of feed will again be reduced but never stopped.

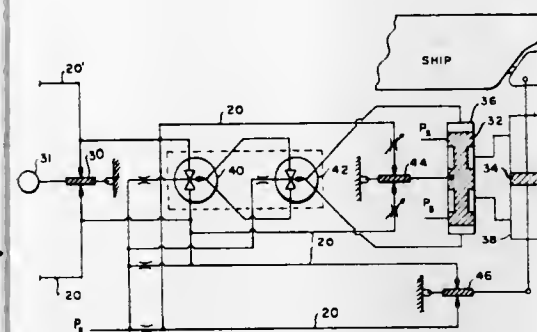
3,739,689 FLUIDIC FAILURE DETECTION SYSTEM

David L. Craven, Annapolis, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 23, 1970, Ser. No. 91,732
Int. Cl. F15b 13/16, 13/042

U.S. Cl. 91—3

2 Claims



A fluidic failure detection system to be used in conjunction with the fluidic steering and diving control system. The detection system is a fluidic analog of the steering control system and duplicates what the control system is to do and then compares its output with that of the control system.

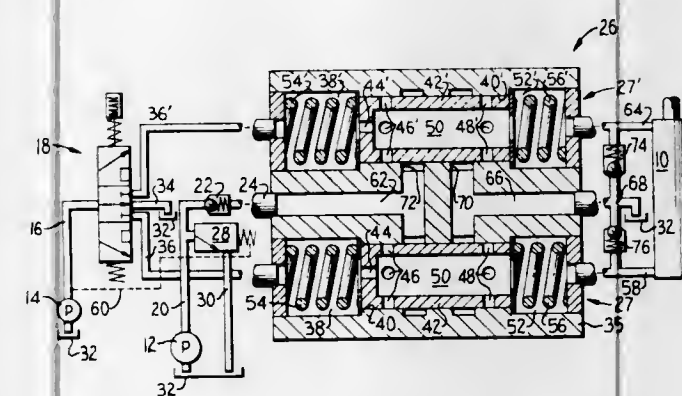
3,739,690 PILOT OPERATED CONTROL VALVE

John R. Cryder, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed July 19, 1971, Ser. No. 163,866
Int. Cl. F15b 11/08, 13/042

U.S. Cl. 91—28

2 Claims



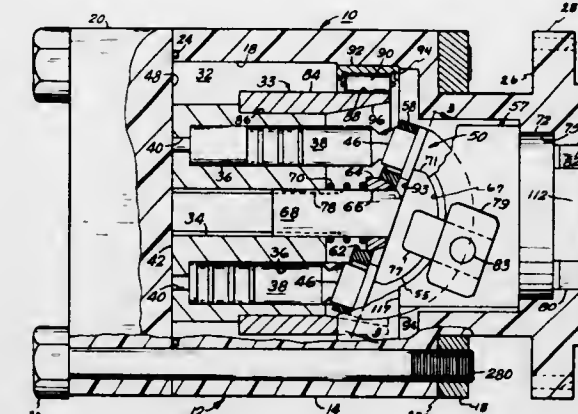
An implement hydraulic circuit including a pilot operated flow amplifier directional valve for controlling communication between a source of primary actuating fluid and a hydraulic motor. A pair of valve spools in the valve provide separate regulated flow paths for an inlet passage and an outlet passage respectively with a pair of work ports. An actuating chamber is associated with one end of each of the spools and may each be selectively communicated with a separate source of pilot fluid for actuation of either of the spools to communicate the primary source with either side of the motor. The other spool is positioned by fluid displaced from the motor to communicate the displaced fluid to the outlet passage for return to a reservoir. The configuration of the spools and their arrangement in the valve provide a capability of metering flow from motor to reservoir to prevent overrunning of the motor.

3,739,691 FLUID DEVICE

Wilfred S. Bobler, 4518 Brightmore, Bloomfield Hills, Mich.
Filed Aug. 3, 1970, Ser. No. 60,333
Int. Cl. F01b 13/04

U.S. Cl. 91—506

23 Claims



A fluid device of the axial piston type having high and low pressure operating passages, one of which may be an inlet and the other an outlet depending upon the pumping or motoring function of the device. The fluid device which may be of the fixed or variable displacement type has a rotatable cylinder barrel with each end of a plurality of pistons disposed for reciprocation within cylinder bores in the cylinder barrel, and cylinder ports successively communicating each of the cylinder bores with arcuate inlet and outlet passages formed in a valving face disposed at one end of the cylinder barrel. The other ends of the pistons are drivingly engaged by an inclined thrust plate assembly disposed to impart a reciprocal stroking movement to the pistons within the cylinder bores as the cylinder barrel is rotated. In one example of the invention, the thrust plate assembly, the cylinder barrel and other rotating components of the fluid device are constructed of a sintered material enclosed in a plastic housing which is preloaded by a predetermined amount that is a function of the expansion forces exerted on the housing by the fluid pressure acting against the pistons within the cylinder bores.

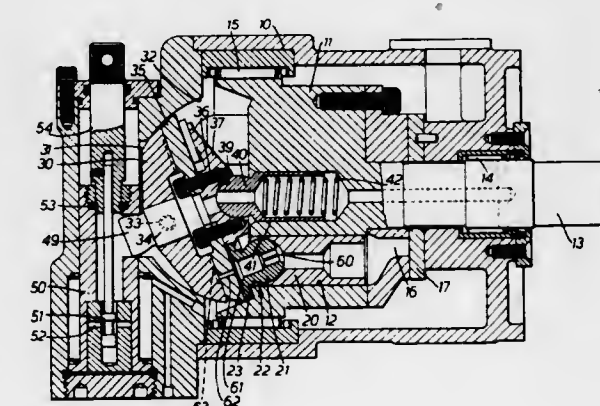
In a second example of the invention, a variable displacement fluid device is disclosed as having several means for varying the inclination of the thrust plate assembly with respect to the longitudinal axis of the shaft on which the rotating cylinder barrel is carried.

3,739,692 SWASHPLATE AND LIKE HYDRAULIC MACHINES

George V. Bell, Ponteland, Northumberland, England, assignor to Reyrolle Hydraulics Limited, Hebburn, England
Filed Sept. 6, 1968, Ser. No. 757,985
Int. Cl. F01b 13/04

U.S. Cl. 91—506

3 Claims



In a swashplate hydraulic machine each piston is connected by a ball joint to a slipper pad, and actuated by a swashplate

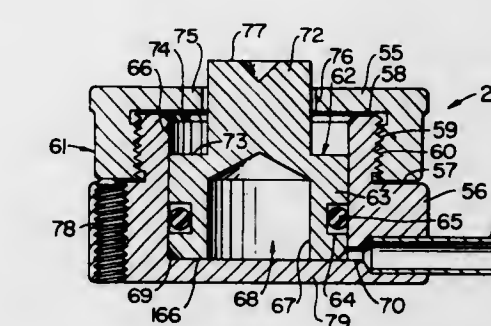
assembly comprising a rotary slipper retaining plate rigidly connected to a rotary running plate between which the slipper pads are trapped and can slide, and which are backed up by and mounted to rotate in contact with a stationary cam plate.

3,739,693 PNEUMATIC POSITIONING APPARATUS AND PARTS THEREFOR OR THE LIKE

Louis M. Puster, Knoxville, Tenn., assignor to Robertshaw Controls Company, Richmond, Va.
Division of Ser. No. 865,079, Oct. 9, 1969, Pat. No. 3,633,465.
This application Oct. 22, 1971, Ser. No. 191,614
Int. Cl. F15b 15/24; F16j 11/02

U.S. Cl. 92—13

7 Claims



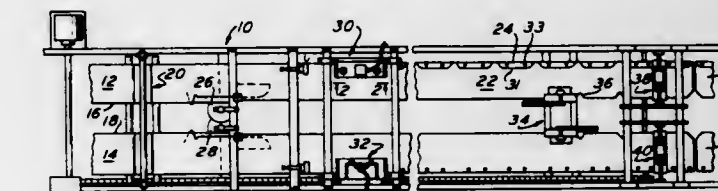
A plurality of separate pneumatically operated actuators disposed in aligned and abutting relation to provide a linear positioning unit having opposed ends with each actuator being individually operable to linearly extend itself when actuated and thereafter to linearly collapse itself when deactuated whereby one end of the unit will be correspondingly linearly extended relative to the other end thereof and thereafter be linearly collapsed relative to the other end thereof. A control device being operatively interconnected to the one end of the positioning unit to be controlled in relation to the position of the one end relative to the other end thereof and control means for directing a source of pneumatic fluid to at least one of the actuators to extend the one end of the unit by the degree of actuation of the one actuator and for thereafter disconnecting the source from that one actuator to collapse the one end of the unit by the degree of deactuation of the one actuator.

3,739,694 APPARATUS FOR MAKING PLASTIC BAGS

Francis A. Davis, Jr., Chalfont, Pa., assignor to Paramount Packaging Corporation, Chalfont, Pa.
Continuation-in-part of Ser. No. 82,257, Oct. 20, 1970, Pat. No. 3,654,841. This application Nov. 25, 1970, Ser. No. 92,735
Int. Cl. B31b 1/14, 1/64

U.S. Cl. 93—33 H

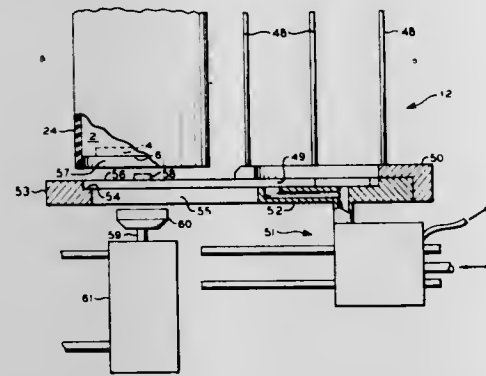
7 Claims



Apparatus is disclosed for making open-gusset bags from overlapping webs of thermoplastic material. A notch-perforator is provided along a side edge of the web for providing sets of notches and perforations or slits at spaced points along the web. V-shaped notches are applied to the gusset portion of the web and then the web is slit and welded transversely to divide the web into bags.

3,739,695

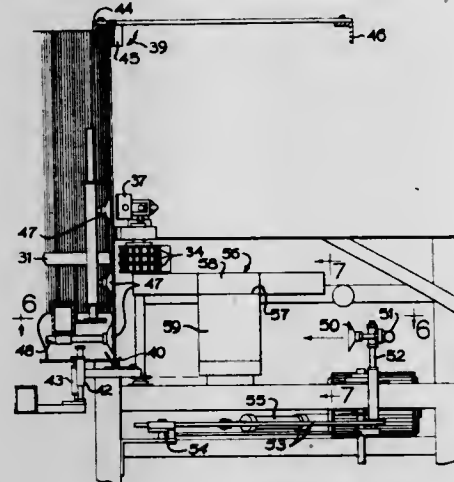
BOTTOM MEMBER INSERTING APPARATUS FOR CONTAINER-FORMING MACHINE
 Carl R. Peacock, Fulton, N.Y., assignor to Phillips Petroleum Company, Bartlesville, Okla.
 Division of Ser. No. 868,789, Oct. 23, 1969, Pat. No. 3,628,428. This application Sept. 20, 1971, Ser. No. 182,043
 Int. Cl. B31c 1/06
 U.S. Cl. 93—39.1 R



An apparatus having an aligning element, a rim extending around a portion of a receiving surface of the aligning element, a pair of holding lugs attached to the rim, and an inserting rod movable relative to the aligning element for inserting a bottom member into a chamber of an adjacently positioned body.

3,739,696

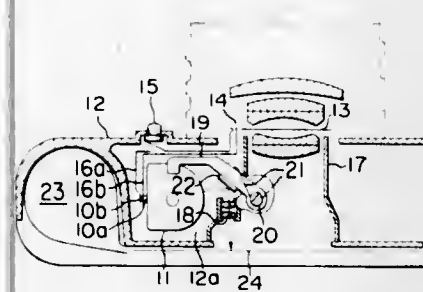
CARTON DELIVERY AND EXPANDING APPARATUS
 Reinhold A. Pearson, deceased, late of East 304 Second Avenue Spokane, Wash. (by Alma Pearson, executrix)
 Filed Apr. 21, 1972, Ser. No. 246,256
 Int. Cl. B31b 1/76, 5/02
 U.S. Cl. 93—53 SD



An apparatus for setting up cartons, including a magazine that holds a horizontal stack of vertically oriented collapsed cartons. A receiving station accepts the cartons as they are fed thereto from the magazine by a moving conveyor lug and pushing bracket. Stationary vacuum cups and cooperative moving vacuum cups engage opposed panels of each carton and expand it to a rectangular open configuration laterally adjacent to the receiving station. A vertically moveable trough initially receives the collapsed carton at the receiving station and is subsequently moved downwardly clear of the carton prior to expansion. The lower rear flap of each carton is engaged by an inclined pushing element upon carton expansion, and the carton is subsequently pushed forwardly as the rear flap and a subsequently engaged front flap are bent to horizontal positions inward of the carton. Each carton is subsequently received between moving belt flights and carried through guide rods that fold the side flaps. The cartons are delivered to a horizontal receiving table where a vertical mandrel exerts pressure on the bottom flaps to secure an adhesive bond between them.

3,739,697

DATA RECORDING DEVICE FOR USE WITH CAMERAS
 Fumihiro Miyagawa, Tokyo, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan
 Filed Mar. 29, 1972, Ser. No. 239,205
 Claims priority, application Japan, Mar. 31, 1971, 46/22563
 Int. Cl. G03b 17/24
 U.S. Cl. 95—1.1



A data recording device for incorporation in a camera which enables appropriate data associated with a particular subject to be recorded in the same frame on a film or at an appropriate position outside of the frame on the film in the camera by removably inserting therein a data capsule including data rings bearing the data to be recorded. The selected data are illuminated by means within the capsule and projected onto the film through a projection lens located in the camera body. This projection lens is automatically covered or sealed by a mirror on a spring-loaded lever when the data capsule is removed from the camera so that external light is prevented from entering the projection lens and passing onto the film. On the other hand, the projection lens is automatically uncovered to project the selected data which is reflected by the mirror when the data capsule is inserted into the camera.

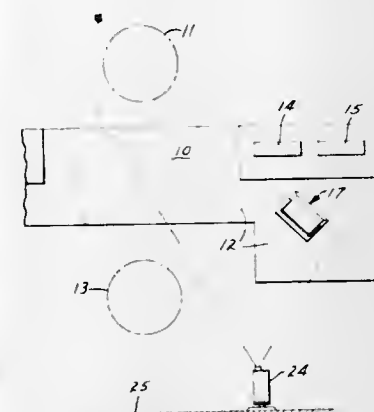
3,739,698

APPARATUS FOR PHOTOGRAPHING A PERSON WHILE A DOCUMENT IS HANDLED AT A WORK STATION
 Richard Alan De Vries, New Brighton, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Jan. 3, 1972, Ser. No. 214,923
 Int. Cl. G03b 17/24

U.S. Cl. 95—1.1

10 Claims

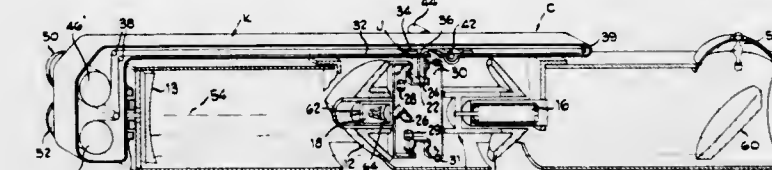


A photographic record of a person at a work station that can later be at least approximately identified with a document that was handled at the work station while the person was there is provided by simultaneously displaying a code adjacent the person, applying the same code to the document handled, and photographing on one film both the person and the displayed code.

3,739,699

PANORAMIC AERIAL CAMERA
 Walter L. Colterjohn, and Waldemar B. Karkow, Jr., both of 1201 Oak Ridge Circle, Barrington, Ill.
 Filed Jan. 5, 1972, Ser. No. 215,519
 Int. Cl. G03b 37/02
 U.S. Cl. 95—12.5

6 Claims

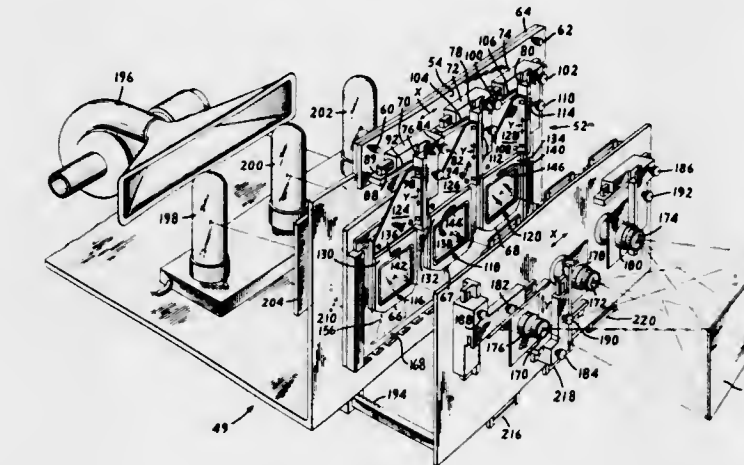


A panoramic scanning camera adapted to scan a plurality of adjacent narrow transverse strips of the terrain being photographed. Changes of scale, which cause discontinuity between adjacent images, are compensated for by using an optical system which rectifies the image by varying the magnification thereof as a function of the angle between the optical axis and the nadir, viz. the scan angle.

3,739,700

PREREGISTERED MULTISPECTRAL PHOTOGRAPHS
 Edward F. Yost, Jr., Northport, N.Y., assignor to Spectral Data Corporation, Hauppauge, N.Y.
 Filed June 24, 1970, Ser. No. 49,252
 Int. Cl. G03b 33/04
 U.S. Cl. 95—12.2

1 Claim



Multispectral photographs prereregistered for projection are made by reproducing a first set of multispectral photographs, taken by a multispectral camera, to provide a second set of photographs all on the same scale. The photographs of the second set are simultaneously projected on a viewing screen, and their positions are adjusted so that the projected images are accurately superimposed. The photographs of the second set are reproduced in their adjusted positions to provide a third set of photographs on a single strip of film. The photographs of the third set are prereregistered. A series of sets of photographs prereregistered in this manner can be projected with great ease, since no adjustment of the projector between successive projections is necessary.

3,739,701

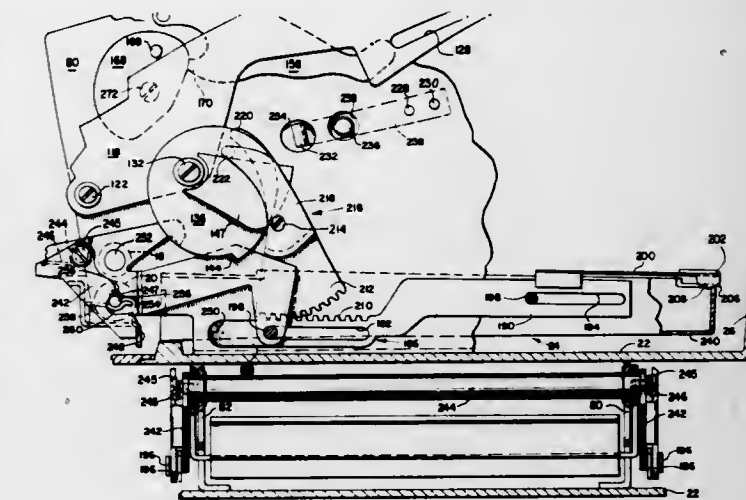
NOVEL PHOTOGRAPHIC CAMERA FILM PROCESSING MEANS
 Irving Erlichman, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
 Filed Dec. 20, 1971, Ser. No. 209,615
 Int. Cl. G03b 17/52
 U.S. Cl. 95—13

20 Claims

The present invention envisions a reflex camera having a specular surface within the optical path to the film plane. An

operator mechanism positions a viewing surface closely proximate the film plane for focusing purposes and in a subsequent exposure mode positions a reflective surface within the optical path in a position causing a coincidence of a focal plane with the film plane.

The camera includes a processing station, having a pair of processing rolls, and a support for locating a film-advancing apparatus for engaging and moving the film unit, subsequent

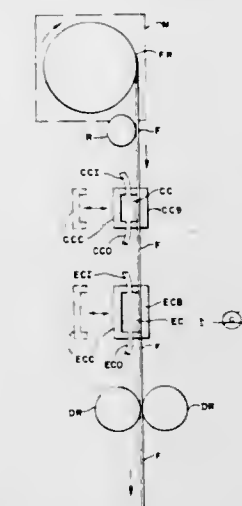


to exposure, from its exposure position into the bite of said processing rolls. The processing rolls are initially releasably retained in predetermined spaced relation to facilitate the reception of the exposed film unit for processing. Thereafter, the releasable retaining means is disengaged to allow the processing rolls to resiliently close on the film unit. The releasable retaining means is further disabled to prevent it from securing the rollers in spaced relation as a result of their being urged apart, as by a high spot on the film unit.

3,739,702

INSTANT STABLE FILM PROCESSING METHOD
 David C. Wender, Glencoe, and Tung H. Jeong, Lake Forest, both of Ill., assignors to International Holographics, Inc., Lake Forest, Ill.
 Filed Mar. 9, 1972, Ser. No. 233,031
 Int. Cl. G03b 17/50
 U.S. Cl. 95—14

6 Claims



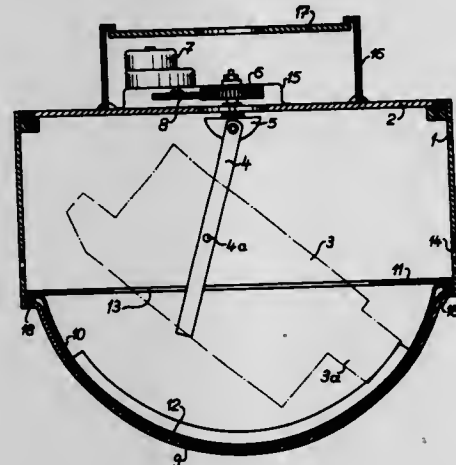
In accordance with a stable, almost instantaneous film processing method, film is preconditioned in a chemically inert but compatible conditioning fluid. Thereafter, the preconditioned film is advanced into an exposure chamber in which it is sealed in the presence of conditioning fluid and maintained under pressure so as to spatially stabilize the film. The film is then exposed, and thereafter developing fluid is metered into the exposure chamber under pressure in order to develop the film in place while maintaining the spatial stability thereof. The speed of the development step may be enhanced further through the use of heated developing fluids or special developing agents.

3,739,703
CONCEALMENT OF CAMERAS FOR OBSERVATIONAL PURPOSES
 Guy Behles, 9, rue Madame de Stael, 1201 Geneva, Switzerland

Filed Mar. 8, 1971, Ser. No. 122,112
 Claims priority, application Switzerland, Mar. 9, 1970, 3285/70

Int. Cl. G03b 37/02
 U.S. Cl. 95-15

3 Claims

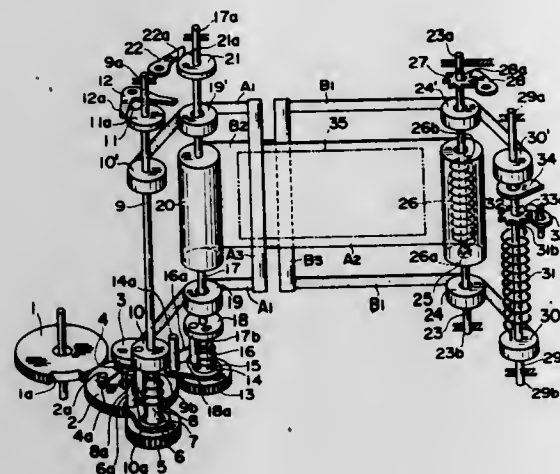


A camera for observing a selected area is concealed by a hollow dome-like member partially metallized to form a convex mirror from the point of view of an observer in the selected area, whilst allowing light to pass through the member from the area to the camera.

3,739,704
FOCAL PLANE SHUTTER CONTROL MECHANISM FOR A PHOTOGRAPHIC SHUTTER
 Kazuhiro Akiyama, Saitama, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka-shi, Osaka-fu Japan
 Filed Nov. 8, 1971, Ser. No. 196,353
 Claims priority, application Japan, Nov. 9, 1970, 45/97854; Nov. 14, 1970, 45/112516

Int. Cl. G03b 9/28
 U.S. Cl. 95-57

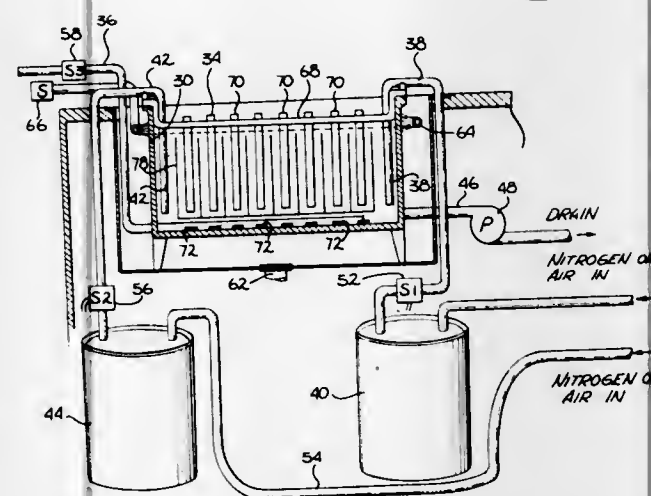
14 Claims



A focal plane shutter control mechanism wherein means are provided for equalizing the inertias of the front and rear screens and their associated drive mechanisms so as to eliminate uneven exposures. A transmission means for driving first and second wind-up gears associated respectively with the front and rear screens is disengaged and a cam member is actuated by over-driven bias means to compensate for the overlap of the front and rear screens in their cocked positions.

3,739,705
PHOTOGRAPHIC PLATE DEVELOPMENT SYSTEM
 Daniel J. Lasky, San Jose, Calif., assignor to U.S. Electro-Optical Incorporated, Santa Ana, Calif.
 Filed Nov. 1, 1971, Ser. No. 194,727
 Int. Cl. G03d 3/10

14 Claims



A photographic plate development system for batch processing of photographic plates to provide consistent and high quality plates. The system is comprised of a processor tank having a removable plate supporting rack for supporting the plates in parallel, vertical planes. The processor tank has electrodes at the bottom thereof under the normal position of the plates, and vertical electrodes disposed in the tank adjacent the emulsion side of the plate. The bottom electrodes are provided with a negative polarity with respect to the vertical electrodes when the processor tank is filled with an appropriate developing solution. The resulting electrolysis causes hydrogen bubbles to be produced at the bottom electrodes and rise through the developer along the emulsion surface to provide a gentle turbidity over the entire emulsion surface. The negatively charged particular by-products of the development are encouraged to break away from the emulsion surface by the turbidity and are attracted to the vertical electrode by electrophoretic attraction. The developer and fixer are delivered to the processor tank under pressure, and a drain pump is provided to allow the rapid draining of the processor tank. An outer tank is provided around the processor tank for containing and rinsing away any slop-over from the processor tank.

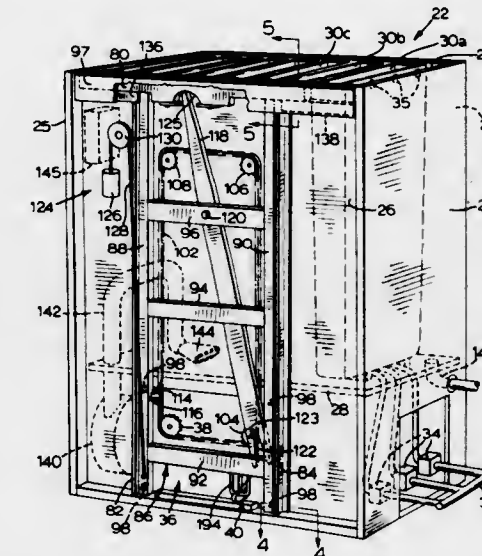
3,739,706
PHOTOGRAPHIC PROCESSOR
 Heinz Peter Carstens, 1340 Danforth Road, Apt. 702, Toronto, Ontario, Canada
 Filed Dec. 9, 1971, Ser. No. 206,477
 Int. Cl. G03d 3/10

U.S. Cl. 95-89 D

4 Claims

A device for developing photographic prints, transparencies and the like automatically. The device consists of a plurality of tanks spaced longitudinally between a pair of parallel rails which carry a print support adapted to suspend the prints in the tanks. A transport mechanism is coupled to the rails for lifting the print support upwardly out of one tank and then

longitudinally to position the print support above an adjacent tank, and finally to lower the print support into the adjacent

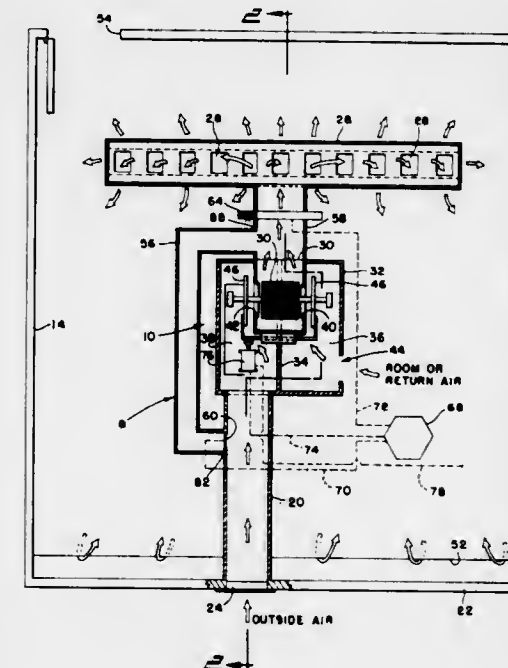


tank. An agitator is also included to oscillate the print support vertically while the prints are in each of the tanks.

3,739,707
SMOKE-FUME EXHAUST SYSTEM
 George F. Knapp, Chagrin Falls, Ohio, assignor to MKM Corporation, Chagrin Falls, Ohio
 Filed May 1, 1972, Ser. No. 249,384
 Int. Cl. F24f 13/00

U.S. Cl. 98-33 R

12 Claims



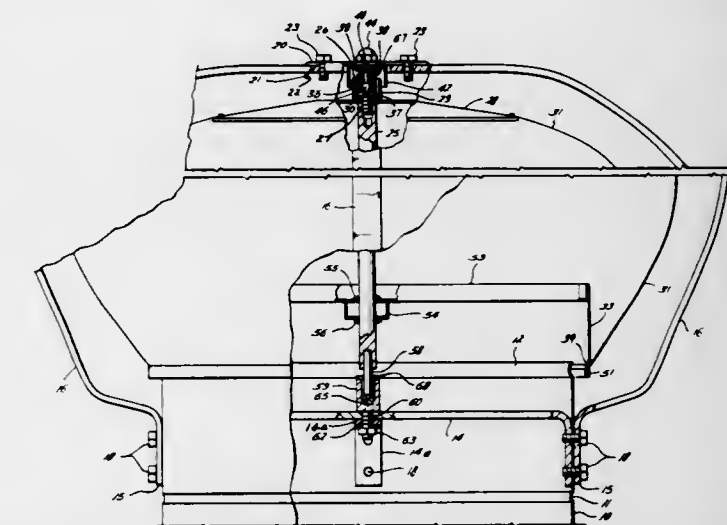
A smoke-fume exhaust system including a room air circulation system of the type that normally mixes source or conditioned air with room recirculated air. A detector responsive to the presence of smoke and fumes in the room causes the air circulation system to change the direction of air flow therethrough exhausting the room of the smoke and fumes as by actuating a first damper which isolates the blower from source air so that it only draws room air, and also actuating a second damper which directs the blower exhaust into a bypass duct.

In the case of multiple rooms, the detector sensing smoke and fumes in one room may be used to control the air flow through systems of adjacent rooms in such a manner that the systems of adjacent rooms only admit source or outside air, which pressurizes the adjacent rooms preventing the spread of smoke and fumes to the adjacent rooms.

3,739,708
TURBINE VENTILATORS
 John V. Felter, 1307 Ashland, Houston, Tex.
 Filed Dec. 6, 1971, Ser. No. 204,949
 Int. Cl. F23l 17/02

U.S. Cl. 98-72

4 Claims

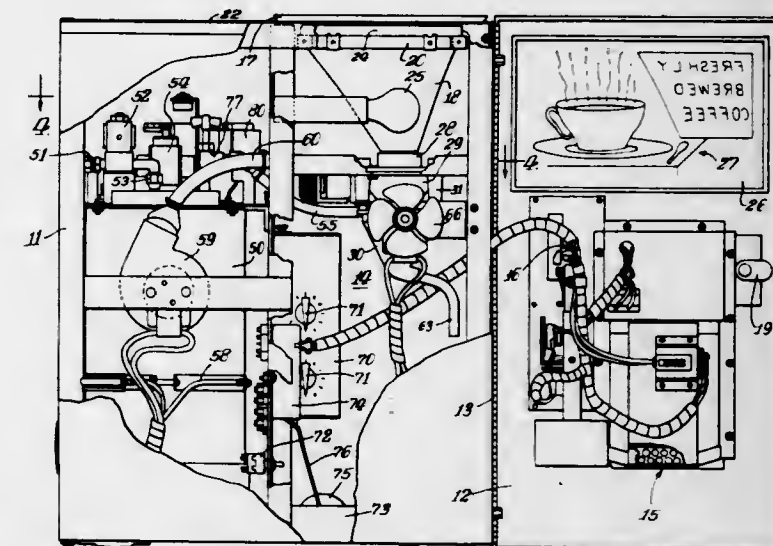


Turbine ventilators having sealed lubrication at the lower turbine shaft end, having anti-noise connections between the lower turbine support ring and the shaft, and having an upper bearing assembly to compensate for side sway caused by wind pressure.

3,739,709
BEVERAGE BREWER
 Franz L. Herbsthof, Wilmette; Harvey R. Karlen, Chicago, and Herbert E. Wagner, Tinley Park, all of Ill., assignors to Cory Corporation, Chicago, Ill.
 Filed Jan. 20, 1971, Ser. No. 107,903
 Int. Cl. A47j 31/00

U.S. Cl. 99-289

22 Claims



Apparatus for brewing beverage from readily soluble powdered beverage material, such as freeze-dried coffee. Provisions are incorporated for maintaining suitable areas of the system dry to preclude caking and the like to assure maintenance-free controlled brewing operation of the apparatus. Means are provided for effecting improved mixing of the powdered beverage concurrent with the beverage liquid in a mixing chamber. These means may also define a portion of the means for maintaining a portion of the system dry. Delivery of the pulverulent, or powdered, beverage material is controlled by improved valve structure including means for cutting the particulate material at the edges of the opening controlled by the valve means, thereby to preclude incomplete termination of the delivery of the powdered beverage material.

3,739,710

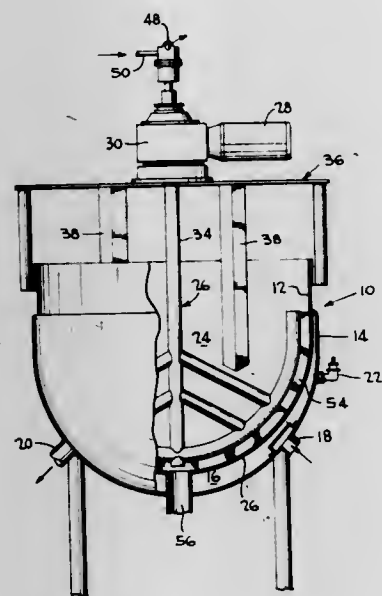
PROCESSING KETTLE

Ralph E. Costa, Lutherville, and Walter W. Trevillian, Baltimore, both of Md., assignors to B. H. Hubbert & Son, Inc., Baltimore, Md.

Filed Dec. 30, 1971, Ser. No. 214,321
Int. Cl. A47j 27/18

U.S. Cl. 99-348

6 Claims



A novel improved processing kettle is disclosed, the kettle comprising an inner hemispherical plate defining an inner lining and an outer hemispherical shell at least partially surrounding the inner plate and forming a steam-jacket space therebetween. Means are disposed through the outer shell providing entrance and egress of steam to and from the steam-jacket so as to heat a product within the kettle that is being mixed. Importantly, at least a portion of the surface of the inner plate communicating with the steam jacket is contemplated to be highly polished so that this surface portion serves to condense steam within the steam-jacket in droplets rather than in a film so as to improve heat transfer characteristics. In the preferred inventive embodiment, a second source of heat is provided for the processing kettle disposed within the kettle itself, the second source of heat comprising a hollow agitator means thus mixing and thermally agitating the product being processed. Thus, the product within the kettle is heated by heat transfer from the inside agitator, as well as heat transfer through the walls of the vessel due to the steam provided in the surrounding steam-jacket.

3,739,711

APPARATUS FOR CONTINUOUS PRODUCTION OF TOFFEE-SOFT CARAMEL AND SIMILAR MASSES OF THE SWEETS INDUSTRY

Gunter Nieblach, Bemerode, Germany, assignor to Otto Hansel GmbH, Hannover, Germany

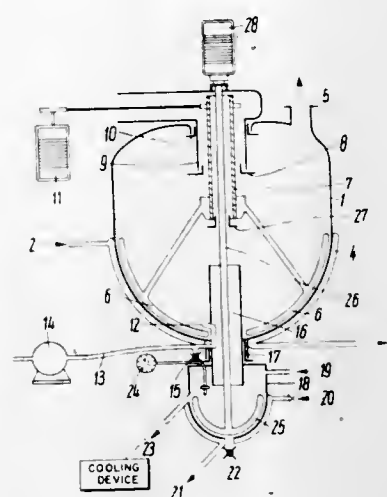
Filed Apr. 19, 1971, Ser. No. 135,244
Int. Cl. B01f 7/20

U.S. Cl. 99-348

14 Claims

An apparatus for the continuous production of toffee-, soft-caramel- and similar masses of the sweets-industry having a

boiling vessel equipped with stirring means, which comprises a continuously operating feeding device for the raw material to



be boiled. An inlet is connected with the feeding device and an outlet is formed as an overflow.

3,739,712

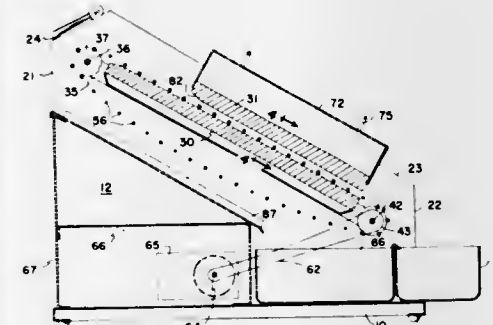
APPARATUS AND METHOD FOR COOKING HAMBURGERS OR THE LIKE

Roland L. Duning, Indianapolis, Ind., assignor to Burger Chef Systems, Inc. (BC), Indianapolis, Ind.

Filed Jan. 27, 1971, Ser. No. 110,194
Int. Cl. A47j 37/04

U.S. Cl. 99-349

6 Claims



A cooker for food patties such as hamburgers or the like is comprised of two heated platens mounted in opposed relation to one another to provide opposed parallel cooking surfaces which are spaced apart no greater than the thickness of the patty to be cooked. An endless chain conveyor runs continuously through the gap between said opposed surfaces and carries the patties into cooking contact with said platens. Said conveyor is formed of a series of interconnected and spaced apart transverse elements which are maintained in a plane lying between and parallel to said opposed surfaces. The arrangement results in each patty, upon entering the gap between said opposed platen surfaces, being squeezed by one of said platens between successive transverse elements of said conveyor and into contact with the other platen as the conveyor elements in turn become partially imbedded in the surface of the patty. The chain is thus provided with sufficient traction to draw said patties through said gap, with both sides of the patties in surface contact with the opposed heating surfaces of said platens, thereby cooking said patties by heat applied conductively to both sides thereof simultaneously.

3,739,713

INJECTING APPARATUS

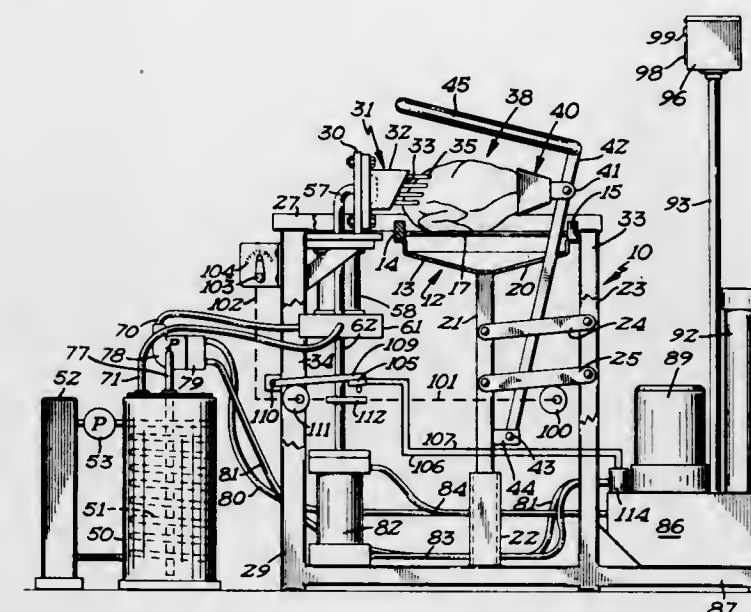
Jagannath M. Kudale, Minneapolis, and Donovan H. Lumby, Brooklyn Center, both of Minn., assignors to Land O'Lakes, Inc., Minneapolis, Minn.

Filed Apr. 17, 1972, Ser. No. 244,804

Int. Cl. A23b 1/16; A22c 21/00; A47j 43/16

U.S. Cl. 99-533

12 Claims



An injecting apparatus and method for injecting a liquid additive at high pressure into an object having converging opposite ends, such as a fowl, in which there is a table upon which the object is placed, a set of nozzles for engaging one end portion of the object, a clamping member for engaging and partially surrounding the opposite end portion, and means for clamping the object between the nozzles and the clamping member while the fluid liquid additive is being injected. The nozzles are formed in two groups which vary in length and disposition with respect to each other in such a manner that their terminal portions approximately conform with the surface of the object to be injected, such as the breast of a fowl. The passages through the nozzles also vary in size so that a greater amount of liquid is introduced into certain portions of the object requiring more liquid additive, such as the breast portion of a fowl. The table is vertically adjustable to enable proper positioning of the object to be injected with respect to the nozzles. The means for injecting the liquid includes a piston and cylinder and there is means for adjusting the stroke of the piston and hence the amount of liquid additive which is injected. In injecting the liquid into a yieldable object such as a fowl, the fowl is compressed during the injecting operation to prevent escape of the liquid additive, and after the injecting operation is completed, is released to assume its normal shape.

3,739,714

DEVICE FOR HOLDING AND BUNDLING NEWSPAPERS

William E. Howard, West Hartford, Conn., assignor to Materials Handling Systems, Inc., West Hartford, Conn.

Filed Aug. 18, 1971, Ser. No. 172,766

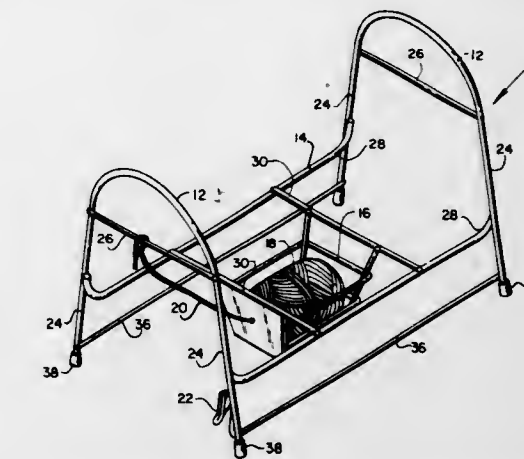
Int. Cl. B65b 13/16

U.S. Cl. 100-34

7 Claims

A device for holding and bundling newspaper is made essentially of bent wire and comprises two end walls and a bottom wall for engaging the two sides and bottom, respectively, of a stack of newspapers placed therein. The newspapers carried by the device extend outwardly beyond the bottom wall of the device at both of their ends so that the end portions of the stack are free to receive cord passed therearound for tying the

stack into a bundle. Prior to bundling the device holds the newspapers in a cupped condition so as to inhibit downward



sag of their unsupported end portions, and the device includes a container for a ball of cord used in tying the bundles.

3,739,715

REFUSE CONTAINER

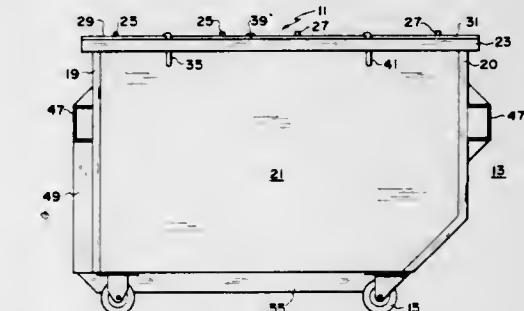
John M. Ambrose, 29282 Chenwood Court, Farmington, Mich.

Filed June 4, 1971, Ser. No. 150,131

Int. Cl. B30b 15/00

U.S. Cl. 100-100

7 Claims



A portable refuse container having a substantially rectangular or tapered body with an open top portion, pivotable lid means connected to the top portion, whereby refuse may be inserted into the hollow body upon the lifting of the lid, and a slidable compacter means mounted within the body for compacting the refuse inserted therein.

3,739,716

TRAVELING CYLINDER IMPRINTER WITH WHEEL-CENTERING MEANS AND CYLINDER-LOCKING MEANS FOR VARIABLE DATA INPUT

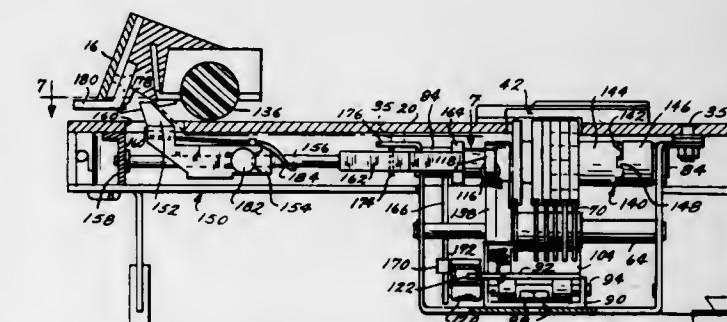
William P. Barbour, Alexandria, Va., assignor to Control Data Corporation, Washington, D.C.

Filed Apr. 29, 1971, Ser. No. 138,730

Int. Cl. B41f 3/60

U.S. Cl. 101-45

18 Claims



A variable data imprinter for use in recording credit card sales transactions is provided having a plurality of indicia bearing toothed print wheels and a corresponding plurality of toothed racks for cooperation with the print wheels so that the

print wheels are selectively indexible with respect to a printing position by movement of the respective racks. Control means are provided for centering the print wheels with respect to their printing position and for preventing actuation of a printing roller until such centering operation has been effected. The print wheel centering operation is effected by movement of a lever arm which carries a centering bar for engagement with stops formed on the toothed racks. Movement of the lever arm is also utilized to operate a locking mechanism which normally prevents actuation of the roller until the lever arm is operated.

3,739,717

WIRE PRINTING APPARATUS HAVING CLOSED INKING SYSTEM

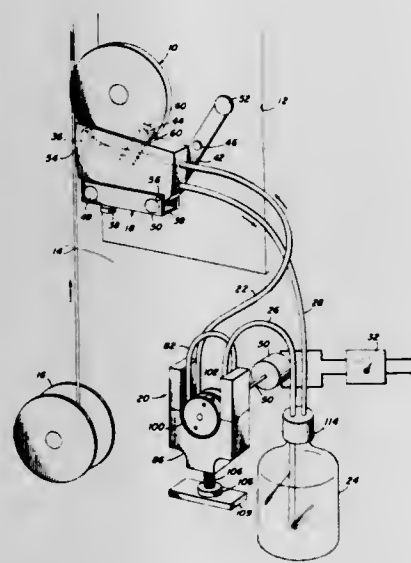
Charles P. Brown, Carlisle, and Derwin R. Eggleton, Concord, both of Mass., assignors to Riggs & Lombard, Inc., Lowell, Mass.

Filed July 2, 1971, Ser. No. 159,224

Int. Cl. B41f 17/10; F04b 43/12; B41f 31/08

U.S. Cl. 101-37

8 Claims



Ink is applied through a substantially closed system onto the surface of an engraved wheel which prints a legend or design onto a wire running tangentially against the wheel. A peristaltic pump delivers ink from a closed ink reservoir through a conduit formed with a discharge opening dimensioned to accommodate the periphery of the printing wheel which rotates in the conduit opening to receive a coating of ink. A fork-shaped plastic wiper removes excess ink from the wheel prior to engaging the wire. An applicator housing is formed with a drain to collect excess ink and return it via a conduit to the ink reservoir. The housing is spring-loaded to bear against the wheel and is mounted for movement as a unit to and away from the wheel to permit cleaning and/or changing of the wheel. The peristaltic pump is formed with a movable wall portion to relieve pressure from the conduit when the system is shut down in order to allow complete draining of the lines.

3,739,718

IMPRINTING DEVICE

Anton Z. Zupancic, Cleveland, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio

Filed Feb. 23, 1972, Ser. No. 228,696

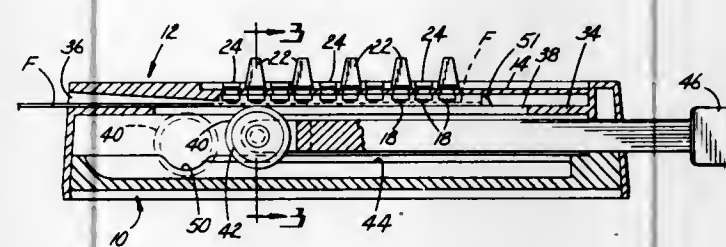
Int. Cl. B41f 3/20

U.S. Cl. 101-45

1 Claim

An imprinting device having a frame which mounts a form supporting bed. The frame also slidably mounts strip members

above the bed having printing characters on the underside and visually readable characters on the upper side. A roller platen



is mounted beneath the bed and extends through a slot in the bed to rollingly engage the form and the printing characters.

3,739,719

INFORMATION PRINTING AND STORAGE SYSTEM

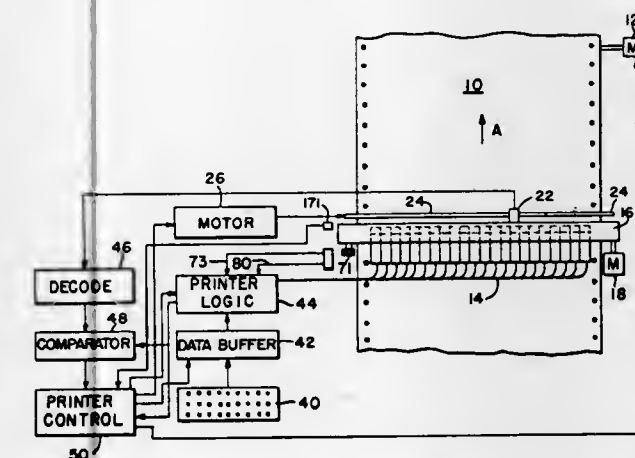
John T. Potter, Plainview, N.Y., assignor to Potter Instrument Company, Inc., Plainview, N.Y.

Division of Ser. No. 823,054, May 8, 1969, Pat. No. 3,656,426. This application Mar. 8, 1971, Ser. No. 122,212

Int. Cl. B41j 1/20, 3/00

U.S. Cl. 101-93 C

4 Claims



An information printing and storage system in which a printer prints alphanumeric characters and a self-clocking code pattern on paper or card stock. A transducer scanning the printed lines senses the code pattern and provides an electrical output signal representative of the information imprinted.

3,739,720

METHOD OF SELECTIVE HIGH SPEED PRINTING USING LETTERS WITH FLARED LIMBS AND GAPS TO COMPENSATE FOR SMEARING

David H. Jones, Sarasota, Fla., and Alvin E. Kolthoff, Indianapolis, Ind., assignors to Electronic Data Preparation Corporation, Bradenton, Fla.

Filed Oct. 6, 1970, Ser. No. 78,409

Int. Cl. B41j 1/26; B41b 1/02

U.S. Cl. 101-93 C

18 Claims

Printing methods and apparatus applicable to computer printing of the kind wherein a continuously rotating cylinder is provided with a plurality of rows of type characters operable to imprint paper or other print-receiving media through an ink transfer medium. The characters of each row of characters are identical and unlike the type characters in any other row and the array or arrangement of rows of characters is such with reference to the direction of rotation of the cylinder and the probable frequency of printing of the different characters in the printing of the composition that the characters are presented at a printing station in the order of increasing probability of printing. The type characters on the drum are so constructed with reference to the direction of rotation of the cylinder as to compensate for smearing of the printed characters due to wiping movement of the characters relative to the print-receiving medium and thereby enable the printed characters to present an appearance unmarred by smearing.

Some of the type characters on the cylinder are adapted to overprint or be overprinted by other type characters so as to produce printed characters unlike any of the type characters on the cylinder, and others of the type characters are shaped



to print characters having more than a single meaning. The type characters include upper case letters, lower case letters, numerals, punctuation marks, and special symbols by means of which a composition can be printed by the computer in virtually the same form as a typewritten composition.

3,739,721

INKING PUMP MECHANISMS FOR PRINTING MACHINES

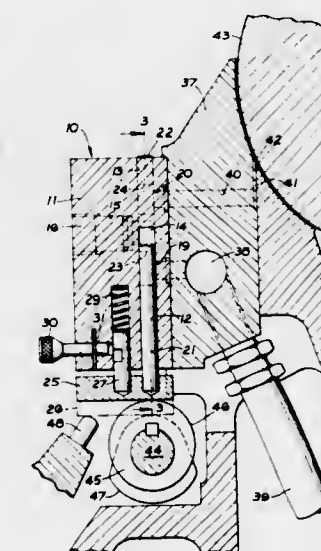
Dzieslaw Miarkowski, Kingscliffe, and Edward Leslie Smith, Peterborough, both of England, assignors to Baker Perkins Limited, Peterborough, England

Filed May 10, 1971, Ser. No. 141,699

Int. Cl. B41f 31/08

U.S. Cl. 101-366

7 Claims



Pump unit for metered liquid feed in a printing press, for example used as part of a multiple pump ink rail assembly in which each pump feeds ink to a column width of an inking cylinder, has a body defining a chamber with inlet and outlet ports, a piston reciprocating in a guide of the body to vary the volume of the chamber, and a slide valve reciprocating in a further guide in the body to open and close said ports in timed relationship to the operation of the piston, the piston and slide valve being driven by rotating cams. Conveniently a single cam shaft drives all the pumps of an assembly and provision is made for varying the stroke of the piston.

911 O.G.-32

3,739,722

PRINT ROLL AND MOUNTING MEANS

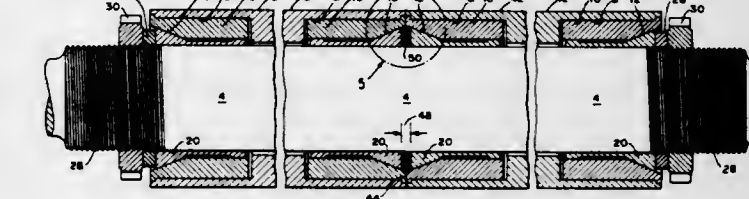
Robert A. Zottoli, Braintree, Mass., assignor to Gross Instrument Company, Quincy, Mass.

Filed Aug. 13, 1971, Ser. No. 171,501

Int. Cl. B41f 13/10; B21b 31/08

U.S. Cl. 101-375

8 Claims



A plurality of plate cylinder printing rolls on a shaft in axial alignment and with the inner ends in tight abutment, each having a collet sleeve provided at each end of the roll, collets on the shaft and in the sleeves, threads and nuts on the shaft for exerting axially directed forces against the collets, resilient deformable O-rings between the opposing faces of the collets at the abutting inner ends, the said forces causing the O-ring to deform to cause the collets to be driven inward to grip the shaft at the inner abutting ends while simultaneously the collets at the outer ends are driven inwardly to tighten the latter on the shaft.

3,739,723

PERFORATING GUN

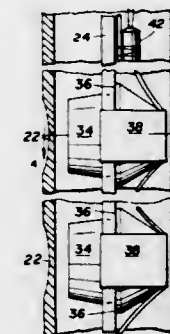
John R. Hakala, Fort Worth, Tex., assignor to Harrison Jet Guns, Inc., Houston, Tex.

Filed Aug. 23, 1971, Ser. No. 174,088

Int. Cl. E21b 43/117

U.S. Cl. 102-20

10 Claims



A shaped charge assembly for a tubular oil well perforating gun includes a channel member having spaced apertures in the web thereof with shouldered shaped charges extending through the apertures with the shoulders engaging the web of the channel member. A spring clip engages the edges of the channel and the apex of the charge to secure the charge in the aperture and to maintain a ribbon detonator in contact with the apex of the charge.

3,739,724

SAFETY DETONATING APPARATUS

Elvin W. Tlam, Redmond, Wash., assignor to Explosives Corporation of America, Issaquah, Wash.

Filed Aug. 23, 1971, Ser. No. 173,878

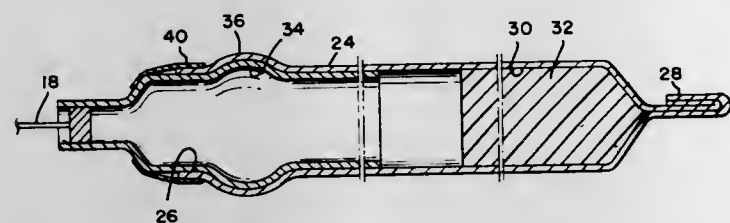
Int. Cl. F42c 19/12

U.S. Cl. 102-28 R

5 Claims

A primacord detonator having a protective containing sleeve removably mounted thereon. The rear portion of the sleeve encloses the detonator, and a forward portion of the sleeve forms an explosive energy absorbing chamber with

energy absorbing material therein. Upon accidental explosion the wall of the detonator adjacent the charge therein deforms



outwardly to interlock with the sleeve wall and hold the sleeve onto the detonator to absorb the explosive charge.

3,739,725

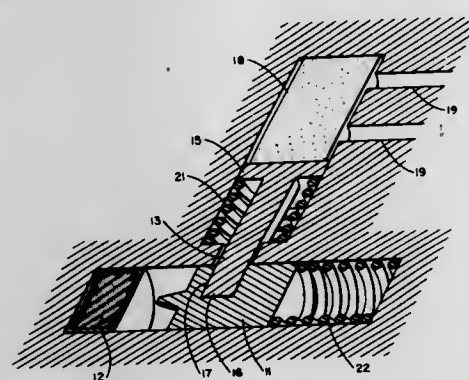
SELF-DESTRUCTIBLE FUZE

Robert W. Heinemann, Dover, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 9, 1968, Ser. No. 707,375

Int. Cl. F42c 15/36, 19/08, 15/00

U.S. Cl. 102-70



A mechanical device for use in self-destruction of a mine, said device being a spring-loaded withdrawal pin separately engaging a mating slot in a spring-loaded firing pin wherein withdrawal is actuated by the disintegration of the structural integrity of a rigid hygroscopic material upon the absorption of moisture.

3,739,726

ELECTRONIC FUZE

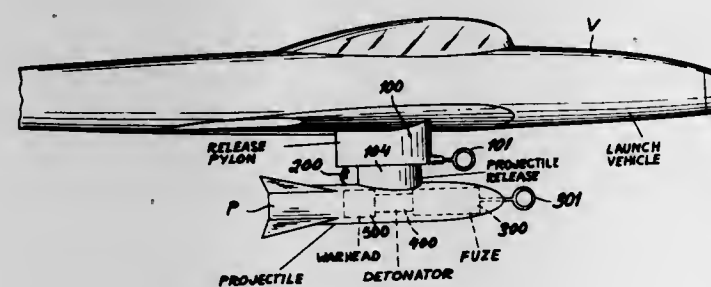
Robert H. Pintell, New City, N.Y., assignor to Intron International, Inc., Congers, N.Y.

Filed Aug. 17, 1970, Ser. No. 64,297

Int. Cl. F42c 11/04, 11/06, 15/40

U.S. Cl. 102-70.2 R

10 Claims



A fuze for ordnance projectiles to be launched from a vehicle is armed, after separation from its launcher, by mechanical closure of switches with the aid of a delayed-action squib detonating by an electric charge stored on a capacitor. The fuze system includes means for charging the above capacitor at the time of launch, thus insuring the inert state of the fuze under conditions of storage, transportation and loading into the launch vehicle.

3,739,727
AUTOMATIC SWITCH FOR SLAUGHTERHOUSE AND MEAT PACKER RAILS

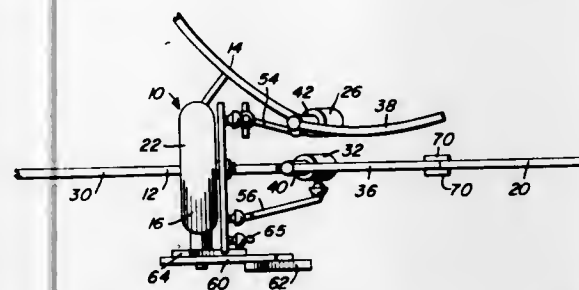
Beryl A. Bedford, 701 Hurlingame Avenue, Redwood City, Calif.

Filed July 28, 1971, Ser. No. 166,695

Int. Cl. E01b 25/26

U.S. Cl. 104-103

10 Claims



A pair of rail switch sections supported for alternate movement into and out of operative position with each initially moving in an upward inclined direction upon initial shifting from its operative position and thereafter being swung to an out-of-the-way position, while one switch rail section is being raised out of initial operative position and then swung to an in-operative position the other switch rail section is being swung in the same direction toward a position elevated slightly above its operative position and then lowered into final operative position.

3,739,728

PORTABLE SKI TOW AND METHOD OF OPERATING SAME

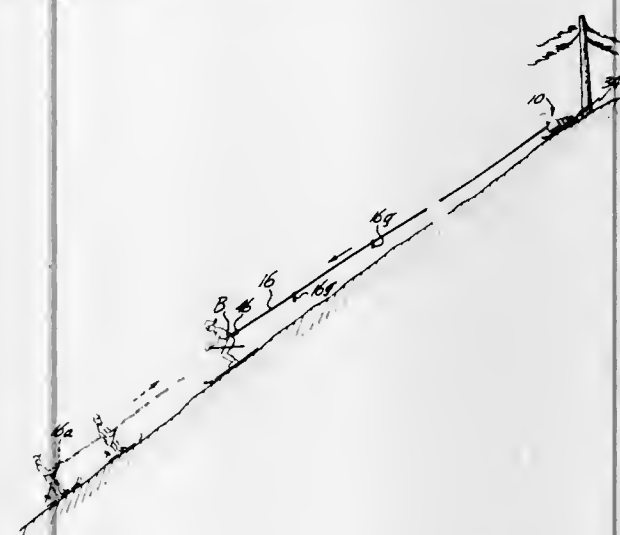
John L. Thompson, Carbon River Ranch, Carbonado, Wash.

Filed July 31, 1970, Ser. No. 59,944

Int. Cl. B61b 11/00

U.S. Cl. 104-173

8 Claims



A portable ski tow winch unit with tow cable serving also as a control link between a control switch station on the handle end of the tow cable and controlled actuation means in the winch unit for operating the winch unit either to wind up cable under power or to release cable from the winch spool, thereby enabling the winch to be used to pull itself to the top of a ski hill and when anchored at the top to be used by skiers to ascent the hill.

3,739,729

JACKET FLASHING

Edwin S. Carlson, Hammond, Ind., assignor to Union Tank Car Company, Chicago, Ill.

Filed June 4, 1971, Ser. No. 150,071

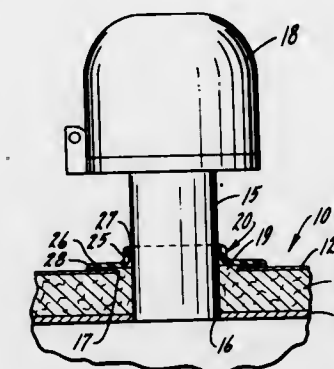
Int. Cl. B61d 5/00

U.S. Cl. 105-358

4 Claims

A jacket flashing assembly to close openings which are required in the outer jacket of an insulated tank car to permit

ittings to protrude through the jacket. The jacket flashing assembly includes a resilient disc having an opening in the central area thereof, of somewhat lesser dimension than the outside dimension of the fitting associated therewith, such that distortion of the opening during installation of the assembly about the fitting causes the central area of the disc to elliptically engage the fitting, forming a watershed joint therebetween. The central area of the disc is bonded to the fitting and the outer periphery of the disc is bonded to the outer jacket.



A similar type flashing is disclosed for use to close the opening in the jacket which receives the bolster pipe and bolster web.

3,739,730
CUBICAL BLOCK FROM TWO AXIALLY FITTED IDENTICALLY MOLDED SECTIONS

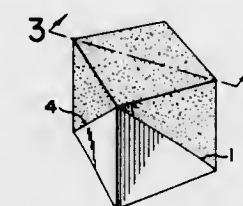
Frederick A. Horowitz, 1204 Oakland, Ann Arbor, Mich.

Filed Aug. 6, 1971, Ser. No. 169,627

Int. Cl. A47b 13/00

U.S. Cl. 108-161

6 Claims



The instant article is a cubical block, hollow or solid, formed from two geometrically identical molded sections, each diagonally cut so that the two sections are complementarily fitted axially to form a cube. Depending upon the particular materials used, the instant cube may be ornamental or structural, or useful as a furnishing.

3,739,731

OPEN ENCLOSURE FOR EXPLOSIVE CHARGE

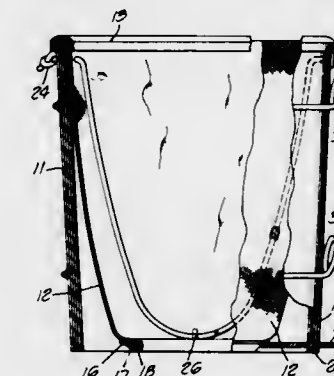
Patrick M. Tabor, 101 S. LaSenda Drive, South Laguna, Calif.

Filed Aug. 5, 1970, Ser. No. 61,173

Int. Cl. E06b 9/00

U.S. Cl. 109-49.5

11 Claims



There is disclosed herein a device for partially enclosing explosives, such as bombs, to allow such explosives to be

disposed of relatively safely. An exemplary device is an enclosure which may be considered as essentially an elastic container, for absorbing and directing the explosive forces, and may be substantially cylindrical and open therethrough and formed from a number of laminations of suitable material, such as fiberglass. A support member may be provided in the enclosure for holding the explosive charge from intimate contact with the enclosure. The support member may be in the form of a net or curtain suspended in the enclosure, foam material within the enclosure, or the like. The structure of the enclosure is such that if the bomb explodes the enclosure delaminates rather than breaking apart in the form of flying fragments.

3,739,732

PORTABLE CHARCOAL IGNITER

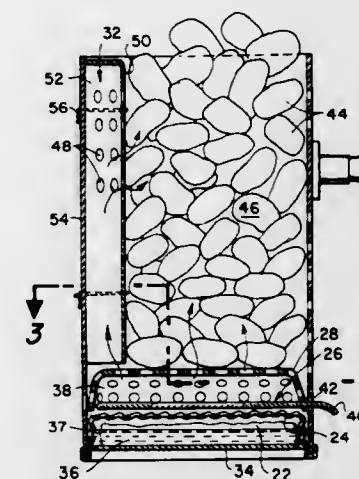
Thomas A. Graham, P. O. Box 5427, San Mateo, Calif.

Filed May 24, 1971, Ser. No. 146,248

Int. Cl. F23b 1/02

U.S. Cl. 110-1 F

9 Claims



A container for receiving and igniting a quantity of charcoal. The container has an open top, a bottom and a generally perforated cylindrical vertical wall to which a carrying handle is fixed and comprises: a liquid fuel chamber with a fuel absorbent pad, the chamber defined by the bottom and an imperforate lower portion of the vertical wall and a screen mounted above the pad; a combustion chamber with an ignition wick supported on the screen, the combustion chamber defined by the screen, an apertured segment of the vertical wall, and a charcoal supporting grate; and, a perforated vertical flame channel fixed to the inside of the vertical wall above the grate to disperse ignited fuel gases to the upper reaches of charcoal contained by the remaining portion of the vertical wall.

3,739,733

AUTOMATIC POINT TRIMMING MACHINE FOR USE IN SHIRT MAKING APPARATUS AND THE LIKE

Ernst Schramayr, Dollard Des Ormeaux, Quebec, Canada, assignor to Ideal Equipment Co., Ltd., Montreal, Canada

Filed June 21, 1971, Ser. No. 154,789

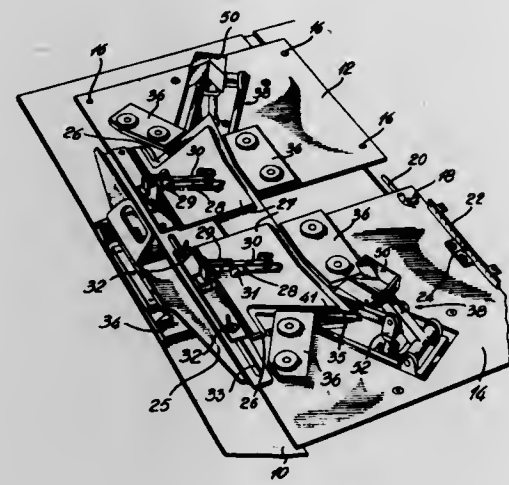
Int. Cl. D05b 21/00

U.S. Cl. 112-121.12

8 Claims

A machine for trimming the points of collars and the like garments comprising a holder having a pair of fixed platens each having a movable platen hinged thereon, guide means

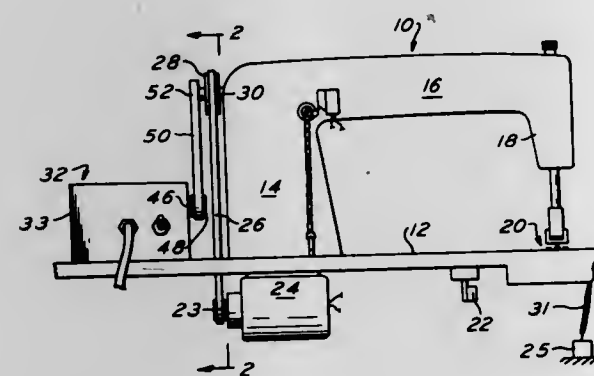
between which a collar is placed over the pair of fixed platens, means for clamping the collar between the fixed and movable platens, and means for trimming the points of the collar held between the fixed and movable platens.



platens, and means for trimming the points of the collar held between the fixed and movable platens.

3,739,734
SEWING MACHINE AND CONTROL UNIT THEREFOR
Raymond A. Princiotto, 408 West Wayne Avenue, Aldan, and Antonio G. Salvucci, 3828 North 6th St., Philadelphia, both of Pa.

Filed Dec. 14, 1970, Ser. No. 97,898
Int. Cl. D05b 69/12, 35/08
U.S. Cl. 112-219 A 13 Claims



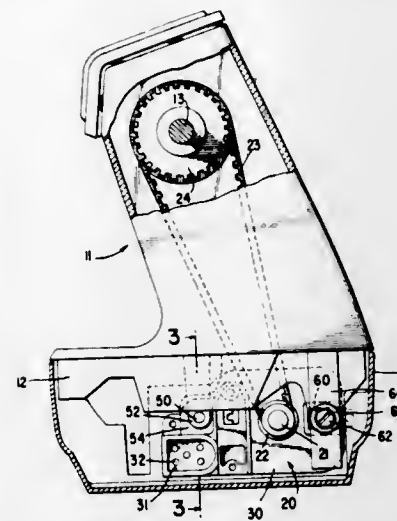
A sewing machine and an attachment therefor which enable repetitive, uniform sewing steps and related procedures to be done by a relatively unskilled sewing machine operator.

3,739,735
ELECTRIC MOTOR MOUNT FOR SEWING MACHINES
William L. Herron, North Caldwell, and Kenneth D. Adams, Madison, both of N.J., assignors to The Singer Company, New York, N.Y.

Filed May 1, 1972, Ser. No. 249,331
Int. Cl. D05b 69/12 3 Claims

A mounting arrangement for pivotally supporting an electric motor within the casing of a sewing machine with provision for angular adjustment of the motor to regulate the tension in a belt by which the motor drives the sewing machine and in which the pivotal motor support is arranged to provide

for maximum belt tension adjustment with minimum disturbance in the registration of an electrical connector

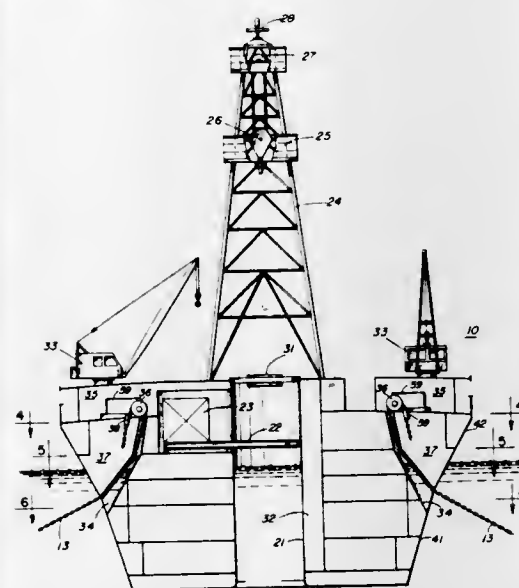


socket on the motor relatively to a clearance opening for the electrical connector in the sewing machine casing.

3,739,736
MOORING SYSTEM FOR DRILLING HULL IN ARCTIC WATERS

David W. Carreau, Mystic; Aake T. Fahlman, Groton, both of Conn., and Joseph H. Dawson, Jr., Westerly, R.I., assignors to General Dynamics Corporation, St. Louis, Mo.

Filed July 29, 1971, Ser. No. 167,223
Int. Cl. B63b 35/00, 35/44
U.S. Cl. 114-0.5 D 5 Claims



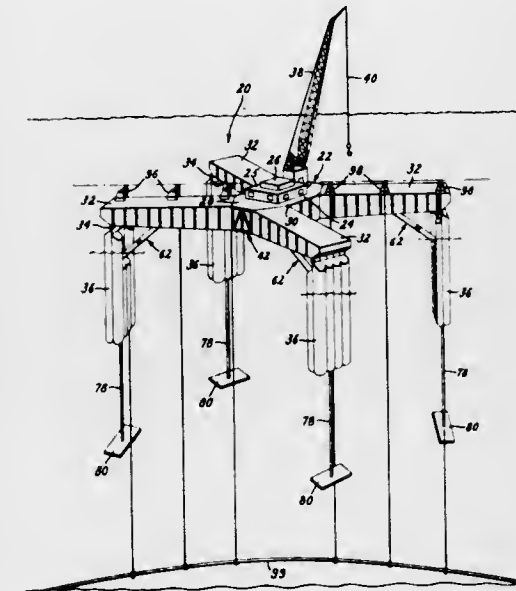
A mooring arrangement is provided for drilling hull intended to be used in Arctic waters wherein the mooring lines are connected to the hull at points substantially below the waterline but extended up through passageways in the hull to anchor windlasses located above the waterline. The mooring lines are fed up through these passageways by attachment to the end of lines which have been fed down through the passageways and brought to the surface by inflatable means

3,739,737
MARINE PLATFORMS
Robert J. Baier, 3960 West Chester Pike, Newtown Square, Pa.

Filed Sept. 17, 1971, Ser. No. 181,422
Int. Cl. B63b 35/44 22 Claims

A floating platform capable of remaining stable during inclement weather conditions. The platform includes a central buoyant member equipped with a plurality of double articulated support members and float chambers located at spaced

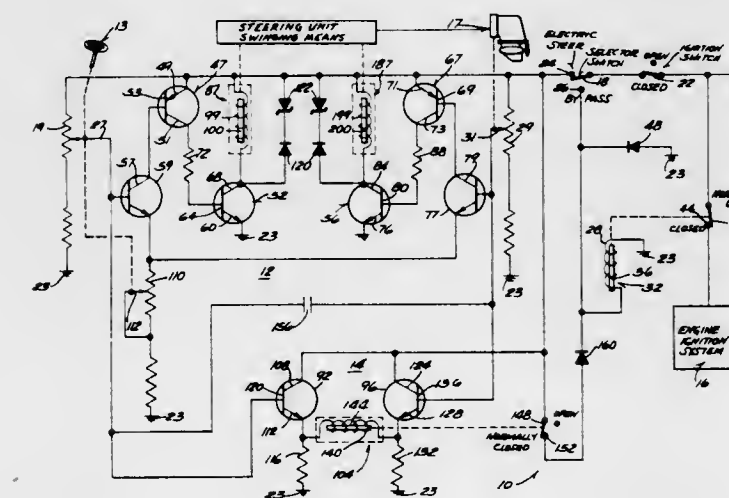
locations about its periphery. The support members are pivotally movable between retracted positions generally aligned with a longitudinal axis of the central buoyant member and extended positions radiating outwardly of the central buoyant member. The float chambers are pivotally movable between retracted positions tucked under their associated



support members and an extended or vertical position by controlled flooding, and in a subsequent operation, the buoyant member is raised above the surface of the water. Damping devices are provided at the extremities of the float chambers and stationkeeping can be achieved by the use of anchors or by discharging water from appropriate ports in the float chambers.

3,739,738
SAFETY CIRCUIT FOR ELECTRIC STEERING SYSTEM
David T. Cavi, Menomonee Falls, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Nov. 16, 1970, Ser. No. 89,605
Int. Cl. B63h 25/24
U.S. Cl. 114-144 R 10 Claims



Disclosed herein is a control circuit for monitoring the steering system of a marine propulsion device, which control circuit includes a first position sensing potentiometer adapted to be connected to a source of electrical current and having a first wiper connected to a steering wheel to afford variation in the potential at the first wiper in accordance with the steering

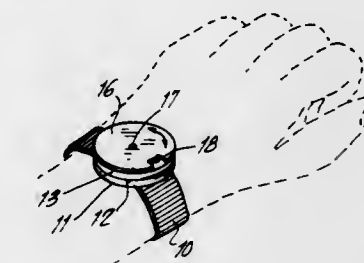
wheel setting, together with a second position sensing potentiometer adapted to be connected to a source of electrical current in common with the first potentiometer and including a second wiper connected to the swingable steering unit to afford variation in the potential at the second wiper in accordance with the position of the swingable steering unit, and switch apparatus adapted to be connected to a source of electrical current and to said wipers for generating an output when the difference in potential at the wipers exceeds a predetermined value. Such output can be employed to prevent operation of the marine propulsion engine ignition system or to otherwise alert the operator to the steering system malfunction evidenced by the difference in potential at the wipers above a predetermined value.

3,739,739
INSTRUMENT FOR ISOLATING ROWS OF PRINTED MATTER FOR READING
Roy J. Brase, 20563 Yeandle Street, Castro Valley, Calif.
Filed Aug. 24, 1972, Ser. No. 283,276
Int. Cl. B42d 9/00 4 Claims

3456	07	3457	18	6790	67.90	71	67
3470	09	3457	18	6790	67.90	71	67
2462	07	3429		67421	125.70	72	67
2567	07	3423		25667	900.00	70	5
2567	07	3423		25667	900.00	70	5

An instrument for use in quickly and accurately isolating each of separate straight lines of printed symbols such as letters or numerals or both, and increasing their clarity for reading in which a pair of parallel, spaced strips or lines midway between the opposite planar sides of flexible transparent material is positioned to define an elongated, clear, colorless, transparent band in the strip between said lines within which the printed symbols of one of said lines of printing are isolated for reading when said instrument is laid flat on the sheet with the line of printed symbols to be examined positioned between said straight lines of said pair.

3,739,740
WRIST MOUNTED PILL BOX
Stephen Fromer, 1535 Victory Boulevard, Staten Island, N.Y.
Filed Nov. 30, 1971, Ser. No. 203,400
Int. Cl. G09f 9/00 3 Claims



A convenient container for medication is provided which has time indicating means associated therewith and the con-

tainer is adapted to be attached to a wrist band such as a wrist watch strap. As medication is taken, the time indicating means is advanced to show when the next dose is to be taken. The device is very simple and inexpensive.

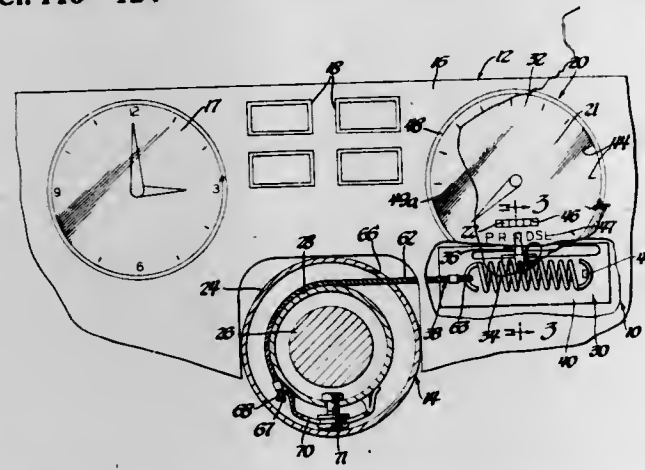
3,739,741

TRANSMISSION GEARSHIFT INDICATOR

William J. Freyermuth, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Nov. 15, 1971, Ser. No. 198,565
Int. Cl. G09f 9/00

U.S. Cl. 116-124

1 Claim



A transmission gearshift indicator for a transmission control system is disclosed as comprising a housing means with a dial associated therewith with spaced representations corresponding to different transmission settings, a spring means which has one end fixed to the housing means, and a pointer which is mounted between the ends of the spring means and which projects it to a position adjacent the dial to provide a visual indication of the transmission setting. The indicator mechanism further comprises a connecting means which is connected with the other end of the spring means and which is adapted to be connected with a rotatable gearshifting member, said connecting means moving either with or against the bias of said spring means in response to movement of the gearshifting member to effect different transmission settings whereby the pointer is moved distances across the dial less than the distances moved by the connecting means.

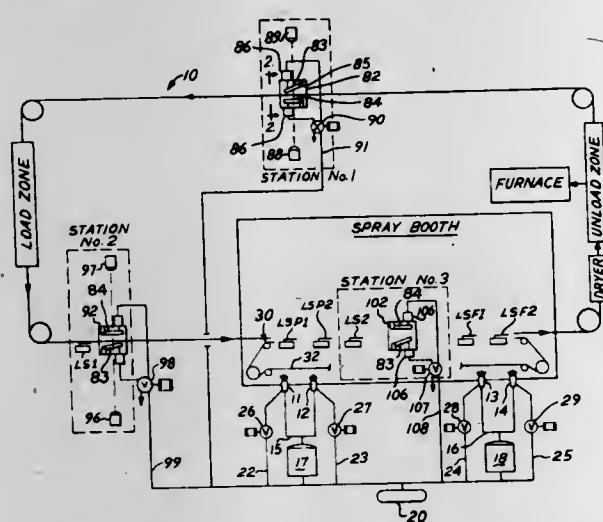
3,739,742

SPRAY ASSEMBLY MEMORY

Nick S. Racz, 4800 Chicago Beach Drive, Chicago, Ill., and Dvaid M. Higgins, 121 Washington Boulevard, Hoffman Estates, Ill.
Continuation-in-part of Ser. No. 23,890, March 30, 1970, abandoned. This application Nov. 18, 1970, Ser. No. 90,738
Int. Cl. B65g 49/02

U.S. Cl. 118-2

24 Claims



In a spray assembly, a single spray booth is provided for spraying different coats on a given article and a memory deter-

mines which coat is to be sprayed upon the article and the presence of articles of differing configuration is indicated or sensed, whereby different coats as well as articles of differing configuration may be sprayed on the same spray assembly at the same time.

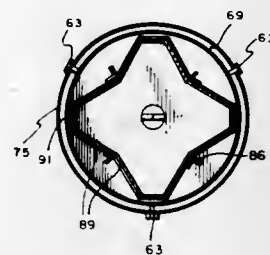
3,739,743

BREADING MACHINE APPARATUS

Lloyd Dale McKee, Jr., 1816 Dallas, Wichita, Kans.
Filed Aug. 25, 1970, Ser. No. 66,755
Int. Cl. A23g 3/26; A23i 1/31

U.S. Cl. 118-19

7 Claims



This machine relates to a breading machine apparatus operable to receive food products therein for breading the same on rotation of a product support assembly by a power means. The product support assembly includes a container drum assembly having a basket assembly therein. The basket assembly is operable to receive the food product while it maintains spaces therein for the breading material and constructed so as to agitate the food product on rotation of the container drum assembly.

3,739,744

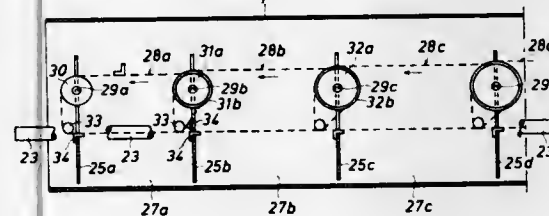
SUGAR COATING APPARATUS

Finn Engelberth Eriksen, 150 Nakskovvej, 2500 Valby, Denmark

Filed June 14, 1971, Ser. No. 152,590
Claims priority, application Denmark, June 22, 1970, 3218
Int. Cl. B05c 9/00; A23g 3/26

U.S. Cl. 118-19

5 Claims



An apparatus for coating confectionary centers, medical tablets or similar articles, comprising a rotary drum, the internal space of which is divided into a plurality of chambers for receiving and holding separate batches of articles. The chambers are separated from one another by substantially diametrical partition walls that are moved axially through the drum so that the chambers travel in the same direction and preferably with increasing capacity or volume.

3,739,745

GLUE RECLAIMING SYSTEM

James N. Turpin, Lufkin, Tex., assignor to Owens-Illinois, Inc., Toledo, Ohio

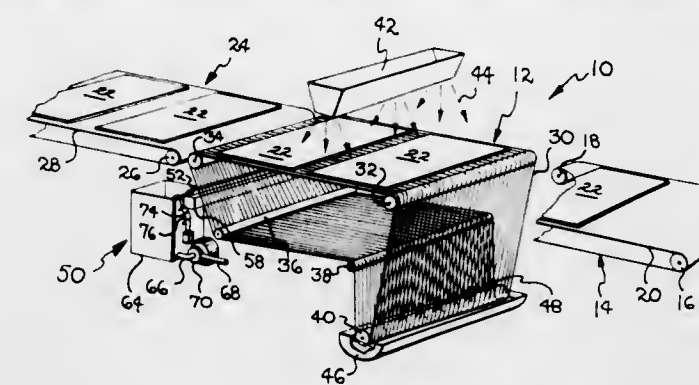
Filed June 21, 1971, Ser. No. 155,065
Int. Cl. B05c 5/00; B28b 21/00

U.S. Cl. 118-7

2 Claims

An improved glue reclaiming system is provided for an automatic plywood layup line. A standard layup line, where glue is applied to veneer sheets and the sheets then placed together to form a multi-layered plywood panel, features the use of a plurality of round conveyor belts which collect excess glue

during the gluing process and necessitate the use of a water spray shower to remove the excess glue from these belts prior to recycling of the belts. This excess glue, when removed from the belts by means of a washing, is lost to the sewer system



and, as a result, becomes a pollutant therein. The glue reclaiming system of this invention features the use of flat belts and a scraper device to remove and reclaim the excess glue from the belts for reuse in another cycle.

3,739,746

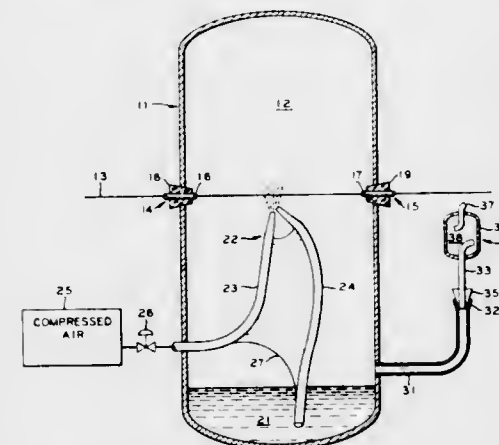
YARN COATING DEVICE

Rudolfs Kodis, Greenville, S.C., assignor to Phillips Petroleum, Bartlesville, Okla.

Filed June 3, 1971, Ser. No. 149,563
Int. Cl. B05c 5/00; 1/11/6

U.S. Cl. 118-62

8 Claims



Yarn is passed through a chamber having a reservoir of a liquid addendum in the lower portion thereof below the yarn. An aspirator draws liquid from the reservoir and sprays the withdrawn liquid onto the yarn. Excess liquid returns to the reservoir. A liquid trap on the gas exhaust minimizes loss of liquid.

3,739,747

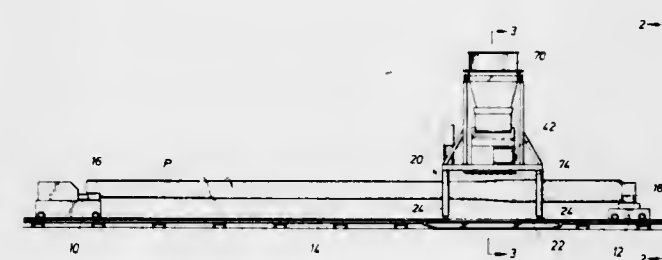
MACHINE FOR APPLYING COATING MATERIAL TO PIPE

Robert E. Sullivan, 8007 Mullins, Houston, Tex.

Filed Dec. 16, 1970, Ser. No. 98,788
Int. Cl. B05b 13/02; B28b 21/00

U.S. Cl. 118-320

8 Claims



A machine for coating pipe, making use of a dry mixture of coating materials, such as hydraulic cement, sand or gravel,

and weight imparting material such as barite, iron oxide, or the like. The machine has a rotary impeller for projecting the dry mix from a supply source of the same toward the pipe to be coated, and includes moistening means, such as a water spray, through which the dry mixture passes after leaving the impeller to form a wet mixture which is impelled against the pipe.

Means is provided for feeding the dry mix to the impeller in a substantially constant, regulated stream and for controlling the amount of water added whereby the consistency of the coating can be regulated. Mechanism is provided for causing the dry mix and water to be supplied simultaneously, automatically upon operation of the machine, and for independently regulating the flow of dry mix as well as the flow of water while the machine is in operation.

3,739,748

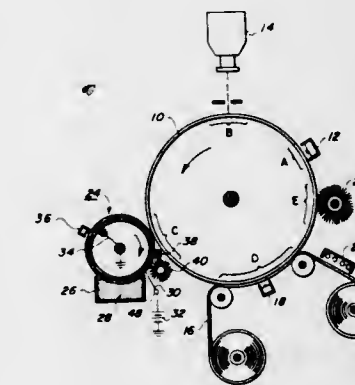
DONOR FOR TOUCHDOWN DEVELOPMENT

Alfred J. Rittler; Joseph Fantuzzo, both of Webster, and Raymond G. Williams, Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 15, 1970, Ser. No. 98,373
Int. Cl. G03g 15/08

U.S. Cl. 118-637

6 Claims



Apparatus for developing a latent electrostatic image carried on an image retaining member comprising a member including an electrically conductive layer and a dielectric layer having a generally continuous surface for carrying toner particles for the development of the latent image, a plurality of stylus supported for relative movement with the donor member spaced from each other and positioned to contact the donor member enabling electrostatic charge to be deposited onto separate, discrete areas of the toner carrying surface of the donor member corresponding in size to the surface area of the tips of the stylus creating an electrostatic charge pattern comprising a plurality of lines on the donor member upon coupling the donor member conductive layer and stylus to an electrical energy source and upon moving the stylus and donor member relative to one another and means to move the donor member relative to a supply of toner particles for loading toner particles onto the donor member in areas associated with the charge pattern of lines created by the plurality of stylus and to move the toner loaded donor member relative to the image retaining member for the development of the latent electrostatic image.

3,739,749

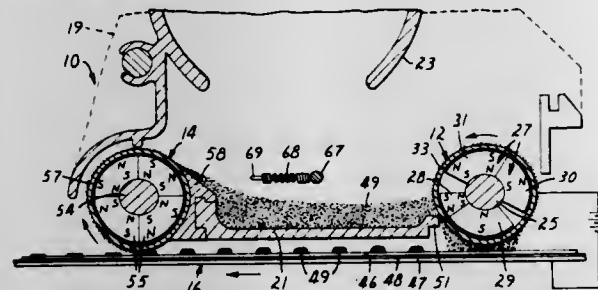
MAGNETIC POWDER APPLICATOR

Larry G. Kangas, St. Joseph Twp., St. Croix County, Wis., and Robert J. Kline, Grant Twp., Washington County, Minn., assignors to Minnesota Mining & Manufacturing Company, Saint Paul, Minn.

Division of Ser. No. 867,768, Oct. 20, 1969. This application June 4, 1971, Ser. No. 150,176
Int. Cl. G03g 13/00

U.S. Cl. 118-637

8 Claims



An applicator for uniformly applying magnetically responsive dry particulate material to broad areas on a web moved past the applicator to deposit the material in pattern areas attracting the material thereto. The applicator comprises an applying roller having a plurality of magnetic members arranged about a shaft within a rotatable non-magnetic sleeve to provide a magnetic field around the roller having a feed zone with a radial field changing to a tangential field, an applying zone with a stronger radial field following the feed zone and a return zone extending from the applying zone to the feed zone and having a stronger tangential field immediately following the applying zone. A scavenging roller has a plurality of magnetic members arranged about a rotatable shaft within a non-magnetic sleeve to carry any free particulate material applied by the applying roller away from the web surface and back to a tray.

3,739,750

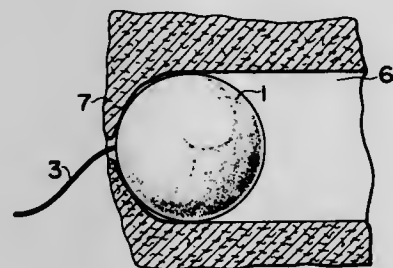
ANUS BLOCKING DEVICE

Kenichi Shinjo, Shinfujimiso, 2-7-18 Fujimicho, Tokyo, Japan
Filed June 11, 1971, Ser. No. 152,060

Claims priority, application Japan, Jan. 18, 1972, 47/46911
Int. Cl. G01k 29/00

U.S. Cl. 119-1

2 Claims



An anus blocking hollow ball insertable through an anus and thereafter inflated for blocking said anus and means extending from said ball for preventing said ball from moving deeper into said anus than desired.

3,739,751

RESTRAINER AND METABOLISM CAGE FOR TEST ANIMALS

Theo Richard Mohr, Max Planck Strasse 13, Leopoldshafen, and Vladimir Volf, Kolbergerstrasse 10c, Karlsruhe, both of Germany

Filed May 3, 1971, Ser. No. 139,668
Claims priority, application Germany, July 8, 1970, P 20 33 717.1

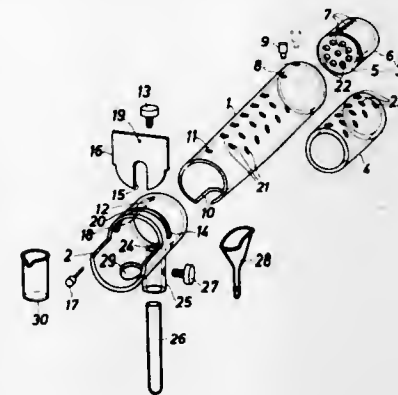
Int. Cl. A61d 3/00

U.S. Cl. 119-103

11 Claims

A cage for restraining an animal, in order to enable collection of the catabolites of the animal, including two sections

which are interconnected so as to form a holder having a cylindrical inner cavity, the size of which is adjustable. Both of the sections are made from non-metallic, non-corrosive materials which can be easily decontaminated. The size of the cavity is adjustable to tightly confine the animal within the



space. A rear plate bears against the hind end of the animal and has an opening for the passage of the animal feces, which fall into a beaker located immediately behind the opening. An additional vessel is movable into the cage from underneath the animal in order to be pressed against the animal for the purposes of collecting urine samples.

3,739,752

BOILER DRUM STRUCTURE FOR RAPID TEMPERATURE CHANGES

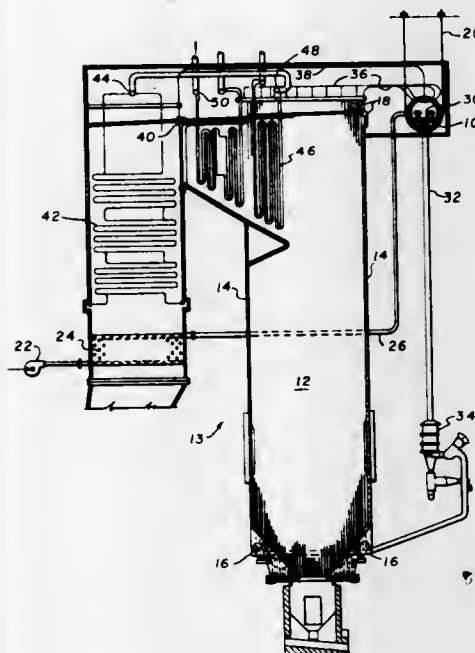
William Henry Tuppeny, Jr., Rockville, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Aug. 25, 1971, Ser. No. 174,822

Int. Cl. F22b 37/26

U.S. Cl. 122-235 Z

6 Claims



The steam drum of a high pressure steam generating unit, and particularly one subject to frequent thermal cycling, is divided into compartments. Each compartment is, to a large extent, fluidly isolated from the others. Furnace wall steam-water mixture is admitted to an intermediate compartment which is spaced from the inner surface of the drum wall by an annular outer compartment extending about substantially the entire inner circumference of the drum. The majority of the steam-water mixture is conducted, via the intermediate compartment, through steam separators and into an inner compartment. A small part of the mixture may be allowed to pass from the intermediate compartment into the outer compartment and then into the downcomer to avoid the formation of a water level in the outer compartment.

3,739,753

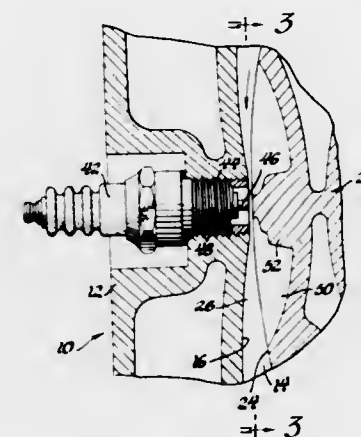
ROTARY COMBUSTION ENGINE IGNITION

Harvey A. Burley, Warren; Carl E. Biell, Birmingham; Edward A. Rishavy, Warren, and James H. Currie, Rochester, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 15, 1971, Ser. No. 134,303
Int. Cl. F02b 53/10; F02p 1/00

U.S. Cl. 123-8.09

1 Claim



In a preferred embodiment, a rotary combustion engine of the eccentric rotor type includes a housing mounted spark plug which coacts with a plurality of rotor mounted electrodes to provide improved spark ignition for the various combustion chambers of the engine. The rotor mounted electrodes are suitably profiled to optimize the initial spark gap for best spark forming characteristics under various operating conditions.

3,739,754

ROTATING-PISTON TOROIDAL MACHINE WITH ROTATING-DISC ABUTMENT

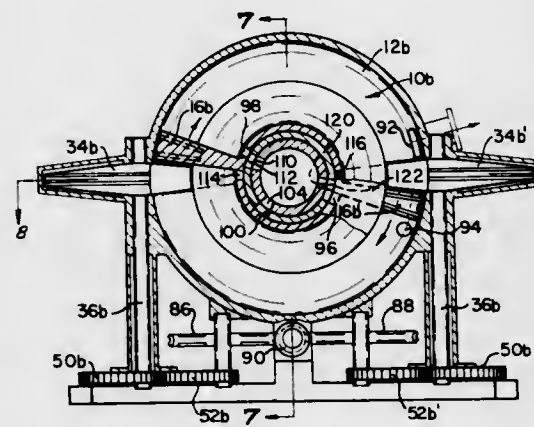
Ata Nutku, Technical University I.T.U., Gümüssu, Istanbul, Turkey

Filed Dec. 3, 1970, Ser. No. 94,690

Int. Cl. F02b 53/04, 53/06; F01c 1/08

U.S. Cl. 123-8.27

21 Claims



Fluid-handling machines having toroidal chambers and one or more rotating pistons, the chambers being divided into compartments by one or more rotating disc abutments provided with notches for passage of the pistons. Multiple chambers may employ common abutments, and plural abutments may be employed with one or more chambers. Matched chamber, piston, and abutment contours provide high-pressure fluid seals. Central distributor tubes are employed, which may be shifted axially to reverse the direction of rotation of the pistons, and the distributor tube may have a central compression/combustion niche adapted to communicate with the toroidal chamber.

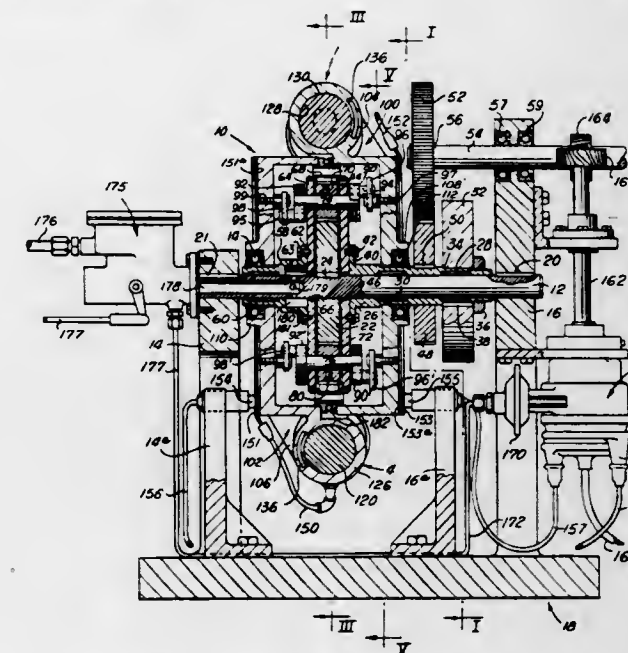
3,739,755

ROTARY ENGINE

Robert H. Folstadt, 639 Treasure, Garland, Tex.
Filed Nov. 13, 1970, Ser. No. 89,184
Int. Cl. F02b 57/00

U.S. Cl. 123-43 B

9 Claims



A rotary engine comprising a first group of piston-cylinder elements secured to a first case segment and a second group of piston-cylinder elements secured to a second case segment. The case segments are movably secured together and rotate on sleeves which rotate about a fixed shaft. Each piston of the first group reciprocates in a cylinder of the second group while the case segments rotate about and drive the sleeves. Each case segment is drivingly connected to a planetary gear and moves the planetary gear around a fixed sun gear such that the planetary gear secured to power transmission discs, drivingly connected to the drive shaft of the engine, causes the drive shaft to rotate. Connector links between case segments and the planetary gears are connected to provide a mechanically advantage such that movement of a piston and cylinder in opposite directions relative to each other causes the planetary gear, to which each link is eccentrically connected at diagonally opposed positions, to be moved around the fixed sun gear.

3,739,756

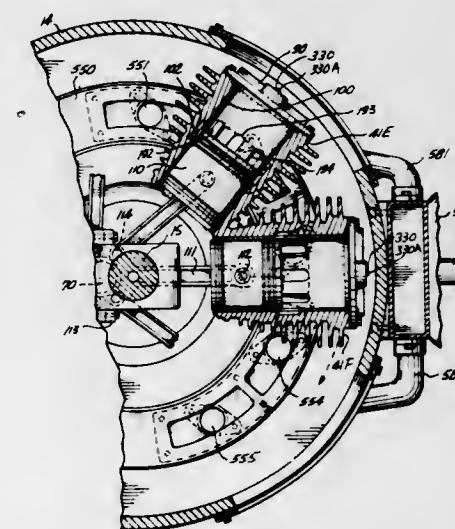
INTERNAL COMBUSTION ENGINE

Tony R. Vilella, 4701 Viewdrive, Everett, Wash.
Continuation-in-part of Ser. No. 847,181, Aug. 4, 1969, Pat. No. 3,599,612. This application May 10, 1971, Ser. No. 141,669

Int. Cl. F02b 57/06

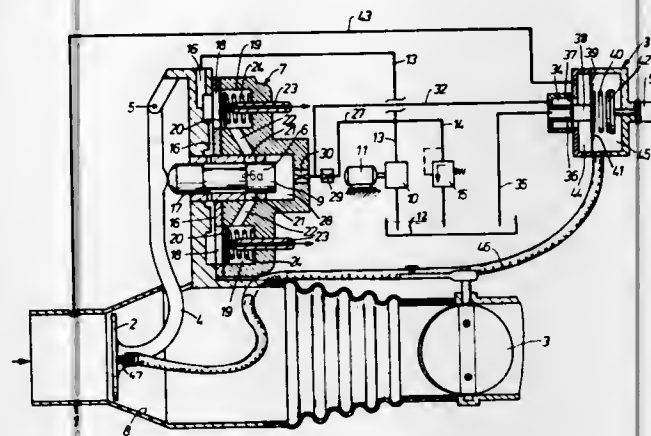
U.S. Cl. 123-44 C

15 Claims



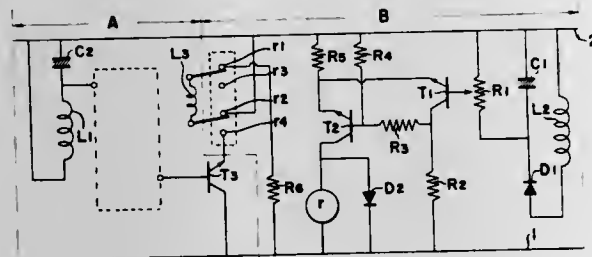
This application discloses a novel internal combustion engine incorporating the advantageous features of two cycle and

four cycle engines in a single simplified engine. A stationary vertical crankshaft and a cylinder block disposed for rotation about the crankshaft are disclosed. Cylinder sleeves disposed in the rotatable block assembly include intake and exhaust ports which are substantially diametrically opposed with the valve action being controlled by the position of the piston within the cylinder sleeve in combination with nonrotative upper and lower intake and exhaust control plates. In one embodiment fuel as well as air for combustion and scavenging of the combustion chamber is provided by a blower system cooperating with a rotating blower ring attached to the block assembly. In another embodiment full injection is used. The engine includes a combustion chamber associated with each piston and also a secondary burning chamber which is opened at a predetermined point in the travel of each piston so that an additional charge of oxygen is applied to the combustion chamber after the main combustion has taken place. In another embodiment a tunable exhaust system is disclosed with portions of the exhaust being directed back to the cylinder intake for reburning. Construction details of the complete engine, the novel power transfer assembly for driving a vehicle, and a fuel injection system are disclosed.



of the following forces: the difference between the air pressure upstream and downstream of the air sensor, the fuel tank counterpressure and a spring, the force of which is changeable as a function of engine variables.

3,739,757
ELECTRONIC GOVERNOR HAVING AN OVERSPEED PREVENTING CIRCUIT FOR INTERNAL COMBUSTION ENGINES
Yoshio Ohtani, Higashi-Matsuyama, and Todomu Kakijima, Iruma-gun, both of Japan, assignors to Diesel Kiki Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 1, 1971, Ser. No. 119,635
Claims priority, application Japan, Mar. 6, 1970, 45/21330
Int. Cl. F02b 33/00; F02d 11/10; F02b 3/00
U.S. Cl. 123-102 1 Claim

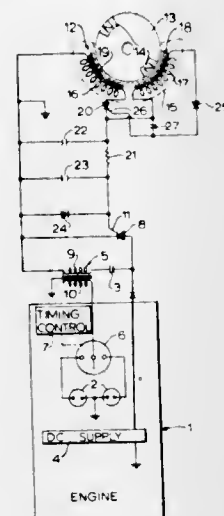


In an electronic governor for internal combustion engines, in which the output voltage of a comparison circuit comparing the output voltage in proportion to the rotative speed of the engine with the output voltage responding to the position of an accelerator lever is conducted to the control coil of a fuel regulating rod in a fuel injection pump, and the position of said fuel regulating rod is electromagnetically controlled by the generated electromagnetic force, there is provided an overspeed preventing circuit arranged to reverse the direction of the electromagnetic force produced in said control coil when the output voltage from another speed sensing circuit exceeds a constant value.

3,739,758
REGULATOR MECHANISM FOR FUEL INJECTION APPARATUS
Heinrich Knapp, Leonberg-Silberberg; Reinhard Schwartz, Stuttgart, and Konrad Eckert, Stuttgart-Bad Cannstatt, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Oct. 27, 1971, Ser. No. 192,849
Claims priority, application Germany, Nov. 7, 1970, P 20 54 911.5
Int. Cl. F02m 69/04
U.S. Cl. 123-119 R 9 Claims

In a fuel injection apparatus there is provided an air sensor which, as a function of the intake air quantities flowing

3,739,759
ROTATION SENSING PULSE CONTROL GENERATOR FOR TRIGGERED IGNITION SYSTEMS AND THE LIKE
Richard L. Sleder, Fond du Lac, Wis., assignor to Brunswick Corporation, Chicago, Ill.
Filed Feb. 4, 1972, Ser. No. 223,640
Int. Cl. F02p 1/00
U.S. Cl. 123-148 E 11 Claims

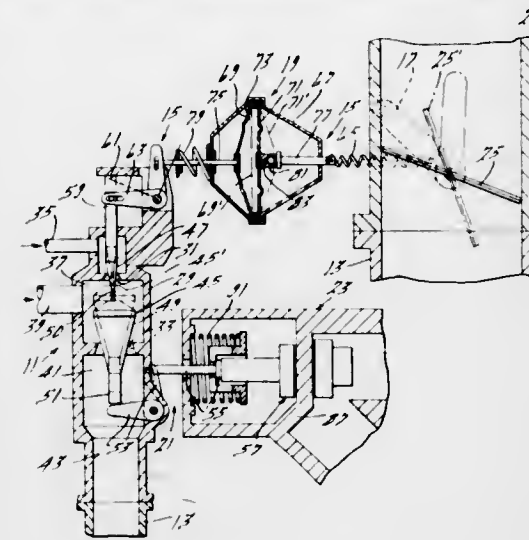


A capacitor discharge ignition system includes a main controlled rectifier in series with a capacitor to discharge the capacitor into the spark plug through a suitable pulse transformer. A pilot controlled rectifier connects a firing winding to the gate of the main rectifier. A second control winding, connected to the gate of the pilot rectifier, is mounted in spaced relation to the firing winding. A common magnet is rotated in synchronism with the engine. Only one direction of rotation generates the pulses in proper sequence to the two controlled rectifiers.

3,739,760
ENRICHMENT FUEL-AIR SUPPLY SYSTEM
William W. Charron, Orchard Lake, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Mar. 29, 1972, Ser. No. 239,063
Int. Cl. F02m 13/04, 1/10
U.S. Cl. 123-127 11 Claims

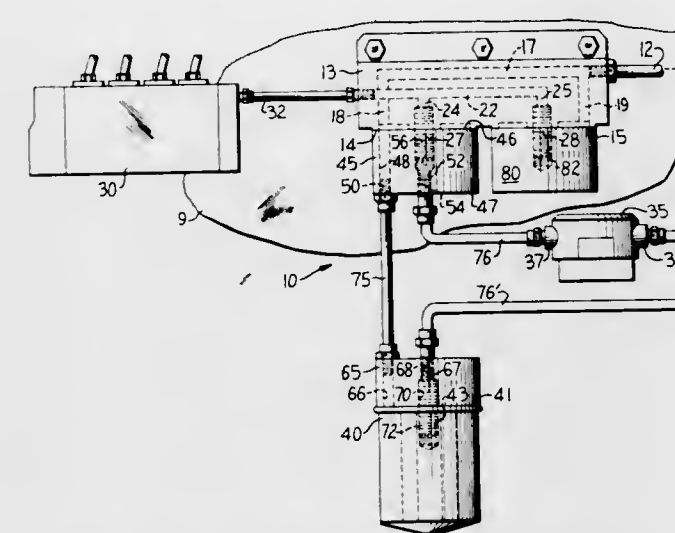
An auxiliary fuel-air supply system for an internal combustion engine which supplements the fuel-air supply from the carburetor during engine warmup and acceleration. The

response of the system depends upon the engine coolant temperature and the motion and position of the carburetor throttle plate. A valve governs the flow of this supplemental fuel-air mixture into the intake manifold.



tle plate. A valve governs the flow of this supplemental fuel-air mixture into the intake manifold.

3,739,761
FUEL METER MOUNTING FOR AN ENGINE
Albert B. Niles, Chillicothe, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed July 19, 1971, Ser. No. 163,629
Int. Cl. F02m 59/00; G01l 3/26
U.S. Cl. 123-136 6 Claims

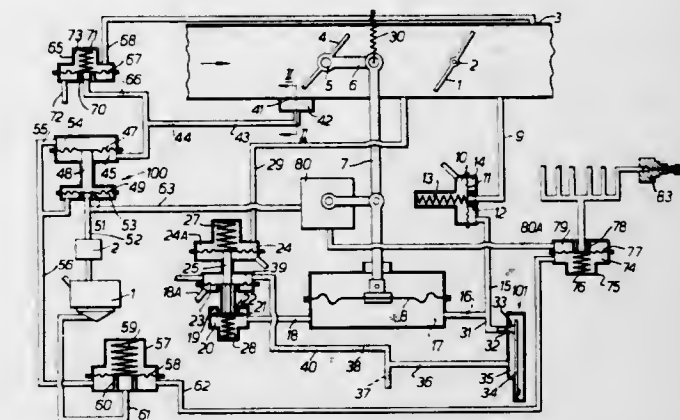


A fuel meter mounting assembly for the temporary installation of a fuel meter in the fuel injection system of an internal combustion engine having a fuel injection pump, a transfer pump for supplying fuel under pressure to the fuel injection pump and a filter mounting base interposed between the transfer pump and the injection pump providing one or more filter mounting locations affording receptacles for selectively mounting the assembly of the present invention to provide a fuel measuring bypass circuit within the fuel injection system.

3,739,762
FUEL INJECTION SYSTEMS
Harold Ernest Jackson, Plympton St. Mary, England, assignor to Petrol Injection Limited, Plymouth, England, a part interest
Continuation of Ser. No. 31,315, April 23, 1970, abandoned.
This application Jan. 24, 1972, Ser. No. 220,253
Int. Cl. F02m 69/00
U.S. Cl. 123-139 BG 28 Claims

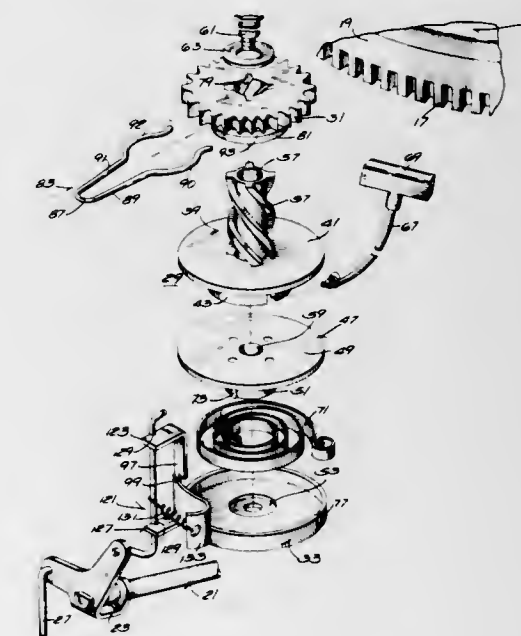
A fuel injection system for an internal combustion engine, including a fuel metering device and/or fuel pressurizing

device. The or each device operates in response to adjustment of an air valve located in the engine air intake conduit (for example, upstream of the throttle valve), such adjustment being effected by a control mechanism in the following manner. The air valve produces a control pressure differential in the air intake conduit, which is sensed by the control mechanism. Any change in the pressure differential from a predetermined con-



trol valve (caused, for example, by an increase in engine air intake) causes the control mechanism to adjust the air pressure in an air pressure control circuit to which the air valve is connected and thereby adjust the position of the air valve to return the control pressure differential to the predetermined control value. Adjustment of the air valve is accompanied by a change in the fuel flow or pressure of fuel flow to the fuel injector devices.

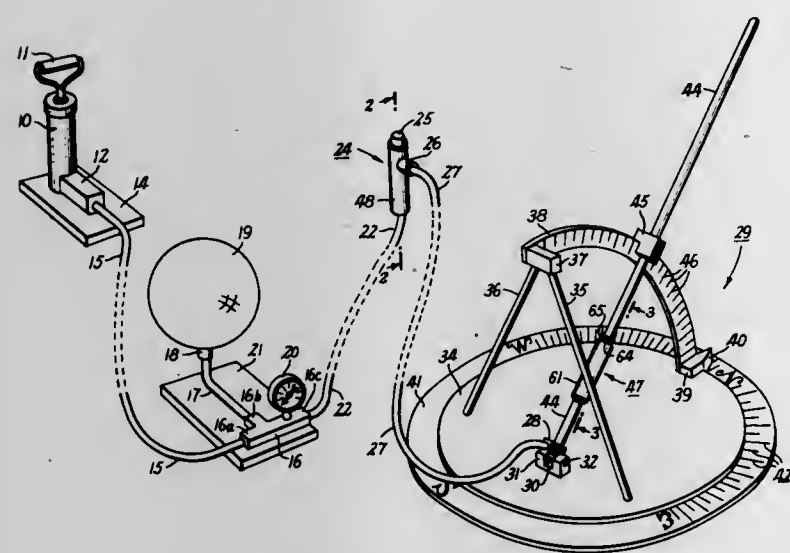
3,739,763
STARTER AND SHIFT INTERLOCK
Robert J. Berry, Waukegan, and Chester G. Dubois, Zion, both of Ill., assignors to Outboard Marine Corporation, Waukegan, Ill.
Filed June 24, 1971, Ser. No. 156,227
Int. Cl. F02h 3/00
U.S. Cl. 123-179 K 14 Claims



Disclosed herein is an engine including means mounting a starter gear on a relatively fixed housing for rotary movement and for axial movement relative to a flywheel gear between a retracted position and a position engaging the flywheel gear, means causing axial movement of the starter gear toward the flywheel gear engaging position in response to rotation of the starter gear in one direction, and means for permitting movement of the starter gear from the retracted position to the flywheel gear engaging position in response to starter gear rotation in the one direction when a clutch actuating member is in a neutral position and for preventing movement of the

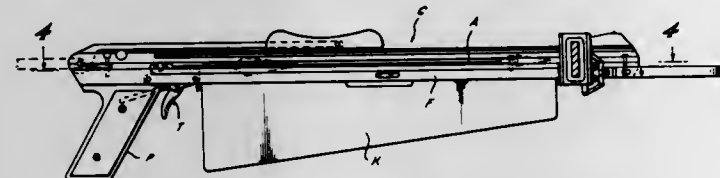
starter gear from the retracted position toward the flywheel gear engaging position when the clutch actuating member is spaced from the neutral position.

3,739,764
INFLATABLE BALLOON PNEUMATIC PROPULSION DEVICE
Walter F. Allport, 404 Wildwood Road, Stamford, Conn.
Filed Apr. 20, 1970, Ser. No. 29,832
Int. Cl. F41f 1/04
U.S. Cl. 124-11 R 3 Claims



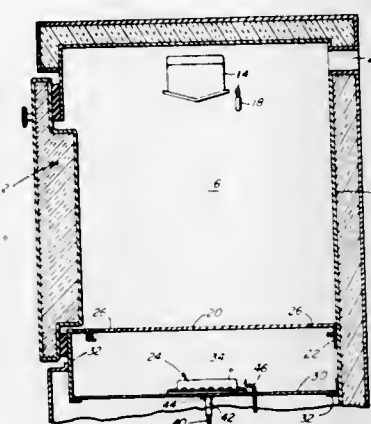
A toy rocket is disclosed in combination with an angularly adjustable cylindrical launch tube connected through a fast opening, normally closed, spring loaded "firing" valve to a source of compressed air contained in an expansible balloon. A check valve is provided for inflating the balloon by operation of a hand pump, and an indicator is provided to show the pressure of accumulated air in the balloon. All parts are fabricated of inexpensive plastic material, except that the balloon may be of rubber. By practice in selecting the amount of air pressure, angle of elevation and azimuth orientation the rocket may be accurately directed to hit a selected target within a range of 10 to 20 feet.

3,739,765
AUTOMATIC LOADING CROSS-BOW
Ralph J. Moore, Route 2, Box 216-F, Houston, Tex.
Filed Apr. 21, 1971, Ser. No. 136,111
Int. Cl. F41b 5/00
U.S. Cl. 124-25 2 Claims



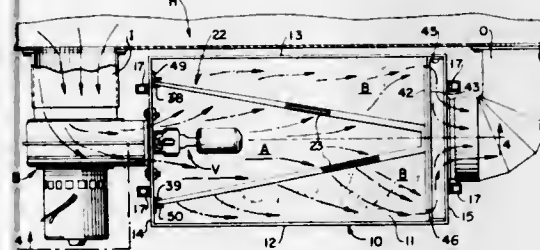
An automatic loading cross-bow comprising a main frame having pivotally mounted bow pieces adjacent its front end with means for latching such bow pieces into extended position for firing and including an arrow clip containing a plurality of arrows adapted to be carried in the main frame. Spring device automatically feeding arrows one at a time into firing position in the main frame as the bow string is cocked including spaced jaws that are opened when the cross-bow is cocked to permit an arrow to be moved from the clip into firing position. A safety release trigger is adapted to be cocked by moving the bow string into firing position and to be fired only when the safety release and trigger are both actuated.

3,739,766
FUEL BURNER STRUCTURE
Peter L. Helgeson, Macungie, Pa., assignor to Raytheon Company, Lexington, Mass.
Filed Feb. 25, 1972, Ser. No. 229,424
Int. Cl. A21b 1/00
U.S. Cl. 126-19 R 9 Claims



An oven having a fuel burner which achieves space-saving and economy by combining the burner body with a floor shield.

3,739,767
HUMIDIFIER
William H. Peters, 304 E. Wabash Street, Montpelier, Ohio
Filed Jan. 19, 1972, Ser. No. 218,921
Int. Cl. F24f 3/14
U.S. Cl. 126-113 13 Claims

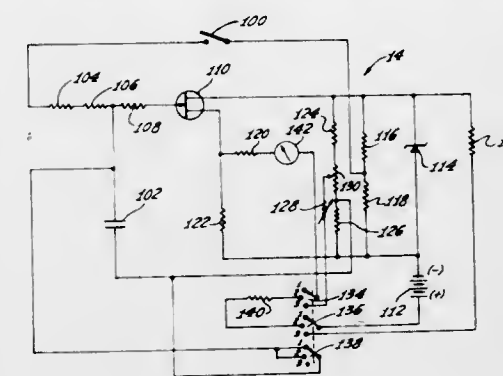


A humidifier for humidifying air, said humidifier comprising a housing having an inlet for dry air and an outlet for humidified air and having water therein, means fixed in the housing between the inlet and outlet thereof, said means having a plurality of restricted openings therethrough for the passage of air and constructed to allow the air to pass therethrough in contact with the water resulting in turbulence of the water and humidification of the air.

3,739,768
REFLEX METER
Harold F. Rieth, 2217 Harbor, Apt. C6, Costa Mesa, Calif.
Filed Dec. 30, 1968, Ser. No. 787,959
Int. Cl. A61b 5/10
U.S. Cl. 128-2 10 Claims

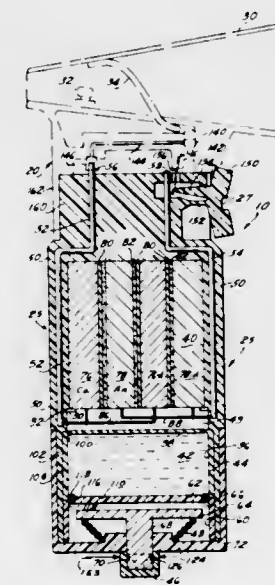
The present invention relates to a reflex meter for measuring the time duration of a reflex response, such as an Achilles tendon reaction of a patient. The reflex meter of the present invention automatically provides for the measurement of the time period from the start of the reflex reaction, which is the initial muscle contraction, through the contraction of the muscle to a maximum and until the muscle has relaxed to one-half of its peak contraction. The present invention provides such a time duration measurement automatically using a switch to control the charging of a capacitor and with the capacitor charging for as long as the switch is closed. The level to which the capacitor is charged is measured to provide an output indication of time. The switch is automatically con-

trolled to close at the beginning of the muscle contraction and to open when the muscle has relaxed to one-half of its peak contraction. The controlling of the switch may be accomplished by a mechanical switching arrangement which in-



cludes a pivoted switching arm so as to provide for the automatic closing and opening of the switch at the proper times. The controlling of the switching may also be accomplished by an electronic switching arrangement to provide for the automatic closing and opening of the switch at the proper times.

3,739,769
POWER HANDLE
Gordon E. Kaye, Garrison, N.Y., assignor to P.R. Mallory & Co., Inc., Indianapolis, Ind.
Filed Oct. 23, 1970, Ser. No. 83,422
Int. Cl. A61b 1/06, 1/09; H01m 17/06
U.S. Cl. 128-6 12 Claims

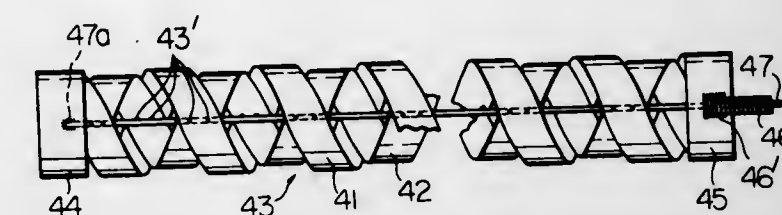


A portable diagnostic medical tool with probe structure, to receive a detachable hollow handle containing a reserve type cell, normally inactive but manually convertible to active condition as an operating cell, with the hollow handle and cell made as an inexpensive discardable unit when the cell energy is used up.

3,739,770
BENDABLE TUBE OF AN ENDOSCOPE
Toshiyuki Mori, Minamitama-gun, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Oct. 6, 1971, Ser. No. 186,979
Claims priority, application Japan, Oct. 9, 1970, 45/100982
Int. Cl. A61b 1/00; F16l 11/08
U.S. Cl. 128-6 3 Claims

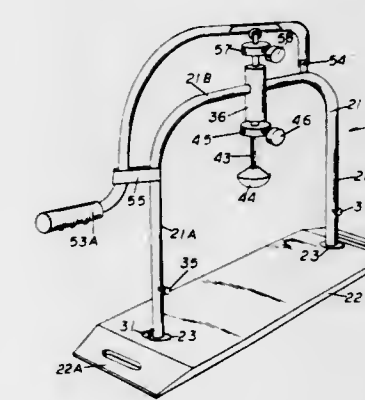
A bendable tube portion in an endoscope comprises two helically wound metal strips, one of which closely surrounds the other. The strips are wound in opposite directions and the turns of one strip are secured to corresponding turns of the

other strip in the plane of bending motion of the tube portion. The tube portion may be bent by at least one string extending



through the tube and connected to a control mechanism in the control housing of the endoscope.

3,739,771
EXTERNAL HEART MASSAGE APPARATUS
George E. Gaquer, 22 Taber Place, Nutley, N.J.; John G. Gaquer, 14 Bromley Place, Bloomfield, N.J., and Alphonse Nagourney, 334 Unity Road, Trumbull, Conn.
Filed Dec. 29, 1971, Ser. No. 213,313
Int. Cl. A61h 7/00
U.S. Cl. 128-51 28 Claims

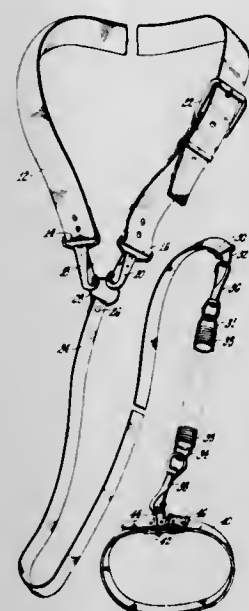


An external heart massage apparatus having of a generally U-shaped frame which is detachably connected to either a base member or by means of adaptor clamps to the side rails of a stretcher, operating table, or the like. A plunger is reciprocally mounted on the frame, and a lever is operatively associated with the plunger whereby the displacement of the lever effects reciprocation of the plunger to impart the requisite external massage on the heart of a patient. Axial transmission of the force between the lever and the plunger is attained by a rolling type cam which is connected to the upper end of the plunger so as to be disposed in rolling engagement with the lever.

3,739,772
RESILIENT HARNESS DEVICE FOR A WALKING CAST
Warren H. Ennis, 6526 Alcone Avenue, North Hollywood, Calif.
Filed Feb. 7, 1972, Ser. No. 223,960
Int. Cl. A61f 3/00
U.S. Cl. 128-80 G 9 Claims

A shoulder supported, resilient harness device for use with a walking cast to facilitate movement and reduce fatigue of the injured leg incorporates, in linked sequence, a shoulder strap, a lead strap, a resilient member and a foot band. The resilient member is, preferably, a pull spring having a pull tension corresponding to at least about the weight of the cast. The

shoulder strap and foot band are, preferably, adjustable with respect to length and the means linking the resilient member



to the lead strap and the foot band include, preferably, swivel-type connectors.

3,739,773

POLYGLYCOLIC ACID PROSTHETIC DEVICES

Edard Emil Schmitt, Norwalk, Conn., and Rocco Albert Pollstina, Port Chester, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 852,617, Aug. 25, 1969, Pat. No. 3,620,218, which is a continuation-in-part of Ser. No. 608,086, Jan. 9, 1967, Pat. No. 3,463,158, which is a continuation-in-part of Ser. No. 320,543, Oct. 31, 1963, Pat. No. 3,297,033. This application June 28, 1971, Ser. No. 157,521

Int. Cl. A61F 05/04

U.S. Cl. 128—92 BC

5 Claims



Polyhydroxyacetic ester, also called polyglycolic acid (PGA), has surgically useful mechanical properties as a solid prosthesis, such as reinforcing pins, screws, plates, or thin sheets. On implantation, in living mammalian tissue, the polyglycolic acid is absorbed, and replaced by living tissue. The polyglycolic acid as a gauze, felt or velour protects a wound surface, such as a burn, traumatic injury, or surgical incision, and may be left at least partially embedded, as in a scab, with the part below the healed tissue surface being absorbed, and that above the tissue surface dropping off with the scab, or be completely embedded.

3,739,774

RESPIRATORS

John Gregory, Marlow, England, assignor to M.L. Aviation Company Limited, Slough, Buckinghamshire, England

Filed May 10, 1971, Ser. No. 141,723

Claims priority, application Great Britain, May 21, 1970, 24,714/70; Oct. 9, 1970, 48,184/70

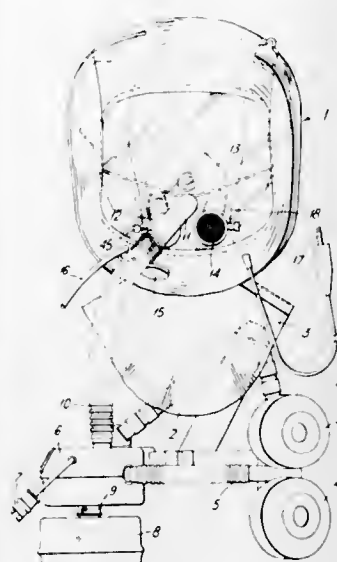
Int. Cl. A62b 17/04

U.S. Cl. 128—142.7

6 Claims

A respirator for use in noxious atmospheres comprises a hood which completely covers the head of the wearer and the edge of which extends around his neck or shoulders and a mechanical blower is fitted to the inlet connection so as to

provide more air than required for respiration to provide a positive internal pressure. The respirator may also serve as an oxygen mask for use at high altitudes by airmen and preferably includes a separate oro-nasal mask in which case the inlet has



two branches, one passing to the mask by way of a non-return valve and the other passing to the interior of the hood also through a non-return valve. When oxygen is being supplied a valve operates to prevent the flow of air from the blower to the mask.

3,739,775

PNEUMATIC PRESSURE TYPE RESPIRATOR

Laszlo Helm; Gyorgy Kosa, and Attila Szucs, all of Budapest, Hungary, assignors to Medicor Muvek, Budapest, Hungary

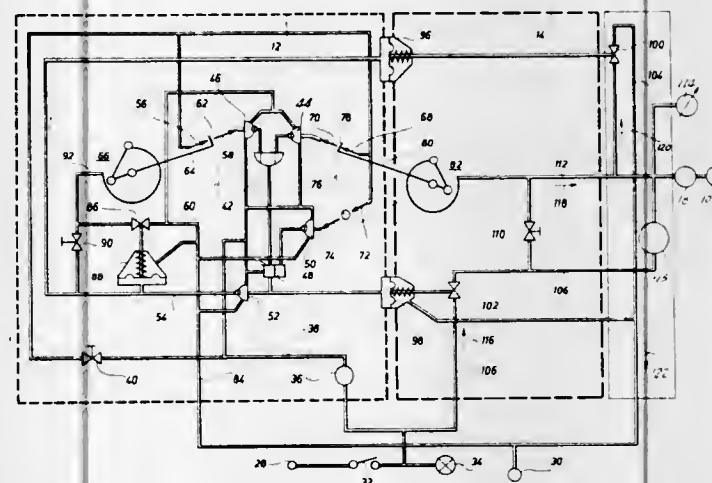
Filed May 17, 1971, Ser. No. 144,052

Claims priority, application Hungary, May 18, 1970, ME1224

Int. Cl. A62b 7/00

U.S. Cl. 128—145.8

1 Claim



Pneumatic pressure type respirators are built up of purely pneumatic means which, however, interact between control and actuator means of the device. Thereby the pressure signals themselves influence also directly the flow of work medium. To obviate this, the invention employs independent pressure lines for both the control and the actuator means between a pressurized gas source and the ambient atmosphere while both means are mechanically interconnected by at least one pneumatic valve and by at least one manometer operated switch means. Such arrangement ensures that the flow of the work medium is influenced by pressure signals only, through the mechanical interconnection.

3,739,776

FAIL-SAFE BREATHING CIRCUIT AND VALVE ASSEMBLY FOR USE THEREWITH

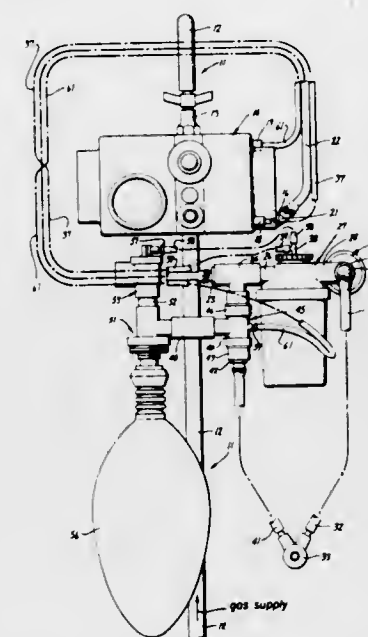
Forrest M. Bird, 212 North West Cerritos, and Henry L. Pohn-dorf, Mark 7, both of Palm Springs, Calif.

Filed Sept. 27, 1971, Ser. No. 183,822

Int. Cl. A62b 7/00

U.S. Cl. 128—145.8

10 Claims



Breathing circuit for use in supplying gas under pressure to the airway of a patient having a control with an inspiratory and expiratory phase for controlling the supply of gas. Means is provided for supplying the gas to the patient to ventilate the patient. An exhalation valve which is controlled by the controller controls the flow of expiratory gases from the patient. Manual means is provided for ventilating the patient in the event of failure of the controller. A first valve assembly having an inspiratory one-way valve and an expiratory one-way valve is provided for maintaining the inspiratory and expiratory gases separate. The first valve assembly is coupled to a second valve assembly which is coupled to the exhalation valve assembly. A resuscitation bulb is coupled to the second valve assembly and is utilized for supplying gas under pressure through the second valve assembly and through the inspiratory one-way check valve to the airway of the patient.

3,739,777

INTRAVENOUS FEEDING APPARATUS AND SYSTEM

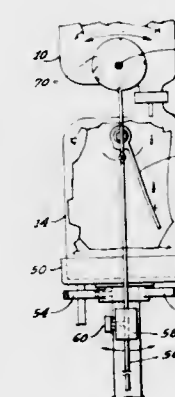
David Paul Gregg, Calle Iturbe, 12, Madrid 2, Spain

Filed May 10, 1971, Ser. No. 141,662

Int. Cl. A61m 05/16

U.S. Cl. 128—214 E

4 Claims



Improved intravenous feeding apparatus and system is provided which includes a simple mechanism for producing a readily discernible indication should the flow of intravenous solution into the vein of a patient be interrupted for any reason. The apparatus includes a flipper member which is

mounted in a receptacle through which the intravenous solution passes as a series of drops. The flipper is caused to move back and forth about a pivotal axis so long as the solution passes through the receptacle at a predetermined rate, and it stops when the rate increases or decreases from a pre-established value.

3,739,778

CATHETER INTRODUCTION SYSTEM

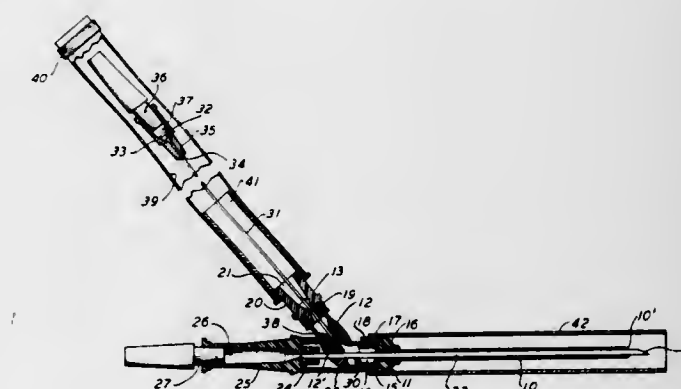
Martin Monestere, Jr., Lebanon, and Frederick Prunier, West Orange, both of N.J., assignors to C. R. Bard, Inc., Murray Hill, N.J.

Filed Aug. 12, 1971, Ser. No. 171,156

Int. Cl. A61m 5/00

U.S. Cl. 128—214.4

8 Claims



A needle and catheter combination for intravenous or supra-pubic use wherein a plastic catheter is mounted on a connector assembly including a first hub which is connected to a second hub by means of a short rubber tube adapted to be bent laterally and to be resealably punctured by a needle (having a hub and a plug) which extends initially through the first hub and catheter with its point projecting from the distal end of the latter. After introduction (e.g. venipuncture) the needle is withdrawn leaving the catheter in the vein or other body cavity; the needle hole through the side of the rubber tube closes and the second hub may then serve as an adapter for connection to an infusion set or drainage receptacle, or an elongated second catheter with adapter may be introduced through the connector assembly and catheter. When the second catheter is used the first catheter may be left in place or may be withdrawn to leave only the second catheter in the vein or other cavity. The needle hub may be opened by removing the plug to permit observation of flashback, and the needle may have a lateral opening in register, initially, with the lumen of the rubber tube to permit injection of liquid immediately upon venipuncture, before removal of the needle.

3,739,779

HYPODERMIC SYRINGE AND NEEDLE CONSTRUCTION

Frederick W. Pfeiffer, Cherry Hill, N.J., assignor to Medical Electroscience & Pharmaceuticals, Inc., Cherry Hill, N.J.

Filed Apr. 28, 1970, Ser. No. 32,547

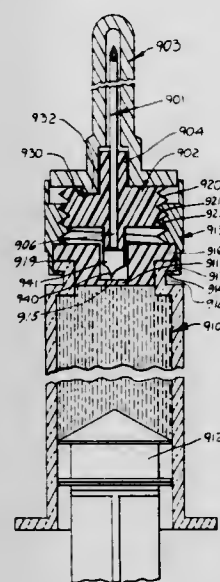
Int. Cl. A61m 5/00

U.S. Cl. 128—218 DA

5 Claims

A hypodermic syringe and needle construction comprising threaded actuating means mounted on the end of a syringe ampule and adapted to provide a mechanical advantage for piercing a needle and needle holder unit through a pierceable end closure. In another facet of the invention, a ball-type closure is provided in a disposable ampule unit, the unit including threaded actuating means on the distal end of the ampule for moving the needle holder to dislodge the ball in the closure and permit fluid communication between the contents of the ampule and the lumen of the needle. A non-coring, discrete needle and holder construction, adapted to be stored as a separate unit from a syringe or ampule, has a hypodermic needle provided with solid piercing means extending beyond the lumen of the needle for initially piercing the end closure of an

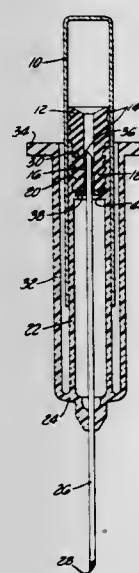
ampule without producing a coring action, facilitating passage of the lumen of the needle through the pierced closure without



creating a core, the needle holder being adapted to substantially rigidly, sealingly engage the discharge end of a syringe or ampule.

3,739,780 SAF-T-JET

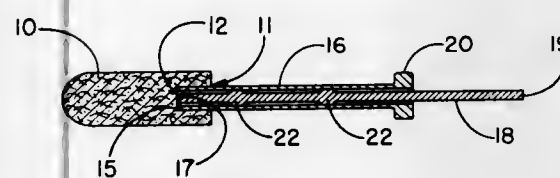
Robert Walter Ogle, Newport Beach, Calif., assignor to IMS Limited, South El Monte, Calif.
Filed Feb. 7, 1972, Ser. No. 223,930
Int. Cl. A61m 5/00, 5/18
U.S. Cl. 128—220



This patent describes a medicament injector comprising a cylindrical vial having an open end and a closed end, a resilient plug inserted at least partially through said open end engaging the walls of said vial with a press fit, a cylindrical member having one closed end and a needle extending outwardly from said cylindrical member with a sharpened end point, a thin long fluid passage communicating with said needle and extending inwardly into said cylindrical member with a sharpened inner end terminating within the walls of said cylindrical member, lateral support means between said walls of said cylindrical member and said thin long fluid passage in proximity to said sharpened inner end to maintain said passage essentially concentric with respect to said cylindrical member, cooperating threaded interlocking means on said cylindrical member and said plug, whereby upon interlocking the said plug with the said cylindrical member said vial is first held in an assembled but non-operating position and upon further interlocking of said plug with said cylindrical member said plug is pierced by said elongated fluid passage and said passage

communicates with said vial and said plug is locked securely to said cylindrical member to permit aspiration upon withdrawal of said vial to permit expulsion of the contents of said vial upon exertion of pressure on said vial.

3,739,781
TAMPON INSERTER ARRANGEMENT
Harish A. Patel, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed Jan. 10, 1972, Ser. No. 216,664
Int. Cl. A61f 13/20
U.S. Cl. 128—263



An absorbent tampon having an inserter means removably seated in a socket provided in the tampon base. The inserter means comprises a tubular sleeve which is frictionally held in the socket and surrounds a rod which is slidably disposed inside the sleeve.

3,739,782
ABSORBENT FIBERS OF PHOSPHORYLATED CELLULOSE WITH ION EXCHANGE PROPERTIES AND CATAMENIAL TAMPONS MADE THEREFROM
Leo J. Bernardin, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Division of Ser. No. 34,878, May 5, 1970, Pat. No. 3,691,154.
This application Nov. 1, 1971, Ser. No. 194,748
Int. Cl. A61f 13/20

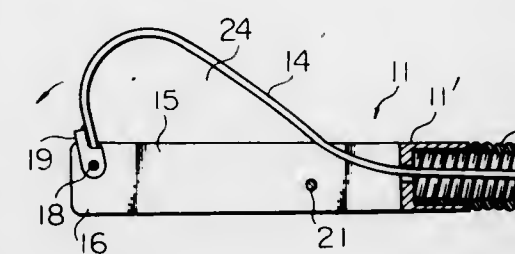
U.S. Cl. 128—285
Absorbent dressings, such as tampons, made from highly absorbent cellulose fibers with ion exchange properties. These fibers are obtained by phosphorylating cellulose fibers, hydrolyzing the fiber walls with acid, converting the phosphorylated fibers to the sodium salt form, mechanically refining these fibers to rupture the primary fiber wall and permit subsequent swelling or ballooning, acidifying the refined fibers to reconvert the phosphorylated cellulose into the acid form, and drying the fibers in a manner to substantially avoid appreciable hydrogen bonding.

3,739,783
MALE URINAL DEVICE
Arthur B. Broerman, 5901 Baylor, Bartlesville, Okla.
Continuation-in-part of Ser. No. 8,819, Feb. 5, 1970, Pat. No. 3,608,552. This application Sept. 24, 1971, Ser. No. 183,589
Int. Cl. A61f 5/44
U.S. Cl. 128—295



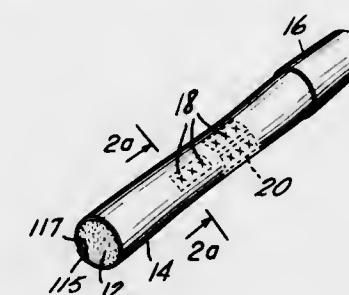
A male urinal device is provided. The device comprises a fabric base, tubular, expansible, liquid-conveying sheath adapted to receive the penis and be affixed thereto in fluid-tight relation, and includes a constricted downstream outlet section which is pivotally flexible at the point of constriction of the sheath by the action of an internal twist of the reinforcing fibrous tube. A fluid coupling member is contained within the outlet section. The fiber sheath is preferably impregnated with a silicone rubber, and in one embodiment of the invention is attached to the body with silicone resin adhesive.

3,739,784
SURGICAL INSTRUMENT
Mitsuto Itoh, Hachioji-shi, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Dec. 1, 1971, Ser. No. 203,633
Int. Cl. A61b 1/06, 1/00, 1/72
U.S. Cl. 128—320



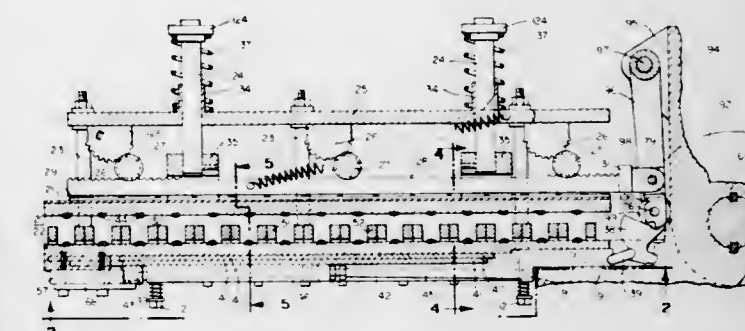
Forceps for use with an endoscope. The distal end portion of the forceps is provided with a pair of longitudinal parallel legs separated by a slot therebetween. The longitudinal edge of at least one of the legs is made a sharp cutting edge and the front end of a wire having a diameter slightly smaller than the width of the slot and extending through the flexible tube of the forceps so as to be manually operated at its rearward end is pivotally mounted on the forward ends of the legs in the slot so that the forward end portion of the wire is bent to form a loop so as to capture a projecting mass such as a polyp when the wire is pushed forwardly while the wire is tensioned to move into the slot when the wire is pulled rearwardly, thereby severing the captured projecting mass by the cooperation of the wire with the cutting edge of the leg.

3,739,785
CIGARETTE WITH COATED WRAPPER VENTILATION FLAPS
William K. Stephens, Jr., Mechanicsville, Va., assignor to Philip Morris Incorporated, New York, N.Y.
Filed May 3, 1972, Ser. No. 250,064
Int. Cl. A24d 01/00
U.S. Cl. 131—9



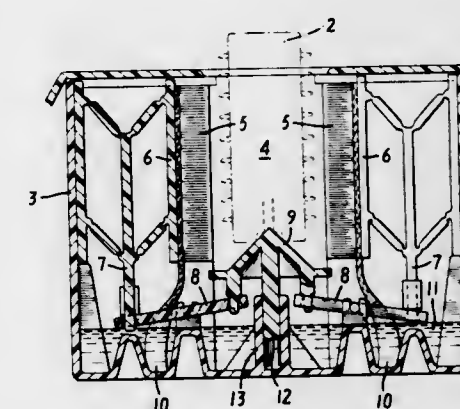
A ventilated cigarette employing one or more flaps defined by slit patterns in the wrapper thereof and which flaps are adapted to move away from the wrapper encircling course when the cigarette is puffed to admit ventilating or diluting air streams to the tobacco cylinder which is made with the slit pattern fashioned to extend generally transverse of the article longitudinal axis to provide flap movement about a hinge line disposed generally parallel to said longitudinal axis. The slit pattern can be made the form of an X, a V or other suitable configuration. The article further has a coating of an air-impervious normally rigid material on either the inner or outer surface of the wrapper in covering and encircling expanse about each slit pattern and associated flap to normally constrain or hold the flap in the encircling wrapper course. When the cigarette has been smoked to an extent that ventilation is advantageous or desirable, the material responsive to the presence of heat from warm smoke and the burning coal or to the ingredients of tobacco smoke becomes softened and constraint on the flap is released to permit the circular tension in the wrapper to cause the flap to move away from the wrapper encircling course and admit ventilation air.

3,739,786
CIGAR PRESS
Dale R. Smith, York, Pa., assignor to York Research & Development Corp., Red Lion, Pa.
Continuation-in-part of Ser. No. 96,020, Dec. 8, 1970. This application Aug. 4, 1971, Ser. No. 168,939
Int. Cl. A24c 01/18
U.S. Cl. 131—86



In an automatic turret-type indexing cigar pressing machine for pressing round cigars of various sizes into square or rectangular (or other) cross-sectional shape, jaw members forming the sidewalls of the die cavities are movable inwardly and outwardly in operational relationship to the closing and opening of the press, thereby to compress the cigars horizontally as well as vertically. The sidewall jaw members are spring loaded vertically and are movable downwardly when the press closes to lessen the shock on the cigars.

3,739,787
HAIRSETTING APPARATUS HAVING APPLICATOR MEANS FOR MOISTENING THE SURFACE OF THE HAIR ROLLER
Erik Keldmann, Jerslev, and Bent G. Johansen, Kalundborg, both of Denmark, assignors to Bristol-Myers Company, New York, N.Y.
Filed Sept. 3, 1971, Ser. No. 177,767
Claims priority, application Denmark, Sept. 9, 1970, 4641/70
Int. Cl. A45d 2/02
U.S. Cl. 132—9



A hairsetter having hair rollers heated by support pins on which the hair rollers are mounted, is provided. The hairsetter has a moistening chamber in which one or more rollers can be positioned after they are heated. The moistening chamber has an applicator means such as brushes which receive liquid from a reservoir. When a roller is placed in the moistening chamber, the applicator is activated to deposit the hair treatment liquid in a thin coating on the surface of the hair roller.

3,739,788 HAIR CURLERS

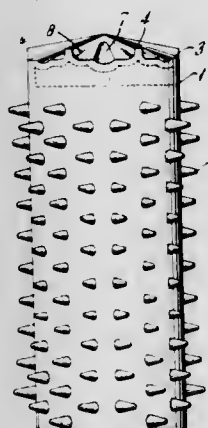
Erik Keldmann, Jerslevsvej, Denmark, assignor to Bristol-Myers Company, New York, N.Y.

Filed Aug. 17, 1971, Ser. No. 172,542

Claims priority, application Denmark, Aug. 17, 1970, 4211/70

U.S. Cl. 132-33 R Int. Cl. A45d 2/12

9 Claims



A heatable hair curler for use in vapor type heating systems which condense liquid droplets on the hair curler by directing the liquid droplets toward an end of the hair curler, the hair curler having a hollow cylindrical body terminating at a closed end and a heat storage cartridge disposed within the cylindrical body. The closed end of the hair curler receives the liquid droplets and has an outer surface with a bulging or protruding configuration, such as that of a dome or cone, and guide channels formed in the surface to direct liquid droplets to the peripheral edge of the closed end and distribute the liquid over the cylindrical body of the hair curler, the guide channels being defined by ribs extending from the surface and/or grooves in the surface.

3,739,789 BRUSH APPLICATOR

Ralph J. Cataneo, Brooklyn, N.Y., and Eustace Fotiu, Mahwah, N.J., assignors to Pfizer Inc., New York, N.Y.

Filed June 12, 1972, Ser. No. 262,118

Int. Cl. A45d 40/26

U.S. Cl. 132-88.7

18 Claims



The bristles of a brush applicator for cosmetics are mounted in a centrally located bushing, which is mounted on radial ribs at the outlet from the barrel. The paste to be applied is forced by a lead screw and piston through the ribs into an ample annular space between a surrounding ferrule and the outside of the bushing. A shoulder on the ferrule compresses the tips of the bushing ribs against the outlet, and its outlet nozzle closely engages the bristles and directs the paste into their tip end. The lead screw is rotated by a knob secured to its rear end, which is snapped into the back end of the casing, to advance an octagon shaped piston through a correspondingly shaped barrel.

3,739,790 APPARATUS FOR WASHING CONTAINERS

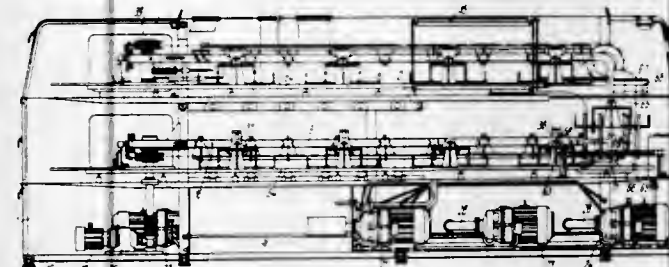
Nikolai Martynovich Gud, Ulitsa Srendyaya, 6, and Eduard Kazimirovich Adutskevich, Bulvar Rokossorskogo 97, both of Minsk, U.S.S.R.

Filed Jan. 4, 1972, Ser. No. 215,349

Int. Cl. B08b 3/02, 9/08

U.S. Cl. 134-60

9 Claims



The internal space of the apparatus is divided by means of a vertical partition wall into two longitudinally extending portions. These portions are divided by means of trays into stages which constitute treatment stations. A conveyor closed in space extends through all treatment stations and comprises a guide, carriages and driving mechanism. Said driving mechanism and the guide, along which the carriages with carriers for containers are moved, extend through all the treatment stations moving around the vertical partition wall in a horizontal plane and passing vertically from one stage into another.

3,739,791

DECONTAMINATION APPARATUS

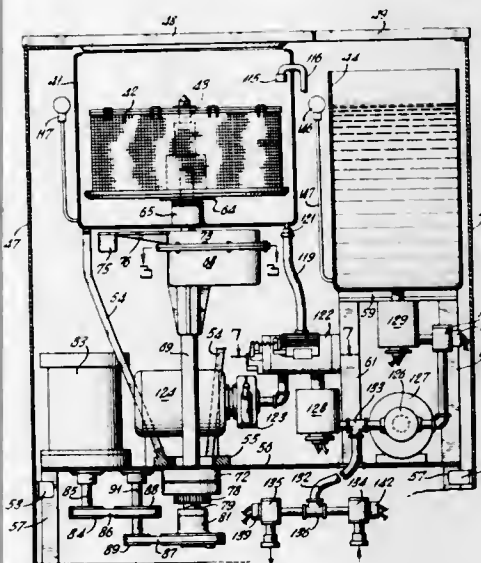
Jack E. Fry, Dallas; Joseph C. Gerard, Arlington; Chester C. Hickman, and John E. Hummel, both of Dallas, all of Tex., assignors to Arbrook, Inc., Arlington, Tex.

Filed June 24, 1970, Ser. No. 49,407

Int. Cl. B08b 3/06, 9/00, 11/02

U.S. Cl. 134-157

6 Claims



A closed system, i.e., apparatus for automatically decontaminating various articles, including hollow bags and tubing, by washing and disinfecting them with a liquid chemical disinfectant, using the same tub for both washing and disinfection. The articles are automatically agitated in the washing and disinfecting liquids to loosen dirt and assure complete wetting of their inside and outside surface by the disinfectant. Containers are provided for mounting the hollow articles for agitation and spinning from the same shaft, preferably in baskets provided for this purpose, and for holding them in positions which will assure their thorough washing, disinfecting and emptying. A unique storage and transfer system is employed for the disinfectant supply and this includes a novel diverter or transfer

3,739,794 METHOD AND APPARATUS FOR CONTINUOUSLY PREPARING A GEL

Mats E. G. Lindgren, Trangsund, Sweden, assignor to Gelco-Project Lindgren & Co., Handelsbolag, Stockholm, Sweden

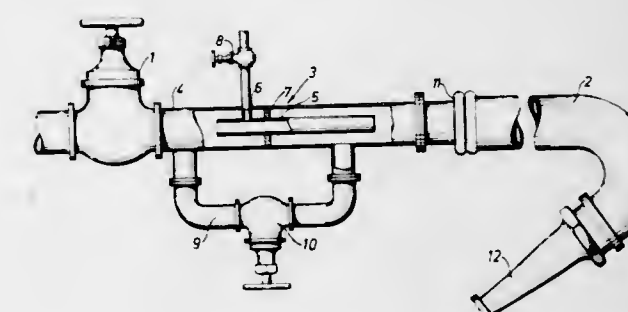
Filed Sept. 10, 1971, Ser. No. 179,507

Claims priority, application Sweden, Sept. 14, 1971, 12466/71

Int. Cl. A62c 5/16

U.S. Cl. 137-1

6 Claims



Method for continuously preparing a gel in which a liquid is mixed with a gelling agent in a hose or other conduit which serves to deliver the gel to the site at which it is used. The liquid and the gelling agent are supplied to the conduit in the proper proportions so that the gel is formed or completed approximately the output end of the conduit. The invention also includes apparatus for carrying out the specified method.

3,739,795 METHOD AND APPARATUS FOR DETECTING AND CONTROLLING FOAMABILITY OF A LIQUID SYSTEM

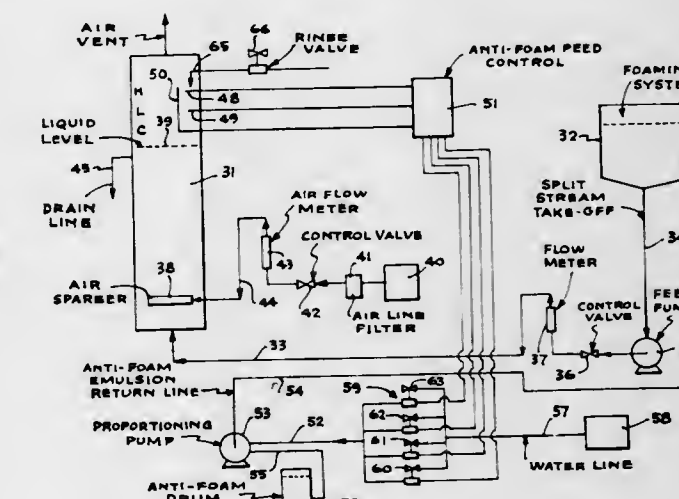
James A. Hyde, Downers Grove, and Roger W. Youngs, Hinsdale, both of Ill., assignors to Nalco Chemical Company, Chicago, Ill.

Filed July 19, 1971, Ser. No. 163,714

Int. Cl. B01d 19/04

U.S. Cl. 137-5

6 Claims



A method of automatically detecting and controlling foamability of a liquid system, wherein conductivity probes measure foaming to automatically control the introduction of antifoam into the system, and thereby control the foamability of the liquid system. In one arrangement foaming is measured externally by feeding a split stream from the system to a vessel where foaming is synthetically generated. In another arrangement, foaming is measured directly. Apparatus for carrying out the method where foaming is generated externally includes a vessel having means for synthetically causing foaming of the liquid to simulate the foaming normally encountered in the system. A split stream is suitably taken from the system and delivered to the vessel. The foamability of the liquid is then measured in the vessel to control means for feeding a given dosage of antifoam to the liquid system, and thereby control the foamability of the system. The magnitude of foam-

3,739,792 UMBRELLA WITH HEAT GENERATING MEANS

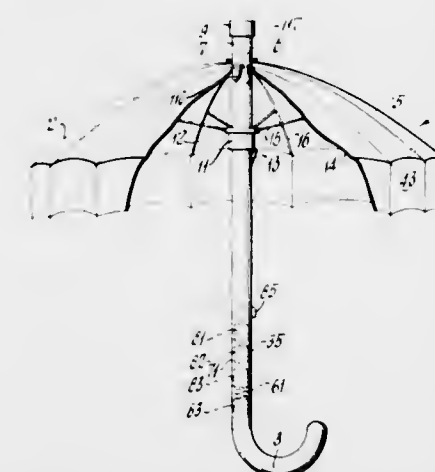
Joan Holland, 157 East 57th Street, New York, N.Y.

Filed July 14, 1971, Ser. No. 162,514

Int. Cl. A45b 25/00

U.S. Cl. 135-16

11 Claims



An umbrella with a heat generating means, such as electric heating elements located in the ribs of the umbrella framework. The heating elements heat the volume of air present under the umbrella canopy. The power source may be incorporated in the umbrella or may be external. In addition, heated air may be drawn through an opening in the bottom and ejected through an opening in the upper end of a hollow vertical column supporting the umbrella's ribbed framework and including heat generating means in the column.

3,739,793

AID FOR USE IN SITTING DOWN OR STANDING UP

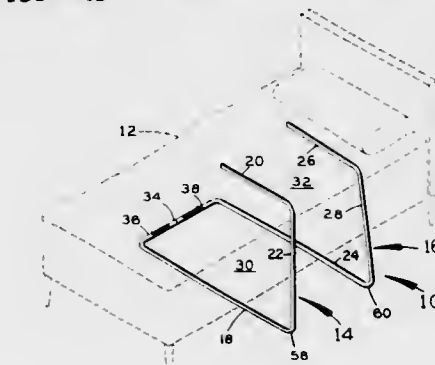
Allen B. Wilson, 2920 N.E. 19th St., Pompano Beach, Fla.

Filed Jan. 19, 1972, Ser. No. 219,044

Int. Cl. A45b 1/00

U.S. Cl. 135-45

3 Claims



An aid for use by a crippled person in sitting down and standing up. In a preferred embodiment, the aid has generally J-shaped legs on opposite side thereof, each including an upper branch and a lower branch. The lower branches are connected together by connecting means which may be located in different places relative to the lower branches. The aid is particularly useful in assisting a crippled person in sitting down on a bed or standing up from a seated position on a bed, but the aid can be used for assistance in sitting down and standing up relative to articles other than beds. By using the aid, a person need not call a nurse or attendant to help him.

ing is measured electrically to produce a signal for driving an antifoam feed control.

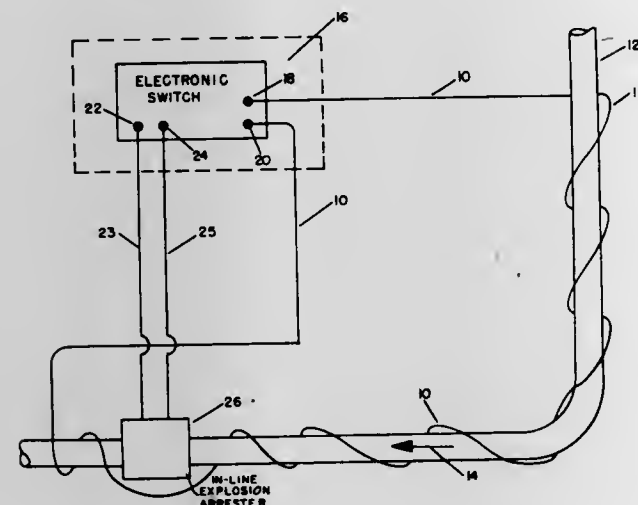
3,739,796 IN-LINE EXPLOSION ARRESTER

Louis Jablansky, Fair Lawn, N.Y., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 3, 1971, Ser. No. 139,337
Int. Cl. F16k 3/00, 17/36

U.S. Cl. 137-68

4 Claims



This invention relates to a system for detecting an explosion in a pipeline carrying molten explosive material and halting the spread thereof by blocking the propagation of the detonating wave by a detonation arresting means that is electrically activated by an electronic switch which is sensitive to the initial detonation.

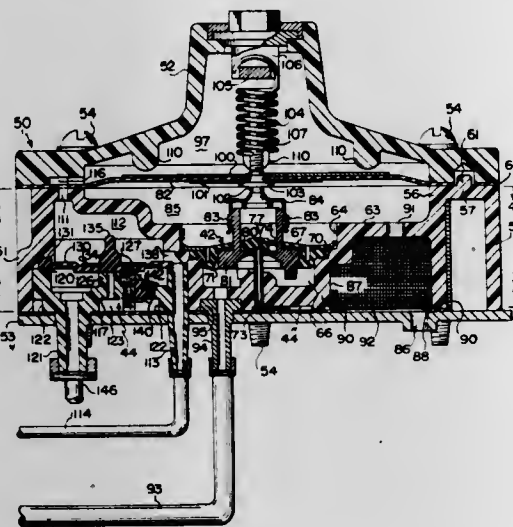
3,739,797 CONTROL APPARATUS FOR EXHAUST GAS RECIRCULATING SYSTEM

Roland B. Caldwell, Columbus, Ohio, assignor to Ranco Incorporated, Columbus, Ohio

Filed Nov. 29, 1971, Ser. No. 202,783
Int. Cl. F02m 25/06

U.S. Cl. 137-85

6 Claims



Control apparatus for regulating the vacuum applied to control an exhaust gas recycling valve of an internal combustion engine comprises a body forming the housing for a vacuum regulator, a vacuum reservoir, a check valve between the reservoir and intake manifold connection of the engine and a relief valve for the reservoir. The construction of the body provides internal connections between the vacuum regulator, reservoir and the check and relief valves and provides readily accessible external vacuum connections to the venturi, intake manifold and recirculating valve.

3,739,798 FLUIDIC/PNEUMATIC DEVICES USING EQUILIBRIUM OF FORCES

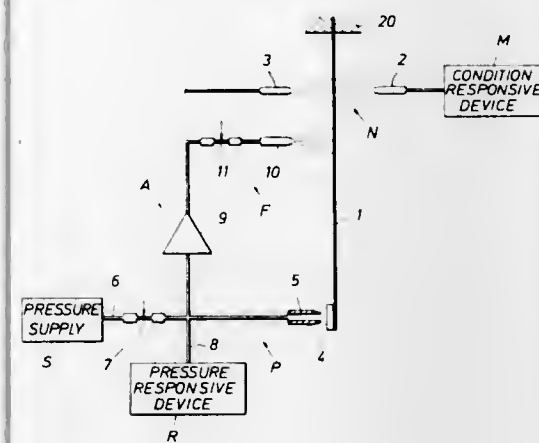
Robert Eugene Raymond Ducousset, Clamart, Hauts-de-Seine, France, assignor to Compagnie Des Compteurs, Paris, France

Filed Feb. 18, 1971, Ser. No. 116,354

Claims priority, application France, Feb. 27, 1970, 7007134
Int. Cl. G05d 16/00

U.S. Cl. 137-85

11 Claims



In the several preferred embodiments of the present invention disclosed herein, a pneumatic controller is provided with a depending flexible vane which is cooperatively arranged and positioned to be moved in relation to a gas-bleed orifice for selectively regulating the pressure of a gaseous control media being supplied to a pressure-responsive control device. To control the movements of the vane, a variable force is applied to the vane to selectively deflect it in response to variations of a measured condition. Proportional feedback is provided in a unique fashion by supplying the regulated gas to one or more nozzles which are arranged to jet gas against the vane for reestablishing the equilibrium of the vane in accordance with the regulated gas pressure.

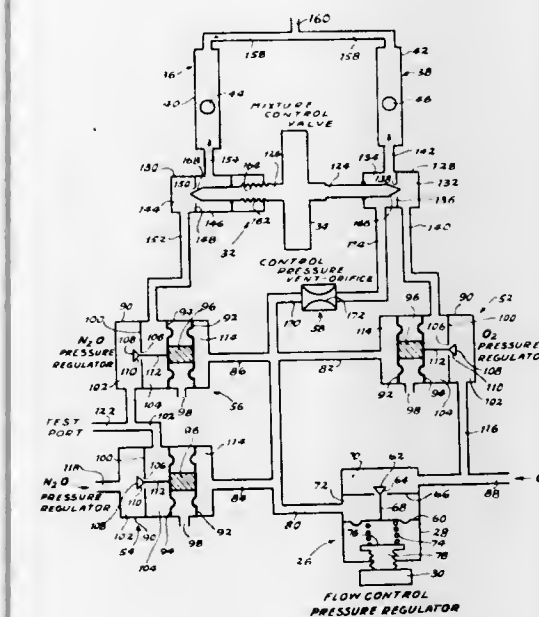
3,739,799 CONTINUOUS FLOW ANESTHESIA APPARATUS

Allan M. Bickford, East Aurora, and Ronald J. Czajka, Alden, both of N.Y., assignors to Fraser-Sweetman, Inc., Lancaster, N.Y.

Filed Sept. 7, 1971, Ser. No. 178,114
Int. Cl. G05d 11/03

U.S. Cl. 137-88

12 Claims



A gas flow control system for anesthesia apparatus including a mixture control valve operable to vary the relative proportions of two gaseous components without affecting the

total flow rate thereof and a control for varying the total flow rate of these components without varying the relative proportions thereof. Flow meters are utilized to visually confirm the accuracy of the mixture control valve.

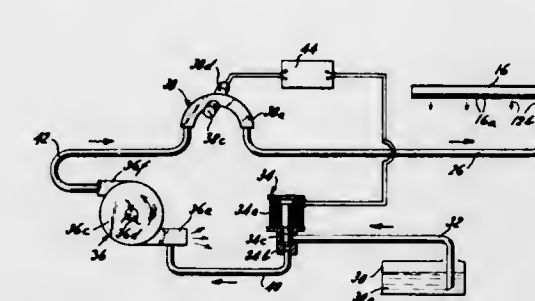
3,739,800 TONER SUPPLY SYSTEM FOR COPYING MACHINE

Toruli F. Aasen, Hollywood; Bernard Mogil, Hallendale, and Martin Schaffel, Miami, all of Fla., assignors to Copystatics Manufacturing Corporation, Miami Lakes, Fla.

Filed May 4, 1971, Ser. No. 140,051
Int. Cl. G05d 11/08

U.S. Cl. 137-93

10 Claims



A system for continuously monitoring the concentration of toner in an electrostatic copying machine. The need for additional toner concentrate is detected by a photocell which receives varying amounts of light transmitted through a transparent monitoring tube positioned in the toner solution circulation path. If the toner solution has become too dilute, the photocell's resistance lowers to permit a periodically generated enabling pulse from the electronic control circuit to furnish an operating path for a positive-acting solenoid valve. Short timed bursts of toner concentrate are then added to the toner solution at spaced time intervals until the concentration exceeds a predetermined value; the concentrate is injected into the solution by an immersed venturi tube arrangement. A manual operating mode is also included for providing an instantaneous burst of toner concentrate independent of the detection circuitry.

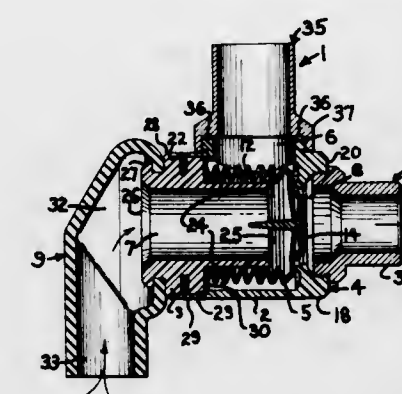
3,739,801 LOW ACTUATING PRESSURE TYPE VALVE STRUCTURE

Hans Rudolph, 7200 Wyandotte Road, Kansas City, Mo.
Filed Dec. 6, 1971, Ser. No. 204,947

Int. Cl. G05d 7/00

U.S. Cl. 137-102

4 Claims



A housing with flow passages and valve members actuated by low pressure is particularly adapted for respirating apparatus or other breathing apparatus. The housing has a body structure having connected portions with aligned passages, one portion having an end with the passage communicating with an inlet fitting mounted on the respective body member and the other end reduced to define a guide concentric with the passage therein. The other body portion has a valve seat adjacent to and spaced from said other end of the first body

portion and a surrounding portion connected to same with a flexible seal therebetween. The seal has a resilient extendable portion and an end forming a valve element normally engaging the valve seat. The second named body portion has an outlet passage through which fluid is discharged when differential pressure on the valve element unseats same. The valve element has openings in the central portion and a flapper valve member is mounted thereon to normally close same and adapted to open in response to differential pressure thereon for flow of fluid from the inlet to the passage in the second named body portion.

3,739,802 CONTROL VALVES FOR SPRING BRAKE UNITS

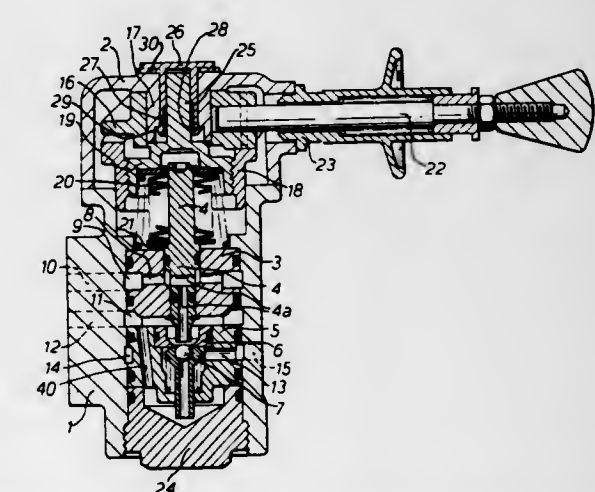
Wilbur Mills Page, and Ralph Coupland, both of Lincoln, England, assignors to Clayton Dewandre Company Limited, Lincoln, England

Claims priority, application Great Britain, Apr. 1, 1970, 15,415/70

Int. Cl. G05d 16/04; F16k 31/524

U.S. Cl. 137-116.3

3 Claims



A manually-operable valve for controlling the application of a spring-actuated fluid pressure-released brake unit in a full power hydraulic braking system comprises a valve element actuated by a control valve plunger and operable to connect the chamber of a spring brake unit selectively and gradually to a source of fluid pressure and to a sump, and manually-operable means actuating the plunger through rotary cam means and a graduated spring, the delivered fluid pressure reacting against the spring such that the pressure delivered is determined by the degree of travel of the manually-operable means.

3,739,803 OIL COMPENSATION SYSTEM FOR ELECTRIC POWER CABLES IMPREGNATED WITH INSULATING OIL

Antonio Ferrentino, Monza, Italy, assignor to Industrie Pirelli Societa Per Azioni, Milan, Italy

Filed Apr. 7, 1972, Ser. No. 242,127

Claims priority, application Italy, June 11, 1971, 25700 A/71

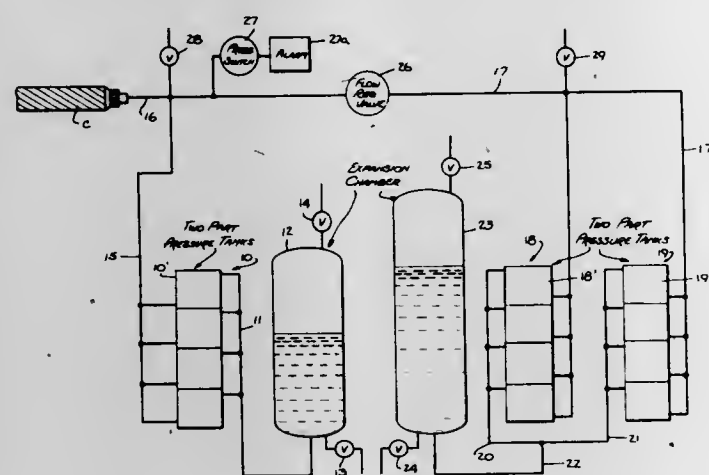
Int. Cl. F17d 1/00

U.S. Cl. 137-255

9 Claims

A system for compensating for normal and abnormal changes in oil volume in an oil-impregnated electric power cable comprising one or more two-part pressure tanks with one part containing the oil and connected to the cable oil duct to supply such oil thereto and with the other part applying pressure to the oil in the one part over the normal operating oil pressure range and one or more similar two-part pressure tanks similarly connected to the cable oil duct through a flow regulating valve but having the oil under a pressure at or below the lowest normal operating oil pressure so that oil is supplied to the cable duct thereby only when the cable oil pressure decreases to, or below, the lowest normal operating pressure. unit is mounted in an opening in the bottom of a cup-

shaped plastic jacket, and has two terminals which project into the jacket and which have lead wires connected thereto. The wires extend out through notched openings in the side of the jacket, and are retained in those openings by a ring member which seats on the open end of the jacket and which has a



diametral web at opposite sides of which the lead wires are disposed. The can has a flared open end; and the can and ring member are secured in place by epoxy flowed into the open end of the can and around its flared end and into the jacket to a point beneath the notched openings.

3,739,804

CONNECTING DEVICE FOR FLUID-CIRCUIT

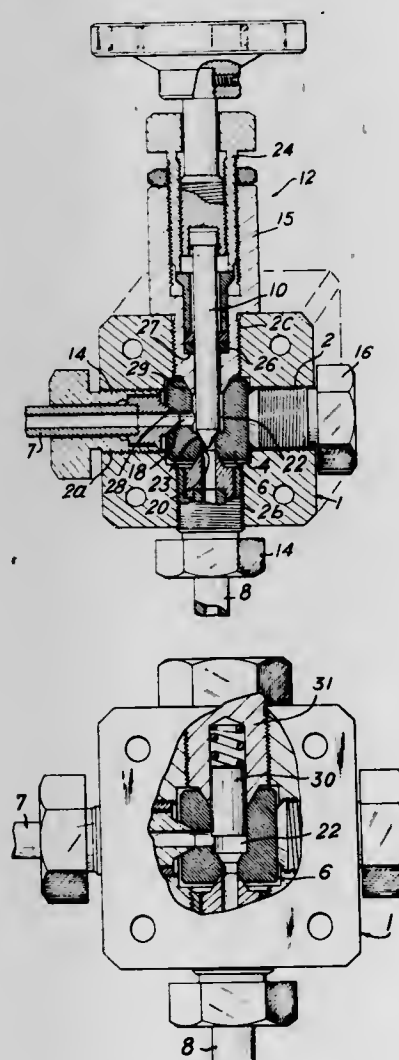
Serge Dubreuil, Chatou, France, assignor to Societe S.B.F., Courbevoie, France

Filed Oct. 28, 1971, Ser. No. 193,243

Int. Cl. F16I 29/00; F16k 5/06

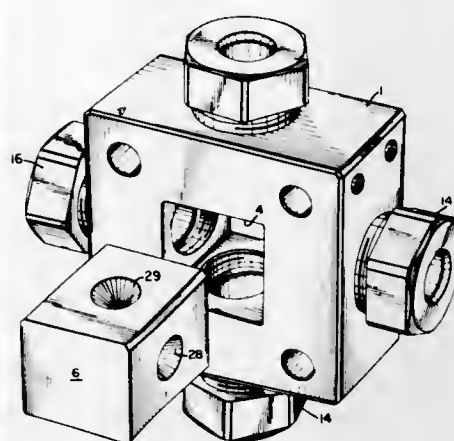
U.S. Cl. 137-269

5 Claims



The device is constituted by a support having an open-ended central recess of polygonal or circular cross-section,

radial passageways which are at least equal in number to the fluid-circuit elements such as pipes or valves and provided with connecting means, a removable core which is inserted in



the recess and provided with ducts which communicate with the radial passageways, changing of the core being permitted without disassembling the fluid-circuit elements.

3,739,805

OPERATING HANDLE CONNECTOR ARRANGEMENT FOR DRINKING FOUNTAIN FREEZE-PROOF VALVE

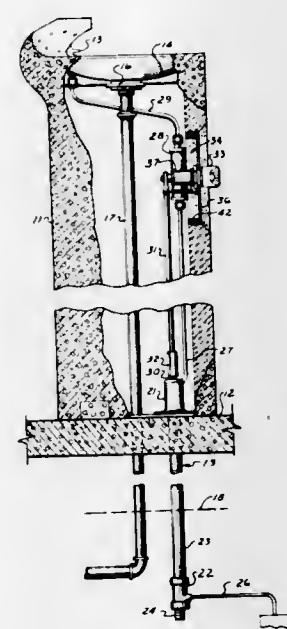
Allen C. Wright, Moraga, Calif., assignor to Haws Drinking Fountain Company, Berkeley, Calif.

Filed Nov. 8, 1971, Ser. No. 196,688

Int. Cl. E03b 9/20; F16k 31/46

U.S. Cl. 137-294

5 Claims



An arrangement for functionally interconnecting the operating handle of a drinking fountain with a freeze-proof valve therefor, and which arrangement facilitates installation of the handle assembly. The handle assembly is provided with a shaft journaled for rotation relative to an access cover plate adapted to be secured to a pedestal of the fountain in covering relation with an access opening in a sidewall thereof. The external end of the shaft is secured to the handle for rotation therewith, and the internal end of the shaft is equipped with an eccentric plate having an inwardly projecting pin in an eccentric position relative to the axis of rotation of the shaft. The pin is adapted to project through an eye provided at the upper end of an elongated operating rod which extends upwardly through the pedestal from the freeze-proof valve located at the lower end portion of the pedestal toward the upper end portion thereof, and is translatable between retracted and extended positions wherein the valve is respectively closed and opened. A spring secured between the rod and the access plate retains the rod and eye-equipped upper end thereof in

operative connection with the pin both during installation of the handle assembly and during use thereof.

3,739,806

DIAPHRAGM SPOUT ASSEMBLY

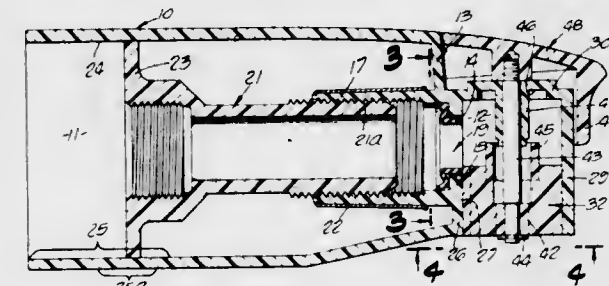
Ernest H. Bucknell, Los Angeles; Jack K. Rauh, Hacienda Heights, and Tony Radecki, Los Angeles, all of Calif., assignors to Ralph E. Bletcher; Frederick Robertson; Gary Robertson; Lenora Bucknell; Richard J. Bletcher; Marcia Liston; Carol A. Liston; James H. Liston; Hazel Brondum; Pearl Bletcher; Marcia Liston, as Trustee for Daniel E. Liston and Ernest H. Bucknell, part interest to each

Filed Oct. 4, 1971, Ser. No. 186,292

Int. Cl. F16I 5/00

U.S. Cl. 137-359

12 Claims



There is disclosed herein a spout assembly, such as a tub spout or the like for use in a fluid system employing a diverter valve and shower head or the like. Most of the parts of the assembly may be made of plastic, and the assembly includes a spout body having inlet and outlet chambers and a partition with an aperture therethrough separating the two chambers. A plunger is reciprocally mounted in the outlet chamber, and a portion thereof cooperates with a flexible diaphragm mounted in the aperture in the partition for terminating the flow of water through the spout assembly to thereby cause diverter valve operation, and flow through a shower head or the like in a conventional manner. A lift button is coupled with the plunger by a stem extending into the outlet chamber through a portion of the body. The plunger may include flow directing vanes for directing the flow of fluid from the outlet chamber in a desired manner. An adapter may be included within the inlet chamber of the body for enabling the spout assembly to be coupled with plumbing systems utilizing standard length outlet nipples, thus eliminating the necessity to custom make nipples on the job to fit varying wall thicknesses.

3,739,807

VALVING ARRANGEMENT

James D. Landrus, Plainfield; Allan S. Norris, and John O. Edmunds, both of Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 27, 1972, Ser. No. 238,152

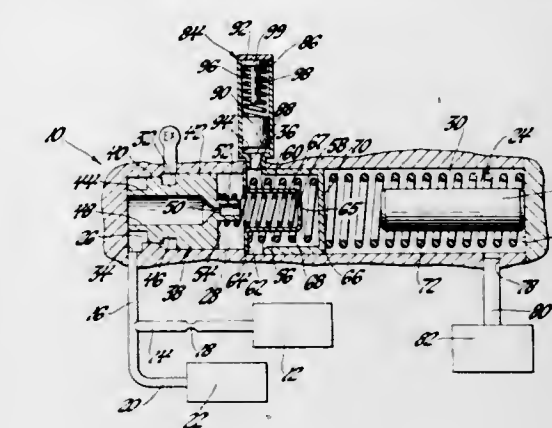
Int. Cl. F16k 45/00

U.S. Cl. 137-469

11 Claims

The drawings illustrate an improved dual-rate trimmer-valve for use with clutch and/or brake arrangements of an automatic transmission, wherein a valve element is first moved under a low fluid pressure to a clutch-regulating position while the clutch chamber is being filled with fluid. In one embodiment the valve element moves against a light spring force and in another embodiment such movement is unopposed. An orifice in an end wall of the valve element permits the fluid to continuously flow to an adjacent chamber to progressively move an initially adjacent plug member away from the valve element toward a stop member, against a predetermined spring force resulting from two oppositely disposed springs. Once the plug member has moved a predetermined distance and downshifting, for example, is accomplished, one of the two springs becomes ineffective, and the regulating effect of the remaining spring on the plug member and back through the fluid medium to the valve element and, hence, on the

clutch or brake engagement process during upshifting, for example, increases thereafter at a slower rate than was the case while the two springs were exerting a combined varying influence on the valve element, until contact is made with the



3,739,808

HYDRAULIC SHOCK DAMPING DEVICE

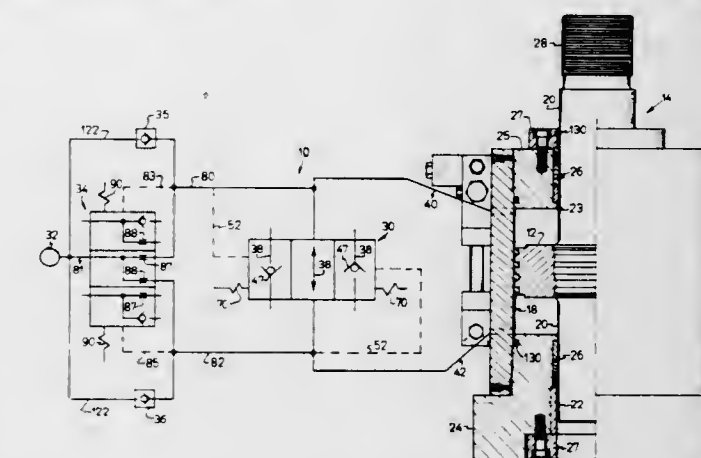
Lawrence R. Landherr, Racine, Wis., assignor to Milwaukee Cylinder Corporation, Cudahy, Wis.

Filed Jan. 13, 1972, Ser. No. 217,477

Int. Cl. F16k 17/26

U.S. Cl. 137-493

18 Claims



A hydraulic shock damping device for a double-acting hydraulic snubbing piston-cylinder assembly, the device including a pressure responsive fluid bypass shut-off valve connected to both ends of the cylinder, an accumulator connected to maintain fluid pressure in the cylinder, an accumulator control valve responsive to a predetermined pressure to close the high pressure connection between the accumulator and high pressure side of the cylinder and pressure responsive relief valves connected to each side of the device and to the accumulator to relieve the pressure in the device when it exceeds a predetermined maximum.

3,739,809

ENGINE APPARATUS

Otmar M. Ulbing, R.D. No. 1, Berkshire, N.Y.

Division of Ser. No. 857,162, Sept. 11, 1969, which is a continuation-in-part of Ser. No. 786,233, Dec. 23, 1968. This application June 21, 1971, Ser. No. 155,114

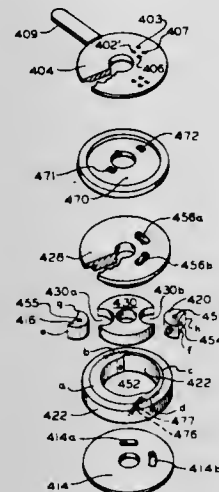
Int. Cl. F04b 49/00, 39/00

U.S. Cl. 137-565.2

28 Claims

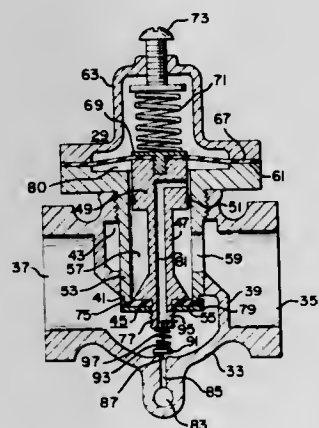
The fuel-per-stroke which fuel injection systems deliver to an engine is varied in accordance with engine speed to provide a desired fuel-air mixture ratio by means of a spring-loaded check valve responsive to momentary pressure impulses occurring in a pump chamber and operative to divert increasing

fuel at increasing engine speeds. The check valve spring loading is varied simultaneously with the pump delivery setting in some embodiments, and valve operation is varied in ac-



cordance with engine speed and/or acceleration in some embodiments. The system is illustrated in connection with several reciprocating fuel-injection pumps and several rotary fuel-injection pumps.

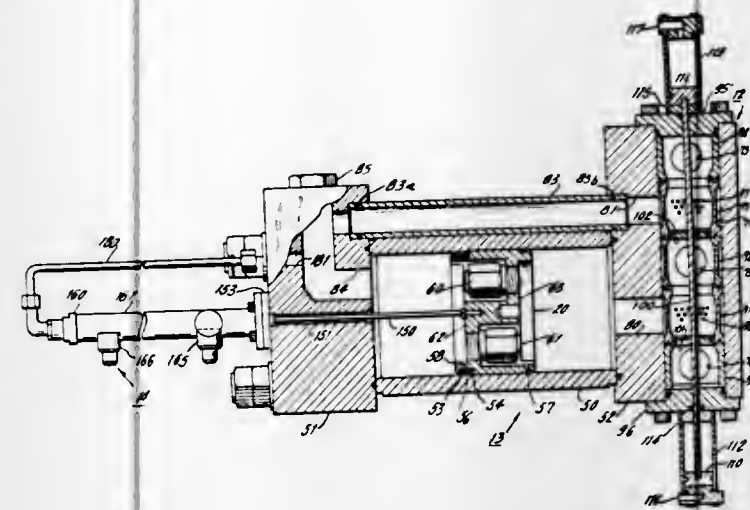
3,739,810
PRESSURE CONTROLLED WATER SYSTEM WITH ISOLATABLE PRESSURE SWITCH
Raymond E. Horan, Jr., Little Rock, Ark., assignor to Jacuzzi Bros., Incorporated, Little Rock, Ark.
Filed Dec. 9, 1971, Ser. No. 206,310
Int. Cl. E03b 11/16; F04b 11/00
U.S. Cl. 137-568 4 Claims



A water system with a pressure controlling valve, includes a pressure switch responsive to full closing of said valve to disconnect the pump in the system, and having its cut-in responsive pressure set sufficiently close to the cutout pressure, to assure delivery to service at pressure which is indistinguishably constant.

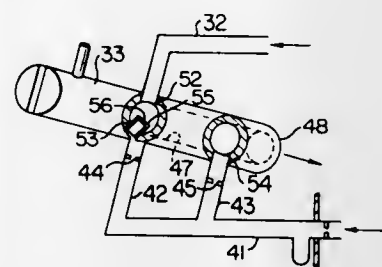
3,739,811
FOUR-WAY VALVE
Frederick A. Gross, 212 N. Gramercy Place, Los Angeles, Calif.
Division of Ser. No. 42,226, June 1, 1970, Pat. No. 3,657,925.
This application Aug. 14, 1971, Ser. No. 174,567
Int. Cl. F16k 11/00 7 Claims
U.S. Cl. 137-625.27
A four-way valve is formed of an elongated channel which contains a stack of hollow valve cages. The cages have end

portions which form spaced poppet valve seats for poppet



valve disks which are carried on a common operating shaft.

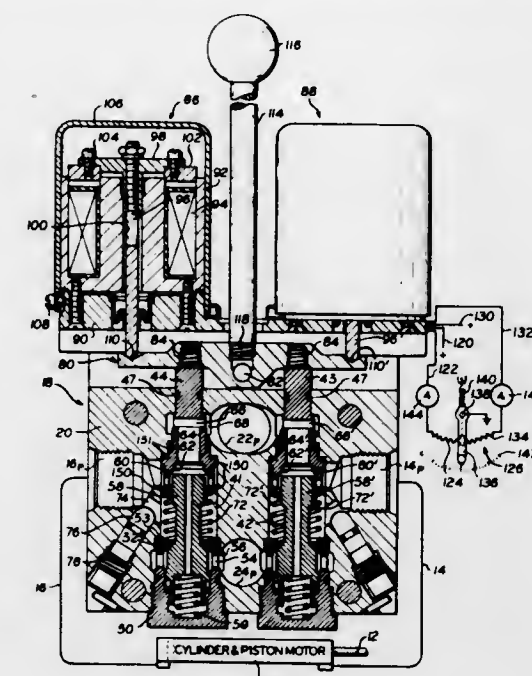
3,739,812
FUEL CONTROL SYSTEM AND CONTROL DEVICE THEREFOR OR THE LIKE
Francis S. Genbauffe, Irwin, Pa., assignor to Robertshaw Controls Company, Richmond, Va.
Division of Ser. No. 47,356, June 18, 1970, Pat. No. 3,619,095.
This application Aug. 23, 1971, Ser. No. 174,229
Int. Cl. F23q 9/08 10 Claims
U.S. Cl. 137-625.32



Control means having a first passage means for interconnecting a source of fuel to a pilot burner means to produce a small standby flame at the pilot burner means, the control means having second passage means for additionally interconnecting the source of fuel to the pilot burner means to produce a large heater flame at the pilot burner means whereby no fuel is adapted to be interconnected to a main burner means when only a small standby flame exists at the pilot burner means and the source of fuel is adapted to be interconnected to the main burner means when the large heater flame exists at the pilot burner means. A single adjusting means is provided in the passage means for adjusting the fuel flow rate therethrough by substantially infinitely adjusting the flow rate through one of the passages and adjusting the flow rate through the other passage means in substantially a stepped manner.

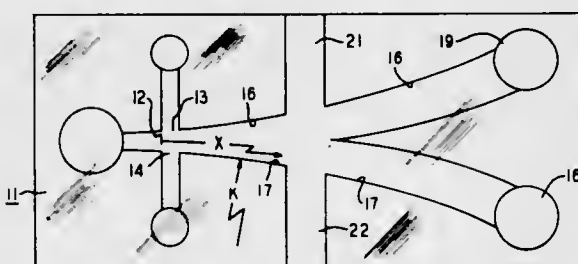
3,739,813
POWER AND SPEED CONTROL FOR DOUBLE-ACTING CYLINDER-AND-PISTON MOTOR
Donald A. Worden, Pompton Plains, N.J., assignor to Marotta Scientific Controls Inc., Boonton, N.J.
Filed Aug. 13, 1970, Ser. No. 63,447
Int. Cl. F15b 13/044 11 Claims
U.S. Cl. 137-625.65
This specification discloses a controller for working fluid for a cylinder-and-piston motor. The controller has valve means that supply fluid at a rate of flow proportional to the force used to actuate the valve means and regardless of the pressure of the working fluid. Motor speed is thus made proportional to force supplied to the controller. For a double-acting motor,

different valve means for opposite ends of the cylinder are operated by different ends of a rocker arm that can be actu-



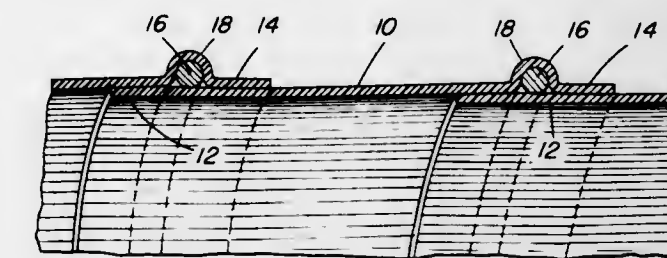
ated by different solenoids or by a manual lever override. Pressure of the working fluid can be made adjustable.

3,739,814
LAMINAR FLOW WALL ATTACHMENT FLUID LOGIC DEVICE
Isaac Greber, Shaker Heights, Ohio, assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed July 8, 1971, Ser. No. 160,864
Int. Cl. F15c 11/18 7 Claims
U.S. Cl. 137-81.5



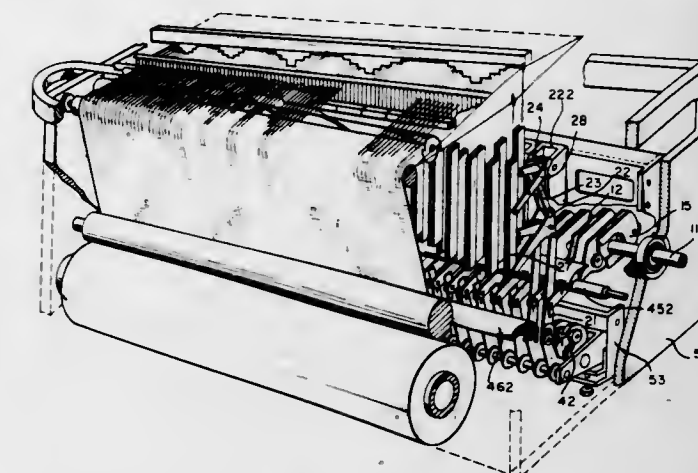
A wall attachment fluidic device operating in the laminar flow range is disclosed. Either bistable or monostable devices can be produced, provided the attachment wall associated with each stable state conforms to a particular shape. That particular shape is one in which the radius of curvature K of the attachment wall is initially substantially equal to $x^{1/2}$, where x is a nondimensional distance measured along the arc of the wall for the power jet inlet. The radius of curvature K gradually increases until it reaches $x^{3/4}$. Thereafter, it remains equal to $x^{3/4}$ until the jet receiver is reached.

3,739,815
FLEXIBLE COLLAPSIBLE TUBING
William E. Rejeski, Farmington, Conn., assignor to The Wire-mold Company, West Hartford, Conn.
Filed Apr. 30, 1971, Ser. No. 138,975
Int. Cl. F16l 11/06 10 Claims
U.S. Cl. 138-122
A flexible strip of elastomeric material, or a fabric strip which is coated with or contains an elastomeric material is wound helically with overlapped edges. A form-giving member of stiff bendable thermoplastic material in rod-like form is laid between the overlapped edges and secured there by self adhesion of the overlapped edges. Then the tubing is



lapped edges of the strip. The flexible strip is preferably impervious to the passage of gas through it.

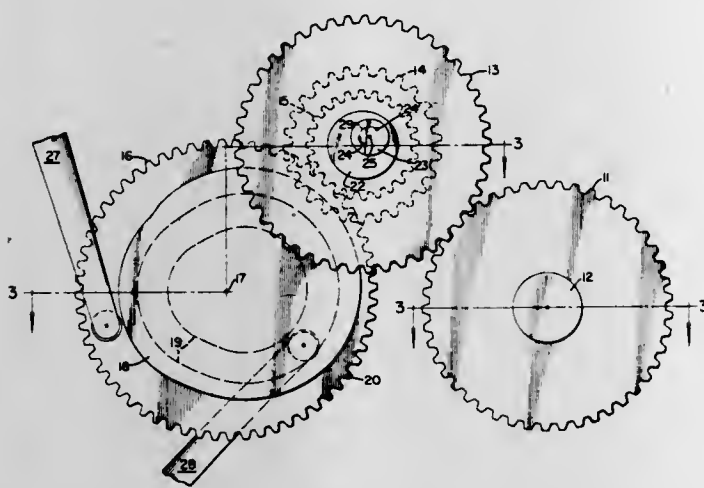
3,739,816
CONTROL APPARATUS FOR WAVE SHED FORMING MEANS
Zdenek Kramenic, Chocen; Vitezslav Vasek, Zbynek Miks, and Zdenek Solik, all of Usti nad Orlici, Czechoslovakia, assignors to Vyzkumny Ustav Bavlnarsky, Usti nad Orlici, Czechoslovakia
Filed Apr. 27, 1971, Ser. No. 137,877
Claims priority, application Czechoslovakia, Apr. 28, 1970, 2941/70
Int. Cl. D03d 47/26 9 Claims
U.S. Cl. 139-12



Apparatus for controlling the movement of shaft rods in progressive shed looms, that is, weaving looms which perform the simultaneous weaving of weft threads, the shaft rods performing a wave-like harmoniously repeated continuous shedding movement by individual sections. Counter-movement of at least two shaft rods of one section moving in forced opposite directions is provided by one lever means which is phase shifted with respect to the other sections and reciprocates in accordance with the phase shift. The ratio of arms of the lever means is changeable, the point of tipping of the lever means being adjustable. To close the sheds, the symmetrically dead center area of the lifting means of the shaft rods is symmetrically limited, and thereafter the said shaft rods are displaced into alignment.

3,739,817
DRIVE ARRANGEMENT FOR THE TERRY WARPS ON A TERRY LOOM
Max Kunz, Ruti/Zurich, Switzerland, assignor to Ruti Machinery Works Ltd., Formerly Caspar Honegger, Ruti/Zurich, Switzerland
Filed Apr. 16, 1971, Ser. No. 134,737
Claims priority, application Switzerland, Apr. 22, 1970, 5983/70
Int. Cl. D03d 39/22 4 Claims
U.S. Cl. 139-25
A terry loom drive control arrangement for varying a predetermined number of weft insertions in relationship to the

advance of the terry warp threads by controlling the advance and shoes at the receiving end are rotated through decreasing distances between the drums and shoes as the component is



of the terry warp threads in dependence on the revolutions of the terry loom drive shaft.

3,739,818

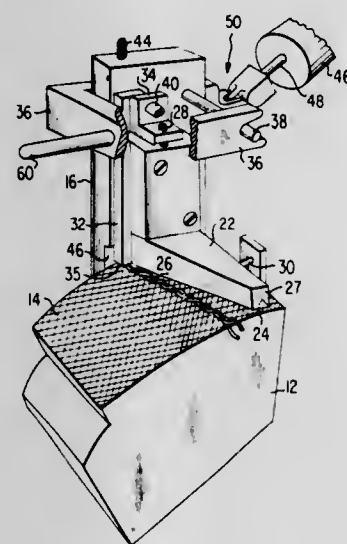
WIRE STRIPPING APPARATUS AND METHOD
Robert Van Fleet Tompkins, North Palm Beach, Fla., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 11, 1971, Ser. No. 197,831

Int. Cl. B21f 1/02

U.S. Cl. 140-147

12 Claims



To facilitate the removal of a length of covering of a wire or wires, an apparatus is provided which both squeezes and rotates the wire or wires between two opposed facing wire gripping surfaces which translate with respect to each other so as to loosen the covering.

3,739,819

APPARATUS FOR STRAIGHTENING AXIAL LEADED COMPONENTS

Robert R. Swanson, Winston-Salem, N.C., assignor to Western Electric Company Incorporated, New York, N.Y.

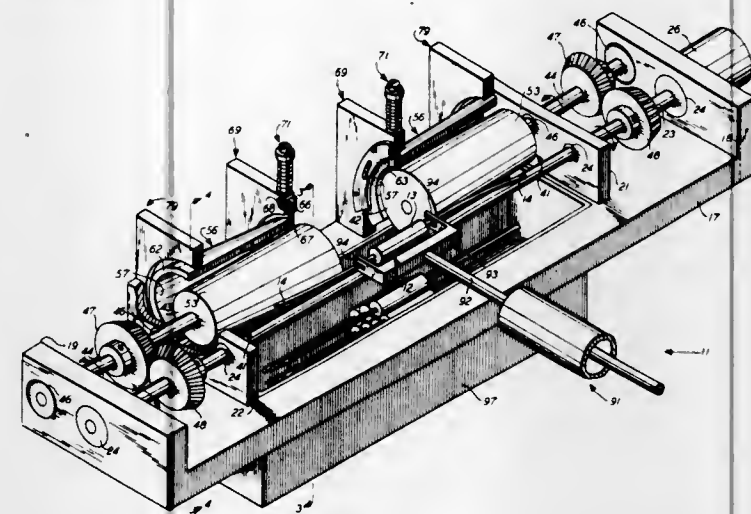
Filed Apr. 28, 1972, Ser. No. 248,463

Int. Cl. B21f 1/02

U.S. Cl. 140-147

6 Claims

A co-axial lead straightening apparatus has a pair of conically shaped shoes selectively positioned adjacent to a pair of rotatably mounted frustum shaped drums. At a discharge end, the distance between each shoe and its respective drum is held constant along the length of the drum and at a receiving end, the distance between each shoe and its respective drum increases from the base of the drum to the top of the drum. Bent leads of co-axial lead components moved between the drums



displaced from the receiving end to the discharge end to straighten the leads.

3,739,820

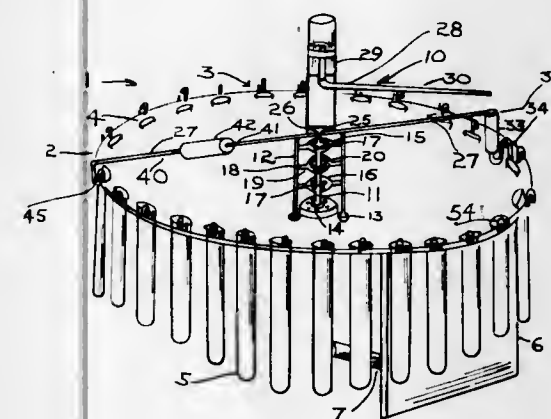
LIQUID SAMPLE COLLECTOR
Stanley J. Schmidt, 4146 Flad Avenue, St. Louis, Mo.

Filed Dec. 17, 1970, Ser. No. 99,125

Int. Cl. B67c 3/34

U.S. Cl. 141-284

5 Claims



Discloses a mechanically operated automatic liquid sample collector capable of collecting uniform liquid samples of between 10 and 100 milliliters in size from a dripping column. The automatic liquid sample collector makes use of a rotatable liquid receiving and dispensing mechanism in the form of a delivery arm and a balance arm which rotates and delivers samples to successive test tubes in a non-rotatable test tube rack. This is accomplished by a pin means having a spatial relation to said test tube openings, a positioning and detent means for positioning and detaining said delivery arm over said successive test tubes and an escapement means to allow said positioning means to disengage from said pin means.

3,739,821

MACHINE-TRANSFERRABLE PIPETTE
Theodore Watkin, Stamford, Conn., and Donald F. Wiseman, Wayne, N.J., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Apr. 26, 1971, Ser. No. 137,385

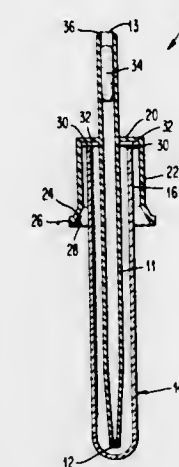
Int. Cl. B011 3/02

U.S. Cl. 141-392

6 Claims

A pipette including an elongated tubular body open at both ends and having as a fixed part thereof a radial flange structure intermediate of its ends by which flange structure the body is suspended from the mouth of a vessel in the central region thereof in operative position to aspirate the liquid contents of the vessel. This is the normal or storage position of the

pipette which includes in the flange structure a portion lying in a plane normal to that of the body and which in the last-mentioned position overlies the mouth of the vessel in proximity thereto and extends laterally beyond it. The flange structure also includes a fixed skirt portion suspended from the first named portion in rigid relation thereto and which, in the last-mentioned position of the pipette, embraces the mouth portion of the vessel telescoped therein. A lower marginal portion



of the skirt is tapered interiorly to coact with the mouth of the vessel when the pipette is dropped into the vessel, effectively centering and guiding the pipette toward its normal position from a raised position. The flange structure also has a part thereof which coacts with the mouth of the vessel, in the stored position of the pipette, and which forms an air passageway from the vessel only from beneath the skirt portion.

3,739,822

WOOD-TURNING MACHINE
Nils Oskar Tore Loof, S-540 72 Gullspant, Sweden

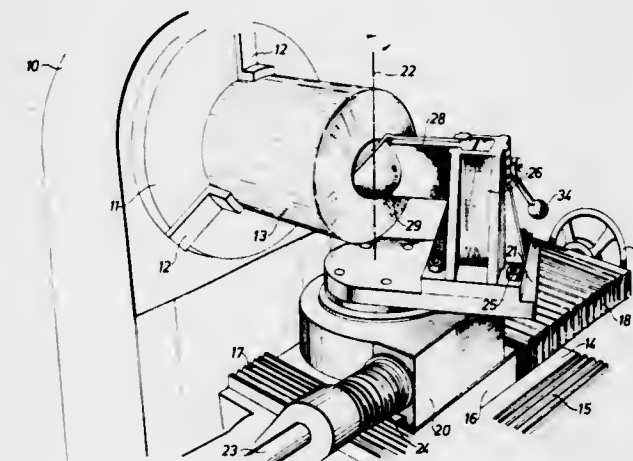
Filed Nov. 9, 1970, Ser. No. 87,936

Claims priority, application Sweden, Sept. 8, 1970, 12201/70

Int. Cl. B23b 5/40

U.S. Cl. 142-1

2 Claims

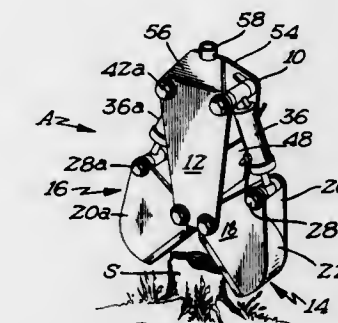


A machine to facilitate the production of hollow bodies of two co-axial rotational surfaces. A tool holder in the shape of a spherical segment carries an easily replaceable cutting tool. The tool holder is capable of linear movement in three directions and is also rotatable about an axis perpendicular to the rotation axis of the workpiece. The tool holder is itself easily replaceable to facilitate the fabrication of bodies whose surfaces have different radii of curvature.

3,739,823
DEVICE FOR CUTTING TREE STUMPS
Maurice J. Bartell, Duluth, Minn., assignor to Barko Hydraulics, Inc., Duluth, Minn.
Filed Dec. 6, 1971, Ser. No. 204,897
Int. Cl. A01g 23/06

U.S. Cl. 144-2 N

2 Claims

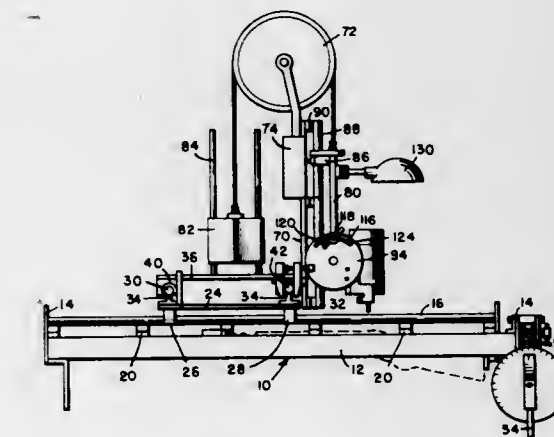


A device for cutting tree stumps including a support with a pair of cutters pivotally mounted thereon each cutter having a pair of side plates connected by a combination bottom end wall, the edge of each side plate bottom and end wall having a sharpened edge and the cutters in direct opposed relation and a hydraulic ram connected to each of said cutters and the support for pivotally moving said cutters together and apart for cutting a tree stump therebetween.

3,739,824
PANTOGRAPH APPARATUS
George Hoenig, 6521 Morton Drive, Boise, Idaho
Filed Nov. 3, 1971, Ser. No. 195,308
Int. Cl. B27c 5/00

U.S. Cl. 144-144

9 Claims



Improved pantograph apparatus for providing pantographic movement of an instrument in three dimensional or in-depth aspects having the usual means for providing travel in all horizontal planes and having further an elevating mechanism with an adjustably oriented tilting plate on which are mounted a router and stylus element for performing the controlled operations according to the invention.

ERRATUM

For Class 144-323 see:
Patent No. 3,739,826

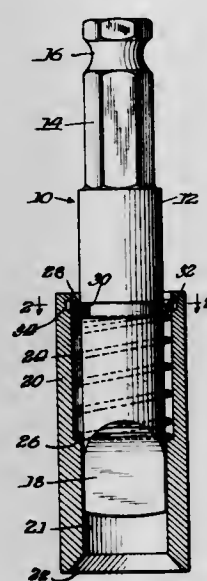
3,739,825 SCREWDRIVER

John D. Knox, Louisville, Ky., assignor to Vermont American Corporation, Louisville, Ky.

Filed Oct. 6, 1971, Ser. No. 186,844
Int. Cl. B25b 15/00

U.S. Cl. 145-51

7 Claims



The bit of a screwdriver has a finder sleeve supported about its working end by a non-circular split ring having one or more straight sections against which a shoulder on the bit engages. The ring is flat on its O.D. side and it is disposed in a larger-diametered groove in the sleeve so that its flat side is spaced off the flat opposing wall of the groove and allows for expanding the ring further into the groove to remove the bit from its sleeve.

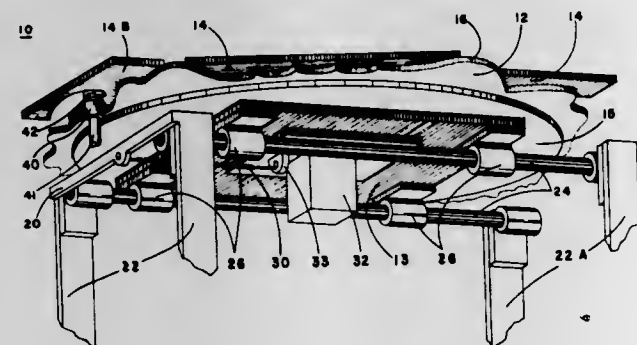
3,739,826 FEED DEVICE

Friedrich P. Schell, 4313 San Bernardino Avenue, Las Vegas, Nev.

Filed Mar. 30, 1971, Ser. No. 129,507
Int. Cl. B27c 1/00

U.S. Cl. 144-323

8 Claims



A device for feeding materials to be shaped to a shaping tool comprises a rotatable platform supported from its under side. In one embodiment, the device is provided with guide and biasing means which cooperates to provide reciprocal motion to the platform. A piece of shaped material which shape is to be reproduced on a material workpiece is attached to the platform. A guide member is maintained in abutment with the surface of the shaped material while a shaping tool maintained at a fixed distance from the guide member reproduces the shaped surface on the material workpiece.

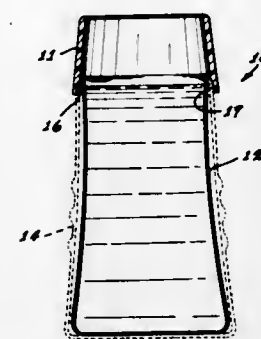
3,739,827 DISPOSABLE CONTAINER

Beverly R. Sondel, 5227 Melvin Avenue, Tarzana, Calif.

Filed Apr. 19, 1971, Ser. No. 134,951
Int. Cl. B65d

U.S. Cl. 150-0.5

12 Claims



A disposable container for consumable goods having a generally rigid or semi-rigid upper portion and a non-rigid thin wall bottom portion in the form, for example, of a sack. A reusable rigid or semi-rigid shell is also provided that receives the bottom portion and in use, attaches to the top portion. The bottom portion can also be provided in a double wall sack or pouch arrangement for insulation and/or rigidity purposes.

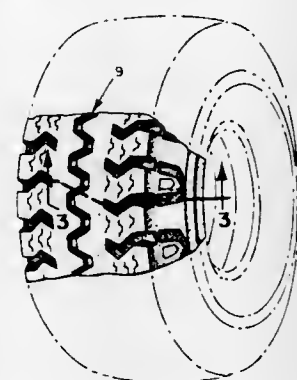
3,739,828 TIRE UNDERTREAD PROBE

Abraham R. Schaevelt, Collingswood, N.J., assignor to Super Tire Engineering Company, Camden, N.J.

Filed June 18, 1971, Ser. No. 154,527
Int. Cl. B60c 11/00

U.S. Cl. 152-209 R

6 Claims



A heavy-duty truck or bus tire has main tread grooves and sub-grooves therein. The sub-grooves extend downwardly from the floor of the main grooves into what would otherwise be the undertread. The sub-grooves are referred to as undertread probes. The remainder of the undertread below the sub-grooves or undertread probes is sufficiently thick to comply with design technology. The undertread probes are in the floor of the main grooves and are located at spaced intervals. The undertread probes are narrower in width than the main grooves. The undertread probes are provided with ties.

3,739,829 TIRE AND WHEEL ASSEMBLIES

Leslie Vernon Powell, and Reginald Harold Edwards, both of Birmingham, England, assignors to Dunlop Holding Limited, London, England

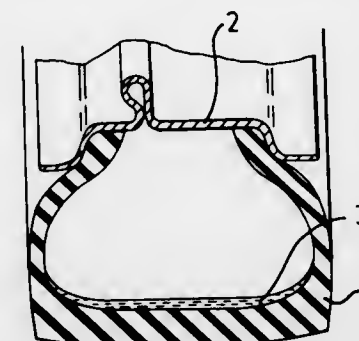
Filed June 18, 1971, Ser. No. 154,326
Claims priority, application Great Britain, June 20, 1970, 30,033/70; Apr. 3, 1971, 8,592/71
Int. Cl. B60c 5/00

U.S. Cl. 152-330

15 Claims

A pneumatic tire and wheel assembly including a single chamber pneumatic tire in which is provided a flowable liquid

lubricant to facilitate relative movement between the internal surface of the tire which come into contact when the tire is run



under load in the deflated condition, of which the following is a specification.

3,739,830 RIM SIDE RING FASTENING DEVICE

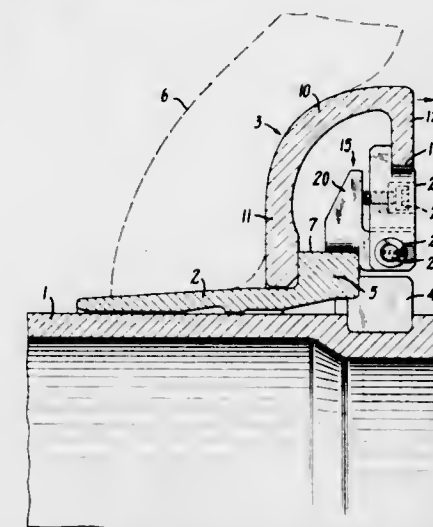
Henri Verdier, Beauregard-L-Eveque, France, assignor to Campagne Generale Des Etablissements Michelin, raison sociale Michelin & Cie, Clermont-Ferrand, France

Filed Feb. 3, 1972, Ser. No. 223,174

Claims priority, application France, Feb. 8, 1971, 7104193
Int. Cl. B60b 25/12, 25/14; B60c 19/00

U.S. Cl. 152-398

2 Claims



The rim of a wheel for road construction vehicles and the like comprises a conical ring and an associated side ring that bear against the bead of a tire mounted on the rim. The side ring has in axial cross section a curved portion, forming substantially a quarter circle, and two parallel straight portions, a first being an extension of one end of the curved portion and the second extending in a direction perpendicular to the other end of the curved portion and in the direction of the wheel axis. An adjustable fastening device permits adjustment of the conical and side rings with respect to each other.

3,739,831 DEVICE FOR REMOVING HEAVY DUTY TIRES FROM WHEELS

Vernon L. Smith, P. O. Box 354, Burkburnett, Tex.

Filed Aug. 16, 1971, Ser. No. 171,947

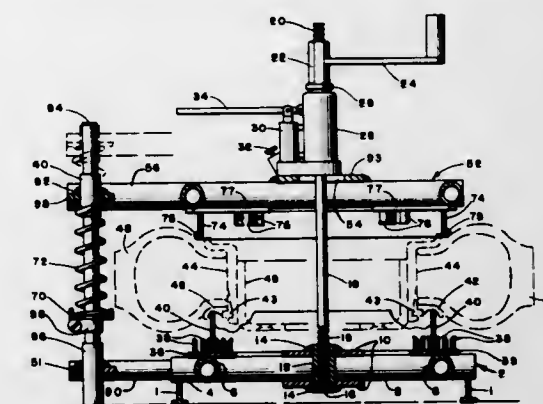
Int. Cl. B60c 25/06

U.S. Cl. 157-1.28

2 Claims

A tire removing device comprising upper and lower frames to receive a tire and wheel therebetween, so that selected rings may be positioned on the adjacent faces of the frames, one of which rings engages the side of the tire and the other of which engages the removable side ring of a wheel. A hollow jack is positioned on the face of the upper frame. A screwthreaded rod is positioned through the hollow jack and through a slotted plate on the upper frame, which rod is anchored to a screwthreaded nut on the lower frame. An abutment on the

rod, such as a nut, abuts with the upper face of the jack plunger, so upon extending the plunger, the frames will be moved together, with one of the rings on the frame engaging a side of the tire adjacent the side rim thereof and the other of



the rings engaging a side ring of the wheel so as to urge the side ring and the tire towards each other to enable the lock ring on the wheel to be removed, and the subsequent removal of the tire.

3,739,832 OVERHEAD GRILLE

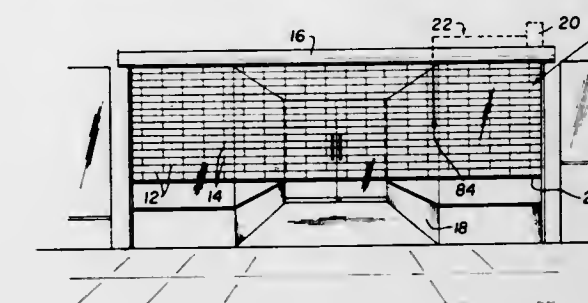
Bernard J. Sivin, Commack, N.Y., assignor to The Celotex Corporation, Tampa, Fla.

Filed Jan. 10, 1972, Ser. No. 216,643

Int. Cl. E06b 9/08

U.S. Cl. 160-133

3 Claims



A motor operated overhead grille in which the motor, when powering the grille in descent, also loads a spring of an emergency grille-opening means which spring, when called upon to do so, is thus effective in raising the grille sufficiently to provide an emergency escape or exit opening beneath the grille.

3,739,833 ASSEMBLY METHOD FOR THE LINING OF HOT TOPS AND THE LIKE IN FOUNDRY PRACTICE

Paul Gilger Rausch, Cleveland, and Walter Donald Todish, Medina, both of Ohio, assignors to Fosco Trading A. G., Chur, Switzerland

Continuation of Ser. No. 819,391, April 25, 1969, abandoned.

This application Oct. 31, 1971, Ser. No. 188,765

Int. Cl. B22c 7/00

U.S. Cl. 164-6

2 Claims



Hot top tiles are secured together by the use of H-section metal strips, the edges of the tiles being secured in the openings of the H-section.

3,739,834

METHOD FOR MAKING FOUNDRY MOULDS

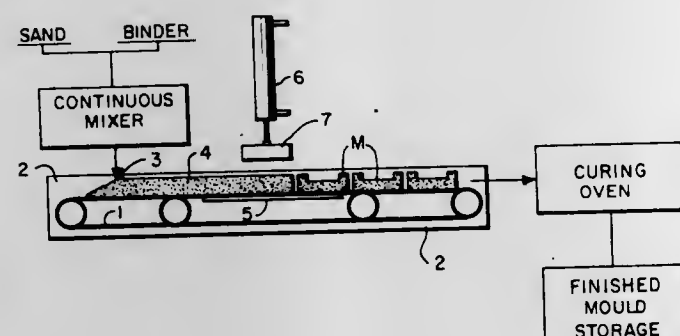
Kent Woonton; Jeffrey R. Short, III; Don Mills, and Kenneth N. Roach, all of Toronto, Canada, assignors to J. R. Short Milling Company, Chicago, Ill.

Filed June 21, 1971, Ser. No. 154,763

Int. Cl. B22c 25/00, 15/02

U.S. Cl. 164—18

15 Claims



Method for continuous, high speed production of foundry mould parts by pressing them from a continuous bed of foundry sand mix which is based on a curable binder, pressing of the part being carried out at a time when the mix has adequate plastic flowability for pressure moulding and adequate potential curability to assure a strong, rigid cured product.

3,739,835

PROCESS OF MAKING SHELL MOLDS

Stephen M. Copley, Madison; Anthony F. Glamei, Middletown; Merton F. Hornbecker, Woodbury, and Bernard H. Kear, Madison, all of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

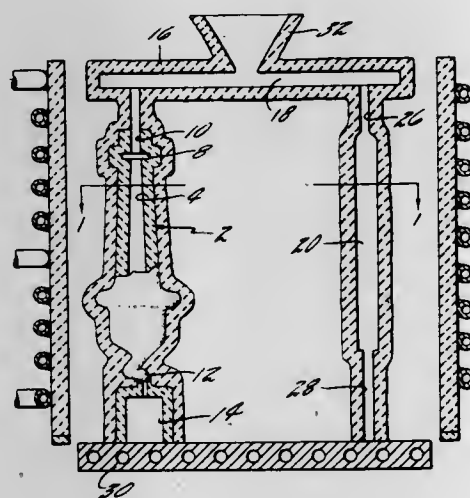
Division of Ser. No. 63,738, Aug. 14, 1970, which is a continuation-in-part of Ser. No. 714,722, March 20, 1968.

This application Dec. 1, 1971, Ser. No. 203,673

Int. Cl. B22c 9/04

U.S. Cl. 164—35

5 Claims



Apparatus for the formation of single crystal articles by directionally solidified casting techniques which substantially eliminates the formation of heterogeneous discontinuities in the casting.

3,739,836

PROCESS OF DIE CASTING OF BRASS

Edwin M. Scott, Jr., P. O. Box 323, Tujunga, Calif.

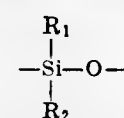
Continuation-in-part of Ser. No. 37,340, May 14, 1970, Pat. No. 3,654,985, which is a continuation-in-part of Ser. No. 684,497, Nov. 20, 1967, abandoned. This application Apr. 7, 1972, Ser. No. 242,217. The portion of the term of this patent subsequent to Apr. 11, 1989, has been disclaimed.

Int. Cl. B22c 3/00

U.S. Cl. 164—72

7 Claims

The disclosure solves a persistent problem in die casting of brass alloys, wherein lubrication of the steel die or mold is generally difficult. In accordance with the disclosure, the surfaces of the mold to come in contact with the molten brass are coated with a film of a phenyl-methyl silicone fluid which is a linear polymer having repeating units of the element



wherein R_1 is methyl and wherein R_2 is chosen selectively to be either methyl or phenyl, so that the resulting polymer has a phenyl:methyl ratio of between about 0.30:1.0 and about 0.85:1.0 and a viscosity at 77° F. of from about 50 to about 1,000 centistokes. The fluid may be applied in the form of a dilute aqueous dispersion, or as a dilute solution in a suitable solvent such as petroleum naphtha.

3,739,837

DIRECT CHILL CASTING MOLD

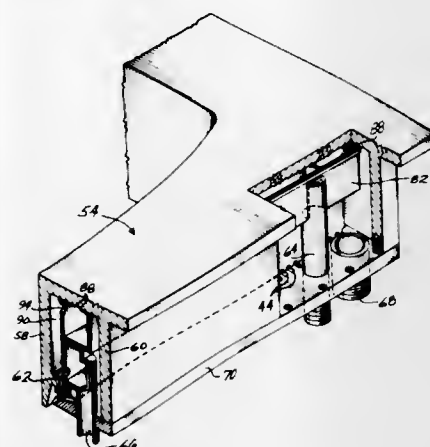
Frank E. Wagstaff, Spokane; William G. Wagstaff, Veradale, and Paul H. May, Spokane, all of Wash., assignors to Wagstaff Machine Works, Inc., Spokane, Wash.

Filed June 18, 1971, Ser. No. 154,567

Int. Cl. B22d 11/12

U.S. Cl. 164—283

17 Claims



The mold has means therein defining a fluid coolant chamber around the inner peripheral wall thereof, and an aperture in the body thereof, about one end opening thereof, adjacent the inner peripheral wall of the mold. There are also means in the mold for supplying fluid coolant to the aperture, for discharge into the inner peripheral plane of the mold, including a fluid coolant inlet which is connected to the aperture separately and independently of the chamber.

3,739,838

APPARATUS FOR SEMI-AUTOMATIC, HIGH PRODUCTION DIE CASTING

Barrett L. Taft, 2940 Cove Trail, Maitland, Fla.

Filed June 4, 1971, Ser. No. 149,998

Int. Cl. B22d 17/06, 27/14

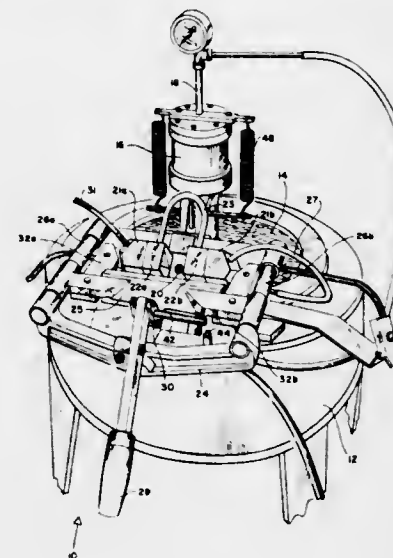
U.S. Cl. 164—309

11 Claims

A semi-automatic high production die casting machine, involving use of a novel mold arrangement such that fishing sin-

kers, wheel weights or other such articles or components can be made on a rapid basis out of castable metal without any

taining chambers or liquid tanks. The temperature of liquid circulated by the tubes from the input to the output tank is modified by the region intermediate the tanks, commonly



subsequent trimming or other work with respect to the finished articles or components being necessary.

3,739,839

SYSTEM FOR PREVENTING SCALE FORMATION WHEN HEATING FLUIDS CONTAINING SCALE-FORMING INGREDIENTS

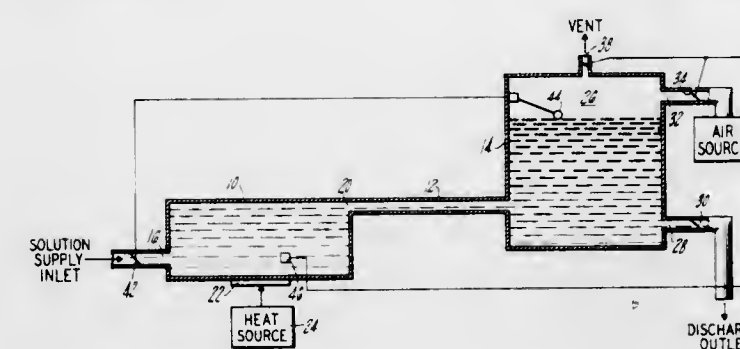
George S. Light, Post Office Box 496, Winsted, Conn.

Continuation-in-part of Ser. No. 735,790, June 10, 1968, Pat. No. 3,565,767, which is a continuation-in-part of Ser. No. 439,047, March 11, 1965, abandoned. This application Nov. 24, 1970, Ser. No. 92,436

Int. Cl. F25b 13/00

U.S. Cl. 165—1

5 Claims



A system for heating a supply solution containing scale-forming ingredients without depositing encrusted scale on the heating surface thereof includes a heating chamber, a separate pressurizing chamber and an unobstructed conduit connecting the chambers for solution flow therethrough. An air space in the pressurizing chamber is provided for applying a positive air pressure to the solution in the pressurizing chamber and a back pressure in the solution for suppressing vapor bubble formation at the heating surface.

3,739,840

HEAT EXCHANGER HAVING RESILIENTLY MOUNTED TUBULAR MEMBERS

Samuel Paul Jones, Erie, Pa., assignor to General Electric Company, Erie, Pa.

Filed Sept. 1, 1971, Ser. No. 176,953

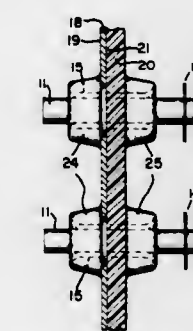
Int. Cl. F28f 9/04

U.S. Cl. 165—69

3 Claims

The invention relates to tubular heat exchange devices and in particular to improved arrangements of tube sheets for flexibly securing radiating tubes to the liquid containing chambers of the tube exchangers.

Heat exchange devices commonly comprise a plurality of parallel tubes extending between input and output liquid con-



referred to as the cooling region. Each tank comprises a wall portion and a tube sheet or header. The tube sheet serves as a wall of the tank and secures the tubes thereto.

3,739,841

INDIRECT HEAT TRANSFER APPARATUS

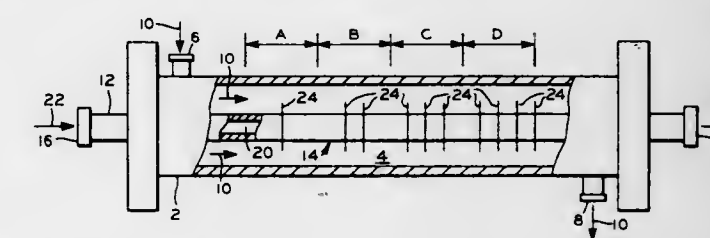
William M. Small, and Donald K. Petree, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Mar. 24, 1971, Ser. No. 127,543

Int. Cl. F28b 1/06

U.S. Cl. 165—146

3 Claims



An indirect heat transfer apparatus has a second conduit extending through a first conduit with heat transfer members on the outer surface of the second conduit. The total surface area of the heat transfer members per unit length of the second conduit changes for altering the incremental heat transfer rate between first and second materials flowing through their respective first and second conduits.

3,739,842

WATER COOLER HEAT EXCHANGER

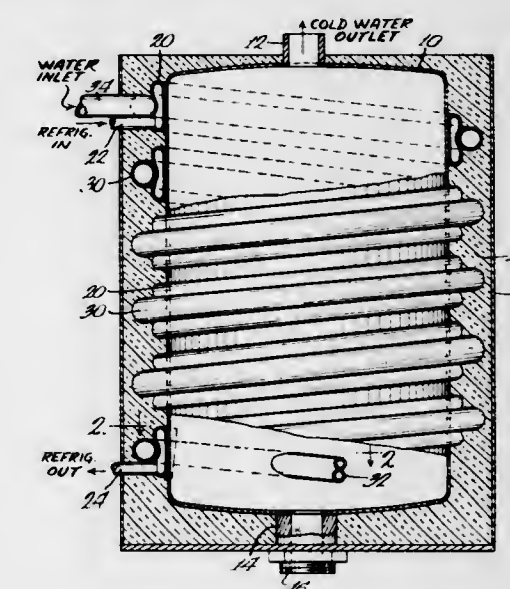
James M. Whalen, Glenview, Ill., assignor to Remcor Products Company, Chicago, Ill.

Filed May 12, 1971, Ser. No. 142,637

Int. Cl. F28d 7/00

U.S. Cl. 165—164

2 Claims



Heat exchanger apparatus employed in devices such as water coolers for chilling and dispensing drinking water is im-

proved by the combination of a storage tank for chilled water, a refrigerant coil encircling said tank for maintaining the water therein cool, and a water supply coil leading to said tank and encircling said refrigerant coil in heat exchange relation therewith for pre-cooling the water as it is supplied to said tank; and the particular combination of said coils.

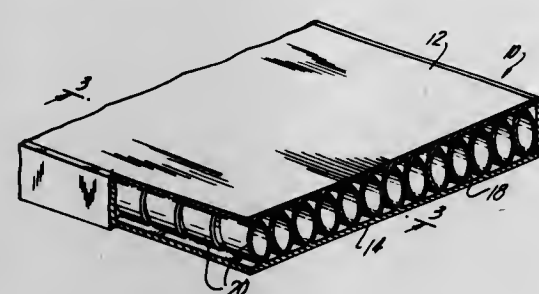
3,739,843

LIGHTWEIGHT PANEL STRUCTURE OF THE HONEYCOMB CORE TYPE

Richard Joseph Haberski, Emerson, N.J., assignor to Curtis-Wright Corporation, Wood-Ridge, N.J.
Filed Nov. 1, 1971, Ser. No. 194,135
Int. Cl. F28f 3/14

U.S. Cl. 165-170

10 Claims



An improved lightweight panel structure of the honeycomb core type comprises two spaced plates or sheets arranged in substantially parallel or concentric relationship. The opposite, juxtaposed surfaces of the plates are each provided with a plurality of spaced rows of extended surface elements which project from their associated surfaces in alternate side by side relationship to each other. The extended surface elements are dimensioned and shaped so that substantially all of the extended surface elements are each in abutment at two spaced points to thereby provide the panel assembly with structural strength resistant to flexure of the plates toward each other under compressive loading or bending force acting against the panel.

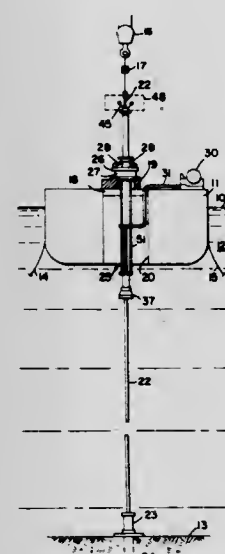
3,739,844

APPARATUS FOR CARRYING OUT UNDERWATER WELLHEAD OPERATIONS

Charles P. Peterman, Houston, Tex.; Glenn D. Johnson, Downey, Calif., and William H. Petersen, Metairie, La., assignors to Shell Oil Company, New York, N.Y.
Filed Apr. 28, 1971, Ser. No. 138,028
Int. Cl. E21c 19/00

U.S. Cl. 166-.5

8 Claims



Apparatus for carrying out underwater operations between a wellhead on the ocean bottom and a vessel floating on the

water surface wherein the vessel is subject to wave motion. Interconnection means are suspended from the floating vessel adapted to operatively engage the wellhead to thereby provide fluid communication between the vessel and the wellhead. Hydro-pneumatically controlled wave motion cancelling means operatively engage the interconnection means to compensate for any wave motions acting on the vessel and thereby maintain the interconnection means in operative position.

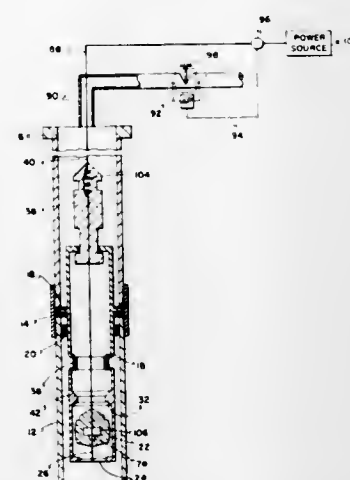
3,739,845

WELLBORE SAFETY VALVE

Holland J. Berry, and David W. Lewis, Richardson, Tex., assignors to Sun Oil Company, Philadelphia, Pa.
Filed Mar. 26, 1971, Ser. No. 128,290
Int. Cl. E21b 35/00

U.S. Cl. 166-65 R

12 Claims



A wellbore safety valve system includes a plug held by a retention spider, a plug seat separated from and located above the plug, and a controlled release section for separating the spider from the plug so that the plug can engage the plug seat. The controlled release section may be responsive to electrical energy from the surface, flow rate in the well, or acoustical energy.

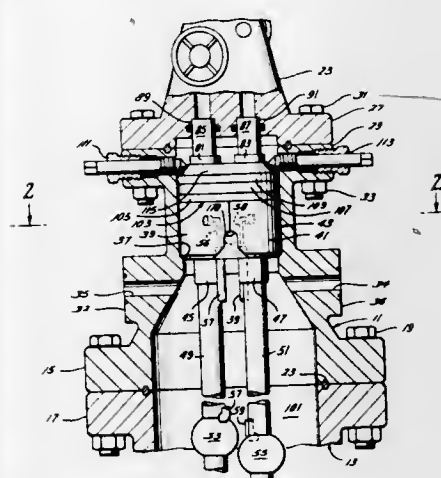
3,739,846

HEAD TO HANGER HYDRAULIC CONNECTION

John Beson, Houston, Tex., assignor to Rockwell Manufacturing Company, Houston, Tex.
Filed Jan. 19, 1972, Ser. No. 218,916
Int. Cl. E21b 33/03

U.S. Cl. 166-89

14 Claims



Well completion apparatus comprises a tubing head and a tubing hanger, tubing suspended from the hanger, a valve in the tubing biased to closed position and adapted to be opened by the pressure from a control line, a control line extending from the valve to the tubing hanger and connected to passage means in the tubing hanger, passage means in the tubing head adapted for connection to a source of control pressure fluid,

and means for connecting the passage means in the head with the passage means in the hanger. In one embodiment a retractable screw type tubular stinger in the tubing head makes the connection with the tubing hanger passage means by sealingly entering a socket in the tubing hanger. Means is provided to align the tubing hanger azimuthally relative to the tubing head to allow the stinger to enter such socket. In another embodiment the tubing hanger is provided with annular isolation seals above and below an annular groove in the tubing hanger at the outer end of the passage means therein, the seals engaging the tubing head above and below the passage means therein. In this embodiment no azimuthal alignment means is required.

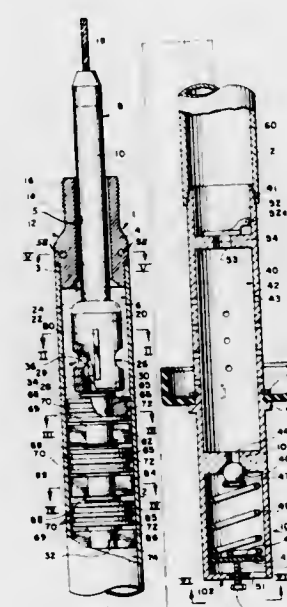
3,739,847

COMBINATION WELL BAILER AND SWAB

John M. Reynolds, 403 Monrovia St., Shreveport, La.
Continuation-in-part of Ser. No. 861,078, Sept. 25, 1969, Pat. No. 3,621,925. This application Oct. 6, 1971, Ser. No. 187,007
Int. Cl. E21b 27/00

U.S. Cl. 166-107

9 Claims



A combination well bailer and swab having a plunger slidably disposed in the body of the bailer and a swab cup supporting mandrel secured to the lower end of the bailer with an overload relief valve disposed below the swab cup. Ports are provided through the swab mandrel above the swab cup, communicating with the annulus exteriorly of the swab mandrel, with an upwardly opening flapper check valve between the ports and the plunger so that upon upward movement of the plunger the flapper valve is opened, drawing fluid interiorly of the body from above the swab cup, thereby drawing suspended sand and other foreign material into the body where it may be collected or expelled, and an undue accumulation of sand within the body will open the safety relief valve and dump same into the well below the swab cup.

3,739,848

WATER-THICKENING POLYMER-SURFACTANT ADSORPTION PRODUCT

Jimmie B. Lawson, Houston, Tex., and Pieter F. Mijneff, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.

Filed May 17, 1971, Ser. No. 144,278

Int. Cl. E21b 43/16

U.S. Cl. 166-274

7 Claims

An aqueous liquid is thickened by dissolving in it a substantially non-ionic polymeric material that is at least partially water-soluble and a surfactant that is ionic and combines with the polymeric material and causes it to behave like a dissolved polyelectrolyte.

911 O.G.-33

3,739,849

GRIPPING MEMBER FOR WELL TOOL

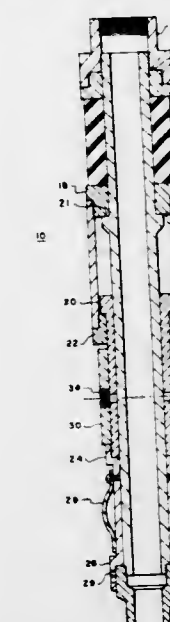
Robert B. Meripol, Dallas, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Feb. 1, 1971, Ser. No. 111,401

Int. Cl. E21b 23/00

U.S. Cl. 166-216

6 Claims



A slip or gripping member that is used on well tools to lock the well tools at a desired location in a well bore. The slip is movably mounted on the well tool and is provided with wall engaging teeth on relatively opposite sides thereof adjacent to each end. The wall engaging teeth are separated on the slip by a distance that is greater than the diameter of the well bore so that movement of the slip to an angular position brings the teeth into engagement with the well bore wall. Relatively movable abutments are provided on the well tool which are brought into engagement with at least one end of the slip to cause the slip to move into the position wherein the teeth are in engagement with the well bore wall. The slip is constructed so that when the teeth are out of engagement with the well bore wall, the tool with the slips thereon is freely movable through the well bore. The slip is useful in connection with well tools such as packers or anchors and may be actuated by fluid pressure or by mechanical means. The slip teeth are curved and adjacent teeth have different radii of curvature, resulting in a curved bounding profile in a plane containing the central longitudinal axis of the slip.

3,739,850

CROSS OVER ASSEMBLY

Phillip S. Sizer, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Continuation-in-part of Ser. No. 800,539, Feb. 19, 1969. This application June 18, 1971, Ser. No. 154,469

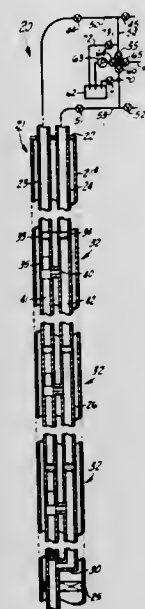
Int. Cl. E21b 43/00

U.S. Cl. 166-224

4 Claims

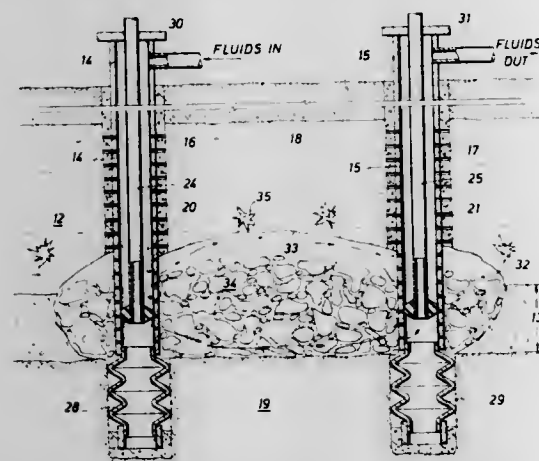
A well tool system particularly adapted for interconnection of the flow passages of conduits in a well bore, including fluid cross-over assembly for communicating parallel or concentric flow passages. One form of the system for connecting parallel tubing strings includes an H-member providing spaced vertical parallel conduit sections interconnected by a cross-over conduit. Several forms of the H-member include locking recesses in one or both of the spaced conduit sections and a sliding sleeve valve in either or both of such sections for selectively communicating and isolating the conduit sections from each other. Another form of the cross-over device includes at least three tubing sections in parallel spaced relation interconnected by cross-over conduits, locking recesses for servicing well tools in the conduit sections, and a sliding sleeve valve for selectively isolating and communicating the sections through the cross-over conduits. An additional form of the device includes a cross-over member connectable at one end with

spaced parallel tubing strings and at the opposite end with a pair of inner and outer tubing strings and including a cross-over flow passage and sliding sleeve valve for selectively isolating and communicating the flow passages through the body whereby the parallel tubing strings above the body and the flow passages below the body are intercommunicated through the body. A still further form of the device includes a coupling body having a central flow passage and laterally



spaced longitudinal flow passages connected by a cross-over passage with a sliding sleeve valve in the central passages for communicating and isolating the passages as desired. The central passage communicates with central conduits above and below the body while the other passage communicates with annular conduits above and below the body whereby parallel concentric passages are selectively communicated and isolated by the device.

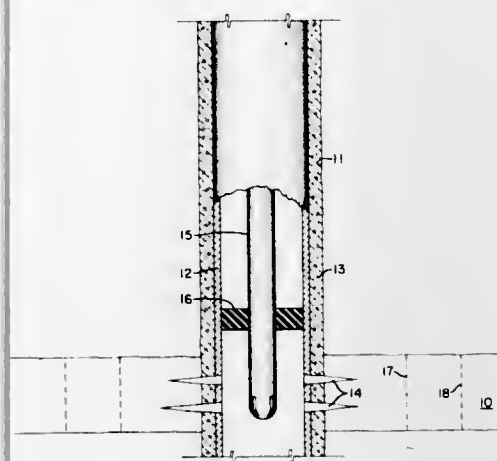
3,739,851
METHOD OF PRODUCING OIL FROM AN OIL SHALE FORMATION
Thomas Noble Beard, Denver, Colo., assignor to Shell Oil Company, Houston, Tex.
Continuation-in-part of Ser. No. 860,349, Sept. 23, 1969, abandoned, which is a continuation of Ser. No. 770,964, Oct. 28, 1968, abandoned, and a continuation-in-part of Ser. No. 75,009, Sept. 24, 1970. This application Nov. 24, 1971, Ser. No. 201,941
Int. Cl. E21b 43/24, 43/26, 43/28
U.S. Cl. 166—254



A method of producing hydrocarbons and optionally water-soluble minerals from a subterranean or underground oil shale formation containing zone(s) of water-soluble minerals by forming interconnecting cavities or a cavern within said water-soluble mineral-containing oil shale formation by fluid leaching the water-soluble minerals and simultaneously or sequentially flowing a hot fluid into the upper portion of the

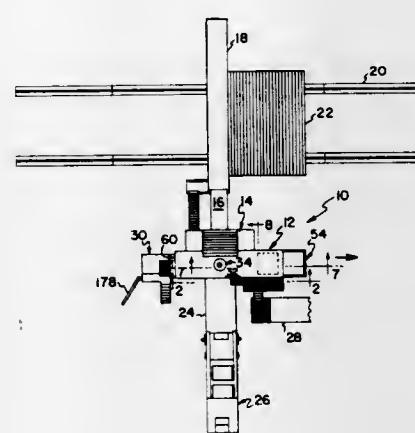
cavern in order to place the cavern roof including the cavern wall under stress so as to effect oil shale spalling and rubbing and improve recovery of hydrocarbons.

3,739,852
THERMAL PROCESS FOR RECOVERING OIL
Edward G. Woods, and Robert C. West, both of Houston, Tex., assignors to Esso Production Research Company, Houston, Tex.
Filed May 10, 1971, Ser. No. 141,908
Int. Cl. E21b 43/24
U.S. Cl. 166—303



Disclosed herein is a thermal method for recovering oil from a subterranean formation in which a substantially cylindrical heated zone is created in the formation and in which heat can be introduced into the formation at a high rate. In the method a heated fluid (preferably steam) is injected down a well and into the formation at a pressure which is less than the formation breakdown pressure. Preferably, formation fluids are then withdrawn by means of the well. Subsequently, a heated fluid (again, preferably steam) is injected into the formation at a pressure greater than the formation-breakdown pressure. Oil which has been heated by the injected fluids is recovered, preferably by means of the injection well, from the formation.

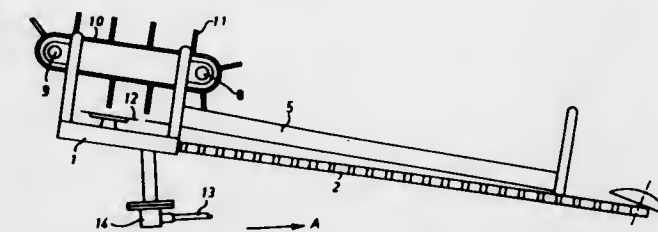
3,739,853
RIG SUBSTRUCTURE AND METHOD OF MOVING THE SAME
Bill B. Wales, Post Office Box 216, Refugio, Tex.
Filed June 4, 1971, Ser. No. 149,994
Int. Cl. E21b 15/00
U.S. Cl. 166—315



There is disclosed a substructure for a drilling or workover rig that is particularly adapted to be moved away from a Christmas tree in preparation for transport to a new location. A path of travel is selectively provided for the Christmas tree inside the confines of the substructure. When it is desired to move the substructure away from the tree, the path of travel is

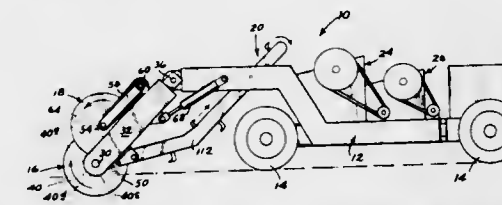
cleared and the substructure is forcibly moved while maintaining the Christmas tree within its path of travel.

3,739,854
DEVICE FOR HARVESTING CABBAGE
Wilhelmus Henricus Johannes Janssen, Scheepvaartweg 3, Roermond, Netherlands
Filed June 7, 1971, Ser. No. 150,577
Claims priority, application Netherlands, Sept. 10, 1970, 7013448
Int. Cl. A01d 25/00
U.S. Cl. 171—61



A device for harvesting cabbages and other similar crops includes a frame carrying two endless conveyors arranged in side by side relation, the conveyors being provided with interleaved projections into which the stems of the crop are directed. The conveyors are inclined upwardly in a direction from the front to the rear of the device. The crop heads are directed onto a guide plate which also tapers up-wardly at a greater angle than the conveyors. The conveyor moves at the same rate as the frame, but in the opposite direction so that the stems are pulled perpendicularly out of the soil where they are then severed from the cabbage head. The severed heads are displaced to the rear of the device with the aid of a second conveyor while the stems may be returned to the ground.

3,739,855
ROCK PICKER
Jon P. Bliss, 12631 N.E. 9th Place, Bellevue, Wash.
Filed June 3, 1971, Ser. No. 149,601
Int. Cl. A01b 43/00
U.S. Cl. 171—63



Apparatus for picking rocks, or similar articles, from the ground including a frame supported for forward movement over the ground, and an elongated rotatable digging head having a plurality of laterally-spaced ground-penetrating teeth thereon. An elongated rotatable clearing head is mounted above the digging head and includes a plurality of laterally-spaced teeth which are positioned to sweep between the digging teeth to remove picked articles therefrom. The digging head is mounted for vertical movement on the frame and is adjustable between a lowered ground-penetrating position and a position raised above the ground. A conveyor adjacent the digging and clearing heads receives articles cleared from the digging head and moves them away from the head and to a crusher in the apparatus.

3,739,856
AERATOR TYPE ATTACHMENT STRUCTURE
Charles A. Ray, 1629 Moyle, Augusta, Kans.
Filed Dec. 9, 1971, Ser. No. 206,302
Int. Cl. A01b 45/02
U.S. Cl. 172—21

This invention is an aerator type attachment structure which may be connected to a power means such as a garden

tractor having a pair of aerator assemblies rotatable on contact with the area being worked. More particularly, each of the aerator assemblies are composed of a main support shaft having a plurality of spaced and angularly positioned parallel

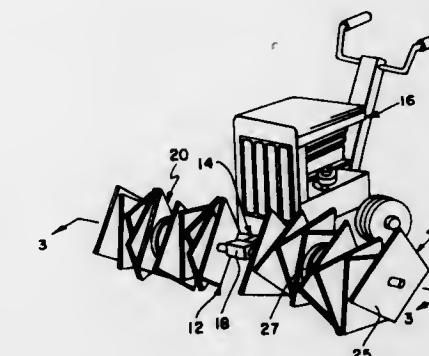
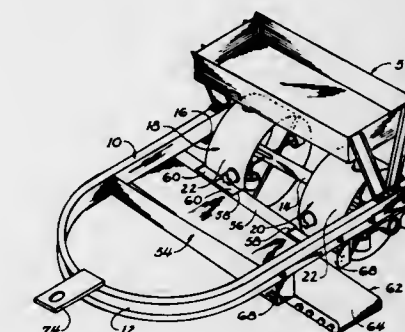


plate members thereupon, each plate member of a square shape to engage the earth for aerating and support purposes on rotation of the support shaft. Each aerator assembly includes an adjustable depth control assembly to adjust the depth of the blade working with the supporting earth.

3,739,857
TURF PLUG REMOVER
James E. Little, 8008 Greeley, Kansas City, Kans.
Filed Sept. 24, 1970, Ser. No. 75,081
Int. Cl. A01b 45/02
U.S. Cl. 172—22



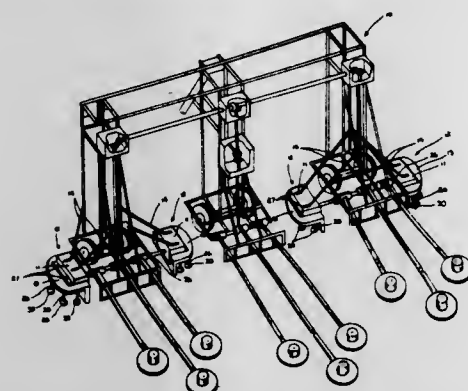
A cylindrical member with radially projecting, tubular plug cutters disposed in opposite pairs and containing pistons interconnected by a rigid rod. As the member rolls over the ground, each cutter is sequentially moved into and out of a ground penetrating position. Movement of a plug upwardly in a cutter relative to the cutter shifts both pistons of the pair upwardly ejecting a previously removed plug from the opposite cutter.

An alternate embodiment without pistons utilizes the force of each succeeding plug severed by a cutter upon penetration of the latter to directly engage a preceding plug ejecting it from the cutter. A conical baffle deflects the ejected plugs from the member.

3,739,858
AGRICULTURAL IMPLEMENT
Perry W. Spell, Roseboro, N.C.
Filed Mar. 20, 1972, Ser. No. 236,085
Int. Cl. A01b 33/00
U.S. Cl. 172—59

In abstract, a preferred embodiment of the present invention is an agricultural implement used as an earth scarifying

device capable of operating between small, tender plants. This



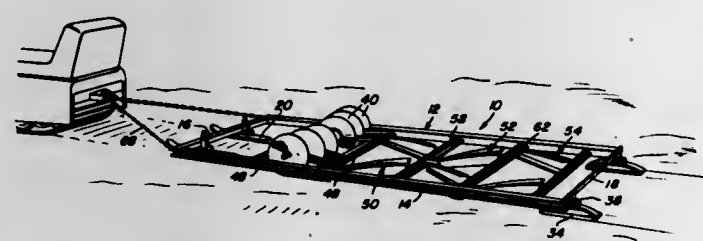
implement is designed to be attached to the rear of a tractor and operated by the power take-off thereof.

3,739,859 SNOW LEVELER

Lawrence K. White, Tomahawk, Heafford Junction, Wis.
Filed July 29, 1971, Ser. No. 167,293
Int. Cl. A01b 5/00

U.S. Cl. 172-145

7 Claims



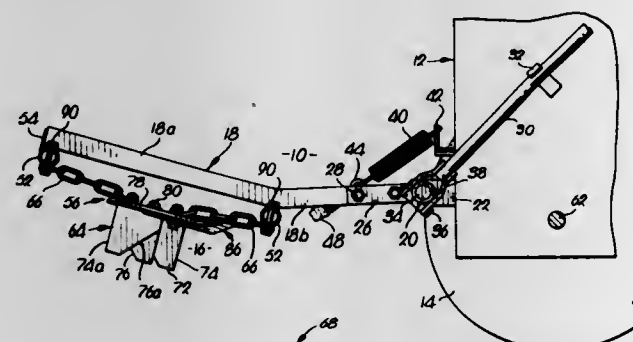
A lightweight snow leveler for redefining snowmobile trails incorporating an elongated rectangular frame having front and rear traveling skis. The frame mounts a leading series of snow pulverizing discs and trailing cooperating sets of snow-shifting blades alternately rolling the pulverized snow inward, then outward and finally inward so as to provide a soft redefined trail.

3,739,860 RAKING IMPLEMENT

Chester D. Rogers, Olathe, Kans., assignor to Jacobsen Manufacturing Company, Racine, Wis.
Filed May 10, 1971, Ser. No. 141,500
Int. Cl. A01b 35/00

U.S. Cl. 172-612

12 Claims



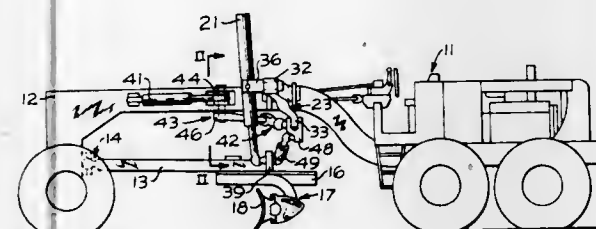
A multi-purpose raking implement, especially adapted for maintenance of golf course sand traps, automatically conforms to the topography of the terrain which is traversed by the use of a long, flexible strip to which the raking elements are attached. Such elements act as combs and slicers to break up, decrust, loosen, smooth and aerate the sand or soil, to gather debris and to destroy weeds that have begun to vegetate and grow.

3,739,861 BLADE LIFT/CENTERSHIFT CONTROLS FOR MOTOR GRADERS

Harold M. Johnson, and Vergil P. Hendrickson, both of Decatur, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Feb. 2, 1971, Ser. No. 111,951
Int. Cl. E02f 3/76

U.S. Cl. 172-793

7 Claims



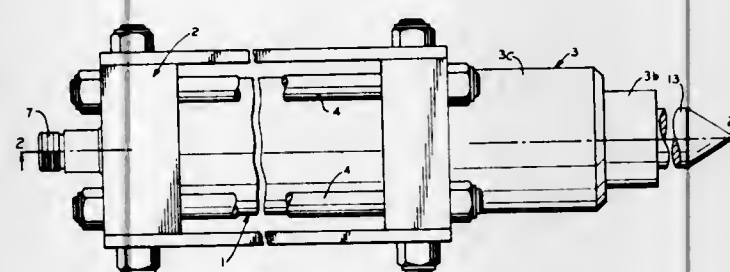
Motor grader blade controls having direct hydraulic blade lift and centershift linkage in cooperation with lateral tilt linkage which may be either fully hydraulic or semihydraulic in its actuation. The linkage is such as to present negligible obstruction to operator visibility of the blade.

3,739,862 RECIPROCATING AIR HAMMER

Samuel D. Gunning, Cleveland, Ohio, assignor to Kent Air Tool Co., Kent, Ohio
Filed Aug. 11, 1971, Ser. No. 170,810
Int. Cl. B25d 9/18

U.S. Cl. 173-116

12 Claims



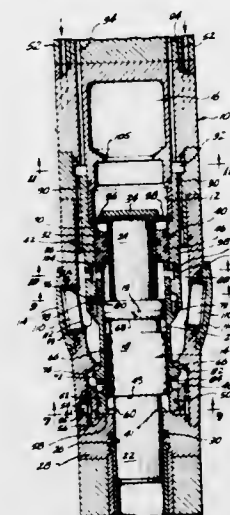
The hammer barrel is supported by a rear header and, in turn, supports a front header. A piston is reciprocated in the barrel under the control of a reversible kick valve. The piston drives a tappet and moil which are supported for reciprocation by the front header. The tappet is continually biased to full extended position by a metering cut-off valve which is subject continually to live air and which can seat to cut off the air supply to the barrel and stop the hammer when the tappet is substantially fully extended. The metering cut-off valve controls the rate of flow of live air so as to prevent excessively violent responses of the piston thereto. The metering cut-off valve is mounted in, and guided by, an air inlet fitting, the two providing a sub-assembly which can be installed as a unit in the rear header of the barrel. An axially free floating rigid stainless steel rod constrains the metering cut-off valve and tappet to coaxial movement together in substantially fixed axially spaced relation and unseats the metering cut-off valve when the tappet is retracted rearwardly by forcing the moil against the work. One end of the rod abuts the metering cut-off valve and the other end abuts the tappet, but the rod is not fixedly attached to either. The rod is supported for axial reciprocation by a bore in the piston and by a fixed rear bushing in the barrel. A valve spool on the tappet closes a vent when the tappet is extended and opens the vent when the tappet is retracted, thereby controlling venting of the barrel bore.

3,739,863 RECIPROCATING LINEAR HYDRAULIC MOTORS

Maurice Wohlwend, 5001 South 112th Street, Seattle, Wash.
Filed June 2, 1971, Ser. No. 149,217
Int. Cl. B25d 9/00

U.S. Cl. 173-119

33 Claims



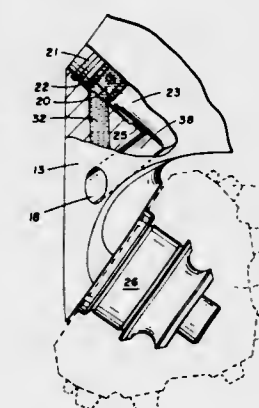
Supplied hydraulic fluid pressure overcomes the force of a spring and moves a valve member, which is biased towards a closed position by the spring, into an open position, opening a passageway to admit the hydraulic fluid to a radial pressure surface on a linear piston. The hydraulic fluid pressure acting on the piston moves the piston against the spring, compressing the spring. When the piston reaches its retracted position hydraulic fluid pressure is added to the spring pressure causing the valve member to move downwardly into a position in which the fluid pressure is released from the pressure surface on the piston, enabling stored energy in the spring to forcibly drive the piston through a power stroke.

3,739,864 PRESSURE EQUALIZING SYSTEM FOR ROCK BITS

George Acker Cason, Jr., Dallas, and James Wesley Simmons, Euless, both of Tex., assignors to Dresser Industries, Inc., Dallas, Tex.
Filed Aug. 12, 1971, Ser. No. 171,053
Int. Cl. E21b 9/08, 9/35

U.S. Cl. 175-228

18 Claims



A lubricant reservoir is positioned in each of the three arms of a three cone rotary rock bit to provide lubricant to the bearings located between the cone cutters and the bearing shafts upon which they rotate. A seal is positioned between the cone cutters and the bearing shafts to retain lubricant in the bearing area and to prevent borehole fluids and debris from entering the bearing area. A flexible diaphragm positioned in the lubricant reservoir divides the reservoir into a lubricant portion and a pressure equalizing portion. A vent passage extends from the pressure equalizing portion of the lubricant reservoir to an area on the exterior surface of the bit wherein the borehole fluid pressure on the bit is substantially the same as the borehole fluid pressure on the seal.

3,739,865 WIRELINE CORE BARREL WITH RESILIENT LATCH FINGERS

Tiete O. Wolda, Orillia, Ontario, Canada, assignor to Boyles Industries Limited
Filed June 7, 1971, Ser. No. 150,485
Int. Cl. E21b 43/00

U.S. Cl. 175-244

17 Claims



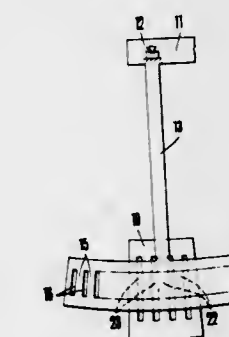
A wireline core barrel system that may be used when drilling up or down, including drilling at various inclinations. Latch fingers that are flexible and resilient are rigidly connected to the core barrel body. The latch fingers are moved into and retracted from a latch seat by a moveable actuator that bends the latch fingers in a first actuator position and allows them to spring back into shape in a second actuator position. The core barrel system provides a predetermined pressure signal indicating latching and blocks fluid flow until the core barrel is properly latched.

3,739,866 DEVICE FOR DETECTING A ROTATING ANGLE

Masamichi Hino, Suita-shi, Osaka, and Rinosuke Yoneda, Yamatokiya-shi, Nara, both of Japan, assignors to Kubota Tekko Kabushiki Kaisha (Kubota, Ltd.), Osaka, Japan
Filed Oct. 22, 1971, Ser. No. 191,796
Int. Cl. G01g 23/32, 3/14

U.S. Cl. 177-178

5 Claims



A device for detecting a rotating angle. The device has a scale which rotates around a center of a fulcrum and on which light shielding sections and light passing sections are arranged. A light source provides light which irradiates the scale. A photoconductive element receives light passed through the scale, and a slit-plate which is arranged between the photoconductive element and the scale further passes light from the light passing sections of the scale to the photoconductive element.

3,739,867 SNOWMOBILE

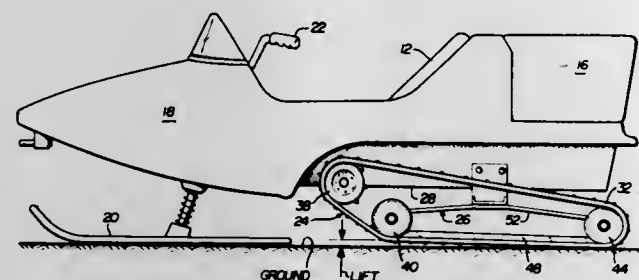
John W. Drawe, Romulus, Mich., assignor to Leisure Vehicles, Inc., Romulus, Mich.

Filed June 10, 1971, Ser. No. 151,809

Int. Cl. B62m 27/02

U.S. Cl. 180-5 R

2 Claims



A snowmobile comprises a pair of steerable front skis and a pair of laterally spaced rear driving tracks. The engine and seat are located between and below the level of the top of the tracks. Each track encompasses a driving wheel and a front and rear ground or bogie wheel. The front bogie wheels are mounted to normally maintain a higher elevation than the rear bogie wheels, so that the forward portion of each track is normally spaced above ground level. Another embodiment places the normal position of both front and rear bogie wheels above the ground, with only an intermediate point of ground contact.

3,739,868

FLUID POWER STEERING APPARATUS

Tadashi Maekawa; Akira Suzuki, and Shigenori Haramura, all of Kariya, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Aichi-ken, Japan

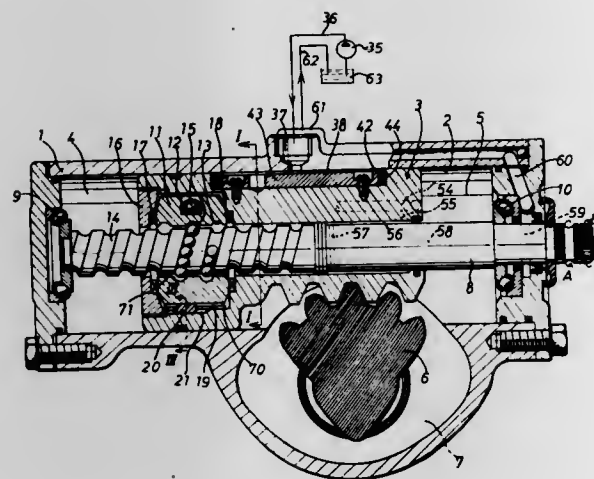
Filed Feb. 19, 1971, Ser. No. 116,760

Claims priority, application Japan, Feb. 23, 1970, 45/15452

Int. Cl. B62d 5/08

U.S. Cl. 180-79.2 R

5 Claims



Disclosed herein is a fluid power steering apparatus for vehicles. A hydraulic circuit including a pressure source is connected to a cylinder having a piston slidably engaged therein to define a pair of opposed pressure chambers therein. The piston is connected to a sector-shaft which in turn is connected to the steering road wheels. A rotatable member is confined within the piston and connected to a manually actuated shaft. A pair of control valves mounted in the piston are adapted to be displaced relatively in opposite directions by the rotatable member. The pair of control valves are positioned in the piston during assembly and are fixed normally in the neutral positions thereof to make the assembly easy and simple giving the control valves accurate and durable performance.

3,739,869

APPARATUS FOR THE ATTENUATION OF NOISE FROM UNDERWATER SEISMIC SOURCES

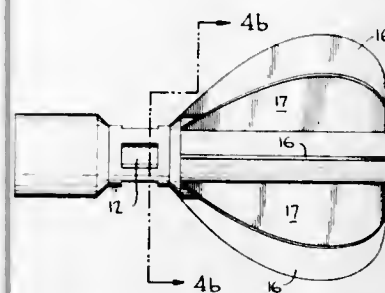
William Harry Mayne, San Antonio, Tex., assignor to Petty Geophysical Engineering Company, San Antonio, Tex.

Filed Jan. 20, 1970, Ser. No. 4,310

Int. Cl. G01v 1/14

U.S. Cl. 181-5 H

11 Claims



Vanes are mounted on an air gun or other seismic source apparatus to form smaller radii of the air bubbles generated by the source to increase the bubble resonant frequency to a higher frequency than the desired seismic signals thereby enabling unwanted noise to be filtered by conventional means. Different-sized air ports provide different-sized bubbles which collapse at different times introducing destructive interference between bubble collapses. Viscous media on the vanes is an effective damping media because of the increased resonant frequencies of the individual bubbles.

3,739,870

METHOD AND APPARATUS FOR REMOTELY CONTROLLING A SEISMIC VIBRATOR AND RECORDING SYSTEM

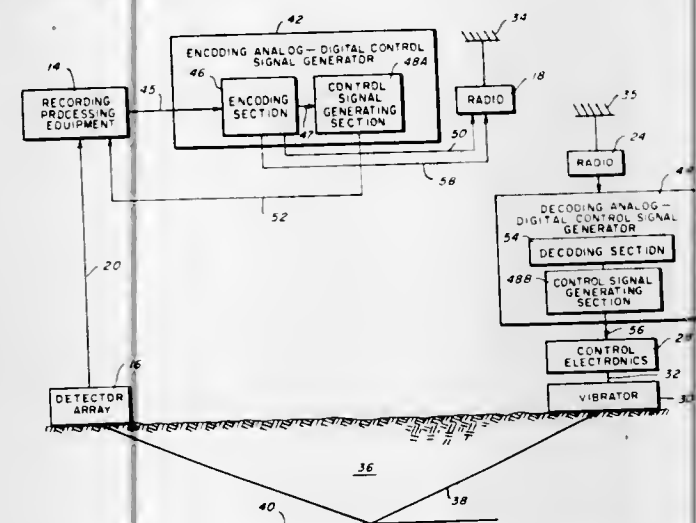
Charles R. Pelton, and Kim L. Mitchell, both of Ponca City, Okla., assignors to Pelton Company, Inc., Ponca City, Okla.

Filed Jan. 29, 1971, Ser. No. 110,872

Int. Cl. G01v 1/16, 1/22

U.S. Cl. 181-5 FS

12 Claims



A seismic vibrator capable of producing a computer controlled signal of predetermined frequency characteristics is remotely initiated using encoding and decoding devices. A similar recording apparatus is simultaneously placed into operation.

3,739,871

MAPPING OF EARTH FRACTURES INDUCED BY HYDRAFRACTURING

John R. Bailey, Tulsa, Okla., assignor to Senturian Sciences, Inc., Tulsa, Okla.

Filed July 30, 1971, Ser. No. 167,573

Int. Cl. G01v 1/40; E21b 47/026

U.S. Cl. 181-5 NP

21 Claims

In the process of inducing fractures in the earth in the vicinity of a bore hole, fluid under high pressure is pumped down

3,739,873

DUAL OUTLET EXHAUST SYSTEM

James J. Shaughnessy, Pleasant Lake, Mich., assignor to Tenneco Inc., Racine, Wis.

Filed Sept. 3, 1971, Ser. No. 177,773

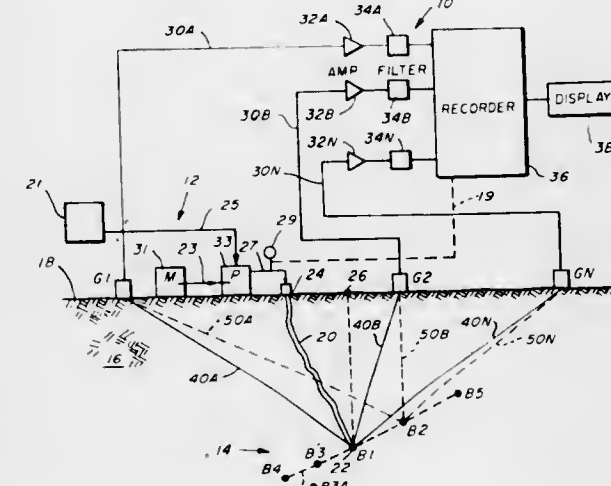
Int. Cl. F01n 7/08

U.S. Cl. 181-36 B

8 Claims

the well bore, and a portion of the wall of the well bore is exposed to this pressure at a known position in the earth. As the fluid pressure is increased, the rock will part, or rupture, and form a fracture. As the fluid rapidly flows into this fracture the pressure sharply falls, and this drop in pressure is transmitted to the surface, where at some time later, the pressure in the well fluid at the surface will show a corresponding drop.

Sensors are placed in the earth around the well bore to receive the seismic wave that is generated by the rock fracture. The times of arrival of the seismic wave can be deter-



An exhaust system for internal combustion engines comprises flow balanced dual outlet conduits.

3,739,874

MUFFLER WITH TUNING TUBE

Charles I. Plaga, III, Michigan Center, Mich., assignor to Tenneco, Inc., Racine, Wis.

Filed Oct. 12, 1971, Ser. No. 188,121

Int. Cl. F01n 1/00

U.S. Cl. 181-48

9 Claims

mined from a display, and the average velocity of seismic waves in the earth can be determined.

As the flow of fluid continues, the pressurized fluid flows into the fracture, causing it to widen and extend to greater distances from the well bore. This extension is discontinuous and intermittent, involving additional rock fractures and corresponding seismic signals. The times of arrival of the later fracture signals are determined. From these determinations and the previously determined velocity of seismic waves, the position in the earth of the successive fractures are determined.



A muffler for silencing sound in gas, such as an exhaust system muffler, has a plurality of C-shaped tubes that are tuned to attenuate predetermined frequencies.

3,739,872

GAS TURBINE EXHAUST SYSTEM

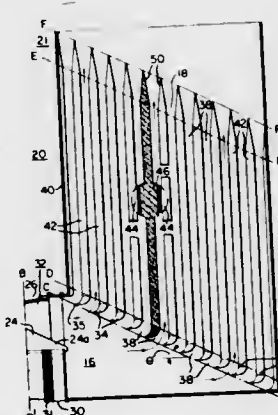
Robert E. McNair, Swarthmore, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 27, 1971, Ser. No. 147,527

Int. Cl. B64d 33/06

U.S. Cl. 181-33 HB

5 Claims



An efficient exhaust system in which the fluid from a turbine is discharged into a diffusing portion. The discharged fluid then flows into an elongated transition portion and is directed at the downstream end thereof into a silencer portion by a plurality of staggered turning vanes. The discharged fluid is turned at constant velocity, and a constant area is maintained between the flow path in the transition portion and the flow path in the silencer portion. There is an additional diffuser at the downstream end of the silencer portion.

3,739,875

ESCAPE DEVICE

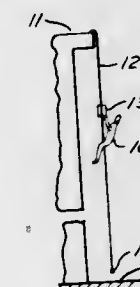
William Clark-Padwick, 5425 Ewart St., Burnaby, British Columbia, Canada

Filed Jan. 10, 1972, Ser. No. 216,635

Int. Cl. A62b 1/14; B65h 59/14

U.S. Cl. 182-6

13 Claims



Device to effect controlled descent down a rope of an incapacitated person carried in a harness secured to the device. The device has a series of spaced grooved rollers on one side of the rope, the rollers being aligned in a plane containing the rope and staggered between opposing series of coplanar rollers, the rope following a sinusoidal path between both series of rollers. The rollers are coupled together to ensure equal peripheral speeds when device is moved relative to rope. Automatic brake responsive to descent speed brakes rollers to

maintain predetermined descent speed. Gearing between rollers and brakes permits relatively light braking force to control a relatively heavy person. Number, size and spacing of rollers maintains sufficient arc of contact of rope on rollers to reduce slippage of rope when rollers are braked. Additional hand operated brake stops descent.

3,739,876

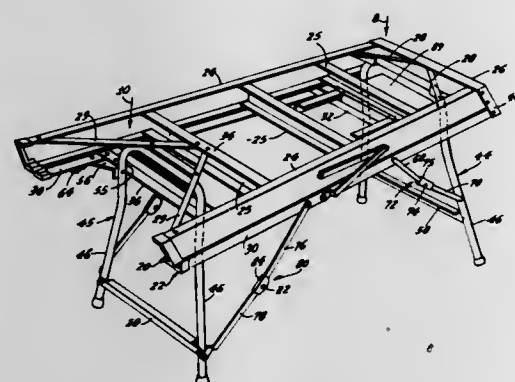
COMBINATION STEP LADDER AND WORK SUPPORT
Ronald A. Goldberg, 9922 Cornerbrook Drive, Huntington Beach, Calif.

Filed July 28, 1971, Ser. No. 166,785

Int. Cl. E04g 1/30

U.S. Cl. 182-27

29 Claims



A dual purpose foldable stepladder comprising a step-equipped front frame hingedly connected to a back prop frame having two pairs of foldable auxiliary legs on the back prop frame to support the folded ladder in horizontal position for use as a work bench. Each of the two pairs of auxiliary legs comprises a U-shaped tubular leg means which folds against the backside of the back frame. When the two U-shaped leg means are unfolded their upper ends extend into the interior of the folded step ladder and one of them ties the two frames of the folded step ladder together.

3,739,877
GREASE CUP

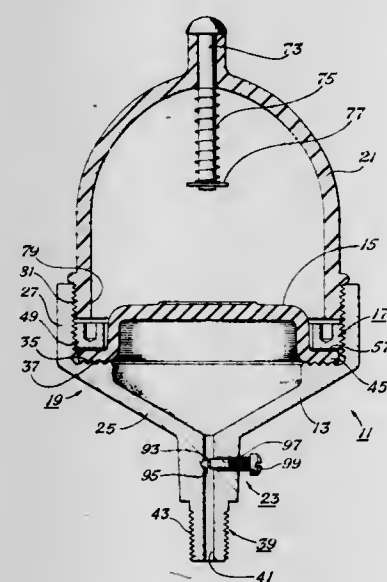
Paul B. Oliveri, Houston, Tex., assignor to Industrial Specialties Corporation, Englewood, N.J.

Filed Nov. 9, 1971, Ser. No. 197,067

Int. Cl. F16n 1/104

U.S. Cl. 184-45 R

4 Claims



A lubricating device for automatically feeding lubricant from a reservoir to an element such as a bearing, characterized by a hollow housing having a lubricant injection fitting and relief valve for controlled filling, being connectable with the element by way of an axial lubricant discharge passageway, and having an annular sealing shoulder with anti-

slip means for retaining a flange of a diaphragm in place; a distensible elastic diaphragm having a peripheral sealing flange seated on said annular sealing shoulder; an annular threaded ring that threadedly engages the internal threaded wall of the housing for being screwed inwardly to compressively retain the peripheral sealing flange of the diaphragm against the annular sealing shoulder independently of any guard element; and a rigid guard element disposed about the diaphragm for protection. Also disclosed are preferred embodiments wherein the lubricating device is provided with a slip-off cover; an externally adjustable flow control valve; an indicator means for indicating the degree of fill of the diaphragm; and a guard element that threadedly engages the threaded wall of the housing but is shorter than in the prior art so as to allow independent adjustment of the threaded annular ring.

3,739,878

GROCERY CART AND CHECKOUT COUNTER COMBINATION

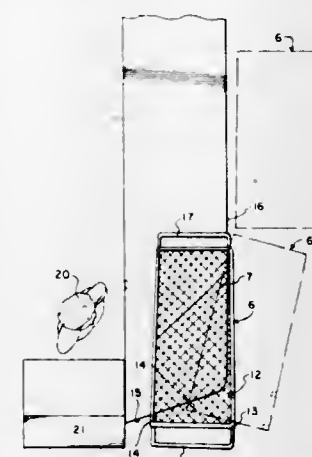
Walter M. Jay, 16 Tweed Road, Fox Lake, Ill.

Filed May 18, 1971, Ser. No. 144,531

Int. Cl. E04h 3/04

U.S. Cl. 186-1 AC

5 Claims



In the present cantilever grocery cart and checkout counter combination the entry end of the overhanging counter, which the basket in the upper half of the cart is adapted to overlie in the checkout operation, extends at an acute angle to define a cam surface to guide the cart laterally into the aisle alongside the checkout counter by sliding abutment of correspondingly, angularly spaced upright parts on the cart with the angled end of the counter as the customer pushes or pulls the cart forward, the wheels on the cart being of the usual caster type to swivel as necessary to obtain the initial lateral movement of the cart.

To further facilitate properly servicing all of the carts in the flow of cart traffic past the checkout counter while insuring against oversight in checking out merchandise, the entry end portion of the counter with the acute angled end cam surface in one form is defined by an open horizontal frame permitting the checkout person to see down through the upper basket to the lower basket and be certain to check out any merchandise deposited in the lower level of the cart that might otherwise be eventually hauled away without payment.

3,739,879

TORSION BAR ELEVATING MECHANISM FOR SELF-LEVELING DISPENSERS

Bruce F. House, Coral Gables, Fla., assignor to Shelley Manufacturing Company, Miami, Fla.

Filed Nov. 12, 1971, Ser. No. 198,227

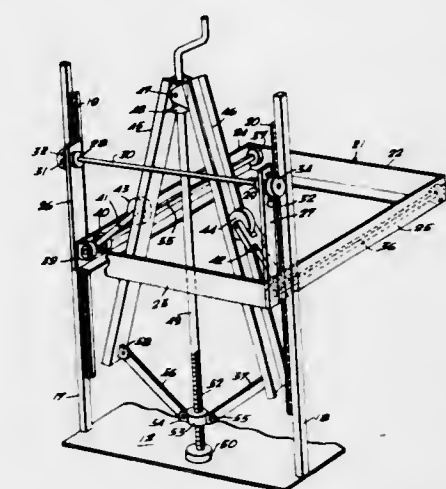
Int. Cl. B66b 1/104

U.S. Cl. 187-24

9 Claims

Torsion bar mechanism for resiliently elevating the carrier of a self-leveling dispenser is described. A horizontal carriage arranged for vertical movement with respect to a support structure, in cantilever relation with respect thereto, has

secured thereto one end each of a pair of horizontally-extending, spaced, parallel, torsion bars, the outer ends of which have affixed thereto mutually inwardly-extending lever arms journaled to the outer ends of which are guide wheels constrained to move along respective elongated guide channel members angularly disposed with respect to the vertical



direction of carrier movement so as to substantially uniformly increase torsional stress in the torsion bars as the carrier is depressed. Manually operable crank means is provided for simultaneously varying the angles of inclination of the guide channels for wide-range adjustment of the resilient reactive force per linear unit downward movement of the carrier.

3,739,880

ELEVATOR CONTROL FOR OPTIMIZING ALLOTMENT OF INDIVIDUAL HALL CALLS TO INDIVIDUAL CARS

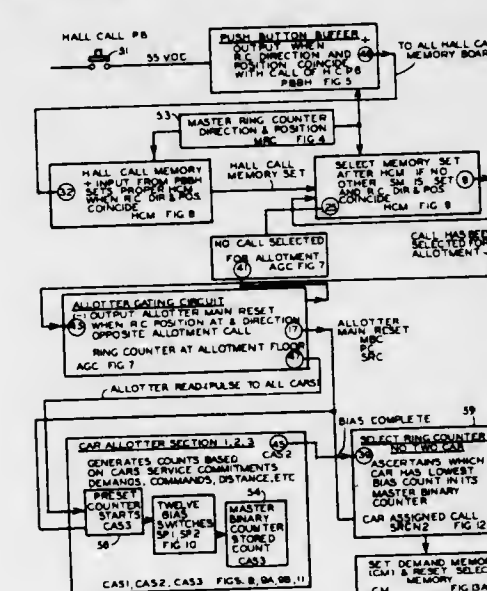
Gerald D. Robaszewicz, Toledo, Ohio, assignor to Reliance Electric Company, Euclid, Ohio

Filed June 10, 1971, Ser. No. 151,778

Int. Cl. B66b 1/18

U.S. Cl. 187-29 R

69 Claims



A system for assigning individual hall calls to individual elevator cars on the basis of service requirements imposed on the cars wherein signals associated with calls are time multiplexed and service requirements are represented by predetermined numbers of signal pulses which can be correlated to the anticipated delay imposed on the car in reaching the landing of the call and/or in travel commitments beyond the landing of the call. Pulse series for the several service requirements such as distance of the car from the call landing, car calls and hall calls assigned the car between the car and the call landing, and car calls and hall calls assigned the car beyond the call landing, are sequenced on a per floor basis as by a car travel scanning means so that one floor is considered at a time as to calls and then as to car travel distance so that no

overlap of pulses is generated. Pulse series for car status representing conditions imposed upon the car as degree of loading, car in slowdown, door open, and car in acceleration are also sequenced to avoid overlap of pulses for the several factors. Pulse counts are accumulated for each of a plurality of cars to indicate the car best suited to serve the call to be assigned as that having the pulse count representing the least service commitment.

3,739,881

RECESSED COMPENSATING SHEAVE

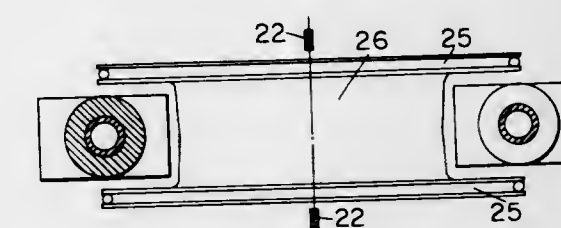
Janis Clderman, Teaneck, N.J., and Charles Heyd Clarkson, Madelra Beach, Fla., assignors to Otis Elevator Company, New York, N.Y.

Filed June 12, 1972, Ser. No. 261,678

Int. Cl. B66b 5/28

U.S. Cl. 187-94

6 Claims



A compensating sheave arrangement used in an elevator system permits the use of both a single counterweight buffer and a single elevator car buffer, notwithstanding the compensated rope segments on either side of the compensating sheave are vertically disposed and apply non-eccentric forces on both the car and the counterweight. A recessed compensating sheave is used having a recess dimensioned so as to form vertical passages on each side thereof, the passage on one side receiving the car buffer and on the other, the counterweight buffer. The sheave is designed so as to have its pitch diameter substantially equal to the horizontal distance between the vertical axis of the car and the vertical axis of the counterweight and thereby result in an arrangement whereby the compensating rope segments ascending from the sheave are substantially vertically disposed.

3,739,882

SHOCK ABSORBING DEVICE ESPECIALLY FOR VEHICLES

Kurt Schwenk, and Kurt Rupprecht, both of Wolfsburg, Germany, assignors to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany

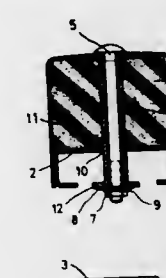
Filed Apr. 8, 1971, Ser. No. 132,330

Claims priority, application Germany, Apr. 9, 1970, P 20 16 855.2

U.S. Cl. 188-1 C

Int. Cl. F16f 7/12

10 Claims



Shock absorbing device having an outer and an inner section supported for relative movement with respect to each other in the direction of a shock force, an intermediate section placed into the space formed by the outer and inner sections and comprising a material having volume-elastic properties, the elastic material is treated with a material having adhesive properties for delaying the return of it into the original posi-

tion due to its elastic properties after a shock force causing compression of the elastic material has ceased, and wherein the outer section comprises an elastic material a portion of which is formed to receive the volume-elastic intermediate section, and the inner section lying closer to the object to be protected from the shock is made from a rigid profile and supports the outer section containing the volume-elastic material.

3,739,883

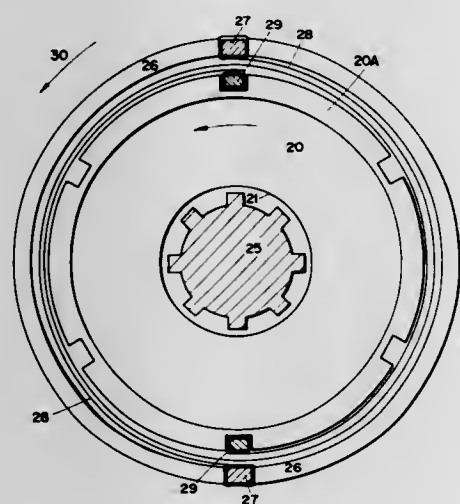
DISC BRAKE WITH RESILIENT TORQUE CONNECTION
Glenn R. Marin, Ransomville, N.Y., assignor to The Carborundum Company, Niagara Falls, N.Y.

Filed Apr. 1, 1971, Ser. No. 130,136

Int. Cl. F16d 55/00

U.S. Cl. 188-71.1

6 Claims



A flexible transmission band for applying braking torque force to the driven friction members of a disc brake. The band functions in such a manner as to reduce shear and impact loading on the brake members, replacing this at least partially by compressive and friction loading on the outer periphery of the brake discs. Shear loading can be reduced further by providing discs with wider rims which permit correspondingly wider and stronger keyway slots.

3,739,884

MEANS AND METHOD FOR REGULATING A HYDRAULIC ENERGY ABSORBING DEVICE

Lars H. Myhr, Norrköping, and Lars-Åke E. Svensson, Åby, both of Sweden, assignors to Borgs Fabriks Aktiebolag, Norrköping, Sweden

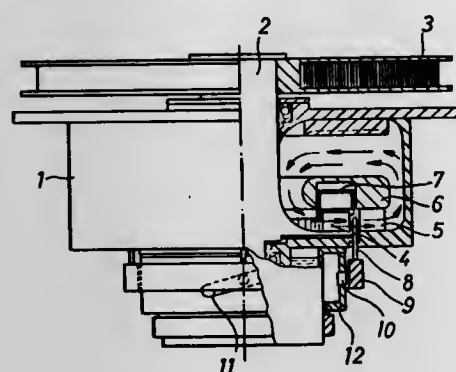
Filed May 6, 1971, Ser. No. 140,853

Claims priority, application Sweden, May 11, 1970, 6391/70

Int. Cl. F16f 57/04

U.S. Cl. 188-296

1 Claim



A device for regulating the driving torque and energy absorption in hydraulic energy absorbing means such as employed in aircraft arresting mechanisms, consisting in a liquid reservoir housing in which a bladed rotor is rotative, said rotor having its blades surrounded by fixed vanes of a curvature different from that of the blades of the rotor. A ring is mounted

above the blades, the ring having an annular groove or channel in which a channel-shaped capsule is positioned, the capsule being adjustable up or down in the groove, a rotative adjustment ring is mounted on a part of the housing and an outer ring carries rods that enter the housing to contact with the capsule, and the outer ring has parts engaging in guide means on the inner ring, whereby rotative adjustment of the inner ring causes raising or lowering of the capsule with respect to the rotor blades.

3,739,885

TELESCOPIC POSITION ADJUSTING DEVICES

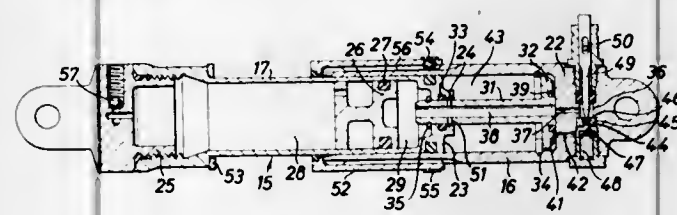
Wilfred Nicholas Bainbridge, Leamington Spa, England, assignor to Automotive Products Company Limited, Leamington Spa, Warwickshire, England

Filed June 15, 1971, Ser. No. 153,227

Int. Cl. F16d 63/00

U.S. Cl. 188-300

5 Claims



An aircraft seat having an angularly adjustable back and a telescopic position adjusting device arranged to hold the seat back in any position to which it is set. The telescopic position adjusting device comprises a hollow plunger slidable in a closed ended cylinder. A floating piston divides the hollow plunger into two chambers one of which is filled with liquid and communicates with a passage in the closed end of the cylinder via the bore of a tubular stem which projects through an aperture in the plunger end wall. The other chamber is filled with compressed gas. A non-return valve controls liquid flow through the passage between the tubular stem bore and the liquid filled annular cylinder space surrounding the tubular stem. The non-return valve is spring closed and may be opened manually by a pin which is housed within the closed end of the cylinder for movement radially of the cylinder. The tubular stem has a radial flange which is engaged by a clip ring mounted in the cylinder and held in abutment with the closed end of the cylinder. The stroke of movement of the plunger can be altered by an adjustable sleeve which provides a stop surface for engagement by the plunger at one end of its stroke.

3,739,886

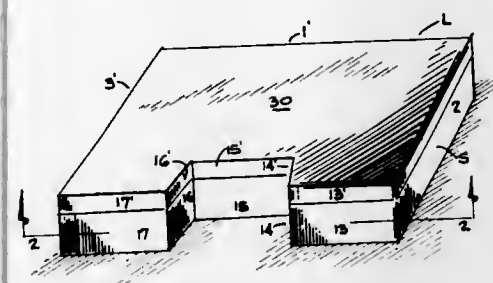
COMPARTMENTED PORTABLE CASE

Norman Kertzman, 8802 Sundale Drive, Silver Spring, Md. Continuation-in-part of Ser. No. 108,373, Jan. 21, 1971, abandoned. This application July 19, 1972, Ser. No. 273,286

Int. Cl. B65d 13/04

U.S. Cl. 190-49

16 Claims



A portable case containing a main large compartment adjacent to the hinged sides of the main body of the case and the cover therefor, and a pair of smaller symmetrical compartments on the opposite side with a gap therebetween. The handle for the case is mounted within the confines of the gap so that a convenient hold thereon may be had while permitting

the case to be handled or stacked without the protrusion of the handle beyond the outlines of the case, thereby protecting the handle against damage.

3,739,887

ELECTROMAGNETIC POWDER COUPLINGS

Gabriel Ruget, Saint Etienne, Loire, France, assignor to Creusot-Loire, Paris, France

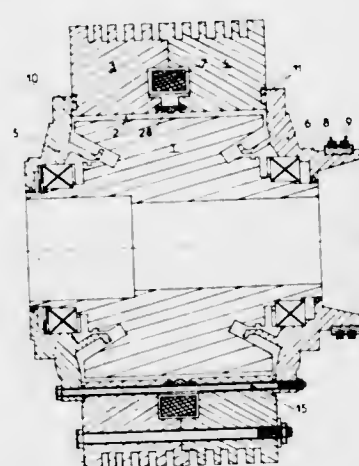
Filed Oct. 19, 1970, Ser. No. 82,055

Claims priority, application France, Oct. 17, 1969, 6936127

Int. Cl. F16d 27/00

U.S. Cl. 192-21.5

9 Claims



An electromagnetic powder coupling comprising an outer rotor formed by two pole piece halves centered on lateral cheeks of an amagnetic material, an excitation coil is housed between the two pole piece halves which define an air gap around an inner rotor, the centering of the pole piece halves being effected by a convex cylindrical face machined on each of these pole piece halves in the immediate vicinity of the air gap in order to fit on the cylindrical face opposite a peripheral ring provided for this purpose on the corresponding cheek, while, on the other hand, the connection of the two pole piece halves in the middle of the air gap is ensured, without direct contact between them, by an amagnetic axially-slidable coaxial sleeve which is separated from the coil by a free space.

3,739,888

APPARATUS FOR DRIVING A RECORDING INSTRUMENT

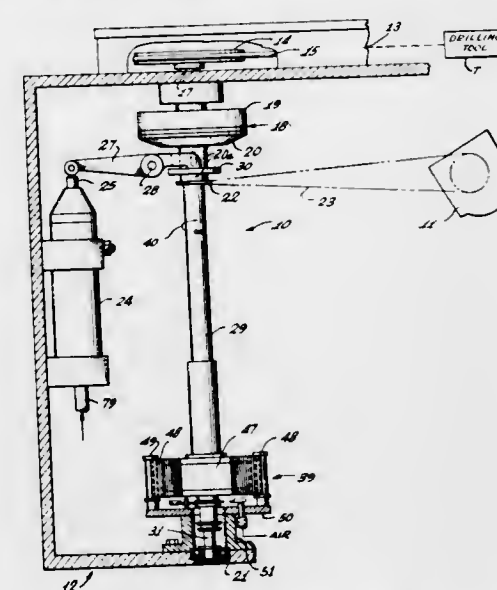
James J. Brady, Glendale, Calif., assignor to Technical Oil Tool Corporation, Glendale, Calif.

Filed Jan. 31, 1972, Ser. No. 222,270

Int. Cl. F16d 21/00; E21b 47/04

U.S. Cl. 192-48.92

11 Claims



Mechanism for driving an odometer for logging footage drilled by an oil well drill or the like, and including a clutch

driven by a measuring line, a shaft driven through the clutch, a sleeve telescoped onto the shaft and carrying a sprocket that drives the odometer through a chain, and a one-way coupling for turning the sleeve only as the shaft is driven forwardly. The one-way coupling includes a cage which turns with the sleeve, and gearing acts between the cage and the shaft as a spline coupling during forward rotation, but during reverse rotation of the shaft, the cage is held stationary and the gearing rotates a signal arm from a normal, idle position into a blocking position over an orifice to block air flow therefrom and create a pressure signal for actuating a cylinder for disengaging the clutch, and shifting a plunger of a driller's control valve. The signal arm is returned to its idle position, and the clutch remains disengaged until the plunger is pushed in manually to reactivate the driving mechanism.

3,739,889

OVERRUNNING CLUTCH

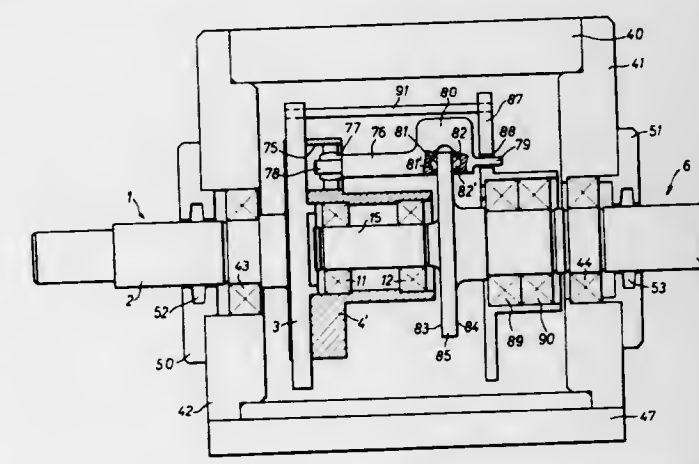
Bernhard Frey, Stelgstrasse 94, Schaffhausen, Switzerland Filed Apr. 21, 1971, Ser. No. 136,055

Claims priority, application Switzerland, Apr. 21, 1970, 5920/70

Int. Cl. F16d 41/00

U.S. Cl. 192-45.2

4 Claims



An overrunning clutch in which the clutching means is in the form of a long lever arm positively supported at one end and having offset transverse extending clutch surfaces at the other end. Rotation of the driving part produces large forces on the offset clutch surfaces against corresponding rotatable surfaces attached to the driven part.

3,739,890

POSITIVE SYNCHROMESH GEARS

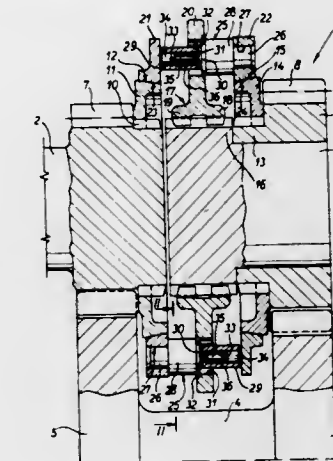
Giovanni Nalli, Brescia, Italy, assignor to Fiat Societe Per Azioni, an Italian Joint Stocks Company, Turin, Italy

Filed June 3, 1971, Ser. No. 149,422

Int. Cl. F16d 23/06

U.S. Cl. 192-53 E

3 Claims



A positive synchromesh gear device of the free ring type has, in the known way, two synchronizing rings which

cooperate with respective frusto-conical coupling surfaces of a driving member and a free member respectively, the latter being rotatable on a driven member and permanently coupled by gearing to the driving member. A number of pins extend axially from each ring towards the other ring and pass through respective bores in a coupling member which is rotatable but slidable axially on the driven member to connect the driven member selectively either to the driving member for direct drive or to the free member for drive through the gearing. Each pin has inner and outer cylindrical coaxial portions interconnected by a portion tapered towards the free end of the pin, and the pins are normally disposed in a rest position with their outer cylindrical portions within the respective bores of the coupling member. The invention provides a spring-biased member in each pin, urged into frictional contact with the opposite ring to urge the two rings constantly apart into contact with the respective coupling surfaces, at the same time causing the first ring to tend to draw the second ring along in rotation with it, thereby keeping the outer cylindrical portion of each pin laterally in contact with part of the bore in the coupling member.

3,739,891

VISCOUS FLUID CLUTCH

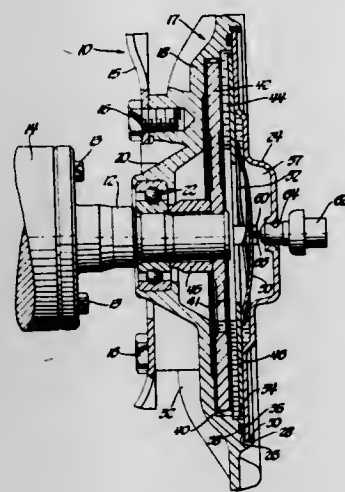
Frank E. La Flame, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 13, 1972, Ser. No. 234,066

Int. Cl. F16d 35/00

U.S. Cl. 192—58 C

8 Claims



The drawings illustrate an improved viscous fluid clutch including a rotatable housing having an enclosed working chamber, an engine-driven clutch plate and a control plate mounted in the working chamber, spring means connecting the control plate to the housing such that the housing rotates with the control plate and the control plate is able to move axially within the housing toward the clutch plate in response to the action of a temperature-responsive wax-filled power element to effectuate a fluid shear drive relationship therewith, with a substantially constant fluid level being maintained during all operative conditions.

3,739,892

REPLACEABLE ANNULAR GEAR

Joseph C. Liberty, Jr., 4216 Grindley Place, Dearborn Heights, Mich.

Filed July 30, 1971, Ser. No. 167,640

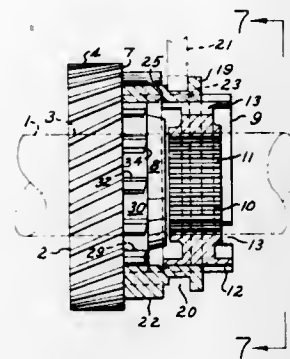
Int. Cl. F16d 11/10; B21d 53/28

U.S. Cl. 192—67 R

2 Claims

Worn teeth in a shifting transmission are replaced by an annular replacement gear which is slipped over the worn teeth

after they have been ground down to a smooth annulus. The



ERRATUM

For Class 192—70.27 sec:
Patent No. 3,739,896

3,739,893

METHOD AND APPARATUS FOR TRANSFERRING GRAIN

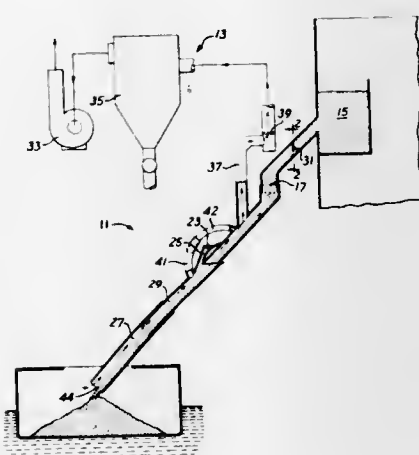
Henry H. Kaufmann, Saint Louis Park, Minn., assignor to Cargill, Incorporated, Minneapolis, Minn.

Filed Jan. 31, 1972, Ser. No. 221,919

Int. Cl. B65g 11/00

U.S. Cl. 193—17

13 Claims



Apparatus and the method are provided for restricting air pollution and for conveying grain from a grain source to a desired location at a lower elevation than the grain source. In the method, grain is conveyed downwardly from the grain source to a second location. The grain is enclosed during the conveyance and a flow of air is established upwardly and countercurrent to the grain flow when enclosed. The air flow is established at sufficient velocity to pick up dust from a discharge point and remove the dust during grain flow.

3,739,894

BALL TRANSFER UNIT

Ronald C. Hinman, Mission Viejo, Calif., assignor to Western Gear Corporation, Lynwood, Calif.

Filed Mar. 15, 1971, Ser. No. 124,234

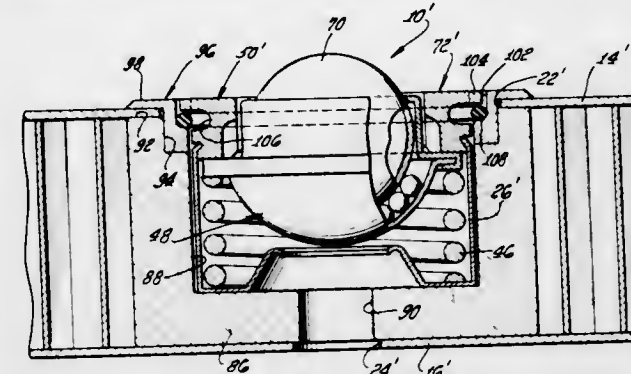
Int. Cl. B65g 13/00; B60b 33/08

U.S. Cl. 193—35 MD

3 Claims

A ball transfer unit including load spring means, locking means for releasably maintaining said unit within a structure

and stop means for limiting the displacement of the ball when



a load is positioned thereon.

3,739,895

METHOD AND APPARATUS FOR TESTING COINS EMPLOYING DIMENSIONAL CATEGORIZING MEANS

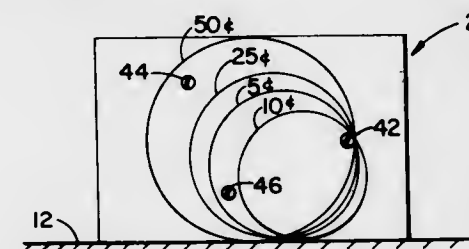
Guy L. Fougere, Sandy Pond Road, Lincoln, and John L. Rothery, 8 Tucker Street, Marblehead, both of Mass.

Continuation-in-part of Ser. No. 91,871, Nov. 23, 1970, which is a continuation-in-part of Ser. No. 812,127, April 1, 1969, abandoned. This application Aug. 16, 1971, Ser. No. 171,922

Int. Cl. G07f 3/02

U.S. Cl. 194—100 A

17 Claims



A coin selector and a method of coin selection are disclosed which utilize a coin presence sensor array including a primary sensor and a series of secondary sensors, which together with combinatorial circuitry provide signals indicative of the size category of a coin and signals indicative of the acceptance ratio of the coin and compare the signals with predetermined values for acceptable coins.

3,739,896

FRICTION CLUTCH

Kinji Shono, Wakoh, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

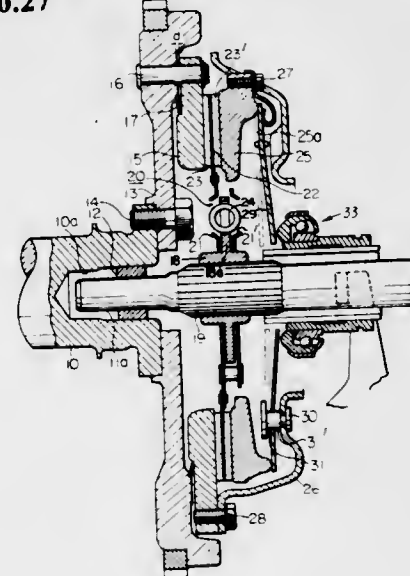
Filed Dec. 20, 1971, Ser. No. 209,757

Claims priority, application Japan, Dec. 28, 1970, 45/132196

Int. Cl. F16d 13/44

U.S. Cl. 192—70.27

5 Claims



An improved dry-disc friction clutch for motor vehicle power transmission systems is disclosed, which is adapted to

be disengaged completely and immediately when a forward drive condition is to be established from idling. The friction clutch includes a flywheel which is made up of cooperating main and subsidiary driving plates which are normally spaced from each other by suitable spring means. The subsidiary driving plate is positively moved away from the friction-engaging plate when the clutch pedal is depressed and the clutch spring is moved to disengage the pressure plate from the friction-engaging plate.

3,739,897

INTERNAL ACTUATOR FOR IMPACTING A SERIAL PRINTER PRINT HEAD

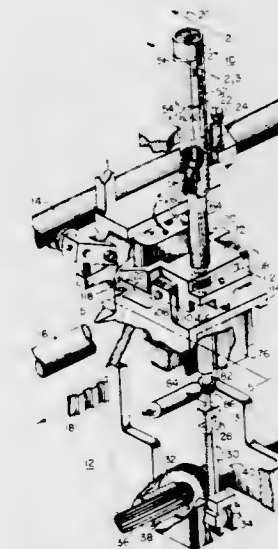
Constantine J. Pateuk, Natick; Harold M. Shneider, Weston, Steven P. Cahill, Revere, and James G. Bath, Hudson, all of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Dec. 1, 1970, Ser. No. 94,034

Int. Cl. B41j 1/32

U.S. Cl. 197—55

12 Claims



A novel internal actuator for impacting the print head of a high speed serial printer with a print medium is disclosed. The internal actuator engages the interior of a rotatably and axially positionable print head and causes the latter to impact the print medium. The internal actuator includes a pivotal yoke portion and a neck portion, the latter of which extends into the interior of the print head. The pivotal yoke portion provides a fixed point about which the print head moves while the neck portion provides a firm mounting for both the positioned print head and the positioning shaft structure which is contained therein.

3,739,898

TYPEWRITES WITH SINGLE SPRING TO PROVIDE LETTERSPACING AND PRINTING

Craig E. Rooney, 4511 West 78th Terrace, Overland Park, Kans.

Filed Jan. 14, 1971, Ser. No. 106,370

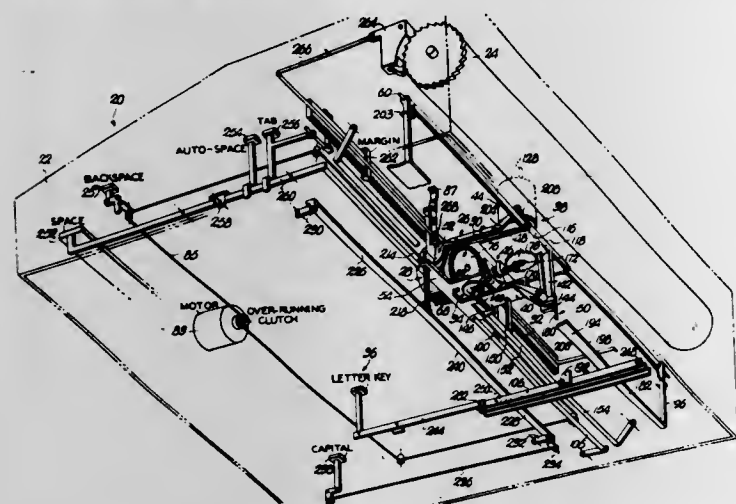
Int. Cl. B31j 1/40

U.S. Cl. 197—55

39 Claims

An imprinting apparatus in the general form of a typewriter has shiftable carriage and imprinting assemblies and a stationary platen for imprinting on a sheet of paper or the like by the swinging movement of a vertically extending, cylindrically-shaped imprinting head toward the platen as the imprinting and carriage assemblies shift along a path of travel juxtaposed with the platen. The apparatus employs a windable mainspring and drive gear mechanism operably coupled with a releasable spacing mechanism to incrementally shift the carriage and imprinting assemblies in an advancing direction along the path of travel, under the constant bias of the mainspring; an operating assembly for operably coupling the imprinting assembly with the drive gear mechanism, whereby the imprinting head is swung toward and away from the platen during the shifting of the imprinting and carriage assemblies a

single incremental distance along the path of travel corresponding to the spacing of a single character, with swinging of the imprinting head being directly responsive to and effected by the shifting of the imprinting and carriage assemblies in the advancing direction along the path of travel; and a rotat-



ing and elevating mechanism directly responsive to and actuated by the shifting of the imprinting assembly toward the platen for positioning the imprinting head in a predetermined position wherein a selected character on the head may be imprinted on the sheet of paper.

3,739,899

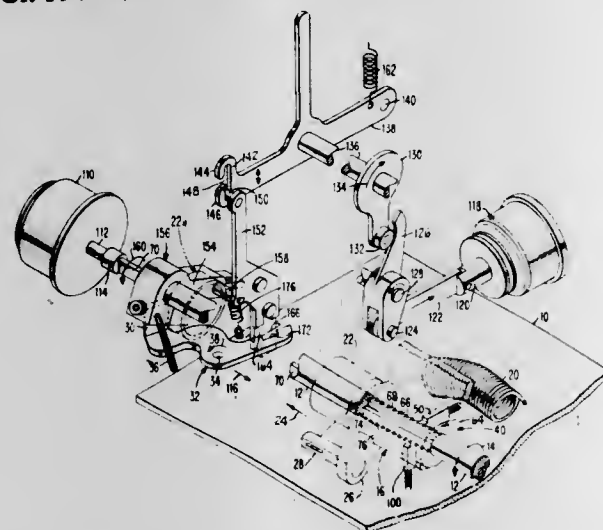
CARRIAGE INDEXING MECHANISM

Phillip A. Brumbaugh, Endicott, and Richard H. Harrington, Vestal, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 3, 1970, Ser. No. 60,463
Int. Cl. B41j 19/00

U.S. Cl. 197-82

7 Claims



A carriage for a printer or the like comprises a movable carrier which is indexed by cooperating, sliding and stationary racks lying just beneath the circumference of an axially fixed carrier support shaft. Drive and hold latches on the carrier are spring biased into contact with respective racks. Solenoid oscillation of the sliding rack one column position causes like incrementation of the carrier. Angular rotation of the shaft moves the drive and hold latches from their racks into contact with smooth shaft surfaces, causing automatic return of the carrier under dashpot action to the first column print position.

3,739,900

APPARATUS FOR CONTINUOUSLY PANNING DOUGH

Victor F. Gugler, 8920 Helen Avenue, Sun Valley, Calif.

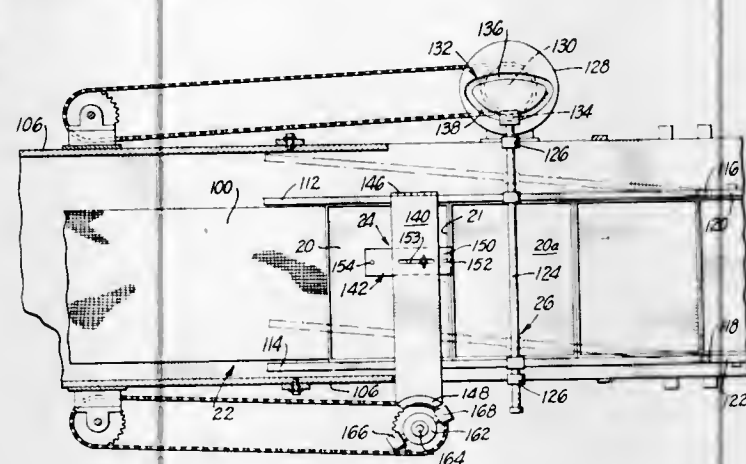
Filed Mar. 15, 1971, Ser. No. 124,052
Int. Cl. B65g 47/26; B23q 7/00

U.S. Cl. 198-19

4 Claims

Method and apparatus for continuously forming and placing a series of dough pieces in a predetermined array on a pan by

stepping the pan back and forth and in a forward direction



under the forward end of a continuously moving dough conveyor.

3,739,901

BISCUIT HANDLING MACHINERY

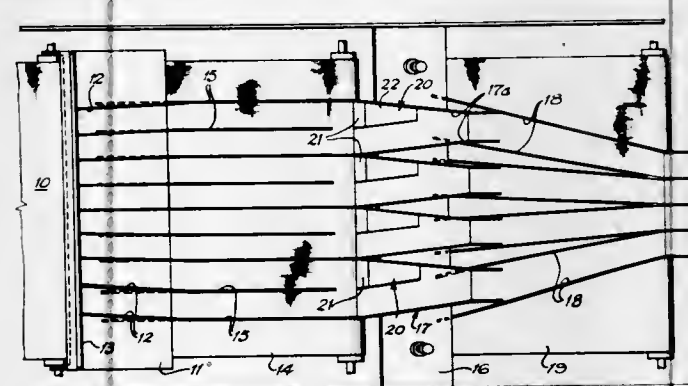
Stanley William Crispe, Liverpool, England, Assignor to Simon-Vicars Limited, Lancashire, England
Filed Oct. 28, 1971, Ser. No. 193,261

Claims priority, application Great Britain, Nov. 12, 1970, 53,820/70

Int. Cl. B65g 47/26

U.S. Cl. 198-30

10 Claims



Lane reducing means of the kind referred to comprising an inclined chute having side walls, the width of the chute tapering from at least the width of two biscuit lanes at its upper end to approximately the width of one biscuit lane at its lower end, characterized in that a raised biscuit supporting platform is provided over part of the surface of said chute on one side thereof, said platform extending from the wider end of the chute, where it is adapted to receive biscuits entering the chute from one of the lanes, to a position part way down the chute where the width of the latter is less than the width of two biscuits in side-by-side relationship, the height of said platform at its lower end above the surface of the chute being at least as great as the thickness of a biscuit to be traversed thereby.

3,739,902

PATTERN MAKER

Charles E. Ingram, Freeland, and Ronald D. Elson, Merrill, both of Mich., assignors to Baker Perkins Inc., Saginaw, Mich.

Filed Sept. 21, 1970, Ser. No. 73,996
Int. Cl. B65g 47/24

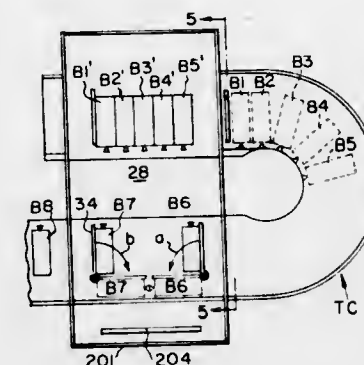
U.S. Cl. 198-33 AB

43 Claims

Pattern forming apparatus and methods for grouping food products, such as loaves of bread, into any one of a plurality of different patterns wherein an approach conveyor, for successively conveying products in a longitudinal path, communicates with a reorienting member for receiving a first group of products from the approach conveyor and disposing them in end-for-end reversed position relative to incoming products

on the approach conveyor. Pusher mechanism is provided for selectively, transversely pushing one or more additional

as steel chains, plastic chains, cables, etc., which offers stiffness in bending and, due to a unique design and standardization of parts such as guides, locating pins, conveyor run sup-



products on the approach conveyor into abutting relation with the reoriented products to join with them in a common plane product.

3,739,903

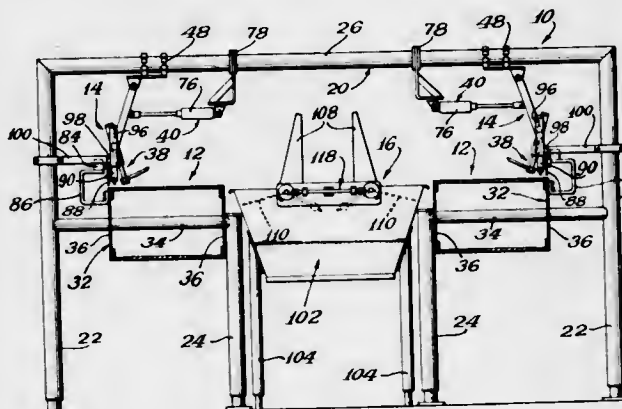
APPARATUS FOR DIVERTING ARTICLES FROM A PATH OF TRAVEL

Richard F. Doerfer, Waterloo; Homer N. Leymaster, Cedar Falls, and Richard R. Neebel, Waterloo, all of Iowa, assignors to Doerfer Corporation, Cedar Falls, Iowa
Filed Sept. 9, 1971, Ser. No. 178,915

Int. Cl. B65g 59/02

U.S. Cl. 198-35

13 Claims



Apparatus for diverting severed articles, such as spare ribs, carried on top of another article, such as a hog carcass. A conveyor belt carries the hog carcass along a path of travel with previously severed spare ribs resting thereon. A diverting device is positioned laterally of the spare ribs as the conveyor continuously carries the spare ribs and the hog carcass along their path of travel. An air cylinder is operatively connected to the diverting device. A limit switch detects when the leading edge of the hog carcass and spare ribs are in such a position that the diverting apparatus is opposite the spare ribs, and then activates the air cylinder to move the diverting means to engage and transversely divert the spare ribs from the conveyor and from the hog carcass. Preferably, a holding device bears down on the fat back portion to hold the entire hog carcass, including the belly and fat back portions, from lateral movement on the conveyor during the diversion of the spare ribs therefrom. Means are also provided for receiving the ejected spare ribs.

3,739,904

MODULAR CONVEYOR SUPPORT ASSEMBLY

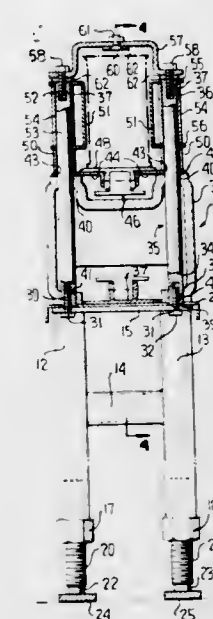
Robert F. Windstrup, Chicago, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Oct. 20, 1971, Ser. No. 190,721
Int. Cl. B65g 15/60

U.S. Cl. 198-204

27 Claims

This disclosure relates to a modular conveyor support assembly adapted for use with different types of conveyors, such



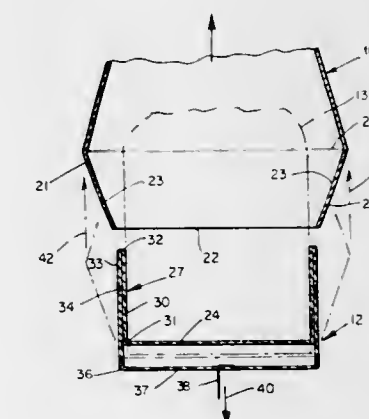
3,739,905

CONNECTION DEVICE FOR CONTAINERS AND THE LIKE

Ward, James S., 1902-A Plymouth St., Philadelphia, Pa.
Filed Aug. 5, 1971, Ser. No. 169,324
Int. Cl. B65d 13/00, 85/00

U.S. Cl. 206-46 FR

20 Claims



A connection device is provided, carried by one member, such that, upon insertion into an opening of another member, the device expands outwardly such that it is wedged against extraction, but with the device being adapted such that, upon actuation of a release member, a transverse size reduction is effected, permitting removal of the one member from the opening, with the connection device also passing through the opening of the other member, along with the one member. Particularly, a closure for containers is provided, with the closure having side portions of folded link-like construction, adapted, when inserted into the container opening, for transverse or lateral expansion, to wedge against a diverging opening wall.

3,739,906

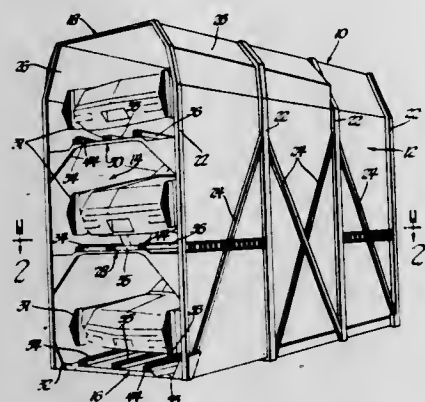
VEHICLE POSITIONING AND RESTRAINT APPARATUS
Walter Cwycyshyn, Detroit, and Elwyn L. Kitchen, Jr., Troy, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 8, 1971, Ser. No. 187,625

Int. Cl. B60p 7/08; B61d 45/00; B65d 85/62

U.S. Cl. 206-65 R

3 Claims



A vehicle positioning and restraint apparatus having a latching mechanism and parallel guide rails which slidably receive tie-down members attached to the underside of a vehicle for holding the vehicle in position during shipment by a carrier.

3,739,907

AGRICULTURAL MACHINE

John Kilgour, Gravenhurst; Peter Charles John Payne, Clophill; John Stewart Reid, Billericay, and Erice George Everett, Chelmsford, all of England, assignors to Rotary Hoes Limited, West Horndon, Essex and The Governors of the National College of Agriculture Engineering, Silsoe, Bedfordshire, England

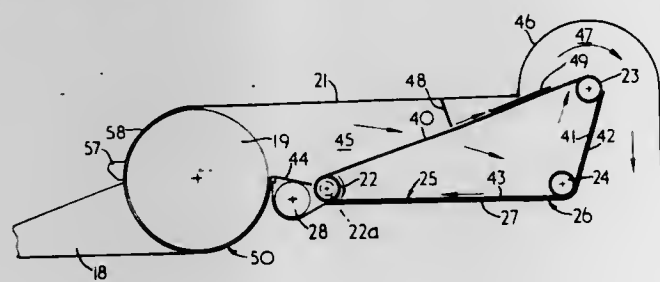
Filed May 14, 1971, Ser. No. 143,411

Claims priority, application Great Britain, May 21, 1970, 2,450/70

Int. Cl. B07b 9/00

U.S. Cl. 209-26

3 Claims



A combined threshing and harvesting machine, particularly for rice, has a separator for separating grain from waste. The separator includes an endless movable screen to which the grain and waste are carried in a stream of air. The waste is carried from the separator in a stream of air and the screen conveys the grain away for discharge from the separator.

3,739,908

TESTING APPARATUS AND METHOD FOR SCREW-LIKE ITEMS

James C. Gunther, Greensburg, Pa., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Nov. 16, 1971, Ser. No. 199,242

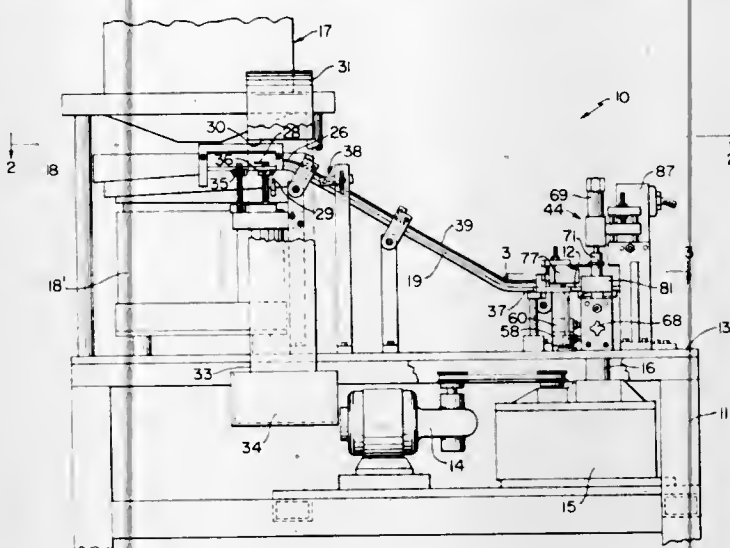
Int. Cl. B07c 5/06

U.S. Cl. 209-75

16 Claims

Apparatus for automatically and serially testing screw or rivet items each having a head and a shank portion, the apparatus having a rotatable table carried by a frame for serially moving the items through a plurality of testing stations of the

apparatus. A plurality of testing devices are carried by the frame so as to be located adjacent the table and respectively at the stations to test the items as the table moves the items



respectively to the stations where the devices are located. One of the devices has means for testing for maximum overall length of the items. Another of the devices has means for testing for minimum overall length of the items.

3,739,909

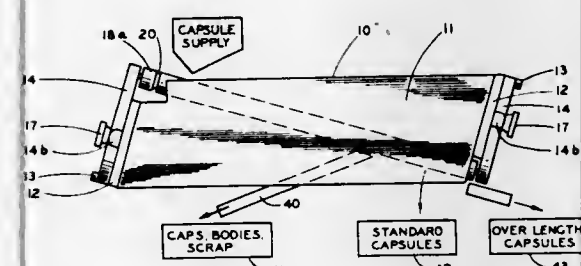
CAPSULE HANDLING APPARATUS AND METHOD
Carl C. Garland; Edmund J. Kwarsick, both of Detroit, and Oscar B. Noren, Grosse Pointe Farms, all of Mich., assignors to Parke, Davis & Company, Detroit, Mich.

Filed Oct. 6, 1971, Ser. No. 186,972

Int. Cl. B07b 13/04

U.S. Cl. 209-90

7 Claims



Apparatus and means are provided for handling articles, particularly tubular, cylindrical or elongated articles such as pharmaceutical capsules and the like, comprising an inclined slide or trough formed by trough-defining surfaces including the circumferential surfaces of rotating roll means adapted to move the articles lengthwise in single file down the trough and, if desired, for rectification and/or for gravity-sorting with respect to width and/or length size at one or more points along the trough. The apparatus can be used for any of various operational steps or combinations of steps such as conveying, sorting, rectifying, etc.

3,739,910

VORTEX CLASSIFIER

David G. Wilson, Cambridge, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Mar. 4, 1971, Ser. No. 120,856

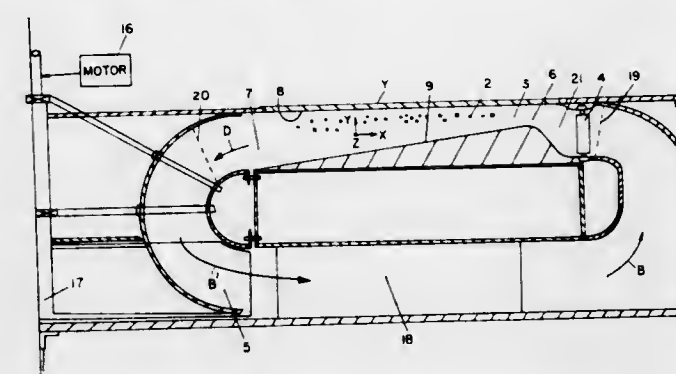
Int. Cl. B04c 1/00

U.S. Cl. 209-144

12 Claims

A vortex classifier for classifying particles that differ from one another in at least one of shape, mass or density. The classifier contains a circular vortex chamber wherein a fluid is introduced at the periphery to flow in a generally tangential direction. The fluid spirals inward toward the center of the circular chamber and out. The cross dimensions of the chamber (i.e., the thickness of the chamber) varies from small to large

from the periphery toward the center, respectively, the chamber volume being thereby controlled to control the radial component of the fluid velocity thereof at radially displaced



regions and, in turn, to control the characteristics of particles which tend to seek and remain traveling in stable circular paths at such regions.

3,739,911

POOL-LESS AUGER-SEPARATOR FOR MATERIALS OF DIFFERING SPECIFIC GRAVITIES

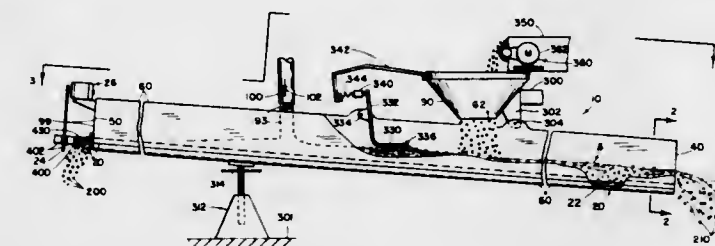
William D. Patch, c/o Bill's Coal, Inc., Welch, Okla.

Continuation-in-part of Ser. No. 78,256, Oct. 5, 1970, abandoned. This application Dec. 14, 1970, Ser. No. 97,837

Int. Cl. B03b 3/30

U.S. Cl. 209-460

10 Claims



A machine for separating pieces of a heavier substance from pieces of a lighter substance both of which will sink in water, comprising an upwardly inclined trough having in it an auger upheld by the trough itself for carrying the pieces of heavier substance upwardly while the pieces of lighter substance which can be as large as lump coal are pushed by the force of turbulent, pool-less, free-flowing water out of an open lower end of the trough closely adjacent to the upper side of the auger.

3,739,912

SCREENING AND AERATING CONCENTRATOR

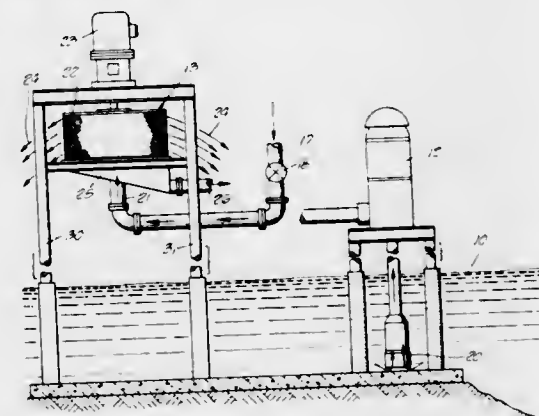
Robert P. Miller, Jr., Pasadena, Calif., assignor to Sweco, Inc., Los Angeles, Calif.

Filed May 6, 1971, Ser. No. 140,916

Int. Cl. B01d 33/02

U.S. Cl. 210-63

11 Claims



There is disclosed herein a method and system of screening and simultaneously aerating wastewater, such as storm water

overflow containing untreated sewage. The method involves one or more high-rate rotating screen concentrators wherein the influent is fed to the interior of a generally cylindrical, rapidly rotating screen. The concentrator is constructed to permit dispersion and atomization of effluent for increasing exposed fluid surface area and for improving contact thereof with air to increase the dissolved and/or entrained oxygen in the effluent. This may be accomplished by allowing a relatively unobstructed fall of the effluent out-wardly into a container, storage tank, treatment or storage lagoon or the like. The dissolved oxygen aids aerobic digestion and the entrained oxygen aids in frothing of the effluent for subsequent floatation and separation of fine solids and oils. The concentrated material which does not pass through the screen may be piped to a treatment facility.

3,739,913

DEVICE FOR FENCING AND ABSORBING CONTAMINATING OIL SPILLS ON WATER

Theodore Oscar Bogosian, Somerville, N.J., assignor to Johns-Manville Corporation, New York, N.Y.

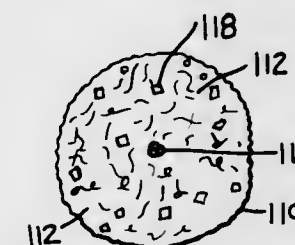
Continuation-in-part of Ser. No. 805,465, March 10, 1969, abandoned, which is a continuation-in-part of Ser. No. 748,977, July 31, 1968, abandoned. This application July 16, 1970, Ser. No. 55,338

Int. Cl. E02b 15/04

U.S. Cl. 210-242

9 Claims

Int. Cl. E02b 15/04



An elongate body of oil absorbing material and flotation material including longitudinal reinforcing or strengthening means whereby a plurality of bodies can be linearly disposed in end-to-end relationship for temporarily fencing oil spills on water for retention and absorption of the oil.

The body contents comprise oil absorbing fibers — natural or synthetic or combinations thereof — and may include a flotation material interspersed therewith to aid buoyancy of the body even after saturation of the fibers by oil.

3,739,914

SELF-CLEANING FILTER ELEMENTS

Samuel Georges Moatti, 17 rue Gutenberg, 92 Boulogne, France

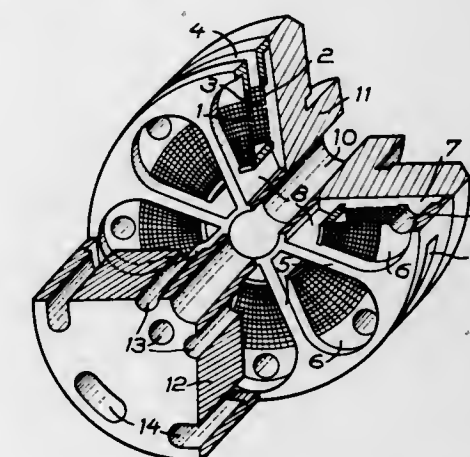
Filed July 22, 1971, Ser. No. 165,107

Claims priority, application France, Aug. 27, 1970, 7031389

Int. Cl. B01d 29/38, 25/32

U.S. Cl. 210-333

7 Claims



A filtering element for a self-cleaning filter in the form of a disc having a chamber made in its thickness and limited by two

filtering gauzes or the like disposed parallel to the plane of the disc, wherein separate chambers are arranged on the outside of the gauzes, one chamber on one side of a gauze communicating with the corresponding chamber on the side of the other gauze by two transverse conduits, whilst the chamber or chambers between the gauzes communicate with the outside of the disc by radial conduits.

3,739,915

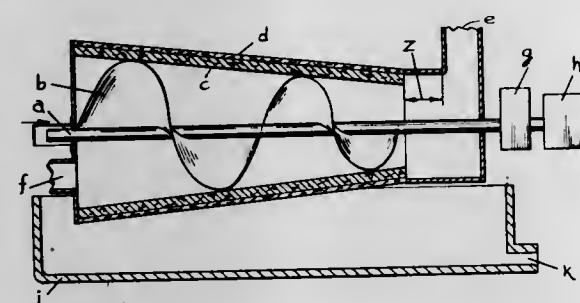
INTERNAL PRESSURE PRECOAT FILTER

Edward C. Kehoe, deceased, late of Essex County, N.J., and Jean West Kehoe, executrix, 11 Hillcrest Place, North Caldwell, N.J., assignors to Johns-Manville Products Corporation, New York, N.Y.

Filed Oct. 2, 1970, Ser. No. 77,569

Int. Cl. B01d 33/02

U.S. Cl. 210-394



In a preferred embodiment, a rotary filter or dewatering device having a conical shape in which the precoat is on the inside of the conical filter, and in which pressure within the cone and/or vacuum on the outside surface of the conical filter creates a differential pressure causing a feed within the conical filter to be filtered through the filter, and the filtrate to be collected outside of the conical filter. A revolving knife having a spiral contour and being concentric to the conical filter, fractionally advances axially into the conical filter at a predetermined rate to cut away a surface layer of the precoat, the spiral contour serving also to force the sludge of filtered solids to an outlet from said conical filter. The invention also includes the process of precoating, filtering under a differential pressure, and cutting away the precoat from within the conical filter.

3,739,916

FILTER ELEMENT FOR FILTERING OF LIQUIDS

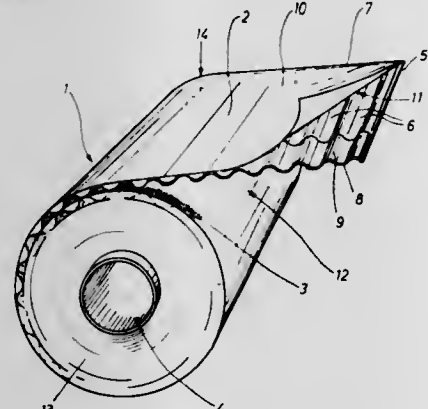
Fritz Cub, Schwabach; Paul Kleinert, Heinz Lammermann, both of Nuernberg, and Hans Schacht, Stuttgart, all of Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany

Filed May 4, 1971, Ser. No. 140,059

Claims priority, application Germany, Aug. 8, 1970, P 20 39 482.5

Int. Cl. G01d 27/06

U.S. Cl. 210-493



A coiled strip of filter material includes a pair of superimposed longitudinally coextensive strip portions each having a

longitudinally extending free edge and a transversely spaced connected edge connected with the respectively other strip portion. A plurality of at least substantially parallel transverse corrugations is provided in only one of these strip portions and the convolutions of the coiled strip define with one another two spirally intercalated internal filter chambers one of which is open at one axial end of the coil and the other of which is open at the other axial end of the coil.

3,739,917

TAPE ROLLS HOLDING AND DISPLAY BOX

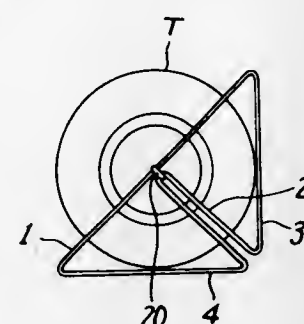
Seichi Okutani, Osaka, Japan, assignor to Nitto Electric Industrial Co., Ltd., Shimohozumi, Ibaraki, Japan

Division of Ser. No. 874,652, Nov. 6, 1969, Pat. No. 3,623,401.

This application June 25, 1971, Ser. No. 156,719

Int. Cl. A47f 5/11

6 Claims U.S. Cl. 211-40



A selectively openable and closeable display box or carton for holding a plurality of rolls of tape for display. The carton has a front panel with a plurality of window openings therein and a back panel provided with a corresponding plurality of window openings. A fold line is provided along the longitudinal center portion of each of the front and back panels across the series of window openings. Side walls connect the opposite ends of the front and back panels along integral corner folds of the carton. The front and back panels are adapted to fold inwardly along their respective longitudinal fold lines, whereby they are moved toward each other and releasably held with their fold lines adjacent one another so that rolls of tape can be captively held in the opposed window openings.

The principal form of this application, however, is a modified one adapted primarily for display use only after merchandise shipping, wherein no end panels are used, and one of said windowed panels is disposed in a completely folded-upon-itself condition along the longitudinal center line so that the opposite windowed panel is fully extended to become a hypotenuse of a triangular shaped cross-section formed in cooperation with the previously generally opposed, non-windowed side panels, which subsequently for this form are disposed at right angles to one another. The longitudinal fold line of the windowed panel, which is completely folded upon itself, engages the corresponding fold line of the other windowed panel to help hold it in the hypotenuse extended form, and in such latter condition the rolls of tape displayed in the carton are readily removable from or replaceable within the windowed openings of the fully extended hypotenuse forming windowed panel.

3,739,918

CLOTH BOLT HOLDER

Oliver Dean Kreitzburg, Glencoe, Mo., assignor to Fabricmaster, Inc., St. Louis, Mo.

Filed Aug. 23, 1971, Ser. No. 173,858

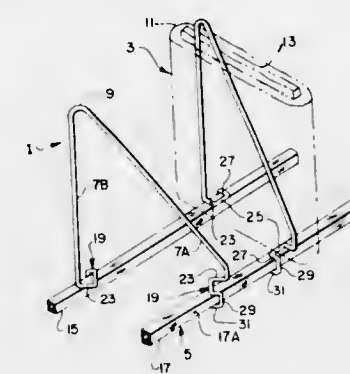
Int. Cl. A47f 7/18

U.S. Cl. 211-44

4 Claims

A holder for holding a bolt of cloth in an upright display position on a horizontal support, the holder being formed of a single length of relatively stiff, resilient wire bent on itself to form an acute angle whereby the sides of the angle constitute a pair of legs which lie in the same plane and which are adapted

to be inserted endwise into a bolt of cloth between the layers of cloth and the mandrel for supporting the bolt. These legs have means integrally formed on their free ends engageable with the support for holding the holder on the support, for



preventing tipping of the holder laterally with respect to the plane of the legs, for permitting angling of the holder relative to the support, and for permitting sliding movement of the holder lengthwise of the support.

3,739,919

DISPLAY DEVICE APERTURED FOR HOLDING SUPPORT HOOKS

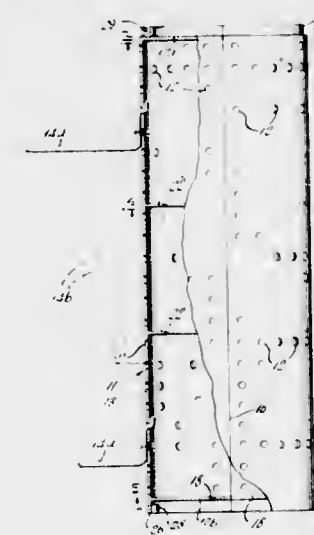
Arthur Hochman, 555 Elizabeth Avenue, Newark, N.J.

Filed July 2, 1971, Ser. No. 159,400

Int. Cl. A47f 5/10, 7/00

U.S. Cl. 211-57

4 Claims



A display device consisting of an elongated structure having apertures for the reception and retention of support hooks is manufactured as a molded one-piece element having two complementary sections which can be locked together. The design is such that the two portions are joined along one edge of each in a living hinge. The elongated structure can be stacked to increase the display area.

3,739,920

FIXTURE FOR SUPPORTING ROTARY DISPLAY RACKS

Bernard S. Coblenz, Paxton, and Vincent F. White, Lunenburg, both of Mass., assignors to Foster Grant Co., Inc., Leominster, Mass.

Filed Mar. 15, 1971, Ser. No. 124,144

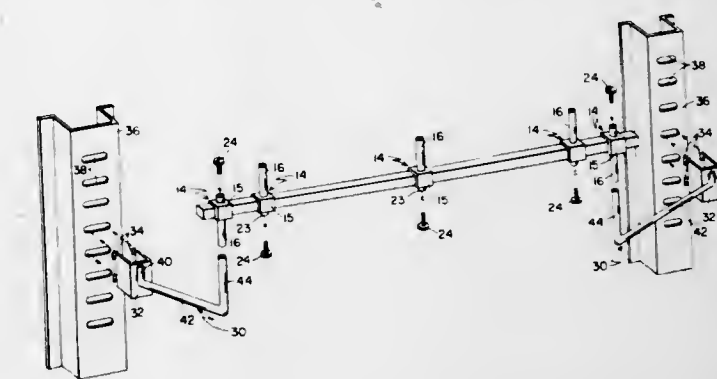
Int. Cl. A41f 5/02; A47k 10/04

U.S. Cl. 211-123

6 Claims

A fixture for supporting as many as three or more vertical rotary display racks. The fixture generally includes a pair of floor or counter, or wall supported base members, a substantially horizontal bar mounted on the base members and a plurality of specially constructed members slidably mounted on the support bar, each of which rotatably supports a vertical shaft of a rotary display rack. There is provided at each end of

the horizontal support bar a pair of members, preferably identical to the vertical shaft supporting members, but



mounted in inverted positions on the horizontal bar to mount the bar on its base members.

3,739,921

FIXTURE FOR HEAT TREATING FURNACES

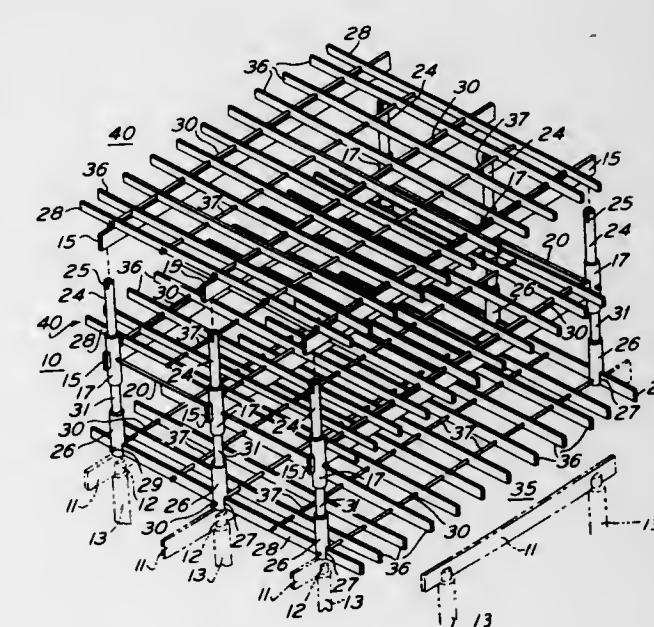
Charles J. Schmidt, Philadelphia, Pa., assignor to Abar Corporation, Feasterville, Pa.

Filed Oct. 1, 1971, Ser. No. 185,634

Int. Cl. A47f 5/10; F16b 7/00

U.S. Cl. 211-177

8 Claims



A fixture for heat treating furnaces is disclosed having a frame composed of horizontal round rods and horizontal rectangular bars and vertical rods with vertical tubular connector units having transverse slots through which the horizontal bars extend and openings normal to the bars through which the horizontal rods extend, the vertical rods being slotted at their ends to engage the horizontal bars. Wires are employed to hold the structure in assembled relation. Horizontally disposed work piece racks are supported by the horizontal bars. The components of the frames and racks are preferably of low specific heat material, and preferably of molybdenum but may be of tungsten, tantalum, columbium and their alloys, or of graphite.

3,739,922

SWAY-ARREST SYSTEM IMPROVEMENT

Shuji Hasegawa, Tai 6914-2, and Hideaki Kawata, Tsuchigahara 377, both of Tamano, Japan

Filed Mar. 10, 1972, Ser. No. 233,586

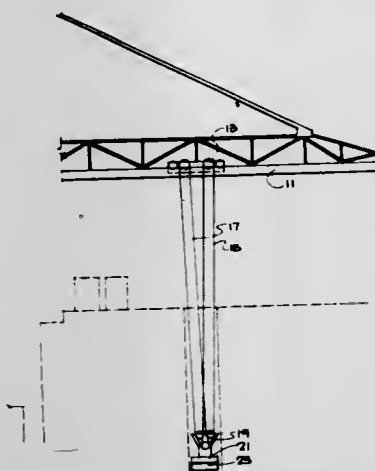
Int. Cl. B66c 19/00

U.S. Cl. 212-125

6 Claims

A sway arrest system for arresting sway of a suspended load relative to the lifting platform of a crane having a trolley movable along the gantry of the crane and having reeving ex-

tending to a load engaging means having at least one pair of opposed sheave nests mounted therein. The load sheaves being arrayed so that the reeving passing over each of the



nests of sheaves is acted upon by the spaced sheaves to produce compensating forces to stabilize the load and to arrest sway thereof.

3,739,923

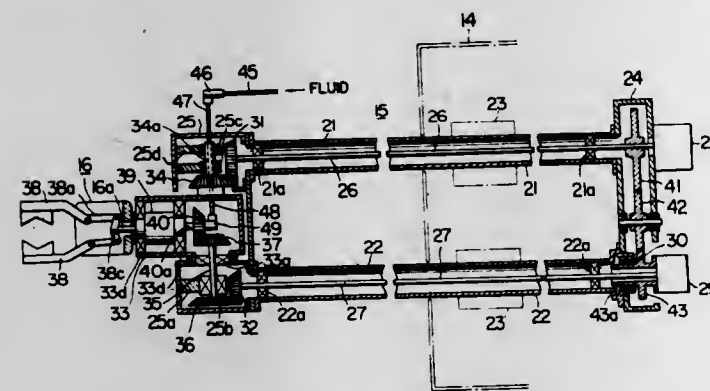
MANIPULATOR

Hisao Totsuka, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki-shi, Japan
Filed Feb. 17, 1971, Ser. No. 116,061

Claims priority, application Japan, Feb. 20, 1970, 45/14212
Int. Cl. B25j 9/00

U.S. Cl. 214-1 BC

5 Claims



In a manipulator, a first drive shaft extends from a first actuator means to a first gear case through one of two parallel cylinders of a manipulator arm and is coupled to a second gear case rockably supported by the first gear case via a pair of bevel gears for causing a working head or "hand" of the manipulator arm to undergo a bending or wrist-flexing motion. A second drive shaft extends through the other cylinder from a second actuator means to the first gear case and is coupled to a power cylinder rotatably supported in the second gear case via pairs of bevel gears for causing the aforesaid working head to undergo a swivelling motion. There is further provided a third gear case in which are housed a train of gears for imparting the rotation of the first drive shaft to the entire unit of the second actuator means with which is locked the second drive shaft during operation of the first actuator means only.

3,739,924

APPARATUS FOR BUNDLING, TRANSPORTING, AND FEEDING SHEETS

Anton R. Stobb, R.D. 1, Pittstown, N.J.

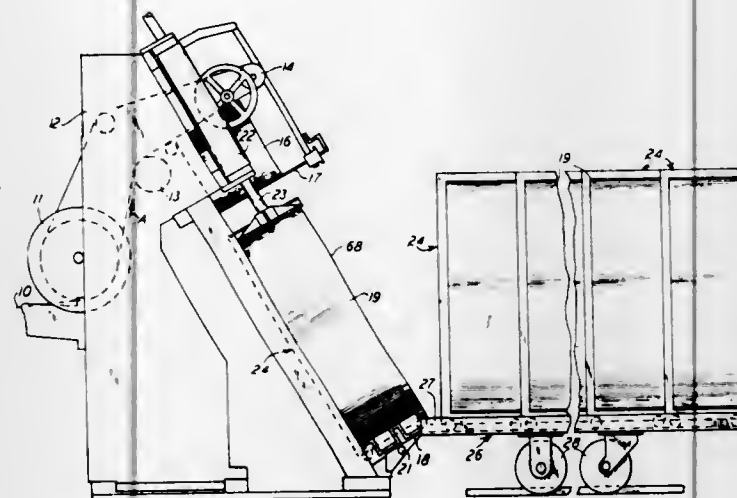
Filed July 2, 1971, Ser. No. 159,329
Int. Cl. B65g 57/03, 59/08

U.S. Cl. 214-6 H

16 Claims

Apparatus for bundling, transporting, and feeding sheets of paper which are preferably in a folded or signature form to be assembled and form a magazine, book, or the like. The sheets

are handled by a delivery device, such as a folding machine, and are placed into discrete stacks which are subjected to a compressing device. The stack is formed at an inclined angle and a clamp is applied to the compressed stack. The clamp is shown to have rollers which permit the clamped stack to be wheeled to a transport device such as a cart which is shown. The cart with a plurality of the clamped stacks is then moved to a feeding device which receives the clamped stack in an



inclined attitude, and the clamp is removed from the sheets and the sheets are then singly fed into the feeding device which causes the sheets to be collated into an assembled magazine or book. The clamp is shown to be of two extendable and contractable pieces which have a self-locking device for holding the clamp in the contracted position when it is clamping the sheets, and the locking device is releasable when the stack is released in the feeding device.

3,739,925

CARD STACKING MECHANISM

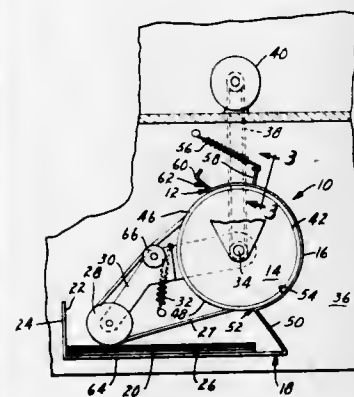
Lloyd W. Martin, Minneapolis, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jan. 12, 1972, Ser. No. 217,125

Int. Cl. B65h 29/38

U.S. Cl. 214-7

5 Claims



A mechanism for stacking cards including a fixed guide plate partially around the periphery of a rotating drum for directing cards fed between the guide plate and the drum about the drum into a receiving tray. The mechanism includes a belt extending around the drum and around a pulley on an arm biased to urge the belt portion on the pulley toward the tray to propel cards discharged from the guide plate to a stacked condition against an end wall of the tray.

3,739,926

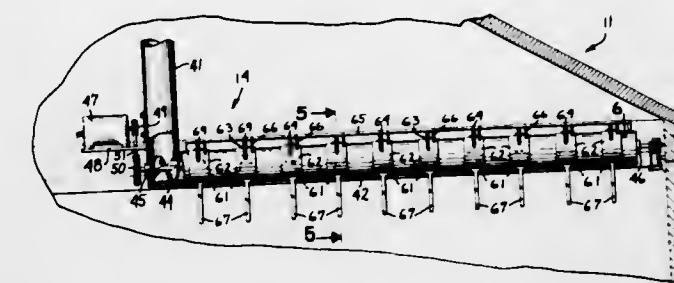
GRAIN DRYING AND STORAGE APPARATUS

Harlan J. Easton, Route 3-Box 607, Blooming Prairie, Minn.
Division of Ser. No. 849,941, Aug. 12, 1969, Pat. No.

3,624,921. This application May 20, 1971, Ser. No. 145,494
Int. Cl. B65g 65/32

U.S. Cl. 214-17 CA

11 Claims



A grain drying and storage bin is disclosed that receives and evenly distributes grain over an upper floor grid where the grain is heated and dried. After drying is completed, the grain is transferred to a lower cooling floor by actuation of a linkage mechanism that simultaneously opens a plurality of openings in the upper grid.

3,739,927

MECHANISM FOR REFUSE COLLECTION VEHICLES

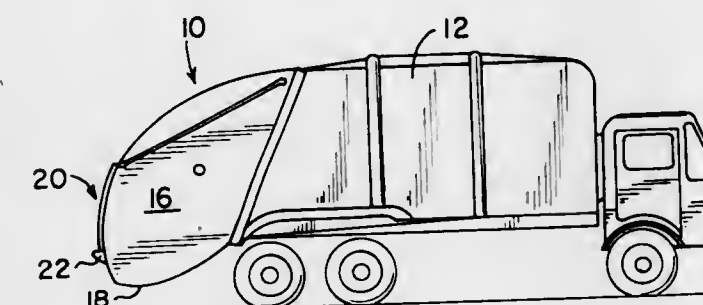
Cyril R. Gollnick, Oshkosh, Wis., assignor to Leach Company, Oshkosh, Wis.

Filed Sept. 10, 1971, Ser. No. 179,506

Int. Cl. B65f 3/00

U.S. Cl. 214-83.3

8 Claims



An improved mechanism for refuse collection vehicles of the type which include a hopper for receiving loose material and a packer plate and operating mechanism therefor disposed within the hopper. The improved device includes a packer plate mounted for pivotal movement at one end thereof, having a combination guide and pivot bar extending transversely thereof generally centrally of the plate, guide ways formed in the side walls of the hopper for receiving the end portions of the bar, and an operative connection between the bar and the piston and cylinder for applying movement to the packing plate. With the improved mechanism, there is no interference between those parts of the mechanism which impart movement to the plate and the parts which are used to position the plate with respect to guideways extending generally parallel to the bottom surface of the hopper. In operation, the plate is moved to the rear of the hopper with the plate edge being disposed adjacent the bottom wall, and thereafter, the plate is retracted while being guided so as to maintain the plate edge adjacent the bottom wall as the plate advances and gradually undergoes a pivoting motion. Upon completion of the packing stroke, the plate guide is released from the guideways for repositioning to repeat the packing cycle.

3,739,928

THREE-POINT HITCH LOG SKIDDING ATTACHMENT

Louis E. Randall, Box 117, Mio, Mich.

Filed Mar. 18, 1971, Ser. No. 125,587

Int. Cl. B60p 1/00

U.S. Cl. 214-85.5

20 Claims



There is herein disclosed a new and novel device comprising, in combination, a tractor with a three-point hitch assembly mounted on the rear end thereof, a frame connected to the hitch assembly, an elevated roller assembly mounted on the frame having a fairlead roller rotatable about a horizontal axis, and a power operated winch for pulling a cable over the fairlead for hauling a timber load to the vehicle and subsequently towing the load during movement of the tractor.

3,739,929

STORAGE VEHICLE WITH BIN DUMPER

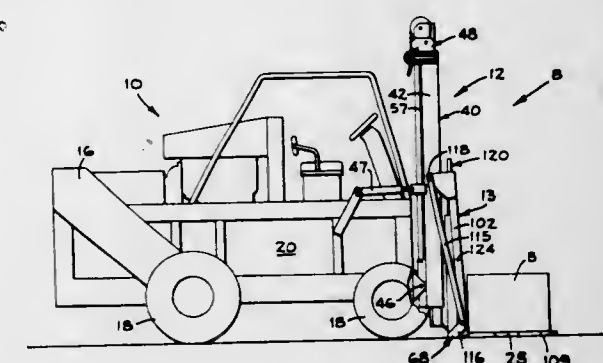
Leon R. McRobert, Ocoee, Fla., assignor to FMC Corporation, San Jose, Calif.

Filed Feb. 22, 1972, Ser. No. 228,023

Int. Cl. B60p 1/46

U.S. Cl. 214-313

4 Claims



A mobile vehicle having a container storage tunnel for storing a plurality of empty or filled containers and transporting them between a pick-up area and a dumping station. The vehicle includes a fork lift unit having a dumping mechanism with a bin clamp thereon for elevating and dumping a product from the bins or containers. The fork lift unit may lift the containers into positions to be stored in the tunnel, to be loaded on a flat bed truck to be dumped. When moved to the dumping position, the dumping mechanism tilts the containers in excess of 90° about pivot points adjacent the ends of the fork lift tines, and the clamp mechanism is activated to positively lock the container to the dumping mechanism during this tilting operation. The empty containers may then be lowered directly onto the ground or the flat bed of a truck, or may be lowered upon a carriage which moves at least several containers into the storage tunnel.

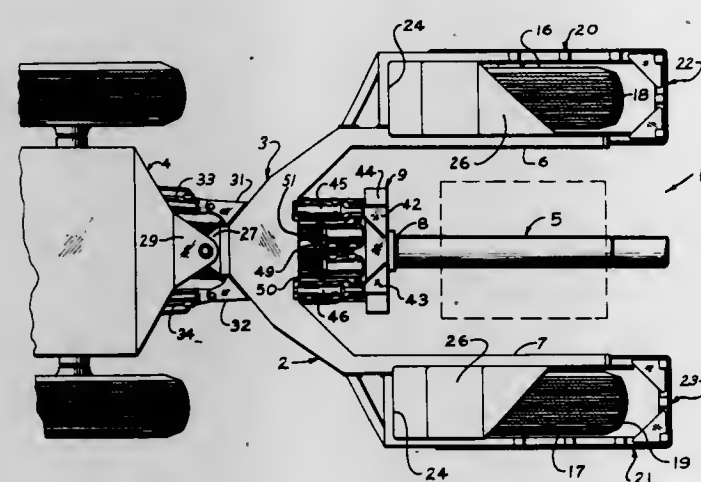
3,739,930 COIL TRANSPORTING STRUCTURE

Thomas Lee Richard Hardwick, Route 3, Box 105, Olathe, Kans.

Filed July 29, 1971, Ser. No. 167,098
Int. Cl. B66c 23/00

U.S. Cl. 214—390

9 Claims



A mobile structure for transporting coils of metal strip, wire, and the like, includes a generally U-shaped mobile frame having a forward end portion hinged to a prime mover and transversely spaced side members extending rearwardly from the forward end portion and an elongated ram positioned between the transversely spaced side members of the frame and having one end mounted on a ram support operatively connected to the frame for movement of the ram between a retracted carrying position and extended loading and unloading positions.

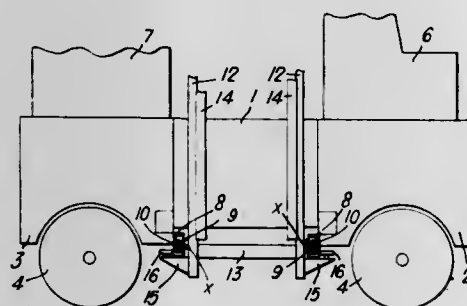
3,739,931 SIDE LOADERS

George Neville Bowman-Shaw, Toddington, England, assignor to Lancer Boss Limited, Leighton Buzzard, Bedfordshire, England

Filed Feb. 1, 1971, Ser. No. 111,587
Int. Cl. B66f 9/10

U.S. Cl. 214—670

7 Claims



A side loader vehicle having a transverse recess extending across the vehicle from one open side between front and rear body portions, a load carrying mast mounted on means movable along guides at each side of the recess, a tie member e.g. a roller, rotatably mounted with respect to the mast and in rolling engagement with a surface extending along each side of the recess on the opposite side of the guide to the mast to prevent the front and rear body portions splaying longitudinally of the recess at the recess.

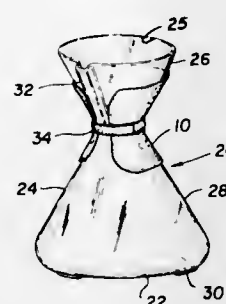
3,739,932 PROTECTIVE HOLDER

Virginia Westover, Kentfield, Calif., assignor to Chemex Corporation, New York, N.Y.

Filed Jan. 3, 1972, Ser. No. 214,672
Int. Cl. B65d 23/10

U.S. Cl. 215—100 A

8 Claims



A protective holder adapted to be positioned proximate the circular neck of a filter-type coffee maker having bowed-in side walls. The holder includes a pair of planar portions each having a concave inner margin. These two portions are joined adjacent their respective concave inner margins and mating fasteners are fastened to these two portions so that the holder can be secured in position about the neck of the coffee maker. The radius of curvature of the joined concave inner margins is selectively chosen to be substantially larger than the radius of curvature of the circular neck of the coffee maker so that when the holder is fitted about the neck of the coffee maker, the two portions of the holder will automatically be displaced from their storage position wherein they are substantially parallel, to their use position wherein they will engage the bowed-in side walls of the coffee maker proximate the neck thereof.

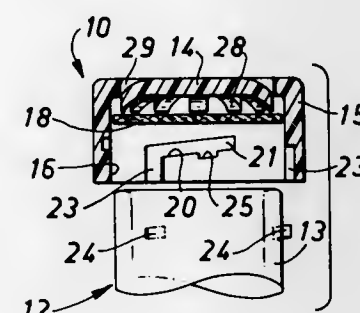
3,739,933 LIQUID-PROOF SAFETY CLOSURE

Ben Degaetano, 1 Megan Lane, Armonk, N.Y.

Filed Mar. 22, 1971, Ser. No. 126,443
Int. Cl. B65d 43/02

U.S. Cl. 215—9

12 Claims



A safety closure cap/container combination includes cooperating lugs and cam surfaces on the outer surface of the container neck and the inner surface of the side wall of the cap to provide relative axial movement of the cap toward the container on rotation of the cap in a tightening direction and relative separation of the cap and the container on rotation of the cap in the opposite direction. Detent notches in the cam surfaces serve to retain the cap in its closed position and to require both axial movement and rotation of the cap for its removal from the container. A cap liner is provided within the cap for sealing engagement with the end of the container neck. A set of fingers is integrally formed with the end wall of the cap to press against the cap liner and to be flexed upwardly on tightening of the cap on the container so as in turn to maintain the liner in sealing engagement with the end of the container neck. Aligned openings are provided in the end wall of the cap to facilitate manufacture.

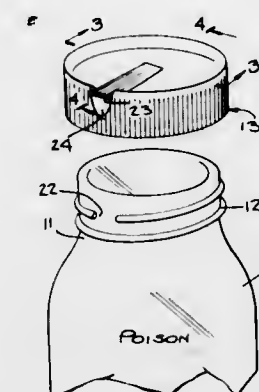
3,739,934 TAMPER-PROOF BOTTLE CLOSURE

Leonard Bruno, Farmingdale, N.Y., assignor to Shore Plastics, Inc., Freeport, N.Y.

Filed Nov. 8, 1971, Ser. No. 196,551
Int. Cl. B65d 55/02

U.S. Cl. 215—9

5 Claims



A tamper-proof bottle closure, the bottle being provided with a neck or other outlet having an external threading. Cooperating with the neck is an internally threaded screw cap, the cap having a radial slot occupied by a flexible strip, one end of which is anchored at the center of the cap, the other end having a dependent latching tooth which normally lies against the inner surface of the cap within a gap in the internal threading. The external threading on the neck is provided with a breach within which the latching tooth lies when the cap is fully closed, whereby unscrewing of the cap is prevented by the tooth. However, by lifting the strip to raise the tooth above the breach and simultaneously turning the cap, one may unscrew the cap from the bottle to obtain access to its contents.

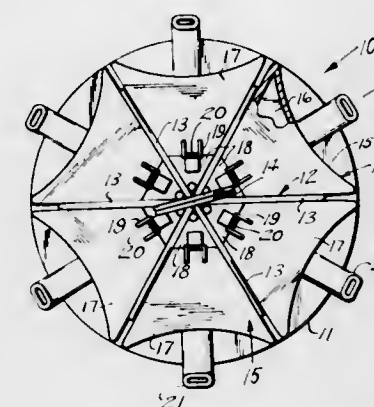
3,739,935 COMBINED DISPENSERS AND CANISTERS

Gordon J. Cairns, 1301 N.E. 154th St., and Marquerite D. Harrison, 19430 N.E. 22nd Road, both of Miami Beach, Fla.

Filed Mar. 20, 1972, Ser. No. 236,251
Int. Cl. B65d 21/02

U.S. Cl. 220—23.4

1 Claim



A device for collectively storing dispensers and canisters. This device includes a circular base member from which extends a wire frame having handle means for lifting the structure. Slidably positioned upon the base is a multiple number of canisters or the like which are automatically aligned by the radial positions of the arms of the frame.

3,739,936 POUR HOLE CLOSURE FOR FOAM MOLD

Paul W. Jones, Jr., Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

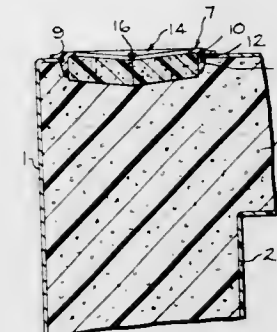
Filed Sept. 17, 1971, Ser. No. 181,303
Int. Cl. B65d 49/02; F16k 21/04

U.S. Cl. 220—86 R

5 Claims

A closure for closing the pour hole of a foam mold cavity such as a refrigerator cabinet comprises a body member hav-

ing peripheral means for sealingly engaging the edge of the pour hole and a central sheet-like portion covering the pour hole and having a plurality of slits therein intersecting at substantially the center thereof to define a plurality of resilient flaps. A liner of flexible foam resin is secured to the mold side of the central portion and is divided into a plurality of sections by slits intersecting substantially at the point of intersection of



the slits in the central portion. The sections are secured to the flaps by a flexible, elastic adhesive so that both the flaps and the sections can be deformed to allow insertion of a conduit through the closure. The flaps and the sections secured thereto return to their normal positions after removal of the conduit in which position the liner sections deform under the pressure of the expanding foam and seal the slits therein.

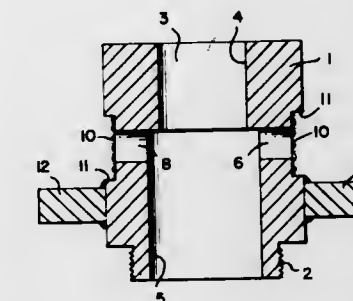
3,739,937 FLAMEPROOF DEVICE FOR INTRODUCTION OR REMOVAL OF FLUID CONTENTS OF A CONTAINER

Arthur Stock, Sunderland, England, assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Sept. 10, 1970, Ser. No. 71,045
Int. Cl. B65b 3/18; B67c 3/00

U.S. Cl. 220—86

6 Claims



The invention is concerned with a flameproof device, e.g., a fitting or attachment, in the form of a cap or plug for closing the aperture between a transfer pipe, such as a dip pipe, and the rim of an opening or fitting, which may simply be an oversized mouth of a container into which the transfer pipe is inserted.

3,739,938 NON-SPILL CUP

Nicolas S. Paz, 14165 East Road, Montrose, Mich.

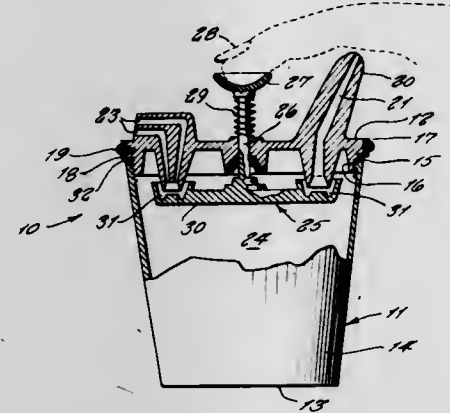
Filed May 20, 1971, Ser. No. 145,455
Int. Cl. B65d 25/40, 47/20

U.S. Cl. 220—90.4

1 Claim

A drinking vessel from which the contents will not spill out when the vessel is dropped and yet which permits a person to drink therefrom, the device comprising a cup with a remova-

ble cap placed thereupon, the cap including a pouring spout and an air vent for intake of air, and a manually depressible



plunger which supports a closure for sealing off the inner ends of the spout and the air vent.

3,739,939

LOCKING STACKABLE CONTAINER

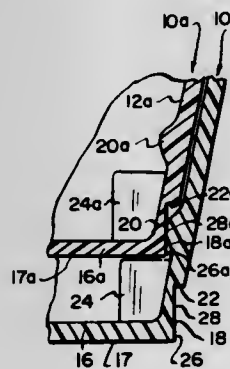
Elmer A. Koenig, St. Louis, Mo., assignor to Sherwood Medical Industries, Inc., St. Louis, Mo.

Filed Mar. 10, 1971, Ser. No. 122,758

Int. Cl. B65d 21/02

U.S. Cl. 220-97 C

6 Claims



A stackable container for medicaments having continuous side walls tapering downwardly from an open end toward a bottom surface, with the side walls integrally containing positive locking means, assuring that similar containers can be locked securely to each other with a predetermined amount of force, while simultaneously maintaining uniform spacing between the side walls and bottoms of the nested containers.

3,739,940

LONGITUDINAL STABILIZER TAB FOR BASKET-STYLE CARRIERS

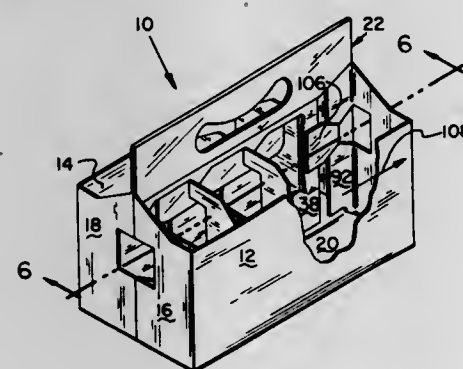
Glen R. Harrelson, Monroe, La., assignor to Olinkraft, Inc., West Monroe, La.

Filed Feb. 1, 1972, Ser. No. 222,616

Int. Cl. B65d 75/00

U.S. Cl. 220-113

2 Claims



An improved multicell basket-style carrier having at least one longitudinal stabilizer tab formed between the riser panels

of the carrier. The stabilizer tab rigidly fastens the riser panels together preventing longitudinal movement of one of the riser panels whenever the carrier is formed and the bottom wall panel is locked in the open position.

3,739,941

ACTUATOR MEANS FOR USE WITH AEROSOL DISPENSERS

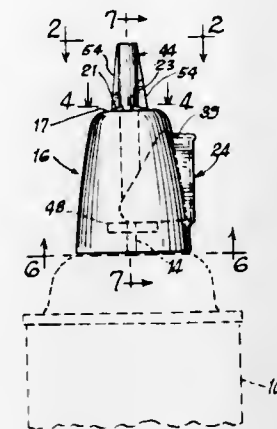
Efrem M. Ostrwosky, Highland Park, and William G. Crowle, Deerfield, both of Ill., assignors to Federal Tool & Plastics, a Division of UCA Corporation, Chicago, Ill.

Filed Apr. 26, 1971, Ser. No. 137,227

Int. Cl. B65d 83/14

U.S. Cl. 222-153

9 Claims



Actuator means adapted for securement to an aerosol container including a cap and a dispensing nozzle, with said cap having a lever integrally formed with said cap and so positioned relative to said cap that pivoting of said lever will cause it to operate the dispensing nozzle which is operatively connected to the valve stem of the aerosol unit to permit the contents of the aerosol container to be discharged therefrom, said nozzle having means cooperating with the cap to lock the nozzle against any movement relative to said cap to prevent the accidental movement of the valve stem and thereby prevent the accidental discharge of the aerosol contents.

3,739,942

DISPENSER HAVING A BIMETAL ACTUATED METERING VALVE ASSEMBLY

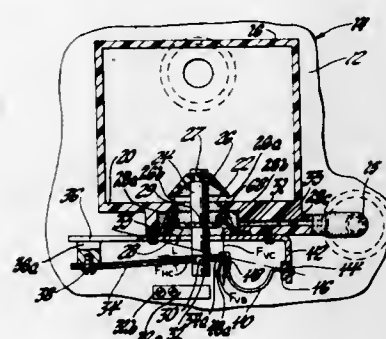
Robert L. Mercer, and Edward C. Simmons, both of Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Jan. 18, 1972, Ser. No. 218,706

Int. Cl. B67d 5/08

U.S. Cl. 222-54

2 Claims



In preferred form, a mechanically actuated dispenser assembly suitable for use with a domestic appliance such as a dishwasher discharging a metered quantity of flowable liquid or granular material from a reservoir in response to snap action of a cyclic heated bimetallic actuating spring member. A biasing means, i.e., a C-spring, normally positions a plunger actuated, dispensing valve in a closed position. A metering

valve is attached to the plunger and is normally biased to an open position connecting the reservoir with a metering chamber. The bimetallic actuating spring is electrically heated as desired creating a vertical force component of the bimetallic spring that eventually slightly exceeds a like force component of the biasing means snap moving the plunger downwardly shifting the dispensing valve open and discharging a metered quantity of material while simultaneously moving the metering valve closed. In the preferred form, a biasing C-spring is used and is moved to a stop position just short of an over-center position, assuring return movement of the dispensing valve closed and the metering valve open upon subsequent cooling of the bimetallic actuating spring.

3,739,943

INFUSION SYSTEM

Jack L. Wilhelmson, Fenton; Theodore E. Weichselbaum, St. Louis, and Vernon F. Braun, Berkely, all of Mo., assignors to Sherwood Medical Industries Inc., St. Louis, Mo.

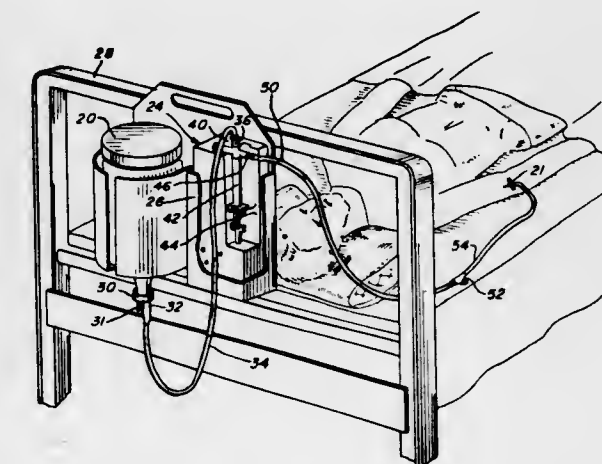
Continuation-in-part of Ser. No. 81,926, Oct. 19, 1970. This

application Feb. 4, 1971, Ser. No. 112,691

Int. Cl. B67d 5/08

U.S. Cl. 222-59

14 Claims



A portable infusion system uses a disposable piston-type syringe and a disposable two-way valve as a positive displacement pump. The syringe piston is reciprocally driven by a bidirectional DC motor under control of a battery powered circuit. Different selectable rates of pumping are maintained by controlling the width of bidirectional DC pulses coupled to the DC motor and by monitoring the motor back EMF during the off time of the pulses. Safety circuits protect against deleterious conditions such as the passage of an air bubble, an over-pressure condition, or an excess pumping rate as could be caused by a component failure.

3,739,944

AUTOMATIC PERIODICALLY ACTUATED SPRAY DISPENSER

Thomas Rogerson, Old Lyme, Conn., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 25, 1972, Ser. No. 256,733

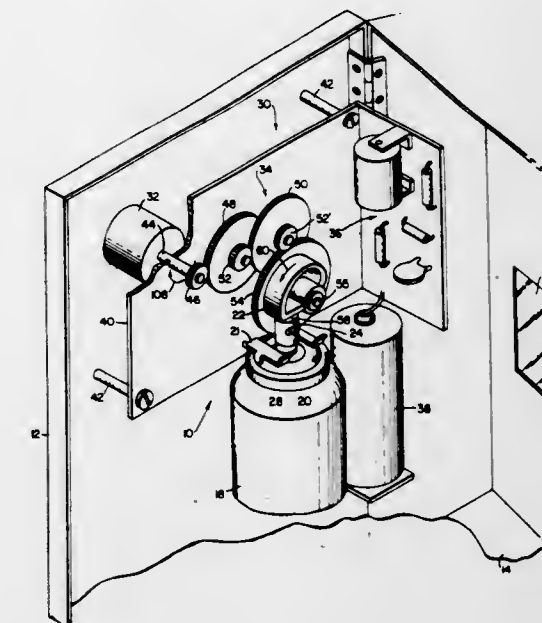
Int. Cl. B67d 5/08

U.S. Cl. 222-70

7 Claims

An apparatus for automatically and periodically discharging a metered quantity of spray from an aerosol container is described. A DC motor is directly coupled in positive relationship through a reduction gear train and a valve contacting element with a metering valve of an aerosol container. A timing circuit which couples a battery power source to the DC motor delivers periodic power pulses to energize the motor and actu-

ate the container valve. The spring return force in the valve returns the valve contacting element to its normal position at



the end of each power pulse without requiring a disconnection of the positively coupled DC motor.

3,739,945

MIXING VALVE FOR FLUID DISPENSING NOZZLE

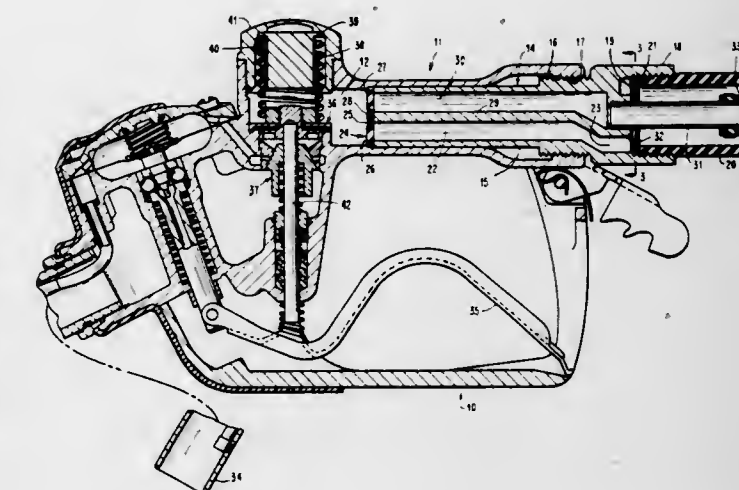
Glenn E. Moore, and Robert W. Guertin, both of Cincinnati, Ohio, assignors to Dover Corporation, New York, N.Y.

Filed May 17, 1971, Ser. No. 143,825

Int. Cl. B67d 5/04

U.S. Cl. 222-129

7 Claims



A fluid dispensing nozzle has two pressurized fluids supplied thereto through two separate passages extending through a member, which is supported in a passage in the nozzle body whereby the pressurized fluids mix within the body passage. The supported member has a valve supported at its end having the outlets of the passages with the valve having a separate portion controlling each of the passages. When there is flow through only one of the passages in the supported member, the portion of the valve cooperating therewith is moved to an open position by the fluid flow and the fluid pressure exerts a pressure on the portion of the valve cooperating with other passage to seal close said valve portion to insure that there is no leakage from the body passage into the passage in the member not having pressurized fluid supplied thereto.

3,739,946 COIN-FREED VENDING MACHINE

Mervyn Garnet Scholer, Killara, New South Wales, Australia, assignor to Cafe-Bar International Pty., Ltd., North Sydney, New South Wales, Australia

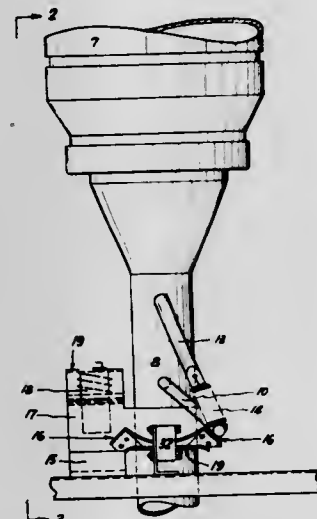
Filed June 15, 1971, Ser. No. 153,383

Claims priority, application Great Britain, June 23, 1970, 30,449/70

U.S. Cl. 222-2

Int. Cl. B67d 5/10

7 Claims



A beverage dispensing machine having a liquid dispenser and a plurality of solids dispensers. The dispensers are coin operated and auxiliary re-setting means puts a predetermined selection of the solids dispensers in an inoperative condition as a consequence of a predetermined number of operations of any one of the dispensers. A main re-setting means is associated with the remaining dispenser so that operation of the latter dispenser causes all solids dispensers not previously rendered inoperative to be inoperative.

3,739,947 STORING AND MIXING RECEPTACLE

Erwin Baumann, Nendeln, and Gerhard Beham, Letztstrasse 789, Vaduz, both of Liechtenstein

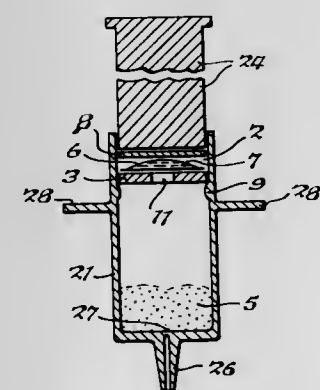
Filed July 27, 1970, Ser. No. 58,571

Claims priority, application Germany, Aug. 1, 1969, P 19 39 316.9

U.S. Cl. 222-136

Int. Cl. A61j 1/00

3 Claims



A storing and mixing receptacle including a container forming a first chamber at its lower end for initially storing a first ingredient, a first piston for separating the first chamber from a second chamber, a second piston movable in the second chamber and adapted to transfer a second ingredient from the latter chamber to the first chamber where the ingredients will be mixed. After removal of a closure means from the lower end of the container, the first piston will be actuated to expel the mixture from the receptacle in the form of a ready product such as a dental preparation ready for use.

3,739,948 VARIABLE-VOLUME PREDETERMINED-BULK LIQUID DISPENSER

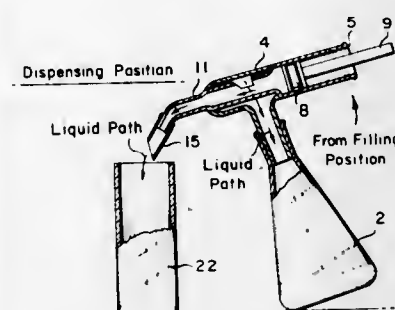
James C. Kontes, Vineland, N.J., assignor to Kontes Glass Company, Vineland, N.J.

Filed Sept. 21, 1971, Ser. No. 182,470

Int. Cl. B67d 5/64

U.S. Cl. 222-166

6 Claims



A variable-volume, predetermined-bulk liquid tilting dispenser, having a precision-bore glass tubing within which a plunger is mounted for reciprocation, the plunger being fashioned to withstand repeated autoclaving sterilization operations while maintaining sealing contact with the inner wall of said tubing.

3,739,949 DOOR OPERATED DEVICE FOR SPRAYING A ROOM

Francois Jean Chimer, and Georges Richer, both of Nice, France, assignors to S.A. Prest'Hygia, Principaute, Monaco

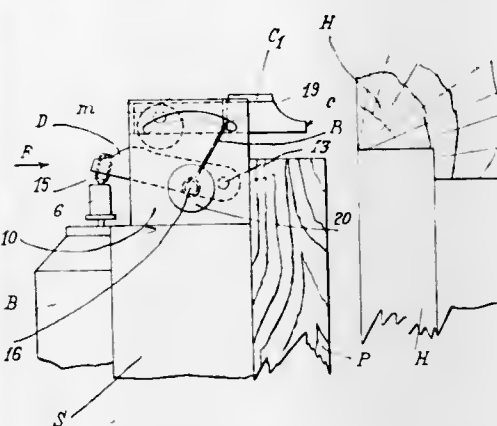
Filed July 16, 1971, Ser. No. 163,255

Claims priority, application France, July 20, 1970, 7027679; Mar. 11, 1971, 7110260

U.S. Cl. 222-180

Int. Cl. B62d 5/06

11 Claims



A device for spraying a room in response to the opening or closing of a door comprises a holder for an aerosol can having an upper compartment carrying a pivotal lever which rests on the dispensing button of the aerosol can. A slide is carried in the compartment above the lever and it is arranged to project so as to be operated either upon the closing or the opening of a door. The housing for the aerosol can is adapted to be mounted on the door in a position at which operation of the aerosol spray will be effected by either the opening or the closing of the door in which the slide moves over the lever to cause it to move downwardly to operate the dispensing button for effecting the spray.

3,739,950 AEROSOL INHALATION APPARATUS

John F. Gorman, 3207 Fryman Road, Studio City, Calif.

Filed Apr. 5, 1971, Ser. No. 131,263

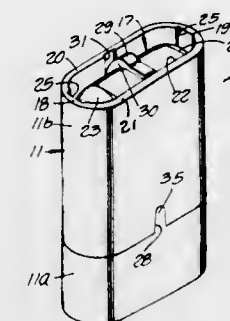
Int. Cl. B67d 5/06

U.S. Cl. 222-182

8 Claims

Aerosol inhalation apparatus for the dispensing and administering of therapeutic agents or medicaments for inhalation.

tion therapy, which is constructed to provide a disposable unit of a small size suitable for carrying in a purse or pocket, the aerosol container being permanently packaged in a two-part housing or closure, one part being in the form of a cup member and the other part providing an actuator structure which includes tubular cap means carried by an actuator member secured to the dispensing valve stem of the valve mechanism provided on the aerosol container, this actuator



member having a nozzle outlet in communication with the valve stem and further providing a mounting which permits movement of the cap means between a capping position in association with the cup member and a non-capping position in which it can be oriented to provide a tubular directive outlet shield around the spray as it leaves the nozzle outlet in the actuator member in response to valving movements of the actuator member and associated cap means.

3,739,951 DEVICE FOR THE DISPENSING OF A SINGLE DOSE OF A LIQUID

Leo Geller, Basel, and Georg Wolfgang, Riehen, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

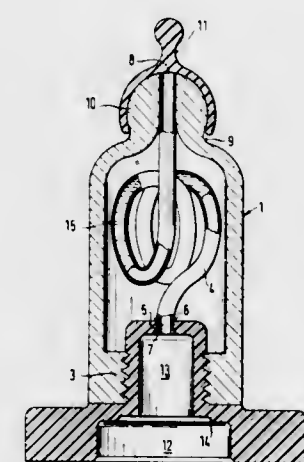
Filed Mar. 14, 1972, Ser. No. 234,549

Claims priority, application Switzerland, Mar. 16, 1971, 3861/71

Int. Cl. B67d 5/54

U.S. Cl. 222-193

11 Claims



Dispensing device for the dosified dispensing of liquid substances, comprising a casing having a dispensing outlet and an end face part having a propellant inlet opening therein, removable sealing means for the dispensing outlet and sealing means for the inlet opening, the end face part being adapted to be attached to a propellant container;

a storage element is contained in the casing and is connected with its one end to the said dispensing outlet and with its other end to the said inlet opening; this storage element is destined for holding therein the specific dose of liquid to be dispensed.

At least the portion of said storage element which is connected to the inlet opening is dimensioned to have a capillary effect on a liquid contained in the storage element so as to leave a gas pocket free between the liquid and the inlet opening, whereby a displacement of the liquid in the storage ele-

ment can be impeded when the dispensing device is shaken.

Preferably the storage element consists of a wound piece of hose or tubing having at least one and preferably two or three turns.

3,739,952 INTERMITTENT DISPENSING DEVICE

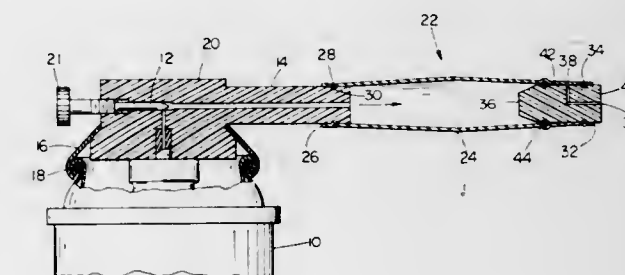
Steven Roy Chaffitz, Rockville, and Karl Laden, Silver Spring, both of Md., assignors to The Gillette Company, Boston, Mass.

Filed July 9, 1971, Ser. No. 161,134

Int. Cl. B65d 83/14

U.S. Cl. 222-213

8 Claims



A dispenser for intermittently releasing predetermined measured doses of a substance delivered to the dispenser comprising a dose-accumulating member including an elastically expandable element continuously expandable between first and second sizes, which member has an inlet and an outlet. A nozzle engaged with the outlet defines a release channel which is blocked when the expandable element is at the first size and is opened when the element is expanded to the second size.

3,739,953 POPCORN OIL METERING DEVICE

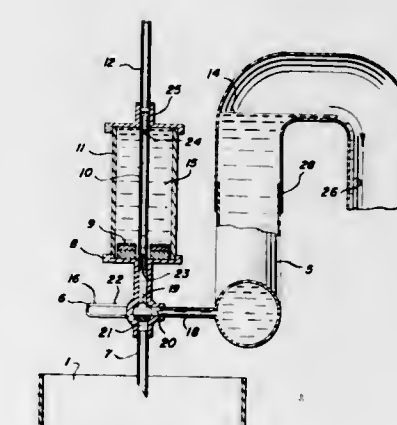
Charles D. Cretors, Deerfield, Ill., assignor to C. Cretors & Co., Chicago, Ill.

Filed Aug. 27, 1971, Ser. No. 175,674

Int. Cl. A23i 1/18

U.S. Cl. 222-318

2 Claims



A popcorn oil metering device and method for delivering a predetermined volume of popping oil to a popper. Oil continuously pumped to a static head elevation controlled by an arched manifold rises through three-way valves to an equivalent head in a plurality of metering chambers prior to release into the popper by the three-way valve. The predetermined volume metered may be altered by the insertion of volume displacement washers in the metering chamber, adjusting metering chamber air vent capabilities, or varying arch manifold elevation which controls the static head elevation and level of rise in the metering chamber.

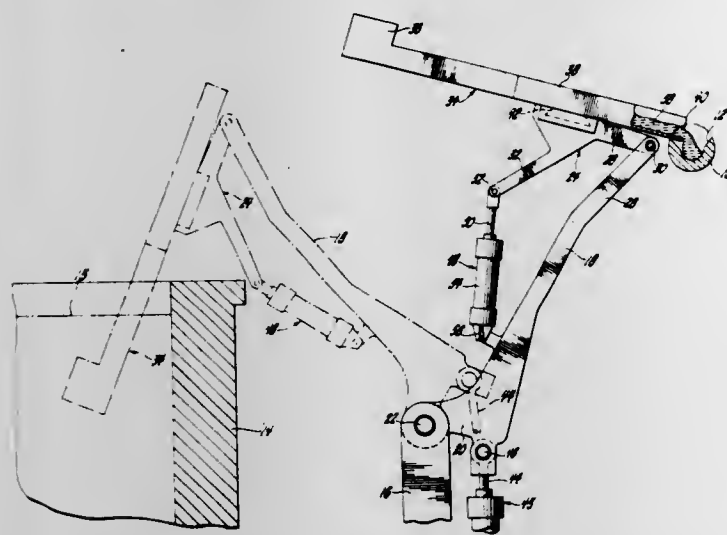
3,739,954 ARTICULATED FILLING AND DISPENSING LADLE MECHANISM

Charles D. Blagg, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed May 15, 1972, Ser. No. 253,180
Int. Cl. B22d 37/00

U.S. Cl. 222—357

3 Claims



A ladling mechanism for transferring molten metal from a holding vessel directly to the entry port of a die cast machine including a tiltable stem-pour type ladle mounted on a vertically extending arm pivotal in vertical plane about its base between a ladle fill position near the holding vessel and a die fill position near the entry port of the die case machine and operative means cooperatively associated with the arm and the ladle whereby in one position a charge of molten metal is dipped from the holding vessel and in the other position the molten metal is poured directly into the entry port of the die cast machine.

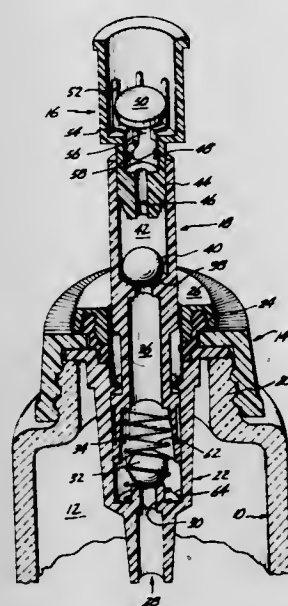
3,739,955 RESERVOIR DISPENSER

Kenneth W. Gores, 1026-112th N.E., Bellevue, Wash.
Continuation of Ser. No. 9,235, Feb. 6, 1970, abandoned. This application Jan. 12, 1972, Ser. No. 217,216

Int. Cl. B67d 5/42

U.S. Cl. 222—385

2 Claims



A cup forms an upper portion of a manually-operable pump associated with a container from which liquid is to be withdrawn in small amounts. A disc of substantial area is mounted in the lower portion of the cup in a fixed spaced relationship over an inlet opening and spaced from bottom and lower side wall portions of the cup. Liquid flowing through the

inlet opening is first diverted radially outwardly by the disc, to flow through the space between the disc and the cup bottom, and is then diverted upwardly by the cup side wall to flow through the space between the periphery of the disc and adjacent side wall portions of the cup.

3,739,956 VALVED STOPPER

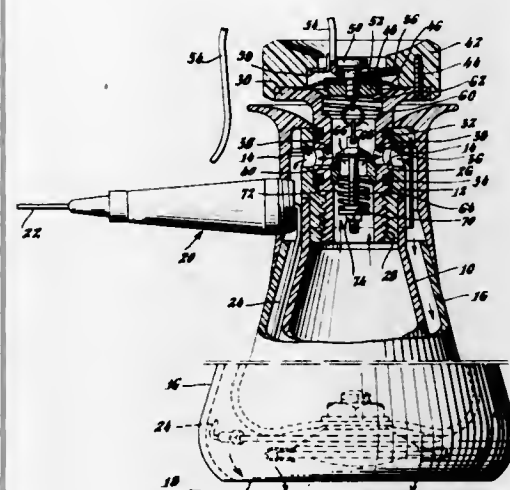
Frank L. Reynolds, Monroe, Conn., assignor to Frigtronics of Conn., Inc., Shelton, Conn.

Filed Mar. 6, 1972, Ser. No. 232,165

Int. Cl. A61b 17/36

U.S. Cl. 222—396

10 Claims



There is disclosed a valved stopper for use with a self-pressurizing liquid refrigerant dispenser such as used in dermatologic cryosurgery. An operating lever is urged normally outwardly by a spring within the stopper and is loosely linked to a spring loaded vent valve which is normally open. When the lever is manually depressed, the vent valve is closed by its own spring with a force independent of finger pressure. The vent valve then acts as a regulator to prevent excessive pressure build-up within the container.

The foregoing abstract is not to be taken either as a complete exposition or as a limitation of the present invention, and in order to understand the full nature and extent of the technical disclosure of this application, reference must be had to the following detailed description and the accompanying drawings as well as to the claims.

3,739,957

COVER FOR DECANter OR LIKE LIQUID DISPENSING CONTAINER

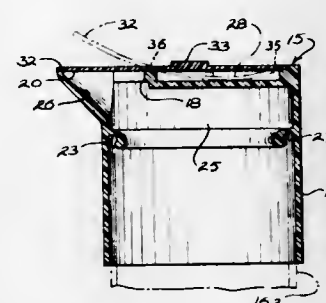
Melvin Alpern, c/o Starlite Mfg. Co., 9800 McKnight Road, Pittsburgh, Pa.

Filed Oct. 14, 1971, Ser. No. 189,454

Int. Cl. B65d 47/00

U.S. Cl. 222—556

10 Claims



Removable cap, having a pouring spout thereon, fits snugly over straight-necked decanters or like fluid dispensing containers, has integral skirt, extended to serve as unobtrusive handle to be gripped in the hand of user for pouring purposes without direct contact with neck of container. Skirt has in-

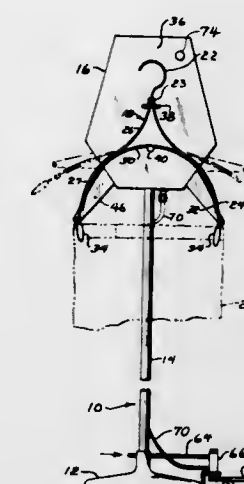
3,739,960 GARMENT FINISHING HANGER AND LOADER THEREFOR

Philbert Jay Maez; Richard D. Thompson, and Michael G. Beeley, all of Salt Lake City, Utah, assignors to McGraw-Edison Company, Elgin, Ill.

Filed Sept. 13, 1971, Ser. No. 180,025
Int. Cl. D06c 15/00

U.S. Cl. 223—73

4 Claims



A hanger for fitting under flexure within an open top waist type garment, such as a pair of pants or a skirt, and for suspending the garment in a waist open tubular manner, whereby the entire garment both inside and out held as such can be finished with a single cycle in a box or tunnel type finisher using a conditioning fluid such as steam and a drying fluid such as heated air, and a device for flexing and holding the hanger in a flexed condition to allow quick and easy garment dressing on and/or garment removal from the hanger.

3,739,961

SAFE PERSONAL EFFECTS POUCHES AND STRAP MEANS FOR UNDER ARM OR SHOULDER WEAR

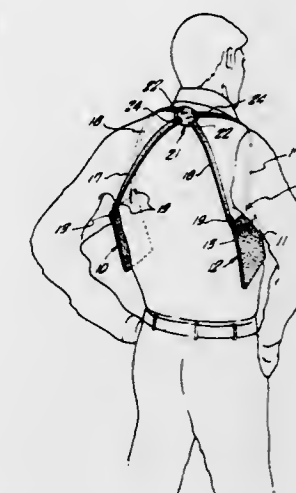
John E. Soukera, 440 Hellotrope St., Corona Del Mar, Calif.

Filed Feb. 18, 1971, Ser. No. 116,530

Int. Cl. A45c 3/00

U.S. Cl. 224—5 R

3 Claims



There is disclosed a personal effects or money and valuable papers carrying pouch arrangement for wear either under the arms or over the shoulders including novel cross-over strap coupling means which incorporate quick-assembly and quick-release mechanisms for the straps. When worn under the arms the pouches are safe from pickpockets.

tegral inner lip forming peripheral recess for yielding reception of top edge of container neck, thereby to hold cap in place for such pouring, by operation of closure means normally closing spout opening. Closure means has no springs or other bulky protruding parts, and, it is operable by finger pressure of the hand used for gripping skirt to support container for said pouring purposes.

3,739,958

NON-RETURN VALVE FOR INJECTION MOLDING MACHINE

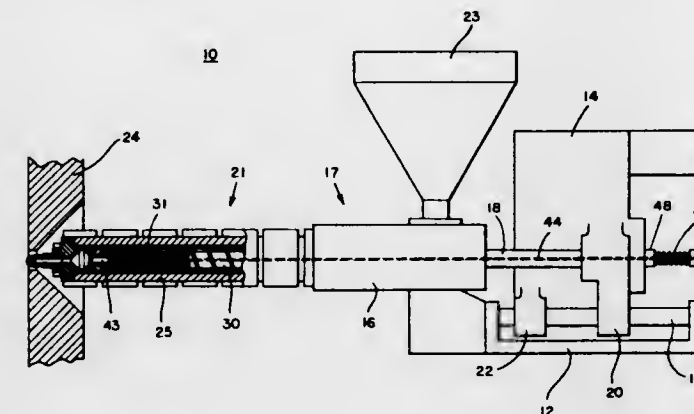
Raymond A. York, Chester Springs, Pa., assignor to Beloit Corporation, Beloit, Wis.

Filed Dec. 10, 1971, Ser. No. 206,805

Int. Cl. G01f 11/20

U.S. Cl. 222—404

10 Claims



A valve for accurately controlling the quantity of plastic shot in an injection molding machine, said valve including a plunger slidably disposed through the center of a reciprocating screw, and a valve plug secured to the injection side of the plunger. The force of the plasticized material delivered by the rotatable screw opens the plug against an external force acting against the plunger. Upon stoppage of screw rotation, the external force seats the plug thereby accurately controlling the shot quantity.

3,739,959

A DEVICE FOR RETAINING TROUSER-LEGS IN POSITION WHILE BEING MACHINE IRONED

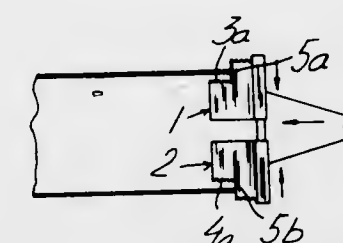
Jing Gordon, Hummelvagen 2, Johanneshov, Sweden

Filed Feb. 17, 1971, Ser. No. 115,973

Int. Cl. D06c 15/00

U.S. Cl. 223—63

1 Claim



A device for retaining trouser-legs in position while being machine ironed having trouser holders having two mutually displaceably arranged overlapping thin plates which transmit the ironing force from ironing cushions of the machine to the trouser legs, said plates being stepped in the opposite sides thereof so that the device can be used for trousers having different widths, said plates each being connected to one leg end of a spring means which has a loop and curved spring legs extending from this loop, said spring legs having their ends inserted into holes in the plates.

3,739,962

DEVICE FOR SHEARING METAL SECTIONS

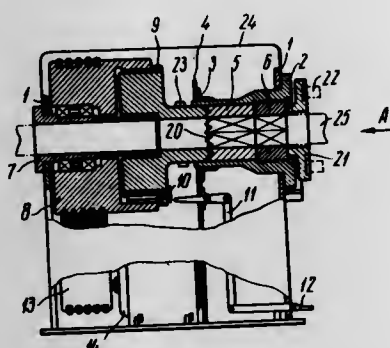
Jury Alexandrovich Boborykin, Pomerki DMS KhAI, kv. 43, and Jury Goergievich Kurkin, ulitsa 23, Avgusta 31-a, kv. 15, both of Kharkov, U.S.S.R.

Filed Mar. 10, 1972, Ser. No. 233,458

Int. Cl. B26f 3/00

U.S. Cl. 225-102

4 Claims



A device for shearing metal sections by twisting comprises interacting dies in the form of bushings one of which is capable of turning around its axis while the other one can slide axially in the body and is flexibly pressed against the face of the turnable die in the metal shearing plane.

The turnable die is connected with a rotating element by a clutch.

3,739,963

METHOD OF AND AN APPARATUS FOR CONTROLLING EDGE FLARE IN THERMAL CUTTING

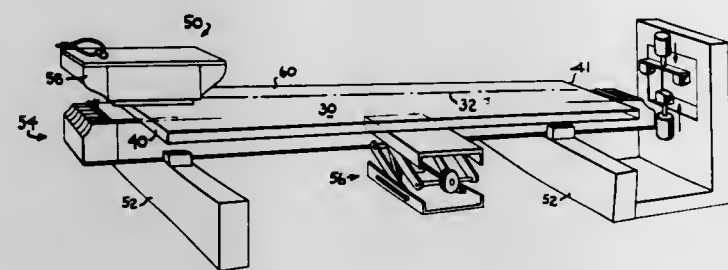
Edmund R. Michalik, West Mifflin, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Oct. 7, 1971, Ser. No. 187,258

Int. Cl. B26f 3/00, 3/06

U.S. Cl. 225-2

15 Claims



In a method of and apparatus for thermally cutting a piece of glass along an intended path of cut, a thermal or mechanical means modifies a stress profile at a back edge of the piece of glass along the intended path of cut to eliminate edge flare. A heat source concentrates heat on a major surface of the piece along the intended path of cut, and the thermal or mechanical means places a major surface that faces away from the heat source in compression at the back edge so that a fracture will run along the intended path of cut.

3,739,964

CUTTER-TYPE BOX FOR DISPENSING PACKAGING FILM

Orrin Burr Stine, New York, N.Y., assignor to Borden Inc., New York, N.Y.

Filed June 25, 1970, Ser. No. 49,869

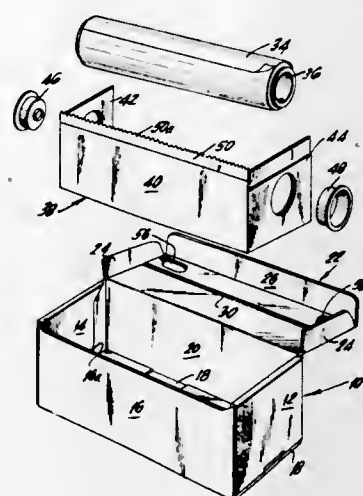
Int. Cl. B26f 3/02

U.S. Cl. 225-47

7 Claims

A cutter-type box for dispensing packaging film includes means such as a separate insert for rotatably supporting a roll of the film within a rectangular box container having a closeable cover flap or panel. The film is fed outwardly through a transverse slit defined in the top cover for delivery over an

edge at which a cutter is arranged. The cutter is supported so that it projects upwardly beyond the top surface of the top cover over which the film is fed so that the film is in a position



for being cut by the cutter. The cutter is also supported below the level of the side panel edges so that it will not project outwardly from the container so as to be subject to damage during shipment.

3,739,965

DISPENSER FOR FLEXIBLE SHEET MATERIAL AND A PERFORATING MECHANISM ADAPTED TO BE USED THEREIN

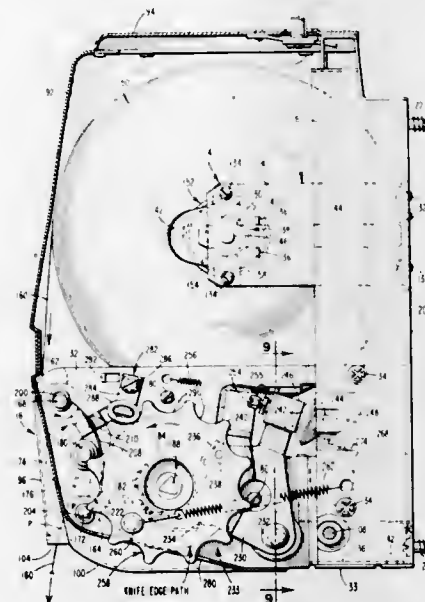
Paul W. Jespersen, Stamford, Conn., and Edward L. Bump, Oak Park, Ill., assignors to Georgia-Pacific Corporation, Portland, Ore.

Division of Ser. No. 793,808, Jan. 24, 1969, Pat. No. 3,575,328. This application Jan. 6, 1971, Ser. No. 104,415

Int. Cl. B26f 3/02

U.S. Cl. 225-96

9 Claims



A mechanism for perforating a web of flexible sheet material which is adapted to be used in a flexible sheet material dispenser, said mechanism comprising: a rotatably mounted roller, a rotatably mounted knife positioned adjacent the roller and having a radially outward portion defining a cutting edge for perforating the web as the web passes between the roller and the knife, the roller being operatively connected to the knife for synchronous rotation therewith and having a slot therein for receiving the radially outward knife portion as the knife rotates past the roller, and means associated with the knife for orienting the cutting edge substantially in the direction in which the radially outward knife portion moves with respect to the web during the entrance of the portion into the slot so that when the portion enters the slot the cutting edge will effectively perforate the web.

3,739,966

COIN TUBE OPENER

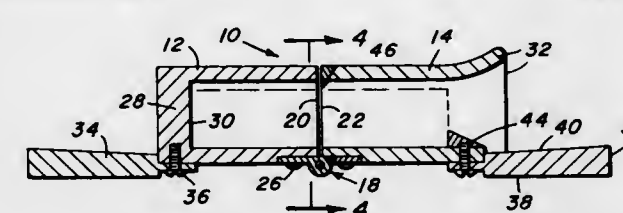
William E. Lynn, 4130 Camelot Drive-BI. Raleigh, N.C.

Filed Aug. 17, 1971, Ser. No. 172,389

Int. Cl. B26f 3/00

U.S. Cl. 225-96.5

10 Claims



A tubular coin package positioned within a rigid tube formed by two hinged sections, is ruptured by pivotal displacement of the tube sections from an axially aligned position in order to empty the contents of the package. Handles are connected to the remote ends of the hinged tube sections for manipulation thereof. The package is inserted into an open end of one tube section for abutment with a stop in the other tube section.

3,739,967

HANDLING ELONGATE MATERIALS

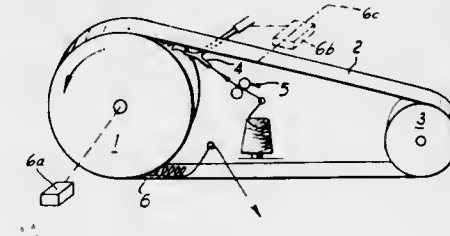
Evan Islwyn Jones, Macclesfield, England, assignor to G. H. Heath & Co. Limited

Filed Oct. 28, 1970, Ser. No. 84,686

Int. Cl. B65h 25/06

U.S. Cl. 226-7

16 Claims



Apparatus for handling flexible elongate material such as textile yarn comprises feed rolls for feeding the material forwards, means for forming the material into folds, and for maintaining the folds for a determined period. The folds may be formed by successively displacing the yarn in opposite directions laterally of its line of travel. The yarn may be space printed in the folded condition.

3,739,968

REGISTRATION CONTROL TIMING SWITCH FOR WEB-PROCESSING MACHINE

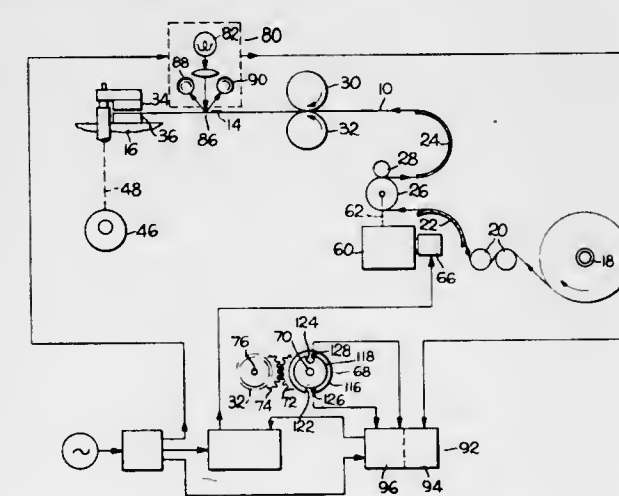
Raymond E. Bodendoerfer, Brookfield, Wis., assignor to Paper Machinery Corporation, Milwaukee, Wis.

Filed Dec. 29, 1971, Ser. No. 213,502

Int. Cl. B65h 23/18

U.S. Cl. 226-30

7 Claims



Web-cutting apparatus wherein an individual cutting zone on a web must be properly positioned (i.e., in register) relative

to a cutting blade at a predetermined time to insure a proper cut requires control means, including a timing or selector switch, for determining if registry exists and for making appropriate changes in web speed if it does not. The timing or selector switch comprises a rotatable shaft synchronized with operation of the cutting blade. A pair of ferrous metal discs are mounted on and rotatable with the shaft. Each disc has a notch in its periphery, and a pair of magnetic pickup devices, one for each disc, are mounted in fixed positions relative to their respective discs. Each pickup device provides an electrical pulse upon passage of the notch in its associated disc as the latter rotates. The interval between the pulses produced by the two pickups for each rotation of the shaft serves as the desired time interval. The duration of the time interval can be varied by changing the angular distance between the pickup devices by moving either one or both to a different position. The time interval itself can be shifted by changing the positions of both pickup devices without changing the angular distance between them to effect advancement or retardation of the web to achieve registry.

3,739,969

RECORDING WEB TRANSPORT APPARATUS

Henry Ray Warren, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

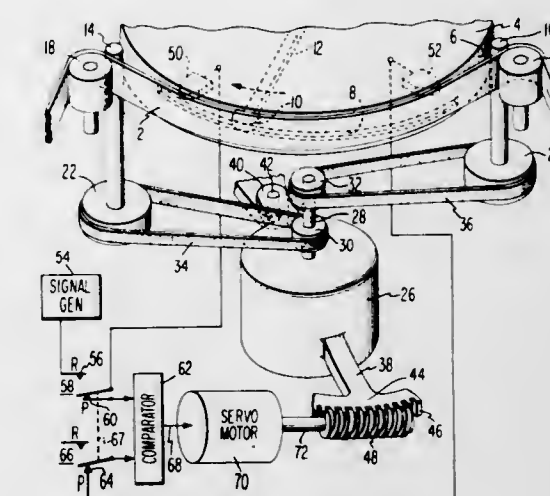
Filed Feb. 25, 1972, Ser. No. 229,462

Claims priority, application Great Britain, Mar. 16, 1971, 6,967/71; Mar. 16, 1971, 6,971/71

Int. Cl. B65h 23/22

U.S. Cl. 226-31

12 Claims



A belt drive arrangement for controlled transporting of an elongated recording web. The relative position of the prime mover and a driven member which imparts movement to the web is made controllably variable. The position variation alters the characteristics of belt means utilized to couple the drive to the motion imparting member.

3,739,970

TRANSPORT HEAD ON COLLATING MACHINES FOR ENDLESS FORMS

Otto Staamann, Berlin, Germany, assignor to Firma Automatic Druckmaschinenfabrik, Berlin, Germany

Filed Apr. 20, 1972, Ser. No. 245,908

Claims priority, application Germany, July 8, 1971, P 21 34 666.7

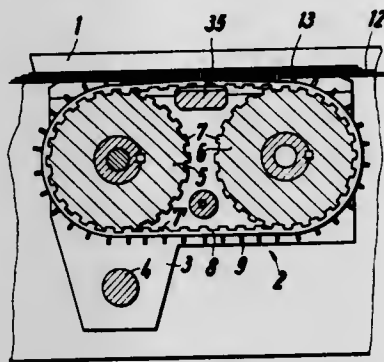
Int. Cl. B65h 17/38

U.S. Cl. 226-75

7 Claims

A transport head on collating machines for transporting endless forms having edges with perforations, comprises a geared conveyor belt driven by one of two spaced apart gears with at least one being adjustable to permit stretching and or

relaxing of the belt in order to vary the spacing of engagement spikes on the belt. The spikes engage into perforations on the



forms and are adjustable to accommodate variations in the perforation spacing on the form.

3,739,971

PIPING TENSIONING DEVICE

Antonio Silvestri, San Donato Milanese, and Guglielmo Gargagli, Milan, both of Italy, assignors to Saipem S.p.A., Milan, Italy

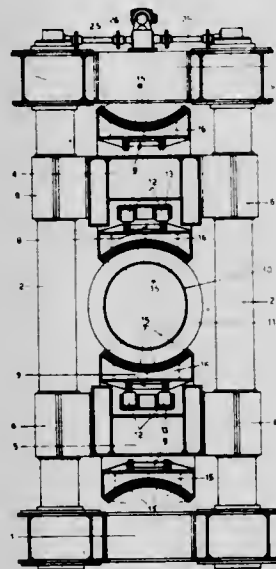
Filed Apr. 8, 1971, Ser. No. 132,514

Claims priority, application Italy, Apr. 9, 1970, 23081 A/70

Int. Cl. B65h 17/34

U.S. Cl. 226-172

11 Claims



Device for laying piping columns under a pre-fixed constant stretch, permitting laying pipe in the sea at substantial depths, comprising means for tightening between them the pipe to be launched, control and vertical guide means for bringing the tightening means into contact with the pipe and for applying a frictional force, and actuating means for running the tightening means horizontally to exert traction on the piping column, the tightening means being characterized in having two long opposite tracks running on sliding rolls and supported by sliding blocks which are hinged so as to adjust the tracks to conform to the pipe and rubber coated curved, pipe-conforming saddles attached to the tracks.

3,739,972

CARTON STITCHING MACHINE

Odell D. Crittenden, 18432 Drayonera Drive, Rowland, Calif.

Filed Mar. 2, 1971, Ser. No. 120,116

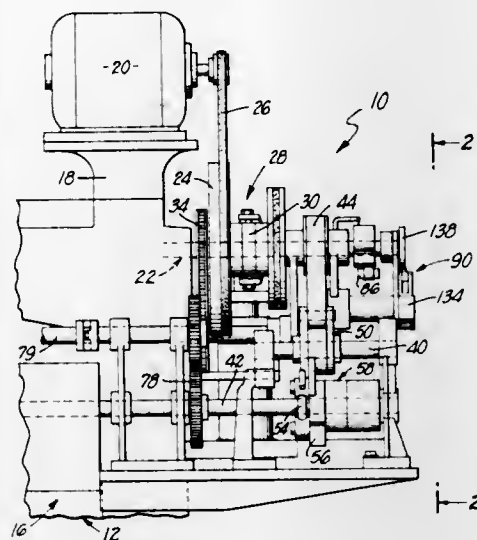
Int. Cl. B27f 7/22

U.S. Cl. 227-3

11 Claims

An improved and simplified carton stitching machine of the class used for stitching a stitch flap at one end of a paperboard carton blank to an end panel at the other end of the blank to form a tubulated carton structure. The blank is fed through the machine by powered feed rolls which are initially driven at

high constant speed to advance the carton to the stitching station, then driven intermittently to feed the blank with a step-wise motion through the station during which the carton is stitched by driving of staples at intervals through the stitch flap and panel, and finally driven at high constant speed to



eject the stitched carton structure from the machine. The inventive improvements reside in novel means for operating certain machine clutches and a latch member to effect shifting of the machine between its continuous feed and step feed modes and in a novel electrical counting system for counting the stitches made by the machine during each stitching cycle.

3,739,973

STAPLING MACHINE

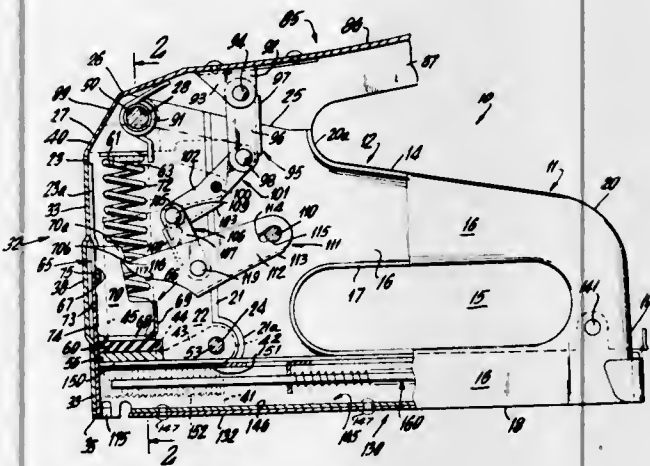
Morris Abrams, Great Neck, N.Y., assignor to Arrow Fastener Co., Inc., Saddle Brook, N.J.

Filed June 30, 1971, Ser. No. 158,412

Int. Cl. B25c 5/06

U.S. Cl. 227-120

10 Claims



This stapling machine embodies two improvements over prior staplers. It has means to prevent the lower front ends of the side walls of the staple magazine body from spreading apart. It also has means to prevent the lower end of the driven staples from swinging rearwardly, when using short staples, such as are used when stapling insulated electric wires to a base.

3,739,974

CONVERSION OF VARIABLE DELIVERY PUMP TO FIXED DELIVERY PUMP FOR A FRICTION WELDER

Josef Kiwalle and Ira H. Sage, both of Peoria, Ill., assignor to Production Technology Inc., Peoria, Ill.

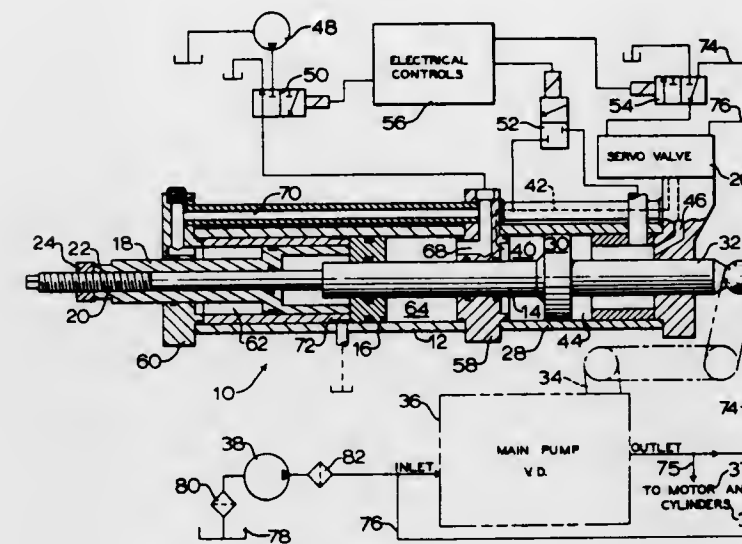
Division of Ser. No. 27,903, April 13, 1970, Pat. No.

3,625,637. This application July 2, 1971, Ser. No. 159,551

Int. Cl. B23k 27/00

U.S. Cl. 228-2

2 Claims



A variable delivery fluid pump and a variable delivery fluid motor are used to accelerate the spindle of an inertia welding machine to the welding speed, and the pump is then converted to a fixed delivery pump in order to provide a non-fluctuating pressure to power the thrust cylinders for application of the welding pressure.

3,739,975

NOVELTY PARTY CUP

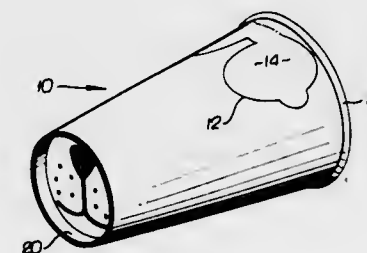
Jodell Davidow, 7116 Hillside Avenue, Los Angeles, Calif.

Filed Jan. 13, 1972, Ser. No. 217,465

Int. Cl. B65d 3/00

U.S. Cl. 229-8

20 Claims



The invention is typically embodied in a disposable paper cup. The paper cup is provided with flaps that fold outwardly from the sides of the cup. The insides of the flaps (that is, the sides hidden from view before folded outwardly) are provided with suitable designs of fanciful facial features. The flaps cooperate with fanciful facial features printed on the bottom of the cup to constitute a suitable mask or caricature that can be held to the user's face. Since the caricature components of the mask are normally concealed; the secondary mask use of the cup has a surprise element. Since the flaps are normally in place along the sides of the cup, the cups are nestable notwithstanding the secondary function.

911 O.G.—34

3,739,976

INSULATED PLASTIC BUCKET

Gene D. MacDaniel, Lithonia, Ga., assignor to Sweetheart Plastics, Inc., Wilmington, Del.

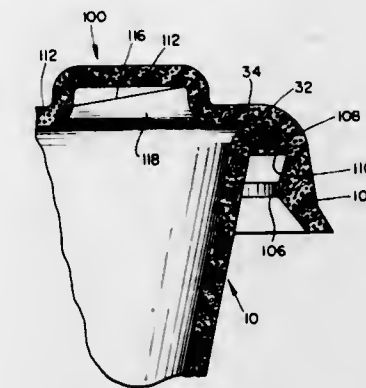
Division of Ser. No. 879,448, Nov. 24, 1969, Pat. No.

3,664,568. This application Nov. 26, 1971, Ser. No. 202,166

Int. Cl. B65d 5/64, 43/00

U.S. Cl. 229-43

4 Claims



A container having a wrapped side wall of foam plastic sheet material with the side margins overlapped and welded together, and a separately formed bottom having a central portion generally perpendicular to the container axis and with an annular skirt extending away from the plane of the central portion and sealed to the lower margin of the side wall. A lid made of the same material fits over the upper margin of the container.

3,739,977

PLASTIC MARKET BAG

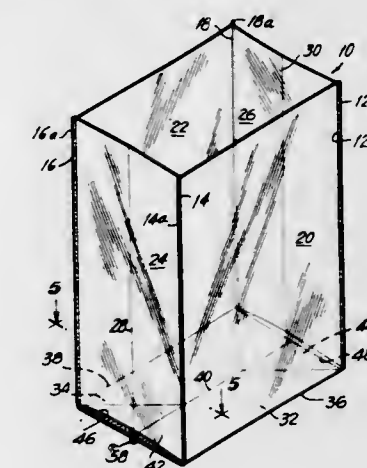
Jeffrey S. Shapiro, and Deborah A. Shapiro, both of 4270 N. Hills Drive, Hollywood, Fla.

Filed June 22, 1971, Ser. No. 155,515

Int. Cl. B65d 33/02

U.S. Cl. 229-55

2 Claims



A bag formed from a seamless section of tubular plastic film is provided wherein the lower end portions of one pair of opposing side wall members are folded inwardly and joined together to form a bottom base for the bag, and the lower end portions of another pair of side wall members are folded inwardly over the base so as to form gussets at the corner ends thereof which overlie and are heat sealed to the respective lower corner ends of the one pair of opposing side wall members.

3,739,978

CONVERSION APPARATUS

Roger Andrew Powell, 1455 Whitwood Drive, Norristown, Pa.

Filed Oct. 8, 1971, Ser. No. 187,734

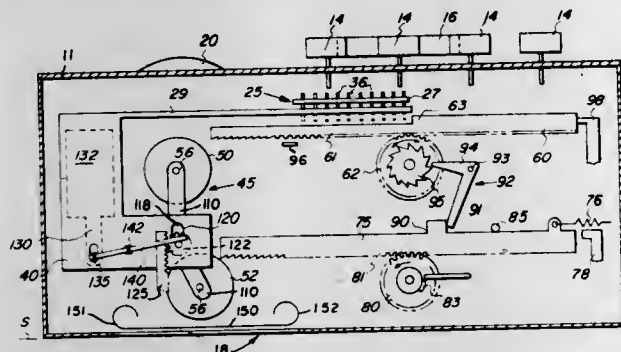
Int. Cl. G06c 17/00; G07g 1/00

U.S. Cl. 235-61 PK

6 Claims

Apparatus is disclosed for automatically converting inches to the metric system of measurement and for printing-out both

the inch value and the metric equivalent on the surface upon which such apparatus is disposed. The apparatus may be



adapted to any conversion process having a limited number of significant digits in the conversion factor.

3,739,979

FLUIDIC COUNTER DEVICE

Keiichi Hanada, Kimihiko Saito, and Akikazu Iwase, all of Tokyo, Japan, assignors to Meidensha Electric Mfg. Co. Ltd., Yokyo, Japan

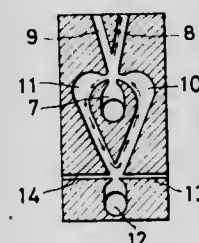
Filed Mar. 22, 1971, Ser. No. 126,665

Claims priority, application Japan, Mar. 23, 1970, 45/23595

Int. Cl. G06m 1/00

U.S. Cl. 235-201 PF

1 Claim



The present invention is to provide an improved fluidic counter device, wherein, instead of conventional devices a pair of suction openings is newly employed at the junction, so that more stable characteristics are obtainable.

3,739,980

VENTILATION SYSTEM FOR STOREROOMS FOR ROOT CROPS AND SIMILAR PRODUCTS

Christian Karmark Andersen, Naestved, Denmark, assignor to Nordisk Ventilator Co. Aktieselskab, Naestved, Denmark

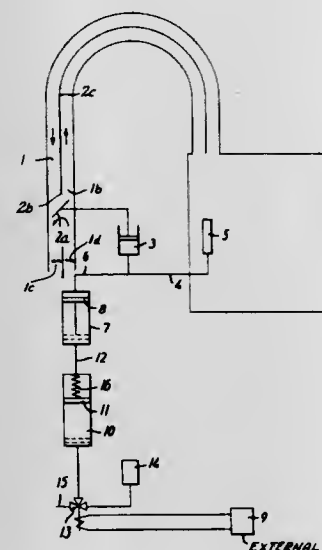
Filed Nov. 30, 1971, Ser. No. 203,301

Claims priority, application Denmark, Dec. 2, 1970, 6147

Int. Cl. F24f 7/06

U.S. Cl. 236-49

4 Claims



A ventilation system for storerooms for root crops and similar products, in which the amount of air exhausted from

and injected into the room is adjusted by means of a damper controlled by a hydraulic thermostat arrangement in dependence on the temperature in the room as well as the ambient temperature, said thermostat arrangement having two operative states, so that the injection of ambient air is blocked at ambient temperatures either below or above a certain value independent on the room temperature in order to obviate undesired heating or cooling of the products stored due to injection of fresh air.

3,739,981
CONCRETE TIES

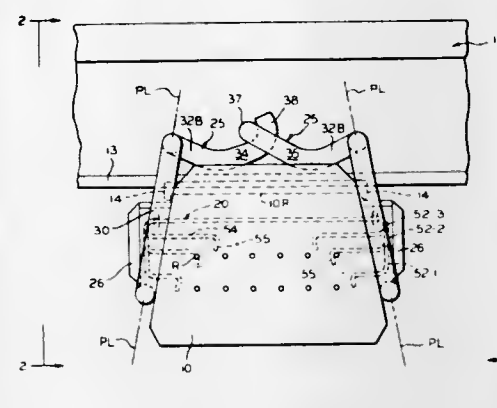
Raymond J. Novotny, Sparta, N.J., assignor to Abex Corporation, New York, N.Y.

Division of Ser. No. 9,852, Feb. 9, 1970. This application Nov. 5, 1971, Ser. No. 196,057

Int. Cl. E01b 3/32

U.S. Cl. 238-92

4 Claims



A concrete tie is provided with protuberances on opposite sides thereof serving to anchor a pair of one-piece spring-type rail fasteners. Each fastener has a bight tensioned on the protuberance, and a pair of legs extend upward from the bight. The upper ends of the legs are bent to afford extensions which overlie the base of the rail, and bends therein engage the base of the rail with a spring force. The free ends of the fasteners end in hooks, one hook being the complement of the other so that a pair of such fasteners may be complementally joined at the free ends and tensioned one on the other.

The protuberances of the tie are under a great deal of compression and are reinforced by bends in a plurality of rodlike stringers embedded in the tie to extend between the protuberances.

3,739,982

METHOD AND DEVICE FOR THE SPRINKLING OF A CULTIVATED FIELD

Alexander Perrot, Hindenbrugstr. 6, and Emil Schucker, Lange Steige 51, both of 7260 Calw, Germany

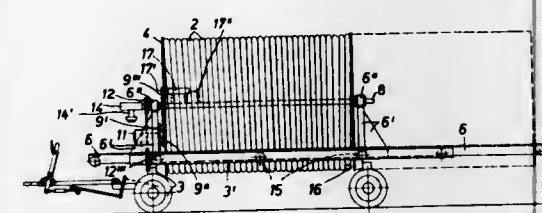
Filed Oct. 12, 1971, Ser. No. 188,300

Claims priority, application Germany, Nov. 2, 1971, P 20 53 771.1

Int. Cl. B65h 75/40

U.S. Cl. 239-1

13 Claims



A method of sprinkling water over a large cultivated area and a device for performing this method, where a sprinkler head on a sprinkler carrier is advanced along a straight-line distance by pulling a long, flexible water supply hose along this line, the hose being slowly wound onto a horizontal drum,

while feeding water to the sprinkler. In order to avoid deviations of the advancing hose from the straight-line to be travelled by the sprinkler, the hose drum is slowly displaced along its axis by synchronously shifting a carriage on which it is mounted, so that the point at which the straight portion of the water hose extends from the drum remains in alignment with the line to be travelled by the sprinkler. The method further includes steps for repeating the sprinkling procedure on adjacent lines of sprinkler travel, and the device suggested for this includes a wheeled vehicle frame which is movably positioned on a transverse access lane to the field. The device further includes automatic controls for starting and stopping the sprinkling operation.

3,739,983

MULTI-JET SPRAY NOZZLE WITH A MOVABLE SHUTTER MEMBER

Pierre J. Jousson, Geneva, Switzerland, assignor to Institut de Recherche Woog, Geneva, Switzerland

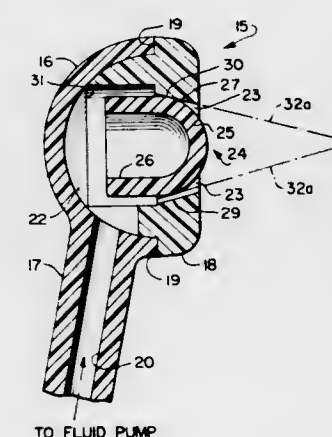
Filed July 7, 1971, Ser. No. 160,280

Claims priority, application Sweden, Jan. 19, 1970, 754/70

Int. Cl. B05b 1/08

U.S. Cl. 239-101

44 Claims



A spray nozzle for expelling a jet of fluid, particularly suited for use in massaging the gums by the use of a liquid and for cleaning the teeth, comprises a nozzle body which defines an inner fluid cavity therein and an opening which is limited by a seating surface. A freely-movable shutter member is contained within the inner cavity in the spray nozzle and is arranged so that a bearing surface of the shutter member is pressed against the seating surface of the opening to cover the opening under the action of a fluid pressure. The seating surface of the opening and/or the bearing surface of the shutter member cooperate to define the nozzle aperture having at least one groove which permits passage of the fluid from the inner cavity of the spray nozzle to the exterior thereof. A number of possible configurations for the movable shutter member are disclosed. The grooves which define the nozzle apertures may be located either on the seating surface of the opening in the nozzle body or on the exterior surface of the movable shutter. Preferably, the nozzle is made from a plastic material, or from a plastic material with a metal insert.

3,739,984

THRUST AUGMENTING AND SOUTH SUPPRESSING APPARATUS AND METHOD

Remo Tontini, San Diego, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Continuation-in-part of Ser. No. 137,630, April 26, 1971, which is a continuation of Ser. No. 866,641, Oct. 15, 1969, abandoned. This application Aug. 25, 1971, Ser. No. 174,629

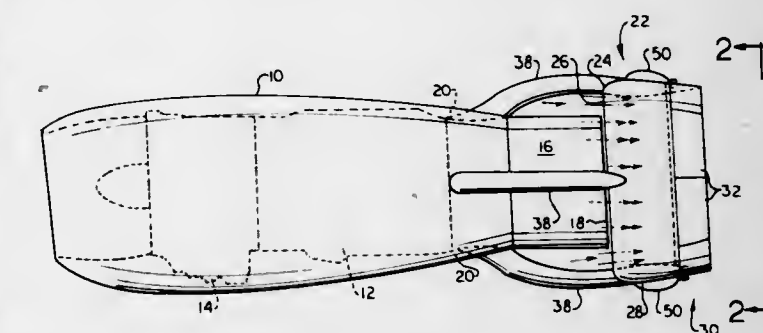
Int. Cl. B63h 25/46; B64c 15/10

U.S. Cl. 239-265.17

12 Claims

An aircraft jet engine is provided with an ejector nozzle which suppresses the jet noise and augments the thrust during takeoff and climb while also optimizing the thrust during

cruise. The ejector nozzle is formed as a barrel or ring which is supported in operative position aft of the exhaust nozzle and defines, with the nozzle, inlet passage means for free stream air to enter and mix with exhaust gases in the mixing zone defined by the nozzle. Peripheral jet nozzle means inside the ring eject a peripheral jet stream which surrounds and accompanies the mixed gases passing therethrough, adding to the



total thrust and further mixing the gases. Jet nozzle means is supplied with energized gas by conduits connected to the engine. Ejector ring is fixed in position and supported by conduits to form an integrated ejector nozzle. This is made possible by the use of the jet nozzle means which controls the effective nozzle profile and flow therethrough to minimize thrust loss in cruise to acceptable value.

3,739,985

IRRIGATION EQUIPMENT FOR TRACTOR

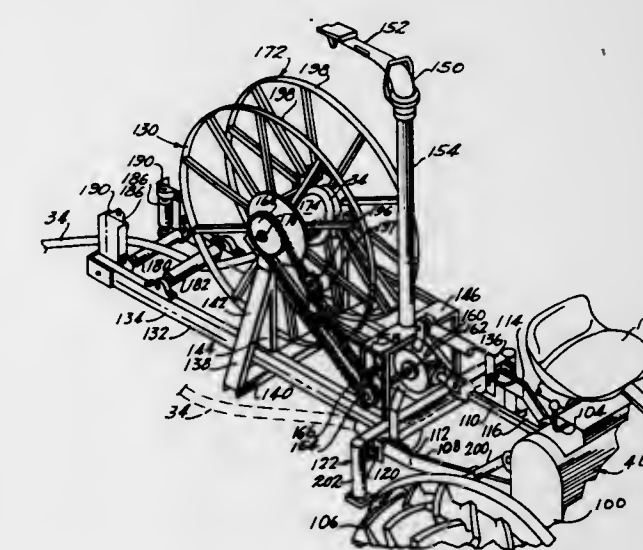
Richie G. Odom, and Carson W. Fowler, both of P. O. Box 151, Ashburn, Ga.

Filed Oct. 27, 1970, Ser. No. 84,280

Int. Cl. E01h 3/02

U.S. Cl. 239-172

6 Claims



A method of irrigating a large tract of farm land without the use of permanent irrigation sprinkler systems, ditches, pipes and the like. Defining the tract in a general rectangular or square shape, sections of conventional aluminum or other irrigation pipe which may be rigid are detachably coupled together and led to the source of water usually a farm pond or lake and suitable pumping equipment is used with gasoline or diesel engines to suck the water from the pond or lake and deliver it at proper pressure through the base piping which is sort of in the middle of the tract. Flexible irrigation hose coiled on a large reel has one end detachably attached to the outlet end of the base pipe system and is supported on a three-point tractor hitch from which there is a power take-off means selectively to drive the hose reel to wind or unwind. A large, conventional farm-type irrigation sprinkler head is mounted on the frame with the reel and is driven by the water pressure from the flexible hose. The tractor unwinds the reel to the far end of the tract from the sort of central base piping system and

then takes stationary position with the sprinkler operating or travels slowly substantially in a straight line from one side of the tract to the other, turning towards the unwatered tract after reaching the far side, detaching whatever base piping is necessary, adjusting the flexible hose to reel or unreel as required and proceeding to water the remainder of the tract in this fashion. The frame supporting the reel on the three-point hitch of the tractor includes suitable roller guide means and may be adjusted from the tractor by the three-point hitch.

3,739,986

AXIAL FLOW LIQUID AERATOR

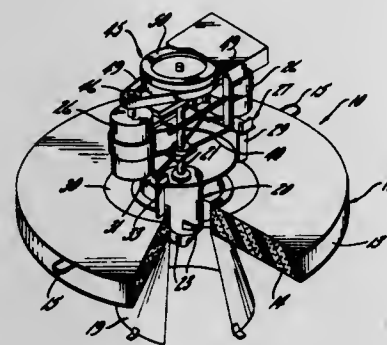
Richard B. Ravitts, Rockford, Ill., assignor to Richards of Rockford, Inc., Rockford, Ill.

Filed Aug. 17, 1971, Ser. No. 172,517

Int. Cl. B05b 17/00

U.S. Cl. 239—221

10 Claims



An axial flow liquid aerator includes a float with an upright tubular throat extending therethrough and includes a drum-type impeller telescoped into the throat. The impeller is rotatable with a power shaft driven by a plurality of motors supported on the float and equally spaced around the throat to balance the float against tipping as the impeller is rotated to pump a sleeve of water from a pond upwardly through the throat between the outer wall of the impeller and the throat wall to circulate and aerate the water in the pond. A speed reducer connected between the motors and the power shaft is operable to transfer rotational motion from each of the motors to rotate the shaft at a speed less than the rotational speed of the motor drive shafts. The speed reducer includes a small pulley mounted on each drive shaft, larger pulleys fixed to the power shaft and endless belts trained around the pulleys to transfer the rotational motion. The tension in the endless belts is maintained by a belt tensioner which is connected between the motors and which includes lever arms connected at one end to one side of each of the motors and springs connecting the ends of each arm together.

3,739,987

ARRANGEMENT OF JACKS FOR CONTROLLING FLAPS AND ITS APPLICATION TO THE CONTROL OF A JET PIPE

Guy Emile Louis Servanty, Nolsy-Le-Rol, France, assignor to Societe D'Etudes Et De Recherches Appliquees S.E.R.A.P., Le Chesnay, France

Filed Jan. 7, 1972, Ser. No. 216,195

Claims priority, application France, Jan. 8, 1971, 7100528

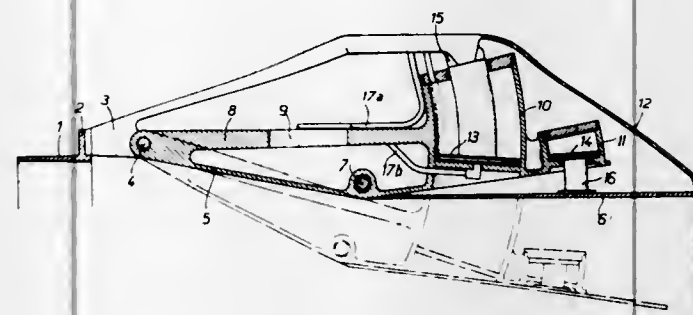
Int. Cl. B64c 15/06

U.S. Cl. 239—265.39

11 Claims

A control device for controlling two hinged elements arranged one behind the other by means of a tandem assembly of fluid operated jacks, in which control device each of the jacks has a cylinder in the form of a torus with an axis in the arc of a circle centered on a point located outside of the said cylinder, and a piston mounted in the cylinder. The piston has

an external torus-shaped surface for co-operation with the wall of the cylinder whereby relative travel between the



cylinder and the torus-shaped piston follows a curved line centered on the said external point.

3,739,988

LIQUID DISCHARGE NOZZLE AND SPLASH BAFFLE

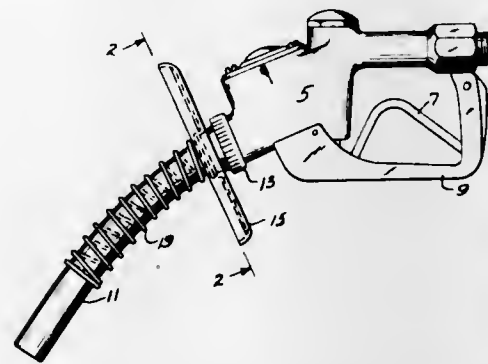
Ray C. Kisor, St. Louis; Thomas P. Solomon, Arnold, and Grenville G. Sutcliffe, Kirkwood, all of Mo., assignors to Husky Corporation, Kirkwood, Mo.

Filed Dec. 16, 1971, Ser. No. 208,672

Int. Cl. B05b 15/00

U.S. Cl. 239—288

2 Claims



A discharge nozzle such as is used on filling station gasoline pumps and a disc-shaped splash baffle therefor fitting over and extending radially of the nozzle spout in front of the nozzle handle.

3,739,989

DUCT BURNER FOR OPERATION WITH LIQUID OR GASEOUS FUELS

Ralph R. Vosper, San Jose, Calif., assignor to Coen Company, Inc., Burlingame, Calif.

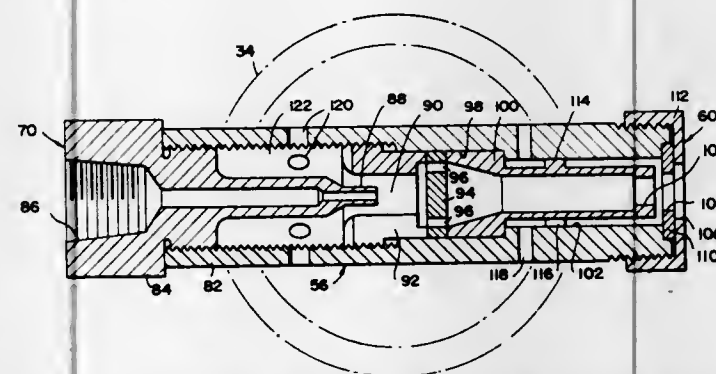
Division of Ser. No. 84,036, Oct. 26, 1970. This application

July 19, 1972, Ser. No. 273,234

Int. Cl. B05b 7/10

U.S. Cl. 239—399

5 Claims



An air augmented liquid or gaseous fuel burner having a hollow post mounting a plurality of fuel discharge nozzles spaced over the length of the post and a combustion chamber aligned with each discharge nozzle. An air plenum is disposed about the nozzle, the post and the combustion chamber. An

upstream end of the nozzle is connected to a liquid fuel pressure reducer having relatively large cross sectional passageways for reducing the pressure of the liquid fuel supplied from a manifold. The discharge nozzle includes a liquid fuel atomizing core which employs an atomizing plate together with an air flow entering the nozzle interior through apertures in the nozzle housing from within the hollow post. For gaseous fuel operation of the burner the gas is passed through the hollow post and the bores in the nozzle housing for a discharge towards the combustion chamber. Suitable air inlets between the nozzle discharge end and the combustion chamber are provided for admixing the discharged fuel with sufficient air to sustain the growth of the jet issuing from the nozzle. The air plenum is so constructed that it induces eddy currents within the combustion chamber.

3,739,990

ATOMIZING BURNER NOZZLE TIP

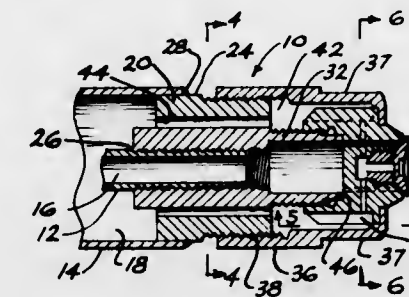
Leonard Edward Triggs, Avon, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Oct. 15, 1971, Ser. No. 189,671

Int. Cl. B05b 7/06

U.S. Cl. 239—425

12 Claims



A nozzle tip for a liquid fuel atomizing burner is provided with an annular aperture within which the fuel and atomizing medium are mixed and from which the mixture is discharged as an atomized spray. The nozzle tip of the invention provides a more effective spray distribution which requires reduced fuel pressures. The effects of plugging of one or more of the ports through which the atomizing medium is conducted are minimized.

3,739,991

VIBRATING MILL

Peter Wehren; Helmut Haas, and Gerhard Demel, all of Cologne, Germany, assignors to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne, Germany

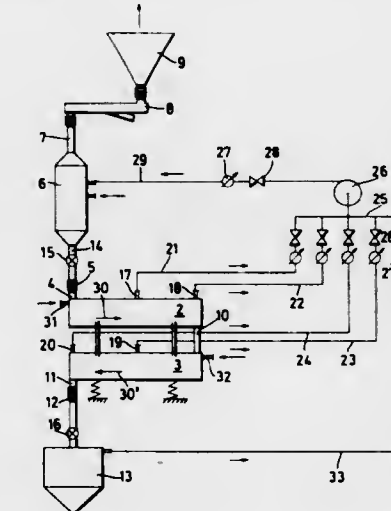
Filed Sept. 29, 1971, Ser. No. 184,795

Claims priority, application Germany, Oct. 5, 1970, P 20 48 810.2

Int. Cl. B02c 19/16

U.S. Cl. 241—45

7 Claims



In a vibrating mill installation having a horizontally extending grinding chamber between a closed material feed device

and a closed material discharge device the grinding chamber is provided between its ends with a plurality of serially arranged openings from which portions of gas are withdrawn by pipelines leading to the suction side of a blower or pump, while a cooling agent—such as liquid nitrogen—is introduced into the grinding chamber and cools the material being ground therein. The pressure side of the blower or pump is connected with the material feed device so that the still cool gas withdrawn from the grinding chamber is used to subject the material in the feed device to a preliminary treatment before the material to be ground enters the grinding chamber of the vibrating mill.

3,739,992

SECURING MEANS FOR DISPOSER SOUND JACKET

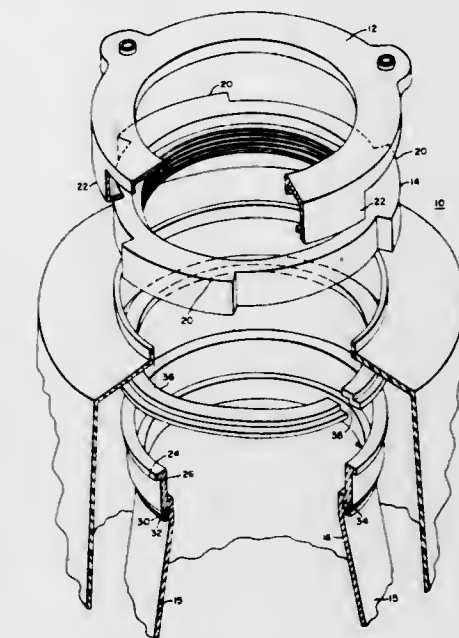
Jack E. Beblinger, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 29, 1971, Ser. No. 157,899

Int. Cl. B02c 18/42

U.S. Cl. 241—46 B

6 Claims



The instant invention provides a sound deadening jacket arrangement for enveloping a food waste disposer so as to prevent a large amount of noise generated by the moving parts of the food waste disposer from passage into the area where the disposer is situated. The disposer sound jacket is suspended in loose (sufficient to permit its rotation) depending fashion from the garbage disposer, proper, so as to be spaced from the food waste disposer housing. The loose suspension of the food waste disposer sound jacket limits the amount of noise being transmitted outwardly therefrom as the food waste disposer operates and also permits rotation of the disposer sound jacket during installation of the food waste disposer so that the disposer sound jacket may drivingly move the disposer housing to aid in alignment of the inlet and outlet of the disposer with the plumbing situated underneath the sink where the disposer is mounted.

3,739,993

GRINDING MILLS

John Edward Nelson, Montreal, Quebec, and Rhual Laurent Guerguerian, LaSalle, Quebec, both of Canada, assignors to Dominion Engineering Works, Limited, Lachine, Quebec, Canada

Filed Apr. 26, 1971, Ser. No. 137,448

Claims priority, application Canada, May 11, 1970, 82368

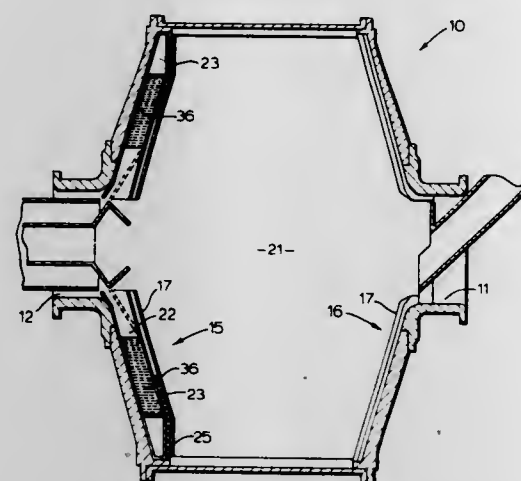
Int. Cl. B02c 17/00, 17/18

U.S. Cl. 241—70

4 Claims

An autogenous grinding mill of large diameter has curved lifters to give improved radially inward displacement of reduced material, after passage through the primary grates;

and secondary grates in the form of box sections combined with the curved surfaces of the lifters, for segregation of



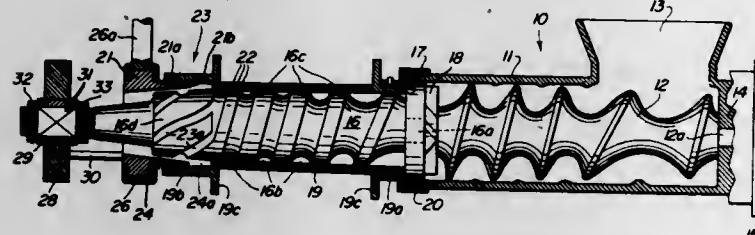
totally reduced fines, with passage of intermediately sized material back to the mill reduction section.

3,739,994 APPARATUS FOR PRODUCING DE-BONED MEAT PRODUCTS

Archle Rae McFarland, Salt Lake City, Utah, assignor to Beehive Machinery Inc., Salt Lake City, Utah
Continuation-in-part of Ser. No. 593,532, Nov. 10, 1966, abandoned. This application Dec. 3, 1969, Ser. No. 881,686
Int. Cl. B02b 7/04

U.S. Cl. 241-74

14 Claims



Material obtained from animals, poultry, or fish and containing edible flesh along with normally inedible relatively hard or tough components, such as bone, gristle, tendons, etc., is fed in ground condition into one end of a perforated conduit that has a conveyor screw therein which progressively decreases in conveying capacity from the feed end of the conduit to an imperforate discharge end thereof. Such inedible components are compacted within the imperforate discharge end of the conduit by an extension of the conveyor screw prior to discharge following build-up and conveyance along the interior surface of the perforate portion of the conduit as a filter mat through which edible flesh is forced toward and through the perforations of the conduit to provide a substantially bone-free edible product. The discharge passage surrounding the extension of the conveyor screw can be varied in size, preferably by a tapered ring that is movable back and forth axially of the conveyor screw extension, and preferably the spacing between conveyor screw and conduit is variable. The forward faces of the conveyor screw flights are preferably concave to provide a forwardly projecting circumferential overhang that tends to keep particles of bone near the axis of the screw, and the conduit wall thickness is unusually thick so as to withstand high pressures. Unusually high production rates can be obtained by feeding finely ground material into the conduit by means of a high pressure pump. The discharged and normally inedible components can be slurried in a digestant liquid and the digested material recovered as a food product by the application of centrifugal force. In instances where some minute particles of bone are discharged with the fleshy components, they can be homogenized by subjecting such fleshy components to an attrition operation.

3,739,995 APPARATUS FOR PACKAGING LINEAR MATERIAL

Leo Alex Oswald, Huntingdon, Pa., assignor to Owens-Corning Fiberglass Corporation, Toledo, Ohio
Filed Apr. 19, 1971, Ser. No. 134,989
Int. Cl. B65h 54/28

U.S. Cl. 242-18 G

3 Claims



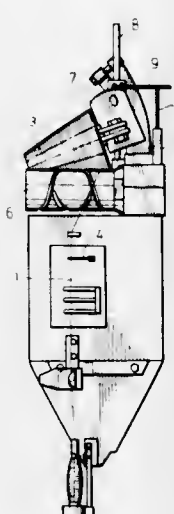
Apparatus for packaging linear material such as glass strand on a collector and using a traversing arrangement including rotary traversing means on an elongated member with two supports engaging the elongated member on opposite sides of the rotary traversing means; at least one of the supports being stationary and holding the elongated member for rotating and axial reciprocating motion.

3,739,996 MEASURING APPARATUS OF TOTAL YARN LENGTH WOUND IN PACKAGE ON A YARN WINDER

Isamu Matsui, Kyoto, and Yutaka Ueda, Nara, both of Japan, assignors to Murata Machinery Ltd., Kyoto, Japan
Filed June 29, 1971, Ser. No. 157,935
Int. Cl. B65h 61/00, 63/08

U.S. Cl. 242-39

8 Claims



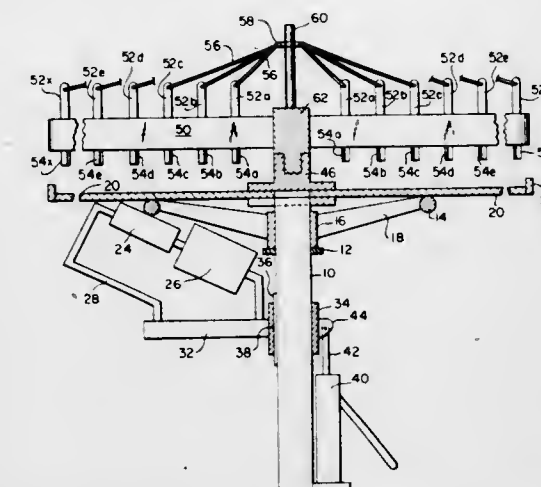
A measuring apparatus of total yarn length wound in package form on a yarn winder including an electric circuit for prescribedly delaying emission of pulses, which correspond to each cycle rotation of a yarn traversing drum rotationally carrying a growing package in contact thereon for winding rotation or its drive motor, to a counter part of the emitted pulses from starting of winding operation.

3,739,997 SQUARE PATTERN STRIP WINDING MEANS

Paul R. Edwards, Redondo Beach, Calif., assignor to Edwards Enterprises of Orlando Inc., Orlando, Fla.
Filed Nov. 17, 1971, Ser. No. 199,655
Int. Cl. B65h 17/06

U.S. Cl. 242-67.1 R

21 Claims



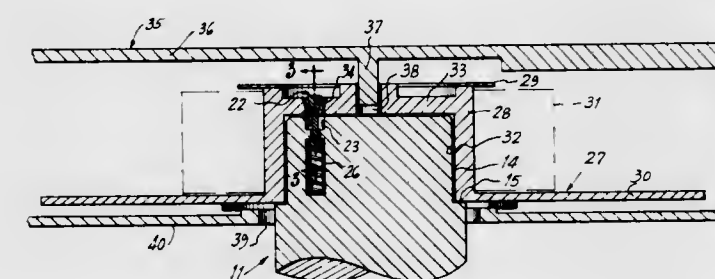
A winding machine for winding strips of plant growth material in a square pattern on a pallet which includes a rotatable pallet means; a corner forming means comprising a cruciform support means removably mounted on the pallet means to rotate therewith, spaced above the pallet means and having its arms spanning the pallet means, a plurality of corner form means slidably mounted on the support means and spaced along the arms of the support means to form square patterns, of progressively larger size, of groups of four of the form means from complementary ones of the form means of each of the arms of the support means, and means for sliding the form means toward the pallet means; and drive means for rotating the pallet means and the support means. Where a strip of plant growth material is to be transferred from a full pallet to an empty pallet, the full pallet is mounted on a pallet drive means adjacent the winding machine and a guide means and speed regulating means is placed adjacent the two pallets to guide the strip of plant growth material as it passes from one pallet to the other and adjust the speed of the drive means of at least one of the pallets to compensate for variations in the size of the winding of strip material on the respective pallets as well as other variations in the speed of travel of the strip material.

3,739,998 REEL DRIVING DEVICE

Hanjiro Esashi, and Katsuyoshi Kawamata, both of Miyagi, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Mar. 17, 1972, Ser. No. 235,647
Claims priority, application Japan, Mar. 30, 1971, 46/22903
Int. Cl. B65h 17/02

U.S. Cl. 242-68.3

8 Claims



A tape reel intended for use in a tape recording and/or reproducing apparatus is provided with a coaxial socket having an end wall with one or more apertures therein spaced radially from the socket axis, and the apparatus includes a reel-driving device comprising a rotated shaft which is in-

serted into the reel socket and which has at least one coupling pin projecting from the shaft's end surface and engaging in an aperture of the socket's end wall, such coupling pin having a peripheral surface which is undercut in the direction toward the shaft's end surface, for example, by being frusto-conical, so that the engagement of that peripheral surface with the perimeter of the aperture urges the tape reel onto the reel drive shaft in response to the rotation of the latter.

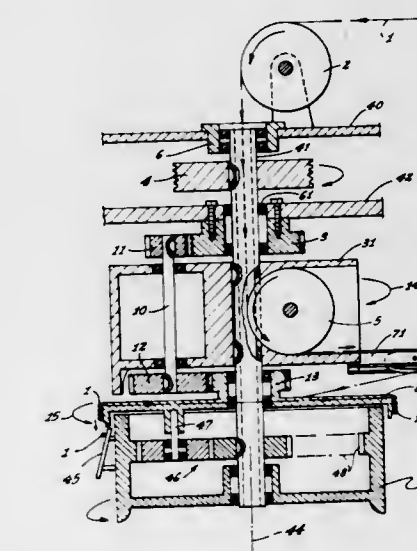
3,739,999 ADVANCING APPARATUS FOR COILING ELONGATED FLEXIBLE MATERIAL

Hans Frisch, Dusseldorf, Germany, assignor to FRISCH Kabel-und Versellmaschinenbau GmbH, Ratingen, Germany
Filed June 23, 1971, Ser. No. 155,864
Claims priority, application Germany, June 24, 1970, P 20 31 050.3

Int. Cl. B21c 47/14

U.S. Cl. 242-82

3 Claims



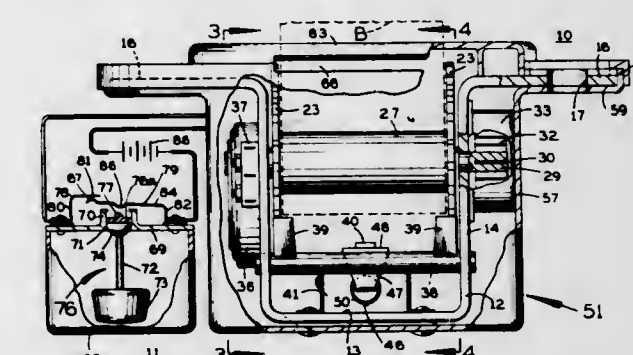
Apparatus for advancing elongated, flexible element such as bare or insulated wire, fed into an axis and from the axis to a coiling head, rotating on the axis for coiling the wire on a drum which rotates in opposite direction, the respective lowest coiled loop drops from the drum for further storage. Rotation of the drum is derived from rotation of the head by a planetary gearing.

3,740,000 SAFETY BELT MECHANISM

Takezo Takada, Hikone, Japan, assignor to Takata Kojyo Co., Ltd., Tokyo, Japan
Filed July 12, 1971, Ser. No. 161,682
Int. Cl. A62b 35/00

U.S. Cl. 242-107.4

4 Claims



An automatic locking safety belt take-up reel includes a U-shaped bracket supporting a spring biased belt rewind reel having ratchets at opposite ends and a shaft supported by the bracket carries pawls movable into and out of engagement

with the ratchets with the rocking of the shaft. A solenoid mounted on the bracket cross-piece actuates an armature connected by a lost motion link to a crank arm on the shaft. The solenoid is connected to a voltage source through an inertia or attitude sensing switch to energize the solenoid and lock the reel by the pawl and ratchet engagement open tilting or rapid deceleration of the vehicle mounting the switch.

3,740,001

STRIP TAKE-UP THREADING DEVICE

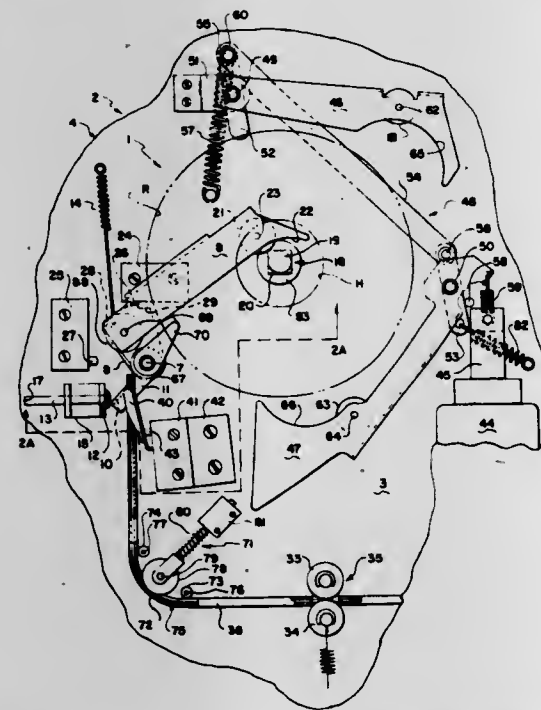
Richard J. Wroblewski, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 3, 1971, Ser. No. 139,494

Int. Cl. B65h 75/28, 25/04

U.S. Cl. 242-210

15 Claims



A take-up device, adapted to receive a hub on a rotatable support member of such device and to wind strip material onto a hub so received, is provided with a plurality of guide members which are movable to respective threading positions surrounding a received hub for directing strip material against the received hub. One of the guide members is movable to several sensing positions (1) for detecting the presence at the support member of a hub without strip material wound thereon, (2) for detecting the absence of a hub at the support member and (3) for detecting the presence at the support member of a hub with a predetermined length of strip material wound thereon. A control is operatively associated with the sensing guide member and a strip feeding mechanism for preventing strip threading either in the absence of a hub at the support member or should a hub with a predetermined length of strip material wound thereon be received on the support member. Upon threading of strip material onto a received hub, a trailing portion of such material is tensioned; whereupon, a tension sensing mechanism actuates retraction of the guide members other than the sensing guide member from the outermost convolution of strip material wound onto the received hub.

3,740,002

INTERFEROMETER TYPE HOMING HEAD FOR GUIDED MISSILES

Jacob W. Schaefer, Watchung, N.J., assignor to The United States of America as represented by the Secretary of the Army

Filed Nov. 23, 1966, Ser. No. 596,736

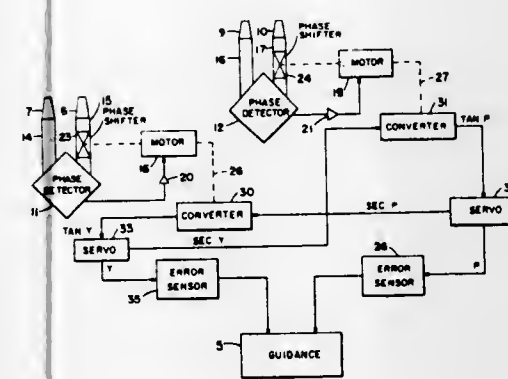
Int. Cl. G01s 3/42

U.S. Cl. 244-3.19

6 Claims

Two detecting systems are used to generate yaw and pitch

error signals for obtaining a collision course with a target, and



the systems are interconnected to exchange information.

3,740,003

SECONDARY INJECTION/JET REACTION CONTROL

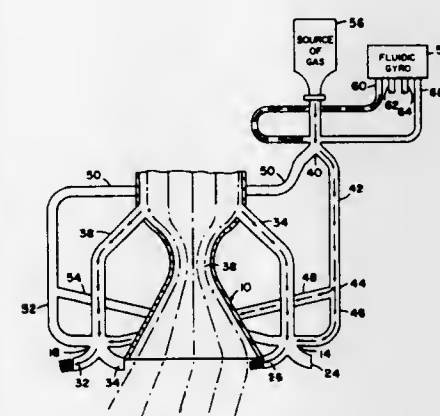
Vernon Hall Ayre, and J. C. Dunaway, both of Falkville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 13, 1972, Ser. No. 234,091

Int. Cl. F41g 7/00; B64c 15/06

U.S. Cl. 244-3.22

3 Claims



The present invention incorporates a missile control technique which combines secondary injection with jet reaction to control the flight path of the missile. The technique uses four double opposed jet units and bi-stable fluid amplifiers to selectively control the flow of fluid through the nozzles.

3,740,004

VERTICAL FLIGHT PATH COMPUTER

Jerry Doniger, Montvale, N.J.; Carson Morse, Dayton, and Siegfried Knemeyer, Yellow Springs, both of Ohio, assignors to The Bendix Corporation, Teterboro, N.J.

Filed Dec. 27, 1967, Ser. No. 693,970

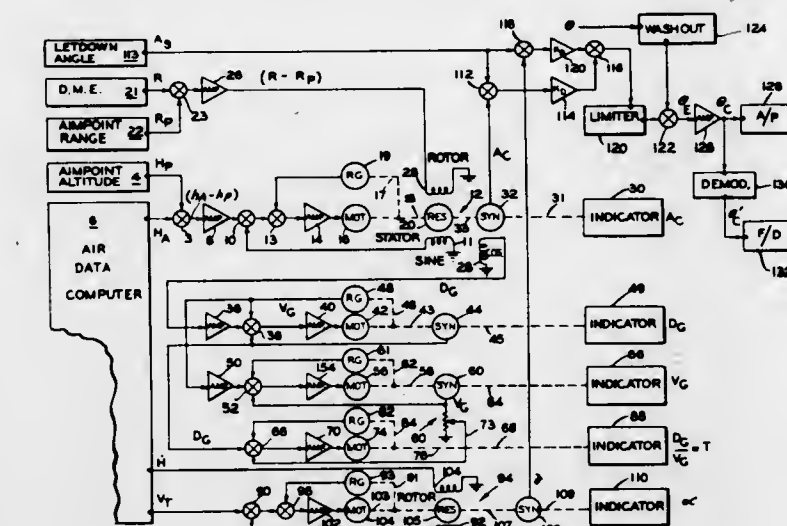
Int. Cl. B64c 19/00

U.S. Cl. 249-77 D

13 Claims

A system for guiding vertical flight of an aircraft to a predetermined aimpoint and including means for displaying for pilot information the angle between the line of sight of the craft to the predetermined aimpoint and the horizontal, the ground distance from the aircraft to the predetermined aimpoint, the ground speed of the aircraft, the time to reach the aimpoint and the angle between the aircraft velocity vector and the horizontal. The craft is guided during vertical maneuvers in response to a signal corresponding to the angle between the line of sight of the aircraft to the predetermined aimpoint and the horizontal, a signal corresponding to the

angle between the aircraft velocity vector and the line of sight of the aircraft to the predetermined aimpoint, and a signal cor-



responding to the angle between the aircraft velocity vector and the horizontal.

3,740,005

ROCKET ASSISTED EJECTION SEATS

Alfred James Rivers, Rowledge, Near Farnham, England, assignor to The Secretary of State for Defense in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

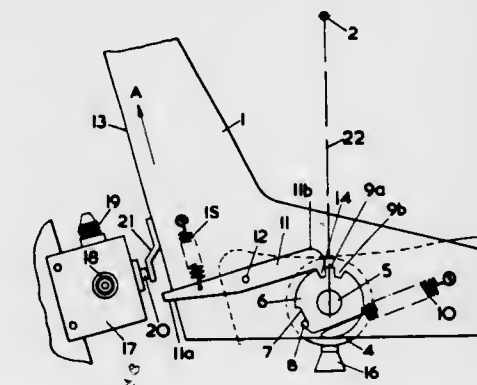
Filed July 1, 1971, Ser. No. 158,735

Claims priority, application Great Britain, July 1, 1970, 31879/70

Int. Cl. B64d 25/10

U.S. Cl. 244-122 AD

10 Claims



A rocket assisted ejection seat has means whereby the thrust line of the rocket motor may be selected, during an ejection sequence, according to the airspeed of the aircraft at the time of the ejection. The thrust line is locked relative to the seat before the rocket motor is fired. A two position arrangement described in detail has the thrust line locked in a position suitable for low speed ejection, selection of, and locking into position of a thrust line suitable for high speed ejection being effected as the seat moves relative to the aircraft at ejection above a predetermined airspeed.

3,740,006

AIRCRAFT CABIN OUTFLOW VALVE WITH TORQUE REDUCTION AND NOISE ABATEMENT MEANS

John F. Maher, Enfield, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed July 29, 1971, Ser. No. 167,115

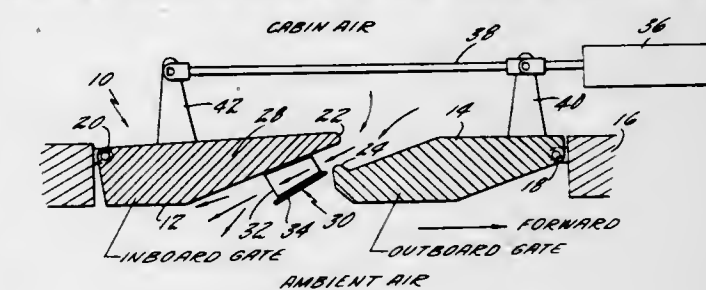
Int. Cl. B64c 1/14

U.S. Cl. 244-129 D

5 Claims

Noise abatement and actuation torque reducing means are added to a cabin outflow valve of the type having an inboard and outboard gate each being pivotally mounted adjacent the

skin of the aircraft so that the inboard gate moves into the cabin and the outboard gate moves into the slipstream and the outer ends are formed so as to define a thrust recovery nozzle in the partially open position. The noise abatement and torque reduction means includes a duct-like member mounted on the



under surface of the inboard gate adjacent the outboard gate having its leading edge in axial alignment with the discharge flow through the gate valve and discharging therefrom in substantially an axial direction when in the thrust recovery position.

3,740,007

COMBAT RESCUE POD

Alexander E. Waller, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 29, 1971, Ser. No. 138,412

Int. Cl. B64d 25/02; A62b 1/16

U.S. Cl. 244-137 P

10 Claims



A rescue pod for retrieving downed pilots from hostile environments. A pod is suspended from an aircraft with fuel occupying its internal space. The fuel is used during flight to the downed crewmen or transferred to an internal tank before rescue. Upon reaching the rescue area, a hoisting line is lowered from the pod to the man awaiting rescue who is then taken into the internal pod chamber. The pod is then closed and raised to a horizontal position. The crewman is protected from air loads, hot jet efflux and small arms fired by the pod.

3,740,008

MULTI-KEELED KITE

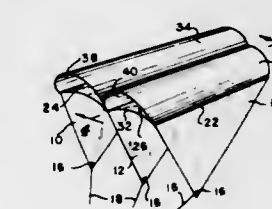
Edwin L. Grauel, 774 Elmwood Terrace, Rochester, N.Y.

Filed Oct. 12, 1971, Ser. No. 188,105

Int. Cl. B64c 31/06

U.S. Cl. 244-153 R

8 Claims



A multi-keeled kite including a horizontal panel between the keels and a panel overlying the horizontal panels and forming therewith an open ended passage of uniform cross section extending from the leading to the trailing end of the kite. The passages are inflated by air movement and aid in maintaining the kite in flying configuration and in increasing lift of the kite.

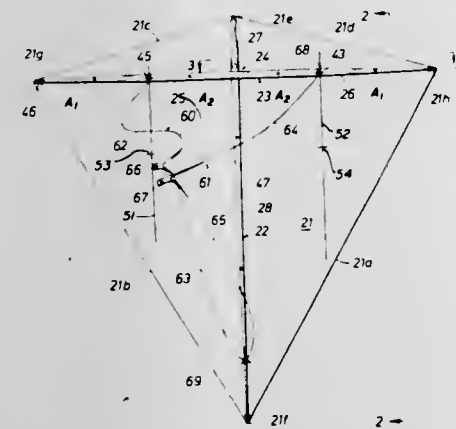
3,740,009 KITE

Malcolm Rex Curtis, 3224 Timmons Lane, No. 157, Houston, Tex.

Filed Mar. 15, 1971, Ser. No. 124,046
Int. Cl. B64c 31/06

U.S. Cl. 244—153 R

22 Claims



This disclosure relates to kite assemblies and constructions wherein the structural members are comprised of plastic materials and structured to maximize strength and minimize weight. Means are provided to releasably interconnect the transverse or horizontal frame member and the longitudinal or vertical frame member in a locked position. The upper end of the vertical frame member is provided with shock-absorbing means which can be integrally formed on the vertical member by means of an appropriate curvature of a semi-resilient portion member. The bridle lines are formed of plastic and have hook-shaped ends for snap retention in eyelets on the horizontal and vertical frame members. A double eyelet is provided on the vertical frame member to permit adjustment of the length of the bridle members. The eyelets on the horizontal frame member are located on lines parallel to the vertical frame member which substantially intersect the center of pressures of the kite cover. Nibs are provided along the corresponding openings in a kite cover to permit distribution and equalization of stress. A bayonet type connection is provided for the ends of the frame members to be received in reinforced openings in the kite cover. In one form, the forward face of the kite cover is disposed at an angle to increase the flight mobility.

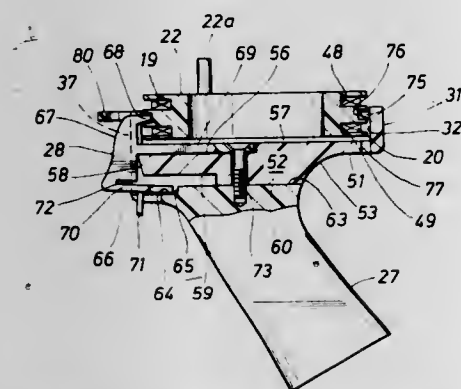
3,740,010 KITE CONTROLLER

Malcolm Rex Curtis, 3224 Timmons Lane, No. 157, Houston, Tex.

Filed Oct. 22, 1970, Ser. No. 82,940
Int. Cl. B64c 31/06

U.S. Cl. 244—155 A

14 Claims



A dual line flight controller is disclosed and consists of a hand manipulatable support carrying a dual line spool or reel mounted for rotation about a vertical axis for paying out and for reeling in control lines. Spaced-apart guide members on the support receive individual control lines which are

separately spooled on the single reel. A trigger-operated brake is provided to positively control spooling of the control lines and also functions to retain the spool within the support. Disconnect means are provided to selectively release the spool from the support.

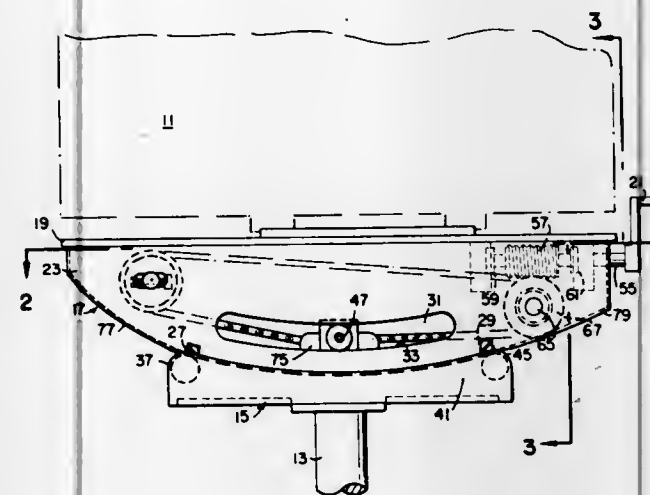
3,740,011 TILTABLE INSTRUMENT SUPPORT HEAD

Colin G. Dickson, Los Altos, and Kenneth A. Wickersheim, Palo Alto, both of Calif., assignors to Spectrotherm Corporation, Mountain View, Calif.

Filed Apr. 17, 1972, Ser. No. 244,646
Int. Cl. F16m 11/12

U.S. Cl. 248—183

15 Claims



A cradle for attachment to an instrument is supported along a curved bottom surface against gravity by spatially separated rollers on a base member. A crank extending from one end of the cradle moves the curved bottom surface of the cradle over its supporting rollers by pulling against a chain that is fixed to the base member. There is a worm gear connection communicating motion from the crank handle to the chain.

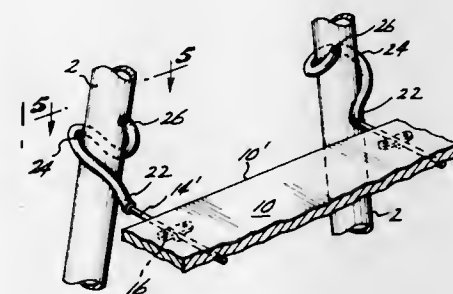
3,740,012 TRIPOD ACCESSORY ATTACHMENT DEVICE

Harold R. Millen, 506 21st S.E., Auburn, Wash.

Filed July 9, 1971, Ser. No. 161,220
Int. Cl. A47f 7/00

U.S. Cl. 248—201

6 Claims



A device is disclosed for supporting artist's accessories on the tripod of an easel or the like. The device comprises a pair of spaced parallel coplanar arms which are connected the accessory to project therefrom, and to be rotatable about the longitudinal axes thereof, and which have free-ended convolutions on the projected end portions thereof that are rotated into a bind fit with a pair of legs in the tripod when the arms are generally horizontally disposed adjacent the legs and the device is rested thereon.

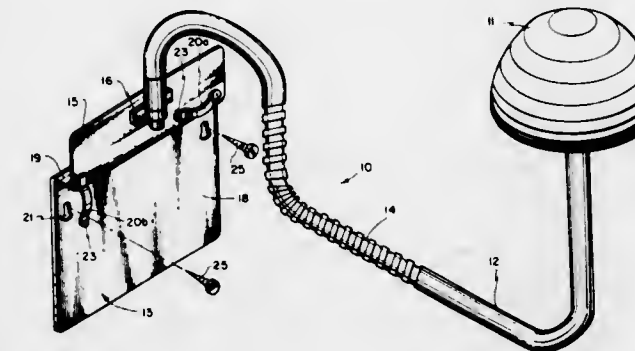
3,740,013 WIG TOTE

Alone M. Bentley, and Laurie A. Willson, both of 4739 W. 164th Street, Lawndale, Calif.

Filed June 16, 1971, Ser. No. 153,579
Int. Cl. F16m 13/02

U.S. Cl. 248—224

4 Claims



A device for holding a hairpiece such as a wig is disclosed. A half-crown styrofoam member is provided to hold the hairpiece. The crown member is supported by a tubular arm which is in turn supported by a unique bracket which permits the wig tote to be transported in an automobile, mounted on a piece of furniture, or readily attached to a wall member and the like.

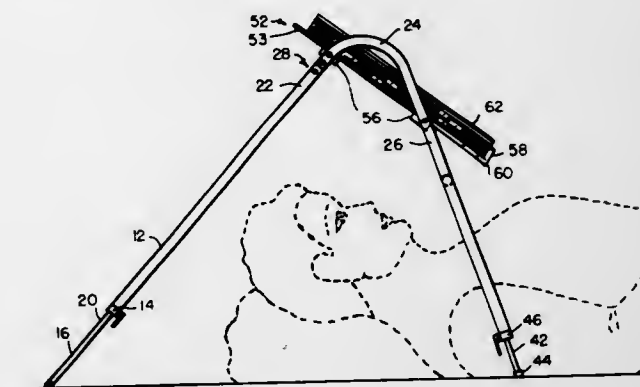
3,740,015 BOOK SUPPORTING DEVICE

John F. Adams, 55 Lee Road, Chestnut Hill, Mass.

Filed May 17, 1971, Ser. No. 144,072
Int. Cl. A47b 23/00

U.S. Cl. 248—445

2 Claims



A book supporting device adapted for use by a person in a reclining position comprising a transparent inclined surface supported between laterally spaced angularly extending support members, the legs of the support members extending into telescopic engagement with the frame thereof and maintained in fixed relation therein by clamp members.

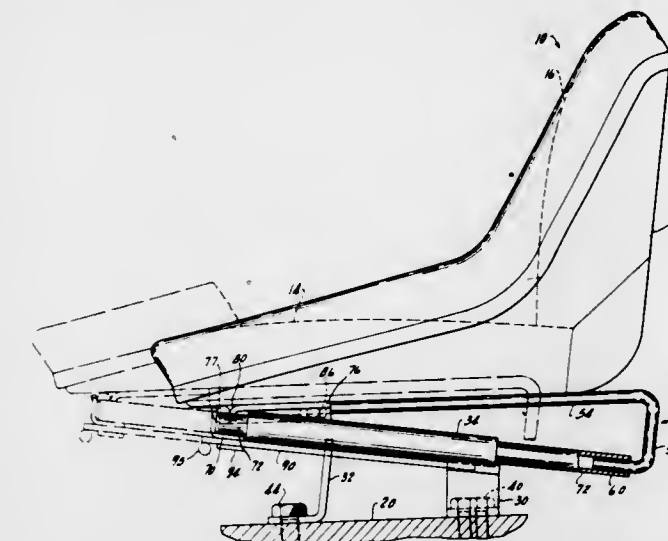
3,740,014 ADJUSTABLE SEAT ASSEMBLY FOR VEHICLE

Richard F. Swenson, Milwaukee, and Claude B. Hisey, West Allis, both of Wis., assignors to Swenson Corporation, Red Granite, Wis.

Filed Jan. 20, 1972, Ser. No. 219,339
Int. Cl. F16m 7/24

U.S. Cl. 248—373

12 Claims



An adjustable seat assembly for a vehicle comprises a pair of spaced-apart parallel support tubes which are mounted on the vehicle by means of a support bracket. Seat attachment means are provided and include a seat attachment plate and a pair of seat tubes which are slidably or telescopically engageable with the front ends of the tubes. A U-shaped torsion bar has two reversely-curved ends which are slidably or telescopically engageable with the rear ends of the seat tubes. Means are provided for bolting a seat to an attachment plate underlying the U-shaped end of the torsion bar so as to entrap the U-shaped end of the torsion bar therebetween. The seat, seat attachment means and torsion bar are slidable as a unit longitudinally with respect to the support tubes to desired positions. A spring-biased notched locking bar is pivotably connected to the attachment means and any one of its notches can engage the edge of slot in the tube support bracket to lock the seat in a desired position.

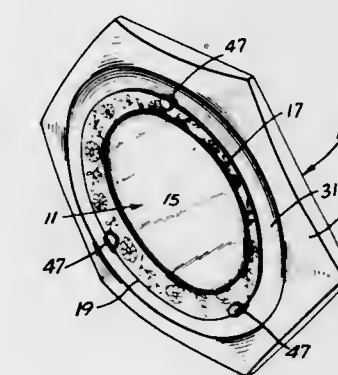
3,740,016 DECORATIVE PLATE DISPLAY DEVICE

Theodore H. Buescher, La Grange Park, Ill., assignor to Kraftco Corporation, New York, N.Y.

Filed Nov. 3, 1971, Ser. No. 195,214
Int. Cl. A47g 1/24

U.S. Cl. 248—488

4 Claims



A device for supporting a plate such as a flatware dinner plate in an attitude suitable for display includes a frame having a central opening defining an interior frame edge and at least two hooks adjustably connected at the back side of the frame and extending through the opening to a position adjacent the front surface of the frame to securely cradle the plate.

3,740,017 CLAMPING DEVICE FOR CLOSING AN UNCONTROLLABLY FLOWING SUBMERGED WELL

Ivo C. Pogonowski, c/o Texaco Inc., P.O. Box 425, Bellaire, Tex.

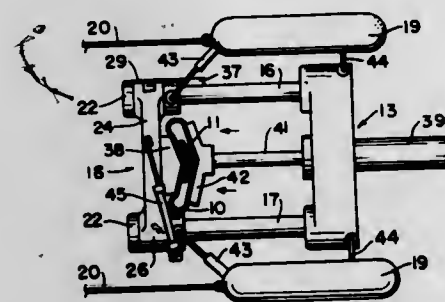
Filed Dec. 30, 1970, Ser. No. 102,688
Int. Cl. F16l 55/14

U.S. Cl. 251—5

7 Claims

The invention relates to an apparatus which embodies a clamping device that is submergible, and remotely operable to close an offshore well casing and flow line. The apparatus includes a clamping head formed with spaced apart arms which define an opening for engaging the well casing. A displaceable

truss is carried on one arm and engageable with the other whereby to fasten said clamping device to the casing prior to



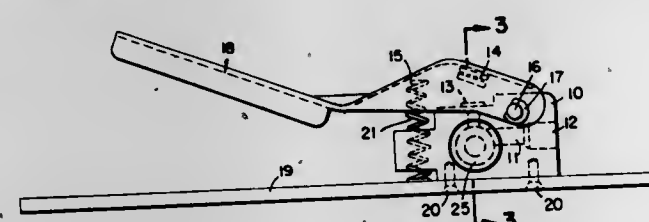
actuation of a hydraulic ram which deforms the casing and flow line to minimize or preclude fluid flow therethrough.

3,740,018 SAFETY CONTROL HANDLE FOR AIR ACTUATED EQUIPMENT

Mark W. Cleary, San Francisco, Calif., assignor to Clemco-Clementina Ltd., San Francisco, Calif.
Filed Jan. 28, 1972, Ser. No. 221,623
Int. Cl. F16k 35/00

U.S. Cl. 251-94

10 Claims



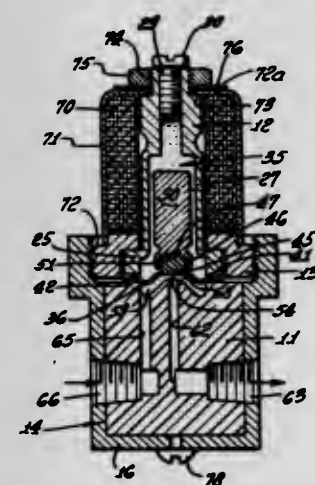
A control handle for air actuated equipment is disclosed which includes means for preventing the control handle from being operated unintentionally as well as "dead man" safety features. An abrasive blasting system utilizing the control handle of this invention is described.

3,740,019 ZERO DISPLACEMENT DIAPHRAGM VALVE

Archie Kessell, Huntington Beach, and Charles Stephens Phelan, Tustin, both of Calif., assignors to Rohe Scientific Corporation, Santa Ana, Calif.
Filed Dec. 2, 1971, Ser. No. 204,278
Int. Cl. F16k 7/12, 31/06

U.S. Cl. 251-129

1 Claim



A fluid valve which upon opening or closing does not displace any fluid in the system because the volume in the fluid line is maintained constant. This is accomplished by means of an actuator operated flexible diaphragm which faces the fluid line and which, on its opposite side, faces a sealed chamber

completely filled with a liquid, such as water. When the diaphragm is moved away from the chamber, its central portion closes the valve. Since the volume in the chamber will not change, the diaphragm will flex and accordingly the volume in the fluid line will not change. The actuator is within the sealed chamber and is electromagnetically movable by a coil as in a solenoid.

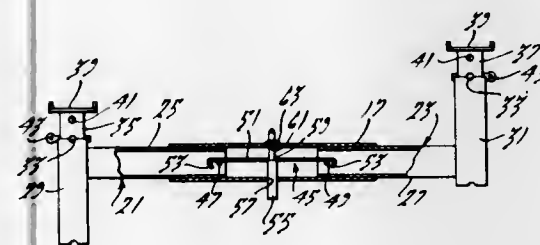
3,740,020 LIFT BEAM RETAINING MEANS

Lyle L. Arnes, Racine, Wis., assignor to Tenneco Inc., Racine, Wis.

Filed June 11, 1971, Ser. No. 152,220
Int. Cl. B66f 3/00

U.S. Cl. 254-134

15 Claims



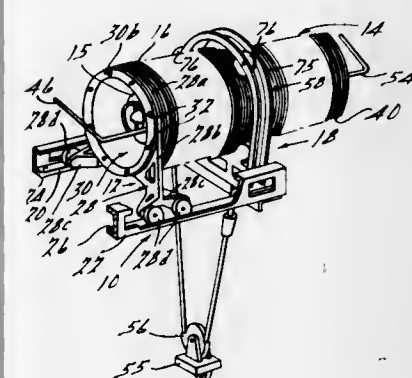
A lifting beam for a jack of the one end lift type has slidable end sections and a latch arrangement for holding them in place to prevent accidental removal.

3,740,021 HOIST

Donald E. Sommer, Birmingham, Mich., assignor to Eaton Corporation, Cleveland, Ohio
Filed Sept. 29, 1970, Ser. No. 76,514
Int. Cl. B66d 1/00

U.S. Cl. 254-186 R

7 Claims



A cable-type hoist mechanism in which the cable drum is journaled on a carriage arranged to ride along a horizontal track and a single helical groove is provided on the exterior cylindrical surface of the drum; a portion of the helical groove receives the wound cable and a vacant portion of the groove coacts with a partial ball nut to thread the drum axially along the track in response to positive rotation of the drum by an air motor mounted on the carriage.

3,740,022 LOADING DOCK SAFETY GUARD

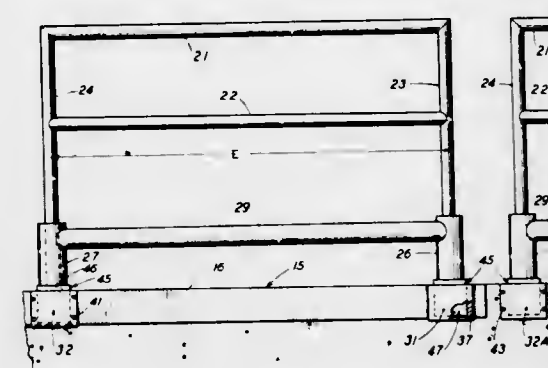
Samuel J. DiGiovanni, 4166 Fauna St., Montclair, Calif.
Filed Feb. 14, 1972, Ser. No. 226,150
Int. Cl. E04h 17/14

U.S. Cl. 256-24

6 Claims

A spaced pair of U-shaped anchor receptacles is fixed to the side of the loading dock and a short sleeve rises from each

receptacle. The sleeves are hollow to accept a fence section and extend longitudinally. One or more stress-transmitting elements are connected with the reinforcing elements, being



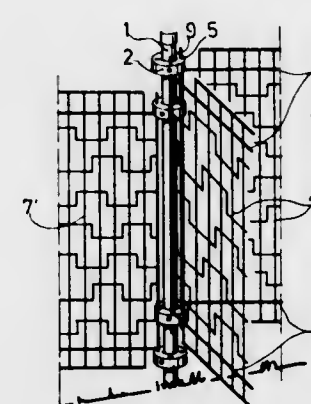
horizontal railing at a high position, the high and low railings guarding against people and equipment overstepping the dock.

3,740,023 FENCING

Frans Bruggeman, Zulzeke, Belgium, assignor to N. V. Bekaert S.A., Zwevegem, Belgium
Filed Apr. 10, 1972, Ser. No. 242,455
Claims priority, application Belgium, Apr. 13, 1971, 765622
Int. Cl. E04h 17/24

U.S. Cl. 256-24

2 Claims



This invention relates to a fencing consisting of posts and of panels of welded mesh, trelliswork or suchlike, mounted between these posts, the said fencing being characterized in that each post is provided with at least two rings which can be shifted or moved longitudinally with respect to the post over the post and can be fastened to the post at any point thereof, and in that each panel is provided with a rigid wire or rod at its edges adjoining the posts, whereby thickenings or crossbars emerging from this rigid wire or rod are provided at a short distance from both extremities of this rod, while a first set of two rings of each post is provided with longitudinal apertures corresponding to each other for engaging the extremities of the rigid wire or rod of at least one of the panels adjoining this post.

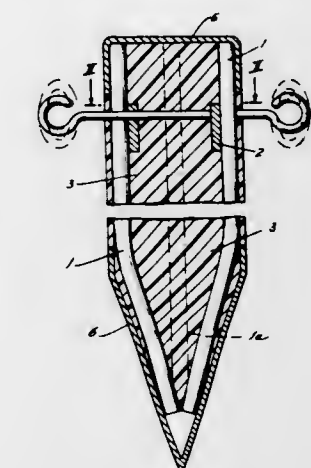
3,740,024 REINFORCED POST OF SYNTHETIC PLASTIC MATERIAL

Walter Hellerich, Hellbronn, and Volker Sadowski, Biesfeld, both of Germany, assignors to Arbed S.A. Arbed-Felten & Guillaume Vereinigte Drahtwerke, Cologne, Germany
Filed May 21, 1971, Ser. No. 145,845
Int. Cl. E04h 17/20

U.S. Cl. 256-51

5 Claims

An elongated post body is composed of synthetic plastic material in which metallic reinforcing elements are embedded



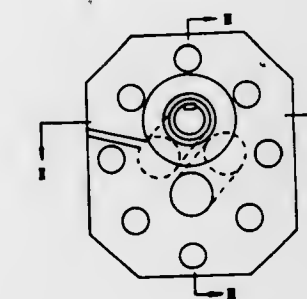
in part embedded in the material of the post body and extending in part beyond the post body where they may be provided with hooks, eyes or the like.

3,740,025 APPARATUS FOR CONVEYING, MIXING AND HOMOGENIZING HIGH VISCOSITY MATERIALS

Eberhard Ruf, Bergen-Enkheim, Germany, assignor to Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen, Frankfurt am Main, Germany
Filed Dec. 16, 1971, Ser. No. 208,701
Claims priority, application Germany, Dec. 18, 1970, P 20 62 469.5
Int. Cl. B01f 7/24

U.S. Cl. 259-7

10 Claims



In a pump for conveying, mixing and homogenizing a highly viscous material wherein an additive is to be admixed, improved mixing is obtained by providing a casing communicating with the pump outlet. The casing contains a rotatable worm synchronously connected to the pump shaft. Rotation of worm induces mixing of the additive and viscous material. The improved pump is particularly suited for linear high polymers or copolymers.

3,740,026 LIQUID AGITATOR AND DISPENSING SYSTEM

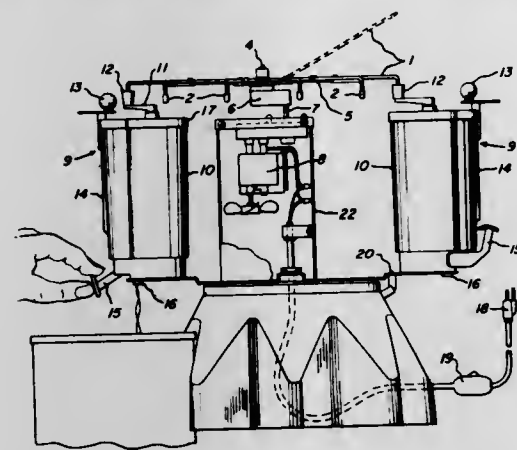
Joseph V. Wilke, Chicago, Ill., assignor to Graco Inc., Minneapolis, Minn.
Filed Jan. 27, 1972, Ser. No. 221,323
Int. Cl. B01f 7/16

U.S. Cl. 259-67

7 Claims

A series of agitators driven by a single motor that is capable of stirring several liquid or paint colorant containers at the same time. The agitators may be selectively moved to engage or disengage their respective containers to allow manual stir-

ring or filling of any desired number. Each agitator is driven through a circular stirring motion by a rotating motor shaft which is attached to a single eccentric member. A dispensing meter is attached to each container to precisely meter the desired amount of stirred liquid or paint colorant.



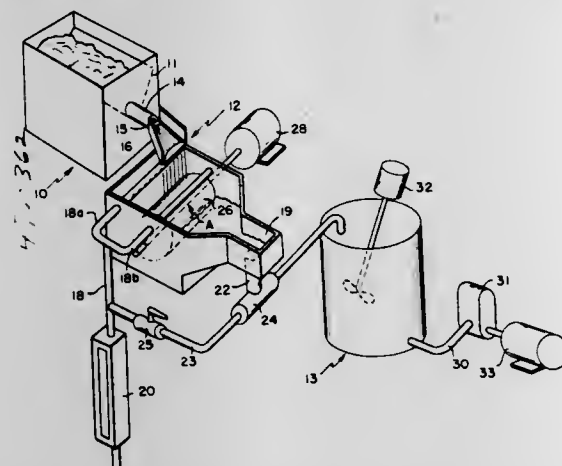
3,740,027

PARTICLE WETTING APPARATUS

Kalman Kormos, North Scituate, R.I., assignor to General Signal Corporation, Rochester, N.Y.
Filed Apr. 3, 1972, Ser. No. 240,500
Int. Cl. B011 7/12, 15/02

U.S. Cl. 259-69

10 Claims



Apparatus for wetting discrete particles of dry powder material such as polyelectrolytes, carbon and other hard to wet material, is disclosed in this application. The apparatus comprises a wetting tank which is provided with liquid supply and discharge mechanisms and a rotary drum which is only partially immersed in the liquid contained in the wetting tank. As the drum rotates it carries a thin layer of liquid on the surface portions not immersed in the liquid and also agitates the liquid in the tank. The powder is carried in a feeding hopper and discrete particles are discharged to the layer of liquid carried by the drum and thereafter the individually wetted particles are discharged into the liquid in the wetting tank where it starts to form a solution. The solution flows through the discharge mechanism and into a separate aging tank where the solution is finally formed. In one preferred embodiment of the invention a special spreader nozzle is used to spread the particles along a straight line on the drum.

3,740,028

INDUCTIVE CAVITATOR

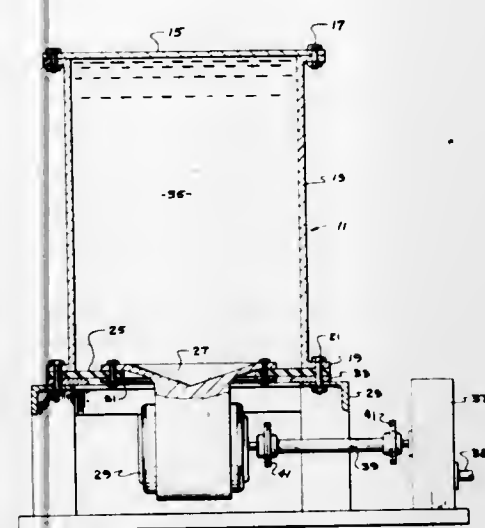
Albert G. Bodine, 7877 Woodley Avenue, Van Nuys, Calif.
Division of Ser. No. 856,953, Sept. 11, 1969, Pat. No. 3,633,877. This application Dec. 9, 1971, Ser. No. 206,567
Int. Cl. B011 1/100

U.S. Cl. 259-72

3 Claims

A tank for containing a liquid whose bottom portion is par-

tially comprised of a housing for an inductive oscillator having a pair of rotors. The rotors move in opposite directions so as to



3,740,029

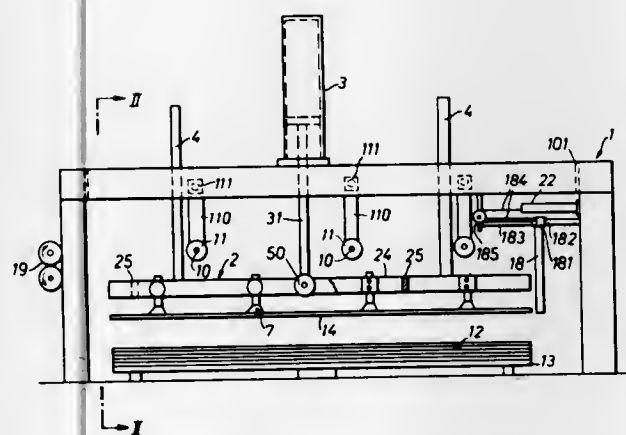
APPARATUS FOR REMOVING SHEETS FROM STACKS

Fernand Bays, Lausanne, Switzerland, assignor to Vidosa S.A., Crissier, Switzerland
Filed Apr. 19, 1972, Ser. No. 245,496
Claims priority, application Switzerland, Apr. 23, 1971, 5971/71; Mar. 22, 1972, 4277/72

Int. Cl. B65h 5/10, 5/14

U.S. Cl. 271-11

22 Claims



Apparatus for removing sheets from a stack of sheets includes a fixed frame and a movable frame mounted to the fixed frame, the movable frame being at least vertically movable relative to the fixed frame from a lower position adjacent a stack of sheets to an upper position. Further included is a plurality of suction grippers mounted to the movable frame for engagement with the top sheet of the stack, and a plurality of rotatable magnetic rollers mounted to the fixed frame for engaging and supporting a sheet which is raised up by the suction grippers and movable frame. A movable carrier member is provided for removing the sheet supported by the magnetic rollers, and means is provided for displacing the suction grippers relative to the movable frame to clear the sheet supported by the magnetic rollers during movement of the carrier member, so that the movable frame can be lowered past the supported sheet to engage a further sheet from the stack during removal of the supported sheet without interfering with the removal operations.

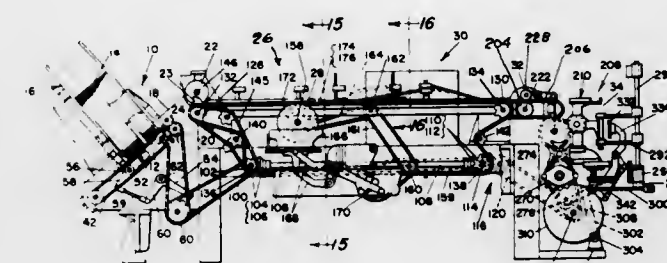
3,740,030

APPARATUS FOR PRODUCING CARTONS

John W. Scully, Raynham, Mass., assignor to Pneumatic Scale Corporation, Quincy, Mass.
Division of Ser. No. 813,172, April 3, 1969, abandoned. This application July 12, 1971, Ser. No. 161,613
Int. Cl. B65h 1/66, 3/06

U.S. Cl. 271-35

4 Claims



Apparatus comprising a side seaming device adapted to fold a prescored carton blank along two score lines and to provide an adhesively secured side seam to form a flat tube. The apparatus also includes a carton blank feeding device preceding the side seaming device for feeding blanks to the latter and a device following the side seaming device for reverse folding the flat tube along the remaining two score lines.

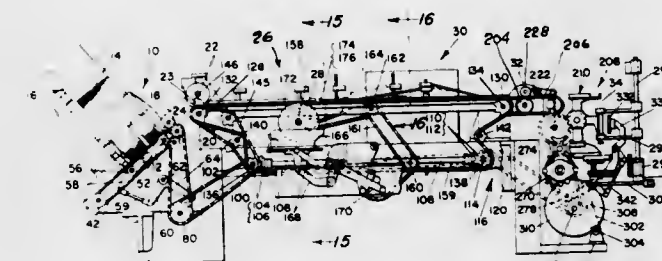
3,740,031

APPARATUS FOR PRODUCING CARTONS

John W. Scully, Raynham, Mass., assignor to Pneumatic Scale Corporation, Quincy, Mass.
Division of Ser. No. 813,172, April 3, 1969. This application July 12, 1971, Ser. No. 161,612
Int. Cl. B65h 3/04

U.S. Cl. 271-35

9 Claims



Apparatus comprising a side seaming device adapted to fold a prescored carton blank along two score lines and to provide an adhesively secured side seam to form a flat tube. The apparatus also includes a carton blank feeding device preceding the side seaming device for feeding blanks to the latter and a device following the side seaming device for reverse folding the flat tube along the remaining two score lines.

3,740,032

HELICOPTER TOY

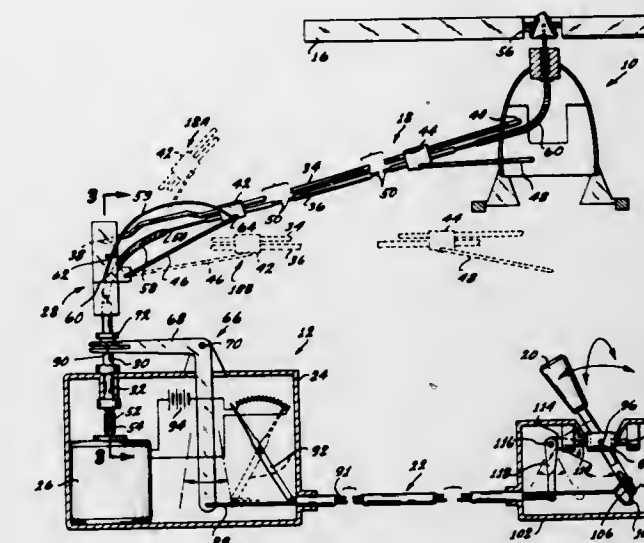
Richard S. Chang, Rolling Hills Estates, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Dec. 16, 1971, Ser. No. 208,572
Int. Cl. A63h 27/12

U.S. Cl. 272-31 B

7 Claims

A toy helicopter system that can be produced at low cost, and which enables remote control of the flight of a toy helicopter by tilting it. The system includes a housing designed to rest on the ground, and a modified parallelogram boom connecting the housing to the helicopter to control it and to guide a flexible shaft that drives the helicopter rotor from a motor in the housing. A child can make the helicopter fly forward or backward by operating an actuator that twists the boom to alter the pitch orientation of the helicopter so its

rotor pulls it forward or backward. One of the arms of the boom is hollow and serves as a guide for a flexible shaft that extends from the housing to the helicopter rotor to drive it.



The hollow arm is shorter than the other arm, and opposite ends of the hollow arm are connected by pivotally mounted links to the housing and helicopter, respectively, and the hollow arm is connected by slide connectors to the other arm.

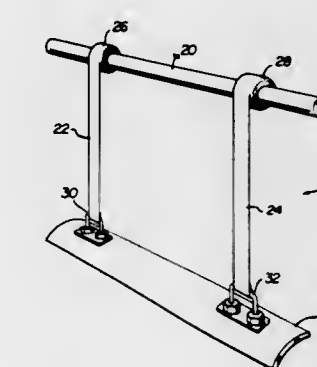
3,740,033

BELT TYPE ISOTONIC EXERCISING DEVICE

Craig D. Kamp, Fort Lauderdale, Fla., assignor to Thomas J. Perri, Pembroke Pines, Fla., a part interest
Filed June 10, 1971, Ser. No. 151,766
Int. Cl. A63b 21/30, 21/00

U.S. Cl. 272-79 R

5 Claims



An exercising device for carrying out isotonic exercises wherein a rod is connected to the under side of a curved base strip by a pair of flat straps, which are rolled on themselves on the rod, is gripped by a user with a material which slips, and the rod is moved away from the base strip with the straps taut. The rod rotates in the material and the straps unroll from the rod. The force required to move the rod is regulated by the strength of the friction developed which is in proportion to the grip of the user.

3,740,034

COLLAPSIBLE CUE STICK

E. J. Scroggins, Box 596, Kinder, La.
Filed May 17, 1971, Ser. No. 143,815
Int. Cl. A63d 15/08

U.S. Cl. 273-68

8 Claims

A collapsible cue stick having a butt section within which a tip shaft section can be telescopically received so that the two sections can be stored one within the other. A bayonet lug

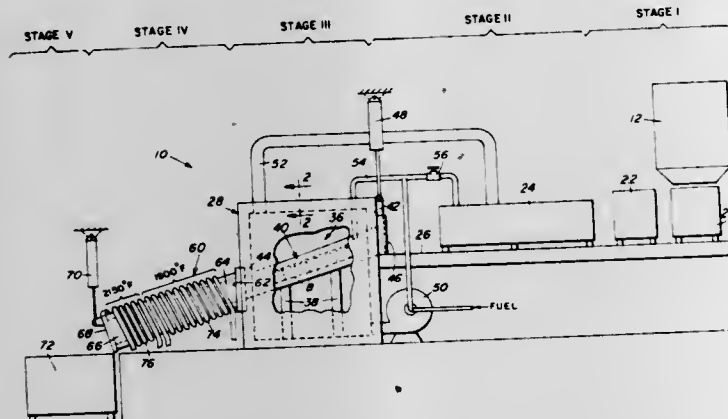
3,740,042

DIRECT REDUCTION APPARATUS

Jesse J. Baum, 10419 Kelso Drive, Sun City, Ariz.
Filed Mar. 1, 1971, Ser. No. 119,456
Int. Cl. C21b 1/00

U.S. Cl. 266—9

14 Claims



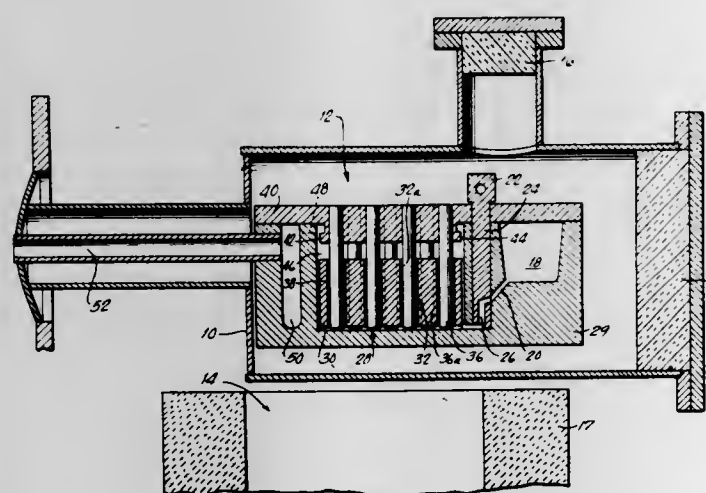
A direct reduction apparatus having a means for briquetting oxide ores or iron, manganese, chrome, and copper, with a powdered coal tar pitch, means for caramelizing (hardening) the briquettes for ease of handling, subjecting the caramelized briquettes to a first temperature source until said briquettes are partially reduced to conductivity, their dimensions are substantially reduced and subsequently reducing said briquettes by subjecting them to a frequency electric induction induced heat source.

3,740,043

APPARATUS FOR VAPORIZING MOLTEN METAL
William A. Reed, West Richfield, and Frank J. Cole, Parma, both of Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio
Division of Ser. No. 40,500, May 26, 1970, Pat. No. 3,640,762.
This application Aug. 20, 1971, Ser. No. 173,683
Int. Cl. C21c 7/10

U.S. Cl. 266—34 R

12 Claims



Apparatus and method for vaporizing molten metal without entrainment of liquid droplets includes charging a pool of molten metal into a chamber in which there is a block having a plurality of passages. A finger is disposed in each passage of the block, a space being left between the inner surface of the passage and the outer surface of the finger to create a shell of fluid metal within the passage. Heating the shells of fluid metal generates metal vapor. The metal vapor is passed through a tortuous path and then directed by a nozzle toward a moving substrate to be coated.

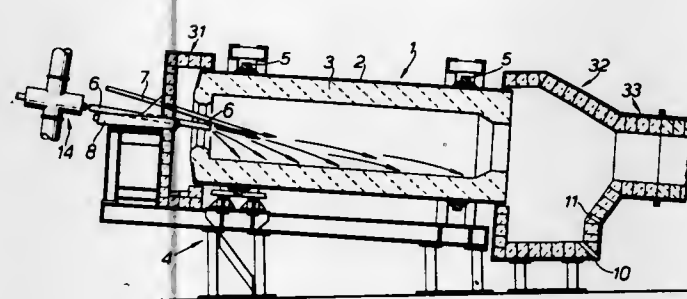
3,740,044

METHOD AND APPARATUS FOR THE PRODUCTION OF IRON OR STEEL

Andray Uemllamin, Redcar, England, assignor to The British Iron and Steel Research Association, London, England
Filed Jan. 19, 1972, Ser. No. 218,890
Int. Cl. C21c 5/28

U.S. Cl. 266—36 H

10 Claims



An iron or steelmaking process in which particles of coke or iron ore are fed into a horizontally-disposed furnace which rotates at high speed. The particles enter a discharge tube by means of a slot in the tube wall and are ejected from the discharge end of the tube into the furnace by pulses of compressed air, thus spreading the particles over the length of the furnace.

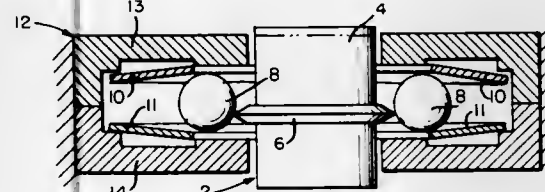
3,740,045

PRECISION DISC SPRINGS

Julius C. Westmoreland, 6607 Avenida de Las Pascas, La Jolla, Calif.
Filed July 19, 1971, Ser. No. 163,576
Int. Cl. F16f 1/20

U.S. Cl. 267—162

9 Claims



A disc spring arrangement utilizing the axial resilience of two parallel annular disc spring elements held apart a fixed (but adjustable) distance at two adjacent circular disc circumferences, the other two circular edges being free to move away from each other under the influence of blunt wedge means acting radially on said free edges under the influence of a cam actuator, and reacting in turn on the wedges when the cam actuator is moved back to its initial position. The new disc spring is adapted for use in a wide range of applications requiring large loading capacity, and can be stacked to give a greater throw, and can also readily be made self-locking in either extreme position of the cam actuator to operate as a snap-lock device.

3,740,046

CARTON STRAPPING-ASSIST DEVICE

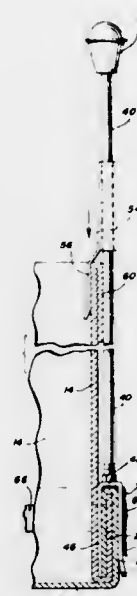
George Bellinder, Des Plaines, Ill., assignor to Harold A. Roth, Lake Villa, Ill., a part interest
Filed Nov. 17, 1971, Ser. No. 199,622
Int. Cl. B65b 67/00, 13/02

U.S. Cl. 269—3

8 Claims

A device for aiding persons in strapping cartons having interlocking bottoms and sides is provided, and comprises an

elongated rod having clamping means connected to an end thereof, which clamping means are utilized to hold together securely and instantly in any other precedence or technique where it is desirable to lock a slide fixture capable of two-way



bendable flaps which extend outwardly from the bottom of the carton and which envelop bendable flanges that extend outwardly from the sides of the carton.

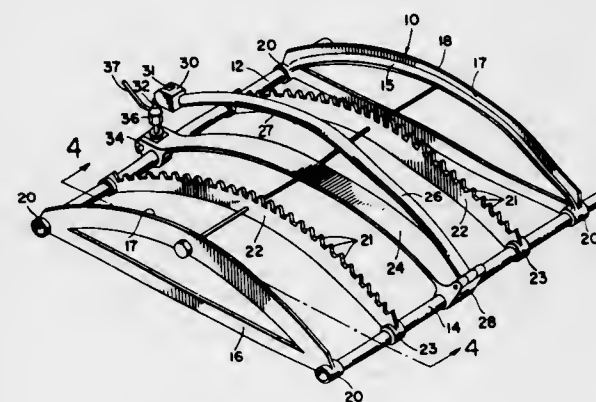
3,740,047

METHOD AND APPARATUS FOR BUILDING CARD SCREENS

Robert B. Jenkins, Sr., and Robert B. Jenkins, Jr., both of Gastonia, N.C., assignors to Jenkins Metals Shops, Inc., Gastonia, N.C.
Division of Ser. No. 752,091, July 11, 1968, Pat. No. 3,568,289. This application Dec. 28, 1970, Ser. No. 102,073
Int. Cl. B25b 1/20

U.S. Cl. 269—40

4 Claims



This invention relates to the manufacture of card screens, and more particularly to apparatus for fabricating sub-assemblies which are united in an assembled screen.

3,740,048

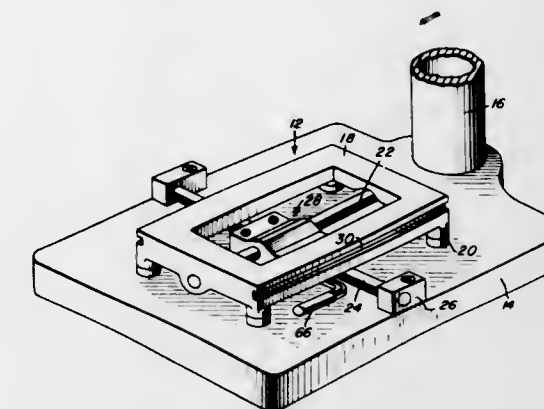
INSTANT TWO-WAY LOCK FOR WORK HOLDERS

Carl O. Lassy, 96 Bohemia St., Plainville, Conn., and William A. Lassy, 73 Grove Avenue, Forestville, Conn.
Filed May 13, 1971, Ser. No. 142,890
Int. Cl. B23q 3/02

U.S. Cl. 269—59

13 Claims

A locking assembly for instantly immobilizing the motion of a slide fixture at fixed selected positions to facilitate repetitive drilling, drilling through relatively thin material with a large drill in which procedure it is imperative to lock the fixture



motion instantly and securely in position so that the work carried by the fixture will be immobilized quickly and securely by actuating a single locking handle or actuator.

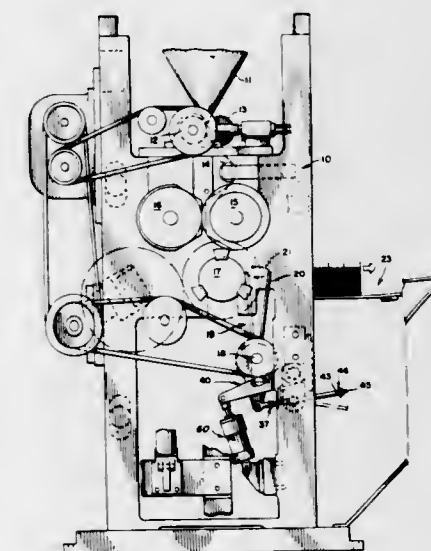
3,740,049

COUNTER SYSTEM FOR ORBITAL PACKER

David L. Fischer, Green Bay, Wis., assignor to Paper Converting Machine Company, Inc., Green Bay, Wis.
Filed Aug. 17, 1970, Ser. No. 64,332
Int. Cl. B411 43/04

U.S. Cl. 270—41

5 Claims



During normal operation, the orbiting fingers of a machine for packing individual web segments takes folded web segments, such as napkins, from a rotating vacuum cylinder and removes them from the surface of the cylinder and stacks them horizontally. A mechanism counting the napkins generates an electronic signal at a predetermined count, and the signal energizes a solenoid which actuates an air cylinder to rotate the packer fingers without changing their orbit to a position in which the fingers engage the web segment at an earlier part of the orbit when the web segment is slightly higher on the cylinder. The fingers then take a single napkin off of the vacuum cylinder at the higher position and transfer it to the stack in that position so that this napkin extends above the upper surface of the stack and becomes a count napkin.

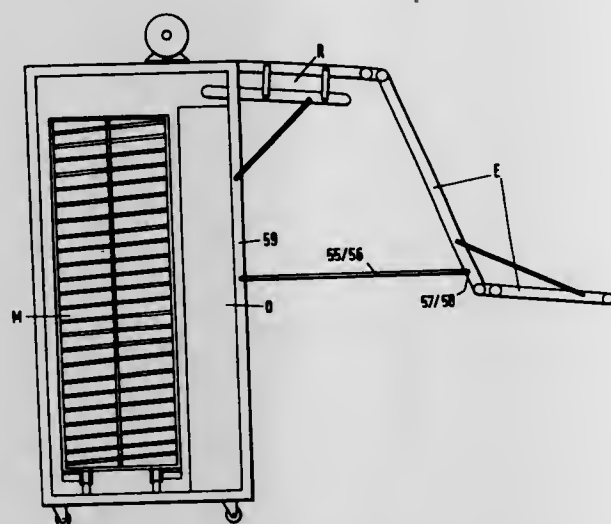
3,740,050
APPARATUS FOR ASSEMBLING A STACK OF SHEETS
 Josef Egied Jacobs, Vivegnis, Belgium, assignor to Ordibel S.P.R.L., Herstal, Belgium

Filed Aug. 6, 1970, Ser. No. 61,628
 Claims priority, application Luxembourg, Aug. 8, 1969, 59,256

Int. Cl. B65h 39/02

U.S. Cl. 270-58

22 Claims



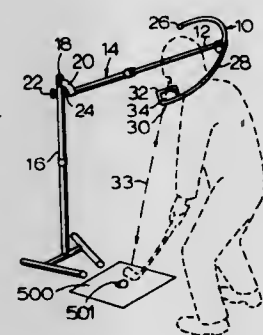
Apparatus for conveying single sheets received from a printing press or the like, conveying them by means of relatively narrow endless belts to an inversion section where the sheets are received in a supplemental conveyor in one direction and serve to activate belt conveyors removing the individual sheets in the direction opposite that which they were received; the individual sheets, while inverted for proper pagination, being received in a distribution conveyor successively distributing the individual sheets to receiving sections controlled by deflecting gates and in which the deflecting gates of the respective receiving sections are automatically oriented to a non-deflecting position by control means operatively associated with the receiving section and activated by a sheet received in the section; and distributing conveyors functioning to sort or collate individual sheets in both descending and ascending relation relative to vertically spaced receiving sections controlled by the sheet-operated gates.

3,740,051
GOLFER'S PRACTICE HEAD POSITION GUIDE
 Chaillos Cross, 1501 Vista Larga Court N.E., Albuquerque, N. Mex.

Filed Apr. 12, 1971, Ser. No. 133,106
 Int. Cl. A63b 69/36

U.S. Cl. 273-183 E

7 Claims



An apparatus for training a golfer, without physical restraint, to adopt and maintain proper head position during the execution of a golf swing. A guide ring, typically consisting of a smoothly curved loop of lightweight tubular plastic, is supported in a downward direction from one end of an elongated suspension arm. The guide ring is designed to surround

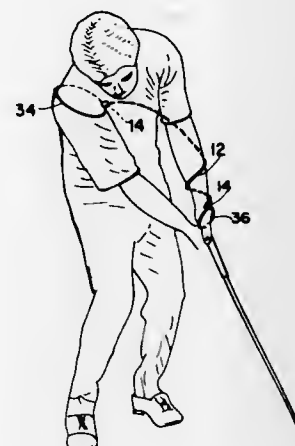
and extend above and below a golfer's head in close proximity without touching it. Pivotal connections between the guide ring and suspension arm are provided for adjusting the height of the guide ring above the ground and for rotating it into any desired inclination with respect to the golfer's head. At the bottom of the guide ring there is attached a small sighting frame having an internal aperture about the size of a pair of eyeglasses. In preparing to address a golf ball the golfer projects his head through the plane of the guide ring so that the sighting frame is close to his eyes as he focuses on the golf ball through the aperture. If the golfer moves his head in any direction during his stroke, he will be conscious of a change in its position and may take appropriate corrective action. If such movement is excessive, his head will make physical contact with the guide ring. A portion of the guide ring may be removed or distorted on one side to permit unrestricted movement of the golfer's head during the follow-through phase of his swing.

3,740,052
GOLF PRACTICE DEVICE
 Theodore E. Arkin, 3200 N. Lake Shore Drive, Chicago, Ill.

Filed Mar. 9, 1972, Ser. No. 233,273
 Int. Cl. A63b 69/36

U.S. Cl. 273-189 R

2 Claims



A golf practice device comprising an elastic and resilient member adapted to be attached and positioned with respect to the forearm of the player so that the arm is held straight against bending with the head properly positioned relative to the shoulder and to improve the pivoting of the body. The golf practice device includes a length of flexible, elastic and resilient cord including a clamp at each end thereof. The clamps are adapted to engage the cord at any position along the length thereof, so that a loop of any size may be formed at each end of the cord. The length of the cord is such that it may extend from a first loop encircling generally the area of a golfer's shoulder joint, across the golfer's back, around the golfer's forearm and to a second loop encircling the joint between the thumb and adjacent finger of the hand on the golfer's other arm. The shoulder engaging end of the cord also is adapted to be fastened to the golfer's belt. In order to also maintain the golfer's head in proper position, the shoulder engaging end of the cord is adapted to encircle the golfer's head, pass downwardly on a side of the golfer's face, under the golfer's chin, over and under the golfer's shoulder and then to the golfer's forearm and thumb.

3,740,053
GOLF PRACTICE DEVICE
 William H. Eiger, 36861 Lake Shore Boulevard, Eastlake, Ohio

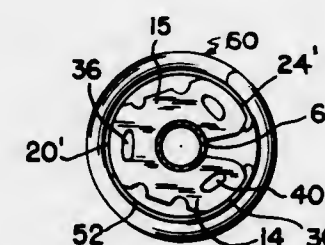
Filed Dec. 2, 1971, Ser. No. 204,120
 Int. Cl. A63b 69/36

U.S. Cl. 273-194 B

11 Claims

A golf practice and/or trainer device detachably locked to the shaft of a golf club to selectively weight the club including

a gripping member of elastomeric material having a bifurcated construction for snap-action insertion around the club shaft and a clamping member slidably disposed around the gripping member and dimensioned for resiliently deforming the gripping member so that the gripping and clamping members



are locked, as a unit, on the club shaft. In one form, the gripping member has a plurality of passageways disposed therein for increasing the deformability thereof, and a resilient shield is disposed between the gripping and clamping members to provide a bearing surface to facilitate assembly and disassembly of said parts.

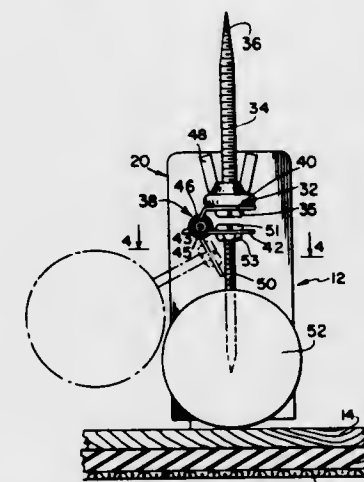
3,740,054
GOLF PRACTICE DEVICE
 Theodore E. Arkin, 3200 N. Lake Shore Drive, Chicago, Ill.

Filed Mar. 9, 1972, Ser. No. 233,274

Int. Cl. A63b 69/36

U.S. Cl. 273-197 A

9 Claims



A golf ball practice device includes a horizontal arm having inner and outer ends. The inner end of the arm is mounted in a support which permits the arm to be elevated and lowered to adapt same for use with golf club irons and woods, respectively. A pair of plates are hinged to each other and secured to the outer end of the arm. A coil spring is provided to bias the plates toward each other and maintain the plates substantially parallel. The upper plate is secured to the outer end of the arm by a stud having a pointed end and extending in a direction away from the lower plate. A golf ball is secured to the lower plate. The pointed stud is adapted to be inserted into the ground when the arm is in a lowered position and the device is used with golf club woods.

3,740,055
AUDIO REPRODUCING APPARATUS FOR RANDOM ACCESS PLAYBACK SYSTEMS
 David J. BenDaniel, 2508 McGovern Dr., Schenectady, N.Y.;

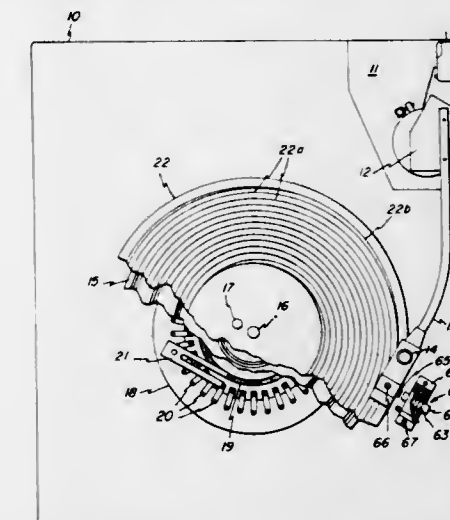
John O. Fielding, 27 Midline Rd., Ballston Lake, N.Y., and Henry Hurwitz, Jr., 827 Jamaica Rd., Schenectady, N.Y.
 Division of Ser. No. 827,792, May 26, 1969, Pat. No. 3,672,687. This application Apr. 8, 1971, Ser. No. 132,603

U.S. Cl. 274-9 RA

2 Claims

Audio playback apparatus is disclosed including a tone arm which is positioned electromagnetically to facilitate control

thereof in accordance with the position of a turntable relative to the tone arm. The apparatus is particularly suited for random access retrieval of audio information from a record including a plurality of nested spirals each corresponding to items of information on a display or selection chart. An array



of switches corresponding to individual items on the display and a position selector switch assembly operated by the position of the turntable relative to the tone arm cooperate to position the stylus of the tone arm in a spiral groove corresponding to the selected portion of the display.

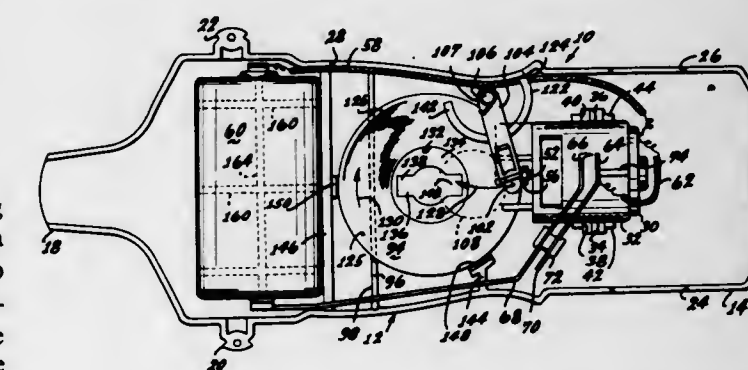
3,740,056
PHONOGRAPH TOY HAVING SWINGABLE MOTOR AND RECORD-SUPPORTING OUTPUT SHAFT
 Fleet E. Nuttall; Ralph R. Laing, both of Hermosa Beach;

James E. Marshall, Westminster; Tony Rhodes, Torrance; John E. Sargeant, Palos Verdes, and Larry D. Workman, Fountain Valley, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Dec. 17, 1971, Ser. No. 209,100
 Int. Cl. G11b 25/04

U.S. Cl. 274-9 B

10 Claims



Record-driving motor is swingably mounted and the motor output shaft is spring-loaded against a record thereby trapping a phonograph needle between record groove and fixed speaker cone. Needle pressure is relieved at end of play so that spring-loaded output shaft swings sufficiently to move motor into a de-energized position. A reset button tips motor sufficiently to lower one side of record away from needle permitting it to return to the outer edge of record.

3,740,057
SHAFT SEAL
 Edward F. Doyle, Dedham, and Thomas LeFeuvre, Woburn, both of Mass., assignors to Thermo Electron Corporation, Waltham, Mass.

Filed May 28, 1971, Ser. No. 148,027
 Int. Cl. F16j 15/00

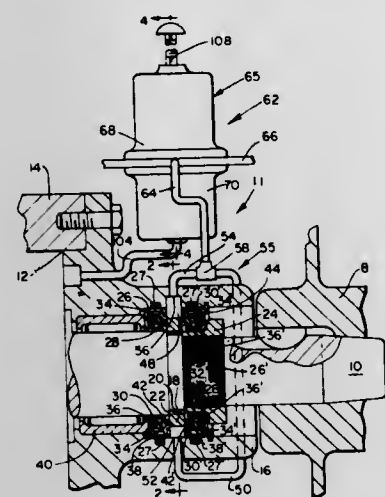
U.S. Cl. 277-3

22 Claims

A rotary shaft seal is characterized by a buffer compartment filled with fluid maintained at a pressure which equals or ex-

ceeds the pressures along the shaft with which the seal is associated. The relatively high buffer pressure within the seal is effective to prevent passage of material along the shaft from one side of the seal to the other.

In one preferred embodiment, the device for applying pressure to the buffer fluid within the compartment is responsive to the pressures along the shaft adjacent to opposite sides of



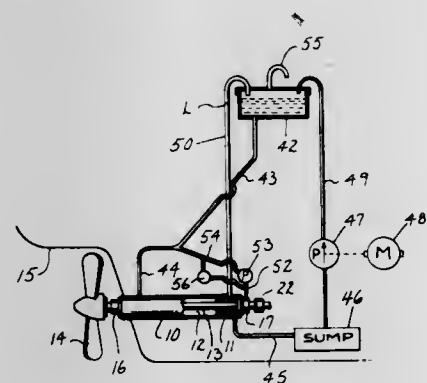
the seal. The intensity of pressure applied to fluid within the buffer compartment is a function of the pressures along the shaft. This preferred embodiment is an effective driveshaft seal for the expander in a Rankine cycle engine, wherein the pressure applying device responds to both the pressure within the expander and the pressure outside the expander and applies to fluid in the buffer compartment a pressure higher than either of them.

3,740,058

FORWARD SEALING ASSEMBLY FOR STERN TUBES
Willis W. Gardner, Waukesha, and Richard L. Rafferty, Menomonee Falls, both of Wis., assignors to Waukesha Bearings Corporation, Waukesha, Wis.
Continuation-in-part of Ser. No. 10,915, Feb. 12, 1970, abandoned. This application July 26, 1971, Ser. No. 165,891
Int. Cl. F16j 15/16, 15/40

U.S. Cl. 277-15

9 Claims

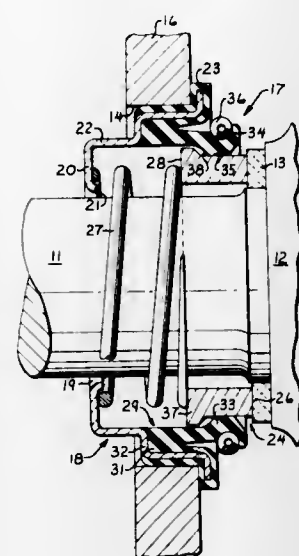


An annular casing which surrounds the tail shaft of a ship at the forward end of the stern tube has a first annular pocket within which a flexible annular lip seal is supported for sealing around the tail shaft liner. Aft of the seal, in another annular pocket which communicates with the oil chamber in the stern tube, is a floating ring having restricted clearance around the liner. A pump draws oil from the first pocket, causing oil to be drawn from the stern tube oil chamber through the restricted clearance space and the said first annular pocket, this oil being pumped back into the stern tube oil chamber. A pressure regulating valve is connected in parallel with the pump to maintain a substantially constant circulating pressure. A desired reduced pressure is thus maintained adjacent the seal to reduce the pressure difference across the seal lip.

3,740,059
WATER PUMP SEAL
Marion J. Witzenburg, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Mar. 15, 1972, Ser. No. 234,873
Int. Cl. F16j 15/32

U.S. Cl. 277-38

3 Claims



A water pump seal including a lip-type sealing member maintained in a sealing position to a containing case and engaging the outer periphery of a cylindrical face seal member for the purpose of providing a pressure balance seal by eliminating the communication of water pressure to the rear face of the face seal member. The face seal member is held concentric with a shaft to be received by the seal and restrained from rotation by a spring pressing against the face seal member at one end and the case at its other end as well as by a resilient lip-type seal bearing against the face seal circumference. Such manner of rotation restraint and the use of a lip-type sealing member further contribute to increased seal life.

3,740,060

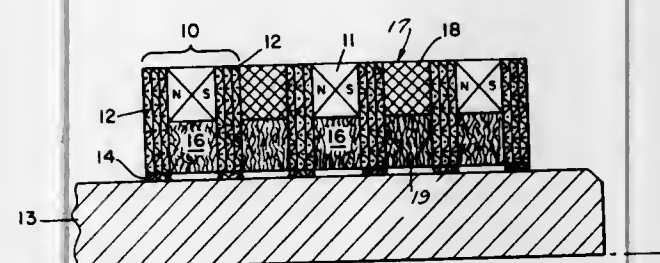
A SHAFT SEAL

Gabor Miskolczy, Carlisle, and Robert Kaiser, Cambridge, both of Mass., assignors to Avco Corporation, Cincinnati, Ohio

Filed Nov. 3, 1971, Ser. No. 195,334
Int. Cl. F16j 9/00; E21b 33/00

U.S. Cl. 277-80

8 Claims

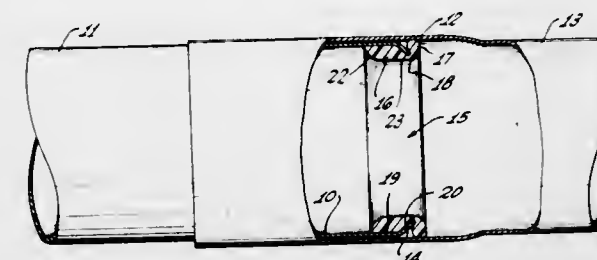


The invention relates to a shaft seal using a magnetic fluid to seal the clearance gap between a shaft and the housing. The magnetic fluid is held in place by a magnetic field. A modular structure is described which acts as a fluid reservoir, and a magnetic pole piece. The modular structure may also have inherent staging.

3,740,061
SEALING ARRANGEMENT FOR IRRIGATION PIPE LINE SECTIONS
Arthur E. Jensen, 11372 S.W. Skyline Drive, Santa Ana, Calif.
Filed Jan. 15, 1971, Ser. No. 106,794
Int. Cl. F16j 9/04; F16l 21/02

U.S. Cl. 277-178

5 Claims

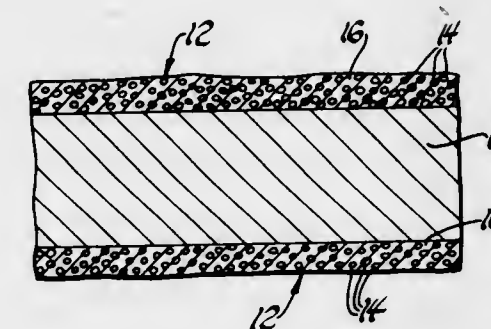


A seal ring of an elastomeric material is formed with a generally J-shaped radial cross-section adapted to be matingly keyed to a bullnosed end of a spigot end of one pipe section to leave a sealing lip or ring portion of the J-ring seal protruding for sealing engagement with the interior surface of a bell end portion of another section of irrigation pipe.

3,740,062
ADHESIVE IN CAPSULE COATED GASKET
Charles I. Robins, Southfield, Mich., assignor to McCord Corporation, Detroit, Mich.
Filed Aug. 13, 1971, Ser. No. 171,660
Int. Cl. F16j 15/12

U.S. Cl. 277-235 B

11 Claims

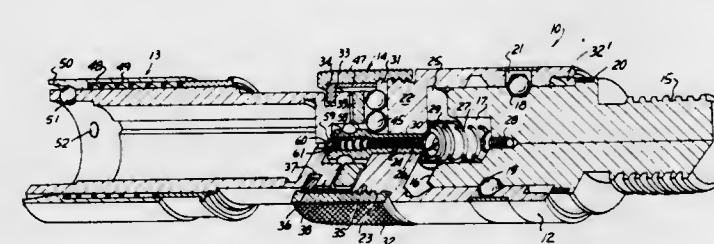


A gasket with a sealant coating and the method of coating the gasket. The gasket is coated with a coating including a dispersion of capsules containing a sealant in a vehicle-binder including a thixotropic agent. The coating is applied by a roller having an elastomeric surface with longitudinal and circumferential grooves therein.

3,740,063
FLOATING TOOL HOLDER
Theodore M. Smith, 14750 Puritan Avenue, Detroit, Mich.
Filed Oct. 15, 1971, Ser. No. 189,654
Int. Cl. B23c 31/04; B23b 49/00

U.S. Cl. 279-16

8 Claims



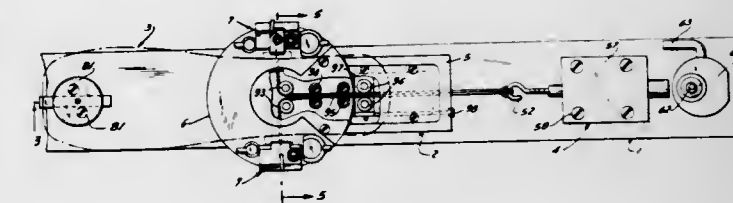
In a floating tool holder having a shank, a body driven thereby and an adapter assembly removably secured to and driven by said body, the improvement which includes a float disc interposed between said body and adapter assembly. A series of axial apertures extend through the disc and transverse slots are formed in opposing end faces thereof. End thrust separator balls are nested in the axial apertures for engagement with said body and adapter assembly to permit compensating lateral translation of the adapter assembly relative to said body. Drive balls are nested in the float transverse slots to project into corresponding opposed transverse slots in the corresponding inner ends of said body and adapter assembly.

driven by said body, the improvement which includes a float disc interposed between said body and adapter assembly. A series of axial apertures extend through the disc and transverse slots are formed in opposing end faces thereof. End thrust separator balls are nested in the axial apertures for engagement with said body and adapter assembly to permit compensating lateral translation of the adapter assembly relative to said body. Drive balls are nested in the float transverse slots to project into corresponding opposed transverse slots in the corresponding inner ends of said body and adapter assembly.

3,740,064
SKI BINDING
Stuart Weg, 100-6 Carver Loop, Bronx, N.Y.
Filed May 6, 1971, Ser. No. 140,730
Int. Cl. A63c 9/08

U.S. Cl. 280-11.35 T

7 Claims

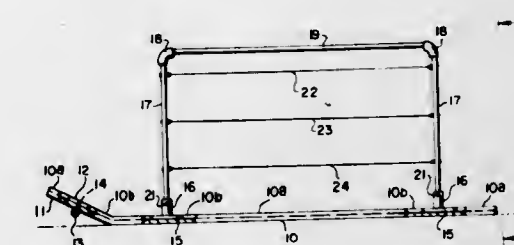


A safety ski binding where opposing forces of at least two springs provide not only for release of the ski boot upon application of excess force, but ejection of the boot from the binding.

3,740,065
TOW FOR SNOWMOBILES
Marvin H. Greene, 38 Clove Road, Monroe, N.Y.
Filed Oct. 27, 1971, Ser. No. 193,132
Int. Cl. B62b 13/00

U.S. Cl. 280-19

4 Claims



A tow is provided capable of supporting from one to, roughly, five persons, including small children, to be drawn by a self-propelled small vehicle, of which the snowmobile is the best example, up slopes as well as on a level surface. The tow is particularly applicable to carry skiers up slopes; it can be readily dismantled for storage or whatever other purpose.

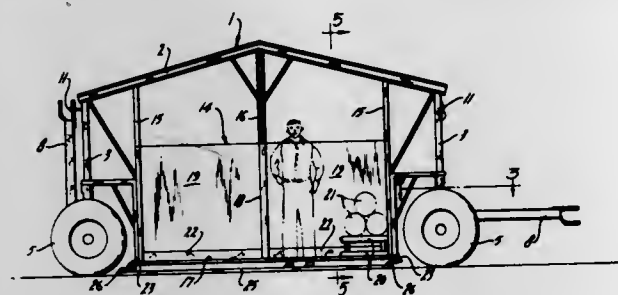
3,740,066
PALLET WAGON FOR SOD PICK-UP MACHINE
Robert G. Gieringer, Robert H. Gieringer, and William A. Gieringer, all of Milwaukee, Wis., assignors to H. L. Diehl Co., Inc., South Windham, Conn.
Filed June 1, 1971, Ser. No. 148,331
Int. Cl. A01d 75/22

U.S. Cl. 280-32.5

4 Claims

A pallet wagon is adapted to be pulled through a field, either alone or in tandem, along side a sod pick-up and rolling machine and is adapted to receive the sod rolls. The wagon is provided with pairs of fore and aft wheels connected to suitable tongues, with both wheel pairs being selectively steerable.

When a tongue is raised, its respective wheel pair locks into non-steerable position. A retractable and removable platform



and mount therefore are provided along the open side of the wagon so that a person handling the sod rolls can ride thereon without having to walk alongside the moving wagon.

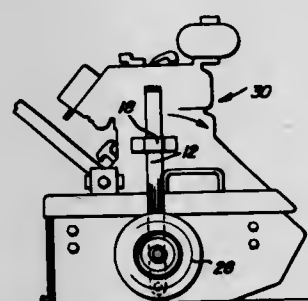
3,740,067

COMPACTOR WHEEL ASSEMBLY

Christian T. Tertinek, Canandaigua, N.Y., assignor to Stone Construction Equipment, Inc., Honeoyl, N.Y.
Filed June 29, 1971, Ser. No. 157,839
Int. Cl. B62b 1/04

U.S. Cl. 280—43.24

3 Claims



A wheel assembly for soil compactors and the like, said assembly comprising an elongated lever arm with a laterally extending pivot pin at its lower end which is adapted to be rotatably inserted into a mounting sleeve on the compactor, a handle portion at the opposite end of the elongated lever arm, a wheel-carrying axle affixed to the lever arm at a point intermediate the pivot pin and the handle portion, and a rigid mounting bracket attached to the lever arm between the wheel axle and the handle portion. The mounting bracket extends in a lateral direction from the lever arm and includes a pair of mounting tabs extending in opposite directions and adapted to fit under a mounting flange or lip on the compactor housing. The relative positions of the pivot pin and wheel axle provide a mechanical advantage for easy raising of the compactor by manipulation of the lever arm.

3,740,068

STEERING COLUMN SUPPORT ASSEMBLY

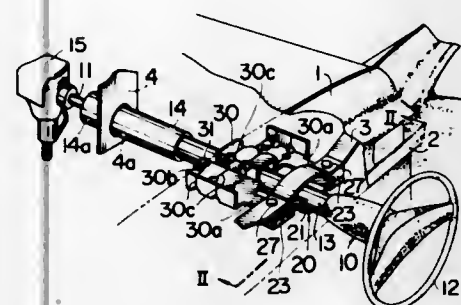
Jiro Arata, Aichi-ken, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Aichi-ken, Japan
Filed Feb. 3, 1971, Ser. No. 112,302
Claims priority, application Japan, Feb. 7, 1970, 45/10382
Int. Cl. B62d 1/18

U.S. Cl. 280—87 A

4 Claims

A steering column support assembly comprises holding pieces, steel balls, and a bracket. The holding pieces are secured to a beam member of a vehicle body by means of bolts and nuts. The steel balls placed in the grooves formed by the holding pieces are pressed by the holding pieces, thus holding the bracket wing portions which are substantially parallel to the shaft of the steering column. The bracket fixes the upper

jacket of the steering column and is provided with a flange which is brought into contact with the front end of a holding piece when the steering column is moved backward. In order to absorb the axial impact energy applied to the steering column in the event of a crash, the steering column, supported



in an axially movable manner, is supported by the stable engaging force developed by the steel balls. Upon the occurrence of a crash, the steering column is moved forward together with the bracket, while rolling the steel balls. The flange prevents the steering column from coming out in the backward direction.

3,740,069

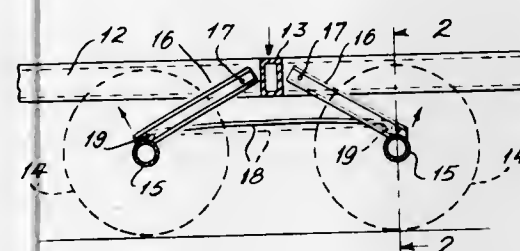
VEHICLE TANDEM AXLE SUSPENSION SYSTEM
Louis P. Fister, St. Louis, Mo.; Lawrence H. Fitch, Cahokia, Ill.; George K. Jeney, St. Louis, and William A. Scheublein, Ballwin, both of Mo., assignors to Moog Industries, Inc., St. Louis, Mo.

Filed Mar. 29, 1971, Ser. No. 128,880

Int. Cl. B60g 5/04

U.S. Cl. 280—104.5 R

6 Claims



A tandem axle suspension system for a vehicle load bearing frame in which the wheels and axles are caused to move relatively away from each other or toward each other and is so moving a suspension spring device connecting the wheel and axle assemblies is caused to resist such movement in tension or compression. The axles are linked to the load bearing frame in a manner to allow the axles to swing or pivot relative to the frame thereby converting the vertical motion imposed on the frame into torsional reaction as well as horizontal motion of the axles. The torsional reaction in the axles assists the suspension spring and the torque in the axle and the suspension spring together are effective to support the load and take care of wheel motion. The spring in this context is caused to undergo a variable rate of resistance approaching the strength of the spring material in tension or compression, but before the spring material is stressed to its maximum the axles reach a position where there is no further possible relative motion. Thus, the spring device becomes a strike out bumper. In this system the spring device reaches its maximum stressed condition before the links connected to the axles swing to a horizontal position thereby preventing the frame from striking the axles.

3,740,070

VEHICLE SUSPENSION SYSTEM

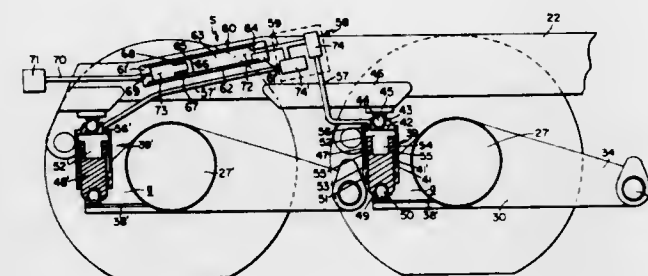
James M. Butler, Peoria, and Gerald P. Simmons, Washington, both of Ill., assignors to Westinghouse Air Brake Company, Pittsburgh, Pa.

Filed July 19, 1971, Ser. No. 163,575

Int. Cl. B60p 1/60

U.S. Cl. 280—104.5 R

5 Claims



A suspension system for supporting one side of a vehicle chassis having a pair of tandem axles, including hydraulic suspension cylinders connecting each axle with the chassis, a flow control valve and fluid lines connecting the flow control valve with the hydraulic suspension cylinders for equalizing pressure therebetween during the movement of the vehicle over relatively rough terrain; there being a fluid pressure accumulator connected with the flow control valve for absorbing the shock developed upon the vehicle traveling over a bump or a depression in the field.

3,740,071

VEHICLE SUSPENSION

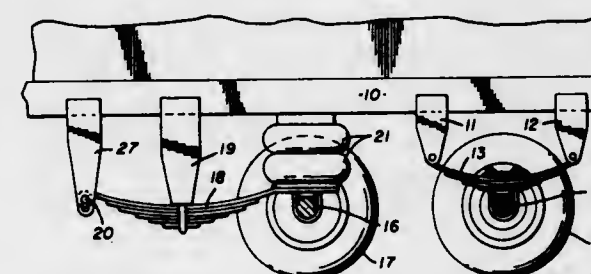
Michael Bilas, 2730 Columbiana-New Castle Rd., New Springfield, Ohio

Filed Dec. 15, 1971, Ser. No. 208,073

Int. Cl. B60g 1/16

U.S. Cl. 280—124 R

3 Claims



A vehicle suspension suitable for trucks and trailers positions a wheel and axle assembly on the vehicle on the trailing ends of a pair of semi-elliptic springs arranged to urge the wheel and axle assembly toward the vehicle so as to lift the same from a road surface. Air bags are positioned between the wheel and axle assembly and the vehicle and means for inflating and deflating the air bags permit the wheel and axle assembly to be lifted from the road surface or engaged therewith in a weight carrying relation to the vehicle. The semi-elliptic springs are positioned by fulcrum members engaging their center sections and their forward ends are pivoted to the vehicle or another wheel and axle assembly.

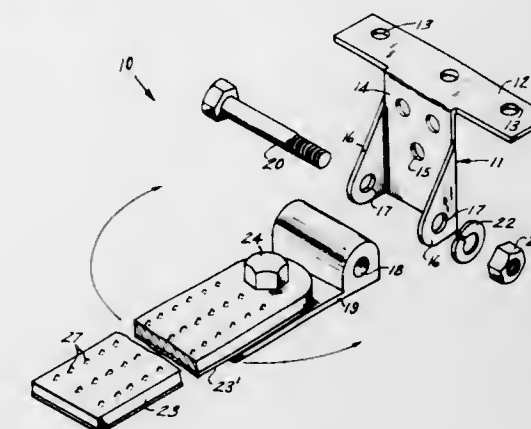
3,740,072

FOOT CLEANER DEVICE FOR VEHICLES

Louis A. Veith, Route No. 1, Pierz, Minn.
Filed June 10, 1971, Ser. No. 151,866
Int. Cl. B60r 3/04

U.S. Cl. 280—164 A

3 Claims



A device for attachment to automobiles, trucks and the like. This device includes a bracket which mounts to the vehicle and has pivotally secured to it, a nipped member for scraping slush and the like from one's shoes.

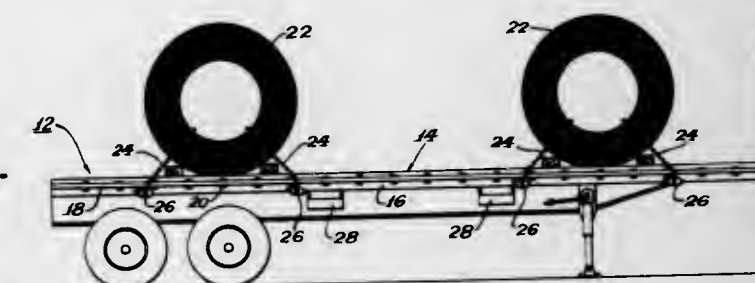
3,740,073

TRAILER WINCH

Phillip D. Schwiebert, 599 Greenleaf, Glencoe, Ill.
Filed July 29, 1971, Ser. No. 167,230
Int. Cl. B60p 7/08

U.S. Cl. 280—179 A

8 Claims



The improved trailer winch disclosed herein is adapted to be mounted on the channel side rail of a trailer and to be utilized to assist in securing loads to the deck of a trailer. The means for mounting the winch on the channel side rail of the trailer allows the winch to be slidably moved with respect to and along the channel side rail of the trailer so that the winch can be selectively positioned with respect to the load to be secured. The winch mounting means also prevents removal of the winch from the channel side rail of the trailer. The winch is constructed so that it does not project beyond the maximum permissible eight foot width clearance of the trailer and so that it may be operated by a person standing on the ground next to the trailer.

3,740,074

MOTORCYCLE TOWING DEVICE

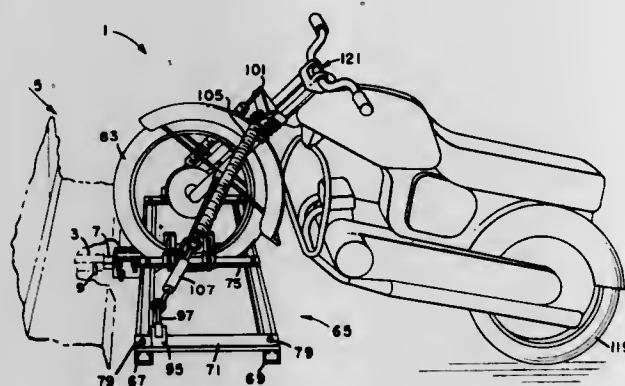
Frederick J. Coll, 109 Latham Trailer Courts, Latham, N.Y.
Filed July 12, 1971, Ser. No. 161,747
Int. Cl. B62d 53/04

U.S. Cl. 280—402

9 Claims

Discloses a device for use with a towing vehicle to tow a two-wheeled vehicle having a pivotal front wheel and a rear wheel. The device includes a hitch-bar assembly, detachably attached to the rear of the towing vehicle, carrying a frame assembly which carries a mounting bracket assembly. The pivotal front wheel is raised off the ground and rests on elongated

gated channels of the mounting bracket assembly which has middle spacer plates providing lateral support for the front wheel. Spring-tension adjustable main springs mounted laterally of the front wheel on the mounting bracket assembly and on the spring forks of the motorcycle maintain the motorcycle upright in straight ahead movement of the towing vehicle and allow the motorcycle to track the towing vehicle taking a curve or deviating from straight ahead movement by tilt-



ing or canting movement of the motorcycle corresponding to the tilting or canting movement of the towing vehicle taking a curve or deviating from straight ahead movement. Spring-tension adjustable auxiliary springs similarly mounted function as a safety factor for the main springs in case of their malfunction or breakage. The frame assembly is carried on the hitch-bar assembly to be rotatable for up and down return movement of the frame assembly and thereby the mounting bracket assembly when the rear wheel of the motorcycle hits a bump.

3,740,075

DREDGE CONVERTIBLE TO LAND VEHICLE FOR PORTABILITY

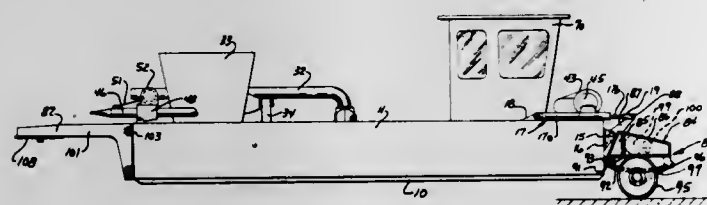
Robert M. Soehnlen, 1865 Arrowhead Drive, Beloit, Wis.

Filed Oct. 1, 1971, Ser. No. 185,683

Int. Cl. B60f 3/00; E02f 3/88

U.S. Cl. 280-415 B

3 Claims



A dredge apparatus having a wheel carriage assembly swingably mounted on one end of the dredge hull, hydraulic actuators connected to the dredge hull and wheel carriage assembly to move the wheel carriage assembly out of and into an operative position supporting the end of the hull on the ground engaging wheels of the wheel carriage assembly, and a truck hitch unit is attached to the other end of the hull for connecting and supporting the dredge to a truck for towing the dredge overland.

3,740,076

ANTI-JACKKNIFING TRAILER COUPLING

James E. Cupp, 4454 Central Avenue, San Diego, Calif.

Continuation-in-part of Ser. No. 43,429, June 4, 1970,

abandoned. This application Jan. 7, 1972, Ser. No. 215,998

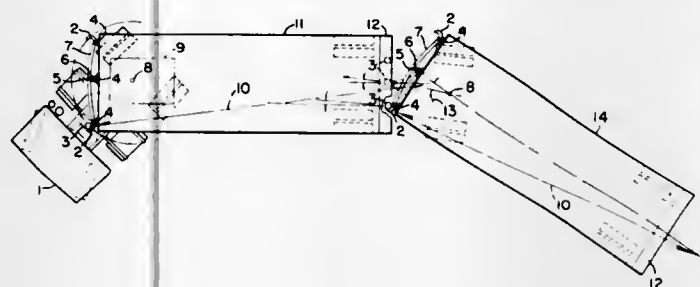
Int. Cl. B62d 53/10

U.S. Cl. 280-432

4 Claims

Means for permitting a trailer to move forward a short distance, toward the tractor under conditions that might otherwise result in a dangerous jackknife. As the distance

between the trailer and the tractor to which it is attached is closed, turn restricting members on the two units are brought into contact with each other. Jackknifing is avoided because



the abutting members insure that the angle between the coupled units will remain sufficiently large to avoid buckling and a loss of road wheel traction and driver control.

3,740,077

SHIFTABLE FOOTING FOR TRAILERS

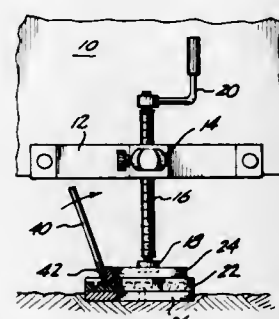
Russell T. Williams, 8009 S. Lakeridge Road, Seattle, Wash.

Filed May 8, 1972, Ser. No. 251,014

Int. Cl. B60d 1/00

U.S. Cl. 280-475

7 Claims



A two-part footing is disclosed to provide a broad base to receive and support the weight-bearing, levelling leg associated with the two-bar of a trailer. One part of said footing rests upon a ground-engaging base plate and means is provided permitting easy lateral shifting of the supported part and a load borne by it, relative the base plate. A modified form includes a pivotally associated sub-base plate permitting the footing to be revolved about an axis established by the sub-base plate.

3,740,078

UNIVERSALLY PIVOTAL TOW HITCH APPARATUS

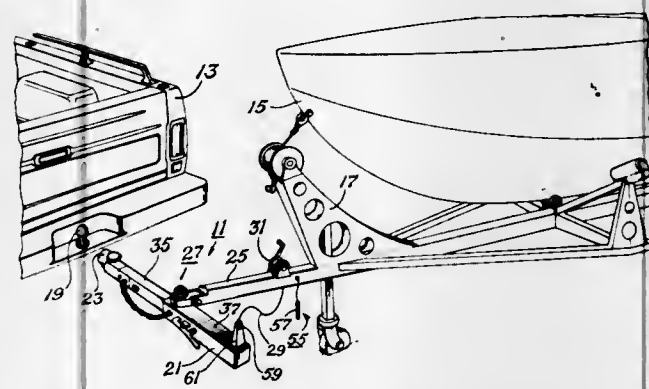
Julius W. Murr, 200 Huntington, Euless, Tex.

Filed Aug. 23, 1971, Ser. No. 173,782

Int. Cl. B60d 1/06, 1/10

U.S. Cl. 280-478 R

7 Claims



Tow hitch apparatus for connecting a trailing vehicle onto a towing vehicle having a tow hitch thereon characterized by a tongue, a coupling head connected to a forward end of the

tongue, a draft member connected to the trailing vehicle, and a universally pivotal connection means for connecting the tongue with the draft member whereby the coupling head can be connected with the tow hitch regardless of misalignment, either vertically or laterally. In specific embodiments, a winch and cable are provided for effecting alignment after the coupling head is connected; locking means are provided for locking the tongue and draft member into alignment; the tongue comprises telescopically mounted members; and locking and limit means are provided for control of the draft length of the telescopically mounted members.

3,740,079

VEHICULAR TOWING HITCH

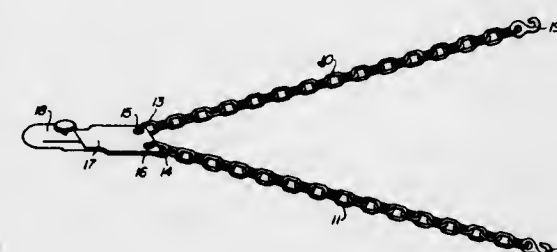
Gale N. Skinner, 272 West First South, Logan, Utah

Filed Aug. 20, 1970, Ser. No. 65,521

Int. Cl. B60d 1/04

U.S. Cl. 280-480

2 Claims



A vehicular towing device for attachment to a conventional automobile trailer hitch for temporary towing of another vehicle has been invented. The towing device comprises hitch means for fastening said towing device to a conventional automobile trailer hitch attached to the towing vehicle and a pair of heavy duty towing chains, cables or heavy duty cords attached to the hitch means. The towing chains, cables or cords are attached at substantially a common point to the hitch means. Attached at the free ends of such cables or the like are hook means for securing said cables or the like to the frame or axle members of the towed vehicle.

3,740,080

CUSHIONED HOOK FOR A PUSH-PULL TYPE VEHICLE COUPLING

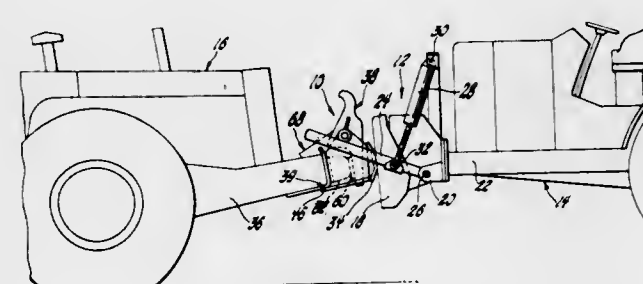
Bernard A. Kuhl, Cleveland, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 10, 1971, Ser. No. 197,316

Int. Cl. B60d 1/04

U.S. Cl. 280-481

6 Claims



A cushioned hook adapted to be mounted to the rear of a vehicle for providing a pulling connection with a trailing vehicle. The cushioned hook includes a lever member supported for pivotal movement and having an upper portion formed as a hook and a lower portion adapted to engage a resilient bumper when the hook is connected to the trailing vehicle.

3,740,081

LABEL USEFUL FOR BLIND CLINICAL STUDIES OF A MEDICAMENT AND METHOD OF THE MANUFACTURE THEREOF

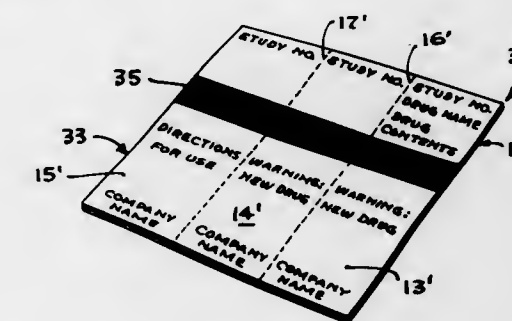
Ronald Lee Whipperman, Gurnee, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

Filed Mar. 6, 1972, Ser. No. 231,823

Int. Cl. B42d 15/00; G09f 3/00; B32b 13/00

U.S. Cl. 283-6

12 Claims



A label useful for blind clinical studies of the effects of a particular medicament comprising a water-soluble paper having only revealable information printed thereon, integrally bonded to and coextensive with a water-insoluble paper having both revealable and secret information printed thereon. Only the revealable information is visible on the label until the label is washed in water.

3,740,082

PIPE COUPLING

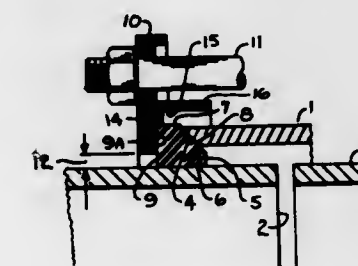
Edward H. Schustack, 2244 East 37th St., Los Angeles, Calif.

Filed June 15, 1972, Ser. No. 263,263

Int. Cl. F16l 21/04

U.S. Cl. 285-342

3 Claims



A sleeve type coupling for plain end pipe in which an axially extending surface coaxial with the follower cooperates with flexible tabs projecting outwardly from the gasket to center the follower on the outer surface of the pipe end and thereby minimize leakage.

3,740,083

MOUNTING SUPPORT FOR CLIMBING ELEMENTS

Heinrich Zenhausern, Bihmensdorferstrasse 134, CH 8902

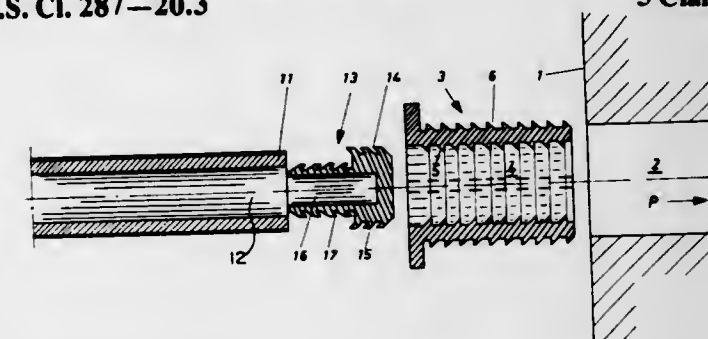
Urdorf, Switzerland,

Filed Nov. 30, 1971, Ser. No. 203,254

Int. Cl. F16b 1/00

U.S. Cl. 287-20.3

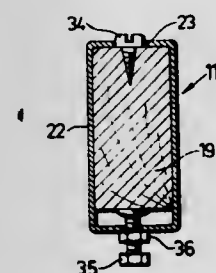
5 Claims



A mounting support for climbing elements for force fitting into a correspondingly shaped but smaller bore in a wall com-

prises a hard, strong, yielding plastic sleeve having cylindrical or square inner and outer longitudinal surfaces with serrations in the form of ring-shaped fins which are interrupted to form fish scale sectors with gaps between them. The serrations on the inner surface have oblique slopes running in the direction of insertion of the sleeve into the bore in the wall, while the serrations on the outer surface have oblique slopes running in the other direction. The shanks of the climbing elements are inserted into the sleeves.

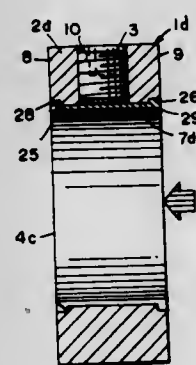
3,740,084
READILY DETACHABLE SELF-ALIGNING JOINT
Klas Olof Tellberg, Rattarbacken 6, Saltsjö-Duvnas, Sweden
Filed Aug. 23, 1971, Ser. No. 173,899
Int. Cl. F16b 7/04
U.S. Cl. 287—20.927



6 Claims

For releasably joining of crossbars and posts in stands, for instance for forming stages to cover boats which are laid up on land, a joint element comprises a body forming a corner joint in the stand and showing cavities with different directions which are intended to receive the crossbars and which have recesses running at right angle to the cavity directions so as to receive said projections, the cavities having further a greater cross-section than the crossbars, whereby, by actuating of set screws between the crossbars etc., and the joint elements in the direction of the corresponding projections, said projections are put into or out of engagement with the recesses for individual keeping or releasing of the crossbars.

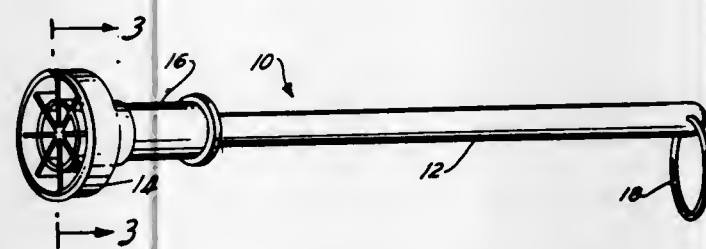
3,740,085
HOLDING UNITS
Michael C. Evans, 950 Adelaide Drive, Northbrook, Ill.
Filed Aug. 9, 1971, Ser. No. 169,967
Int. Cl. F16d 1/06
U.S. Cl. 287—52.08



A holding unit in the form of a collar adapted to be mounted on a shaft, with a set screw mounted in the collar for securing the latter to the shaft, and with a plate-like insert mounted in the collar in position to be pressed by the screw against the shaft.

6 Claims

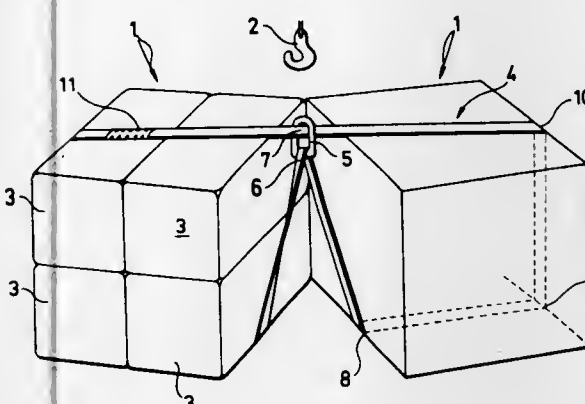
3,740,086
ANIMAL EXCRETA PICKUP DEVICE
Charles C. Rossitto, Bronx, N.Y., assignor to Liotta Sebastian, White Plains, N.Y., a part interest
Filed July 26, 1971, Ser. No. 166,031
Int. Cl. A47f 13/06
U.S. Cl. 294—19 R



A device for picking up and disposing of animal fecal excreta is disclosed which includes a handle having a disposable container mounted at one end thereof. The container has a cavity opening outwardly of said handle and at least one rib within the cavity. Animal excreta is picked up by pressing the open end of the container against the excreta whereby the excreta engages with the wall and rib of the container cavity. Following pickup, the open end of the container is closed by pressing the container against a snap-on cover. Thereafter, the closed container is disengaged from the handle by sliding a collar, slidably mounted on the handle, against the container to force it from the end of the handle.

7 Claims

3,740,087
LIFTING AND BINDING DEVICE
Karl Johan Back, Helsinki, Finland, assignor to Oy Cyklop AB, Helsinki, Finland
Filed May 11, 1971, Ser. No. 142,244
Claims priority, application Finland, May 12, 1970, 1327/70
Int. Cl. B66c 1/18
U.S. Cl. 294—74



A continuous tape is placed around two or more packages or package piles to extend upward between the packages in the form of a loop which may be provided with an eye link threaded thereon for lifting the packages. In order to prevent the loop from falling between the packages the portion of the tape resting on the top surface of the piles is threaded through the loop or the eye link.

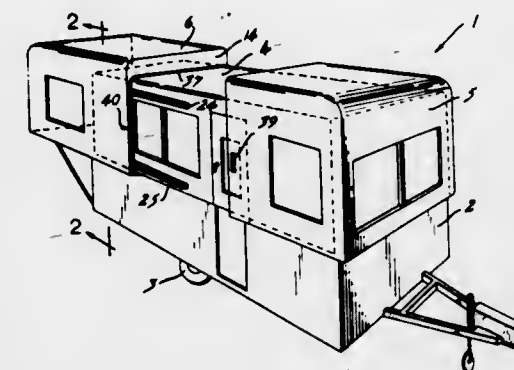
1 Claim

3,740,088
TELESCOPIC END SECTION FOR TELESCOPIC TRAVEL TRAILER
John W. Ratcliff, R.R. 1, Marengo, Ill.
Continuation of Ser. No. 68,071, Aug. 31, 1970, abandoned.
This application Jan. 10, 1972, Ser. No. 216,706
Int. Cl. B60p 3/32
U.S. Cl. 296—23 C

A telescopic travel trailer having telescopic end sections. The trailer includes an upper trailer section disposed to

11 Claims

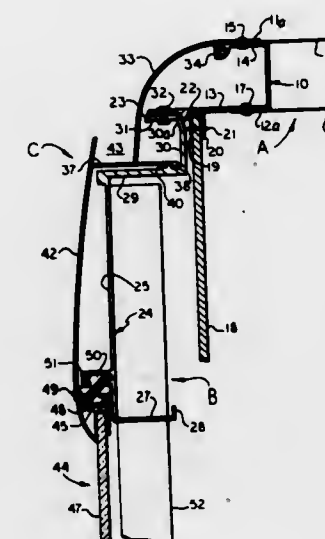
telescope vertically with respect to a lower trailer section from a retracted lower position for transporting to an extended upper position for camping. End sections are mounted for sliding movement on the open-ended upper trailer section and each end section telescopes horizontally between a retracted



inner position and an extended outer position. A horizontal shelf is located within each end section, and in its lower position serves as a bunk. The shelf can be moved above the level of the upper trailer section so that the telescopic end section can be moved to the retracted inner position for traveling.

3,740,089
ROOF TO SIDE WALL JOINT AREA STRUCTURE FOR TRANSPORTATION TYPE VEHICLES
Theodor C. Schubach, Bonita, Calif., assignor to Rohr Industries Inc., Chula Vista, Calif.
Filed Mar. 8, 1972, Ser. No. 232,821
Int. Cl. B62d 31/02
U.S. Cl. 296—28 A

6 Claims

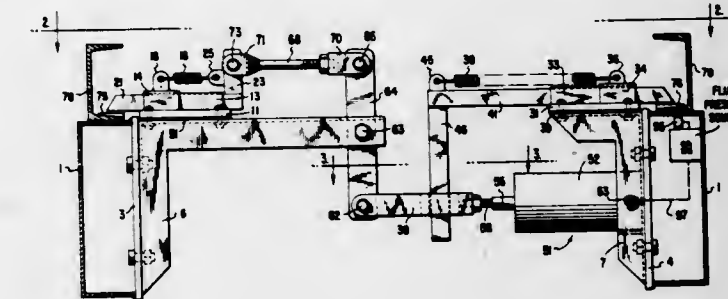


In a transportation type vehicle, an extrusion having an arched upper portion has a transversely curved tongue extending from its upper edge, which fits into a correspondingly curved groove provided in the outer, upper edge portion along each side of the vehicle roof structure. The arched upper portion of each extrusion covers and conceals the roof-to-side wall joint on its associated side of the vehicle, and an inwardly extending flange on the lower end of each arched upper portion has latching engagement with a vehicle side wall element. A flange extending outwardly from the lower end of each arched upper portion, and an upstanding flange along the outer edge of each outwardly extending flange provide a rain gutter for runoff water from the roof, while a plate portion extending downwardly, co-extensively with the upstanding flange, comprises a top strake for the vehicle side wall.

3,740,090
SAFETY LOCK ASSEMBLY
Edward A. Lynde, Jordan Valley, Oreg.
Division of Ser. No. 56,843, July 21, 1970. This application Sept. 29, 1971, Ser. No. 184,865
Int. Cl. B62d 33/06

U.S. Cl. 296—35 R

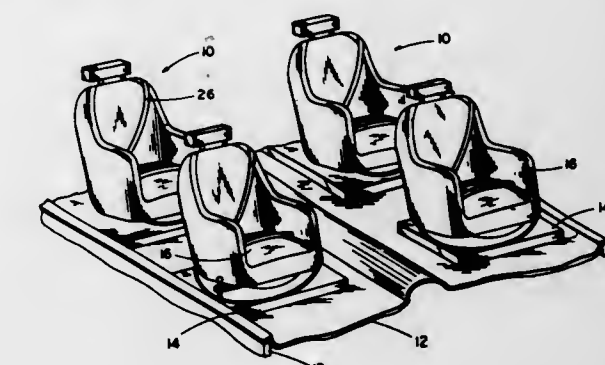
9 Claims



A safety lock assembly for locking together in a predetermined relative position two members which are arranged for movement relative to one another, displacement means being provided for moving the members relative to one another out of the predetermined position and the safety lock assembly being normally maintained in a locking position and being arranged for movement out of the locking position under the influence of driving means, the driving means and displacement means being connected to a common power source and the driving means being actuated when the power from the source is lower than that required for actuating the displacement means.

3,740,091
ENERGY ABSORBING SEAT ASSEMBLY
Joseph A. Krejci, III, 1967 N. 18th Avenue, Apt. 5, Melrose Park, Ill.
Filed June 3, 1971, Ser. No. 149,567
Int. Cl. B60n 1/04
U.S. Cl. 296—68

7 Claims



An energy absorbing seat assembly for use in mobile vehicles to protect the occupant from injury in the event of a collision. The assembly comprises an energy absorbing seat mounted on a frame which is selectively pivotal relative to the vehicle.

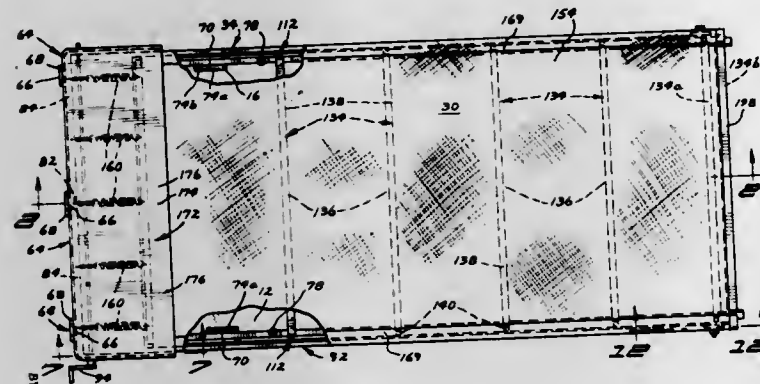
3,740,092
COLLAPSIBLE COVER ASSEMBLY FOR TRUCK BOXES AND THE LIKE
Robert J. Page, Bottineau, N. Dak.
Filed Mar. 1, 1971, Ser. No. 119,475
Int. Cl. B62d 25/06

U.S. Cl. 296—105

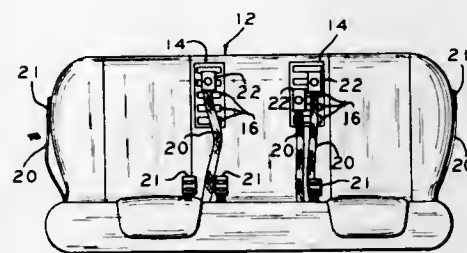
16 Claims

A channel-shaped track extends along the upper edge of each side of a truck box, the channel-shaped configuration providing an upwardly facing slot. The tracks contain and guide a plurality of shoe mechanisms each comprised of a

hinged pair of vertical panels. The laterally spaced ends of the bows, the flexible canopy being placed over the bows, are supported by the shoe mechanisms, there being one shoe mechanism for each bow end and the bow end functioning as a hinge pin in each instance. The lower marginal portions of the canopy are anchored to these panels. The rear portions of the tracks maintain the hinged panels in a straight line relationship, whereas the forward portions of the tracks permit the in-

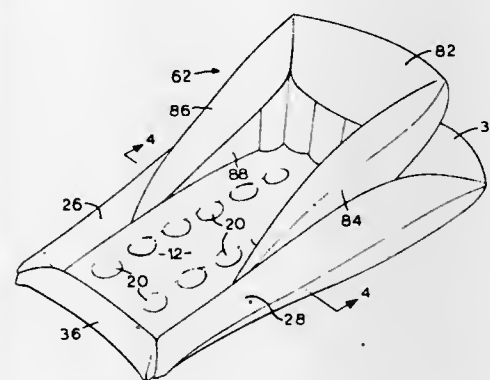


3,740,094
VARIABLE POSITION SEAT BELT BUCKLE HOLDER
Robert J. Hornyak, 144 Everett, Toledo, Ohio
Filed Dec. 14, 1970, Ser. No. 97,548
Int. Cl. A47c 31/00
U.S. Cl. 297—385 2 Claims



A variable position holder for seatbelt buckles comprised of magnetic members placed in a series position on the holder panel for placing and securing the seatbelt buckles thereon while not being used.

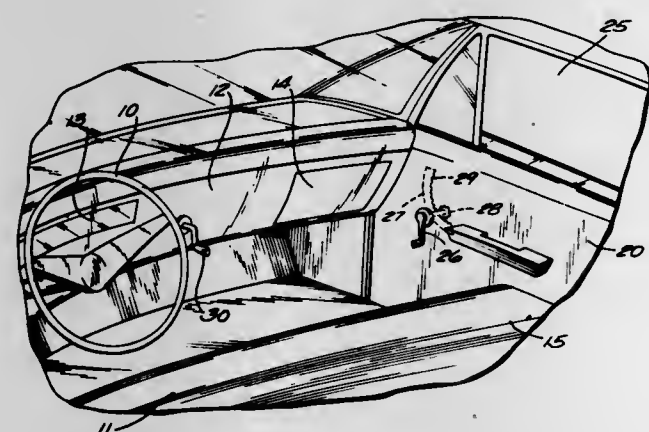
3,740,095
INFLATABLE SUPPORT STRUCTURE
Walter Philip Nail, 260 Renforth Drive, Etobicoke, Ontario, Canada
Filed Jan. 5, 1971, Ser. No. 104,085
Int. Cl. A49b 19/00
U.S. Cl. 297—454 10 Claims



The invention is directed to a lounge of sturdy construction having special merit as a safe reliable sea lounge and is characterized by the provision of an inflatable generally flat central platform which is buoyant and substantially rigid when inflated and which is surrounded with a plurality of separate inflatable peripheral compartments rising above the platform when inflated. The invention is further characterized by the arrangement of the peripheral compartments which provide a buoyancy distribution that will impart complete stability to the lounge when in use in the water and yet will enable the lounge to be easily mounted by a person in the water. The invention is further characterized by the provision of a back and sides to support a person on the lounge in a comfortable reclining position with his weight properly oriented on the lounge.

3,740,096
ORTHOPEDIC SEAT
Gordon B. Bridger, Mansfield, Ohio, assignor to Bridg-A-Back, Inc., Columbus, Ohio
Division of Ser. No. 829,582, June 2, 1969, abandoned. This application May 4, 1971, Ser. No. 140,242
Int. Cl. A47c 7/02
U.S. Cl. 297—459 4 Claims

An orthopedic seat comprising a lower substantially horizontal seat portion and an upper substantially vertical back portion rigidly joined to the seat portion. The lower por-

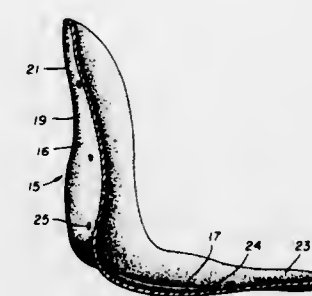


A manually operated mechanical remote control for an automobile window. A hand crank is mounted on the automobile dash board convenient to the driver for manually operating a remote window. The hand crank is coupled to the window operating mechanism by a flexible cable so that by revolving the crank, the driver can readily open or close the window while remaining in the driver's seat behind the steering wheel.

3,740,093
REMOTE CONTROL FOR AUTOMOBILE WINDOW
Norman E. Patzer, N. 22 W. 28166 Edgewater Drive, Pewaukee, Wis.
Filed Nov. 24, 1970, Ser. No. 92,483
Int. Cl. B60j 1/10
U.S. Cl. 296—146 2 Claims

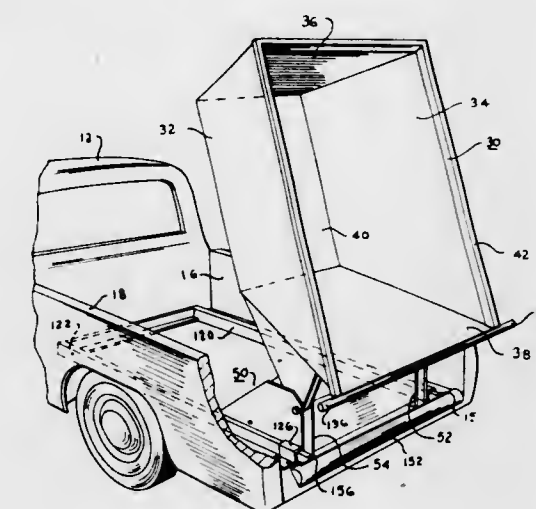
tion is shaped to act as a base support for the pelvis and sacrum which, in turn, will act as a base for the lumbar dorsal

on the device and has radially outwardly extending edges disposed laterally on each side of the wheel which form a channel around the circumference of the wheel. The conveyor



and cervical vertebrae, and the back portion is designed to properly position the vertebrae of a person seated on the lower portion to correct them automatically.

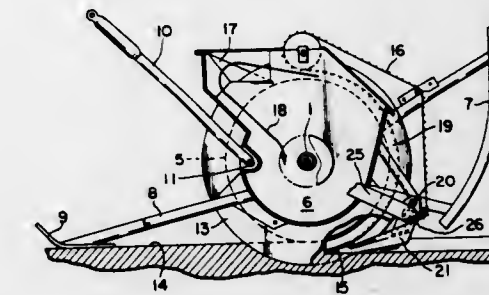
3,740,097
VEHICLE DUMP BED
Shirley L. Parker, Warsaw, and John D. Rohrer, North Manchester, both of Ind., assignors to Parker Industries Inc., Silver Lake, Ind.
Filed May 3, 1971, Ser. No. 139,565
Int. Cl. B60p 1/16
U.S. Cl. 298—1 A 8 Claims



A dump bed for a vehicle such as a pick-up truck which can be easily mounted on and removed from the vehicle bed, and which includes a pair of uprights secured near the rear end of the dump bed body for moving the dump bed body between a horizontal and substantially vertical position. A hydraulic system incorporated in the base of the dump bed structure performs the dumping action. The bed is provided with fixtures for lifting a refuse container as the bed is lowered, for transporting the container from one place to another.

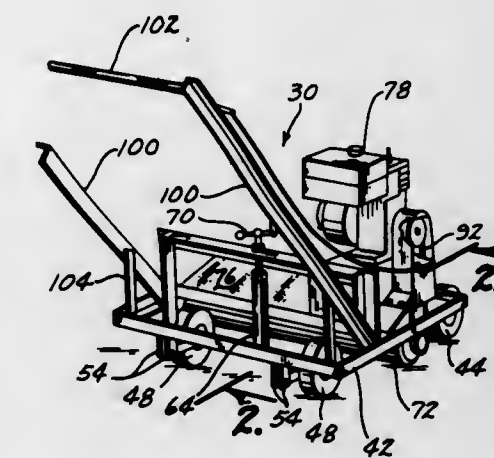
3,740,098
MULTI-WHEEL UNDERWATER EXCAVATION MACHINE
Friedrich Lachnit, Mulheim/Rhur, Germany, assignor to Deutsche Babcock & Wilcox Aktiengesellschaft, Oberhausen, Germany
Filed Mar. 19, 1971, Ser. No. 125,983
Claims priority, application Germany, Apr. 3, 1970, P 20 15 894.5
Int. Cl. E02f 7/00
U.S. Cl. 299—8 5 Claims

An underwater excavating device having a cutting means to cut into underwater land surfaces, a collecting means for collecting the excavated material, and conveying means for conveying the collected material from the cutting means to the collecting means. A transporting wheel is centrally disposed



belt, which is adapted to be received by the radially extending edges of the wheel and is disposed on the excavating device so as to be guided in the channel, conveys the collected material from the cutting means to the collecting means.

3,740,099
ROOF SHAVING MACHINE
James Lenzner, 123 Arizona, Waterloo, Iowa
Division of Ser. No. 752,597, Aug. 14, 1968, Pat. No. 3,698,972. This application Nov. 8, 1971, Ser. No. 196,645
Int. Cl. B27c 1/02
U.S. Cl. 299—39 1 Claim

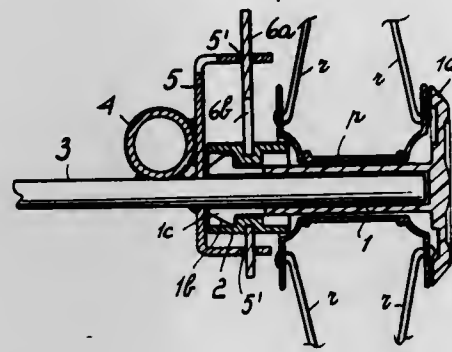


A machine for shaving expanded plastic on a roof structure wherein the machine includes a rotatable drum extending transversely of a frame carrying front and rear ground engaging wheels. The rear wheels are vertically adjustable to vary the thickness of the drum cut. The rear wheels are connected to the frame by a pair of pivotal arms and a vertically adjustable adjustment unit is connected between the frame and an axle from which the rear wheels are mounted. An engine is carried on the frame above the drum. A plurality of spaced apart longitudinally extending scarfing blades are provided on the exterior surface of the drum.

3,740,100
DEVICE FOR QUICK FIXING OR DISMOUNTING RESPECTIVELY OF A WHEEL FROM THE SUPPORTING FRAME OF A VEHICLE, PARTICULARLY A PRAM OR PUSH-CHAIR FOR CHILDREN
Giuseppe Perego, Via De Gasperi 50, Arcore, Italy
Filed Apr. 8, 1971, Ser. No. 132,269
Claims priority, application Italy, Nov. 13, 1970, 31725 A/70
Int. Cl. B60b 27/02
U.S. Cl. 301—121 6 Claims

A wheel mounting construction particularly for engaging a wheel of a child's toy on an axle of the toy to facilitate its positioning and rotatable mounting, comprises a wheel having a

hub portion forming a sleeve which engages over the axle and is rotatable thereon. The sleeve is held against withdrawal by the resilient engagement of slot-separated segments on one end of the sleeve into a separate small size sleeve member which is retained within a slot of a guillotine plate. The guillotine plate is movably mounted on a bracket which is affixed to the frame of the vehicle and the axle of the vehicle extends



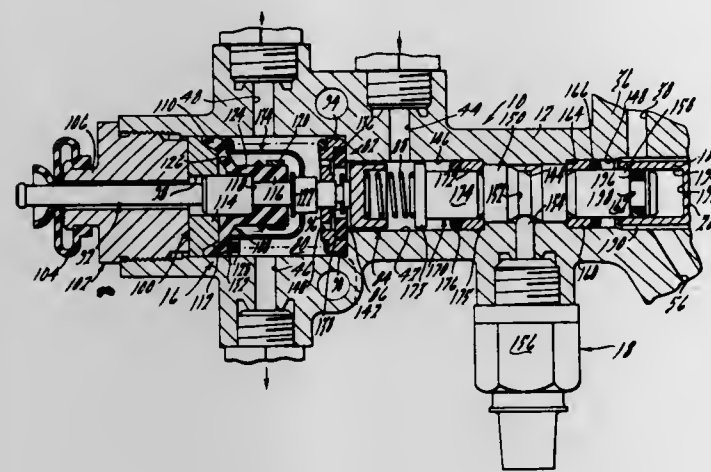
through the slot of the plate. The slot is sized so that a wall-bounding smaller diameter portion of the slot engages upwardly within a recess of the holding sleeve for the wheel hub and it prevents its withdrawal. The plate may be moved against a spring-biasing force to position the small sleeve in a large diameter portion and thus free it so that it may be removed axially along with the associated wheel.

3,740,101 CONTROL VALVE

David T. Ayers, Jr., Birmingham, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.
Filed Jan. 4, 1971, Ser. No. 103,596
Int. Cl. B60t 8/26

U.S. Cl. 303-6 C

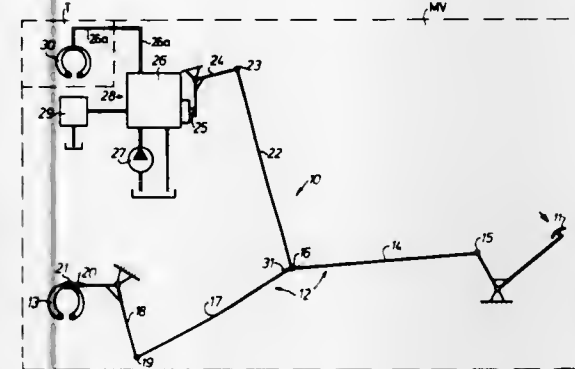
9 Claims



A control valve for connection between a split master cylinder and the front and rear brake motors or cylinders in a split fluid pressure system including metering means for impeding pressure fluid flow from the split master cylinder to the front brake cylinders at fluid pressures less than a predetermined value, and a proportioning valve for effecting an applied fluid pressure in a predetermined ratio with fluid pressure supplied thereto in excess of another predetermined value and responsive to yet another predetermined value of the supplied fluid pressure greater than one of the first mentioned predetermined values to effect an applied fluid pressure in substantially a one to one ratio therewith.

3,740,102
MOTOR VEHICLE BRAKING ARRANGEMENT
Günther Schwerin, Fellbach, Germany, assignor to Robert Bosch G.m.b.H., Stuttgart, Germany
Filed Feb. 3, 1972, Ser. No. 223,206
Claims priority, application Germany, Feb. 27, 1971, P 21 09 379.8

U.S. Cl. 303-13 Int. Cl. B60t 15/16 6 Claims

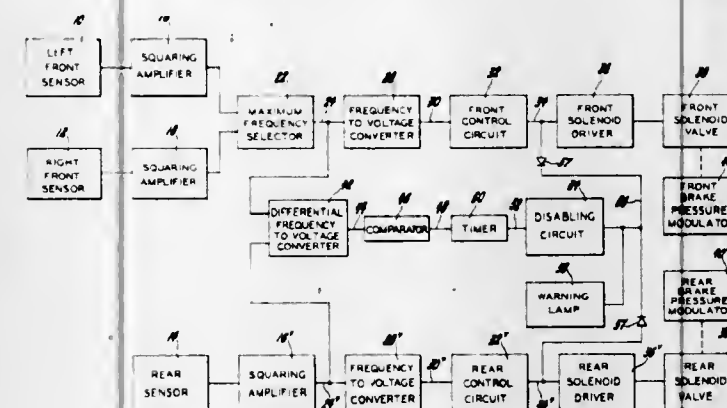


A motor vehicle is provided with a mechanical brake system which is to supply, when actuated, the impulse for operating the hydraulic brake system of a trailer which is to be towed by the motor vehicle. The mechanical brake system of the motor vehicle has a pair of articulately connected linkage rods which define with one another an angle and a pull rod connected with at least one of the linkage rods and acting upon an actuating valve of the hydraulic brake system so as to operate the valve when the mechanical brake system is actuated.

3,740,103
ANTI-LOCK BRAKE CONTROL SYSTEM WITH FRONT TO REAR INTERLOCK
Douglas W. Sweet, and David G. Beyerlein, both of Flint, Mich. assignors to General Motors Corporation, Detroit, Mich.
Filed May 13, 1971, Ser. No. 142,878
Int. Cl. B60t 8/08

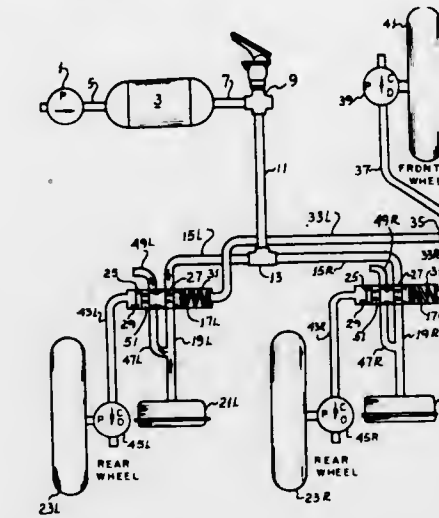
U.S. Cl. 303-21 EB

5 Claims



A four-wheel anti-lock brake control system has a control circuit and brake pressure modulators for controlling the front and rear brakes of a vehicle in accordance with a function of wheel speeds for preventing wheel lock. A wheel lock circuit responsive to front and rear wheel speeds prevents the condition of anti-lock cycling of the front brakes when the rear brakes are not cycling by disabling the entire control or at least the control to the front wheels. Rear wheel lock is sensed in one embodiment by comparing front and rear wheel speeds and determining when the front speed exceeds the rear by a significant amount for a certain time period, and in another embodiment by determining when the front speed exceeds a given value and the rear speed is below another lower value for a certain time period.

3,740,104
FLUID BRAKE SYSTEM WITH SKID CONTROL
Lloyd J. Wolf, 2425 Irving Boulevard, Dallas, Tex.
Filed Aug. 2, 1971, Ser. No. 168,014
Int. Cl. B60t 8/06
U.S. Cl. 303-21 BB 12 Claims



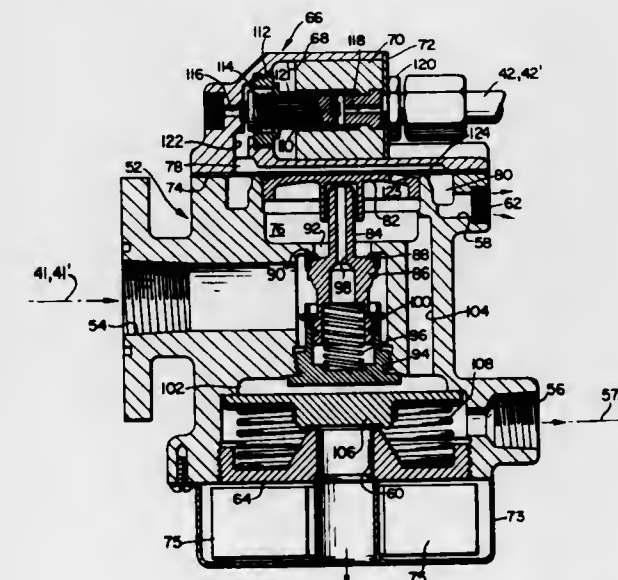
A fluid brake system for automotive vehicles includes a skid control for releasing the brakes on any wheel when skidding of that wheel commences. The skid control comprises a fluid pressure-responsive normally open sensing valve in the fluid pressure line to each wheel brake cylinder, and constant displacement vacuum pumps driven respectively by the wheels with brakes and a wheel brakeless sensor, the pumps on the brake-mounting wheels being connected to the respective sensing valves to urge the same toward open position, and the sensor wheel pump being connected to the sensing valves to close the same whenever the wheel whose brake is controlled by the respective valve commences to skid and suction produced by the respective valve commences to skid and substantially exceeds that produced by the wheel pump on the skidding wheel whereby to release the brake on the skidding wheel.

3,740,105
INTEGRATED ANTI-WHEEL LOCK CONTROL VALVE ASSEMBLY

Alton B. Holmes, Troy, Mich., assignor to North American Rockwell Corporation, Pittsburgh, Pa.
Filed Jan. 3, 1972, Ser. No. 214,767
Int. Cl. B60t 8/06

U.S. Cl. 303-21 F

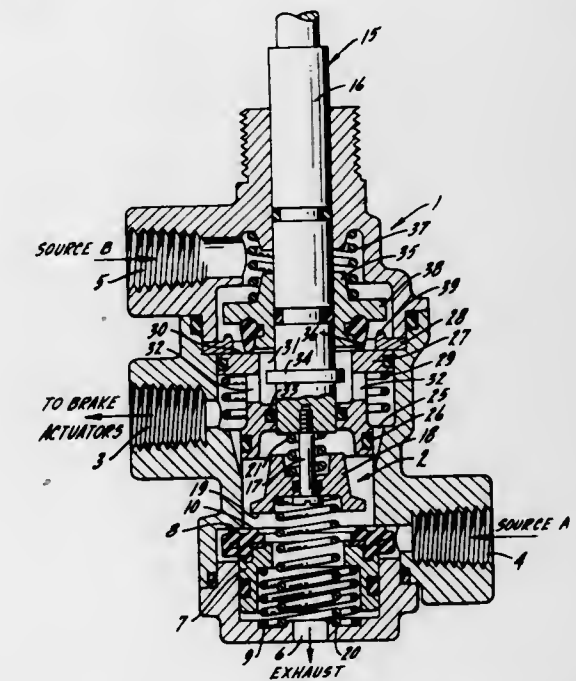
6 Claims



An integrated anti-wheel lock control valve assembly and wheel speed signal responsive computer for selectively connecting an outlet passage to a source of fluid under pressure or

to exhaust, the action of the valve being controlled by regulation of the fluid pressure in a control chamber selectively vented or connected to a source of fluid under pressure by a solenoid operated control valve actuated under control of the computer in such valve assembly.

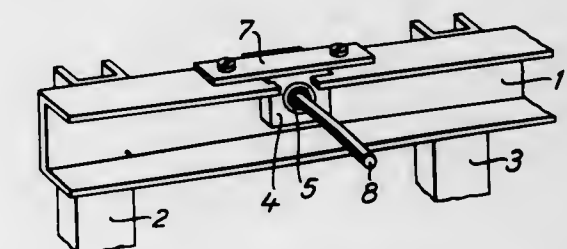
3,740,106
BRAKE SYSTEM CONTROL VALVE
Charles Horowitz, Niles, Ill., assignor to The Berg Manufacturing Company, Des Plaines, Ill.
Filed Apr. 26, 1971, Ser. No. 137,518
Int. Cl. B60t 13/22
U.S. Cl. 303-71 9 Claims



A brake system control valve in which elements are movable in one direction to supply fluid pressure from a first source, in the opposite direction to exhaust the valve and an overtravel element provides for further movement in the original direction to supply fluid pressure from a second source.

3,740,107
SHAFT BEARING
Hans-Georg Fromme, Wetzlar, Germany, assignor to Fromme Forderanlagen GmbH, Wetzlar, Germany
Filed Mar. 14, 1972, Ser. No. 234,574
Claims priority, application Germany, Apr. 21, 1971, P 21 19 283.6

U.S. Cl. 308-26 Int. Cl. F16c 35/00 3 Claims



A bearing for a shaft is mounted by a rubber-metal connection in a rubber plate which has a thickness equal to the width of the bearing in axial direction. On two opposite edges the rubber plate is provided with grooves so that it can be inserted in an accordingly shaped opening of a shaft carrier. The rim of the opening constitutes the tongues which fit into the grooves. In the carrier the rubber plate is secured by a screwed-on retaining plate. This design allows for a ready and uncomplicated replacement of the bearing in case it has worn out.

3,740,108

CYLINDRICAL ROLLER BEARING

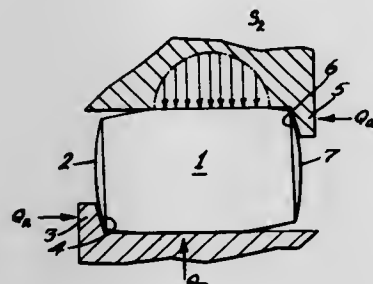
Lars Martin Ingemar Fernlund, Hinda, Sweden, assignor to SKF Industrial Trading and Development Company N.V., Amsterdam, Netherlands

Filed Nov. 15, 1971, Ser. No. 198,568

Int. Cl. F16c 33/00

U.S. Cl. 308—212

5 Claims



A rolling bearing assembly comprising inner and outer ring members having confronting raceways, a plurality of roller elements in the annular space between the raceways, each of said roller elements having a peripheral surface confronting the raceways, said raceways and peripheral surface of the roller elements being of a predetermined configuration whereby the peripheral surface of said roller elements adjacent the axial ends thereof is spaced from the raceways and thereby is not under load when the bearing assembly is subjected to a predetermined axial load.

3,740,109

FIBERBOARD FILE CABINET AND DRAWER GLIDE STRUCTURE

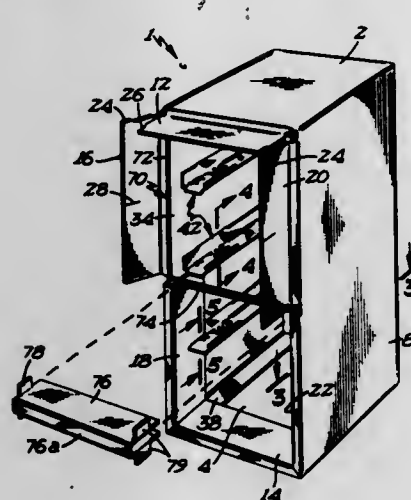
James L. Pfaffendorf, Maple Grove, and Marilyn D. Johnson, Minneapolis, both of Minn., assignors to Fidelity File Box, Inc., Minneapolis, Minn.

Filed Jan. 28, 1972, Ser. No. 221,590

Int. Cl. A47b 43/02

U.S. Cl. 312—261

6 Claims



A lightweight, fiberboard file cabinet having a plurality of drawers slidably supported on vertically spaced, rigid drawer glides removably suspended on the upright side panels of a liner inside the cabinet outer housing. Each drawer glide is comprised of a horizontal, drawer-supporting runner and upwardly and downwardly extending retainer elements which bear against opposite faces of the liner side panels, the glides being attached to the liner through horizontal slots therein.

3,740,110

FABRICATION METHOD FOR GAS LASERS HAVING INTEGRAL MIRRORS

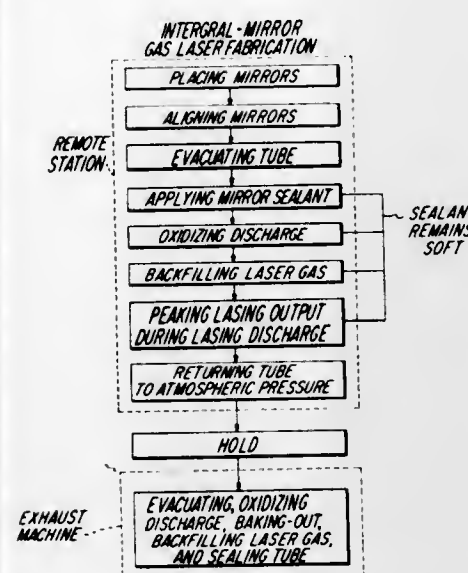
Murray Robert Horton, Lititz, and Robert Stephen Kutay, East Petersburg, both of Pa., assignors to RCA Corporation, New York, N.Y.

Filed May 10, 1971, Ser. No. 141,635

Int. Cl. H01j 9/38, 17/26

U.S. Cl. 316—21

6 Claims



Attaching integral mirrors to the opposite ends of the laser tube with a sealant which remains soft for a given time, and then while the sealant is still soft operating a lasing discharge in the tube until mechanical equilibrium is reached, and thereafter in the presence of this lasing discharge adjusting the relative positions of the mirrors to substantially achieve peak output from the laser. Useful for mass production of laser tubes, where the peaking of the laser output is done at a remote station, after which the tube is returned to atmospheric pressure and can be stored until it can be finally processed by a conventional exhaust machine.

3,740,111

HOLOGRAPHIC RECORDING SYSTEM FOR LARGE OBJECTS

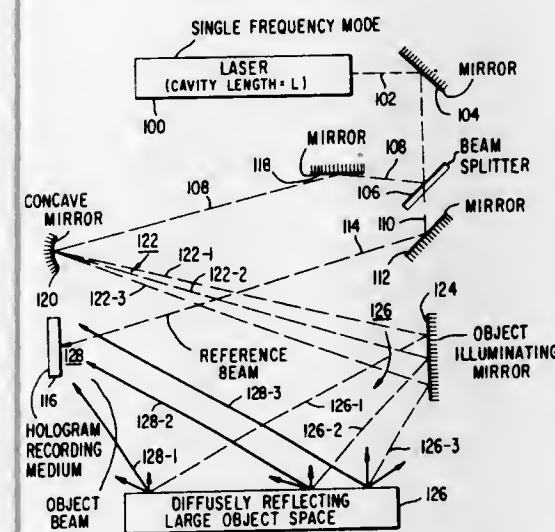
Istvan Gerog, Princeton, and Fred William Spong, Lawrenceville, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,508

Int. Cl. G02b 27/00

U.S. Cl. 350—3.5

3 Claims



A holographic arrangement for recording a high quality hologram of an object having a length many times the coherence length of the coherent light waves employed in recording the hologram.

3,740,112

MULTIPLE IMAGE OPTICAL DEVICE

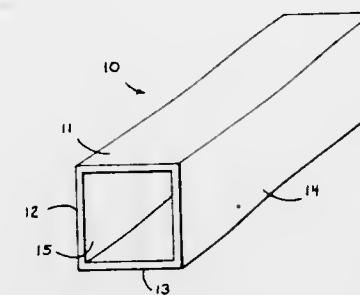
Edward Thomas Lundgren, 83 Twig Lane, Levittown, N.Y.

Filed Mar. 22, 1971, Ser. No. 126,631

Int. Cl. G02b 5/14, 27/08

U.S. Cl. 350—96 T

8 Claims



An optical device for creating geometric patterns based upon actual viewed objects, comprising an elongated tube having a polygonal transverse cross-section. The inner walls of the tube are made reflective to create multiple reflections of light impinging through the open end, and these walls may be made transparent and color restrictive to enhance the apparent brightness and beauty of the pattern developed.

3,740,113

LIGHT GUIDE

Michael Cass, Welwyn Garden City, England, assignor to Imperial Chemical Industries, Limited, London, England

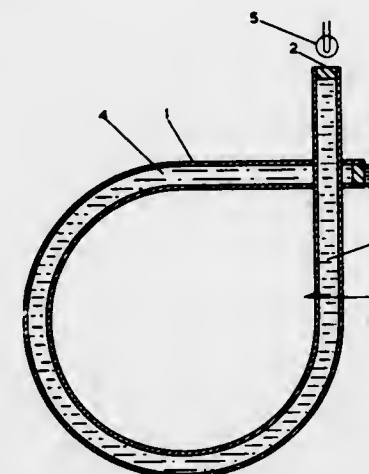
Filed Feb. 16, 1970, Ser. No. 11,431

Claims priority, application Great Britain, Mar. 13, 1969, 13,205/69

Int. Cl. G02b 5/14

U.S. Cl. 350—96 R

9 Claims



A flexible light guide comprises a flexible tube of a transparent thermoplastic containing a transparent liquid having a higher refractive index than the thermoplastic. The tubing may be of a polymer or copolymer of 4-methyl pentene-1 or any clear plastic tubing.

3,740,114

SEALING ARRANGEMENT FOR TELESCOPIC SIGHTS

John F. Thompson, El Paso, Tex., assignor to W. R. Weaver Company, El Paso, Tex.

Filed Mar. 6, 1972, Ser. No. 232,140

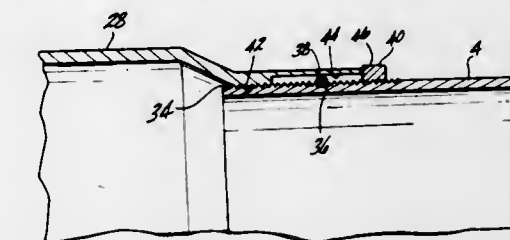
Int. Cl. G02b 23/16

U.S. Cl. 350—67

1 Claim

An arrangement for sealing the juncture between the ocular lens housing and the main scope barrel on a telescopic sight is

provided. The seal prevents ambient air from entering the scope and fogging the internal optics of the scope, and yet



permits focussing of the ocular lens with respect to the remaining lenses and reticle in the scope.

3,740,115

FIBERSCOPE VIEWING SYSTEM WITH DYNAMIC IMAGE ENHANCER

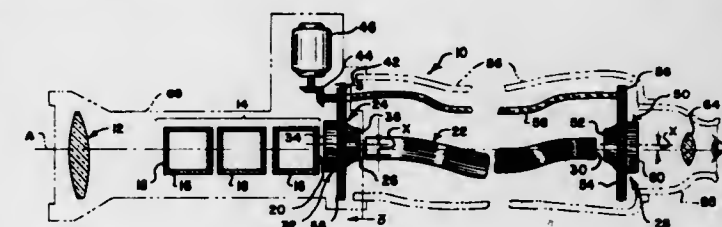
Henry B. Cole, Woodstock, Conn., assignor to American Optical Corporation, Southbridge, Mass.

Filed Sept. 2, 1971, Ser. No. 177,229

Int. Cl. G02b 5/16

U.S. Cl. 350—96 B

4 Claims



A flexible optical fiber viewing system including a relatively long and thin bundle of optical fibers having image-receiving and image-emitting opposite end faces and a bundle of tapered optical fibers having image-receiving and image-emitting opposite end faces. The image-emitting and image-receiving faces of the bundle of tapered fibers and the flexible fiber bundle respectively are optically interfacially coupled and one is rotated eccentrically relative to the other to effect nutation of images conveyed by the bundle of tapered fibers upon the image-receiving face of the flexible bundle of optical fibers. Rotated synchronously with the bundle of tapered optical fibers, adjacent the image-emitting face of the flexible bundle, is a tilted plate of glass or its equivalent which receives the optical images emitted by the flexible bundle for neutralizing motion imparted to these images at the image-receiving end of the bundle.

3,740,116

STRENGTH MEMBERS AND STRUCTURAL COMPONENTS INTEGRALLY CONTAINING FIBER OPTIC ELEMENTS

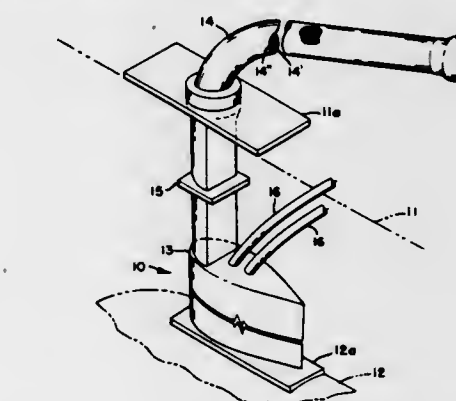
Daniel E. Andrews, Jr., 1563 Yost Drive, San Diego, Calif.

Filed Aug. 27, 1971, Ser. No. 175,526

Int. Cl. G02b 5/16

U.S. Cl. 350—96 B

7 Claims



A bundle of fiber optic elements functions as the mechanical (usually tensile) load bearing member in telemetry appli-

cations calling for the transfer of data between two points. The superior data transfer capabilities of optical fibers, for example, elimination of cross-talk between adjacent fibers and immunity from ambient electromagnetic interference, are realized by modifying load bearing structures to include the optical fibers. The substantial tensile load bearing capacity of narrow diameter, light weight glass fibers more than adequately supports considerable loads at a fraction of the weight and bulk of a conventional cable. After an electro-optical conversion has been made at one end of the optical fibers, image intensifier or similar devices optionally, are included to further enhance the degree of reliability of the optical radiation representative of data.

3,740,117

ACOUSTO-OPTIC FILTER HAVING AN INCREASED OPTICAL BEAM APERTURE

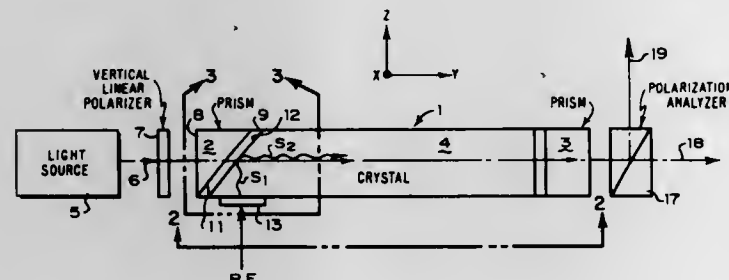
Laurence M. Hubby, Jr., Palo Alto, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed July 22, 1971, Ser. No. 165,112

Int. Cl. G02f 1/24

U.S. Cl. 350-149

16 Claims



In an acousto-optic filter a prism, cut at a complimentary angle to the inclined input face of the photoelastic birefringent crystal, is disposed between the light source and the crystal. An index of refraction matching medium is disposed in a gap between the input face to the crystal and the parallel output face of the prism such that the input light beam, which is directed perpendicular to the input face of the prism is diffracted by the prism and by the index matching medium along a path within the crystal which is collinear with an excited acoustic wave within the crystal, whereby a maximum optical beam aperture size is obtained. A similar prism with an index of refraction matching medium is disposed at the output end of the crystal for retaining the maximum optical beam aperture at the output end of the filter.

3,740,118

SELF STRAIN BIASED FERROELECTRIC OPTICS

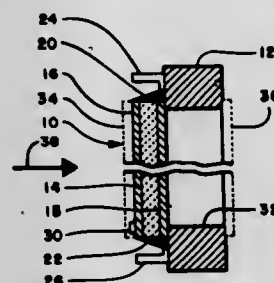
Cecil W. Land, and Willis D. Smith, both of Albuquerque, N. Mex., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Dec. 1, 1971, Ser. No. 203,726

Int. Cl. G02f 1/26

U.S. Cl. 350-150

10 Claims



An electrooptic birefringent device and method of achieving birefringence including providing an electric field from

one major surface to another of a ferroelectric ceramic plate which is capable of exhibiting electrically induced birefringence effects to electrically modify dimensions of said plate, rigidly fastening edge portions of the plate to a rigid structure, and thereafter modifying dimensions and birefringence of said plate by application of electric fields between the major surfaces of the plate.

3,740,119

OPTICAL LENTICULAR GRID FOR DISPLAY APPARATUS

Tooshi Sakurai; Satoshi Tada, and Kazuo Kazama, all of Tokyo, Japan, assignors to Sansui Electric Co., Ltd., Suginami-ku, Tokyo, Japan

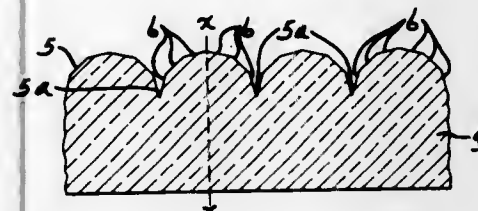
Filed Mar. 16, 1971, Ser. No. 124,785

Claims priority, application Japan, Mar. 17, 1970, 45/22463; Apr. 2, 1970, 45/31725

Int. Cl. G02b 27/00

U.S. Cl. 350-167

10 Claims



An optical grid of a plurality of optically elongated or circular lenses formed in juxtaposed parallel or concentric relation, respectively, with each of said lenses having a characteristic arcuate contour of polygonal shaped cross-section which is symmetrical on either side of a line passing through the center of the lens. The optical grid is employed in a display apparatus having a guide frame with a movable frame reciprocative in the guide frame. A projecting screen is provided on the front face of the guide frame behind which, in spaced relation, is positioned the optical grid. The front face of the movable frame is provided with an artwork grid, the subject matter of which is displayed on the projecting screen through the optical grid. Illuminating means for the artwork grid are located on the rear face of the movable frame.

3,740,120

WIDE-ANGLE LENS

Rudolf Ruhl, Wetzlar, Germany, assignor to Ernst Leitz GmbH, Wetzlar, Germany

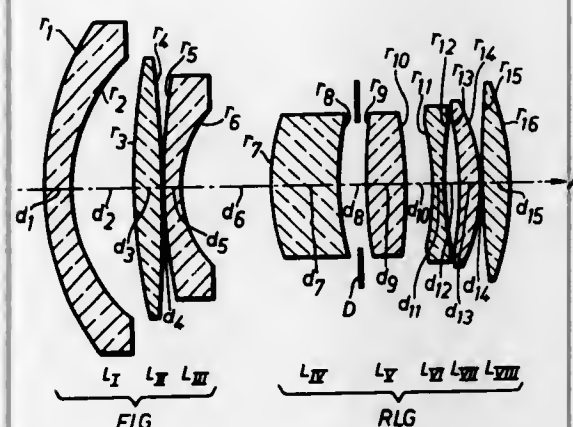
Filed Mar. 22, 1972, Ser. No. 236,948

Claims priority, application Germany, Mar. 26, 1971, P 21 14 729.5

Int. Cl. G02b 9/64

U.S. Cl. 350-214

3 Claims



In a wide-angle lens comprising a negative front lens group, and a positive rear lens group the negative front lens group is

composed of two negative meniscus lenses and a double-convex lens element positioned therebetween. The negative menisci consist of glass having an extremely low index of refraction and a high Abbe number, and the double-convex lens element also shows a very low dispersion. This results in a low color dispersion of the whole negative front lens group and improves greatly the possibilities for a chromatic correction in the image field. It further allows the design of the front lens element of the rear lens group as a compact meniscus, thereby overcoming the necessity of splitting this lens into a plurality of separate or cemented component lenses.

3,740,121

VISUAL SCANNER

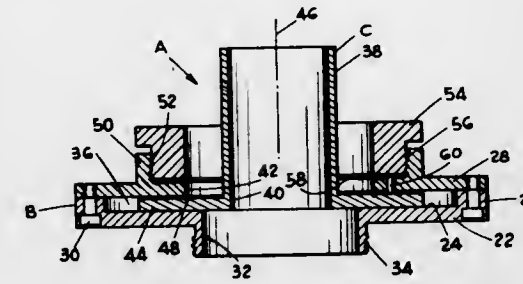
George Everett, Burlington, Conn., assignor to Gros-Itte Industries, Inc., Farmington, Conn.

Filed Nov. 3, 1971, Ser. No. 195,349

Int. Cl. G02b 7/02

U.S. Cl. 350-247

14 Claims



A device is provided for scanning the field of view of an optical instrument. The device includes a housing for connection to the optical instrument and a scanning means which has freedom to move in any direction to cover the area of an aperture in the housing which communicates with the optical instrument. Holding means releasably fix the position of the scanning means with relation to any given portion of the aperture and, therefore, the field of view. Interchangeable optical means may be mounted on the scanning means to increase the magnification of the area viewed.

3,740,122

ANTI GLARE MIRROR ATTACHMENTS

David Stern, Slough, England, assignor to Combined Optical Industries Limited, Slough, England

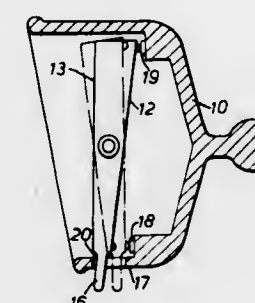
Filed Feb. 12, 1971, Ser. No. 105,832

Claims priority, application Great Britain, Jan. 23, 1970, 3,437/70

Int. Cl. B60r 1/04; G02b 5/08

U.S. Cl. 350-281

6 Claims



A rear view driving mirror comprises a mirror body having two reflecting surfaces of different reflective powers and angled to one another so that one will reflect incident light in one direction, and one in another direction whereby a driver can select an image of high or low intensity dependent on the conditions, the body having integral hinge means engaging hinge means of a carrier, a retainer being provided to hold the mirror in a selected one of two positions relative to the carrier.

3,740,123

PULL-DOWN MIRROR

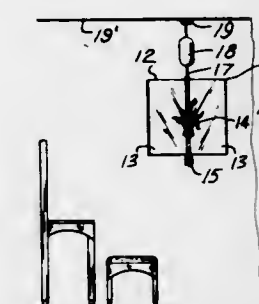
Lorraine M. Leiti, Milwaukee, Wis., assignor to Kenneth G. Leiti and Jimmy M. Leiti, Milwaukee, Wis., part interest to each

Filed Aug. 26, 1971, Ser. No. 175,105

Int. Cl. G02b 5/08

U.S. Cl. 350-305

1 Claim



A mirror device which may be pulled down from the ceiling for use. This device includes a hub portion having mirror faced wings extending radially outward and includes eye means for the attachment of a floral or other arrangement for decorative purposes.

3,740,124

FLOATABLE SPECTACLES

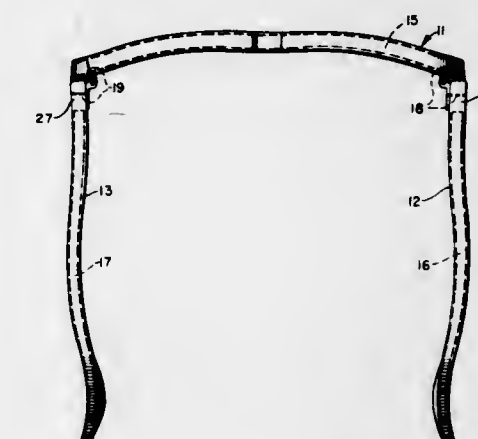
Abraham Goodman, Essex Fells, N.J., and Conrad Leblanc, Leominster, Mass., assignors to Foster Grant Co., Inc., Leominster, Mass.

Filed Sept. 7, 1971, Ser. No. 177,976

Int. Cl. G02c 1/00

U.S. Cl. 351-43

14 Claims



A floatable pair of spectacles having an over-all specific gravity of less than 1 while being formed of solid material, the total amount of which included in all portions of said spectacles having an average specific gravity of at least 1. Compartments within the frame of the spectacles define a volume of not less than about 25 percent of the over-all volume of the frame. Novel hinge support mounting portions and frame joints are used in conjunction with novel parameter selection to obtain flotation in water in a lightweight, inexpensive, mechanically strong and esthetically pleasing form.

3,740,125

MOTION PICTURE SOUND PROCESSING APPARATUS

Hilary Harris, 49-A Eighth Avenue, New York, N.Y.

Filed Sept. 8, 1971, Ser. No. 178,630

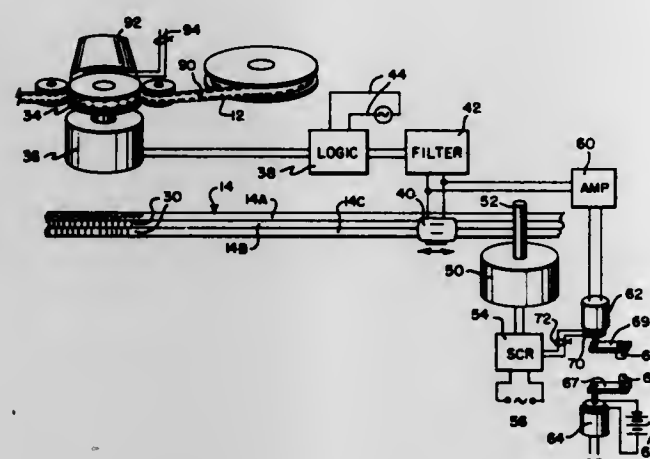
Int. Cl. G03b 31/04

U.S. Cl. 352-17

2 Claims

Apparatus is described for processing motion picture film and audio sound data recorded on standard sprocketless magnetic tape. A tape synchronizing system is used in which the film is driven by a stepper motor which, in turn, is controlled

by synchronizing pulses recorded on tracks of the audio tape. The film can be driven in forward and reverse directions at various speeds, with exact synchronization being maintained between the film and tape during editing.



After the sound tracks have been recorded and assembled on their respective tapes, they can be mixed under the control of conductive strips placed on the film which, through a special programming unit, control the starting and stopping of the various tapes.

3,740,126 PANORAMIC MOTION PICTURE CAMERA

Seizo Goto, Tokyo, Japan, assignor to Goto Optical Manufacturing Co., Ltd., Tokyo, Japan

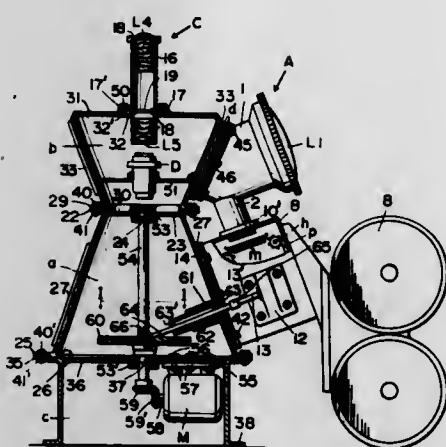
Filed Sept. 3, 1970, Ser. No. 69,242

Claims priority, application Japan, Mar. 12, 1970, 45/20491

Int. Cl. G03b 37/00

U.S. Cl. 352-69

5 Claims



This is a panoramic motion picture camera for taking panoramic pictures by means of a plurality of cameras disposed radially at equal intervals in a circle. For photographing the entire scene pano-hemispheric within at least 120° above the horizon by using wide-angle lenses a plurality of cameras (usually five cameras) are disposed with their optical axis inclined at an elevation angle of 2. The optical axis is bent 90° on a mirror so as to be led to a position higher by a distance corresponding to α than the center line of the film, and a finder comprising a wide-angle lens which permits the viewing of all the fields covered by the individual cameras is provided in the center thereof. The finder is used in combination with a vidicon camera connected electrically to a monitoring picture receiver.

3,740,127 PROJECTOR APPARATUS

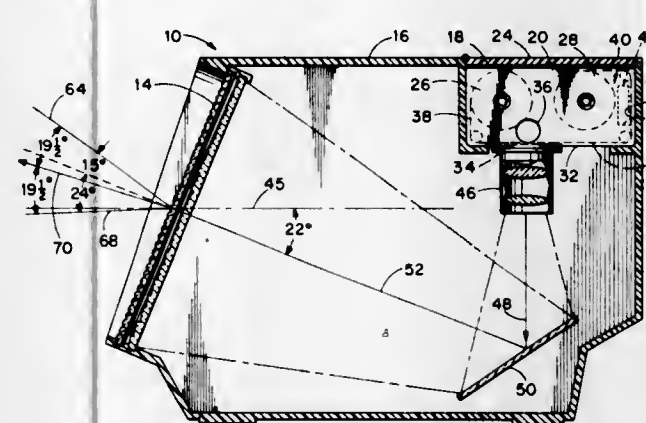
Philip G. Baker, Peabody; Stewart Bennett, Concord, and Richard W. Young, Wellesley Hills, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Aug. 24, 1971, Ser. No. 174,373

Int. Cl. G03b 23/02

U.S. Cl. 352-72

5 Claims



A rear projection viewer, for projection of images of a film strip housed in a motion picture cassette, employing a single reflective mirror and an inclined viewing screen in a compact arrangement wherein the screen provides substantially the complete front face of the viewer. In its preferred embodiment, the viewer is configured for operation of a multipurpose cassette for processing of the film strip of such cassette and subsequent projection of the images recorded on such film strip, and the cassette includes a processing station adapted for optimally dispensing processing fluid across the film strip when the cassette is maintained in an attitude such that the incremental sections of the film progressively advanced across the projection station opening are located in a predetermined plane. A cassette-receiving well, disposed in the top of the viewer housing, is adapted to receive the cassette and locate it below the top of the screen in an operative position with the progressively advanced, incremental sections of film disposed in the predetermined plane. Preferably, the screen is a lenticular structure which transmits projected images substantially uniformly over a given viewing zone, and additionally directs the viewing zone downwardly from an axis normal to the screen in at least partial compensation for the angle of inclination of the screen such that the viewing zone will include an audience area located along the longitudinal axis of the apparatus.

3,740,128 AMUSEMENT DEVICE

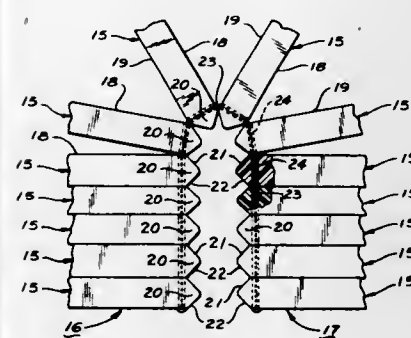
Alan Adler, 752 LaPara Avenue, Palo Alto, Calif.

Filed Nov. 1, 1971, Ser. No. 194,158

Int. Cl. G03b 25/00

U.S. Cl. 352-99

17 Claims



A child's toy or amusement device comprising a plurality of thin rigid plaques of generally planar form adapted to be disposed in stacked juxtaposition one upon another with the

faces of each plaque in contiguous relation with those immediately preceding and succeeding the same. The plaques are pivotally secured to each other adjacent one end thereof and along each face to both the immediately preceding and succeeding plaques, thereby enabling the plaques to be manipulated so as to articulate sequentially from one stack to another in alternate opposite directions. The faces of the plaques may be provided with indicia of a sequential character so as to depict motion as said plaques are displaced from one stack to another.

3,740,129 CAMERA FILM MOVING MECHANISM

Jacques Lecoq, Paris, France, assignor to Eclair International, Paris, France

Filed Aug. 2, 1971, Ser. No. 168,026

Claims priority, application France, Jan. 27, 1971, 7102663

Int. Cl. G03b 1/22

U.S. Cl. 352-193

10 Claims



This film moving mechanism for motion picture camera comprises a feed-claw lever pivotally mounted in a plane perpendicular to a perforated film edge. An element such as an eccentric imparts longitudinal oscillatory motion to the lever in the film feed direction. The movements of the lever and of its claw are guided by a stud slidably engaging a cam, the stud being rigid with the lever and the cam being fixed, the stud and cam being disposed between the lever and the film. Spring means urge the stud for proper engagement with the cam.

ERRATUM

For Class 352-91 see:
Patent No. 3,740,146

3,740,130 ARRANGEMENT FOR PRODUCING FADE-IN AND FADE-OUT EFFECTS WITH PAIRS OF SLIDE PROJECTORS

Eduard Wagensohn, and Ulrich Schmidt, both of Muenchen, Germany, assignors to AFGA-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Mar. 15, 1971, Ser. No. 124,345

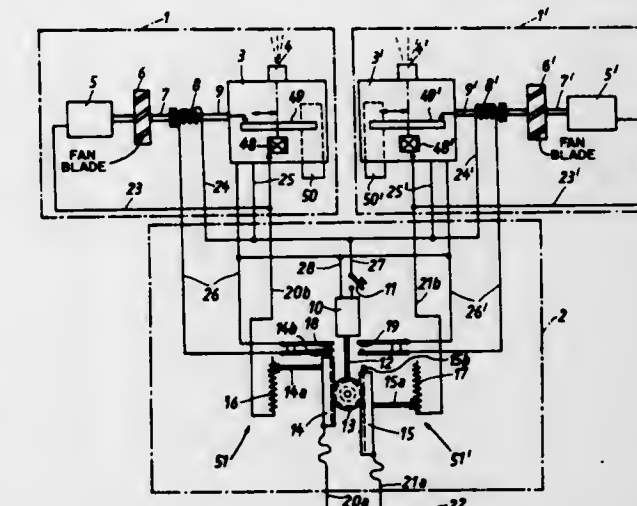
Claims priority, application Germany, Mar. 25, 1970, G 70 10 970.5

Int. Cl. G03b 21/20, 23/16, 23/04

U.S. Cl. 353-86

10 Claims

An arrangement wherein two slide projectors project images onto the same area of a screen and wherein the intensity of light furnished by the lamp behind the slide occupying a projection position in one of the projectors is gradually reduced while the intensity of light furnished by the lamp behind the slide occupying a projection position in the other projector gradually increases. The slide changers of the projectors are actuated by cooling fans which are normally driven by mo-



tors. The mass of each fan is sufficient to insure continued rotation by inertia when the respective motor is stopped and for an interval which suffices to enable the rotating fan to actuate the respective slide changer. A control unit gradually dims one of the lamps while the other lamp furnishes light of gradually increasing intensity. The control unit thereupon

3,740,131 DEVICE FOR AUTOMATICALLY DISPLAYING AND WITHDRAWING AN ORIGINAL POSITIONING SCALE

Hiroshi Hirose, Tokyo, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

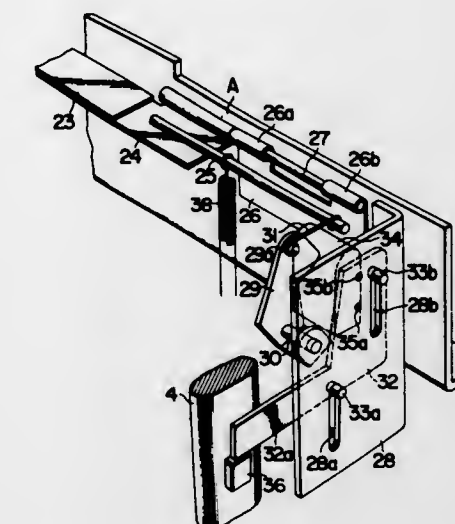
Filed Dec. 27, 1971, Ser. No. 212,159

Claims priority, application Japan, Dec. 25, 1970, 45/130832

Int. Cl. G03b 27/62

U.S. Cl. 355-75

5 Claims



A device provided in copying apparatus of the type in which exposing of copy sheets to an optical image of the original is carried out by using reflected light. The device is effective to move an original positioning scale to display the scale at one end edge of the transparent original receiving surface, on an inner side thereof, when the original is placed on the original receiving surface at the start of an exposing operation, and to withdraw the scale out of view of the operator at the time of actual exposure, so that the scale is not in the path of the light reflected from the original while the copy is being exposed.

3,740,132

ELECTROPHOTOGRAPHIC APPARATUS

Shigehiro Komori, Yokohama; Jiro Sato, Kawasaki, and Hiroyuki Hattori, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

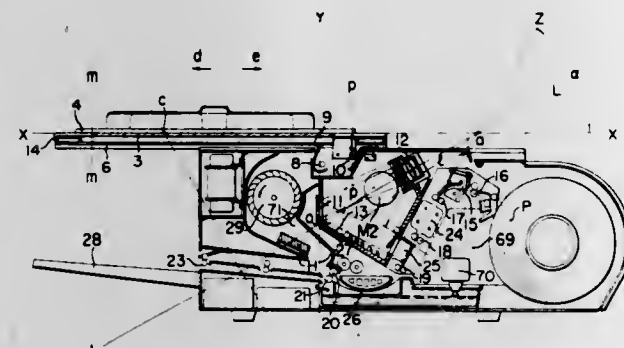
Filed Jan. 29, 1971, Ser. No. 111,058

Claims priority, application Japan, Feb. 2, 1970, 45/9197; Feb. 18, 1970, 45/13934; Mar. 7, 1970, 45/19462

Int. Cl. G03g 15/00

U.S. Cl. 355—3

10 Claims



An electrophotographic copying apparatus, especially suitable for use in offices, having an improved optical system for reducing the space between an original illuminating station and an exposure station while maintaining a required light path length, and having an original carriage disposed for horizontal sliding movement on top of the apparatus. The various copy paper processing devices of the apparatus are disposed about the optical system in a compact manner, wherein the processing devices include a device for electrically charging lengths of copy paper; a device exposing the charged paper; a device for developing the exposed paper; a device for fixing and drying the developed copies; and a device for cooling the apparatus. The optical system includes various conventional mirrors and an in-mirror lens arranged to provide a folded light path. Disclosed also is structure for loading, feeding, and cutting copy paper supplied within the apparatus in roll form.

3,740,133

ELECTROPHOTOGRAPHIC COPYING APPARATUS OF SLIT EXPOSURE TYPE

Shigehiro Komori, Yokohama; Jiro Sato, Kawasaki, and Hiroyuki Hattori, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

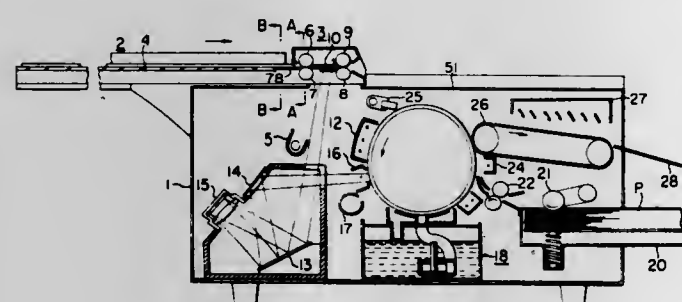
Filed Dec. 23, 1971, Ser. No. 211,383

Claims priority, application Japan, Dec. 30, 1970, 45/126316

Int. Cl. G03g 15/04

U.S. Cl. 355—8

5 Claims



An electrophotographic copying apparatus of slit exposure type comprises a sheet original conveyor mechanism provided on top of the machine housing, and an original carriage having

a transparent sheet of glass or the like provided contiguously with the frame of the conveyor mechanism. When a sheet original is to be copied, such original is transported by the sheet original conveyor mechanism for a through-slit exposure. When a thick original such as book or the like is to be copied, the original carriage with the thick original thereon is forced to move with the conveyor mechanism to disconnect the mechanism from its drive system but connect the drive system to the original carriage, whereafter the carriage is moved for the thick original thereon to be subjected to a through-slit exposure.

3,740,134

MEASURING SYSTEM

Walter Miller, Traunstein, and Kurt Flichtinger, Traunreut, both of Germany, assignors to Dr. Johannes Heidenhain, Traunstein, Germany

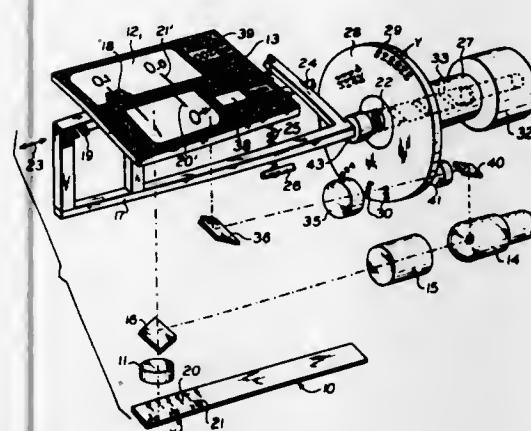
Filed June 6, 1969, Ser. No. 830,948

Claims priority, application Germany, June 10, 1968, P 17 73 594.3

Int. Cl. G03b 21/00

U.S. Cl. 353—41

1 Claim



A measuring device including a scale and a reader including a viewing window which comprises means for a fine division of the intervals of a measuring division, the measuring system has at least two divisions of different measures, and the latter is arranged on one side of the scale adjacent each other.

3,740,135

COLOR ENLARGING APPARATUS

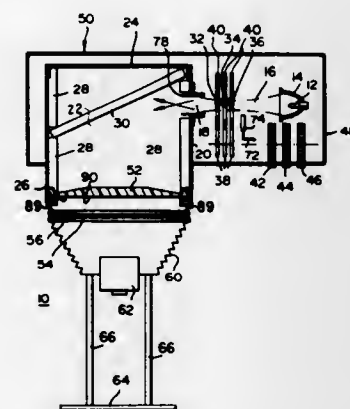
Louis L. Welsglass, New York, N.Y., assignor to Berkey Technical, Woodside, N.Y.

Filed Dec. 14, 1971, Ser. No. 207,823

Int. Cl. G03b 27/32, 27/52

U.S. Cl. 355—32

13 Claims



In the color enlarging apparatus disclosed, three color filters partially intercept a white light beam emerging from a light source. The filters thus divide the beam into a white portion and an intensely colored portion. The beam enters a mixing chamber through a porthole and is bounced off white-opaque dispersing walls to mix the white and intensely colored light.

The light exits through a diffuser transverse to its entrance direction. The diffused light illuminates a color film, such as a slide or negative, mounted in a film carrier. Optical means then focus the light from the film onto color printing paper. A cylindrical mirror at the chamber entrance helps mix the light. The diffuser at the exit of the chamber is shaped to produce uniform intensity distribution. The surface of the carrier facing the diffuser, is painted white or mirrored. The top surface thus reflects the portion of the light which does not strike the film and directs it back through the diffuser into the chamber. The side of the diffuser facing the carrier is matted to prevent re-reflection of light by the diffuser onto the edges of the film.

3,740,136

MICRO-IMAGE VIEWER-PRINTER MACHINE

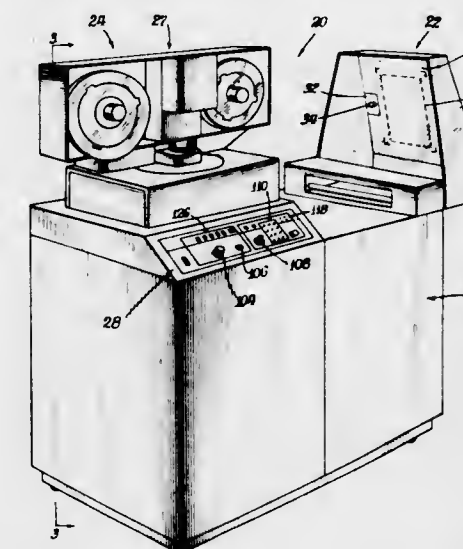
William R. Maloney, Deerfield, and Harry Margulis, Hoffman Estates, both of Ill., assignors to Addressograph-Multigraph Corporation, Mount Prospect, Ill.

Filed May 5, 1972, Ser. No. 250,687

Int. Cl. G03b 27/52, 27/70

U.S. Cl. 355—43

33 Claims



A micro-image viewer-printer machine for selectively viewing or reproducing micro-images, particularly those stored on a roll of microfilm, includes a reference frame counter that initiates its counting operation in response to the appearance of a first image on a roll of microfilm. The reference frame counter maintains a cumulative count of all frames passing through the device in a forward direction and reduces that count by the number of frames passed through the device in a reverse or rewind direction. A keyboard encoder enables the entry of a desired number of reproductions per frame and a desired number of consecutive frames to be reproduced. Control means are provided for automatically reproducing a variable, preselectable number of copies of an image on the roll of microfilm. A further control circuit automatically reproduces a variable, preselectable number of copies of a variable, preselectable number of consecutive frames on a roll of microfilm. A device is provided for sensing the direction of movement of microfilm. The present machine enables the rapid selection of one or more frames on a roll of microfilm and the rapid reproduction of a variable, preselectable number of copies of a variable, preselectable number of consecutive frames on a roll of microfilm.

3,740,137

PHOTOCOPYING APPARATUS

Jiro Sato, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 2, 1972, Ser. No. 231,178

Claims priority, application Japan, Mar. 9, 1971, 46/12578

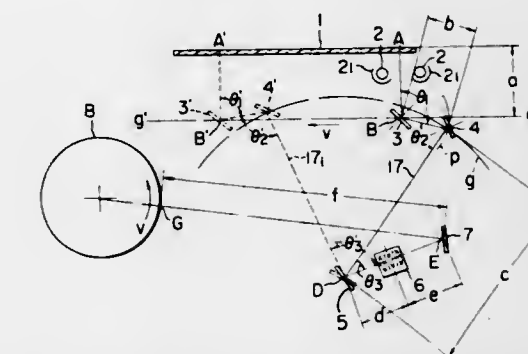
Int. Cl. G03b 27/70

U.S. Cl. 355—66

4 Claims

A copying apparatus comprises an original supporting table provided on top of a housing. A first mirror is disposed with

respect to an original placed on the supporting table. A second and a third mirror and a lens are provided for directing the original image reflected from the first mirror to a moving photosensitive medium. The second mirror is movable with the first mirror as the latter is moved parallel to the surface of the original to scan such surface while at least three mirrors in-



cluding the first and second mirrors are rotated about their own axes with the optical paths between their respective points of reflection being maintained at predetermined lengths by a linkage. Thus, the original image may be projected for copying on the moving photosensitive medium through the lens.

3,740,138

PROCESS CAMERA ALIGNMENT AND EXPOSURE SYSTEM

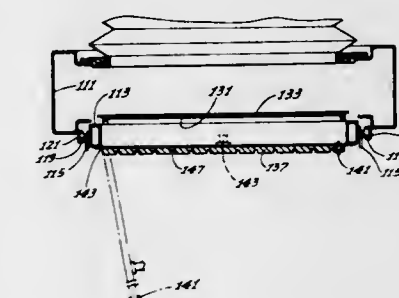
Delbert T. Blatherwick, Arcadia, Calif., assignor to Acti Products, Inc., Arcadia, Calif.

Filed Mar. 8, 1971, Ser. No. 121,780

Int. Cl. G03b 27/60

U.S. Cl. 355—73

11 Claims



A process camera having a tiltable frame upon one face of which a ground glass viewing assembly is mounted and upon the opposite face of which a vacuum platen is mounted. The tilt of the frame is controlled by a pair of arms acting against a set of bearing guides so that either the ground glass or vacuum platen may be selectively positioned at the camera optical system image plane.

3,740,139

COPYING APPARATUS

Walter Limberger, 2000 Hamburg Poppenbuttel, Alte, Germany

Filed Dec. 8, 1971, Ser. No. 205,965

Claims priority, application Germany, Dec. 8, 1970, P 20 60 276.0

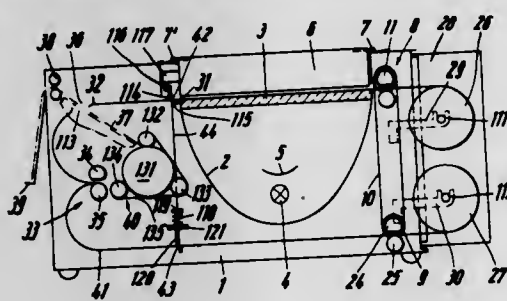
Int. Cl. G03b 27/30

U.S. Cl. 355—100

8 Claims

An improved copying apparatus, operating with a transfer and a receiving material, which are brought in contact with each other, wherein one material, and preferably the transfer material, is stored as a band on a reel, and a cutting device is mounted in the apparatus, and wherein, viewed in the direction of processing, a developing section is arranged

downstream of the exposure section, and the band-shaped transfer material is pulled over an exposure plate and is combined with the receiving material upstream or in front of the exposure section. More particularly, the invention relates to a copying apparatus with a vertically movable contact pressure



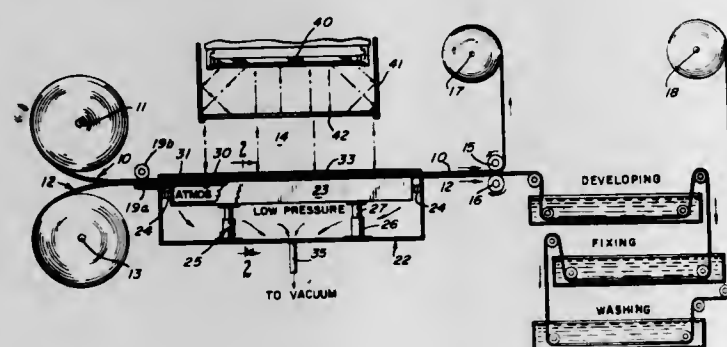
cover over the exposure plate, and co-acting therewith, and to the construction and arrangement of the guillotine and the transport mechanisms. Also the receiving material may be stored in the form of sheets in a stack. In particular, the invention also aims at providing a copier in compact form.

3,740,140 CONTACT PRINTING ON A MOVING LAYER OF LIGHT-SENSITIVE MATERIAL

Margery S. Wolf, Evanston, and Robert Belspel, Skokie, both of Ill., assignors to Extel, Inc., Van Nuys, Calif.
Continuation of Ser. No. 501,029, Oct. 22, 1965, abandoned.
This application Aug. 18, 1969, Ser. No. 852,971

Int. Cl. G03b 27/20
U.S. Cl. 355-91

8 Claims



A method and apparatus for continuous contact printing from a moving master strip onto a moving duplicate strip of light-sensitive material. A vacuum is applied to the inner or facing surfaces of the master and duplicate strips to keep them in register with each other by withdrawing air from the space between them. Air is so withdrawn either in an entrance region before the longitudinally moving strips come into close proximity with each other, or in an exit region beyond which the moving strips begin to diverge from each other. At least some of the air that is withdrawn from the space between the strips is caused to leave that space along a path generally parallel to the direction of strip movement. The vacuum may be applied through a perforated wedge which guides the strips into close proximity with each other.

3,740,141 TIMING AND MEASURING METHODS AND MEANS FOR LASER DISTANCE MEASUREMENTS

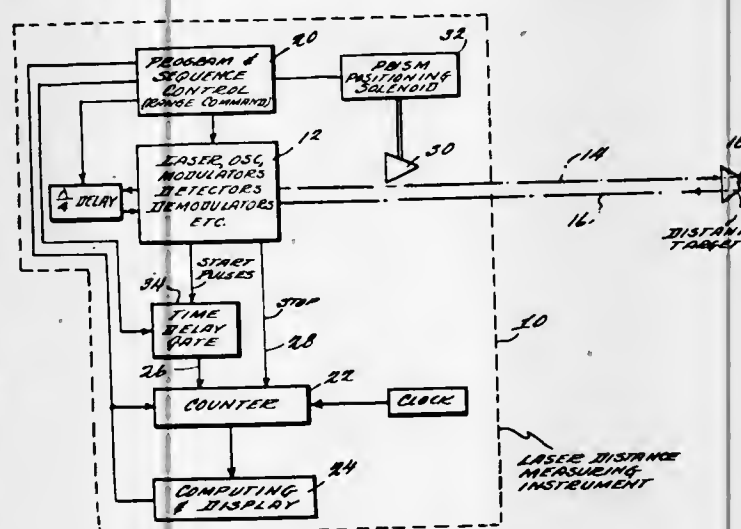
John H. DeWitt, Jr., Nashville, Tenn., assignor to Laser Systems & Electronics, Inc., Tullahoma, Tenn.
Filed Sept. 20, 1971, Ser. No. 181,756
Int. Cl. G01c 3/08

U.S. Cl. 356-5

4 Claims

An improved laser distance measuring apparatus of the type that automatically calculates distance to a remote reflection target based upon a measured phase difference between a modulated transmitted laser beam and a reflected return beam

from the remote target. The improved apparatus incorporates means for insuring that phase measurements for the return beam are made only when the amplitude of the demodulated return signal is within predetermined limits thereby insuring a desired degree of accuracy for the resulting phase measurement. Furthermore, rather than performing an absolute phase difference measurement, better overall accuracy is obtained by calculating a relative phase difference corresponding to the difference between external and internal reflected beam path distances. Since reflected laser beam components usually exhibit rather severe scintillations due to rapidly changing atmospheric conditions over the beam path length, means are disclosed for insuring that successive phase difference measurements are taken from different packets or bunches of reflections thus insuring that an average of several such measurements is not taken from only a single packet and hence insuring that the resultant average measurement more accurately represents the true distance to the remote target site. In addition, added electrical phase shift means are switched into



operation for substantially one-half of the predetermined number of distance measurements on the most critical phase measurements to substantially cancel nonlinearities inherent in such measurements due to corresponding nonlinearities in the demodulated return signals having a significant harmonic content therein. Furthermore, when the detectable phase difference measurement is less than a predetermined limit, there is a possibility of phase "jitter" causing a counter "stop" signal to occur before the counter "start" signal thereby resulting in erratic counter operation and correspondingly erroneous phase measurement. Accordingly, means are provided for detecting such an "overlap" condition and for automatically accepting the second instead of the first available "stop" counter signal whenever such overlap conditions occur thereby introducing an additional 180° phase difference which is then compensated by complementing the counter in compensation for this fixed added phase difference. The net result is stable counter operation and the elimination of completely erroneous phase difference measurements due to phase jitter.

3,740,142 APPARATUS FOR DISCRIMINATING AND/OR IDENTIFYING JEWELS

Yoshihiko Takubo, Tokyo, Japan, assignor to Fumio Suruki, and Yoshihiko Takubo, both of Tokyo, Japan
Filed June 16, 1970, Ser. No. 46,724

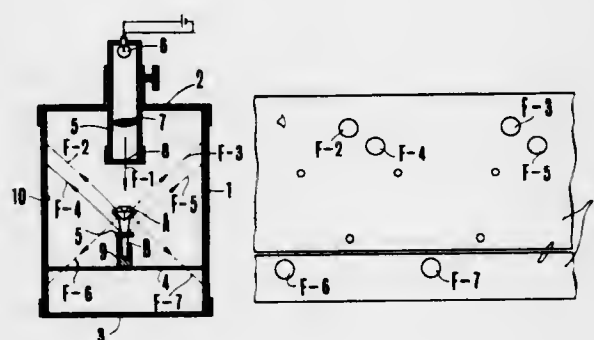
Claims priority, application Japan, Aug. 24, 1969, 44/80406
Int. Cl. G01n 21/00

U.S. Cl. 356-30

6 Claims

A novel method for testing materials such as jewels having optical properties such as transparency, reflection, and refraction, in commercial basis, and an apparatus for practicing the method are proposed. The apparatus comprises an enclosure forming a dark room in which the material such as a jewel is tested, means for holding and positioning the material at a selected position inside of the dark room, a beam of elec-

tromagnetic radiation such as light is directed onto the material preferably from the culet side of the material, and a photo-



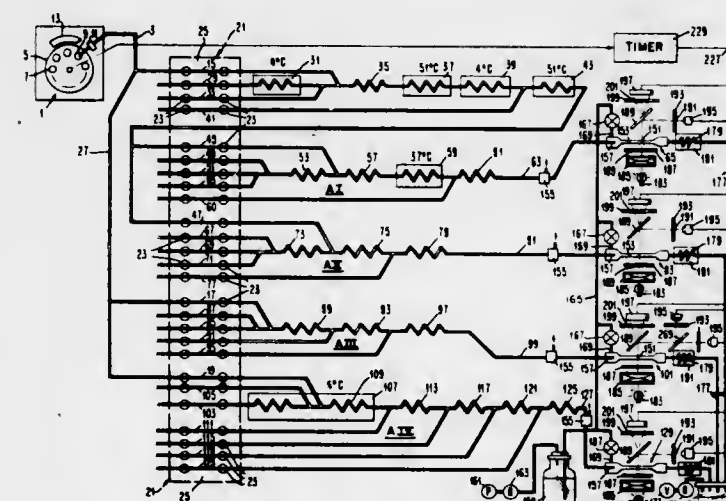
3,740,143 AUTOMATIC APPARATUS FOR DETERMINING THE PERCENTAGE POPULATION OF PARTICULATES IN A MEDIUM

Warren Groner, Whitestone; Jacob Kusnetz, Tarrytown, and Alexander M. Saunders, Bedford Village, all of N.Y., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Oct. 30, 1970, Ser. No. 85,353
Int. Cl. G01n 33/16; G01j 3/46

U.S. Cl. 356-39

21 Claims



New and improved automatic method and apparatus for differentiating and determining the respective populations of specific particulates in a medium, for example, leukocytes in a whole blood sample comprises means for treating a number of phased quotient streams, each containing a portion of such blood sample, so as to stain either a specific type or a specific class of leukocytes, and passing each quotient stream through a corresponding viewing chamber. The number of stained leukocytes to the number of both stained and unstained leukocytes in each sample portion passing through the corresponding viewing chamber are counted concurrently by photometric means, the ratio of such numbers indicating the population of such specific leukocytes or such specific class of leukocytes in the corresponding sample portion. Preferably, the counting of both stained and unstained leukocytes in the sample portions in the different quotient streams are counted to a same predetermined reference, whereby the respective populations of the specific types or specific classes of leukocytes are directly related and recorded in correlated fashion, and any

variations in either the flow rate or the volume of the sample portions in the different quotient streams are only incidental. Also, when particular leukocytes of a same quotient stream are stained and counted as a class, comparison-type logical operations determine the respective populations of the individual leukocytes in such class.

3,740,144 METHOD AND APPARATUS FOR OPTICALLY DETECTING THE PRESENCE OF AN ELEMENT IN A SUBSTANCE

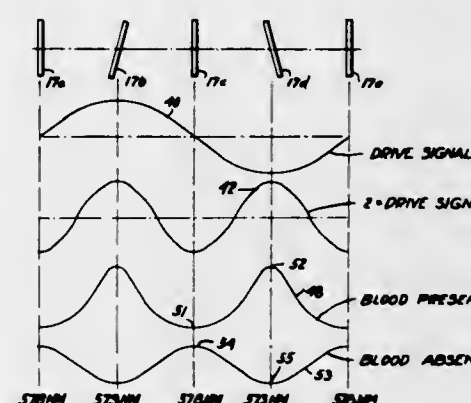
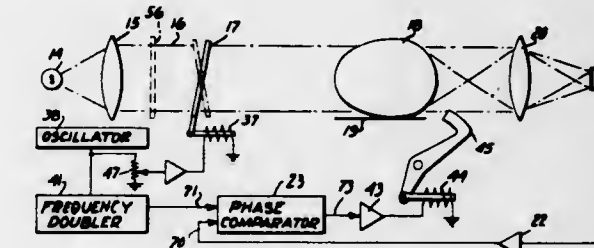
Winston G. Walker, 909 E. Balsam Ave., Apt. D, Anaheim, Calif.

Filed Nov. 22, 1971, Ser. No. 200,775

Int. Cl. A01k 43/00

U.S. Cl. 356-53

13 Claims



A system for detecting blood in eggs in which a beam of substantially monochromatic light or at least light within a very narrow wavelength band in the region of 578 nanometers (nm) is passed through an egg to be tested. The band is continually shifted in wavelength a number of times per second between substantially the shortest and the mid-length wavelengths of the broader blood absorption band, i.e. 578 to 573 nm. In a preferred embodiment, this is effected by a Fabry-Perot type interference filter placed in a light beam and oscillated about an axis by an electromagnetic device. A photoelectric device senses the light transmitted by the egg and the output signal derived therefrom is compared with an oscillating signal transmitted in time with the oscillation of the filter. If one phase relation exists between such signals, the egg is rejected as having blood present therein and if an opposite phase relation exists, the egg is retained as clear.

3,740,145 METHOD AND APPARATUS FOR SAMPLE ANALYSIS BY ATOMIC SPECTROSCOPY

Douglas G. Mitchell, Tarrytown, N.Y., assignor to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Sept. 14, 1970, Ser. No. 71,774

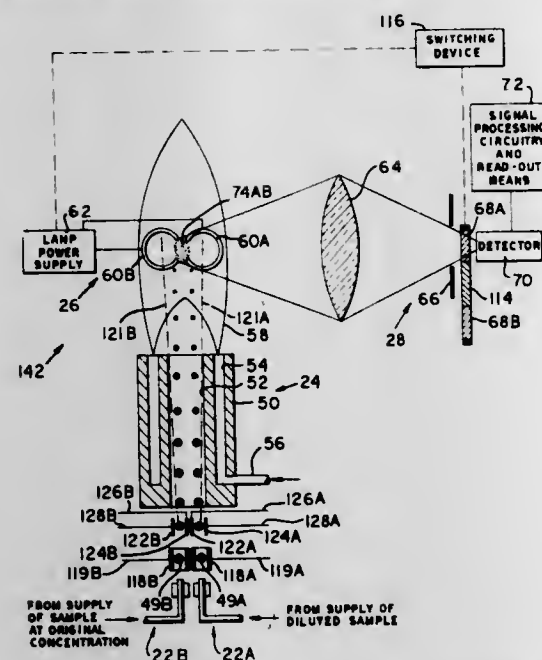
Int. Cl. G01j 3/00

U.S. Cl. 356-87

19 Claims

New and improved method and apparatus for the analysis of samples by atomic spectroscopy are provided and comprise sample atom production means taking the form of body means having a generally central sample chamber extending

generally longitudinally therethrough, and heating means for heating said chamber and adjacent areas to convert said sample to atoms. Sample stream generation means in the nature of drop generator means are operably associated with said body means at the lower extremity thereof and are effective to generate a stream of sample drops of substantially uniform size for upward passage through said body chamber to result in a formation of a concentrated atom cloud or sample volume of the sample atoms of interest above said body means. Means are provided to modulate the formation of said sample volume by said sample drop stream to provide for more accurate read-out of the sample atom concentration of interest.



whereby the position of the boundary may be determined in a highly accurate and stable manner irrespective of any relatively great or small brightness and difference between the light and dark regions of the object, and without any adverse effect resulting from such variable factors as the variation in brightness of the image, the aging of the detector element and operator errors.

3,740,153

OPTICAL STRAIGHT LINE DETECTOR

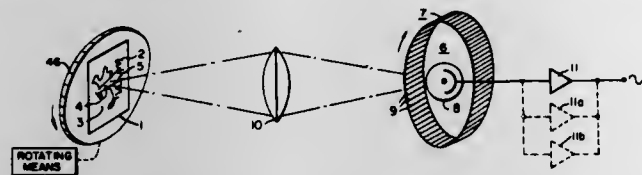
Wilbur R. Wood, Ellicott City, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 13, 1970, Ser. No. 80,393

Int. Cl. G06k 9/02

U.S. Cl. 356—170

16 Claims



A simple means of detecting a straight line or edge using non-coherent optical techniques. An object is imaged onto a rotating film loop by a lens. The film loop has a number of parallel, equally spaced bars. When a straight line is detected which is parallel to the bars on the rotating film, its presence is indicated by a large signal being emitted by a photodetector.

3,740,154

MODULATED COMPOSITION FLAME PHOTOMETER

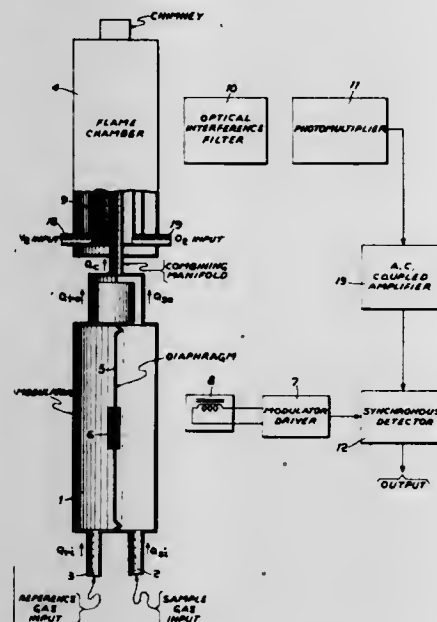
Joseph A. Green, Adelphi, Md., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Oct. 28, 1971, Ser. No. 193,288

Int. Cl. G01j 3/48

U.S. Cl. 356—187

3 Claims



This invention relates to an improved flame photometer. The gas to be analyzed is modulated in composition by means of a reference gas devoid of the component whose concentration is sought. This reaction is accomplished with a modulator cavity partitioned by a flexible membrane having a ferrite magnet or other magnetic material attached thereto. An electromagnet imparts a sinusoidal displacement to said ferrite magnet producing peak tidal flows of said sample gas and said reference gas alternately to a burner. An optical filter passes specific spectral components of the resultant luminosity to a photomultiplier which converts the light flux to an electrical signal. This resultant signal is electrically correlated with the modulating drive signal to obtain the amplitude of the periodic component of flame intensity occurring at the modulating frequency.

3,740,155

COLORIMETER PROBE

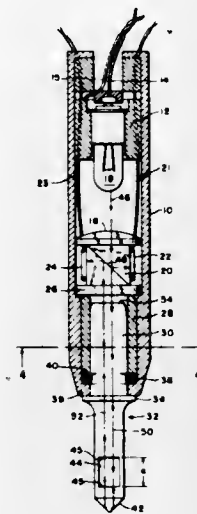
Peter H. Keller, and Roger D. Foskett, Waltham, Mass., assignors to Syntex Corporation, Waltham, Mass.

Continuation-in-part of Ser. No. 842,101, July 16, 1969, abandoned. This application Apr. 1, 1971, Ser. No. 130,098

Int. Cl. G01j 3/46; G01n 1/10; G01j 3/48

U.S. Cl. 356—180

10 Claims



A colorimeter probe includes a removable, disposable probe tip with a chamber formed at the outer end of the tip to receive the solution under investigation. In one embodiment of the invention, the probe is in the form of an elongated housing having a light source remote from the probe tip and directs light along a first path toward a reference photocell and simultaneously along another path which extends through the solution chamber and then to a signal cell. In another embodiment of the invention, the light source and sensors are remote from the probe and are optically connected to the probe by means of optical fibers.

3,740,156

PHOTOMETRIC ANALYZER SAMPLING CELL

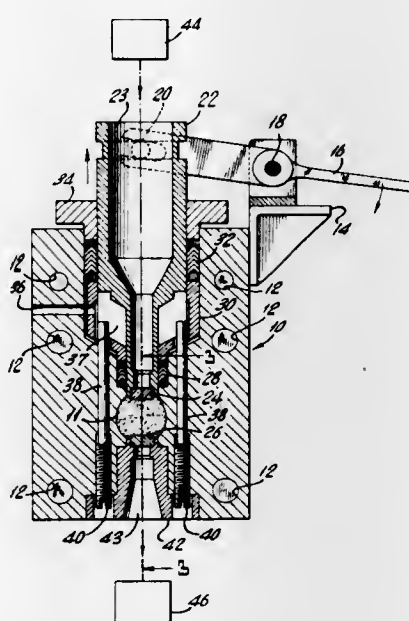
John J. Heigl, Short Hills, and Oliver G. Lewis, Westfield, both of N.J., assignors to Esso Research and Engineering Company, Linden, N.J.

Filed Aug. 11, 1971, Ser. No. 170,696

Int. Cl. G01n 1/20

U.S. Cl. 356—204

8 Claims



A movable window which coacts with a fixed window in an on-stream photometric analyzer for trapping a sample of flow-

ing fluid for analysis without interrupting the flow of the main stream. The two windows comprise a sample cell when in close proximity to one another. After the analysis, the movable window is retracted so that the sample is released and residues purged by the main stream before the process is repeated.

3,740,157

FLOW CUVETTE

Vladimir Kasperek, CH 4336 Kaisten, Switzerland

Filed July 6, 1971, Ser. No. 159,866

Claims priority, application Switzerland, July 6, 1970, 10221/70

Int. Cl. G01n 1/10

U.S. Cl. 356—246

17 Claims



A flow cuvette which is designed for use with photometric, fluorometric, turbidimetric, and nephelometric instruments. The cuvette holds the sample of liquid which is to be analyzed. A sample chamber is attached at the bottom to an upwardly directed U-shaped feed tube and at the top to a downwardly directed U-shaped drain tube. The feed tube extends above the highest edge of the drain tube and the lower end of the drain tube is positioned at a point above the lowest edge of the feed tube. A funnel is attached to the end of the drain tube to aid in the introduction of the sample. A means can be included in the funnel to prevent eddying or vortexing of the liquid sample and thus prevent entrainment of air bubbles in the sample.

3,740,158

FLOW CELL

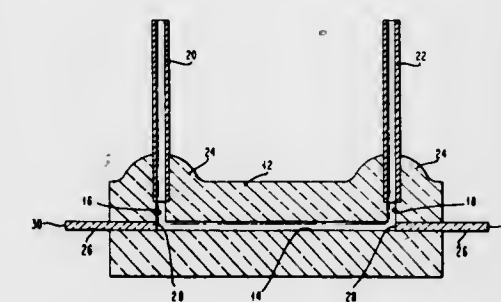
S. Lawrence Bellinger, Lake Luzerne, N.Y., and John C. Parker, Ramsey, N.J., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Dec. 17, 1971, Ser. No. 209,231

Int. Cl. G01n 1/20

U.S. Cl. 356—246

6 Claims



A flow cell having a nonmetallic elongated open-ended tubular body providing a longitudinal sight passageway in a portion of the light path between a light source and a light detector for colorimetric or densitometric analysis of a liquid sample within the passageway, the body having fluid inlet and outlet ports, one through the side-wall structure of the body adjacent each end of the latter. Light-transmitting fluid seals are

3,740,159

POINT PROTECTORS FOR WRITING IMPLEMENTS

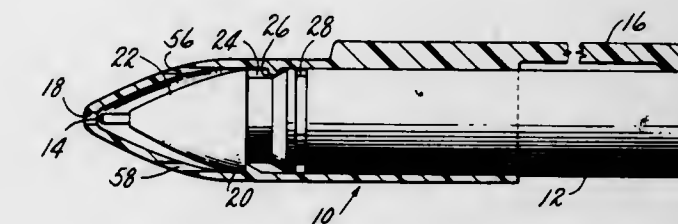
Edward A. Smagala-Romanoff, Beverly, Mass., assignor to Charles F. Coles; Christopher M. Weld; Sally C. Leighton; Henry Hornblower; Michael J. Perrin; John Gikas; James Tenn and Campbell Steward, Topsfield, Mass.

Continuation-in-part of Ser. No. 66,764, Aug. 25, 1970. This application Oct. 21, 1970, Ser. No. 82,591

Int. Cl. B43k 7/12

U.S. Cl. 401—117

1 Claim



There is disclosed in the present application a point protector for a writing implement such as a ball point pen, which is moldable with internal retaining and indexing projections. The molding operation and the mold for the production of the protector are simplified by providing openings in alignment with the projections through which stationary core rods are introduced into the mold cavity.

3,740,160

NUMERICAL CONTROLLED BORING MACHINE

Akira Kimura, Yokohama, and Masaharu Tajima, Kawasaki, both of Japan, assignors to Ikegai Tekko Kabushiki Kaisha, Tokyo, Japan

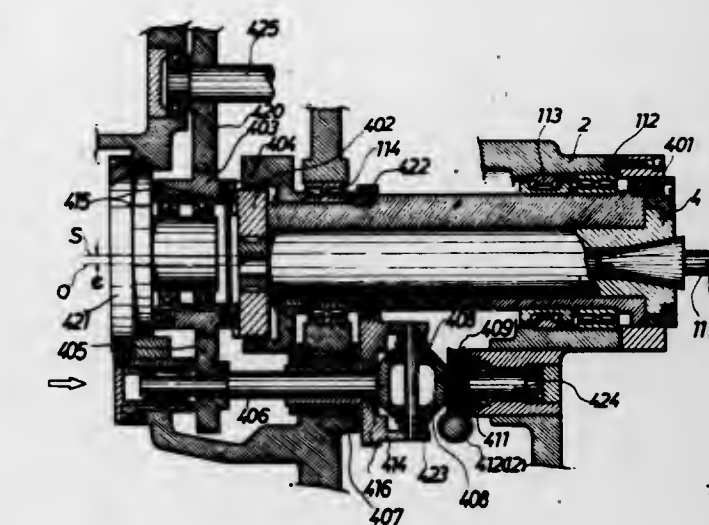
Filed May 21, 1971, Ser. No. 145,759

Claims priority, application Japan, May 26, 1970, 45/45045

Int. Cl. B23b 49/00

U.S. Cl. 408—2

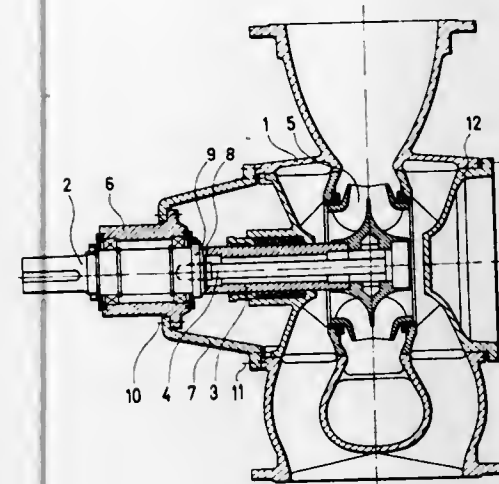
3 Claims



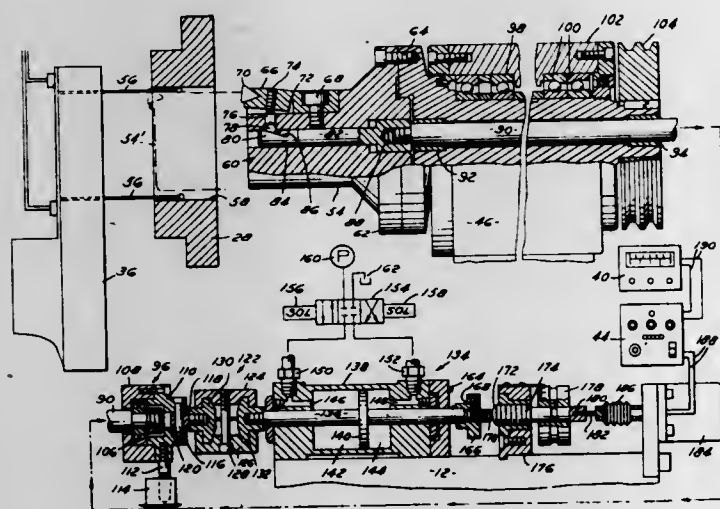
A numerical controlled machine tool adapted to process a bore in a work-piece by the use of a single point cutting tool supported in the main spindle of the machine tool in which a main spindle assembly comprising a main spindle sleeve having an axially extending eccentric opening and said main spindle received in said eccentric opening and having a tool mounting portion. The diameter of a bore to be processed can be adjusted by varying the eccentricity of the tool mounting

portion of the main spindle with respect to the main spindle sleeve and the eccentricity of the tool mounting portion with respect to the sleeve can be varied in accordance with a control signal from a numerical control device. A numerical control shaft for measuring the diameter of a bore processed is provided independently of numerical control shafts for positioning and the numerical control shaft is adapted to measure the bore diameter by moving a measuring element in accordance with a bore diameter predetermined by a numerical control program and in order to compensate for any difference between the predetermined bore diameter and the measured bore diameter, prior to the following finish boring operation, the eccentricity of the tool mounting portion of the main spindle with respect to the sleeve is adjusted by the measured deviation amount of bore diameter so that a desired bore diameter can be obtained in the finish boring operation.

screw running through the bushing, the head of the screw being pressed against the impeller and the opposite end being threaded to provide a thread joint the shaft having a cor-



3,740,161
AUTOMATIC CUTTING TOOL ADJUSTMENT MEANS AND METHOD
Victor Milewski, Troy, Mich., assignor to The Valeron Corporation, Oak Park, Mich.
Filed May 18, 1970, Ser. No. 38,131
Int. Cl. B23b 49/00, 47/18
U.S. Cl. 408-158 3 Claims



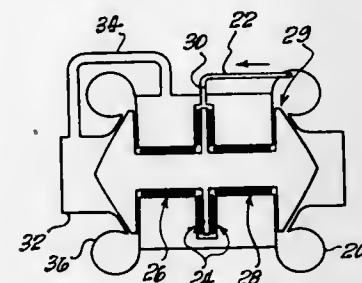
Means and method for adjusting the setting of a cutting tool edge, within close tolerance limits, and automatically, which includes a spindle rod to retract the cutting edge following a work stroke, an abutment stop that the spindle rod bears against during a work stroke, and means for setting the spindle stop free from the axial load normally imposed thereupon.

3,740,162
CENTRIFUGAL PUMP
Jorma Aarne Kullervo Tuomala, Karhula, Finland, assignor to A. Ahlstrom Osakeyhtiö, Noormarkku, Finland
Filed Nov. 23, 1970, Ser. No. 91,913
Claims priority, application Finland, Dec. 4, 1969, 3523/69
Int. Cl. F04d 1/00, 17/08 3 Claims

To a housing with an inlet and an outlet and one or two end walls there is detachably attached a support for a bearing box to mount a shaft in bearings outside the housing. A bushing is projecting through one end wall of the housing and supporting an impeller at the end inside the housing. The other end is in endwise friction contact with the shaft which has a threaded hole coaxially in this end and a bore communicating with a circumferential groove in the bushing which groove is limited by the shaft end and the bushing. The bushing is mounted in bearings attached to the housing end wall and the shaft, bushing an impeller are connected to a rigid coaxial unit with a

respondingly threaded hole. The pitch of the thread is so great that the joint is not self-locking, but is easily opened by pressing a lubricant between the shaft and the bushing through the bore and the recess.

3,740,163
FLUID BEARING INERTIAL FILTER
Roy L. Schinnerer, Long Beach; Alexander Silver, Tarzana; Leonard T. Sladek, and Morris A. Barnett, both of Palos Verdes Estates, all of Calif., assignors to The Garrett Corporation, Los Angeles, Calif.
Filed Feb. 25, 1971, Ser. No. 118,741
Int. Cl. F04d 29/04; F04b 17/00
U.S. Cl. 415-111 10 Claims



An inertial filter to provide fluid for turbomachine fluid bearings.

3,740,164
DEFLECTION CONTROL MEANS FOR MACHINE HOUSINGS
Ferdinand Zerlauth, Andelfingen, Switzerland, assignor to Brown Boveri-Sulzer Turbomachinery, Limited, Zurich, Switzerland
Filed Feb. 18, 1972, Ser. No. 227,431
Claims priority, application Switzerland, Mar. 17, 1971, 4417/71
Int. Cl. F01d 25/28; F02c 7/20
U.S. Cl. 415-134 4 Claims

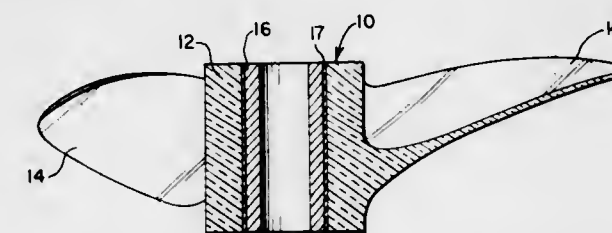
The housing is divided at an intermediate point and a ring having two mating annular parts is positioned between the divided housing parts. The mating parts of the ring are rotatable

about a common axis and are of varying thickness so that relative rotation of the mating parts causes an increase or



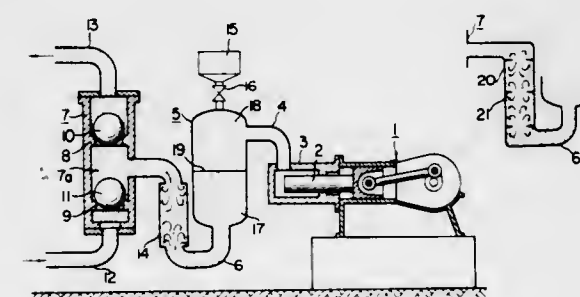
decrease in the amount of sag or deflection of the housing at that point. The difference in deadweight sag between the rotor and the housing can thus be held to a minimum.

3,740,165
MARINE PROPELLER
Raul Rodriguez, 625 Jackson Avenue, Bronx, N.Y.
Filed June 9, 1971, Ser. No. 151,383
Int. Cl. B63h 1/14
U.S. Cl. 416-241 1 Claim



A water propeller for driving water craft such as an outboard motor boat and having the hub and propeller blades made as an integral unit from a rigid transparent material such as glass to reduce noise when propelling the boat through water.

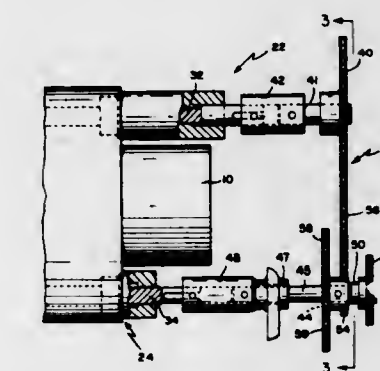
3,740,166
SLURRY PUMP OF OIL-DIAPHRAGM TYPE
Kazunori Seki, and Toshio Kazama, both of Nagaoka, Japan, assignors to Tamagawa Kikai Kinzoku Kabushiki Kaisha, Tokyo-to, Japan
Filed Apr. 19, 1971, Ser. No. 134,946
Claims priority, application Japan, Jan. 28, 1971, 46/2600
Int. Cl. F04f 11/00; F04b 21/00, 15/02
U.S. Cl. 417-92 2 Claims



In a riser portion of the slurry connecting pipe between the valve box and the diaphragm chamber of an oil-diaphragm

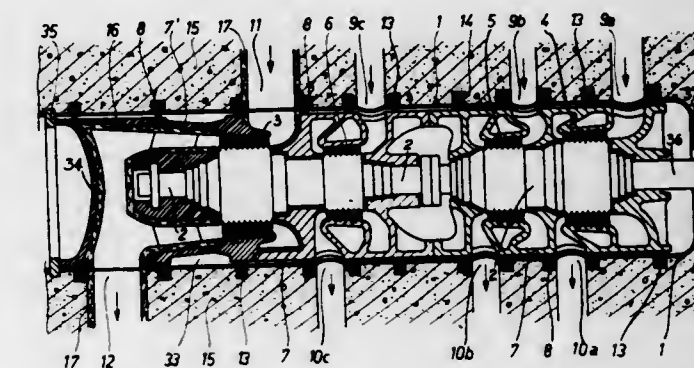
slurry pump having a plunger pump, there is installed a pipe part of large cross section having an interior of a volume greater than the suction displacement of the plunger pump and of a configuration such as to provide abruptly changing cross sectional area with respect to slurry flow therein, whereby turbulent flow, eddy flow or vortices are continually formed in the slurry during pump operation thereby to prevent settling of solid particles.

3,740,167
HYDRAULIC SYSTEM
David Eugene Albrecht, Blue Bell, Pa., assignor to David E. Albrecht, Blue Bell and Raymond H. Jensen, Plymouth Meeting, Pa.
Filed June 23, 1970, Ser. No. 49,134
Int. Cl. F01b 49/00
U.S. Cl. 417-218 5 Claims



A hydraulic system employing a pressure compensated variable displacement pump in which the pressure and volume control of the pump are interconnected for simultaneous adjustment within a range in a predetermined relationship.

3,740,168
TUBULAR ENCASED TURBO-MACHINE WITH AXIALLY SPACED SEALING RINGS FOR COMPARTMENTIZING THE COMPRESSOR AND TURBINE COMPONENTS
Hermann Hug, Klingnau; Paul Moser, Dietlikon; Hans Schwarz, Nussbaumen, and Max Zimmermann, Unterstegenthal, all of Switzerland, assignors to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland
Filed Nov. 12, 1971, Ser. No. 198,383
Claims priority, application Switzerland, Nov. 18, 1970, 17155/70
Int. Cl. F04b 17/00 6 Claims



A tubular encased turbo-machine structure comprises a tubular concrete reinforced casing in which a turbo-machine group is inserted subsequent to its assembly. The various machines of the group such as the compressors and turbine are compartmentized within the casing by means of radially displaceable segmented sealing rings located within the casing, these rings being initially in a retracted state with their inner peripheries essentially flush with the inner surface of the

casing to facilitate installation of the assembled turbo-machine group in the casing, and the rings thereafter being displaced radially inward so as to establish a sealing contact with the peripheries of the guide blade carrier components of the several machines and thus compartmentize the interior of the tube so that the several machines of the group are separated each from the other.

3,740,169

HIGH PRESSURE GENERATING DEVICE

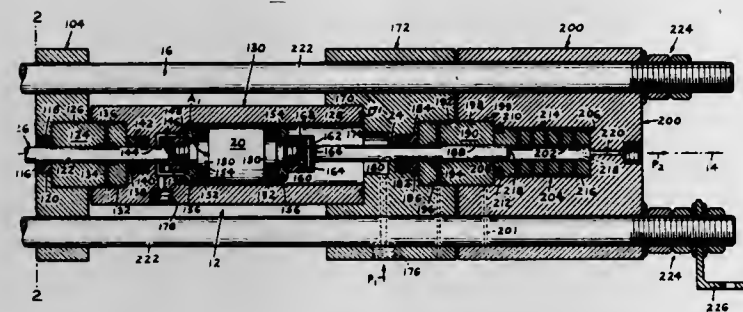
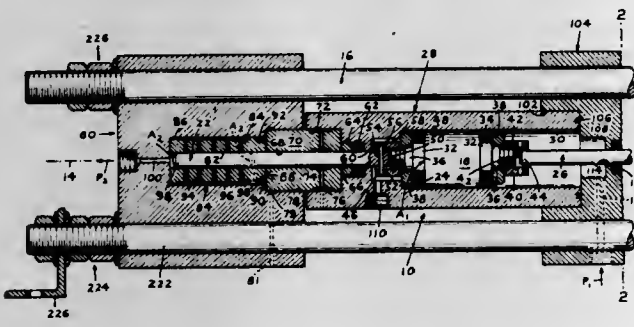
Eduard L. J. Papen, Sint-Niklaas, Belgium, assignor to National Forge Company, Irvine, Pa.

Filed Oct. 7, 1970, Ser. No. 78,738

Int. Cl. F04b 35/00

U.S. Cl. 417-397

9 Claims



A high pressure generating device comprising two or more double acting hydraulic cylinders mounted along a single longitudinal axis and having pistons within each cylinder which are moved toward a select end of the device by a fluid at low pressure from an external source. The piston closest to the select end of the device drives a plunger slidably mounted in a fluid filled cavity in a high pressure end body. A fluid output passage communicates between the cavity and the exterior of the device. Push rods between each pair of adjacent pistons cumulatively transmit the forces exerted on the pistons by the external fluid source to the plunger. The cross-sectional areas of the pistons exceed the cross-sectional areas of each plunger and each push rod thereby giving a hydraulic advantage and intensifying the pressure from the external source. The ratio of intensification is increased in additive fashion with an increase in the number of piston-cylinder stages utilized. The respective cylinders, pistons, push rods, and plungers of each stage are substantially identical for ease of construction and operation.

3,740,170

TURBOCHARGER COOLING AND LUBRICATING SYSTEM

Elbert H. Miller, East Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Apr. 23, 1971, Ser. No. 111,016

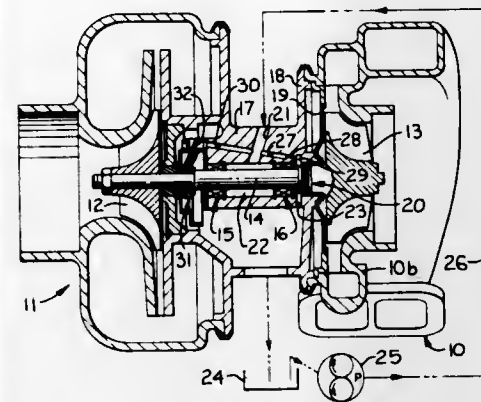
Int. Cl. F04b 17/00

U.S. Cl. 417-407

2 Claims

A turbocharger comprises a turbine wheel and compressor impeller secured to a common shaft rotatably mounted in spaced bearings. A primary passage means communicates oil

between the bearings for lubrication purposes. A secondary passage means connects with the primary passage means to bypass some oil around the bearing positioned adjacent to the



turbine wheel. The lubricating oil from the two passage means combine adjacent to the turbine wheel to form a substantial heat barrier thereat to prevent undue heat concentrations and carbon buildup.

3,740,171

ELECTROMAGNETIC PUMP OR MOTOR DEVICE

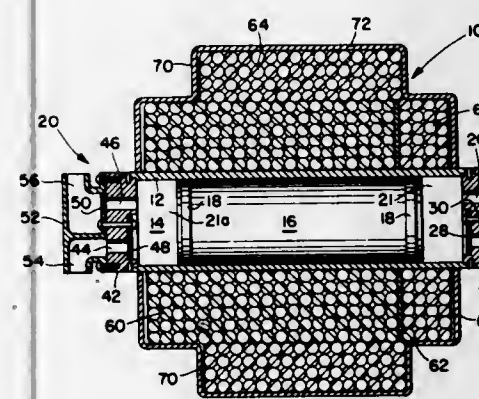
Robert A. Farkos, 63 York Drive, Hudson, Ohio

Filed Aug. 10, 1971, Ser. No. 170,448

Int. Cl. F04b 17/04; H02k 33/12

U.S. Cl. 417-418

5 Claims



An electromagnetic plunger-cylinder device including two alternately energized solenoid coils wound about the cylinder to reciprocate the plunger therewithin, the inner end of one coil being wrapped around the inner end of the other coil, thereby to control the stroke or air gap of the plunger.

3,740,172

RECIPROCATING FUEL PUMPS

Otmar M. Ulbing, Lisle, N.Y., assignor to Borg-Warner Corporation, Chicago, Ill.

Continuation of Ser. No. 786,233, Dec. 23, 1968, abandoned.

This application June 1, 1971, Ser. No. 153,460

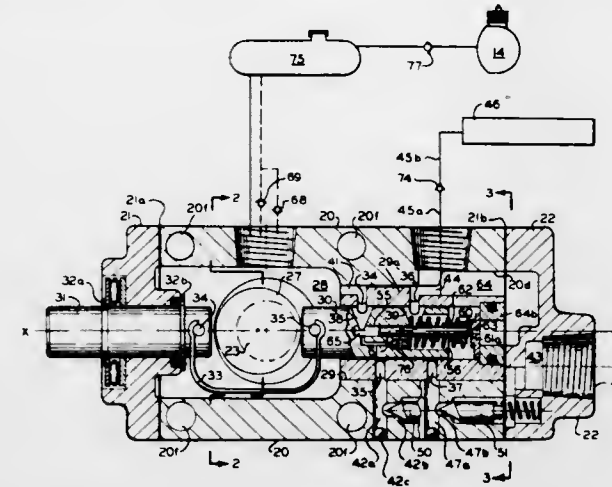
Int. Cl. F04b 7/04

U.S. Cl. 417-469

24 Claims

Improved system for supplying fuel and oil to two-cycle internal combustion engines including a simple and reliable fuel-oil injector pump which mixes the fluids in a desired ratio from separate tanks. Means for automatically shutting off fuel flow upon loss of oil are provided. Crankcase scavenging pressure assists oil pumping. The injector pump continuously circulates fuel through the fuel tank to avoid vapor lock. Several ar-

rangements for properly correlating the injector pumping rate with engine air flow are disclosed. An improved injection nozzle



utilizing an elastomeric band is disclosed. A system for supplying dual cylinders from the same injector pump is disclosed.

3,740,173

PERISTALTIC PUMP

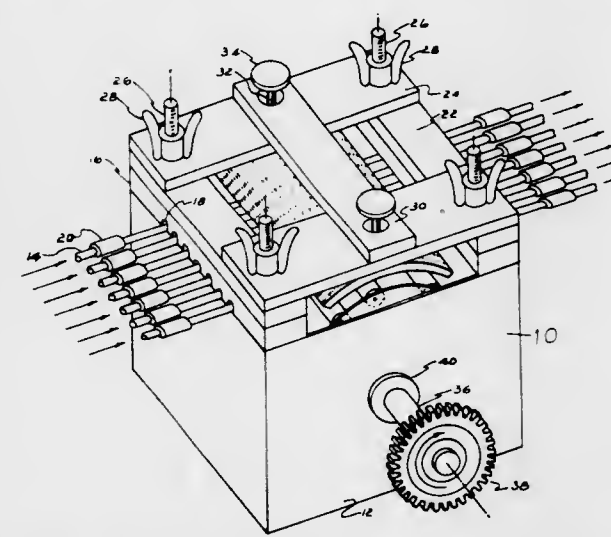
Samuel Nateison, Chicago, Ill., assignor to Rohe Scientific Corporation, Santa Ana, Calif.

Filed Sept. 16, 1971, Ser. No. 181,052

Int. Cl. F04b 43/08, 43/12, 45/06

U.S. Cl. 417-475

6 Claims



A peristaltic pump wherein a roller drum is made to engage a curved press plate, the roller drum acting on tubing passing between the drum rollers and the press plate, the press plate has at least two longitudinal ridges normal to the drum rollers to prevent said drum rollers from pressing the tubing beyond its elastic limit. A guide and resilient means are applied to the press plate allowing the press plate freedom of movement and permitting the press plate to adjust to the configuration of the tubing. A flexible belt which is spring loaded covers the drum rollers to produce a smooth peristaltic motion on the tubing.

3,740,174

SPEED RESPONSIVE CENTRIFUGAL GOVERNOR

Lester A. Amtsberg, Utica, N.Y., assignor to Chicago Pneumatic Tool Company, New York, N.Y.

Filed July 15, 1971, Ser. No. 162,858

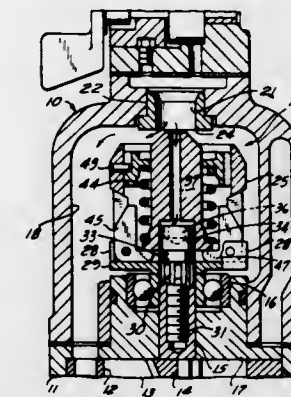
Int. Cl. G05d 13/34

U.S. Cl. 418-43

10 Claims

A speed responsive centrifugal governor controlled valve assembly illustrated as applied to a rotary grinding tool is carried by an air driven motor for regulating driving air flow to the motor accordingly as the speed and load of the motor varies. The valve is movable against the bias of a return spring

relative to an axially aligned seat by means of centrifugally actuable weights. The valve is pneumatically balanced so that the force of the weights is expended solely in overcoming the bias of the return spring when moving the valve. The valve is



subject to minimal contact with surrounding components and subject to circulating inlet air so as to be self-cleaning. A ring is adapted to be selectively indexed to adjust the tension of the spring.

3,740,175

ROTARY MACHINE APEX SEAL

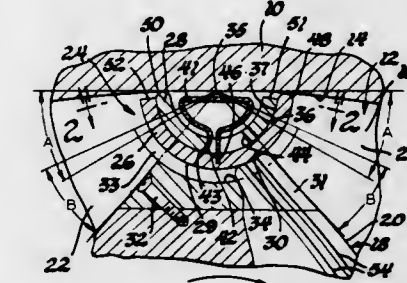
Nathaniel B. Kell, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 29, 1972, Ser. No. 230,316

Int. Cl. F01c 19/02; F04c 15/00, 27/00

U.S. Cl. 418-113

4 Claims



A rotary machine apex seal arrangement having nested semicircular seal members of different diameter with the leading edge of the larger diameter seal member providing a leading seal and the trailing edge of the smaller diameter seal member providing a trailing seal with the machine's internal peripheral wall, both seal members being mounted for relative rotational movement to compensate for wear at the two sealing edges and also being mounted for rocking movement on the rotor to compensate for the contour of the wall.

3,740,176

MACHINE FOR THE MANUFACTURE OF ELONGATE CONCRETE BUILDING BLOCKS

Sven Melker Nilsson, Kallered, Sweden, assignor to Ingenjorsfirman Nilsson AB, Kallered, Sweden

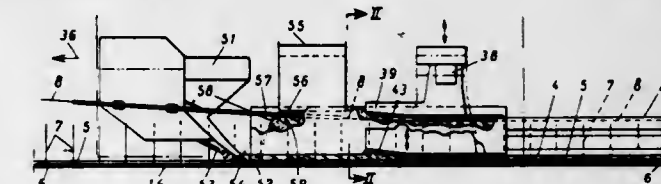
Filed Nov. 3, 1971, Ser. No. 195,200

Claims priority, application Sweden, Dec. 15, 1970, 16596/70

Int. Cl. B29d 7/12

U.S. Cl. 425-64

7 Claims



A slide-mounting machine for moulding preferably elongate concrete elements, wherein the mould bottom consists of a

flat bed over which at least one container holding concrete mixture is adapted to travel and the mould sides consist of two forming surfaces, one being formed by a vertically positioned feeder band being rolled out in synchrony with the speed of advancement of the container, and the opposite forming surface being formed by a wall moving together with said container and vibrating in the lateral direction to compact the concrete mixture dispensed in the space or mould proper formed by said two moulding surfaces. The invention also relates to a method of manufacturing elongate objects of concrete while using the slide-moulding technique, said method being performed by discharging concrete from the one or several continuously advancing containers down onto the flat bed forming the mould bottom and vibrating the concrete to form a layer having parallel longitudinal edges and a smooth upper surface, wherein said layer is being formed between the feeder band and the forming wall positioned laterally thereto and advancing together with said container, and by compacting said concrete being discharged between said band and said shaping wall.

3,740,177

INLET RESERVOIR FOR CONTINUOUS POLYMER CASTING MACHINE

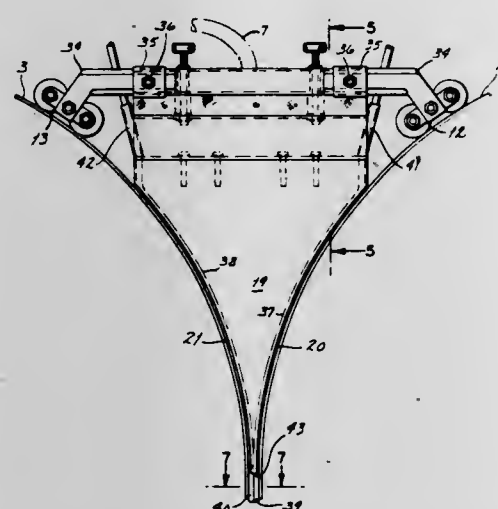
Michael T. Hoyt, College Point, N.Y.; Bernhard T. Junker, Raleigh, N.C.; Ross M. Hedrick, St. Louis, and Terry G. Breeding, University City, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 755,664, Aug. 27, 1968, Pat. No. 3,708,566. This application Oct. 12, 1970, Ser. No. 80,225

Int. Cl. B29d 7/14

U.S. Cl. 425—115

17 Claims

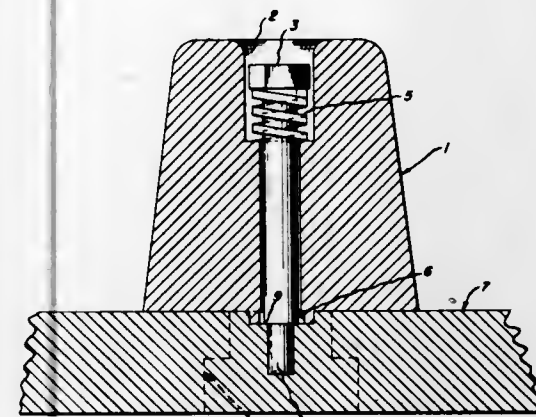


An inlet reservoir for use in conjunction with a continuous polymer casting machine which forms an endless sheet or film of a polymeric material within a cavity developed between a pair of mold forming surfaces; said reservoir including a pair of side plates that are designed to conform to the shape of the proximate mold forming surfaces, and including movable sealing gaskets that dispose intermediate the edges of said plates and the mold forming surfaces to preclude seepage of the retained monomer or polymer. This reservoir is of adjustable width, and support means upon the plates includes expandable bracing that regulates the reservoir width, and also casters that ride upon the mold forming surfaces stabilize the reservoir in relation to said surfaces. Since the sealing gaskets further extend between the mold forming surfaces, and are pressed firmly therein, movement of these surfaces during the casting operation also sustains movement of the gaskets, while the gaskets simultaneously act as edge-sealing means for the mold cavity thereby preventing leakage of the polymer while being cast.

3,740,178
PLUG ASSEMBLY FOR THERMOFORMING
Peter C. Nell, Fullerton, Calif., assignor to Standard Oil Company, Chicago, Ill.
Filed Apr. 21, 1971, Ser. No. 135,853
Int. Cl. B29c 1/16

U.S. Cl. 425—182

4 Claims



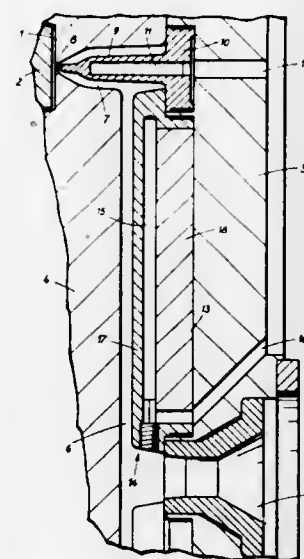
A novel plug assembly for use in thermoforming of plastics comprises a combination of a plug body made of a relatively highly heat-conductive material fitted with holding means passing therethrough made from a high tensile strength material, said holding means and said plug body being spaced from one another by a self-adjusting spacing member providing compensation for thermal expansion and contraction.

3,740,179
MULTI-PART INJECTION MOULDING DIE MEANS
Wilhelm Schmidt, Schlossstrasse 58, Nuremberg, Germany
Filed Dec. 15, 1970, Ser. No. 98,256
Claims priority, application Germany, Dec. 22, 1969, P 19 64 109.9

Int. Cl. B29f 1/08

U.S. Cl. 425—192

4 Claims

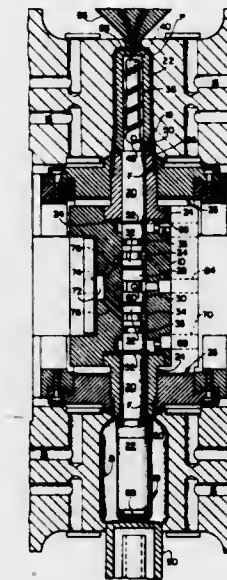


Injection moulding apparatus having injection means and one or more runners for the distribution of moulding material in plastic form to one or more mould cavities. A temperature controlling device for maintaining the plastic flow condition of the moulding material is located in the runner and comprises a hollow member substantially coextensive therewith. Such member is detachably securable to an interior side wall, preferably in a recess, of the runner and includes an occludable opening accessible exteriorly of the apparatus for the ready introduction of heating or cooling media such as fluids or electric heating elements as desired.

3,740,180
CORE PIN FOR PLASTIC INJECTION BLOW MOLDING
Edmund Sidur, Livermore, Calif., assignor to Package Machinery Company, East Longmeadow, Mass.
Filed Oct. 19, 1971, Ser. No. 190,540
Int. Cl. B29d 23/03

U.S. Cl. 425—249

11 Claims



A parison and core pin construction for a plastic injection blow molding machine of the type wherein a rotatable arm supports at least two such pins in diametrically opposed relationship and alternates them between a separable parison mold over the arm and a separable blow mold below the arm. The pins work in unison. That is, when plastic is injected in the parison mold on top of the pin associated with it, that pin thrusts upon and opens the pin opposed to it and in the blow mold to admit air under pressure to the parison in the said blow mold.

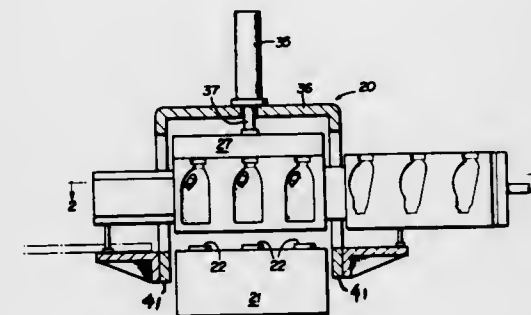
3,740,181
APPARATUS FOR BLOW MOLDING PLASTIC ARTICLES
Albert R. Uhlig, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed May 17, 1971, Ser. No. 143,802

Int. Cl. B29d 23/03

U.S. Cl. 425—326

6 Claims



This invention relates to a method and apparatus for blow molding articles, such as handled containers, having injection molded portions integrally formed with blow molded portions. The method includes forming a tubular blowable parison, blowing this parison in a pre-form mold, and then blowing the pre-form to its final shape in a final blow mold. The utilization of the pre-form mold as an intermediate step makes possible the formation of containers of enhanced physical characteristics, the elimination of external flash or waste portions, and the formation of a final article having an injection molded portion integrated with a biaxially oriented blown portion.

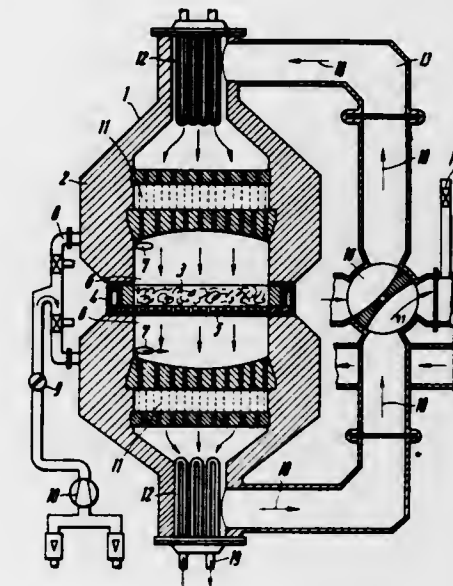
The apparatus of the invention includes the means for forming the parison, the pre-form mold, the final blow mold and the means for correlating the operation of these portions of the apparatus to attain the operation of the overall method.

3,740,182
APPARATUS FOR THE PRODUCTION OF BOUND BODIES OF BULKING CLAY
Joachim Wunning, Warmborn, Germany, assignor to J. Alcheln, Kornthal, Germany
Filed Nov. 30, 1971, Ser. No. 203,378
Claims priority, application Germany, Nov. 30, 1970, P 20 58 789.7

Int. Cl. B29c 1/00; B29f 5/00

U.S. Cl. 425—446

8 Claims

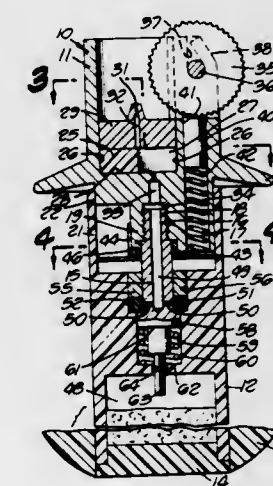


An apparatus for the production of ceramically bound bodies of bulking clay which comprises a housing defining a passage-through chamber, adapted to blow alternately highly heated gas in opposite directions through a heap of debris of a granulate capable of swelling in a form box received in the chamber up to swelling and ceramic binding of the surfaces of the granulate. A gas feeding device and a heat storage are provided. The passage-through chamber includes the heat storage in the direction of the flow of the gas driven alternately back and forth on both sides of the form box. A burner feeding device for a gaseous mixture is arranged which operates controlled and regulated. Chamber sections are disposed between the heating storage and the form box. The chamber sections constitute burner chambers, and a flue gas branch is disposed within the range of the gas feeding device.

3,740,183
LIGHTER WITH DELAYED FLAME SHUTOFF
Rodney S. Piffath, Northridge, and John J. Cole, Beverly Hills, both of Calif., assignors to Butane Match A.G., Zurich, Calif.
Filed Aug. 16, 1971, Ser. No. 171,865
Int. Cl. F23q 1/02

U.S. Cl. 431—276

10 Claims



A lighter using fuel under pressure has a valve for admitting fuel into a metering chamber and has a pressure reducing

regulator interposed between the metering chamber and the flame orifice. The valve is controlled by relative movement between the fuel reservoir member and a head member which carries ignition means. The flame continues to burn after the valve is closed until the fuel in the metering chamber is consumed. A detachable coupling between the members permits the head member to be removed so that the fuel reservoir may be re-charged through said valve.

3,740,184

HIGH TEMPERATURE RABBLE DESIGN

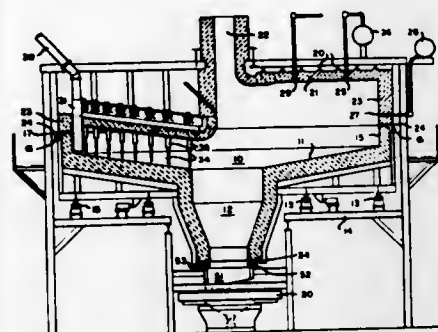
Thaddeus J. Oleszko, Hoechst Str. 7, 8263 Burghausen, Germany

Filed Dec. 2, 1971, Ser. No. 204,102
Int. Cl. F27b 9/16

U.S. Cl. 432-235

6 Claims honeycomb in with wear-resistant high temperature insulating cement. Rabble life, e.g., in rotary hearth coke calciners, is greatly

extended by welding grids, e.g., hexsteel honeycomb onto at least the wear surfaces of the rabbles and filling the



3,740,185

EXHAUST PROCESS FOR THE DYEING OF SYNTHETIC FIBRE MATERIALS

Karl Neufang and Robert Kuth, Cologne, Rutger Neff, Leverkusen, and Gunter Breidbach, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed June 19, 1970, Ser. No. 47,867
Claims priority, application Germany, June 28, 1969, P 19 32 828.0

Int. Cl. C09b 1/00, 29/00, 31/00, 51/00; D06p 1/18, 1/20, 1/68, 1/40

U.S. Cl. 8-39

15 Claims

Exhaust process for the dyeing of synthetic fibre materials from organic, water-immiscible solvents, characterised by using for the dyeing carboxyl group-containing disperse dyestuffs.

Preferred dyestuffs are those of the metal-containing or metal-free azo dyestuff series or of the anthraquinone series.

The dyeings obtained are distinguished by a substantially good affinity and an improved fastness to sublimation.

3,740,186

CONTINUOUS DYEING OF SYNTHETIC FIBRES WITH WATER IMMISCIBLE ORGANIC SOLVENTS AND AMINO ANTHRAQUINONES

Volker Hederich and Gunter Gehrke, Cologne, Rutger Neff, Leverkusen, and Peter Wegner, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

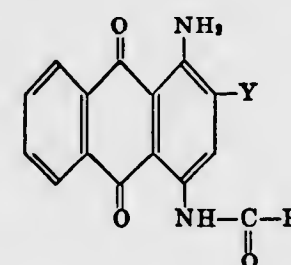
No Drawing. Filed Aug. 21, 1970, Ser. No. 66,066
Claims priority, application Germany, Aug. 27, 1969, P 19 43 535.9

Int. Cl. C09b 1/40, 1/42; D06p 1/20

U.S. Cl. 8-39

9 Claims

Process for the continuous dyeing of synthetic fibre materials from organic solvents characterised in that the fibre materials are impregnated with dyeing liquors which contain anthraquinone dyestuffs of formula



in which R denotes a C₁-C₁₇-alkyl or C₃-C₁₇-alkenyl radical, and Y represents a hydrogen, chlorine or bromine atom or a radical -X-R₁, in which X denotes oxygen or sulphur and R₁ is a C₁-C₁₈-alkyl, aralkyl, alkoxyalkyl, aralkoxyalkyl or aryloxyalkyl radical or a phenyl radical optionally substituted by C₁-C₈-alkyl, cycloalkyl, aralkyl, C₁-C₈-alkoxy, C₁-C₈-alkylmercapto or C₁-C₈-alkoxycarbonyl groups and/or chlorine atoms, with the proviso that the sum of the carbon atoms present in total in R and Y is at least 4 and at most 35, and that the fibre materials are subsequently subjected to a heat treatment.

The dyeings obtained are distinguished by high dyestuff yield, very good build-up and excellent fastness properties, especially very good fastness to thermofixing, washing, rubbing and light.

CHEMICAL

3,740,187

PROCESSES FOR BLEACHING TEXTILES

Xavier Kowalski, Creve Coeur, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed June 3, 1971, Ser. No. 149,856

Int. Cl. D061 3/02

U.S. Cl. 8-111

5 Claims

Textile fibers which have been de-sized and scoured are bleached with an alkaline aqueous solution containing a peroxy compound and an alkali metal silicate and a "stabilizer" for (1) reducing the decomposition of said peroxy compound and (2) preventing silicate deposition, and which is, for example, a combination of nitrilotriacetic acid, 1-hydroxy ethylidene-1,1-diphosphonic acid, and a magnesium or calcium salt, e.g., magnesium sulfate.

3,740,188

SIMULTANEOUS DESIZE-SCOUR-BLEACH WITH ACTIVATED HYDROGEN PEROXIDE

Leonard Allan Silver and Robert Emil Yelin, Willingboro, N.J., assignors to FMC Corporation, New York, N.Y.

No Drawing. Filed Aug. 2, 1971, Ser. No. 168,402

Int. Cl. D061 3/02

U.S. Cl. 8-111

2 Claims

This invention provides a combination desizing, scouring and bleaching process for greige textiles employing an aqueous alkaline hydrogen peroxide containing a dispersulfate, a petroleum distillate fraction solvent, a stabilizer and a surfactant.

3,740,189

BLACK DYE FORMULATION CONTAINING THREE MONO-AZO DYES

Nagib A. Doss, Loudonville, N.Y., and Roberta Marie Tremain, Easton, Pa., assignors to GAF Corporation, New York, N.Y.

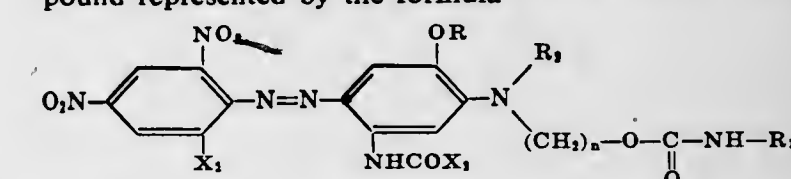
No Drawing. Filed Sept. 17, 1970, Ser. No. 73,235

Int. Cl. C09b 45/48; D06p 1/02

U.S. Cl. 8-26

4 Claims

A black dye formulation comprising a blue dye, an orange or yellow brown dye and a red dye component the dye components being present in proportions suitable for obtaining a black dyestuff which is suitable for application to fibers which will be subjected to durable press treatment, the blue dye component being a compound represented by the formula



wherein

X₁ is chlorine, bromine or cyano;

X₂ is lower alkyl or phenyl;

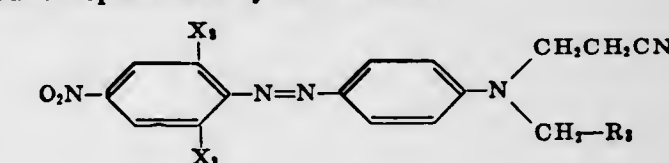
R is lower alkyl;

R₁ is lower alkyl or lower alkenyl;

R₂ is hydrogen, lower alkyl or C₂₋₃ alkyl substituted by -OCONHR₃; and

n is 2 or 3;

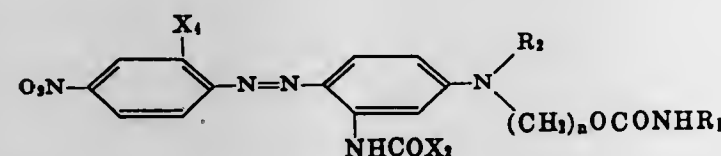
the orange or yellow brown dye component being a compound represented by the formula



wherein

X_3 and X_3' are individually chloro or bromo; and R_3 is $-\text{CH}_2\text{OCOR}_4$, $-\text{CH}_2\text{OCONHR}_5$, $-\text{CHOHCH}_2\text{Cl}$ or $-\text{CH}(\text{CH}_2\text{Cl})\text{OCOR}_4$, R_4 being lower alkyl or phenyl, and R_5 being C_1 - C_4 alkyl, C_2 - C_4 alkenyl or phenyl;

and the red dye component being a compound represented by the formula:



wherein

X_1 is H, Cl, Br and CN;
 X_2 is as defined above;
 R_1 is as defined above;
 R_2 is as defined above;
 n is as defined above.

3,740,190

ANTIBACTERIAL LAUNDRY OIL AND DUST CONTROL OIL COMPOSITION

Richard E. Ware, Trainer, Pa., assignor to Sun Oil Company of Pennsylvania, Philadelphia, Pa.

Filed Oct. 1, 1971, Ser. No. 185,850
 Int. Cl. B08c 3/00

U.S. Cl. 8—137

5 Claims

A laundry oil containing 0.02 to 2.0 percent benzyl bromoacetate as an antibacterial agent and the process of laundering mops and other fabrics used to wipe dust with such oil.

3,740,191

ANTIBACTERIAL LAUNDRY OIL AND DUST CONTROL OIL COMPOSITION

Richard E. Ware, Trainer, Pa., assignor to Sun Oil Company of Pennsylvania, Philadelphia, Pa.

No Drawing. Filed Oct. 1, 1971, Ser. No. 185,851
 Int. Cl. B08c 3/00

U.S. Cl. 8—137

6 Claims

A laundry oil containing 0.015 to 2.0% of a 1,2-benzisothiazolone as an antibacterial agent and the process of laundering mops and other fabrics used to wipe dust with such oil.

3,740,192

METHOD FOR THE PREVENTION OF FOULING OF SHIPS

Oystein E. Rasmussen, 119 Hoslevelen, 1340 Bekkestua, Norway

No Drawing. Filed Oct. 20, 1970, Ser. No. 82,504
 Claims priority, application Norway, Oct. 30, 1969, 4,302

Int. Cl. B63b 59/00

U.S. Cl. 21—58

4 Claims

Fouling of a ship is prevented by distributing ozone over the underwater surface of the ship. The ozone is passed into the sea continuously or periodically through perforations in or at the underwater surface of the ship, in form of pure ozone or ozone-enriched compressed air.

3,740,193

HYDROGEN PRODUCTION BY CATALYTIC STEAM GASIFICATION OF CARBONACEOUS MATERIALS

Clyde L. Aldridge and David Buben, Baton Rouge, La., and Ronald S. Goldberg, Hanover, N.H., assignors to Esso Research and Engineering Company

No Drawing. Filed Mar. 18, 1971, Ser. No. 125,821
 Int. Cl. C10j 3/00

U.S. Cl. 48—202

9 Claims

A hydrogen-rich gaseous stream is produced by contacting in a reaction zone operating at superatmospheric

pressures and temperatures between 1000 and 1500° F. a carbonaceous material with steam introduced in the reaction zone at a rate between 1.0 and 10.0 weight H_2O /weight carbon/hr. in the presence of a catalyst composition comprising cesium carbonate.

3,740,194

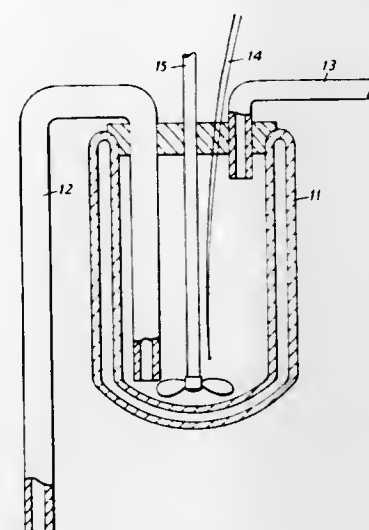
ADIABATIC CALORIMETRY

Brian Norman Hendy, Knebworth, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Apr. 24, 1970, Ser. No. 31,565
 Int. Cl. G01n 25/20, 27/32, 25/48

U.S. Cl. 23—230 A

14 Claims



A means for controlling monomer feeding when making homogeneous copolymers involves the determination of the rate of reaction during the process using adiabatic calorimetry. A small sample is isolated from the reaction mixture and maintained under adiabatic conditions for a short period, while the reaction rate is determined from the rate of change of temperature of the sample. The sample is then returned to the reaction mixture. Both intermittent and continuous sampling are exemplified.

3,740,195

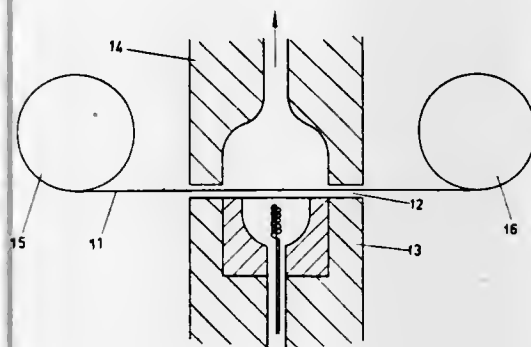
PROCESS AND DEVICE FOR MAKING STANDARD ANALYSIS GAS

Werner Lietzau, Heerstrasse 200, Frankfurt am Main, Germany

Filed Jan. 13, 1971, Ser. No. 106,139
 Claims priority, application Germany, Jan. 23, 1970, P 20 02 933.8
 Int. Cl. G01n 1/22

U.S. Cl. 23—232 R

5 Claims



Trace component is produced by decomposition of a predetermined amount of a salt and mixed with carrier

3,740,198

GAS GENERATOR STRUCTURE

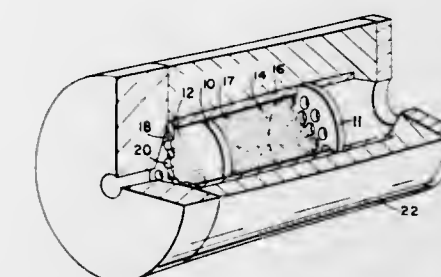
Billy J. Sandlin, Athens, and William A. Duncan and James A. Murfree, Jr., Huntsville, Ala., assignors to the United States of America as represented by the Secretary of the Army

Filed July 5, 1967, Ser. No. 651,326

Int. Cl. B01j 7/00

U.S. Cl. 23—281

9 Claims



The use of porous firebrick (or a similar inert porous support material) which is shaped to fit a housing and thus acts as a bed for an initiator in a gas generator employing an exothermally decomposing monopropellant.

3,740,199

ORE SEPARATION PROCESS

Adrian M. Gammill, Hendersonville, Thomas C. Runion, Sevierville, and William R. Householder, Johnson City, Tenn., assignors to Nuclear Fuel Services Inc., Wheaton, Md.

No Drawing. Continuation-in-part of application Ser. No. 666,506, Sept. 8, 1967. This application Apr. 7, 1971, Ser. No. 132,214

Int. Cl. C01f 1/00; C01g 1/02; C22b 51/00

U.S. Cl. 423—10

8 Claims

A process for the recovery of columbium, tantalum, molybdenum, uranium, the rare earths and thorium from euxenite ore using thermite reduction to convert the ore to a product where the uranium and rare earths in the slag can be readily leached from the slag with mineral acids. The other product recovered is a metal regulus containing a commercially useable ferro-columbium or ferro-tantalum product.

3,740,200

PROCESS FOR EXTRACTING URANIUM FROM ITS ORES

René Gautier, La Madeleine, France, assignor to Ugine Kuhlmann, Paris, France

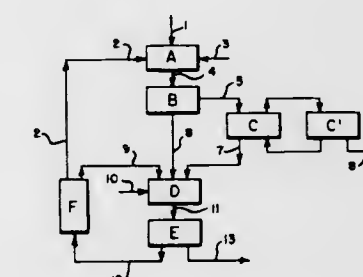
Filed Oct. 20, 1970, Ser. No. 82,498

Claims priority, application France, Oct. 22, 1969, 6936271

Int. Cl. C01g 43/00

U.S. Cl. 423—6

21 Claims



Uranium is extracted from its ore by reacting said ore with ammonium bisulfate thereby forming a composition

gas for concentrations on order of parts per million and billion. Batches of standard gas mixtures are made by breaking an ampule containing salt pyrolysis products in carrier gas. Continuous process decomposes salt on a strip moving through atmosphere of carrier gas with continuous drawing off of mixture of carrier gas and trace component at zone of decomposition of salt.

3,740,196

CHEMICAL SPOT TEST SYSTEM

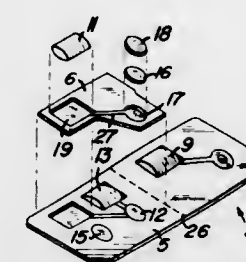
Howard L. Stroterhoff, Baltimore, Md., assignor to the United States of America as represented by the Secretary of the Army

Filed Mar. 30, 1971, Ser. No. 129,360

Int. Cl. B65d 79/00; G01n 31/22

U.S. Cl. 23—253 TP

6 Claims



An apparatus, material, and method of producing the material for an improved chemical spot test system; the invention being an aluminized paper in the apparatus to react exothermically with a CuCl_2 solution to generate heat to sensitize a mustard agent spot test.

3,740,197

CATALYTIC CONVERTER

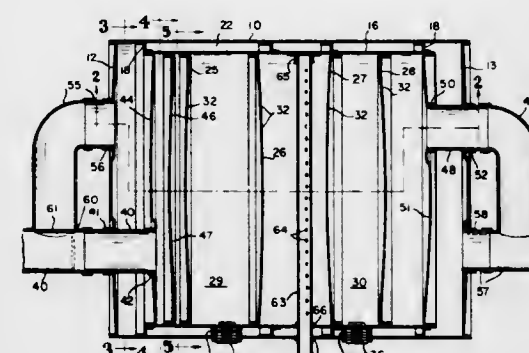
George E. Scheldlin and Richard F. Little, Columbus, Ind., assignors to Arvin Industries, Inc., Columbus, Ind.

Filed May 10, 1971, Ser. No. 141,626

Int. Cl. F01n 3/14; B01j 9/04

U.S. Cl. 23—288 F

7 Claims



A catalytic converter for removing noxious pollutants from an exhaust gas stream having a conversion chamber mounted therein. Gas inlets and outlets are provided in open communication with said chamber and with a bypass passage around said chamber. A valve is connected to said inlet or outlets for selectively controlling the gas flow through the converter so that the exhaust gases passing through the converter may or may not be subjected to the action of the conversion chamber depending upon the positioning of said valve.

containing uranium sulfate, extracting said sulfate from the composition and regenerating and recycling the ammonium bisulfate for further use in leaching the ore.

3,740,201

POLYOLEFIN EMULSIONS CONTAINING N,N-DIMETHYLSULFENYL DITHIOCARBAMATES
Gene N. Woodruff, Bartlesville, Okla., assignor to Phillips Petroleum Company
Continuation-in-part of Ser. No. 760,706, Sept. 18, 1968, Pat. No. 3,615,798. This application Apr. 30, 1971, Ser. No. 139,242

Int. Cl. C08d 7/00; C09d 5/02

U.S. Cl. 260—29.7 M

6 Claims

Stable oil-in-water emulsions of N,N-dimethyl alkylsulfenyl dithiocarbamates rodent repellents with polyolefins are prepared using emulsifying agents selected from amphoteric, nonionic, cationic, and anionic emulsifiers, which emulsions can be readily applied to surfaces to render same rodent and roach repellent. If desired, the polyolefin emulsions can be blended with asphalt and asphalt emulsions prior to application to a substrate.

3,740,202

ELECTRICAL TERMINAL STRUCTURE

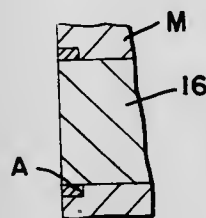
Robert Charles Swengel, Sr., R.D. 2, Hellam, Pa.; Emerson Marshall Reynier II, 108 N. Lockwillow Ave., Harrisburg, Pa.; and J. A. Crumley, R.D. 4, Mechanicsburg, Pa.

Application Apr. 12, 1968, Ser. No. 720,776, which is a continuation-in-part of application Ser. No. 433,350, Feb. 17, 1963. Divided and this application July 16, 1970, Ser. No. 55,326

Int. Cl. H01b 1/02, 13/00

U.S. Cl. 29—191.6

2 Claims



A method and means is disclosed for welding metal of copper-to-copper or aluminum-to-aluminum systems to provide an electrical connection. The welding method is based upon fusion of the material of workpiece elements by an arc drawn between an anodic welding electrode and cathodic workpiece elements through the discharge of a capacitor. The weld is made with the electrode in motion and the rate of electrode withdrawal is controlled. A small quantity of aluminum is introduced into the melt of material of the workpiece elements for the copper-to-copper system by incorporating a small ring of aluminum into the end of one of the elements. In both material systems optimum parameters of applied power and rate of electrode withdrawal are reported.

ERRATUM

For Class 48—202 sec.
Patent No. 3,740,193

3,740,203

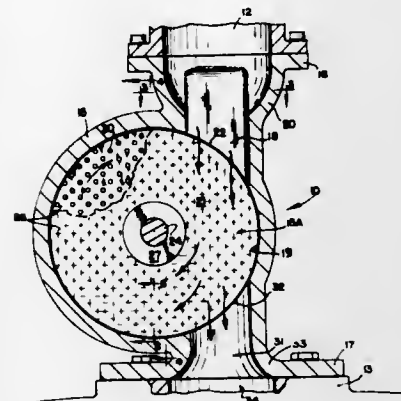
FUEL AND AIR MIXING DEVICE

Jerry W. Nezat, Rt. No. 1, P.O. Box 572E, Estacada, Oreg.
Filed May 19, 1971, Ser. No. 144,769

Int. Cl. B01f 3/02; F02m 29/02

U.S. Cl. 48—180 M

11 Claims



A fuel-air mixing device located between an internal combustion engine and the engine's carburetor. A rotor assembly is journaled within a housing for rotation about an axis transversely orientated to the fuel-air mixture flow from the carburetor to the engine. The rotor assembly is comprised of a series of closely spaced discs with openings therein. The fuel-air flow intermediate the discs is subjected to turbulent action by the discs to further mix the fuel-air mixture.

3,740,204

PROCESS FOR THE PRODUCTION OF METHANE FROM CARBONACEOUS FUELS

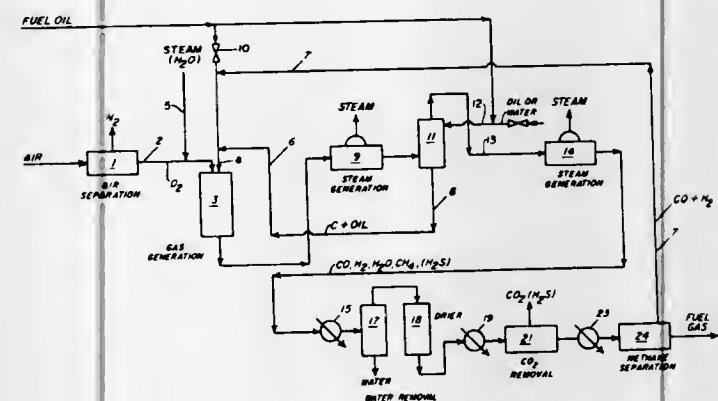
William L. Slater, La Habra, and Warren G. Schlinger, Pasadena, Calif., assignors to Texaco Inc., New York, N.Y.

Filed May 18, 1971, Ser. No. 144,602

Int. Cl. C01b 2/14

U.S. Cl. 48—215

9 Claims



A process for the production of methane from carbonaceous fuels of greater molecular weight than methane by a non-catalytic, direct partial oxidation reaction in which the carbonaceous fuel and oxygen are reacted in the presence of hydrogen and carbon monoxide, optionally with the addition of steam, at an autogenous temperature in the range of 1200 to 2200° F. and at a pressure in the range of 300 to 4500 pounds per square inch. Carbon monoxide and hydrogen from the product are preferably totally recycled to the reaction so that ultimate products of the process are methane, carbon dioxide, and hydrogen

sulfide if the carbonaceous fuel contains sulfur. Substantially pure methane, suitable as fuel gas or pipeline gas may be produced from relatively low grade fuels and transported by pipeline to points of consumption.

3,740,205

METHOD AND APPARATUS FOR BENDING A GLASS RIBBON TO A DIFFERENT DRAW DIRECTION

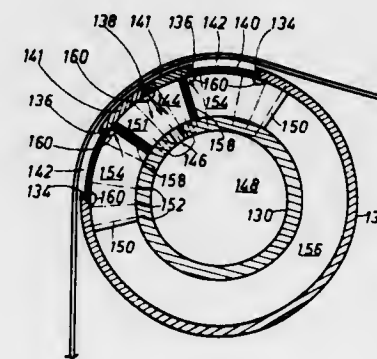
Etienne Cayphas, Lessines, Robert Léclercq, Auvelais, and Albert Van Caeter, Charleroi, Belgium, assignors to Glaverbel S.A., Watermael-Boitsfort, Belgium
Filed Apr. 13, 1971, Ser. No. 133,592

Claims priority, application Luxembourg, Apr. 17, 1970, 60,747

Int. Cl. C03b 15/18

U.S. Cl. 65—25 A

19 Claims



A method and apparatus for bending a glass ribbon in the plastic state by forming a gas cushion in the region where the glass is to be bent and adjacent the concave surface of the bent ribbon portion, the gas cushion creating a bearing force which cooperates with the tensile forces on the ends of the ribbon to produce the desired bent configuration and which maintains the bent portion of the ribbon out of contact with any solid body.

3,740,206

METHOD FOR MAKING SEALED CONTAINER FOR ELEMENTAL SODIUM AND METHOD OF FORMING

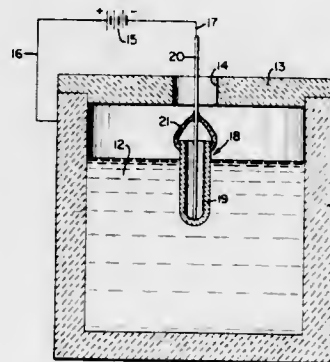
Harold A. Christopher, Scotia, N.Y., assignor to General Electric Company

Original application Mar. 27, 1969, Ser. No. 811,015, now Patent No. 3,607,405. Divided and this application June 28, 1971, Ser. No. 157,654

Int. Cl. H01m 21/14; C03b 23/20

U.S. Cl. 65—36

2 Claims



An evacuated, sealed container for pure elemental sodium is disclosed which has a casing, an ionic conducting

portion in the casing, an electronic conductor in contact with the interior surface of the ionic conducting portion and extending outwardly from the casing. Such a container, when it is filled with pure elemental sodium, provides a suitable device for storing and dispensing the pure elemental sodium, or provides a sodium electrode with an associated ionic conducting electrolyte. A method is also described for forming such an evacuated, sealed container, and for filling the container with pure elemental sodium.

3,740,207

SHAPED PRODUCTS FROM THERMOPLASTIC MATERIAL

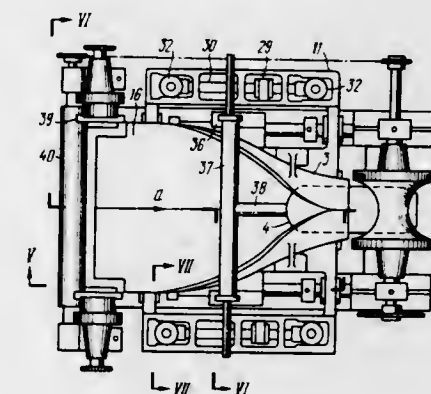
German Nikolaevich Bogrets, Otkyabrskaya ploshad 5, kv. 18; Nikolai Pavlovich Bondar, ploshad Leninskogo komsomola 1, kv. 43; and Grigory Alexandrovich Sizonenko, ulitsa Sim feropolskaya 19, kv. 29, all of Dnepropetrovsk, U.S.S.R.; Anatoly Gavrilovich Minakov, ulitsa Levanevskogo 18, kv. 6, Konstantinovka Donetsk Oblasti, U.S.S.R.; Mikhail Ivanovich Barsukov, ulitsa Entuziastov 91, kv. 36, Kiev, U.S.S.R.; Grigory Iosifovich Mitkevich, ulitsa Ukrainskaya 204, Konstantinovka Donetsk Oblasti, U.S.S.R.; Vyacheslav Fedorovich Dudkin, ulitsa Lenina 1, kv. 57; and Andrei Mikhailovich Teslya, ulitsa Dzerzhinskogo 24, kv. 55, both of Dnepropetrovsk, U.S.S.R.; and Nikolai Emelyanovich Kolomiets, ulitsa Shmidta 33, kv. 23, Konstantinovka Donetsk Oblasti, U.S.S.R.

Filed July 22, 1970, Ser. No. 57,134

Int. Cl. C03b 9/10

U.S. Cl. 65—67

6 Claims



A method of forming shaped products from thermoplastic materials, by bending a plastic strip with the use of shaper members which reciprocate both lengthwise and crosswise relative to a continuously moving strip. A device for carrying said method into effect is characterized by the fact that said shaper members are fixed to structural components which are imparted reciprocating motion from a drive both lengthwise and crosswise relative to the strip under treatment.

3,740,208

METHOD AND APPARATUS FOR FORMING CONTINUOUS SHEETS OF GLASS

Shiro Takahashi and Masataka Ichinose, Kitakyushu, Japan, assignors to Asahi Glass Co., Ltd., Tokyo, Japan

Filed Oct. 20, 1970, Ser. No. 82,442

Claims priority, application Japan, Nov. 6, 1969, 44/88,392

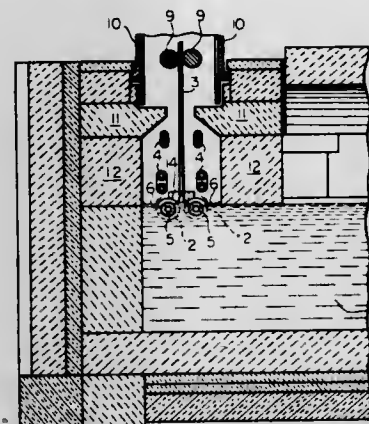
Int. Cl. C03b 15/06

U.S. Cl. 65—90

6 Claims

Method and apparatus for producing sheet glass by the vertical drawing of molten glass are described. The

apparatus comprises a pair of rotatable drawing elements partially submerged in a bath of molten glass, and the



glass is drawn up in the form of a ribbon through a slit between said drawing elements.

3,740,209

METHOD FOR THE CONTROL OF WEEDS

Gerhard Schrader, Wuppertal-Cronenberg, and Ludwig Eue and Helmuth Hack, Cologne, Germany, and Selchi Hirane, Masahiro Aya, Shigeo Kishino, and Nobuo Fukazawa, Tokyo, Japan, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Feb. 9, 1970, Ser. No. 10,025
Int. Cl. A01n 9/36

U.S. Cl. 71-87

5 Claims

Methods of combating and controlling weeds using O-(2-nitro-phenyl)-O-ethyl-N-isopropyl-phosphoramido-thioate, or O-(2-nitro-phenyl)-O-ethyl-N-isopropyl-amido-thionophosphate, which is known, which possesses strong herbicidal properties, and which may be produced by conventional methods.

3,740,210

MECHANICALLY-ALLOYED ALUMINUM-ALUMINUM OXIDE

Michael James Bomford and John Stanwood Benjamin, Suffern, N.Y., assignors to The International Nickel Company, Inc., New York, N.Y.
No Drawing. Filed July 6, 1971, Ser. No. 160,202
Int. Cl. B22f 9/00

U.S. Cl. 75-5 AC

10 Claims

A mechanically alloyed composite powder wherein individual particles include an aluminum matrix having equiaxed aluminum oxide dispersoid particles having a size of about 100 Å to 2,000 Å, uniformly distributed therethrough at particle spacings of about 500 to 3,000 Å. Products made by consolidating the mechanically alloyed powder exhibit improved strength properties at relatively low dispersoid contents.

A process for producing such mechanically alloyed composite powder including milling under dry conditions and in the presence of a surfactive agent, preferably a volatilizable organic material.

3,740,211

Cu-Fe SYSTEM ALLOY

Syoji Ueda, Kazuhiko Muto, and Shintaro Matsuo, Nagasaki, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

No Drawing. Continuation-in-part of abandoned application Ser. No. 805,367, Mar. 7, 1969. This application Nov. 24, 1971, Ser. No. 202,009

Claims priority, application Japan, Mar. 15, 1968, 43/16,923

Int. Cl. C22c 39/20, 39/14; F01d 5/14

U.S. Cl. 75-122

18 Claims

A highly corrosion-resistant alloy of the system Cu-Fe, which has both copper-alloy-like characteristics in produc-

tion techniques and corrosion-resistant properties, and steel-like characteristics in strength and low cost, the alloy consisting of 2-50 weight percent Cu, 5-20 weight percent Ni, 15-35 weight of Mn, and the balance of Fe, with 0.01-15 weight percent Cr or 0.01-5 weight percent Al added thereto.

3,740,212

OXIDATION RESISTANT AUSTENITIC DUCTILE NICKEL-CHROMIUM IRON

Nathan Lewis Church, Warwick, N.Y., assignor to The International Nickel Company, Inc., New York, N.Y.
No Drawing. Filed Mar. 31, 1971, Ser. No. 129,969

Int. Cl. C22c 39/20

U.S. Cl. 75-128 C

10 Claims

Directed to alloyed ductile irons having in the as-cast condition high temperature oxidation resistance, and useful high temperature strength and dimensional stability during thermal cycling or long time holding at high temperatures, which contain about 1.6% to 2.4% carbon, about 0.5% to 1.5% manganese, about 5% to 6.5% silicon, about 34% to 40% nickel, about 1.5% to 2.5% chromium, an effective amount of a graphite spheroidizing agent and the balance iron.

3,740,213

STAINLESS FERRITE-AUSTENITIC STEEL

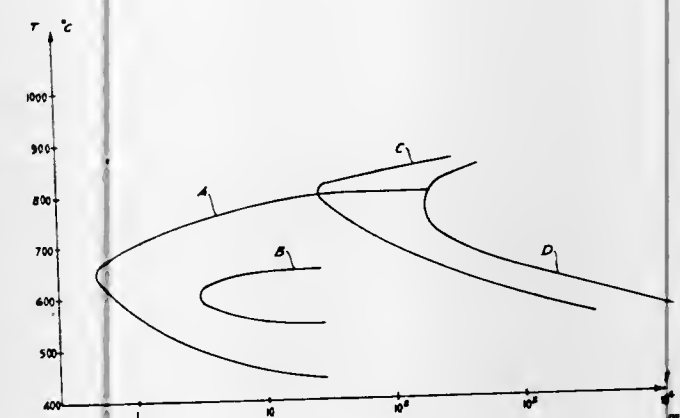
Lars Ivar Hellner, Nils Erik Allan Hede, and Hans Elov Johansson, all of Karlskoga, Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden
Filed May 12, 1969, Ser. No. 823,744

Claims priority, application Sweden, May 16, 1968, 6611/68

Int. Cl. C22c 39/20

U.S. Cl. 75-128 G

1 Claim



A stainless ferrite-austenitic steel of the following composition:

	Percent
C.....	0.02-0.08
Si maximum of.....	0.5
Mn maximum of.....	1.0
N maximum of.....	0.06
Cr.....	25-27
Ni.....	5-7
Mo.....	1.3-1.8

and columbium in such a content that the ratio C_{rest}/C is at least eight, C_{rest} referring to the total columbium content minus the content of columbium required for binding of the nitrogen present in steel to columbium nitride, and C referring to the total carbon content, the remainder being essentially iron, has a high resistance to intercrystalline corrosion.

3,740,214

ZINC ALLOY

Erich Pelze, Puchheim, near Munich, Germany, assignor to Stolberger Zink AG für Bergbau und Hüttenbetrieb, Aachen, Germany

Filed Oct. 9, 1970, Ser. No. 79,533

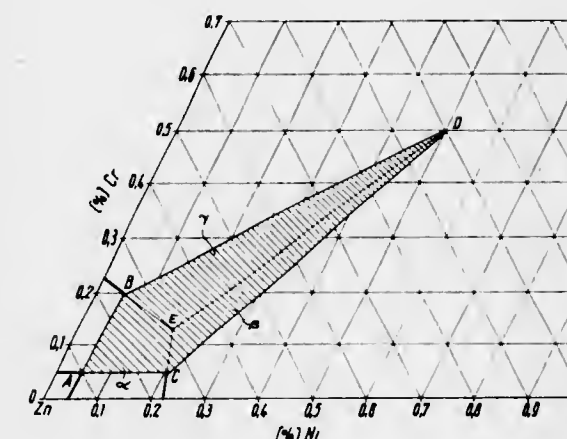
Claims priority, application Germany, Oct. 25, 1969,

P 19 53 783.8

Int. Cl. C22c 17/00

U.S. Cl. 75-178 R

5 Claims



A ternary alloy of high-purity zinc, nickel and chromium having high creep resistance and other good mechanical properties for use as bands, strips, sheets, wire or rod which contains Cr and Ni within the area ABCD of the zinc-chromium-nickel composition diagram shown in the drawing wherein A corresponds to 0.05% by weight chromium and 0.05% by weight nickel (balance high-purity zinc), B corresponds to 0.20% by weight chromium and 0.05% by weight nickel (balance high-purity zinc), C corresponding to 0.05% by weight chromium and 0.20% by weight nickel (balance high-purity zinc), and D corresponds to 0.45% by weight to 0.55% by weight chromium and 0.45% by weight to 0.55% by weight nickel (balance high-purity zinc). Up to 1.7% by weight of zinc may be replaced by an equal quantity of copper.

3,740,215

METHOD FOR PRODUCING A HOT WORKED BODY

David L. Burk, Pittsburgh, and Orville W. Reen, Lower Burrell, Pa., assignors to Allegheny Ludlum Industries, Inc., Pittsburgh, Pa.
No Drawing. Filed Aug. 24, 1970, Ser. No. 66,641

Int. Cl. B22f 7/00

U.S. Cl. 75-208

7 Claims

A method for producing a hot worked body having a low incidence of oxide inclusions. It comprises the steps of consolidating powder comprised of metallic particles into a porous body, substantially sealing the surface of said body by closing surface pores, heating said body, and hot working said body.

3,740,216

PHOTOELECTROSOLOGRAPHIC IMAGING EMPLOYING A RELEASABLE IMAGING LAYER

William L. Goffe, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Filed June 1, 1967, Ser. No. 642,830

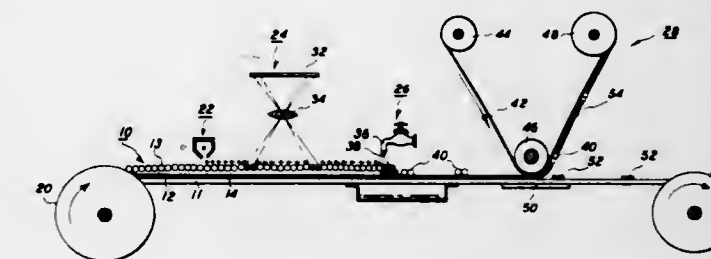
Int. Cl. B41n 5/00; G03g 13/14

U.S. Cl. 96-1

9 Claims

An imaging member comprising a fracturable material in or at the surface of a soluble layer over an adhesively releasable interfacial layer over a substrate is processed to substantially completely remove said soluble layer and form an image pattern of fracturable material on said interfacial layer which is then contacted with a transfer

member which is then stripped away whereby said interfacial layer in background pattern is released to said transfer member and said interfacial layer in image pat-



tern is left on said substrate. The image pattern of fracturable material may or may not be stripped off, as desired.

3,740,217

PHOTOCONDUCTIVE COATING EMPLOYING AN IMBIBED CONDUCTIVE INTERLAYER

Eugene P. Gramza and Frederick A. Stahly, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Original application Mar. 29, 1968, Ser. No. 717,386, now Patent No. 3,597,272. Divided and this application Jan. 26, 1971, Ser. No. 109,959

Int. Cl. G03g 5/00, 5/06

U.S. Cl. 96-1.5

8 Claims

An imbibition procedure is disclosed as a means for forming an electrically conductive layer on a suitable support. The conductive layer is formed by imbibing a binder-free solution of volatile solvent and a metal-containing semiconductor into an electrically insulating polymeric subcoating carried on a support and evaporating the solvent. The conductive layers are useful in electro-photographic elements.

3,740,218

PHOTOCONDUCTIVE ELEMENTS CONTAINING COMPLEXES OF LEWIS ACIDS AND FORMALDEHYDE RESINS

Lawrence E. Contois, Webster, and Stewart H. Merrill, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed June 1, 1971, Ser. No. 149,057

Int. Cl. G03g 5/00, 5/06

U.S. Cl. 96-1.5

7 Claims

Certain formaldehyde resins are disclosed which form complexes with Lewis acids such as trinitrofluorenone to produce photoconductive compositions and elements of high speed and utility for electrostatic image formation.

3,740,219

PHOTOCONDUCTIVE ISOCYANATE REACTION PRODUCTS AND DEPOSITED LAYERS

Horst Heinz-Joachim Kosche, Duren, Germany, assignor to Renker G.m.b.H., Duren, Germany

No Drawing. Continuation-in-part of abandoned application Ser. No. 612,826, Jan. 13, 1967. This application Oct. 26, 1970, Ser. No. 84,185

Int. Cl. G03g 5/06, 5/08

U.S. Cl. 96-1.8

5 Claims

Photoconductive sensitized and unsensitized layers for use with electro-photographic recording materials, are formed by the photoconductive reaction products of at least one aromatic or heterocyclic organic nitrogen compound which is substantially nonphotoconductive with at least one organic compound containing at least one isocyanate group, to provide a self-adhering photoconductor which may additionally include a known photoconductive material.

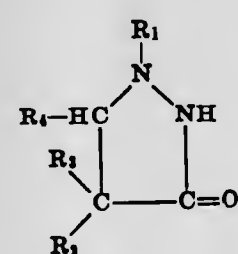
3,740,220 PHOTOGRAPHIC MATERIAL

Louis Maria De Haes, Edegem, Emiel Alexander Hofman, Mortsel, and Hugo Karel Gevers, Edegem, Belgium, assignors to Agfa-Gevaert, Mortsel, Belgium
No Drawing. Filed Dec. 5, 1969, Ser. No. 882,737
Claims priority, application Great Britain, Dec. 6, 1968, 58,152/68
Int. Cl. G03c 5/54

U.S. Cl. 96—29 R 12 Claims
A composite integral light-sensitive photographic material for forming copies by means of the diffusion transfer process comprising in successive order a transparent flexible support sheet and image-receiving layer comprising development nuclei, a pigment layer containing an opaque white or colored pigment dispersed in a hydrophilic colloid binder, wherein the pigment and the binder of the pigment particles are present in amount of from 7 to 25 g. per sq. m. and of from 0.5 to 4 g. sq. m., respectively, and a light-sensitive silver halide emulsion layer, the maximum developed reflex density of which is equal to or lower than 0.8. A photographic method using such material is also disclosed. The developed material has a positive image in the image-receiving layer which is visible directly through the transparent support sheet, together with a negative image in the emulsion layer which is hidden from the positive image by means of the intervening pigment layer so that the material can be exposed, developed and viewed in the form of an integral assembly without separation of the parts thereof.

**3,740,221
DEVELOPMENT OF PHOTOGRAPHIC MATERIAL**
Jozef Frans Willems, Wilrijk, and Paul Maurice Schots, Berchem, Belgium, assignors to Agfa-Gevaert, Mortsel, Belgium
No Drawing. Filed Oct. 7, 1970, Ser. No. 78,919
Claims priority, application Great Britain, Oct. 12, 1969, 52,567/69
Int. Cl. G03c 5/54, 5/30

U.S. Cl. 96—29 R 6 Claims
A method of developing light-sensitive silver halide elements is described whereby the elements are treated after exposure with an aqueous alkaline composition in the presence of a hydroxylamine developing agent and a 1-aryl-3-pyrazolidinone compound of the formula:

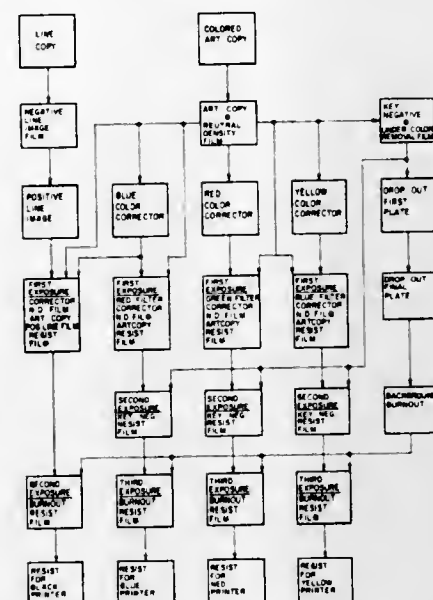


wherein R₁ is aryl, R₂ and R₃ are hydrogen, alkyl, aralkyl or aryl, and R₄ is hydrogen, alkyl, alkoxy, aralkoxy or aryloxy. The 1-aryl-3-pyrazolidinone compound exhibits a superadditive effect on the hydroxylamine developing agent.

**3,740,222
METHOD OF MAKING RESISTS TO BE USED IN ETCHING ROTOGRAVURE CYLINDERS FOR FOUR-COLOR PRINTING**
Andrew David McGlashan, Sr., Warsaw, Ind., assignor to R. R. Donnelley & Sons Company
Continuation of abandoned application Ser. No. 726,843, May 6, 1968. This application Mar. 23, 1971, Ser. No. 127,308
Int. Cl. G03c 5/06

U.S. Cl. 96—30 7 Claims
This invention provides a method for making corrected color separations directly onto a light sensitive silver

halide gravure resist film which after exposure and development is used in etching rotogravure cylinders. Undercolor removal and background burnout is also



carried out directly on the resist film by multiple exposure to before it is developed, and the fully color-corrected continuous tone positive conventionally used in preparing gravure resist films is entirely eliminated.

**3,740,223
MIGRATION IMAGING STRUCTURE**
William L. Goffe, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Continuation-in-part of application Ser. No. 460,377, June 1, 1965, now Patent No. 3,520,681, which is a continuation-in-part of application Ser. No. 403,002, Oct. 12, 1964, now abandoned. This application May 1, 1967, Ser. No. 635,256
Int. Cl. G03g 5/00

U.S. Cl. 96—1.5 23 Claims
An imaging structure comprising a supporting substrate, an overlayer of softenable material overlying said substrate, and a layer of particulate photosensitive material embedded at the upper surface of said softenable material.

**3,740,224
PHOTOSENSITIVE COMPOSITIONS FOR THE PRODUCTION OF PRINTING PLATES**
Helmut Barzynski, Lambsheim, and Carl Heinrich Krauch, Heidelberg, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Rhineland-Pfalz, Germany
No Drawing. Filed July 13, 1971, Ser. No. 162,273
Claims priority, application Germany, July 18, 1970, P 20 35 848.9
Int. Cl. G03f 7/02; G03c 1/68

U.S. Cl. 96—33 4 Claims
Photosensitive compositions based on ethylene oxide polymers, polycarboxylic acids, olefinically unsaturated monomers and additions of photoinitiators and polymerization inhibitors.

The photosensitive compositions of the invention are suitable for the preparation of printing plates.

**3,740,225
METHOD OF MAKING PRINTED CIRCUIT BOARDS**
Leo Fiderer, 5640 Aldea Ave., Encino, Calif. 91316
Filed Aug. 31, 1970, Ser. No. 68,175
Int. Cl. G03c 5/04

U.S. Cl. 96—43 5 Claims
A perforated control tape is provided having a pattern of holes related to the pattern of elements of the desired printed circuit pattern. The holes in the tape control the markings on a photosensitive film strip such that the markings on the film produce the lines and shapes of a segment

of the desired photomaster for a printed circuit. After development, as many film strips as required to produce the complete photomaster are assembled on a backing to form a composite corresponding to the image of the desired photomaster. A final photomaster for the printed circuit board is then made from the film strips assembled on the backing.

**3,740,226
FOGGED, DIRECT-POSITIVE SILVER HALIDE EMULSIONS CONTAINING TRIAZOLIUM SALTS AND THE USE THEREOF IN REVERSAL PROCESSES**

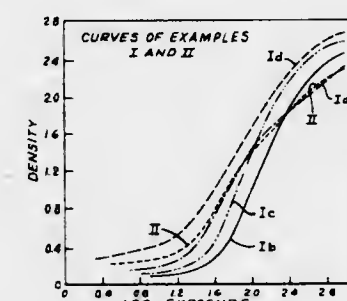
Glen Marshall Dappen, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 68,503, Aug. 31, 1970. This application June 30, 1971, Ser. No. 158,595
Int. Cl. G03c 5/24, 1/34, 5/30

U.S. Cl. 96—64 R 11 Claims
Fogged, direct-positive, silver halide emulsions can be developed in the presence of triazolium salts to produce improved photographic properties. In one embodiment, bistriazolium salts are incorporated in at least one layer of the direct-positive element and reduced dichroic fog is observed upon development, especially when the developer contains high halide-ion concentrations.

**3,740,227
TWO-STEP METHOD FOR DEVELOPING SILVER HALIDE EMULSION FILM**

Zolla Reyes, Menlo Park, Calif., assignor to Stanford Research Institute, Menlo Park, Calif.
Filed Oct. 15, 1971, Ser. No. 189,695
Int. Cl. G03c 5/30

U.S. Cl. 96—66.3 5 Claims



Particular development accelerators and inhibitors are used with known developing agents of the hydroquinone type in a two-step development of silver halide emulsion films to improve density and contrast in the shadow and midtone areas, to extend useful linear range in the highlight area and to enhance threshold sensitivity. The characteristic density-log exposure curve produced by this method has a dual gamma. The developer employed in the first step contains a polyethylene glycol accelerator, and preferably the developer employed in the second step contains a polyethoxylated quaternary ammonium salt as an accelerator and nitrobenzimidazole nitrate as an inhibitor.

**3,740,228
LIGHT SENSITIVE PHOTOGRAPHIC MATERIAL**
Hans Ohlschlager, Cologne, and Wolfgang Himmelmann, Opladen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Feb. 22, 1971, Ser. No. 117,759
Claims priority, application Germany, Feb. 28, 1970, P 20 09 498.8
Int. Cl. G03c 1/84

U.S. Cl. 96—84 A 2 Claims
Antihalation and filter dyes can advantageously be mordanted in photographic layers by means of mordant-

ing polymer compounds which are condensation products of aminoguanidine and homo or copolymers of styrene derivatives containing keto groups.

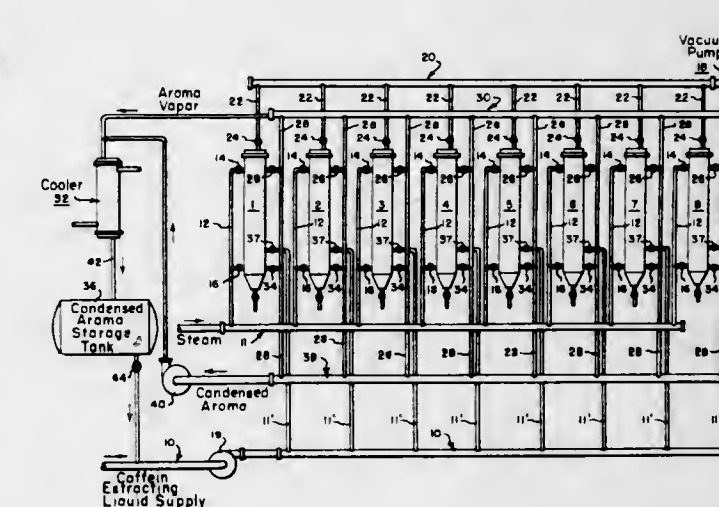
**3,740,229
DIAZOTYPE PHOTOGRAPHIC COPYING MATERIAL FOR HEAT DEVELOPMENT**

Shoji Maruyama, Sagami-hara, Etsuo Oida and Takao Hamada, Tokyo, Tomiaki Asami, Yokohama, and Susumu Iwata, Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan
No Drawing. Continuation-in-part of abandoned application Ser. No. 709,190, Feb. 29, 1968. This application Apr. 12, 1971, Ser. No. 133,442
Claims priority, application Japan, Mar. 7, 1967, 42/14,295
Int. Cl. G03c 1/58

U.S. Cl. 96—91 R 15 Claims
A diazotype photographic copying material that is heat developable is comprised of a support having formed thereon a light-sensitive layer consisting essentially of a light-sensitive diazonium compound and an azo dye coupler consisting of a polyhydroxybenzoic acid compound.

**3,740,230
PROCESS FOR DECAFFEINATING COFFEE**
James Patrick Mahlmann, Wayne, N.J., assignor to General Foods Corporation, White Plains, N.Y.
Filed Apr. 29, 1971, Ser. No. 138,518
Int. Cl. A23f 1/10

U.S. Cl. 99—69 5 Claims

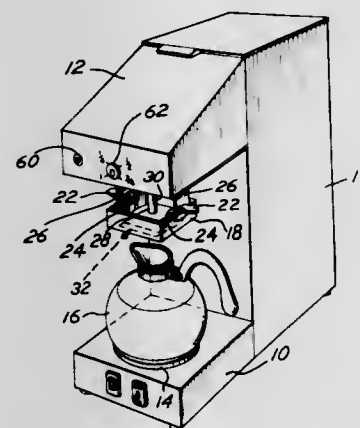


A decaffeinated coffee having quality improvement is effected by removing the green coffee flavors and aromas prior to introducing the coffee into one end of a counter current extraction zone for water extracting the caffeine from the coffee and then adding back the flavors and aromas to the decaffeinated coffee at the other end of the counter current extraction zone prior to discharging the decaffeinated coffee from the extraction zone.

**3,740,231
COFFEE BREWER**
Ted H. Drwal, Chicago, Ill., and Michael J. Perlman, 533 Briar Hill Road, Deerfield, Ill. 60015; said Ted A. Drwal assignor to said Michael J. Perlman
Filed May 24, 1971, Ser. No. 94,322
Int. Cl. A23f 1/08

U.S. Cl. 99—71 9 Claims
A no-drip siphonless beverage maker, for making coffee and the like, includes a tank of heated water which can be selectively discharged from the tank through the material from which the beverage is made. In addition to a thermostatically controlled heater located in heat transfer relation with water in the tank for heating the water in the normal manner, means are provided to maintain

the top of the tank continuously heated to prevent the accumulated air from contracting during the brew cycle. This may be effected by use of a separate band heater at the top of the tank, by selective positioning of the thermostatically controlled heater or by use of heat insulation means at the top of the tank. During the brew cycle, hot water is discharged from the tank in the normal fashion,

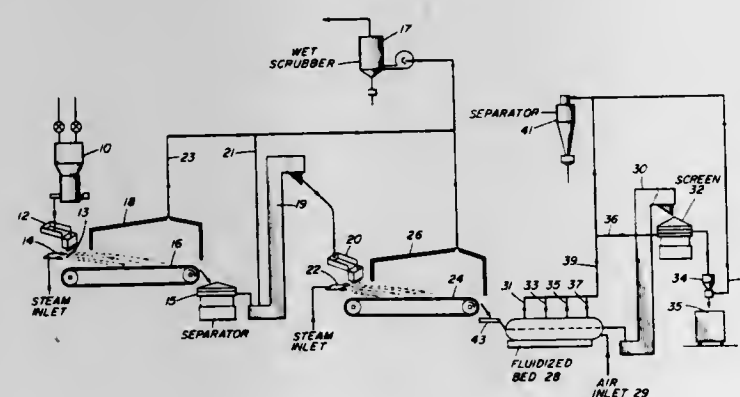


but in addition, sufficient air is released at the top of the tank during the cycle to insure that the air barrier between the top of the tank and the water is maintained at this portion of the tank. This keeps the level of the water in the tank at the level of the opening of the hot water discharge tube, thereby preventing dripping at the end of the brew cycle.

3,740,232
AGGLOMERATION OF INSTANT COFFEE
William F. Purves, Islington, William F. Lee, Dollard Des Ormeaux, Peter H. Davies, Pointe Claire, and William J. Jeffery, Chateaugay Centre, Quebec, Canada, assignors to General Foods Limited, Toronto, Ontario, Canada
Filed May 20, 1971, Ser. No. 145,150
Int. Cl. A23f 1/08

U.S. Cl. 99—71

8 Claims



This invention relates to the agglomeration of water soluble products in fine powder form such as coffee wherein the product is formed into a falling curtain and then carried in a horizontal direction by jets of steam that are directed through the curtain. The use of steam jets in the agglomeration of coffee in this way is not broadly new. The novel aspect of this invention is the performing of the steam entraining function over a conveyor so that as the steam agglomerated powder drops, it is caught by the conveyor. The successful operation of the agglomeration process in this way depends upon the controlling of the atmosphere above the conveyor and in this respect, the excess moisture from the

steam jets must be exhausted from the atmosphere above the conveyor at a rate that maintains a vapour cloud above a substantial portion of the conveyor that is capable of imparting moisture to some of the product as it falls on the conveyor and during its residence time on the conveyor.

3,740,233
CHILLPROOFING BEER WITH ENZYME OBTAINED FROM MUCOR PUSILLUS LINDT
John H. Nelson, Waukesha, Wis., and Paul R. Witt, Elmwood Park, Ill., assignors to Dairyland Food Laboratories, Inc., Waukesha, Wis.
No Drawing. Filed Oct. 15, 1970, Ser. No. 81,174
Int. Cl. C12h 1/12

U.S. Cl. 99—48

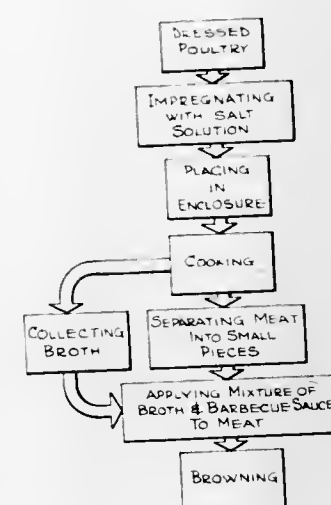
5 Claims

An enzyme system obtained from pure culture fermentation by *Mucor pusillus* Lindt is utilized in beer production, primarily to enhance chill stability of the finished product.

3,740,234
METHOD OF PREPARING BARBECUED TURKEY
Billie P. Price and Lane B. Price, both of Rte. 7, Monroe, N.C.
Filed Jan. 21, 1971, Ser. No. 108,282
Int. Cl. A22c 21/00

U.S. Cl. 99—107

2 Claims



A method of preparing barbecued poultry such as turkey which closely simulates barbecued pork comprising impregnating a dressed carcass of poultry with a salt solution and confining the salt impregnated carcass in an enclosure. The confined carcass is cooked while collecting the broth in the enclosure. After cooking, the carcass is removed from the enclosure and the meat thereof separated into relatively small pieces and subjected to a mixture of the collected broth and a barbecue sauce in the presence of heat with the heat providing enhanced penetration of the mixture into the pieces of meat.

3,740,235
METHOD OF FORMING A BEEF LOAF
Phillip D. Weiner, Fort Wayne, Ind., assignor to Peter E. Ehrlich & Sons, Inc.
No Drawing. Continuation of application Ser. No. 756,422, Aug. 30, 1968. This application Aug. 13, 1970, Ser. No. 63,651
Int. Cl. A23i 1/31

U.S. Cl. 99—107

8 Claims

A process of forming an uncooked meat loaf that may be subsequently cooked without a "reheated" flavor and sliced including the steps of grinding large lean muscles to the size of about a half pound or less, mixing the same together with seasoning, adding an all-meat binder formed of relatively finely ground trimmings and continuing the

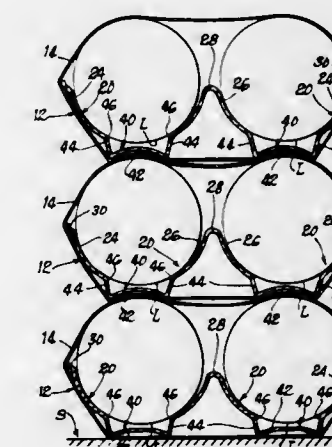
mixing, stuffing the mix into containers such as molds or casings, and heating the stuffed containers until the internal temperature thereof is on the order of 100° F.

3,740,236
PARTIALLY DEFAITED NUT COATING AND RECONSTITUTING PROCESS
James R. Baxley, Edenton, N.C., assignor to Peanut Research & Testing Laboratories, Inc., Edenton, N.C.
No Drawing. Continuation of abandoned application Ser. No. 739,160, Jan. 24, 1968. This application Apr. 15, 1971, Ser. No. 134,395
Int. Cl. A23i 1/36

U.S. Cl. 99—126

2 Claims

Nuts which have had a substantial portion of their oils removed by hydraulic pressing are reconstituted in an aqueous coating solution which is proportional to the amount of nuts being reconstituted. The solution reconstitutes the nuts to their original configuration and, at the same time, applies a coating which binds and seals the outer surface of the nut, controls the quantity of water absorbed by the nut and adds flavor and coloring to the nut. The aqueous solution is comprised of water and dextrin in proportioned amounts and a dry powdered coating is added comprised of salt, monosodium glutamate, yeast extract, starch, dextrin, herbs and spices.

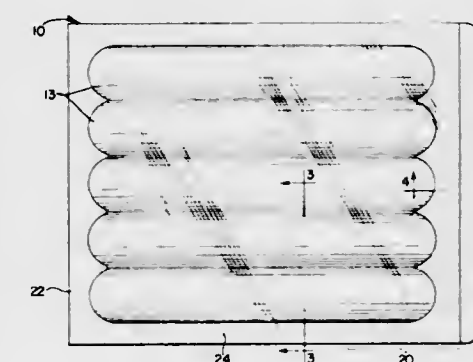


3,740,237
CONTINUOUS METHOD FOR MANUFACTURING HERMETICALLY SEALED PACKAGES HAVING DUAL SEALS

Paul E. Grindrod and Robert L. Goller, Madison, Harry L. Radloff, Sun Prairie, and Oscar E. Seiferth, Madison, Wis., assignors to Oscar Mayer & Company, Inc., Madison, Wis.
Filed Nov. 25, 1970, Ser. No. 92,560
Int. Cl. B65b 51/02

U.S. Cl. 99—171 S

8 Claims



A continuous method of enclosing a product between a pair of films so as to provide a package having a product enclosing portion and a peripheral flange. The pair of films are joined to form a hermetic, dual seal, by applying a continuous strip of peelable bond adhesive thru a portion of the film destined to become a peripheral flange and extending partially into that portion of the film destined to become the product enclosing portion and providing the remainder of the peripheral flange with means for permanently bonding the pair of films.

3,740,238
STACKABLE COOKIE PACKAGE AND TRAY
Seymour C. Graham, 2800 Lake Shore Drive, Chicago, Ill. 60657
Filed Jan. 4, 1971, Ser. No. 103,381
Int. Cl. B65d 21/02

U.S. Cl. 99—171 CT

11 Claims

A cookie package including an open-topped cookie tray defining parallel compartments each defining a floor section for spacing a stack of cookies in a said tray away

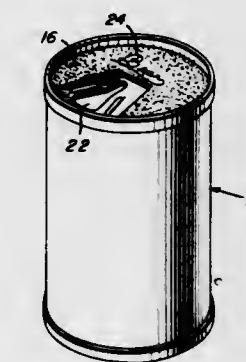
from a stack of cookies in a like underlying tray. The tray provides support ribs effectively for contacting cookies at spaced points for so spacing the cookies, and for resiliently cushioning the cookies against shock and stacking

loads. The floor section of a superposed tray nestingly receives cookies in an underlying tray to resist transverse sliding movement to stabilize unsupported stacks of such packages.

3,740,239
SALT IMPREGNATED DEVICE FOR CONTAINERS
Charles W. Chancellor, Jr., P.O. Drawer 15, Midland, Tex. 79701
Filed May 3, 1971, Ser. No. 139,439
Int. Cl. B65b 3/00

U.S. Cl. 99—171 B

8 Claims



A salt impregnated device is provided having a lower surface which is coated with an adhesive, or similar material, for holding the device to the top of a drinking container, such as a beer can, and an upper surface which is coated or impregnated with table salt, or the like, such that the drinker's lips or tongue remove a small amount of salt each time the person takes another drink from the container, thereby supplementing and enhancing the enjoyment of the drink.

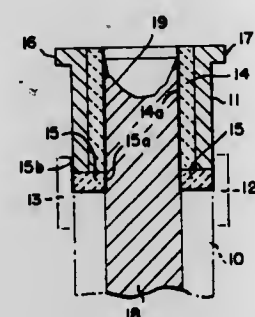
3,740,240
INGOT MOLD HOT TOP HEAT INSULATION BOARD AND METHOD OF PREPARING SAME
Charles G. Sproule, Jr., Tredyffrin Township, and Herbert F. Wagner, Jr., Wayne, Pa., assignors to C. G. Sproule and Associates, Inc., Wynnewood, Pa.
Filed Oct. 7, 1970, Ser. No. 78,827
Int. Cl. B28b 7/36

U.S. Cl. 106—38.25

11 Claims

An ingot mold hot top made of light weight heat insulation board, especially adapted for use in regulating the solidification of a molten mass of metal in a mold,

is prepared from a composition comprising perlite, cellulose filler material and binder. At least one surface of

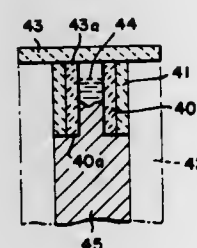


to continuous melting and production having the following comparative values:

Index of refraction:	Abbe value
n_d 1.693	v_d 53
n_d 1.761	v_d 41
n_d 1.750	v_d 37

and having a composition:

	Weight percent
SiO_2	18.0-23.1
B_2O_3	7.6-14.8
$\text{SiO}_2 + \text{B}_2\text{O}_3$	27.0-33.8
BaO	27.1-46.2
La_2O_3	3.6-19.2
$\text{BaO} + \text{La}_2\text{O}_3$	30.7-62.9
CdO	0.8-16.1
ZrO_2	1.0-3.5
$\text{CdO} + \text{ZrO}_2$	2.3-19.0



3,740,243 HIGH SHEAR, ROLLED ALUMINA CERAMIC SUBSTRATE

Karl A. Kappes and Sydney Bateson, Oshawa, Ontario, Canada

Continuation-in-part of application Ser. No. 56,045, June 30, 1970, which is a continuation-in-part of application Ser. No. 852,056, Aug. 21, 1969, which in turn is a continuation-in-part of application Ser. No. 687,872, Dec. 4, 1967, all now abandoned. This application June 21, 1971, Ser. No. 154,983

Claims priority, application Canada, Dec. 20, 1966, 978,467

Int. Cl. C04b 35/02

U.S. Cl. 106—65 4 Claims

A high density high shear alumina ceramic substrate which is especially suitable for use as a substrate for the deposition of thin metallic films used in electronic applications said substrate having a surface smoothness of better than 8 micro inches, without the use of a glaze combined with a bulk tabular crystalline alumina density of at least about 98 percent of the theoretical density of a surface density substantially that of crystalline alumina and a porosity of substantially zero provided by an unique crystalline surface layer of randomly oriented close packed alumina crystals of hexagonal prismatic form on said substrate. The substrates, which are produced from reactive alumina powder, have high flexural strength, excellent electrical properties and are impervious to penetration by metals, dyes or inks.

3,740,244 PROCESS FOR PRODUCING COLORED PEARL ESSENCES

Nobumitsu Yano, Saitama-ken, Masao Fukushima, Itaru Fukinbara, and Masanori Kishi, Tokyo, and Kazuyoshi Kimura, Saitama-ken, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed May 6, 1971, Ser. No. 140,955

Claims priority, application Japan, May 16, 1970, 45/41,297

Int. Cl. C08j 1/10

U.S. Cl. 106—291 8 Claims

Crystals exhibiting pearl luster of various color tones (pearl essences) which have smooth surfaces and are uniform in size are obtained in high yields by crystallizing according to an ordinary procedure a compound selected from the group consisting of nucleic acid-related compounds, triazine compounds and basic lead carbonate from an aqueous solution of said compound in the presence of a water-soluble dye. The thus obtained colored pearl essences are incorporated into plastic materials or the like to provide coloring and decorative effects which cannot be attained by the use of dyes alone.

3,740,242 OPTICAL GLASSES

Marga Faulstich, Mainz, and Willy Ritz, Mainz-Monbach, Germany

Continuation of abandoned application Ser. No. 1,960, Jan. 12, 1970, which is a continuation of application Ser. No. 576,403, Aug. 31, 1966. This application Mar. 4, 1971, Ser. No. 121,167

Claims priority, application Germany, Sept. 4, 1965, J 28,924

Int. Cl. C03c 3/08, 3/10, 3/30

U.S. Cl. 106—54 22 Claims

Thorium oxide and beryllium oxide-free glasses suitable

3,740,245 ANTIMONY-CONTAINING INORGANIC COMPOSITION OF MATTER AND METHOD FOR PREPARING SAME

Edward L. White, Freehold, Joseph Schwarcz, Plainfield, and William D. Lang, Rahway, N.J., assignors to N L Industries, Inc., New York, N.Y.

No Drawing. Filed June 1, 1971, Ser. No. 149,021

Int. Cl. C09c 1/00, 1/28

U.S. Cl. 106—303 20 Claims

A new composition of matter useful as a flame retardant additive in plastics, paints, fibers, etc. is prepared by reacting antimony trioxide or an antimony trioxide generating compound with a substrate comprising hydrous silica or a hydrous alkali or alkaline earth metal silicate in a weight ratio in the range of from 1:4 to 1:1 on an antimony trioxide:substrate basis, the reaction being carried out by calcining an admixture of said compounds at a temperature within the range of from 400° C. to 550° C. in an oxygen containing atmosphere.

While the description and illustrations which follow are directed primarily to the use of the antimony-containing inorganic composition of matter of this invention as a flame retardant additive for plastics it has other uses as for example as a catalyst for promoting polymerization of monomers.

3,740,246 PROCESS FOR IMPROVING POLYAMIDE FILMS

Mutsuo Kuga, Tatuo Iwasaki, Kayomon Kyo, and Atsuo Yoshioka, Kyoto, Japan, assignors to Unitika Kabushiki Kaisha, Hyogo-ken, Japan

No Drawing. Filed Jan. 11, 1971, Ser. No. 105,725

Claims priority, application Japan, Jan. 12, 1970, 45/3,386

Int. Cl. B44d 1/32

U.S. Cl. 117—7 13 Claims

The present invention relates to improved polyamide films formed by the process utilizing a concurrent biaxial drawing technique, followed by heat-setting of the drawn film with simultaneous curing of a resin composition applied to the film surface which is of a heat-setting and hydrophobic nature.

3,740,247 HEAT INSULATION FOR MACHINE PARTS

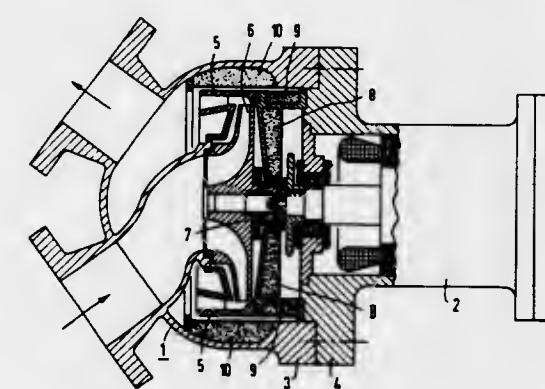
Friedrich Schweigert, Nuremberg, and Peter Schroder, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed May 18, 1970, Ser. No. 38,101

Claims priority, application Germany, June 7, 1969, P 19 29 027.8

Int. Cl. B32b 17/04

U.S. Cl. 117—8 2 Claims



Insulating bodies of glass wool or rock wool are adjusted to the shape of machine parts which they are to insulate. The fibers of the insulating bodies are coated with a heat resistant and permanently elastic binder and are connected to each other with the binder. The entire mass of insulating bodies is coated with a layer of the binder and openings are provided in the layer for pressure balance.

3,740,248 ANTI-OFFSET POWDER

Warren G. Buhler, Westfield, and Albert Maletsky, Ramsey, N.J., assignors to Oxy-Dry Sprayer Corporation, Chicago, Ill.

No Drawing. Filed Dec. 28, 1970, Ser. No. 102,136

Int. Cl. B41m 1/06, 7/02

U.S. Cl. 117—13 8 Claims

A powder is disclosed which includes a rigid core material, e.g., starch, encapsulated with an outer shell of a wax or wax-like material which has certain predetermined melting and penetration properties, the powder finding particular utility in the printing field for preventing offset and the like. Methods for making the wax-encapsulated powder are also disclosed.

3,740,249 SOLVENT FIXING PROCESS

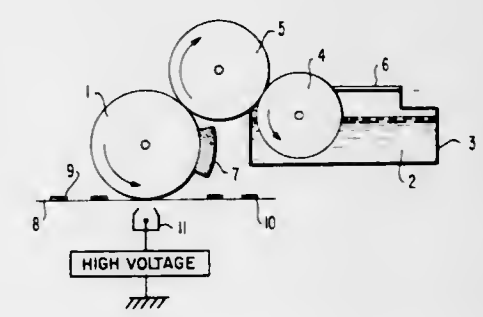
Koichi Takiguchi, Odawara, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 1, 1971, Ser. No. 185,619

Claims priority, application Japan, Oct. 1, 1970, 45/86,240

Int. Cl. G03g 13/20

U.S. Cl. 117—21 6 Claims



A process for fixing toner images with a solvent which comprises contacting a film of a solvent formed on the surface of a grounded conductive roller with the front surface of a support having thereon toner images while applying to the back side of the support a corona discharge of a polarity opposite to the charge of the toner images to thereby fix the toner images on the support, said solvent being capable of fixing said toner image and being a non-conductive and non-polar liquid.

3,740,250 RARE EARTH OXIDE PHOSPHORS HAVING INERT, NON-LUMINESCENT LAYER THEREON

Michael J. Hammond and Raymond F. Herner, Towanda, Pa., assignors to Sylvania Electric Products, Inc.

No Drawing. Original application Feb. 28, 1969, Ser. No. 803,429, now Patent No. 3,619,265. Divided and this application Mar. 26, 1971, Ser. No. 128,588

Int. Cl. C09k 1/10

U.S. Cl. 117—33.5 C 2 Claims

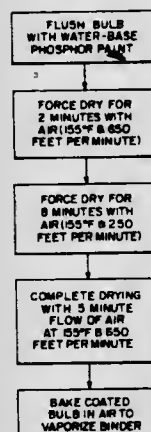
A rare earth oxide host phosphor has incorporated thereon an outer layer of chemically combined fluoride ion that is inert and non-luminescent. The coating increases the adherence properties of the phosphor in slurry application techniques for the manufacture of television screens by preventing poisoning of the phosphor particles by dichromate ions present in the slurry. The phosphor is coated by bathing in a .05 molar fluoride bath, in acidic solution, about 400 to 500 grams of phosphor per liter of solution, agitating for about 20 to 30 minutes, and decanting the acidic solution, washing and then filtering and drying the phosphor. The drying temperature should be less than 200° C. to prevent disruption of the coating.

3,740,251 METHOD OF UNIFORMLY COATING A TUBULAR LAMP ENVELOPE WITH PHOSPHOR

Robert W. Repsher, Kinnelon, N.J., assignor to
Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 20, 1969, Ser. No. 808,802
Int. Cl. F21k

U.S. Cl. 117—33.5 L

7 Claims



The phosphor paint is flushed through the vertically-positioned envelope and the vaporized solvent is removed from the envelope in such a manner that setting and drying of the coating is accomplished at a rate which deposits a layer of phosphor particles on the inner surface of the envelope that is more uniform than that achieved with conventional coating methods. In the case of a water-base phosphor paint, removal of the water vapor is achieved by passing heated air (approximately 155° F.) downwardly through the coated envelope and varying the velocity of the air flow (within a range of 250 to 650 feet per minute) during the drying operation.

With phosphor paints having an organic solvent (xylene or butyl acetate), the solvent vapors are first flushed out with air through the top of the coated envelope by closing the lower end of the envelope, the injection of air is then stopped and the lower end of the envelope is opened to allow the heavier-than-air solvent vapors to flow out of the envelope through its lower end, and air at a low velocity (150 to 200 feet per minute) is then passed through the envelope to complete the drying cycle.

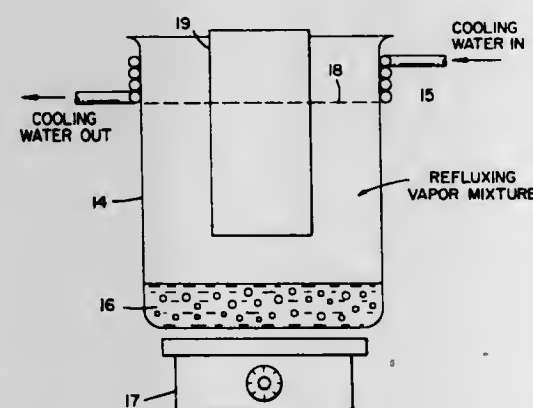
The coated bulbs in each case are lehrd in air at a temperature of from about 1200° to 1250° F. for about 2 minutes to volatilize and remove the organic binder from the phosphor layer.

3,740,252 ADHESION OF ORGANIC MATERIALS TO ORGANIC POLYMERS

Saul W. Chaikin, Menlo Park, Calif., assignor to Xidex Corporation, Sunnyvale, Calif.
Filed Oct. 23, 1970, Ser. No. 83,551
Int. Cl. B44d 1/092, 5/04

U.S. Cl. 117—34

19 Claims



Treatment of organic polymers such as oriented polyethylene terephthalate film with the vapor phase of a halo-

substituted fatty acid such as trichloroacetic acid to improve adhesion with organic materials. Typical is the improvement of the bond to organic polymeric vehicles used in making photographic film.

3,740,253 METHOD FOR THE MANUFACTURE OF A HIGHLY WATER RESISTANT PAPER

Tatsuaki Hattori, 1621 Sakazu, Kurashiki, Japan
No Drawing. Filed Dec. 9, 1969, Ser. No. 883,243
Claims priority, application Japan, Dec. 13, 1968, 43/91,815

Int. Cl. B44d 1/44; B32b 7/10

U.S. Cl. 117—62

10 Claims

Paper which has been provided with a coating comprised of a thermoplastic binding agent and a pigment is treated with a mixed aqueous solution of (1) boric acid or an ammonium or metal salt thereof, (2) a monovalent or divalent water soluble metallic salt or an ammonium salt characterized by a high salting out property, and, optionally preferably, (3) a water soluble metallic salt which is a highly effective chelating agent, to enhance the water resistance of such coated paper.

3,740,254 METHOD OF VACUUM METALLIZING THERMO- PLASTIC POLYMERIC FILM AND RESULTING PRODUCT

Robert Clive Lansbury, Harpenden, and David Mann, St. Albans, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Apr. 9, 1971, Ser. No. 132,906
Claims priority, application Great Britain, Apr. 29, 1970, 20,657/70

Int. Cl. B32b 27/06; B44d 1/14

U.S. Cl. 117—71 R

7 Claims

Using resins containing an isocyanate-ended polyurethane of average molecular weight more than 1000 and an organic polyisocyanate containing an average of more than two isocyanurate groups per molecule as primer coatings for metallizing thermoplastic films.

3,740,255 HUMIDITY RESISTANT PAINT SYSTEMS

David Brian Fox, Chelsea, Victoria, Australia, assignor to Dulux Australia Ltd., Melbourne, Victoria, Australia
No Drawing. Filed July 26, 1971, Ser. No. 166,264
Claims priority, application Australia, Aug. 7, 1970, 2,108/70

Int. Cl. B32b 15/08

U.S. Cl. 117—74

4 Claims

Conventional paint systems consisting of an undercoat film adhering to a metallic surface and a superimposed film of protective and/or decorative top-coat are known to provide inadequate blister resistance under some conditions of service. Paint systems of improved humidity performance are now disclosed in which the undercoat is modified by the addition to it of discrete, porous, polymer particles to provide the dry undercoat film with a water absorption of 5–65% by weight. The paint system as a whole must be a non-convertible coating.

3,740,256 SURFACE FLUORINATED HYDROGEN CONTAIN- ING MATERIAL AND PROCESS FOR MAKING

Jean P. Manion, Milwaukee, and Daniel J. Davies, Mukwonago, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Original application Aug. 1, 1969, Ser. No. 846,767, now Patent No. 3,674,667. Divided and this application Sept. 22, 1971, Ser. No. 188,671

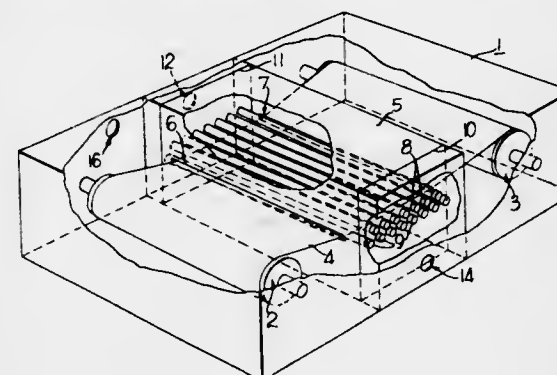
Int. Cl. C23c 11/00

U.S. Cl. 117—93.1 CD

2 Claims

A manufactured material and a process for making the material is disclosed. The manufactured material is a hydrogen containing substance having a fluorinated surface and in which hydrogen atoms, which may be present in hydroxyl radicals attached to a carbon atom chain,

have been replaced in the surface of the material by fluorine atoms or radicals, and with such fluorinated surface of the material containing at least about 2 micrograms of such fluorine per cm.² of surface area. The process for making such a material includes the steps of selecting a substrate containing hydrogen atoms which may be present in hydroxyl radicals attached to a carbon atom chain, selecting a gas containing fluorine atoms or radicals, placing the selected substrate between electrodes in a flowing atmosphere of the selected gas at subatmospheric pressure, and subjecting the substrate to an electronless discharge of at least about 0.2 kwh./yard² to chemi-



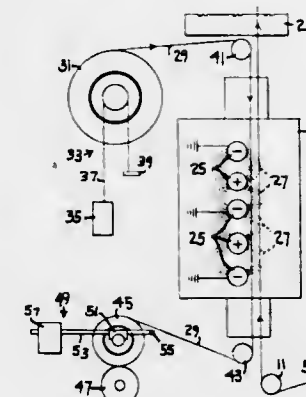
cally activate both the surface of the substrate and the gas, and exchange the fluorine atoms or radicals for surface hydrogen atoms or radicals to produce a material with a surface, which compared to the substrate before this process treatment, is more water repellent (without sealing pores), is more corrosion and soil resistant, more chemically inert, and more like the relatively expensive polytetrafluoroethylene. When the substrate is a material having a relatively inert surface, such as polyethylene, the process is disclosed as including an initial treatment step that involves ion bombardment of the substrate in helium gas to activate the surface before the surface is treated in the fluorine containing gas.

3,740,257 PROCESS AND APPARATUS FOR DIELECTRIC HEAT DRYING ELASTOMER COATED GLASS FIBERS

Alfred M. Roscher, Allison Park, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Continuation of application Ser. No. 654,866, July 20, 1967. This application Sept. 21, 1971, Ser. No. 182,330
Int. Cl. F26b 3/34

U.S. Cl. 117—93.1 DH

4 Claims



A method and apparatus for preventing particles of elastomer solids from being deposited on the electrodes of a dielectric heater during the process of dielectrically drying an aqueous elastomeric coating composition on strands of glass fibers. A barrier of glass cloth or the like is disposed between the elastomer coated glass fiber strands and the electrodes of the dielectric heater to preclude depositing particles of elastomer solids on the electrodes of the dielectric heater and to thereby preclude an "arc-out" of the dielectric drying process from occurring.

3,740,258 RESINOUS ENCLOSURE MEMBERS RENDERED IMPERMEABLE BY SULFONATION

Wilhelm E. Walles, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Continuation-in-part of applications Ser. No. 696,702, Jan. 10, 1968, and Ser. No. 770,848, Oct. 25, 1968. This application Apr. 12, 1971, Ser. No. 133,376

The portion of the term of the patent subsequent to Oct. 19, 1988, has been disclaimed
Int. Cl. B44d 1/02

U.S. Cl. 117—94

37 Claims

Resinous enclosure members surface sulfonated to a degree such that from about 0.015 to about 50.0 milligrams of sulfur trioxide equivalents reside on a square centimeter of surface thereof effectively contain hydrocarbons and other organic materials. The sulfonated enclosure members are rendered substantially impervious to the penetration of various solvents and vapors by this degree of surface sulfonation. As a result of such treatment, these enclosure members are useful to hold, retain, or transport hydrocarbon solvents, perfumes, fuels, etc., and thus can be used as gasoline tanks, perfume bottles, plastic hoses, industrial containers, and the like.

3,740,259 MASKING THE CLOSEABLE AREA OF A CON- TAINER DURING THE COATING OF THE CONTAINER

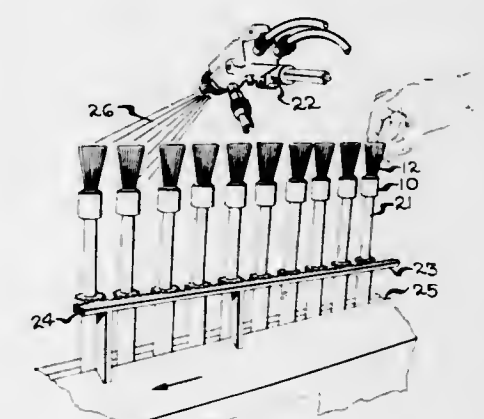
David G. Carl, 6109 Sylvan Green, Sylvania, Ohio 43560; and Richard C. Kietzman, 4306 Harris; and William A. Knapp, 2619 Thoman Place, both of Toledo, Ohio 43613

Original application Nov. 24, 1969, Ser. No. 879,081. Divided and this application Sept. 7, 1971, Ser. No. 178,303

Int. Cl. B05b 13/02

U.S. Cl. 117—94

3 Claims



Method for masking the closure attaching portion of a container to prevent the coating of said closure attaching portion while permitting the spreading of a coating material over the remaining surface of the container. The method comprises nesting the closure attaching portion of the container into a masking chuck, rotating the chuck about its vertical axis and laterally moving the chuck in a straight line through a coating spray.

3,740,260 DISPENSING GUN FOR FIBER ROVINGS AND CEMENTITIOUS MATERIALS

James B. Winn, Jr., Wimberly, Tex., assignor to The Archilithic Co., Dallas, Tex.
Continuation of application Ser. No. 660,149, July 17, 1967, which is a continuation of application Ser. No. 155,948, Nov. 30, 1961, both now abandoned. This application Apr. 1, 1971, Ser. No. 130,480

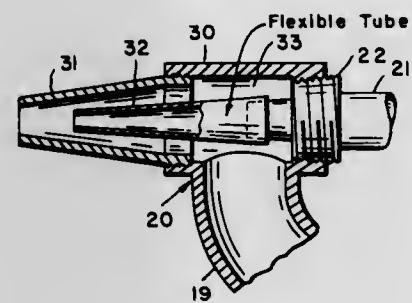
Int. Cl. B44d 1/02

U.S. Cl. 117—104 R

4 Claims

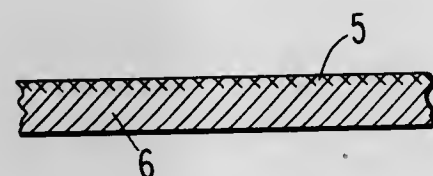
Glass fiber strands are deposited on a receiving surface coated with a cementitious material by forcefully pro-

jecting the fluid coating material from a projection source while entraining the continuous fiber strand in the coat-



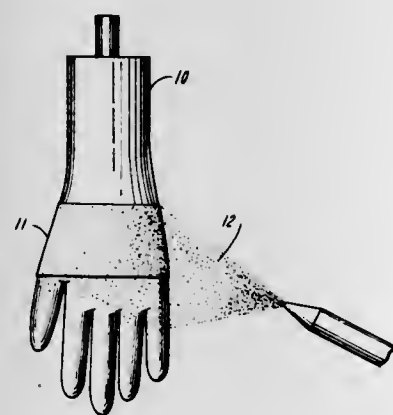
ing material from within the material and propelling the strand and the coating material onto the receiving surface.

3,740,261
MODIFIED CZOCHRALSKI GROWN SPINEL SUBSTRATE BY SOLID STATE DIFFUSION
Stephen Ray Bolln, Hightstown, N.J., assignor to RCA Corporation
Filed Feb. 9, 1971, Ser. No. 113,972
Int. Cl. B44d 1/18
U.S. Cl. 117-107.2 P 3 Claims



A modified single-crystal, magnesium aluminate spinel wafer is formed from commercially available spinel by a solid state diffusion of alumina from submicron alumina particles. The resultant wafer is particularly suited for use as an epitaxial silicon substrate. A method is given for producing these modified spinel wafers by solid state diffusion.

3,740,262
DUAL FINISH SURGEON'S GLOVE AND METHOD OF MAKING SAME
Armand J. Agostinelli, East Haven, Conn., assignor to Dart Industries Inc., Los Angeles, Calif.
Continuation-in-part of application Ser. No. 877,848, Nov. 18, 1969, which is a continuation-in-part of application Ser. No. 720,854, Apr. 12, 1968, both now abandoned. This application Aug. 17, 1971, Ser. No. 172,568
Int. Cl. B44d 1/02
U.S. Cl. 117-94 12 Claims



A method for manufacturing a latex article particularly a latex surgeon's glove. The article has a powder attract-

ing surface and a powder rejecting surface. The powder rejecting surface is free from stickiness and tackiness yet is not slippery. The method includes the steps of: depositing a latex film on a form for the article; curing the film and contacting the surface which is to be powder rejecting with a solution containing a predetermined number of parts per million of a halogen for a predetermined time.

3,740,263
PROCESS FOR THE PREPARATION OF MANUFACTURED ARTICLES
Rajindar K. Kochhar, Overland Park, Joseph W. Jones, Jr., Leawood, and Raymond M. Henry, Overland Park, Kans., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Continuation of abandoned application Ser. No. 740,979, June 28, 1968. This application Aug. 12, 1971, Ser. No. 171,374
Int. Cl. C03c 25/02
U.S. Cl. 117-126 GR 2 Claims
Polymer-coated glass fibers bearing a coating of an ethylene-acrylic acid copolymer are prepared by passing heated glass fibers through a freshly-prepared aqueous dispersion of an ammonium salt of an ethylene-acrylic acid copolymer. The coated glass fibers thus prepared are useful as a reinforcing agent for thermoplastic molding resins.

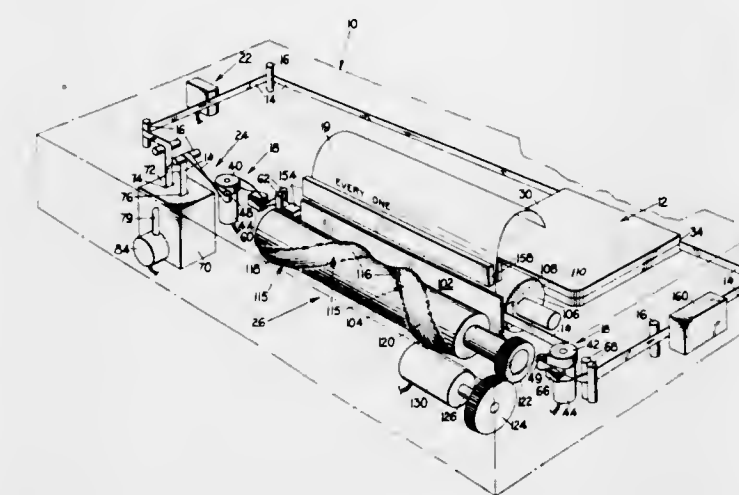
3,740,264
FIREPROOFING CELLULOSE WITH COMPLEXES OF HEAVY METAL SALTS OF ACID PHOSPHATE ESTERS
Charles Andrew Lynch, Jr., Severna Park, and Edward Francis Orwoll, Baltimore, Md., assignors to FMC Corporation, New York, N.Y.
No Drawing. Original application Mar. 27, 1970, Ser. No. 23,479. Divided and this application Dec. 15, 1971, Ser. No. 208,504
Int. Cl. C09k 3/28
U.S. Cl. 117-136 5 Claims

Compositions which are water-soluble ammonia complexes of heavy metal salts of acid phosphate organic esters, the organic groups containing an average of at least three carbon atoms, are used in water solutions to produce weather-resistant flame-retarding treatments for wood and other cellulosic bodies. The organic moieties are preferably chlorinated or brominated to improve their flame retardance.

3,740,265
IMAGE TRANSFER PRINTING METHOD
Gilbert D. Springer, Portland, Oreg., assignor to United Medical Laboratories, Inc., Portland, Oreg.
Filed Mar. 8, 1971, Ser. No. 121,846
Int. Cl. H01f 10/00
U.S. Cl. 117-235 4 Claims

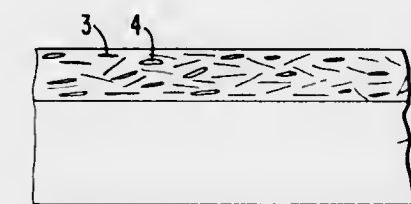
An image transfer printing method and printer wherein character images representing information to be printed are magnetically encoded upon a magnetic medium or record such as a magnetic tape. The magnetic record is subsequently exposed to an environment of magnetizable particles wherein the particles adhere to the magnetized portions of the record and develop character images thereon. The magnetic record is then advanced to an image transfer station where a pressure plate or other suitable device associates the tape with a record sheet and the magnetizable particles are transferred to the record sheet forming printed characters. The images on the magnetic record can then be demagnetized or erased during the transfer operation to enhance transfer of the particles, and the character images formed on the record sheet can be fixed

thereon to form a permanent copy. The information can be continuously encoded on the magnetic record and trans-



ferred to the record sheet a line at a time to form a record sheet with a multiline format.

3,740,266
MAGNETIC RECORDING MEDIUM
Goro Akashi and Masaaki Fujiyama, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Continuation-in-part of abandoned application Ser. No. 751,566, Aug. 9, 1968. This application Nov. 25, 1970, Ser. No. 92,879
Claims priority, application Japan, Aug. 10, 1967, 42/51,370
Int. Cl. H01f 10/02
U.S. Cl. 117-240 6 Claims

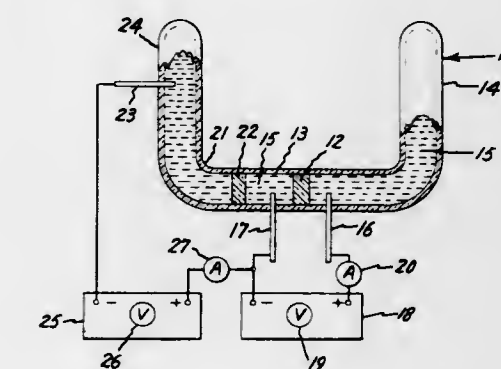


A magnetic recording medium comprising a support and a magnetic recording layer thereon, the layer comprising a mixture of an acicular magnetic alloy which may be a Fe-Co-Ni alloy, a Fe-Co alloy, a Co-Ni alloy, or a Fe-Ni alloy, and an acicular magnetic powder such as $\gamma\text{-Fe}_2\text{O}_3$, Co-containing $\gamma\text{-Fe}_2\text{O}_3$, CrO_2 , or Fe_3O_4 . Either the magnetic alloy or the magnetic powder may contain Cu, Sb, Te, Mg, B or Be. The use of the mixture prevents the aggregation of the magnetic alloy particles and minimizes the reduction in magnetic flux density caused by the addition of other materials.

3,740,267
METHOD OF CLEANING APPARATUS USED IN PROCESSING POLYETHYLENE TEREPHTHALATE
John Christopher Haylock, Richmond, Va., assignor to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Sept. 22, 1971, Ser. No. 182,901
Int. Cl. B08b 9/00; C23g 5/02
U.S. Cl. 134-10 8 Claims
Method of removing unwanted residues of polyethylene terephthalate from apparatus used in processing polyethylene terephthalate which involves washing the apparatus with a cleaning solvent comprising triethanolamine at a temperature of 150°-260° C. to form a solution of

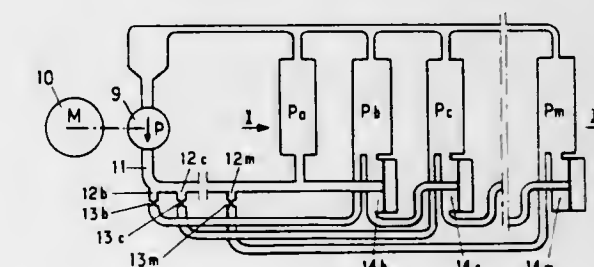
substantially all of the polyethylene terephthalate remaining in the apparatus. The cleaning process can be accelerated by the addition of a minor proportion of alkali metal hydroxide to the solvent.

3,740,268
METHOD OF CHARGING SODIUM-SULFUR CELL
Stephen P. Mitoff, Elnora, N.Y., assignor to General Electric Company
Original application Jan. 4, 1971, Ser. No. 103,521. Divided and this application Jan. 17, 1972, Ser. No. 218,403
Int. Cl. H01m 45/04
U.S. Cl. 136-6 FS 3 Claims



A sodium-sulfur cell is described which includes an anodic reaction zone, a cathodic reaction zone, a solid crystalline ion conductive electrolyte therebetween, and a third electrode positioned in the cathodic reaction zone and insulated electrically from a portion of the cathodic reaction zone. One type of third electrode for this cell has a metal mesh adjacent the solid electrolyte. A thin porous insulator is positioned on opposite surface of the metal mesh adjacent the cathodic reaction material. A method of charging a sodium-sulfur cell employing such a third electrode is described also.

3,740,269
PROCESS AND EQUIPMENT FOR REGULATING THE OUTPUT OF A SET OF FUEL CELLS
Pierre Patin, 58 Rue de Sevres 92, Boulogne-sur-Seine, France
Continuation-in-part of abandoned application Ser. No. 76,791, Sept. 30, 1970. This application Mar. 22, 1972, Ser. No. 237,006
Int. Cl. H01m 27/00
U.S. Cl. 136-86 E 5 Claims

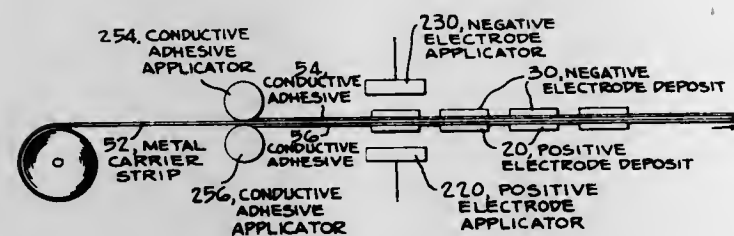


The output of fuel cells fed by a forced flow of each reactant dissolved or emulsified in a dilute electrolyte with a constant concentration is regulated by electrically connecting the cells in series and continuously supplying each electrolyte charged with the corresponding reactant to the first cell and supplying the other cells with each electrolyte with its reactant at a low rate of flow and progressively supplying said other cells in parallel at a relatively high rate of flow of each electrolyte with its reactant as soon as the loss of charge through said other cells reach predetermined values.

3,740,270 **DUPLEX ELECTRODE CONSTRUCTION USING** **CONTINUOUS METAL CARRIER STRIP COATED** **ON BOTH SIDES WITH CONDUCTIVE ADHESIVE**

John M. Bilhorn, Edgerton, Wis., assignor to
 ESB Incorporated
 Filed Dec. 21, 1970, Ser. No. 100,268
 Int. Cl. H01m 21/00
 U.S. Cl. 136—111

11 Claims

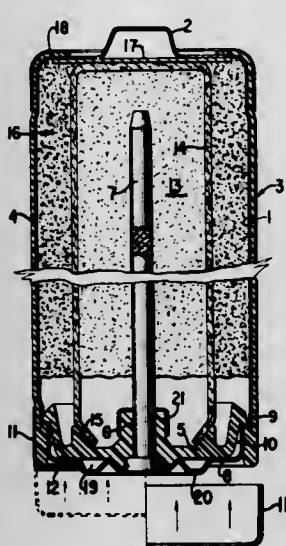


A duplex electrode is constructed by first coating both sides of a continuous metal carrier strip with electrically conductive adhesive material and then placing intermittent deposits of positive and negative electrodes on opposite sides of the coated carrier strip. The duplex electrode is then assembled into a multicell battery. The assembly preferably occurs while the duplex electrodes are structurally and electrically connected by the continuous carrier strip after which the carrier strip is subsequently cut between duplex electrodes to obtain structurally and electrically unconnected batteries. Alternatively, the carrier strip may be cut between duplex electrodes before those electrodes are assembled into multicell batteries. Preferably, the carrier strip is zinc, aluminum, or steel.

3,740,271
CYLINDRICAL DRY CELLS
 Jean-Firmin Jammet, Poitiers, and Alfred Brych, Chas-seneuil, France, assignors to Societe des Accumulateurs Fixes et de Traction (Societe Anonyme), Romainville, France

Filed Jan. 25, 1972, Ser. No. 220,647
 Claims priority, application France, Jan. 25, 1971,
 7102375; June 16, 1971, 7121897
 Int. Cl. H01m 21/00
 U.S. Cl. 136—107

30 Claims



A cylindrical dry cell incorporating a metal container sheathed in plastic, includes a cover formed at one end of the sheath. The cover has substantially parallel grooves

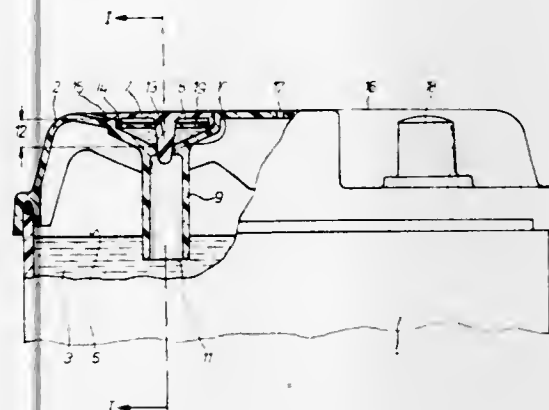
formed therein for receiving the ends of the metal container and the ends of the other electrode terminal, holding said ends in a permanently spaced apart relationship.

3,740,272 **BATTERY IN MOLDED CASE AND COVER WITH** **ELECTROLYTE RESERVOIR IN COVER COM-** **MON TO ALL CELLS**

Emil Blaich, Barmen, and Gert Niemann, Hildesheim, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Nov. 25, 1970, Ser. No. 92,782
 Claims priority, application Germany, Jan. 29, 1970,
 P 20 03 968.3
 Int. Cl. H01m 1/02, 7/00
 U.S. Cl. 136—162

11 Claims



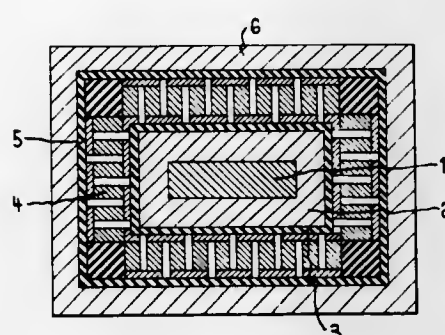
Battery in molded case with electrolyte reservoir in cover common to all cells. From the bottom of the reservoir tubes project downward dipping below the predetermined level of the electrolyte in each cell. Each tube is provided with a throttling device which can be shut-off tightly, and each cell is provided with a vent through which gas can escape during filing with electrolyte and during charge.

3,740,273
MINIATURIZED ELECTRIC SOURCE HAVING A
RADIOACTIVE HEAT SOURCE

Karl Adler, Grenchen, and George Ducommun, Feld-brunnen, Switzerland, assignors to Bivator S.A., Grenchen, Switzerland

Filed Jan. 19, 1970, Ser. No. 3,927
 Claims priority, application Switzerland, Jan. 31, 1969,
 1,518/69
 Int. Cl. C21d 7/00
 U.S. Cl. 136—202

7 Claims



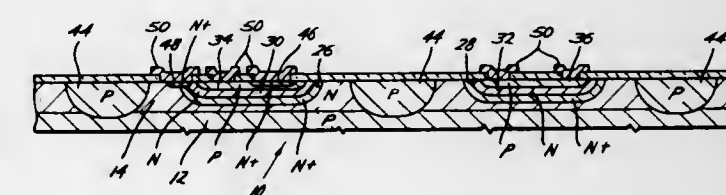
A miniaturized electric source having a radioactive heat source and thermoelements enclosed by insulating layers,

said thermoelements being constituted by thin metallic layers on tape carriers of insulating material, such carriers being wound or folded to form a compact unit comprising a high number of thermoelements.

3,740,274
HIGH POST-IRRADIATION DUCTILITY PROCESS
 Joe G. Y. Chow, Northport, N.Y., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Apr. 20, 1972, Ser. No. 246,046
 Int. Cl. C21d 1/00, 7/02
 U.S. Cl. 148—12

7 Claims



various components of the network enabling high switching speeds.

3,740,277
DEFLAGRATIVE CIRCUIT BOARD MATERIAL
 Clyde J. Poulin, Phoenix, Ariz., and Theodore N. Bryla, Glendora, Calif., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Feb. 8, 1971, Ser. No. 113,704
 Int. Cl. C06c 3/10
 U.S. Cl. 149—15

4 Claims

A self-destructive circuit board, which will deny knowledge to an enemy by destroying the actual hardware elements mounted thereon, made of a composition which burns at such high temperature that all metal and other solid components are completely destroyed.

3,740,278
HALOGENATED POLYETHYLENE COATED CRYSTALLINE EXPLOSIVE MIXED WITH SECOND EXPLOSIVE

Robert Sakreis, Jettenbach, and Helmut Nolte, Waldkraiburg, Germany, assignors to Wasagchemie G.m.b.H., Munich, Germany

No Drawing. Filed Apr. 11, 1972, Ser. No. 243,080
 Claims priority, application Germany, May 6, 1971,
 P 21 22 441.9
 Int. Cl. C06b 19/02
 U.S. Cl. 149—11

8 Claims

Shaped high explosives prepared by coating a particulate crystalline explosive having a melting point of at least 203° C. with a halogenated polyethylene by mixing the crystalline explosive particles with an aqueous dispersion of discrete halogenated polyethylene particles having an average size of 0.1 to 5 microns to distribute over the crystalline explosive particles about 2 to 8 percent by weight of halogenated polyethylene particles, mixing the halogenated polyethylene coated crystalline explosive particles with about 2 to 8 percent by weight of a second explosive having a melting point up to 105° C. and having a Trauzl lead-block expansion higher than that of trinitrotoluene and compressing the mixture at a compressive load of at least 700 kp./cm.² and a temperature above the melting point of the second explosive.

3,740,279
ETHYLENE COPOLYMER COMPOSITE PROPELLANT

Dewey R. Levering and Carl A. Lukach, Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Sept. 2, 1969, Ser. No. 854,754
 Int. Cl. C06d 5/06
 U.S. Cl. 149—19

8 Claims

Composite propellant compositions having superior physical properties and performance characteristics con-

3,740,275
GALVANIZING PREFLUX WASH COMPOSITION
 Sidney M. Heins, Chicago, Ill., assignor to Thiem Corporation, Milwaukee, Wis.

No Drawing. Continuation-in-part of application Ser. No. 128,551, Mar. 26, 1971. This application Aug. 6, 1971, Ser. No. 169,846
 Int. Cl. B23r 35/34; C22b 9/10; B32b 15/18
 U.S. Cl. 148—26

5 Claims

An aqueous preflux wash having the purpose of wetting a ferrous metal with a film to condition the surface in final preparation for non-fuming galvanizing in a molten zinc bath using a smokeless blanket flux according to my Pat. No. 3,244,551. The purpose of this preflux is not only to replace the conventional zinc ammonium chloride containing preflux material, which is fuming, but to eliminate all factors contributing to air pollution.

3,740,276
MULTI-COMPONENT SEMICONDUCTOR NETWORK AND METHOD FOR MAKING SAME

Kenneth E. Blan, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Original application Dec. 30, 1966, Ser. No. 606,198.
 Divided and this application Aug. 24, 1970, Ser. No. 66,646
 Int. Cl. H01l 7/36
 U.S. Cl. 148—175

5 Claims

A process is disclosed for fabricating a multi-component network utilizing a body of high resistivity semiconductor material. The process includes selectively etching the semiconductor substrate and reforming it by epitaxial deposition of semiconductor material having dif-

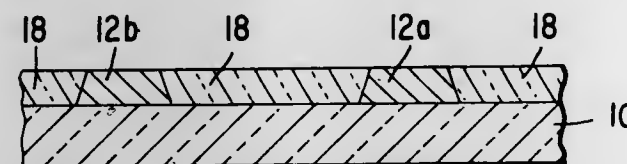
tain solid oxidizer and as the binder fuel, colloiddally dispersible crystallizable copolymer of ethylene and 2 to 25 mole percent of at least one other monomer which is an α -olefin and/or a non-conjugated hydrocarbon diene.

3,740,280 METHOD OF MAKING SEMICONDUCTOR DEVICE

Ram Shaul Ronen, Kendall Park, N.J., assignor to RCA Corporation
Filed May 14, 1971, Ser. No. 143,493
Int. Cl. H01L 7/50

U.S. Cl. 156—11

3 Claims



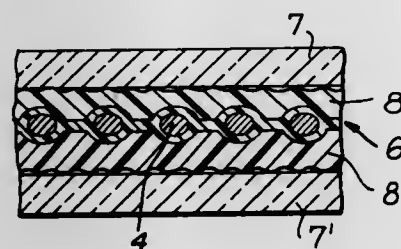
A semiconductor device is made by forming on the surface of an electrical insulating substrate a plurality of spaced regions of a semiconductor material. A masking layer is provided on the surface of each semiconductor region. A layer of an electrical insulating material is coated on the surface of the substrate between and around the semiconductor regions and over the masking layers on the semiconductor regions. A photosensitive resist is coated over the insulating layer. Openings are provided in the resist over each of the semiconductor regions using the masking layers to define the openings. The exposed portions of the insulating layer over each of the semiconductor regions are removed leaving the insulating layer between and around the semiconductor regions.

3,740,281 METHOD OF PRODUCING A LAMINATED GLASS PANEL INCORPORATING AN ELECTRICAL HEATING WIRE ASSEMBLY

Yasubaru Fujiwara, Kanagawa, Japan, assignor to Nippon Safety Glass Co., Ltd., Kawasaki, Kanagawa, Japan
Original application Apr. 11, 1969, Ser. No. 815,435; now Patent No. 3,601,583. Divided and this application June 9, 1970, Ser. No. 57,019

Int. Cl. B32b 17/06; H05b 3/10
U.S. Cl. 156—99

10 Claims



An electrical heating wire assembly for incorporation in a wired laminated glass panel, comprising an array of closely spaced parallel electric heating wires sandwiched between two sheets of films which are not adhesive to the cement to be used for bonding a pair of glass sheets forming said laminated glass panel and at least one of which has said cement coated on the inside face thereof to secure the individual electrical heating wires in positions integral therewith, said electrical heating wire assembly being used in such a manner that after removing the two sheets of films, the array of electrical heating wires carried by the cement layer is laid on the inside face of one of said pair of glass sheets and the other one of the glass sheets is laid on said array of electrical heating wires with

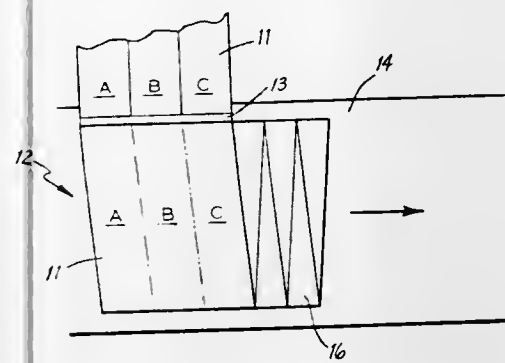
the same cement interposed therebetween, whereby the two glass sheets are bonded together with the array of heating wires incorporated therein.

3,740,282 PROCESS FOR MAKING ARTIFICIAL LEATHER FROM LAPPED FIBROUS STRUCTURES

George A. Watson, Charlotte, N.C., assignor to Celanese Corporation, New York, N.Y.
Original application Jan. 3, 1967, Ser. No. 606,982, now abandoned. Divided and this application Feb. 16, 1971, Ser. No. 115,703

Int. Cl. B32b 31/12, 5/08
U.S. Cl. 156—148

1 Claim



Making stratified lapped fibrous structures such as cross-lapped webs, or yarns, which have layers of different fibers by, for example, feeding a web having side-by-side bands of different fibers to a cross-lapping device.

3,740,283 METHOD OF MAKING A COMPOSITE PRODUCT OF STRENGTHENED, WATER-BLOWN, FLEXIBLE POLYURETHANE FOAM

Edwin Morgan Maxey, Stow, Ohio, assignor to The General Tire & Rubber Company
No Drawing. Filed July 31, 1970, Ser. No. 60,144
Int. Cl. B31c 13/00; B32f 27/40; B29d 27/00

U.S. Cl. 156—162
In the field of flexible foams, the ability of the foam to support a given load (termed "Sac factor" in the foam art) is generally directly proportional to the foam's density. In certain applications such as in rug underlay the Sac factor requirement is set very high and is achieved by densifying an inexpensive rubber foam with fillers. This invention is a method of raising the Sac factor and load carrying capacity of water-blown flexible polyurethane foam by compression and heat treatment thereby allowing it to become competitive with conventional loaded rubber foam.

3,740,284 METHOD FOR MAKING TUBING

John R. Dillon, 209 Bayside Drive, Baltimore, Md. 21222
Filed May 24, 1971, Ser. No. 146,041
Int. Cl. B65h 81/00

7 Claims

An improved method of making a continuous reinforced plastic tubing wherein the tube is made on a mold being continuously formed at the same time by wrapping strips of sheet material about a mandrel at an angle to the elongated axis of the mandrel, the tube being formed by wrapping strips of reinforcing material of predetermined width about the mold at different locations along the mold and at the same angle as the wrapping of the mold strips upon the mandrel and in which the reinforcing material is saturated with a liquid resin to which has been added a catalyst of a nature to cause the liquid resin to harden within a predetermined period under certain specified conditions.

3,740,285 METHOD AND APPARATUS FOR FILAMENT WINDING ABOUT THREE AXES OF A MANDREL AND PRODUCTS PRODUCED THEREBY

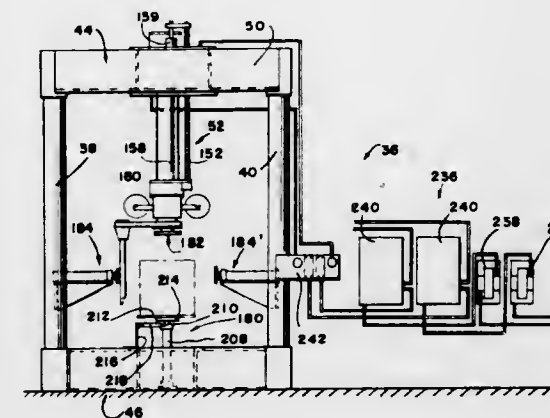
William B. Goldsworthy, 2504 Novato Place, Palos Verdes Estates, Calif. 90274, and John A. Bunnell, 31186 Pedro St., South Laguna, Calif. 92677

Application Mar. 1, 1968, Ser. No. 709,676, now Patent No. 3,701,489, which is a continuation-in-part of application Ser. No. 591,387, Oct. 18, 1966, which in turn is a continuation of application Ser. No. 156,563, Nov. 29, 1961, both now abandoned. Divided and this application Apr. 23, 1970, Ser. No. 43,308

U.S. Cl. 156—173

Int. Cl. B65h 81/02

17 Claims



An apparatus and method for winding Fiberglas filament about three axes of a substantially rectangular mandrel. Five basic methods are employed where the filament feeding head is rotatable and reciprocative with respect to the mandrel and where the mandrel is rotatable and reciprocative with respect to the filament feeding head. Similarly, one of the elements can be rotated and the other thereof can be reciprocative. The winding apparatus includes a supporting table and a series of clamps which are designed to automatically shift and rotate the mandrel to the second and third axis positions for winding about the three axes of the mandrel. A second embodiment of the apparatus employs mandrel tables located at 90° planes with respect to each other. The mandrel tables serve as supports and also as clamping members for changing the position of the mandrel. A plug-in programming mechanism is also provided for operating the apparatus on an automatic basis.

3,740,286 METHOD OF CONTINUOUSLY MANUFACTURING A PLURALITY OF SHEET RECORDS IN A PROCESS

Yasujiro Ban, 42 Tsurumaki-cho, Waseda, Tokyo, Japan

Filed Nov. 5, 1970, Ser. No. 87,141
Claims priority, application Japan, Nov. 17, 1969, 44/91,615

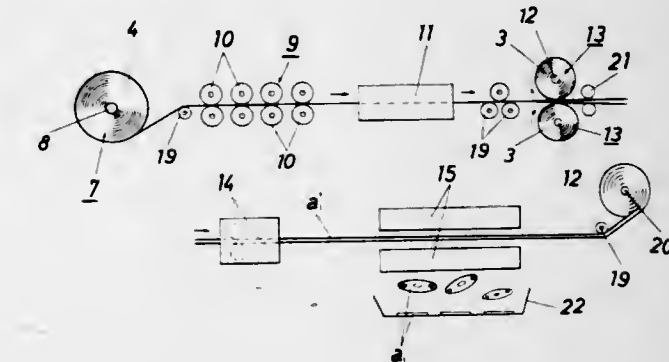
Int. Cl. B31f 1/00

U.S. Cl. 156—219

8 Claims

A method of continuously manufacturing a plurality of sheet records in a process wherein a long length of transparent or opaque synthetic resin basic sheet material is moved in a direction for being processed in steps, in the first step said basic sheet material is printed on the surfaces, in the second step after having been dried said material is laminated with another long length of sheet material of the same quality as said basic sheet material on its surface or surfaces so as to form a film-like sheet to be seen on the printed surface through said sheet material

thereon, in the final step, sound grooves are impressed on the surface or surfaces of the predetermined discs and



pressed for being stamped out and punched to form a sheet record coincidentally with the printed marks.

3,740,287 BONDING PLASTICS WITH PLASMA ARC RADIATION

Robert Milne Eichhorn, Westfield, N.J., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed June 10, 1971, Ser. No. 151,923
Int. Cl. B29c 19/02

U.S. Cl. 156—272

13 Claims

Coated articles having an ethylene polymer coating strongly adhered to the base material are produced by exposing the coated base material to non-ionizing high intensity predominantly continuum light radiation having a source intensity of at least 350 watts per square centimeter steradian with less than 30 percent of the light radiated having a wavelength shorter than 4,000 angstroms units and at least 70 percent of the light radiated having a wavelength longer than 4,000 angstroms units. The exposed coated article can subsequently be heated to further improve adhesion.

3,740,288 METHOD OF PREPARING A TONER DISPENSER

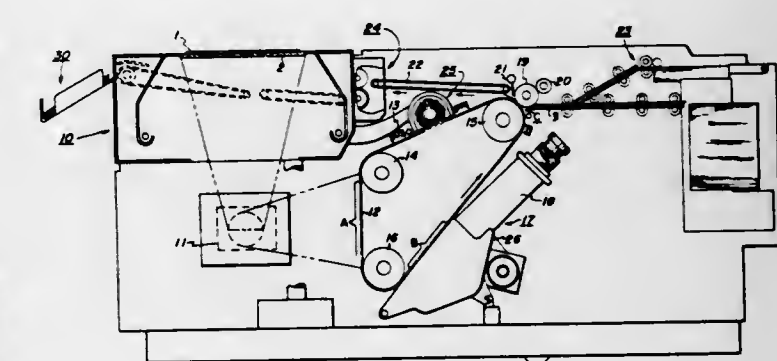
Gopel C. Bhagat, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed June 11, 1971, Ser. No. 152,135

Int. Cl. B29c 19/06, 19/00

U.S. Cl. 156—275

11 Claims



A toner dispenser is disclosed for use in an electrostatic printing apparatus. The dispenser member comprises a support shaft, a porous dispenser roll and an intermediate polymeric adhesive.

3,740,289

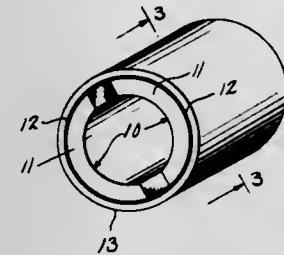
METHOD FOR MAKING ADHESIVE COATED FERRITE MAGNETS

Theodor von Alten, Grafton, Gerald L. Peebles, Cudahy, and James G. Battige, Menomonee Falls, Wis., assignors to Allen-Bradley Company, Milwaukee, Wis. Original application Oct. 10, 1968, Ser. No. 766,420, now Patent No. 3,598,647. Divided and this application Feb. 26, 1971, Ser. No. 119,244

Int. Cl. B32b 31/00; C09j 5/06

U.S. Cl. 156—283

3 Claims



Ferrite magnets are shown with a coating of a dry, solid partially-cured adhesive, so that they can be attached to other articles, such as magnetic steel members, by final cure of the adhesive coating upon the application of heat and pressure. There is also disclosed a method for applying the adhesive in which a layer of powdered dry blend of an adhesive composition is applied to a heated ferrite body, the adhesive melts and becomes partially cured, and the ferrite body is rapidly cooled to hold the adhesive in the partially cured state.

3,740,290

COLOR BOND SURVEILLANCE SYSTEM

David H. Kelsey, Van Nuys, and Charles W. Putzier and John M. McColgan, Los Angeles, Calif., assignors to R & G Sloane Manufacturing Company, Inc., Los Angeles, Calif.

No Drawing. Continuation-in-part of abandoned application Ser. No. 108,204, Jan. 20, 1971. This application Apr. 15, 1971, Ser. No. 134,422

Int. Cl. B32b 7/12; C09j 5/04

U.S. Cl. 156—310

27 Claims

A color bond surveillance system to ensure that adequate adhesive bonding has been accomplished between two surfaces where such adequate adhesive bonding requires the application of separate coatings to each of the mating surfaces, such as a primer coating in addition to the adhesive coating, wherein each of the required separate coatings applied to the mating surfaces contains a different color-precursor compound. The different color-precursor compounds in the coatings applied directly to the mating surfaces are reactive each with the other to produce a color different from the colors of the precursors and coating materials. More than two different color-precursor compounds may be required for the reaction producing the desired color. In such case the additional required reactive color-precursor component or components may be incorporated into one of the coatings directly applied to one of the two mating surfaces or into additional coatings, such as an adhesive coating, applied over the primary coating on one or both of the mating surfaces. After proper application of the separate coatings separately containing the color-developing additives and contacting of the so-treated surfaces to be bonded, the color-precursor components react to produce the desired color, thereby demonstrating proper adhesive installation.

3,740,291

METHOD AND APPARATUS FOR APPLYING A COATING TO A TUBULAR MEMBER

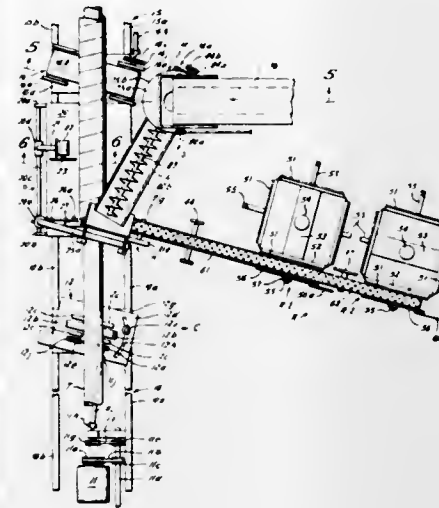
James B. Mallard, 609 Ripple Creek, Houston, Tex. 77027

Continuation-in-part of abandoned application Ser. No. 761,151, Sept. 20, 1968. This application Jan. 20, 1971, Ser. No. 108,020

Int. Cl. B32b 31/06; B65h 81/00

U.S. Cl. 156—392

4 Claims



A method and apparatus for applying a coating under compression to a tubular member permits improved adhesion of the coating to the tubular member with improved consistency and strength of the applied coating.

3,740,292

TIRE BUILDING MACHINE

Jean Leblond, Compiègne, France, assignor to Uniroyal Englebert France S.A., Paris, France

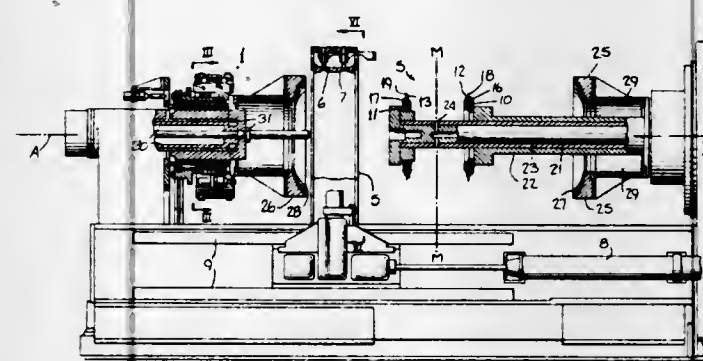
Continuation of abandoned application Ser. No. 717,786, Apr. 1, 1968. This application Feb. 24, 1971, Ser. No. 118,551

Claims priority, application France, July 6, 1967, 113,452

Int. Cl. B29h 17/10, 17/18, 17/37

U.S. Cl. 156—396

28 Claims



A tire building machine, comprising a radially expandable and contractable, breaker-tread assembly building drum having a magnetized outer surface for retaining building alignment of metallic cord breaker plies during building of the assembly, a pair of variably spaced tire carcass support and shaping discs coaxial with but spaced from the building drum and providing for direct inflation of a first stage carcass supported thereon, a radially expandable and contractable and axially movable transfer ring for transferring breaker-tread assemblies from the drum to carcasses on the shaping discs, and movable, conical, shaping rings engageable with the outer sidewalls

of the carcass during expansion of the same for limiting such expansion to a symmetrically centered pattern with respect to the breaker-tread assembly and the beads of the carcass.

3,740,293

TIRE BUILDING MACHINE

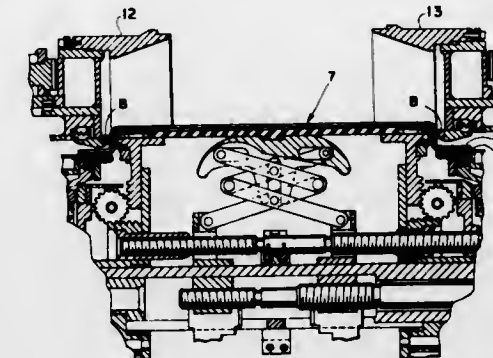
Thomas C. Jones, Salem, and Armindo Cantarutti, Akron, Ohio, assignors to NRM Corporation, Akron, Ohio

Filed May 17, 1971, Ser. No. 143,846

Int. Cl. B29h 17/16, 17/26

U.S. Cl. 156—415

31 Claims



A tire building machine having an expandable drum with separate crown and shoulder drives for controlling the movement of the crown and shoulder portions to shape the plies to the full tire shape and maintain uniform spacing of the cords. The outboard end of the drum is supported by and latched to a tailstock tube for the transfer of axial forces from the tailstock to the drum during the building operation. Axial movement of the drum shoulders is adjustably controlled by interconnected adjustable stops mounted on the tailstock and main housing with piston cylinder assemblies resisting movement of the shoulders in different directions to control radial expansion and contraction of the shoulders during the building operation in cooperation with the shoulder drive.

3,740,294

APPARATUS FOR THE PRODUCTION OF WOUND PIPE OF THERMOPLASTIC SYNTHETIC MATERIAL

Michael Wienand, Siegburg, Klaus Jensen, Buisdorf, Franz Primessing, Mondorf, and Franz-Werner Alfter, Siegburg, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

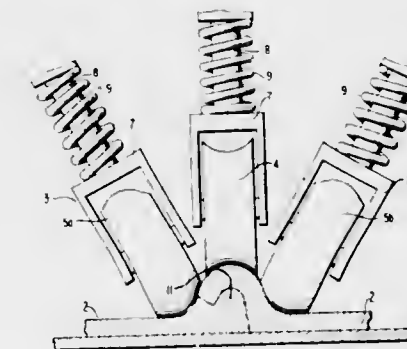
Filed Sept. 3, 1970, Ser. No. 69,251

Claims priority, application Germany, Sept. 3, 1969, P 19 44 600.5

Int. Cl. B31c 13/00

U.S. Cl. 156—429

11 Claims



An apparatus for producing a wound pipe of thermoplastic synthetic resin, wherein a profiled band of thermoplastic, having one edge provided with a tongue and the

other edge thereof provided with a bead containing a groove for receiving said tongue, is wound spirally in the softened condition about a rotating mandrel whereby the tongue of a preceding winding lap is continuously received in the groove of the bead of the immediately subsequent winding lap, comprising a rotatable drum means, at least one pressure roll associated with said drum means and a means, preferably a series of take-off rolls, for removing the finished pipe from the drum means. The pressure roll comprises three sectional rolls having a contour which corresponds to the junction point between successive windings of thermoplastic, the three sectional rolls substantially covering the junction point. Using this device, a uniform contact pressure and, thus, a uniform and satisfactory welding bond is obtained between the tongue and groove thermoplastic windings.

3,740,295

APPARATUS FOR ADHERING A CUE TIP TO A BILLIARD CUE OR THE LIKE

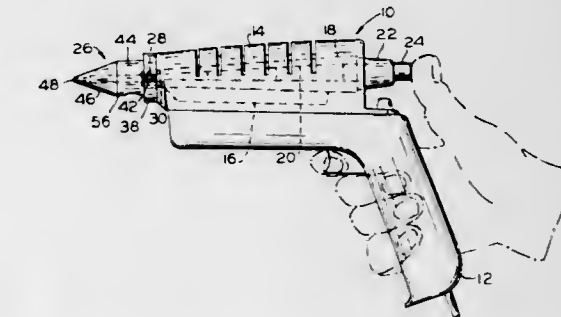
Harold H. Brown, 1606 NE. 60th, Vancouver, Wash. 98665

Filed Dec. 21, 1970, Ser. No. 100,182

Int. Cl. B32b 31/00

U.S. Cl. 156—499

10 Claims



A tool for heating thermoplastic adhesive material to a plastic condition is provided by an elongated frustoconical nozzle by means of which plastic material may be deposited on the end of a billiard cue. The cue end is previously preheated by inserting the same into a recessed socket in the side of the heated nozzle. After deposition of plastic material on the cue end, a cue tip is positioned thereupon and centered employing a tip pilot by means of which pressure also may be exerted between the tip and the cue until the cue tip becomes adhered to the cue.

3,740,296

AUTOMATIC SPLICING ROLLSTAND

John J. McDonald, Park Ridge, N.J., assignor to John C. Motter Printing Press Co., York, Pa.

Filed May 10, 1971, Ser. No. 141,789

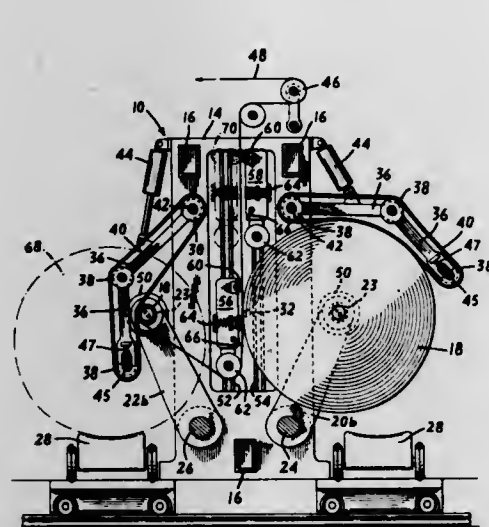
Int. Cl. B65h 19/08

U.S. Cl. 156—504

10 Claims

A rollstand for supplying a continuous web at substantially constant speed and tension from a succession of web supply rolls. The rollstand includes a frame which supports two pairs of spider arms, each pair being movably hinged at one end and provided with spindles at the other for rotatably supporting one web supply roll. Connected to each pair of spider arms is a control device for raising and lowering that pair of arms to permit the pick-up and discharge of its web supply roll. The rollstand further includes two drivebelt systems each of which is movable into and out of frictional engagement with one of the two web supply rolls held by the spider arms. These drivebelt systems are operative to rotate the contacted roll with a substantially constant circumferential speed. In addition, the rollstand is provided with

two splicing devices for pasting the running web supplied by a first roll to the web supplied by a second and for a doctor blade, and passing the web over a heated drying drum from which it is stripped and passed over a warm-



cutting the web supplied by the first roll just prior to the moment when the first roll has expired.

3,740,297

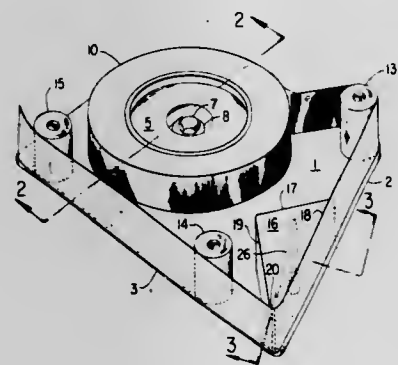
MASKING TAPE APPLICATOR
Alfred E. Vidinsky, 6245 Glenwood Drive,
Mentor, Ohio 44060

Filed Dec. 29, 1971, Ser. No. 213,405

Int. Cl. B32b 31/00; B44c 7/00

U.S. Cl. 156—523

5 Claims



A manually operated applicator for transferring pressure sensitive masking tape from a supply roll onto an object with ease and precision. The applicator includes means for rotatably supporting the roll of tape and guide means for causing the tape to serially pass over one or two dispensing planes which intersect at an acute angle while being applied to an object. Disposed within the applicator is a tape cut-off blade, which upon operation is projected through the vertex of said planes and is then automatically retracted into the applicator.

3,740,298

METHOD AND MACHINE FOR THE MANUFACTURE OF WALLPAPER

Derek G. Swindells, Billington, England, assignor to Emmerson & Renwick Limited, Accrington County of Lancaster, England

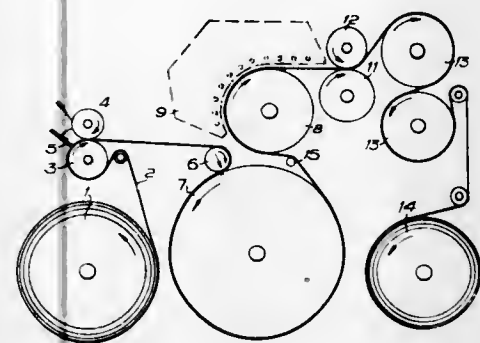
Filed Mar. 2, 1970, Ser. No. 15,580

Int. Cl. B32b 31/08, 31/20

U.S. Cl. 156—553

4 Claims

A machine for the production of vinyl wallpaper in which a plastic paste such as P.V.C. is applied to one face of the web or substrate from a reservoir by a pair of coating rollers, one of the rollers being cleaned by



ing roller before passing through embossing rollers and finally through cooling rollers.

3,740,299

HAND DISPENSER AND APPLICATOR FOR ADHESIVE TICKETS

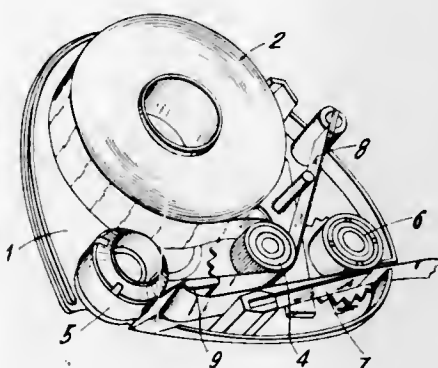
Carl Schroter, Rommelshausen, and Eckhard Mulfinger, Stuttgart-Uhlbach, Germany, assignors to Heinrich Hermann, Stuttgart-Wangen, Germany

Filed Dec. 16, 1971, Ser. No. 208,641

Int. Cl. B44c 7/00

U.S. Cl. 156—577

12 Claims



The rolling of the applicator of a dispensing device along a surface on which adhesive tickets are to be applied drives a mechanism that pulls a carrier tape, on which the adhesive tickets are supplied, from a supply roll, by causing a tension roll indirectly geared to the applicator roll to pull the carrier tape first around a take-off roll, also geared to the applicator roll, and then around the rounded edge of a guide vane, at which point the tickets carried on the tape are projected against the applicator roll and drawn under it. The tickets are separated from the carrier tape and then torn away from the succeeding tickets because the drive of the take-off and tension rolls is such that the peripheral velocity of the applicator roll is higher than the velocity of the tape in the neighborhood of the guide vane.

3,740,300

DEVICE FOR CONNECTING PARALLEL BANDS OR OPPOSITELY DISPOSED WALL PORTIONS OF A TUBE BY TRANSVERSE WELDING SEAMS
Hans Heinzer, Beringen, Switzerland, assignor to Schweizerische Industrie Gesellschaft, Neuhausen am Rheinfall, Switzerland

Filed June 3, 1971, Ser. No. 149,659

Claims priority, application Switzerland, June 8, 1970, 8,584/70

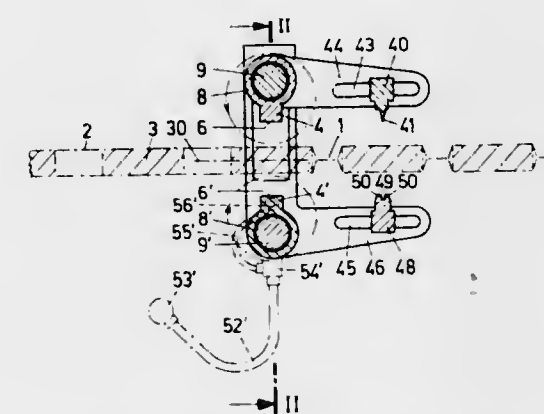
Int. Cl. B30b 15/34; B32b 31/00

U.S. Cl. 156—583

9 Claims

The invention relates to article packaging machines and particularly to a device for connecting the oppositely disposed walls of a flexible tube containing articles in

spaced relation by transverse welding seams produced by continuously moving welding dies between each two articles in the tube. The oppositely disposed welding dies are moved toward one another for pressing the opposite walls of the tube together by two spaced parallel crank shafts on the crank pins of which are arranged hubs to which the welding dies are fixedly attached. The welding dies are positively guided to perform vertical movements toward and away from the tube and have flat welding



surfaces engaging the tube over a definite area to form a strip-like welding seam. At least one of the parallel crank shafts is adjustable to vary the transverse distance between the same, and the welding dies are so controlled that in addition to their movement toward and away from each other they perform also a translatory circular movement in vertical planes so that when the welding dies engage the tube they move with the same lengthwise a definite distance.

3,740,301

ELONGATED LIGHTWEIGHT STRUCTURE

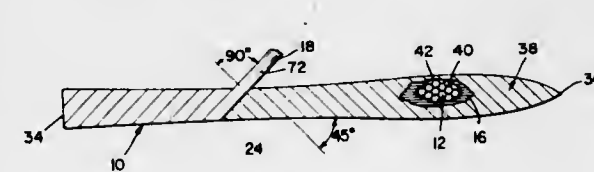
Lindley Manning and Robert B. McKee, Reno, Nev., Hubert Zemke, Dublin, Calif., and Bruce M. Douglas, Sparks, Nev., assignors to The Tensor Corporation, Reno, Nev.

Continuation-in-part of abandoned application Ser. No. 55,768, July 17, 1970. This application July 14, 1971, Ser. No. 162,600

Int. Cl. B32b 5/12

U.S. Cl. 161—58

13 Claims



A lightweight ski constructed of a honeycomb core with its ribbon direction parallel to the length of the ski, first reinforcing fibers extending parallel to the ski length, and second reinforcing fibers disposed diagonally completely around the ski. The fibers are bonded to each other and to the honeycomb core.

3,740,302

SPRAY SPUN NONWOVEN SHEETS

John W. Soehngen, Berkeley Heights, N.J., assignor to Celanese Corporation, New York, N.Y.

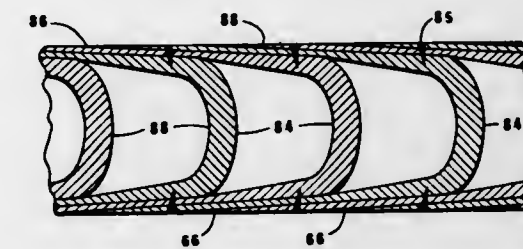
Application Dec. 8, 1970, Ser. No. 96,041, now Patent No. 3,676,239, which is a continuation-in-part of application Ser. No. 580,994, Sept. 21, 1966, now Patent No. 3,607,588. Divided and this application May 1, 1972, Ser. No. 249,001

Int. Cl. B32b 5/12

U.S. Cl. 161—59

12 Claims

A three-dimensional nonwoven fibrous assembly having an upper and lower surface indented to give a puckered



surfaces, having a series of spaced projections on their respective surfaces which constitute the primary collection loci.

3,740,303

ARTIFICIAL PLAYING SURFACE

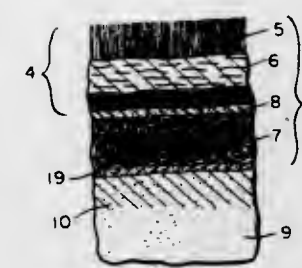
Thomas Alderson, Wilmington, and James N. Newnam, Hockessin, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 11, 1971, Ser. No. 105,168

Int. Cl. E01c 7/00

U.S. Cl. 161—67

1 Claim



An artificial playing surface is provided which comprises an artificial grass layer having in conjunction therewith a bonded batt comprising synthetic fibers, said batt having a density between 1.88 and 3.75 pounds per cubic foot and a thickness between 3/8 inch and 3/4 inch. These in turn are adhered to a well-drained foundation. The artificial grass layer and batt composite comprise a mat suitable for the formation of the above-described surface.

3,740,304

SYNTHETIC THREAD COMPOSED OF BUNDLED SPLIT TAPE

Munehiro Okumura, Eiji Umemura, and Tatsuki Nishikawa, Otake, Nobuaki Nishikawa, Gifu, and Hiroyuki Shimoyama, Otake, Japan, assignors to Mitsubishi Rayon Company Limited, Tokyo, Japan

Filed Sept. 21, 1970, Ser. No. 73,777

Claims priority, application Japan, Oct. 20, 1969, 44/83,716; Oct. 25, 1969, 44/85,396

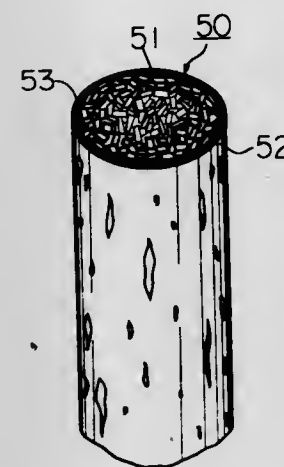
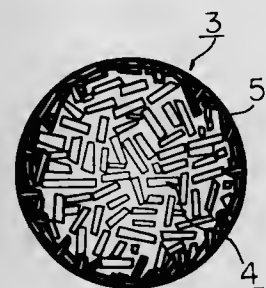
Int. Cl. D02g 3/06; D04h 3/08

U.S. Cl. 161—175

17 Claims

The unique synthetic thread of the present invention has a high filling density of 35 to 90% and consists of one or more thermoplastic split tapes of 5 to 300μ thickness. The split tape essentially consists of polyolefin and is composed of numerous fibrous unit strips mutually connected in a network. In the thread, the split tape is tightly bundled in such a manner that the fibrous unit strips located on the periphery portion of the bundle are mutually melt-adhered at point of contact to each other. The unique thread of the present invention is manufactured by passing the split tape through one or more heating dies while being in contact with the inside surface of the heating die heated at a temperature higher by at

least 10° C. than the melting point of the tape so as to melt-adhere the fibrous unit strips brought into contact



with the heating die at points of contact to each other and thus, to tightly bundle the tape into a thread body.

3,740,305

COMPOSITE MATERIALS BONDED WITH SILOXANE CONTAINING POLYIMIDES

John T. Hoback and Fred F. Holub, Schenectady, N.Y., assignors to General Electric Company

No Drawing. Filed Oct. 1, 1971, Ser. No. 185,904
Int. Cl. B32b 27/04, 17/06; C09j 3/00

U.S. Cl. 161—183 15 Claims

Composite materials are prepared by treating materials with a siloxane containing polyamic acid block copolymers and thereafter converting the polyamic acid to the polyimide state. The polyamic acid block copolymers are obtained from the reaction of an organic diamine, an organic tetracarboxylic dianhydride, and a polysiloxane diamine in a suitable organic solvent.

3,740,306

MULTIPLE-LAYER PACKAGING FILM WITH INTERMEDIATE PROTECTIVE LAYER

Paul O. Kosbab, Saukville, and Robert F. Roach and Paul A. Laumann, Milwaukee, Wis., assignors to Milprint, Inc., Milwaukee, Wis.

Filed Aug. 6, 1971, Ser. No. 169,710
Int. Cl. B65d 31/02; B32b 15/06, 27/32
U.S. Cl. 161—214 25 Claims



A packaging film capable of being formed into a collapsible container, such as a toothpaste tube, that

includes layers of metal foil, casein admixed with an elastomeric compound, adhesive and heat sealable material joined together, and which is characterized as being able to withstand prolonged storage of fluoride-containing toothpastes without adverse delamination of the layers. The casein-elastomer layer acts as a protective layer that provides retardation of delamination of the other layers of the film when used in a package for fluoride toothpastes.

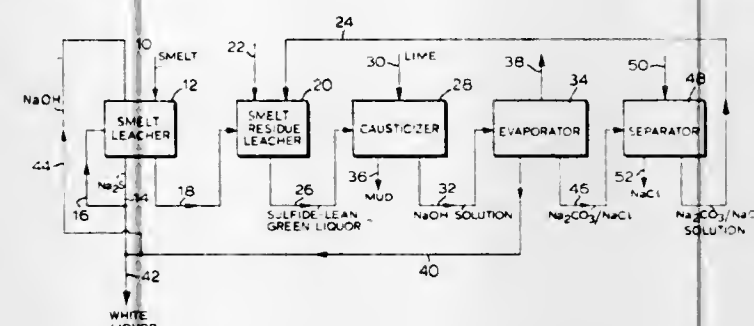
3,740,307

RECOVERY OF SODIUM CHLORIDE FROM WHITE PULPING LIQUOR

William H. Rapson, Scarborough, Ontario, and Douglas W. Reeve, Toronto, Ontario, Canada, assignors to Electric Reduction Company of Canada, Limited, Toronto, Ontario, Canada

Filed Dec. 21, 1970, Ser. No. 100,082
Claims priority, application Great Britain, Dec. 30, 1969, 63,174/69

Int. Cl. D21c 3/00, 11/12 9 Claims



White liquor is formed from a green liquor made up from a solid mass containing sodium carbonate and sodium chloride and an aqueous material. The sodium carbonate content is substantially converted to a white liquor containing sodium hydroxide, sodium chloride and uncausticized sodium carbonate. The white liquor is concentrated to deposit therefrom sodium carbonate and sodium chloride. An aqueous solution containing at least part of the deposited sodium carbonate and sodium chloride is formed and recycled as part of the aqueous material.

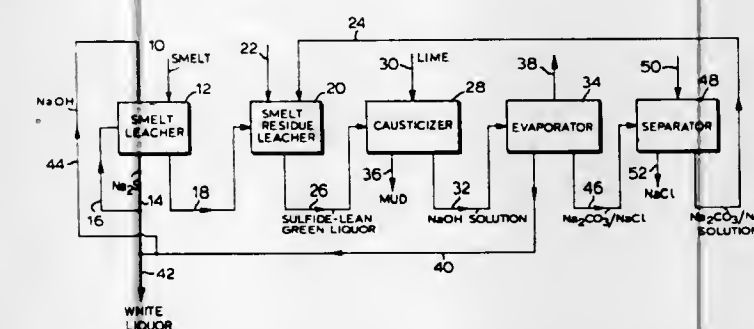
3,740,308

RECOVERY OF SODIUM CHLORIDE FROM SPENT PULPING LIQUORS

William H. Rapson, Scarborough, Ontario, and Douglas W. Reeve, Toronto, Ontario, both of Canada, assignors to Electric Reduction Company of Canada, Limited, Toronto, Ontario, Canada

Filed Dec. 21, 1970, Ser. No. 99,968
Claims priority, application Great Britain, Dec. 30, 1969, 63,173/69

Int. Cl. D21c 3/00, 11/12 6 Claims



A sodium sulfide and sodium chloride-containing smelt formed from waste pulping liquor is fractionated to separate the sodium sulfide from the sodium chloride.

3,740,309

PROCESS FOR TREATING AMMONIA-BASE WASTE SULFITE LIQUOR

Toivo Lahtvee, 7 Gatesview Ave., Scarborough, Ontario, Canada; Bal Krishan Sethi, 253 Wellesley St. E., Toronto, Ontario, Canada; and William Hubbard Stark, The Edgecliff, Apt. 1705, 2200 Victory Parkway, Cincinnati, Ohio 45206

No Drawing. Filed Sept. 22, 1971, Ser. No. 182,831
Int. Cl. D21c 11/02

U.S. Cl. 162—36 14 Claims

The amount of calcium contained in ammonia-base waste sulfite liquor is reduced by precipitating the calcium as calcium sulfite and separating the precipitate from the remaining waste sulfite liquor solution. The precipitation is caused by dissolving in the waste sulfite liquor (1) additional calcium, (2) magnesium, and (3) a source of sulfite ions. By "additional" calcium is meant amounts greater than that contained in the ammonia-base waste sulfite liquor obtained from the pulping process.

3,740,310

DELIGNIFICATION AND BLEACHING OF CELLULOSIC PULP CONTAINING PROTECTOR WITH OXYGEN IN THE PRESENCE OF ALKALI

Leon Smith, Petersburg, Springs, and Henry Hugo Myburgh, Valeriedene, Johannesburg, Republic of South Africa, assignors to South African Pulp and Paper Industries Limited, Johannesburg, Republic of South Africa, and l'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procédes Georges Claude, Paris, France

No Drawing. Filed Oct. 14, 1970, Ser. No. 80,739
Claims priority, application Republic of South Africa, Oct. 15, 1969, 69/7,269

Int. Cl. D21c 9/10 6 Claims

A method of delignifying and bleaching a chemical or semi-chemical cellulosic pulp comprising the steps of intimately admixing a flocculating type of protector which tends to produce coherent floc in the presence of an hydroxide other than ammonium hydroxide, with pulp under conditions which are substantially free of any hydroxide other than optionally ammonium hydroxide. The protector comprises up to 3% by weight of the pulp on a dry basis. The protector-containing pulp is subjected to the action of oxygen gas in the presence of an alkaline medium at elevated temperature and superatmospheric pressure. The alkaline medium is constituted by a substance, preferably sodium hydroxide, other than the flocculating protector which may comprise at least one substance selected from the group comprising magnesium oxide and a magnesium salt.

3,740,311

DELIGNIFICATION OF CELLULOSIC PULP WITH AMMONIA GAS FOLLOWED BY HEATING IN THE PRESENCE OF OXYGEN

Norman Liebergott, Chomedey, David W. Clayton, Hudson, and Raimbault M. A. T. de Montigny, deceased, by Madeleine C. de Montigny, Baie d'Urfe, Arthur de Gaspe Tache, Montreal, and Bernard W. Burgess, Senneville, Canada, executors, assignors to Pulp and Paper Research Institute of Canada, Pointe Claire, Quebec, Canada

No Drawing. Filed May 24, 1971, Ser. No. 146,297
Int. Cl. D21c 9/10

A procedure for the delignification of a cellulosic pulp which comprises first uniformly distributing ammonia gas in the moisture of a fluffed pulp of a consistency of about 15 to about 40% and then, in the absence of intermediate washing, the gaseous ammonia-treated pulp is heated in the presence of oxygen maintained at a pres-

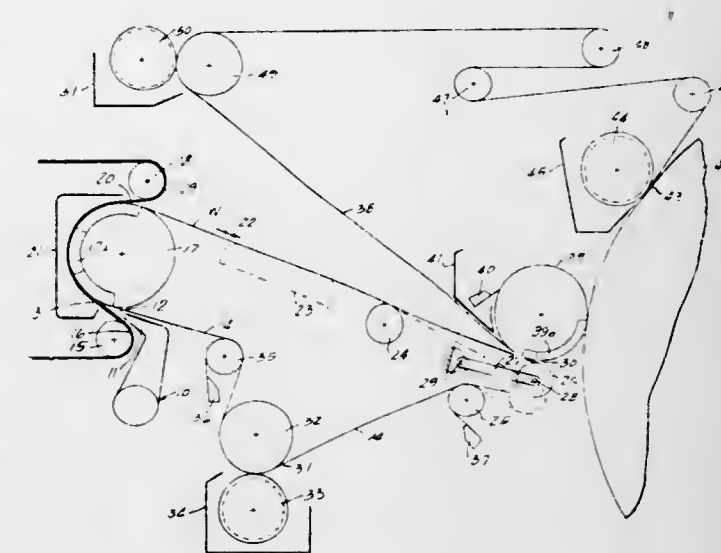
sure of about 4 to about 12 bars at a temperature of about 85 to about 135° C. for a time of about 10 to about 360 minutes to provide a pulp with a final pH of 9.6 to 10.4.

3,740,312

STRUCTURE FOR THREADING PAPER MACHINE

Dennis C. Cronin, Rockton, Ill., assignor to Beloit Corporation, Beloit, Wis.
Filed Oct. 1, 1971, Ser. No. 185,705
Int. Cl. D21f 2/00

U.S. Cl. 162—306 11 Claims



A device for threading a paper machine which includes a pair of closed loop carrier members mounted on a series of supporting rolls and arranged in such a way that a paper web may be transferred from one of the carriers to the other. One of the carriers may take the form of a moving wire onto which a paper web or the like is placed. The web and the wire then move continuously together until the combination of wire and web come in contact with the second carrier which may be made of felt or other similar fluid absorbent material. The two closed carrier loops are moved into proximity with one another such that the paper web traveling along with the first carrier may be readily transferred to the second carrier and moved onward to further machine processing stages. The felt carrier is provided with a roll which is rotatably mounted and which urges the felt carrier into contact with the wire carrier. The wire carrier has a roll which is rotatably mounted on a pivot arm which may be pivoted to move the associated wire carrier into and out of proximity with the adjacent felt carrier. The pivotally mounted roll is supported radially inwardly of the loop formed by the associated wire carrier such that pivotal movement of the roll will attempt to slacken the loop. A further roll is mounted exteriorly of the loop in such a way as to take up the slack which is developed by the pivotal action of the pivotally mounted roll.

3,740,313

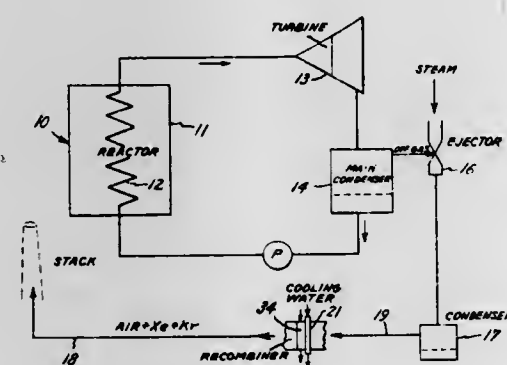
BURNER-FLAME ARRESTER FOR BURNING OFF-GAS FROM A BOILING WATER REACTOR POWER PLANT

George E. Moore, Scotia, and Lee H. Tomlinson, Schenectady, N.Y., assignors to General Electric Company
Original application Oct. 29, 1968, Ser. No. 771,467, now Patent No. 3,660,041. Divided and this application July 1, 1971, Ser. No. 158,978
Int. Cl. G21c 19/00

U.S. Cl. 176—37 4 Claims

A cooled porous plug device in combination with a continuous ignition source is used for burning off explo-

sive mixtures of contaminated radiolytic hydrogen-oxygen gas flow discharged from the steam turbine cycle of a boiling water nuclear power reactor. Optional use of a second



cooled porous plug is shown, the second porous plug being located downstream of the burner to function as a heat exchanger to cool the combustion products for controlled condensation of the water vapor.

3,740,314

FUEL PIN FOR A LIQUID-METAL-COOLED FAST-BREEDER NUCLEAR REACTOR

Lawrence A. Neimark, Elmhurst, Ill., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

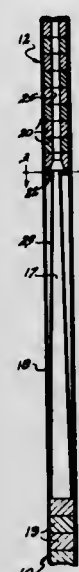
Filed Jan. 28, 1972, Ser. No. 221,745

Int. Cl. G21c 3/18

U.S. Cl. 176-68

4 Claims

An inherently safe fuel pin for a liquid-metal-cooled fast-breeder nuclear reactor is designed so that axial movement of molten fuel is enhanced and return of the molten fuel to the fuel zone is prevented if a sudden reactivity insertion causes melting of the fuel. The fuel pin includes an annular upper



blanket separated from a solid fuel zone by a conical nozzle the upper nose of which is welded into a grid plate which extends across the fuel pin and supports the annular upper blanket. Molten fuel is ejected into the central opening of the annular blanket through the conical nozzle which also prevents molten fuel from reentering the fuel zone.

3,740,315 PROCESS FOR THE REACTION AND SEPARATION OF COMPONENTS UTILIZING A LIQUID SURFACTANT MEMBRANE AND AN ENZYME CATALYST

Norman N. Li, Edison; Raam R. Mohan, Berkeley Heights, both of N.J., and Donald R. Brusca, Falls Church, Va., assignors to Esso Research and Engineering Company, Linden, N.J.

Filed May 7, 1971, Ser. No. 141,367

Int. Cl. C12b 1/00

U.S. Cl. 195-2

60 Claims

Components of a feedstream are reacted and separated by a liquid membrane process which utilizes an enzyme as the catalyst for the reaction. The enzyme may be present in the feedstream, solvent, or liquid membrane phase; preferably the enzyme will be in an aqueous phase. In a preferred embodiment, an aqueous feedstream, containing phenol, is contacted with a liquid surfactant membrane comprising a high molecular weight isoparaffin and sorbitan monooleate surrounding an aqueous interior phase comprising polyphenol oxidase, whereby the phenol permeates the liquid surfactant membrane and is oxidized in the interior phase.

3,740,316

HYDROLYSIS OF STEROIDAL 21-CARBONATES

Hershel L. Herzog, Glen Ridge, Lois Weber, Springfield, and Elliot L. Shapiro, Cedar Grove, N.J., assignors to Schering Corporation, Bloomfield, N.J.

No Drawing. Filed Jan. 27, 1971, Ser. No. 110,340

Int. Cl. C07c 167/00

U.S. Cl. 195-51 R

12 Claims

This invention relates to a process for the enzymatic hydrolysis of a C-21 carbalkoxy steroid of the pregnane series by pancreatin, and provides a means for preparing 21-hydroxy-17 α -acyloxy corticosteroids from 21-carbalkoxy-17 α -acyloxy corticosteroids.

3,740,317

DEGRADATION OF SIDE CHAIN IN SAPOGENINS

Eiji Kondo, Ikeda, and Takashi Mitsugi, Takaishi-cho, Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan. No Drawing. Application Sept. 2, 1969, Ser. No. 854,769, now Patent No. 3,665,022, which is a continuation-in-part of abandoned application Ser. No. 597,216, Nov. 28, 1966, Divided and this application Feb. 16, 1972, Ser. No. 226,970

Claims priority, application Japan, Nov. 26, 1965, 40/72,771

Int. Cl. C07c 167/18

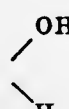
U.S. Cl. 195-51 G

15 Claims

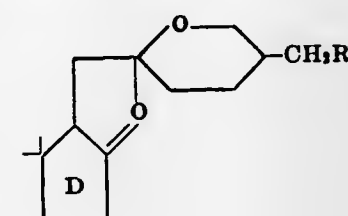
Androstane derivatives wherein the D ring is as follows:



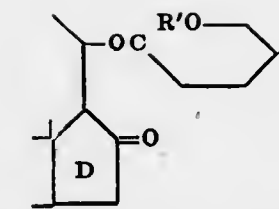
=X being =O or



are obtained by the degradation by the action of a fungus of the Fusarium genus of the side chain of a steroidal sapogenin of the partial formula



or



wherein R is a hydrogen atom or OR' group and R' is a hydrogen atom or an enzymatically acceptable acyl group. The androstane derivatives are useful as intermediates for preparing a wide variety of androsteranes and estranes, including testosterone, estrone, estradiol, etc. in per se known manner.

3,740,318

COMPOSITION OF MATTER AND PROCESS

Bruce W. Churchill, Comstock Township, Kalamazoo County, Robert Steel, Kalamazoo, and David R. Buss, Portage, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Feb. 19, 1971, Ser. No. 117,056

Int. Cl. C12d 13/06

U.S. Cl. 195-65

9 Claims

A microbiological process for preparing alkaline protease using asporogenous bacteria of the genus Bacillus. This process produces protease with substantially no viable bacterial spores. The protease enzyme is useful as an additive to detergents.

3,740,319

BIOLOGICALLY ACTIVE SUBSTANCE, PEPSTATIN AND PRODUCTION PROCESSES THEREOF

Hamao Umezawa and Tomio Takeuchi, Tokyo, Takaaki Aoyagi, Fujisawa, and Masa Hamada, Kenji Maeda, and Yoshiro Okami, Tokyo, Japan, assignors to Zaidan Hojin Biseibutsu Kagaku Kenkyu Kai, Tokyo, Japan. Filed May 14, 1970, Ser. No. 37,165

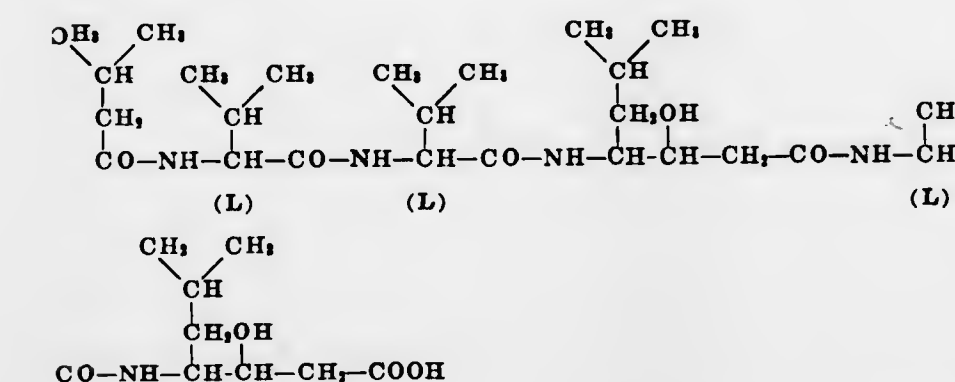
Claims priority, application Japan, June 13, 1969, 44/46,166

Int. Cl. C12d 13/02

U.S. Cl. 195-80 R

5 Claims

A process for the production of pepstatin having the following structure:



which comprises cultivating a strain of Streptomyces producing pepstatin in a nutrient medium under aerobic condition until substantial activity to inhibit pepsin is imparted to said cultured medium and recovering said pepstatin from said cultured medium.

3,740,320

APPARATUS AND METHOD FOR MEASURING THE AMOUNT OF GAS ABSORBED OR RELEASED BY A SUBSTANCE

Robert M. Arthur, 344 Potomac Ave., Terre Haute, Ind. 47803

Filed Jan. 25, 1971, Ser. No. 109,256

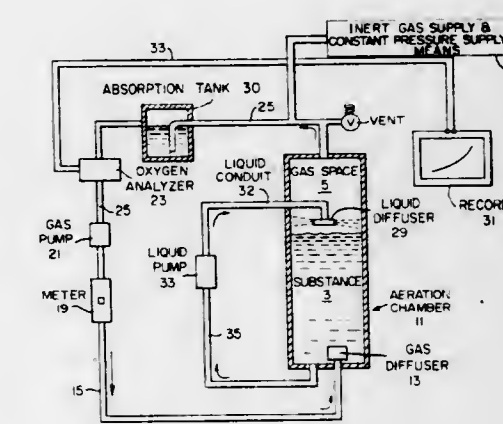
Int. Cl. C12k 1/00

U.S. Cl. 195-103.5 R

10 Claims

This invention relates to an apparatus and method for measuring the amount of gas absorbed or released by a

substance and in particular for measuring the biological activity of bacterial cultures. The apparatus and method



bottom residue remaining after vacuum distilling the trimethylpropane from the resulting reaction mixture to steam distillation with superheated steam under a reduced pressure to obtain a distillate containing ditrimethylpropane. The optimum temperatures for carrying out such a distillation are 160–220° C., and the preferred pressure range is 30–100 mm. Hg.

3,740,323

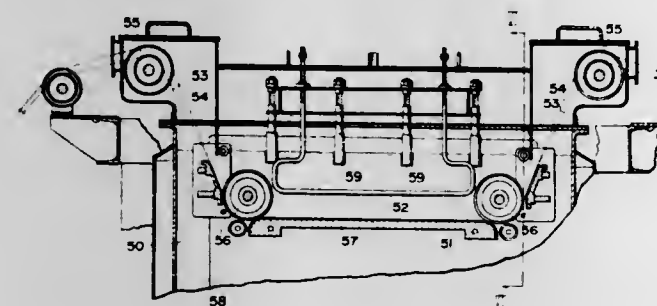
MOLTEN SALT ELECTROPLATING METHOD
Akira Miyata, Hideyo Okubo, Chikayoshi Tomita, and Akio Suzuki, Kawasaki, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 26, 1970, Ser. No. 83,714

Claims priority, application Japan, Jan. 30, 1970,

45/7,967

Int. Cl. C23b 5/56; B01k 3/00
U.S. Cl. 204—25

1 Claim



Method and apparatus for electroplating a plurality of articles such as bolts, nuts, rivets, machine screws, and the like, in a molten salt bath wherein the articles are located in a spaced relationship on a cathode member in the bath. The articles are in line or face electrical contact with the cathode member and are caused to rotate on the cathode member. Preferably, relative movement is imparted between the cathode member and a holding means for the articles to cause the rotation of the articles relative to the cathode member.

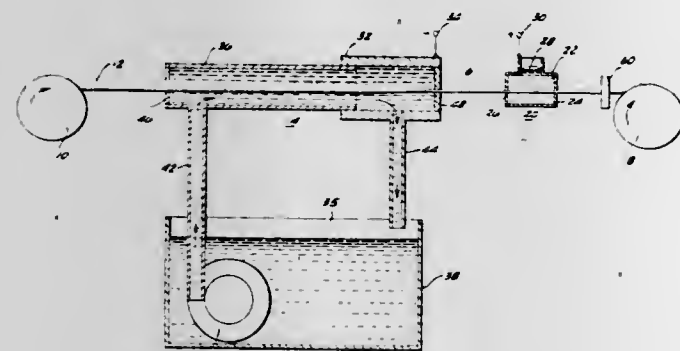
3,740,324

MAGNETIC WIRE ELECTROPOLISHING PROCESS IMPROVEMENT
Tommy G. Leshner, Fullerton, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Jan. 29, 1971, Ser. No. 110,918

Int. Cl. C23b 3/06; B01k 3/00

U.S. Cl. 204—129.7

7 Claims



A process is disclosed for improving the surface finish quality of relatively small diameter magnetic storage wire produced by drawing relatively large diameter raw stock wire through successive diameter reducing dies. An improvement in the quality of the wire is obtained by electropolishing the wire to reduce the size and density of surface blemishes which occur in the wire in the form of

small holes and cracks. Appropriate electrolyte and apparatus for performing the electropolishing process is also disclosed.

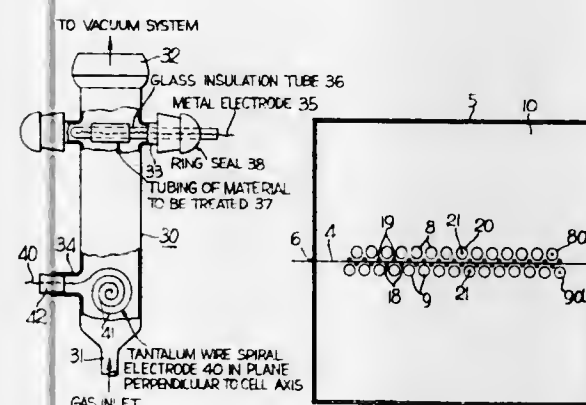
3,740,325

SURFACE FLUORINATED HYDROGEN CONTAINING MATERIAL AND PROCESS FOR MAKING
Jean P. Manion, Milwaukee, and Daniel J. Davies, Mukwonago, Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.
Original application Aug. 1, 1969, Ser. No. 846,767, now Patent No. 3,674,667. Divided and this application Sept. 22, 1971, Ser. No. 188,672

Int. Cl. B01k 1/00; C08f 47/22

U.S. Cl. 204—169

6 Claims



A manufactured material and a process for making the material is disclosed. The manufactured material is a hydrogen containing substance having a fluorinated surface and in which hydrogen atoms, which may be present in hydroxyl radicals attached to a carbon atom chain, have been replaced in the surface of the material by fluorine atoms or radicals, and with such fluorinated surface of the material containing at least about 2 micrograms of such fluorine per cm.² of surface area. The process for making such a material includes the steps of selecting a substrate containing hydrogen atoms which may be present in hydroxyl radicals attached to a carbon atom chain, selecting a gas containing fluorine atoms or radicals, placing the selected substrate between electrodes in a flowing atmosphere of the selected gas at subatmospheric pressure, and subjecting the substrate to an electrodeless discharge of at least about 0.2 k.w.h./yard² to chemically activate both the surface of the substrate and the gas, and exchange the fluorine atoms or radicals for surface hydrogen atoms or radicals to produce a material with a surface, which compared to the substrate before this process treatment, is more water repellent (without sealing pores), is more corrosion and soil resistant, more chemically inert, more like the relatively expensive polytetrafluoroethylene. When the substrate is a material having a relatively inert surface, such as polyethylene, the process is disclosed as including an initial treatment step that involves ion bombardment of the substrate in helium gas to activate the surface before the surface is treated in the fluorine containing gas.

3,740,326

CHLORIDE SELECTIVE ELECTRODE
Willard T. Grubb, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed June 18, 1971, Ser. No. 154,401

Int. Cl. G01n 27/46

U.S. Cl. 204—195 M

8 Claims

An anion-selective electrode has an open ended non-ion-selective tube, an anion-selective nylon disc sealed to one open end of the tube, a silver wire with a silver

chloride portion positioned within the tube, a chloride solution within the tube and in contact with the silver chloride portion of the silver wire, a closure over the

without breaking the vacuum in the evacuated chamber, or allowing contamination of the article, substrate or target between cleaning and coating operations.

3,740,328

HYDROCARBON CONVERSION PROCESS AND CATALYST THEREFOR
Richard E. Rausch, Mundelein, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Mar. 17, 1969, Ser. No. 807,910

Int. Cl. B01j 11/08; C10g 35/08

U.S. Cl. 208—139

11 Claims

A catalytic composite comprising a combination of a platinum group component and a tin component with a porous carrier material is disclosed. The principal utility of the subject composite is in the conversion of hydrocarbons, particularly in the reforming of a gasoline fraction. A specific example of the catalyst disclosed is a combination of a platinum component, a tin component, and a halogen component with an alumina carrier material.

3,740,329

DISPERSION REMOVAL BY LIQUID MEMBRANE PROCESS
Norman N. Li, Edison, N.J., assignor to Esso Research and Engineering Company, Linden, N.J.
No Drawing. Filed Feb. 25, 1971, Ser. No. 119,005

Int. Cl. B01d 11/00

U.S. Cl. 210—21

10 Claims

This invention relates to a method for removing a dispersed phase from an external phase by contacting said dispersed phase with surfactant membrane coated droplets, said surfactant membrane coated droplets comprising an interior phase coated with a surfactant membrane, whereby said dispersed phase interacts with the surfactant membrane, and removing said dispersed phase along with the surfactant membrane coated droplets. Preferably, the dispersed phase is either solid or liquid and the external phase is liquid. The surfactant membrane coated droplets are contacted with the dispersed phase by mixing the external phase with an emulsion comprising said surfactant membrane droplets dispersed in a continuous phase, said continuous phase being either miscible or immiscible with the external phase. This method is especially useful for removing suspended oil, clay, rust and other contaminants from waste water.

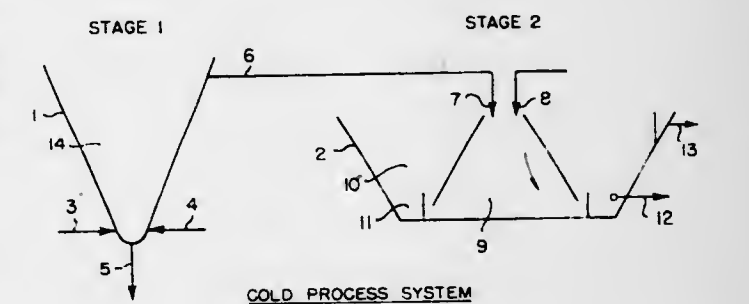
3,740,330

PROCESS FOR THE VOLUME REDUCTION OF SLUDGE FORMED IN THE SOFTENING OF WATER
John Stephen Kneale, New Monmouth, N.J., assignor to Sybron Corporation, Rochester, N.Y.
Filed June 21, 1971, Ser. No. 154,781

Int. Cl. C02b 1/02, 1/22

U.S. Cl. 210—46

8 Claims



A process is described for the volume reduction of sludge precipitated during the chemical softening of water. The volume of sludge is reduced by pre-treating the raw water with lime or lime-soda ash in the presence of catalyst granules in an inverted, frusto-conical tank. The pre-treatment step is followed by a second step which comprises treating the water in a cold or hot

opposite end of the tube with an aperture therein, and a portion of the silver wire extending through the aperture in the closure to the exterior of the tube.

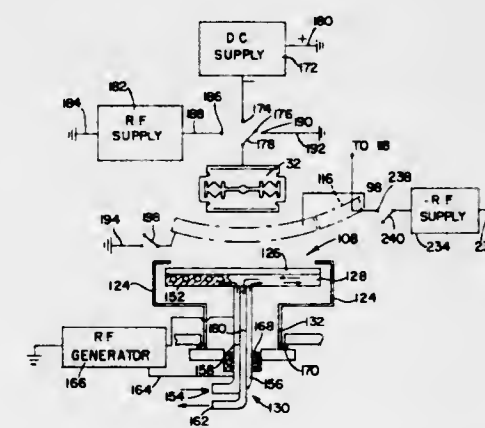
3,740,327

SPUTTER COATING APPARATUS WITH SHROUDING MEANS
George C. Lane, Danbury, Cyril A. Cartwright, Monroe, and Keith W. Elmslie, Madison, Conn., assignors to Warner-Lambert Company, Morris Plains, N.J.
Original application June 3, 1969, Ser. No. 829,906. Divided and this application Nov. 5, 1971, Ser. No. 196,054

Int. Cl. C23c 15/00

U.S. Cl. 204—298

9 Claims



An apparatus and method for coating articles or substrates, particularly razor blades or other cutting instruments, in which means are provided for establishing a radio frequency alternating electrical field between electrodes within a vacuum chamber for sputtering a coating from a target having the coating material thereon to the article or substrate to be coated. The described apparatus includes means for providing preliminary cleaning of the substrate as well as the target before coating, such cleaning operation being capable of operating in any one of several different operational modes. Preferably, the substrate is first cleaned by so-called reverse sputtering, then protected against contamination while the target is cleaned, with the substrate thereafter being exposed to coating by sputtering. In another embodiment, simultaneous substrate cleaning and deposition takes place, as the target and the substrate are maintained at different potentials while having radio frequency alternating voltages impressed thereon. The apparatus provides a means of performing these operations either simultaneously or in sequence on a plurality of articles at one or more stations

process water softener with additional chemical agents to remove remaining calcium hardness, magnesium hardness, silica and the like.

3,740,331 METHOD FOR PRECIPITATION OF HEAVY METAL SULFIDES

John R. Anderson, Cranbury, and Charles O. Weiss, Princeton, N.J., assignors to Sybron Corporation, Rochester, N.Y.

No Drawing. Filed June 23, 1971, Ser. No. 156,085
Int. Cl. C02b 1/20

U.S. Cl. 210—53 8 Claims
Heavy metal pollutant ions are removed from an aqueous solution in a sulfide precipitation process that avoids generation of noxious amounts of hydrogen sulfide and the formation of soluble complexes of sulfide ions. Sulfide ion and a heavy metal ion that forms a sulfide having a higher equilibrium sulfide ion concentration than the sulfide of the heavy metal pollutant are added to the solution. The added heavy metal acts as a scavenger for excess sulfide. In some cases the added heavy metal and the heavy metal pollutant form co-precipitates which result in more complete removal of the pollutant ion than could be achieved by sulfide precipitation of the pollutant alone.

3,740,332 PROCESS FOR TREATING SEPTIC BIOLOGICAL WASTES IN ARCTIC CLIMATES

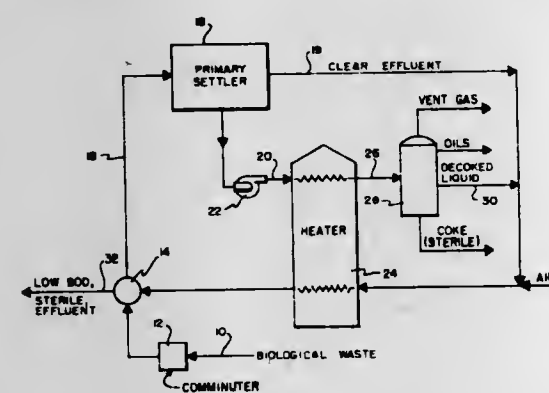
Edward L. Cole, Fishkill, and Howard V. Hess, Glenham, N.Y., assignors to Texaco Inc., New York, N.Y.

Filed Jan. 21, 1971, Ser. No. 108,493

The portion of the term of the patent subsequent to Apr. 21, 1987, has been disclaimed
Int. Cl. C02b 1/02

U.S. Cl. 210—63

4 Claims



Septic biological wastes, including both commercial and industrial wastes produced in Arctic climates, are rendered sterile and suitable for discharge by being passed to a primary settler where solids contained therein are separated from clear effluent. The solids are coked in the liquid phase and the resulting coke is separated from the liquid. The decoked liquid is mixed with the effluent from the primary settler and the resulting mixture is air oxidized.

ERRATUM

For Class 210—18 see:
Patent No. 3,740,363

3,740,333 COMPOSITIONS USEFUL AS SPERM OIL SUBSTITUTES

Robert B. Hutchinson and Karl P. Kammann, Jr., Cincinnati, Ohio, assignors to Emery Industries, Inc., Cincinnati, Ohio

No Drawing. Filed June 28, 1971, Ser. No. 157,720
Int. Cl. C10m 1/42, 1/20

U.S. Cl. 252—48.6 14 Claims
Compositions useful per se and in the sulfurized form as substitutes for sperm oil are provided. The composi-

tions are blends of triglycerides and wax esters derived from predominantly C₁₈₋₂₂ unsaturated acids and C₁₀₋₁₆ saturated alcohols.

3,740,334 PROCESS OF PREPARING SOLID DEVELOPER FOR ELECTROSTATIC LATENT IMAGES

Burton B. Jacknow and Joseph H. Moriconi, Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

No Drawing. Original application Aug. 28, 1970, Ser. No. 68,019, now Patent No. 3,653,893. Divided and this application Nov. 8, 1971, Ser. No. 196,700

Int. Cl. G03g 9/02

U.S. Cl. 252—62.1 8 Claims
A process for the preparation of a solid electrostatic-developer material comprising providing toner particles capable of being electrostatically coated on a carrier surface, the toner particles having a blocking temperature of at least about 110° F., a melt viscosity less than about 2.5 × 10⁻⁴ poise at temperatures up to about 450° F., the toner particles including a colorant, a thermoplastic resin, a solid additive having a melting point between about 115° F. and 270° F.; forming the toner particles into particles having a size range of up to about 30 microns, and thereafter tumbling the particles with from about 0.002 percent to about 20 percent by weight, based on the weight of the particles, of at least one solid, stable hydrophobic metal salt of a fatty acid until the metal salt is uniformly mixed with and is available at the external surfaces of the particles.

3,740,335 FERRIMAGNETIC CERAMICS

Edward A. Weaver, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

No Drawing. Filed Aug. 12, 1971, Ser. No. 171,344
The portion of the term of the patent subsequent to Sept. 26, 1989, has been disclaimed

Int. Cl. C04b 35/26

U.S. Cl. 252—62.59 8 Claims
Ferrimagnetic ceramic compositions based on the ternary oxide system, Fe₂O₃-Li₂O-SiO₂, wherein the predominant crystalline phase is lithium ferrite (LiFe₅O₈). Minor amounts of nucleating agents, such as ZnO, can also be added to the basic ternary system to further enhance the development and growth of ferrite crystals. The ceramic bodies prepared from the above oxide systems, according to the sintering method of this invention, have rapid switching times and squareness ratios which make highly favorable materials for the manufacture of computer memory cores, radio coils, pulse transformers and other assorted electronic devices designed to operate at microwave frequencies.

3,740,336 HYDROGEN EMBRITTLEMENT INHIBITORS FOR ORGANIC COMPOSITIONS

Frank H. Langenfeld, St. Louis, and Wilson W. Overall, Warson Woods, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Dec. 23, 1970, Ser. No. 101,192
Int. Cl. C09k 3/18

U.S. Cl. 252—70 11 Claims
Hydrogen embrittlement of steel in contact with aqueous solutions of organic compounds which hydrolyze to ammonia or amines is inhibited by incorporation in the aqueous organic solution a minor amount of a dimeric acid having from about 32 to 44 carbon atoms, e.g., dilinoleic acid, and an organo-phosphorus composition which is the reaction product of a monoalkyl phenol or a dialkyl phenol and phosphorus pentoxide.

3,740,337 STOP-LEAK AND ANTI-SLUDGE COMPOSITION AND METHOD OF USE IN STEAM BOILERS AND HOT WATER HEATING SYSTEMS

Norman A. Sommers, 326 Buttonwood Lane, Harbor Bluffs, Largo, Fla.

No Drawing. Filed July 2, 1971, Ser. No. 159,523
Int. Cl. C09k 3/02, 3/12

U.S. Cl. 252—72 4 Claims
A stop-leak and anti-sludge composition and method of use in steam boilers and hot water heating systems comprised of 6 to 9% phenol, 5 to 8% catechu solids, 1.5 to 2.5% sodium meta-silicate, 8 to 10% wood fibres (hardwood), 0.3% to 1% silicone oil and 72 to 75% water, all by weight.

The foregoing composition has been found to be remarkable stop-leak agent and anti-sludge composition for use in steam boilers and hot water heating systems because of its coagulating properties when reacting with packing or other small openings in conduits exposed to the atmosphere. The composition dissolves sludge and also has anti-foam properties to prevent the build-up of foam in steam boilers, thereby preventing surging. The method of use of the present invention involves the aforesaid composition.

3,740,338 GUANIDINIUM SALTS AND FUNCTIONAL FLUIDS CONTAINING THEM

Nylen L. Allphin, Jr., Pinole, and Bruce W. Hotten, Orinda, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Continuation-in-part of abandoned application Ser. No. 17,913, Mar. 3, 1970. This application June 7, 1971, Ser. No. 150,759

Int. Cl. C09k 3/00

U.S. Cl. 252—77 7 Claims
Phenoxide and naphthoxide salts of guanidine and hydrocarbon substituted guanidine are disclosed. Also disclosed are automatic transmission fluids and other functional fluids containing these salts as base reserve additives and anti-oxidants.

3,740,339 DETERGENT FORMULATION CONTAINING CURED 6-CARBOXY CELLULOSE AS A SEQUESTRANT

Donald M. MacDonald, Monroe, N.Y., assignor to International Paper Company, New York, N.Y.

No Drawing. Filed June 28, 1971, Ser. No. 157,616
Int. Cl. C02b 5/06; C08b 15/04; C11d 3/22

U.S. Cl. 252—135 8 Claims
The elimination of phosphorus-containing compounds from detergent formulations, which cause water pollution, and their replacement with non-phosphorus-containing compounds of equal efficacy is achieved by employing the cured product of the reaction between 6-carboxy cellulose and an aqueous solution of a Lewis acid catalyst.

3,740,340 COMPOSITE INSULATORS FOR USE IN HOT HYDROGEN ENVIRONMENTS

Robert E. Riley and James M. Taub, Los Alamos, N. Mex., assignors to the United States Atomic Energy Commission

Filed Mar. 3, 1971, Ser. No. 83,572
Int. Cl. C09k 3/00

U.S. Cl. 252—301.1 R 9 Claims
Insulators comprising composites of the composition MC—M'O₂ where M and M' may be Ti, Zr, Hf, V, Nb, Ta, Th, and U, and the metal carbide content may readily range from approximately 25 to 75 volume percent, have low thermal conductivities and adequate structural prop-

erties when maintained at temperatures as high as 2300° C. for as long as 16 hours in a flowing hydrogen environment. The designation MC—M'O₂ is a general one and does not necessarily imply a stoichiometric monocarbide and/or dioxide.

3,740,341 MANUFACTURE OF BIS(ALKOXYAMINOTRI-AZINYLAMINO)-STILBENE - 2,2' - DISULPHONIC ACIDS

Peter John Brocklehurst, Eric Hemingway, and Malcolm James Wright, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed May 4, 1971, Ser. No. 140,298

Claims priority, application Great Britain, May 18, 1970, 23,954/70

Int. Cl. C07d 55/20

U.S. Cl. 252—301.2 W 2 Claims
Optical brightening agents which are three component mixtures obtained by the reaction of bis(3-chloro-5-alkoxytriazinylamino)stilbene-disulphonic acids with mixtures of optionally substituted mono- or dialkylamines and optionally substituted N-alkylarylamines. The agents separate from the hot reaction mixtures in the form of mobile liquids.

3,740,342 METHOD FOR SEPARATING CHEMICALLY-OXIDIZABLE PHOSPHOR PARTICLES FROM MIXTURES WITH ESSENTIALLY NONOXIDIZABLE PHOSPHOR PARTICLES

Richard Bibby Platt, Midland, and Bernard Beverly McCue, Christian Island, Simcoe, Ontario, Canada, assignors to RCA Corporation, New York, N.Y.

Filed July 26, 1971, Ser. No. 166,011

Int. Cl. C09k 1/12, 1/14, 1/20

U.S. Cl. 252—301.65 10 Claims
To separate chemically-oxidizable phosphor particles, such as zinc sulfide and zinc-cadmium sulfide phosphor particles, from a mixture with essentially nonoxidizable phosphor particles such as yttrium oxysulfide phosphor particles, produce an aqueous slurry containing the mixture of particles and about 12 to 22 weight percent nitric acid. The nitric acid reacts with the oxidizable phosphor particles producing gas bubbles, which cause the oxidizable particles to rise and to float on the surface of the slurry. The floated particles are removed by decantation, skimming or other technique.

3,740,343 HIGH WATER CONTENT OIL-EXTERNAL MICELLAR DISPERSIONS

Stanley C. Jones and Wayne O. Roszell, Littleton, and Marvin A. Svaldi, Morrison, Colo., assignors to Marathon Oil Company, Findlay, Ohio

No Drawing. Continuation-in-part of application Ser. No. 829,739, Dec. 26, 1967, now abandoned, which is a division of application Ser. No. 693,177, Dec. 26, 1967, now Patent No. 3,497,006. This application Dec. 21, 1970, Ser. No. 100,398

Int. Cl. B01j 13/00

U.S. Cl. 252—308 22 Claims
A novel high water content oil-external micellar dispersion (containing 55% to about 90% water) is obtained by mixing about 4 to about 40% hydrocarbon, at least 4% surfactant, about 0.01% to about 20% co-surfactant, about 55% to about 90% aqueous medium and about 0.001% to about 4% by weight of electrolyte, the above percents based on total volume unless otherwise specified. The dispersion is compatible with crude oil and useful, for example, in secondary and tertiary subterranean flooding operations to recover crude oil.

3,740,344

NONIONIC EMULSIFIERS FOR CONTROLLING THE SETTING RATE OF ANIONIC EMULSION

Richard L. Ferm, Lafayette, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Jan. 4, 1971, Ser. No. 103,847

Int. Cl. B01j 13/00

U.S. Cl. 252—311.5 7 Claims

Bituminous emulsions useful in quick-setting slurry seal compositions are provided by combining (1) from 45 to 75 parts by weight bitumen, (2) from 0.3 to 2.0 parts by weight of an alkyl-aryl sulfonate, (3) from 0.2 to 1.0 part of a nonionic emulsifier, and (4) sufficient water to give a total composition having 100 parts by weight.

3,740,345

DYEING COMPOSITION

Wolfgang Berger, Gartenberg, Germany, assignor to Dr. Th. Bohme KG Chem. Fabrik, Gartenberg, Germany

No Drawing. Filed Aug. 26, 1970, Ser. No. 67,202

Claims priority, application Germany, Sept. 11, 1969, P 19 46 058.3

Int. Cl. B01f 17/00, 17/16

U.S. Cl. 252—355 4 Claims

Dyeing and deaerating composition including a low ethoxylated fatty acid diamine, an alkali metal salt of dinaphthyl methane disulphonic acid, and a mixture of alkali metal salts of propoxylated monoesters and diesters of phosphoric acid.

3,740,346

TREATMENT OF GRANULATED FERTILISERS

Jacques Sarrade-Louchet, Le Pecq, France, assignor to Blancs Mineraux de Paris, Paris, France

No Drawing. Filed July 27, 1970, Ser. No. 58,657

Claims priority, application France, July 31, 1969, 6926433

Int. Cl. C09k 3/22

U.S. Cl. 252—384 10 Claims

This invention relates to the treatment of granulated fertilisers and has two objects, viz: prevention of massing or agglomeration of the granules on piling and, secondly, the prevention of the formation and flying away of dust. These objects are achieved by applying to the granules an aqueous solution comprising from 0.1 to 10% of an organic product adapted to retain the water of solution by the coating charge and from 0.1 to 10% of an anti-clumping agent. The anti-clumping agent may be a fatty amine or diamine or derivatives thereof and the organic retaining product is generally a vegetable gum, e.g. guar resin, starch which may be pre-gelled or esterified, gelatine, saccharose or a saccharose derivative.

3,740,347

ACID STABLE MOLECULAR SIEVE PRODUCTS

Harvey M. Rosen, Laurel, and Hanju Lee, Columbia, Md., assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed June 24, 1971, Ser. No. 156,503

Int. Cl. B01j 11/40

U.S. Cl. 252—455 Z 10 Claims

Crystalline zeolites, synthetically produced or naturally occurring, can be stabilized against acid attack by treatment with an aqueous solution containing potassium

silicate, sodium silicate, basic silica hydrosol, sodium tetrahydrate, sodium pyrophosphate or mixtures of these materials. Such treated zeolites are particularly more stable in gaseous acidic environments.

3,740,348

ESTERS OF CYANIC ACID

Ernst Grigat, Cologne-Stammheim, and Rolf Putter, Düsseldorf, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Application Feb. 12, 1968, Ser. No. 704,948, now Patent No. 3,553,244, which is a continuation of abandoned application Ser. No. 339,333, Jan. 22, 1964. Divided and this application Feb. 16, 1970, Ser. No. 14,845

Int. Cl. C07c 119/04

U.S. Cl. 260—453 AL 1 Claim

Cyanic acid esters having the formula



in which R is an alkyl or cycloalkyl radical containing an electron-attracting substituent, an aryl radical, a substituted aryl radical free from the simultaneous presence of sterically hindered substituents in both ortho positions to the corresponding $-O-C\equiv N$ group or a heterocyclic radical, and x is a whole number from 1 to 6.

3,740,349

CATALYST FOR TREATING COMBUSTION EXHAUST GAS

John S. Negra, South Plainfield, and Abe Warshaw, Matawan, N.J., assignors to Chemical Construction Corporation, New York, N.Y.

No Drawing. Original application June 11, 1970, Ser. No. 45,576, now Patent No. 3,701,822. Divided and this application Nov. 5, 1971, Ser. No. 196,204

Int. Cl. B01j 11/08, 11/22

U.S. Cl. 252—466 J 4 Claims

The exhaust gas from internal combustion engines or the like is treated to convert harmful or pollutant components such as nitrogen oxides, carbon monoxide and unburned hydrocarbons to innocuous compounds, by contacting the exhaust gas with a catalyst composition containing nickel, cobalt and manganese in catalytically effective amounts, deposited on a carrier such as alpha alumina.

3,740,350

NONCRYSTALLINE SOLID COMPOSITIONS EXHIBITING NEGATIVE INCREMENTAL RESISTANCE

Daniel J. Shanefield, 119 Jefferson Road, Princeton, N.J. 08540

No Drawing. Filed Aug. 6, 1971, Ser. No. 169,871

Int. Cl. H01b 1/02, 1/04; H01c 7/10

U.S. Cl. 252—512 3 Claims

Noncrystalline solid compositions of boron plus aluminum or of boron plus antimony or of silicon plus antimony. A simple bulk solid state diode exhibiting non-memory switching behavior can be made comprising either said composition. As an applied voltage on the diode is increased, the voltage-current characteristic of the diode exhibits negative incremental resistance. The diode is stable only in its high resistance state, and the diode reverts to this state when the applied voltage is removed. The use of either said composition under severe operating conditions such as high current interrupted DC operation results in improved freedom from undesirable memory effects.

3,740,351

SOYA AMIDOPROPYLDIMETHYLAMINE OXIDE

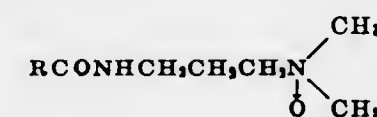
Saul Kaplan, Teaneck, Kenneth W. Prodo, Westfield, and Edward G. Shay, Belle Mead, N.J., assignors to Millmaster Onyx Corporation, New York, N.Y.

No Drawing. Original application Aug. 12, 1969, Ser. No. 849,516, now abandoned. Divided and this application Mar. 22, 1971, Ser. No. 127,043

Int. Cl. C11d 7/32

U.S. Cl. 252—547 2 Claims

A composition and method for stabilizing the foam of anionic surface active agents by admixing the anionic surface active agent with an amido-amine oxide having the general formula:



wherein RCO is derived from the fatty acids in soya bean oil.

3,740,352

BOILER CLEANING AND LUBRICATING COMPOSITION, AND METHOD OF USE IN HOT WATER SYSTEM

Norman Sommers, 4110 Freeland Ave., Philadelphia, Pa. 19128

No Drawing. Filed Jan. 27, 1970, Ser. No. 6,295

Int. Cl. C11d 3/30

U.S. Cl. 252—548 2 Claims

A boiler cleaning and lubricating composition, and method of use in hot water system comprised of 13.5% polypropylene glycol (average molecular weight 2000), 4.8% tergitol nonionic XD (polyalkylene glycol ether), 3.5% acrylic emulsion copolymer (acrysol), 76% water, 1.5% silicone oil and .7 triethanolamine.

The aforesaid composition has been found to be a remarkable cleaner and rust inhibitor for use in hot water heating systems because it provides a protective film upon various parts of the system. However, the film is heat conductive and does not provide resistance to heat transfer, and this increases the heating characteristics of the system. The composition of the present invention also provides lubricating properties by the presence of polypropylene glycol and silicone oil.

ERRATUM

For Class 260—29.7 M see:
Patent No. 3,740,201

ERRATUM

For Class 260—453 AL see:
Patent No. 3,740,348

3,740,353

LOW DENSITY LOW SHRINK THERMOSET RESIN FOAMS

Frank D. Patrick, Freeport, and Daniel J. Najvar, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Nov. 9, 1970, Ser. No. 88,102

Int. Cl. C08g 53/08, 39/10

U.S. Cl. 260—2.5 N 24 Claims

Previous problems of shrinkage in the preparation of low density thermoset resin foams from thermo-settable water-in-resin emulsions containing certain nonionic surfactants may be eliminated or significantly reduced by incorporating into the emulsion hydrocarboaceous dimensional control agents. Useful resins include unsaturated polyester resins or polymerizable vinyl ester resins.

3,740,354

BOWLING BALL CORE CONTAINING SPONGE RUBBER CHIPS

Donald D. Dearmont, Stow, Ohio, assignor to Phillips Petroleum Company

Filed Jan. 25, 1971, Ser. No. 109,179
Int. Cl. C08d 9/02, 13/08; A63b 37/06

U.S. Cl. 260—2.5 H 7 Claims

A bowling ball comprising an exterior shell having a smooth outer rolling surface and an inner core, wherein said core comprises a binder or matrix material comprising a vulcanized natural or synthetic rubber having dispersed therein a multiplicity of discrete chips of natural or synthetic sponge rubber. Bowling balls containing the cores of the invention are characterized by improved dimensional stability and impact resistance.

3,740,355

METHOD OF PREPARING BODIES ON THE BASIS OF UREA-FORMALDEHYDE RESINS

Walther H. Klug, Stockholm, Sweden, assignor to PGC Scientifics Corporation, Rockville, Md.

Continuation of abandoned application Ser. No. 22,855, Mar. 26, 1970. This application Dec. 20, 1971, Ser. No. 210,153

Claims priority, application Sweden, Nov. 28, 1969,

16,469/69

Int. Cl. C08j 1/16

U.S. Cl. 260—2.5 FP 10 Claims

A method of preparing foamed bodies on the basis of urea-formaldehyde resins. This is accomplished by feeding separately and continuously a first component comprising a neutral or alkaline aqueous solution of a urea-formaldehyde precondensate containing a small addition of a sulfite waste liquor, and a second component comprising an aqueous solution of an acid hardener such as phosphoric acid, and a foaming agent such as an alkyl aryl sulfonate, into a mixing zone, injecting compressed air into the resulting mixture to provide a foamed mass, discharging the mass through a nozzle means connected to the mixing zone, and allowing the mass to cure. To compensate for an after-shrinkage in connection with the curing, a small amount of chalk is added to the aqueous solution of the urea-formaldehyde precondensate. An incombustible product is obtained by incorporating into the aqueous solution of the urea-formaldehyde precondensate a minor amount of copper phthalocyanine.

3,740,356

CELLULAR POLYMERIC MATERIAL, A PROCESS FOR ITS PREPARATION AND A COATING MATERIAL WHICH CONTAINS SUCH POLYMERIC MATERIAL

Pablo E. Munoz and Eduardo M. Simonin, Buenos Aires, Argentina, assignors to Sociedad Anonima Alba Fabrica de Pinturas, Esmaltes y Barnices, Buenos Aires, Argentina

No Drawing. Filed July 30, 1970, Ser. No. 59,709

Claims priority, application Argentina, Aug. 29, 1969, 223,800

Int. Cl. C08f 47/08; B01j 13/02

U.S. Cl. 260—2.5 B 8 Claims

Polymeric material in the form of small corpuscles or particles which contain therein one or a plurality of cavities. The polymeric material is useful as a component for coating compositions, plastics, films or fibers. Processes for the preparation of the polymeric material as well as the compositions incorporating same.

3,740,357

PRODUCTION OF NO-GEL ELASTOMERIC FOAMS

Ludwig A. Wax, Westfield, Mass., assignor to Standard Brands Chemical Industries, Inc., Dover, Del.

No Drawing. Filed Apr. 9, 1971, Ser. No. 132,880

Int. Cl. C08d 13/08, 7/00

U.S. Cl. 260—2.5 L 17 Claims

A heat-curable foam-forming latex composition comprising a N-methylolacrylamide-containing diene terpoly-

mer latex, a curing system, a foaming agent, and a foam stabilizer and a method for forming this composition into a no-gel foam.

3,740,358

HEAT-RESISTANT PHENOLIC FOAM COMPOSITIONS

Howard W. Christie, Kansas City, Mo., and Thomas J. Byerley, Shawnee Mission, Kans., assignors to Butler Manufacturing Company, Kansas City, Mo.

No Drawing. Continuation-in-part of abandoned application Ser. No. 826,271, May 20, 1969. This application Apr. 14, 1971, Ser. No. 134,062

Int. Cl. C08g 53/10

U.S. Cl. 260—2.5 F

5 Claims

A heat-resistant phenolic foam composition comprising a phenol-aldehyde foamable composition containing a phenolic resole, a boron containing compound and an acid catalyst with or without silicic acid and aluminum hydroxide and/or aluminum oxide.

The boron containing compounds specifically set forth in this case are boric acid or boric oxide, and boron-polyol complexes formed by reacting boric acid or boric oxide with a hydroxy organic compound of the group comprising glycerine, sorbitol, mannitol, other sugar alcohols, and aliphatic diols.

The acid catalysts set forth herein are phosphoric acid, hydrochloric, and the combination of phosphoric with trichloroacetic or trifluoroacetic acid which accelerate foaming without degrading heat resistance properties. In the case of the glass forming materials of silicic acid and aluminum hydroxide and/or aluminum oxide, maleic anhydride can be used in place of the acid catalyst.

3,740,359

VINYLDENE CHLORIDE EXPANDABLE MICROSPHERES

Joseph L. Garner, Sanford, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed July 10, 1972, Ser. No. 270,295

Int. Cl. C08j 1/14, 1/26; B01j 13/02

U.S. Cl. 260—2.5 B

6 Claims

A substantially improved expandable vinylidene chloride microsphere is obtained employing a peroxydicarbonate as catalyst. A significant improvement in conversion and reduction in residual vinylidene chloride monomer is obtained.

3,740,360

SEALING COMPOSITION AND METHOD

Kenneth H. Nimerick, Tulsa, Okla., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 730,578, May 20, 1968. This application Nov. 12, 1970, Ser. No. 89,150

The portion of the term of the patent subsequent to Oct. 26, 1988, has been disclaimed

Int. Cl. C08d 9/06

U.S. Cl. 260—17.4 ST

19 Claims

A composition is provided which may be employed for the selective sealing of permeable formations. The composition contains at least one particulate galactomanan gum which is treated with a hydrophobic agent to render the gum hydrophobic in aqueous solutions having a pH of at least about 7.5, a pH control agent and a water-soluble organic polymeric suspending agent. Optionally, a degradation agent, a cross-linking agent and/or a hydration agent can be included.

3,740,361

DENTURE ADHESIVE COMPOSITION AND PROCESS OF PREPARING THE SAME

Oskar Altwirth, Hoher Markt 18, Ried im Innkreis, Austria

No Drawing. Continuation-in-part of application Ser. No. 90,879, Nov. 18, 1970. This application July 10, 1972, Ser. No. 270,472

Claims priority, application Austria, Dec. 1, 1969, A/11,179

Int. Cl. C08f 45/36

U.S. Cl. 260—17.4 ST

7 Claims

A denture adhesive composition consisting of a spreadable mixture of sodium alginate and an ethanol solution of a normally solid polyvinyl acetate resin, the solution being a 50—50 mixture of ethanol and resin, and about ten parts of the solution being used per seven parts of the alginate.

3,740,362

NOVEL GRAFT COPOLYMERS HAVING BRANCHES OF ALTERNATING COMONOMER UNITS

Norman G. Gaylord, New Providence, N.J., assignor to Gaylord Research Institute, Inc., Newark, N.J.

No Drawing. Filed Aug. 25, 1970, Ser. No. 66,886

Int. Cl. C08b 23/00; C08f 15/40, 19/18

U.S. Cl. 260—17.4 GC

21 Claims

A method for preparing novel graft copolymers in which the branches are alternating copolymers, by reacting two comonomers in the presence of a preformed polymer which has been reacted with a complexing agent selected from the group consisting of Friedel-Crafts catalysts, Lewis acids, and organoaluminum halides.

3,740,363

EFFLUENT TREATMENT PROCESSES

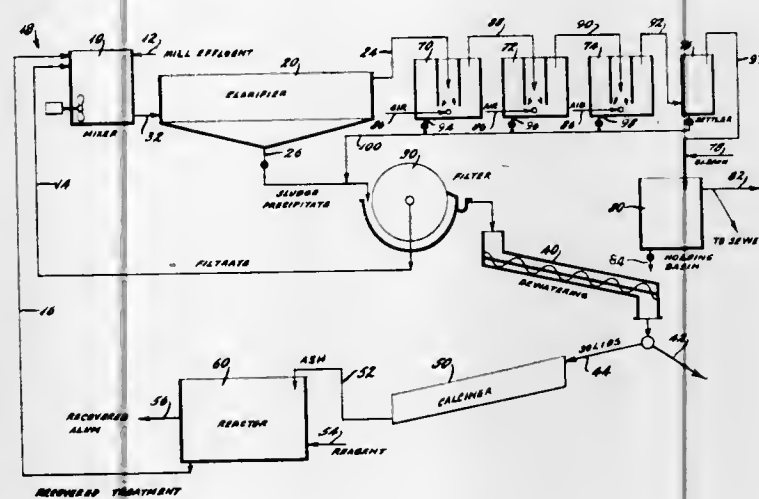
Robert R. Fuller, Tuscaloosa, Ala., assignor to Gulf States Paper Corporation, Tuscaloosa, Ala.

Continuation-in-part of application Ser. No. 641,304, May 25, 1967. This application Oct. 27, 1969, Ser. No. 869,784

Int. Cl. C02c 5/10

U.S. Cl. 210—18

8 Claims



A waste effluent treatment which involves contacting a waste effluent, e.g., pulp and paper mill effluent, with a metal salt reagent, preferably alum mud. Treatment decolorizes the effluent and precipitates a substantial portion of the organic content. The precipitate and sludge is dewatered, then calcined, and the reagent regenerated

from the ash for use again in a cyclic process. The decolorized effluent is bio-oxidized, preferably in a multistage bio-oxidation sequence and is now sufficiently pure for recycle purposes. The purified effluent may be bleached prior to recycle.

3,740,364

INHIBITION OF DISCOLORATION OF PAINTS CONTAINING DRIERS

Helmut Schuler and Uwe Thies, Goslar, Germany, assignors to Firma Gebr. Borchers AG, Goslar, Germany

No Drawing. Filed Sept. 11, 1970, Ser. No. 71,357

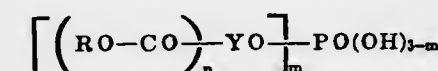
Claims priority, application Germany, Sept. 13, 1969, P 19 46 478.9

Int. Cl. C09d 3/64

U.S. Cl. 260—22 A

3 Claims

Discoloration of paints containing driers is inhibited by the incorporation therein of certain phosphoric acid esters or metal or amine salts thereof. The esters have the formula



R is C₁₋₆ lower alkyl radical,

Y is di- or tri-valent aliphatic or aromatic radical, and n and m are each 1 or 2.

3,740,365

INHIBITION OF DISCOLORATION OF PAINTS CONTAINING DRIERS

Helmut Schuler and Uwe Thies, Goslar, Germany, assignors to Firma Gebr. Borchers AG, Goslar, Germany

No Drawing. Filed Sept. 11, 1970, Ser. No. 71,358

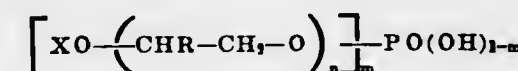
Claims priority, application Germany, Sept. 13, 1969, P 19 46 477.8

Int. Cl. C09d 7/12; C08g 51/54; C08f 45/54

U.S. Cl. 260—22 A

5 Claims

Discoloration of paints containing driers is inhibited by the incorporation therein of certain phosphoric acid esters or metal or amine salts thereof. The esters have the generic formula



X is an alkyl or acyl radical,

R is hydrogen or an alkyl radical,

n is an integer from 1 to 6, and

m is 1 or 2.

3,740,366

PRESSURE SENSITIVE ADHESIVE CONTAINING CARBOXYLIC ACID GROUPS AND POLYVALENT METAL

Frank Thomas Sanderson, Huntingdon Valley, and Richard E. Zdanowski, Fort Washington, Pa., assignors to Rohm & Haas Company, Philadelphia, Pa.

Continuation-in-part of application Ser. No. 80,132, Oct. 12, 1970, which is a continuation-in-part of application Ser. No. 19,571, Mar. 16, 1970, which in turn is a continuation-in-part of application Ser. No. 819,598, Apr. 28, 1969, all now abandoned. This application Jan. 22, 1971, Ser. No. 108,819

Int. Cl. C08f 37/14

U.S. Cl. 260—29.6 M

9 Claims

The pressure sensitive adhesive of this invention has improved shear resistance while still having good tackiness, it is prepared by emulsion or solution polymerization, or by other methods, and has carboxylic acid groups therein, at least some of which are bound or crosslinked

by a polyvalent metal, by ionic, polar, and/or coordination bonds. There are various possible theories or hypotheses as to what is involved in "crosslinking," the invention not being limited thereto. The invention includes adhesive tapes and other articles and their manufacture, in addition to the adhesive compositions.

3,740,367

COLLOIDAL DISPERSIONS OF AMMONIA-COMINUTED PARTICLES OF METHYL METHACRYLATE-ACID COPOLYMERS

Kermit W. Winkelblech, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 715,560, Mar. 25, 1968, which is a continuation-in-part of application Ser. No. 446,692, Apr. 8, 1965, which in turn is a continuation-in-part of application Ser. No. 290,924, June 27, 1963, all now abandoned. This application Sept. 14, 1970, Ser. No. 72,124

Int. Cl. C08f 27/14, 47/16

U.S. Cl. 260—29.6 TA

10 Claims

Aqueous colloidal dispersions of solid particles of an interpolymer in which at least 95 percent by number of said particles have diameters of 0.1 to 0.01 micron, and said interpolymer has a weight average molecular weight of at least 10,000 and consists essentially of 20—99 percent by weight of methyl methacrylate, 0—75 percent by weight of ester selected from the group consisting of alkyl acrylates having 4 to 16 carbon atoms and alkyl methacrylates having from 6 to 16 carbon atoms, 0—40 percent by weight of ethylenically unsaturated copolymerizable monomer selected from the group consisting of styrene, vinyl acetate, vinyl fluoride, vinyl chloride, vinylidene fluoride and vinylidene chloride, and acid selected from the group consisting of 1—8 percent by weight of acrylic acid, 1—8 percent by weight of methacrylic acid, 4—8 percent by weight of maleic acid, and 4—8 percent by weight of itaconic acid. These dispersions are prepared by adding to a mixture of water and solid particles of said interpolymer (a) 30—150 percent of the stoichiometric amount of ammonium hydroxide required to neutralize the acid present in said interpolymer and (b) when the second order transition temperature of the interpolymer is above 35° C., an amount of up to 1 part per part by weight of said interpolymer, effective to render said interpolymer colloidal dispersible, of a liquid organic comminution agent which is capable of at least swelling the interpolymer particles and is inert toward the ammonium hydroxide, and vigorously agitating the resulting mixture at a temperature of 40—100° C. until a reduction in the size of the interpolymer particles takes place such that at least 95 percent by number of said particles have diameters of less than 0.1 micron.

3,740,368

POLYMERISATION PROCESS

Alan Charles Sturt, Guildford, and Alan Arthur John Feast, Eastleigh, England, assignors to BP Chemicals Limited, London, England

Filed Jan. 25, 1971, Ser. No. 109,475

Int. Cl. C08d 1/09, 3/02, 3/06

U.S. Cl. 260—29.7 R

8 Claims

Large particle size latices are prepared by emulsion polymerisation using a carboxylic acid salt emulsifying agent, the pH of the system being increased to increase the amount of emulsifying agent in the system during the course of the polymerisation without the addition of new emulsifying agent. In particular, large particle size polybutadiene latices can be prepared by maintaining the pH such that the carboxylic acid is 7.5 to 70.5% neutralised for the initial portion of the reaction.

3,740,369 LOW VISCOSITY SOLUTION OF FLUOROPOLYMER DUE TO THE USE OF POLAR ORGANIC COMPOUNDS

Stephen Proskow, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 727,724, May 8, 1968, which is a continuation-in-part of application Ser. No. 577,810, Sept. 8, 1966, both now abandoned. This application June 25, 1971, Ser. No. 156,991

Int. Cl. C08f 45/42, 45/58, 45/60
U.S. Cl. 260—30.4 R 10 Claims
A fluoropolymer solution composition having a lower than expected viscosity is obtained by mixing together certain proportions of a copolymer of tetrafluoroethylene and a perfluoroalkyl perfluorovinyl ether, a suitable fluorinated solvent, and a polar organic compound whose melting point is below 75° C. and whose molecular weight is below 400.

3,740,370
COATING COMPOSITION COMPRISING A COPOLYMER OF VINYL CHLORIDE AND AN UNSATURATED GLYCIDYL COMPOUND
Akhide Nakamura and Iko Ito, Niihama, and Taizo Kondo and Keizo Inamura, Hiratsuka, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, and Kansai Paint Company, Limited, Amagasaki, Japan
No Drawing. Continuation-in-part of application Ser. No. 725,928, Apr. 30, 1968. This application Oct. 27, 1971, Ser. No. 193,198

Claims priority, application Japan, Sept. 13, 1966, 41/60,572
Int. Cl. C08f 45/36, 45/38
U.S. Cl. 260—31.8 U 6 Claims

When a copolymer of an average polymerization degree of 400–700, obtained by emulsion-polymerizing 95.0–99.5% by weight of vinyl chloride (or a monomer mixture of more than 80% vinyl chloride and another ethylenic monomer copolymerizable with vinyl chloride) and 0.5–5.0 weight percent of an unsaturated glycidyl compound, is heated together with a plasticizer and stabilizer so that the latter are absorbed in the resin particles, there is obtained a powdery resinous composition which shows excellent adhesion and film forming properties even when directly applied to a substrate, particularly metal surface without preapplication of a primer.

3,740,371 POLYETHYLENE TEREPHTHALATE INJECTION MOLDING COMPOSITION CONTAINING NOVACULITE

Leon Segal, Morristown, N.J., assignor to Allied Chemical Corporation, New York, N.Y.
Filed Nov. 26, 1971, Ser. No. 202,452
Int. Cl. C08g 51/04

U.S. Cl. 260—40 R 10 Claims
Novaculite-filled, glass-reinforced polyethylene terephthalate compositions suitable for injection molding in standard injection molding apparatus are disclosed. The tricomponent composite can be processed without polymer or filler pretreatment and has desirable properties at room, as well as at elevated temperatures. Polyethylene terephthalate compositions filled with novaculite of selected size distribution in the absence of glass fibers is itself a distinctively useful composition.

3,740,372
CHEMICALLY THICKENED POLYESTER RESIN
Melvin E. Baum, Monroeville, Pa., and John A. Hatton, Jr., Madeira, Ohio, assignors to Koppers Company, Inc.
Original application Apr. 15, 1970, Ser. No. 28,600, now Patent No. 3,637,911. Divided and this application Sept. 3, 1971, Ser. No. 177,626

Int. Cl. C08g 51/04
U.S. Cl. 260—40 R 1 Claim
The viscosity of unsaturated polyester resins formed by mixing the condensation polymers of unsaturated di-

carboxylic acids and dihydric alcohols in ethylenically unsaturated copolymerizable monomers may be greatly increased by adding (1) a mixture of calcium oxide and either calcium hydroxide or magnesium oxide, and (2) an organic acid selected from the group consisting of benzoic acid, cyclohexane carboxylic acid, cinnamic acid and p-hydroxybenzoic acid to the unsaturated polyester resins.

The viscosity of the composition is initially low enough so that fibrous reinforcements can be impregnated with the resin composition and the low viscosity permits the resin to wet the fibers, thereafter the viscosity of the resin increases and the fibrous reinforced mass loses its tackiness and can be easily stored and handled.

3,740,373 EPOXY RESIN COMPOSITION CONTAINING A POLYOXYALKYLENEPOLYAMINE, SUBSTITUTED PIPERAZINE, SALICYLIC ACID AND A PHENOL

Floyd Edward Bentley and Norman Bell Godfrey, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.
No Drawing. Filed July 28, 1971, Ser. No. 166,994
Int. Cl. C08g 30/14

U.S. Cl. 260—47 EC 13 Claims
A self-curable epoxy resin composition is provided that contains a polyepoxide resin and an accelerator-hardener composition containing a polyoxyalkylenepolyamine, N-(3-aminopropyl)piperazine, salicylic acid and a phenol additive. Use of the accelerator-hardener composition provides unexpectedly rapid cures of epoxy resins, even at low temperature, and epoxy resins cured with the accelerator-hardener composition demonstrate exceptional properties.

3,740,374 POLY(QUINOXALINOBISIMIDAZONAPHTHALDIMIDE) POLYMERS AND METHOD OF PREPARATION

Fred E. Arnold, Centerville, and Robert F. Kovar, Dayton, Ohio, assignors to the United States of America, as represented by the Secretary of the Air Force
Filed Sept. 26, 1972, Ser. No. 292,368
Int. Cl. C08g 20/32

U.S. Cl. 260—47 CP 15 Claims
Thermally stable poly(quinoxalinobisimidazonaphthalimide) materials are disclosed that are prepared by the condensation of multifunctional aromatic carboxylic acids or derivatives thereof and tetraamino phenylated quinoxaline compounds. The high thermal stability of the polymers and their solubility in a variety of organic solvents renders them particularly suitable for use in high temperature applications such as in the fabrication of plastic composites and protective coatings.

3,740,375 CROSS-LINKABLE CHLORINATED AROMATIC POLYMERS

Ernest Richard Novak, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed July 1, 1971, Ser. No. 158,994
Int. Cl. C08g 25/00, 23/00

U.S. Cl. 260—61 11 Claims
A cross-linkable, shapeable polymeric composition comprising the groups $(-Ar-)_x$ and $(-A-Ar'-A-)_y$ in substantially alternating sequence and a group



capable of cross-linking polymer chains through their $-Ar-$ moieties, wherein $-A-$ is $-O-$ or $-S-$, $-Ar-$ is a divalent perchlorinated aromatic group of 10–24 aromatic carbon atoms $-Ar'$ is a divalent aro-

matic group of 6 to 24 aromatic carbon atoms; the groups being present in amounts such that

$$\frac{y+z}{x}$$

is in the range of 1.01 to 1.6, the polymer having an inherent viscosity of at least 0.2. A process of preparing the above described polymers by reacting a compound of the formula $Cl-ArCl$ with a 1.01 to 1.0 molar amount of a compound of the formula $HA-Ar'-AH$ at from 25 to 250° C. in the liquid phase and preferably in a solvent for one or both of the monomers.

3,740,376 PHOTOSENSITIVE POLYMER LAYERS OF VINYL ALCOHOL POLYMERS

Erich Wolff, Leichlingen, Wolfgang Lassig, Cologne, Eckart Seelig, Leverkusen, and Günther Kolb, Bergisch Gladbach, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 27, 1970, Ser. No. 84,543
Int. Cl. C08f 27/00, 27/10, 27/20
U.S. Cl. 260—73 R 3 Claims

The light sensitivity of certain photocrosslinkable polymer layers which in the presence of organic azide compounds as crosslinking agents yield upon exposure to actinic light crosslinked insoluble products is substantially increased if photocrosslinkable polymers are used which contain as side chain a benzene ring which is on the nucleus methyl or methylene substituted.

3,740,377 ONE-STEP PREPARATION OF A POLYURETHANE-UREA RESIN USING A TETRAALKYLGUANIDINE OR ISOCYANATE ADDUCT THEREOF AS A CATALYST

George W. Huffman, Crystal Lake, and Norman E. Rustad, Barrington, Ill., assignors to The Quaker Oats Company, Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 159,498, July 2, 1971. This application Feb. 11, 1972, Ser. No. 225,652

Int. Cl. C08g 22/36
U.S. Cl. 260—75 NC 14 Claims

This invention relates to a one-step process for the curing of mixtures of polyisocyanates, polyols, and certain aromatic diamines to form polyurethane-urea resins useful for films and coatings or for other standard urethane applications, and has particular relation to a catalyst for the one-step curing of said mixtures.

3,740,378 METHOD FOR MAKING POLYIMIDES FROM ALIPHATICALLY UNSATURATED BIS-IMIDES

James V. Crivello, Mechanicville, N.Y., assignor to General Electric Company

No Drawing. Filed Mar. 27, 1970, Ser. No. 23,491

Int. Cl. C08g 20/20
U.S. Cl. 260—78 UA 3 Claims

Polyimides can be made at temperatures as low as 25° C. by effecting contact between an aryl polyamine and an aliphatically unsaturated bisimide, such as a bis-maleimide, in the presence of an acid catalyst, such as an organic carboxylic acid. The resulting polyimides can be

used as molding compounds, laminates, wire coatings, and in applications requiring the services of materials possessing resistance to change at elevated temperatures.

3,740,379 METHOD FOR INTRODUCING METAL CATIONS INTO LACTAM POLYMERS

Jan Sebenda and Rudolf Puffr, Prague, Czechoslovakia, assignors to The Polymer Corporation

No Drawing. Filed Jan. 8, 1971, Ser. No. 105,107
The portion of the term of the patent subsequent to June 27, 1989, has been disclaimed

Int. Cl. C08g 20/18
U.S. Cl. 260—78 L 6 Claims

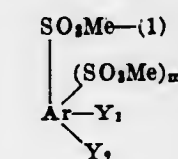
Lactam polymers of modified properties are prepared by introducing metal cations into the lactam prior to polymerization in the form of complexes of these cations and the lactam.

3,740,380 CRYSTALLINE THERMOPLASTIC COMPOSITIONS

Ursula Elchers, Recklinghausen, and Otto Hahmann, Heinz-Hermann Meyer, Konrad Rombusch, and Manfred Rossbach, Marl, Germany, assignors to Chemische Werke Huels Aktiengesellschaft, Marl, Germany

No Drawing. Filed Jan. 21, 1971, Ser. No. 108,597
Claims priority, application Germany, Jan. 22, 1970, P 20 02 650.0

Int. Cl. C08f 45/00; C08g 41/00, 51/00
U.S. Cl. 260—78 S 17 Claims
Crystalline polyolefin and polyamide compositions nucleated with sulfonic acids and salts thereof of the formula



wherein Ar is naphthalene; Me is an equivalent of a metal, preferably alkali metal, or hydrogen; m is 0 or 1; Y₁ is an amino group in the 5- or 8-position; and Y₂ is —OH or hydrogen, have lowered crystallization half-times and a more uniform spherulite structure, which results in more rapid mold release during cyclic operating procedures; improved mechanical properties; and improved transparency.

3,740,381 PURIFICATION OF OLEFINIC POLYMERS OBTAINED IN LIQUID PHASE

Giovanni Di Drusco and Paolo Galli, Ferrara, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

Continuation of abandoned application Ser. No. 698,210, Jan. 16, 1968. This application Apr. 9, 1971, Ser. No. 132,886

Claims priority, application Italy, Jan. 18, 1967, 11,612/67

Int. Cl. C08f 1/88
U.S. Cl. 260—80.78 10 Claims

Removing catalyst residues from elastomeric olefin polymers prepared with Ziegler-Natta type catalysts by washing with known aqueous washing solutions in presence of liquified polymerization monomers. Desirably, solvent for polymers is also present.

3,740,382

STEREOSPECIFIC SYNTHETIC RUBBER BASED ON 1,3-BUTADIENE AND METHOD OF PRODUCING SAME

Boris Alexandrovich Dolgoplosk, Vystavochny pereulok 3, kv. 36; Elena Ivanovna Tinyakova, ulitsa Krasikova 19, kv. 104; Solomon Isaakovich Beilin, proezd Shokolskogo 39, kv. 43; Kirill Lvovich Makovetsky, ulitsa Dybenko 38, kv. 8; Galina Molisevna Chernenko, ulitsa Alabiana 3, kv. 330; Irina Yakovlevna Ostrovskaya, prospekt Mira 72, kv. 2; and Vladimir Alexandrovich Krol, ulitsa Avtovskaya 25, kv. 8, all of Moscow, U.S.S.R.; and Elena Konstantinovna Khrennikova, Novo-Izmailovsky prospekt 4, kv. 219, Leningrad, U.S.S.R.

No Drawing. Filed Aug. 4, 1970, Ser. No. 60,916
Int. Cl. C08d 3/08, 1/18

U.S. Cl. 260—82.1 2 Claims
A stereospecific synthetic rubber on the basis of 1,3-butadiene, characterized in that it is a cis-copolymer of 1,3-butadiene with conjugated cyclic dienes having from 5 to 6 carbon atoms in the cycle, the content of cyclic links in the copolymer chain ranging from 3 to 20 mol percent.

Said rubber is produced by a method, residing in that 1,3-butadiene is copolymerized with conjugated cyclic dienes having from 5 to 6 carbon atoms in the cycle, with the molar ratio of the monomers being 95:5 to 25:75 respectively. The process is carried out at a temperature ranging from -15 to $+80^{\circ}\text{C}$., in the medium of a hydrocarbon solvent, in the presence of catalysts of π -allyl type, these catalysts being π -allyl compounds of nickel in combination with electron-acceptor compounds.

Said rubber exhibits improved technological properties, easily blends with ingredients of a rubber compound, can be easily processed into a vulcanizate, features an increased freeze resistance, and can be used at low temperatures, down to the second-order-transition temperature thereof (from -90 to -100°C .).

3,740,383

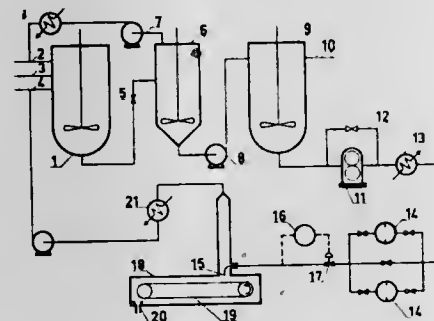
PROCESS FOR THE PRODUCTION OF FIBRILLATED STRUCTURES

Rodolfo Gabellieri and Michel Osterrieth, Rosignano Solvay, Italy, assignors to Solvay & Cie, Brussels, Belgium

Filed Dec. 11, 1969, Ser. No. 884,067
Claims priority, application France, Dec. 13, 1968, 178,330

Int. Cl. C08f 3/04, 15/04

U.S. Cl. 260—88.2 9 Claims



Fibrillated structures of polyethylene and copolymers of ethylene are produced directly from the polymerization or copolymerization of ethylene. The polymerization is carried out in a diluent under low pressure and in the presence of a catalyst having an activity of at least 5000 g. of polymer per gram of metal present in the catalyst. Unreacted ethylene is allowed to escape and the mixture of the polymer in the diluent is then

heated under at least autogeneous pressure. The fibrillated structure is produced by the instantaneous vaporization of the diluent by transfer of the diluent-polymer mixture through an orifice and into an enclosure maintained under low pressure.

3,740,384

POLYMERISATION OF MONO-OLEFINS WITH AN ORGANOMETALLIC ZIRCONIUM COMPLEX-1,1,3,3-TETRAPHENYLSILOXANE-1,3-DIOL CATALYST

Denis George Harold Ballard, Nicholas Heap, Eric Jones, Barry Tarbatt Kilbourn, and Ronald John Wyatt, Run-corn, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Aug. 23, 1971, Ser. No. 174,256
Claims priority, application Great Britain, Sept. 3, 1970, 42,221/70

Int. Cl. C08f 1/58, 3/06

U.S. Cl. 260—94.9 C 16 Claims
A process for the polymerisation of mono-olefins, particularly ethylene, in which the olefin is contacted with a catalyst comprising an organometallic zirconium complex, preferably tetrabenzylzirconium, and 1,1,3,3-tetraphenylsiloxane-1,3-diol.

Preferably, the polymerisation is performed in solution.

3,740,385

N-TERMINAL DERIVATIVES OF SECRETIN

Miguel Angel Ondetti, 265 Hamlin Road, North Brunswick, N.J. 08902

No Drawing. Continuation-in-part of abandoned application Ser. No. 827,962, May 26, 1969. This application May 7, 1970, Ser. No. 35,598

Int. Cl. C07c 103/52; C07g 7/00

U.S. Cl. 260—112.5 6 Claims
Disclosed herein are novel N-terminal derivatives of the peptide secretin, intermediates thereof and a process for their preparation. The secretin derivative of this invention are useful as antacids in hyperacidic conditions of the stomach and duodenum.

3,740,386

PREPARATION OF PEPTIDES

Johannes J. Dahlmans, Maastricht, and Wilhelmus H. J. Boesten, Sittard, Netherlands, assignors to Stamcarbon N.V., Heerlen, Netherlands

Filed Feb. 18, 1971, Ser. No. 116,313

Claims priority, application Netherlands, Feb. 18, 1970, 7002226

Int. Cl. C07c 103/52

U.S. Cl. 260—112.5 8 Claims
The invention provides a process for preparing peptides by reacting a compound containing an amino group having at least one replaceable hydrogen atom with 2-thioxazolidone-5 compound derived from an α -aminocarboxylic acid.

3,740,387

REACTION PRODUCTS OF NITRO-NITRITO ALKANES WITH ALKYLENE POLYAMINES AND SULFUR AND COMPOSITIONS CONTAINING THE SAME

Richard J. Lee, Downers Grove, and Samuel W. Harris, Lansing, Ill., assignors to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Feb. 24, 1971, Ser. No. 118,468

Int. Cl. C07c 161/00

U.S. Cl. 260—132 6 Claims
Oil-soluble compounds are prepared by reacting a nitro-nitrito alkane containing at least ten carbon atoms, an alkylene polyamine, and sulfur in the molar ratio of from about 1.0:0.03:1.0 to about 1.0:0.5:2.0, respectively; compounds so formed are useful anti-rust additives in oleaginous compositions.

3,740,388

PREPARATION OF CARBOXYALKYL DERIVATIVES OF POLYGALACTOMANNANS

Rex Montgomery, Iowa City, Iowa, and George F. Bateson, Minneapolis, John D. Corcoran, Wayzata, and Le Roy O. Krbecek, Minneapolis, Minn., assignors to General Mills, Inc.

No Drawing. Filed June 11, 1970, Ser. No. 45,545

Int. Cl. C07c 47/18

U.S. Cl. 260—209 R 4 Claims
Carboxyalkyl ethers of polygalactomannans are prepared by forming an alcohol-water slurry thereof along with a halo fatty acid reactant and an alkali metal hydroxide. The alcohol is a monohydric alcohol of 2 to 4 carbon atoms, preferably isopropyl alcohol. The products are useful as thickening agents when complexed with calcium ions.

3,740,389

FAST HYDRATING ALKALI METAL CARBOXY-ALKYL POLYGALACTOMANNANS AND PROCESS FOR PREPARING SAME

Robert Nordgren, Minneapolis, Minn., assignor to General Mills Chemicals, Inc.

No Drawing. Filed May 26, 1970, Ser. No. 40,745

Int. Cl. C07c 47/18

U.S. Cl. 260—209 R 10 Claims
The hydration rate of polygalactomannans such as guar gum is substantially improved by forming the alkali metal carboxyalkyl derivatives thereof using defined reactant ratios and an alcohol-water solvent system.

3,740,390

CARDENOLIDE RHAMNOSIDES

Joachim Heider, Warthausen-Oberhofen, and Josef Nickl and Wolfgang Eberlein, Biberach an der Riss, Germany, Walter Kobinger, Vienna, Austria, and Gerhard Dahms, Biberach an der Riss, Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Germany

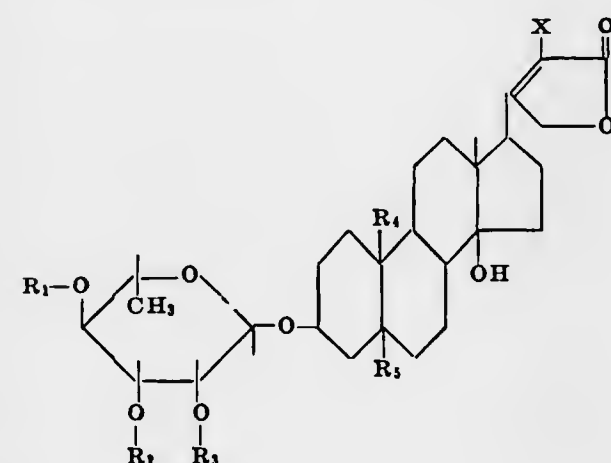
No Drawing. Filed Jan. 8, 1971, Ser. No. 105,121

Claims priority, application Germany, Jan. 14, 1970, P 20 01 364.3

Int. Cl. C07c 173/00

U.S. Cl. 260—210.5 5 Claims

Compounds of the formula



wherein

X is fluorine or methyl,
R₁ is hydrogen or acetyl,
R₂ and R₃ are each hydrogen or acetyl or, together with each other O-isopropylidene,
R₅ is hydrogen or hydroxyl, and
R₄ is methyl when R₅ is hydrogen; or formyl or hydroxymethyl when R₅ is hydroxyl;

the compounds are useful as cardiotonics with a positive inotropic action.

3,740,391

THERMOSETTING GLYOXALATED IONIC GLUCOPYRANOSYL POLYMER AND WET STRENGTH PAPER HAVING A CONTENT THEREOF

Laurence Lyman Williams, Stamford, and Anthony Thomas Coscia, Norwalk, Conn., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of applications Ser. No. 471,463, July 12, 1965, now abandoned, and Ser. No. 745,486, July 17, 1968, now Patent No. 3,556,932. This application Jan. 18, 1971, Ser. No. 107,461

Int. Cl. C08d 9/06

U.S. Cl. 260—233.3 R 5 Claims

A water-soluble thermosetting wet-strengthening agent for paper is prepared by reacting an amidated ionic glucopyranosyl compound with glyoxal. Wet strength paper containing this polymer loses about half its wet strength during 24 hours of normal wet weathering when discarded, thereby alleviating the litter problem.

3,740,392

HETEROCYCLIC CARBOXYLIC ACID ESTERS OF FLUOCINOLONE-ACETONIDE

Joachim Heider, Warthausen-Oberhofen; Wolfgang Eberlein, and Gunther Engelhardt, both of Biberach/Riss, all of Germany, assignors to Ingelheim Boehringer GmbH, Ingelheim am Rhine, Germany

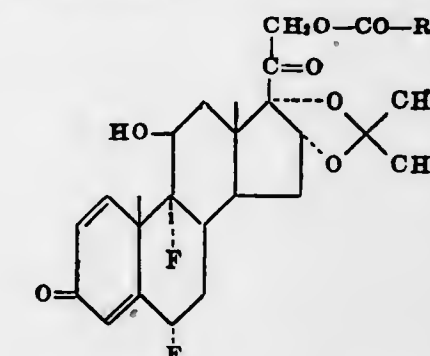
Filed Jan. 26, 1971, Ser. No. 109,975

Claims priority, application Germany, Feb. 4, 1970, P 20 05 002.6

Int. Cl. C07c 173/10

U.S. Cl. 260—239.55 D 5 Claims

Novel esters of fluocinolone-acetonide or 6 α ,9 α -difluoro-16 α ,17 α -isopropylidenedioxy- $\Delta^{1,4}$ -pregnadiene-11 β ,21-diol-3,20-dione of the formula



wherein R is selected from the group consisting of pyridine-3, pyridine-4, benzofuran-2 or 1-menthoxyethyl having high glucocorticoid and antiphlogistic activity and their preparation.

3,740,393

STYRYL COMPOUNDS

Klaus-Dieter Bode and Josef Schroeder, Leverkusen, and Carl-Wolfgang Schellhammer, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

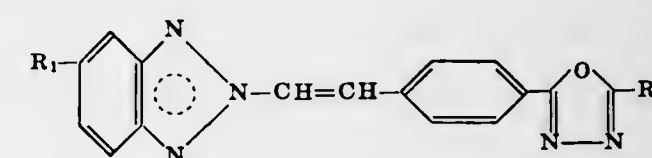
No Drawing. Filed Oct. 22, 1970, Ser. No. 83,243

Claims priority, application Germany, Nov. 3, 1969, P 19 55 065.3

Int. Cl. C09b 23/14

U.S. Cl. 260—240 D 7 Claims

2 - [4' - (oxadiazolyl - 2'')-styryl]-benzotriazoles of the general formula



in which R_1 denotes hydrogen, halogen, alkyl, aralkyl or aryl radicals, and R_2 means hydrogen, aryl, aralkenyl or heteroaryl radicals, as well as their preparation and their use as optical brightening agents.

3,740,394

THIAZOLO AND THIAZINO PYRIMIDINES

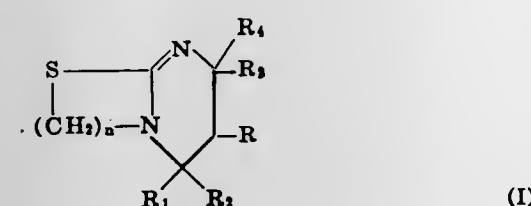
Pierre Baetz, Garches, France, assignor to Seperic, Morat, Fribourg Canton, Switzerland
Filed June 29, 1970, Ser. No. 50,715

Claims priority, application Great Britain, July 3, 1969, 33,646/69

Int. Cl. C09d 51/46

U.S. Cl. 260—243 R

Compounds of formula:



in which n is 2 or 3, R is hydrogen or, together with R_3 , forms a double bond, R_1 is hydrogen or a lower alkyl group, R_2 and R_4 are each hydrogen, a lower alkyl group, a phenyl group optionally substituted, thienyl or pyridyl, and R_3 is hydroxyl or, together with R , forms a double bond. These compounds and their salts are therapeutically active, in particular as antiinflammatory drugs.

3,740,395

ETHYL 10 - (β -MORPHOLYLPROPIONYL)-PHENTHIAZINE-2-CARBAMATE HYDROCHLORIDE

Anna Nikitichna Gritsenko, Volokolamskoe shosse 80, kv. 28; Jury Ivanovich Vikhlyayev, Dorogomilovskaya ulitsa 6/8, kv. 12; Semen Vladimirovich Zhuravlev, Minsskaya ploschad 3/8, kv. 38; Natalya Veniaminovna Kaverina, Novopeschanaya ulitsa 3, kv. 32; Zlata Petrovna Senova, Mytnaya ulitsa 23, korpus 2, kv. 67; and Olga Vasilievna Ulyanova, 2 ulitsa Oktyabrskogo Polya 21, kv. 46, all of Moscow, U.S.S.R.

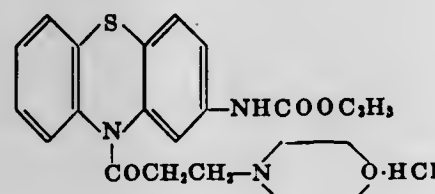
No Drawing. Filed Oct. 14, 1969, Ser. No. 870,444

Int. Cl. C07d 93/14

U.S. Cl. 260—243 AC

1 Claim

A novel composition of matter, ethyl 10-(β -morpholylpropionyl)-phenthiazine-2-carbamate hydrochloride, having the formula



which comprises reacting ethyl phenthiazine-2-carbamate with β -chloropropionyl chloride in an inert organic solvent at a boiling point of the solvent used, condensing the resulting ethyl 10-(β -chloropropionyl)-phenthiazine-2-carbamate with morpholine in an inert organic solvent, treating the ethyl 10-(β -morpholylpropionyl)-phenthiazine-2-carbamate with hydrogen chloride, and separating the target compound.

The novel compound, ethyl 10-(β -morpholylpropionyl)-phenthiazine-2-carbamate hydrochloride, is the active principle of an antiarrhythmic pharmaceutical preparation.

3,740,396

THIAZOLINYL AND THIAZINYL DERIVATIVES OF BENZOTRIAZOLES

Rudiger D. Haugwitz, Highland Park, and Venkatachala L. Narayanan, Hightstown, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

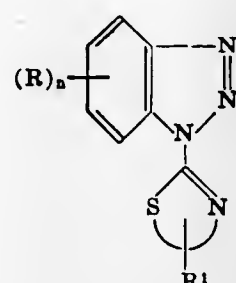
No Drawing. Filed Sept. 7, 1971, Ser. No. 178,394

Int. Cl. C07d 93/06

U.S. Cl. 260—243 R

8 Claims

Thiazolanyl and thiazinyl derivatives of benzotriazoles are provided having the structure



and which are useful as anthelmintic agents.

3,740,397

1-(3,5-DIALKOXY-PHENOXY)-2-(TERTIARY AMINO) ETHANES

Louis Lafon, Paris, France, assignor to Societe Orsymonde, Paris, France

No Drawing. Filed Apr. 27, 1970, Ser. No. 32,444

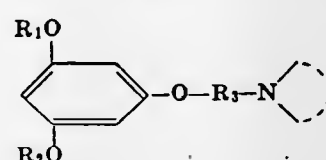
Claims priority, application Great Britain, Apr. 29, 1969, 21,889/69

Int. Cl. C07d 87/32

U.S. Cl. 260—247.7 C

6 Claims

New compounds of the general formula:

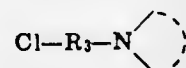


where R_1 and R_2 , which can be the same, each represent a lower alkyl radical of order C_1-C_3 ; R_3 represents a straight or branched alkylene radical; and



is a group selected from the aliphatic and N-heterocyclic amino groups, the latter amino group being capable of containing a second hetero atom; and their acid addition salts.

These compounds are obtained by the condensation in alcohol, in the presence of sodium, of a 3,5'-dialkoxy phenol on a chloroalkylamine:



The compounds of Formula I and their acid addition salts are therapeutically useful.

3,740,398

BASICALLY SUBSTITUTED 2,4-(1H,3H)-QUINAZO-LINDIONE DERIVATIVES

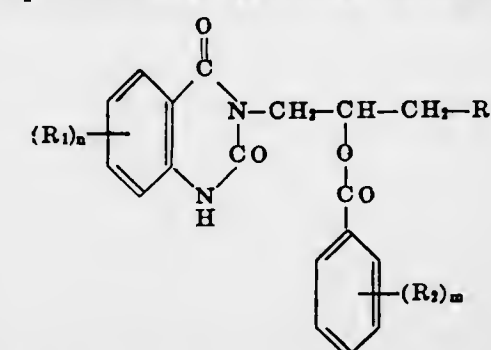
Rudi Beyerle, Bruchkobel, and Rolf-Eberhard Nitz, Klaus Resag, Eckhard Schraven, and Adolf Stachel, deceased, late of Frankfurt am Main, Fechenheim, by Inge Stachel, Frankfurt am Main, Fechenheim, and Sophie Stachel, heirs, Augsburg, Germany, assignors to Cassella Farbwerke Mainkur Aktiengesellschaft, Frankfurt am Main, Fechenheim, Germany
No Drawing. Filed June 25, 1970, Ser. No. 49,923
Claims priority, application Germany, July 4, 1969, P 19 34 036.4

Int. Cl. C07d 51/48

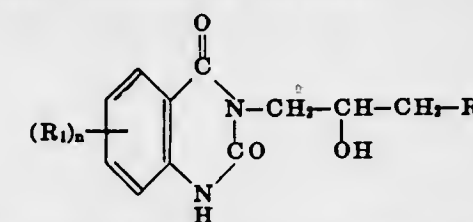
U.S. Cl. 260—247.2 A

6 Claims

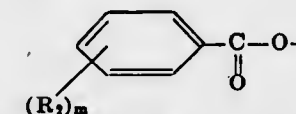
Pharmacologically valuable, basically substituted 2,4-(1H,3H)-quinazolidione derivatives having the formula



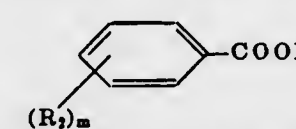
wherein R' is selected from a radical selected from the group consisting of di- C_1-C_4 -alkylamino, N-methylbenzylamino, N-methyl-N-cyclohexylamino, N-methylallylamino, N-methyl-piperazino, N-methyl-N-(piperidino-n-propyl)amino, N-methyl-N-(methoxy-n-propyl)-amino, hexamethyleneimino, morpholino, thiomorpholino, pyrrolidino and piperidino; R_1 is methoxy; R_2 stands for alkoxy groups having 1-4 carbon atoms; m stands for an integer selected from the groups 1, 2 and 3; and n stands for an integer selected from the groups 2 and 3 having the formula



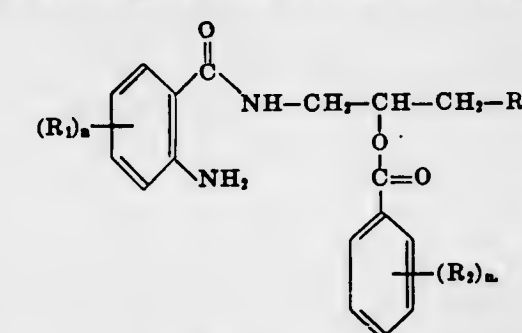
wherein R_1 has the above-given meaning, R is identical with R' or, in case R' contains an acyloxy radical of the formula



said R may also represent the radical of the underlying hydroxy compound with an alkoxy benzoic acid of the formula



or a functional derivative thereof; or by cyclizing substituted o-aminobenzamides having the formula



with phosgene or with a lower alkyl chloroformate.

911 O.G.—37

3,740,399

DIAMINO-s-TRIAZINES

Satoshi Mural, Yokaichi, Koichi Yoshida, Takatsuki, and Chikanori Tomioka, Kyoto, Japan, assignors to Kaken-yaku Kako Kabushiki Kaisha, Tokyo-to, Japan
No Drawing. Filed Feb. 10, 1971, Ser. No. 114,383
Claims priority, application Japan, May 13, 1970, 45/40,664

Int. Cl. C07d 55/20

U.S. Cl. 260—249.8

14 Claims

There are disclosed novel s-triazine derivatives and salts thereof. They can be used as therapeutics having activity as antiplogistics, blood vessel expanders, nervous system sedatives, antivirals, antispasmodics, blood sugar reducers and diuretics. They are prepared by the reaction of a substituted diguanide or salt thereof with a carboxylic acid ester.

3,740,400

CONVERSION OF HETEROAROMATIC METHYL COMPOUNDS TO NITRILES

Gerald Berkelhammer, Princeton, and William Henry Gastrock, Hightstown, N.J., assignors to American Cyanamid Company, Stamford, Conn.

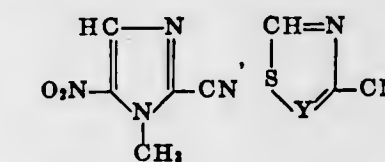
No Drawing. Filed Feb. 1, 1971, Ser. No. 111,732

Int. Cl. C07d 51/36

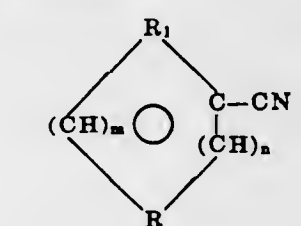
U.S. Cl. 260—250 R

7 Claims

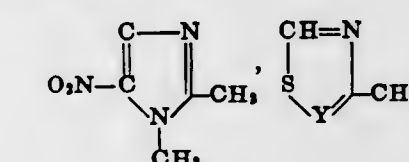
The present invention relates to a novel process for the preparation of 5- and 6-membered heteroaromatic nitriles having a formula selected from the group consisting of:



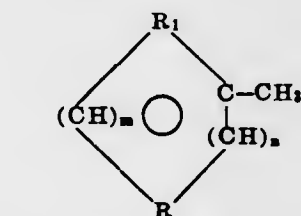
where Y is N or CH; and



where R and R_1 each represent N, N=N or CH, m and n each represent an integer selected from the group consisting of 0, 1 and 2 and provided that at least one of R and R_1 represents a member other than CH and that the resulting compounds are limited to 6-membered rings. The process of this invention involves reaction, in the presence of an inert organic solvent, of a 5- or 6-membered heteroaromatic compound of the formula selected from the group consisting of:



and

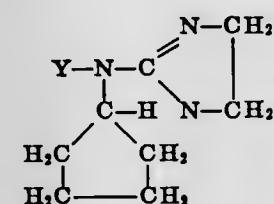


where Y , R , R_1 , m and n are as described above, with nitrosyl chloride or a nitrogen oxide selected from the group consisting of nitrogen tetroxide, nitrogen trioxide and nitrogen pentoxide.

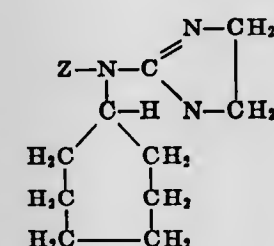
3,740,401
2-(N-CYCLOALKYL-PHENYLAMINO)-2-IMIDAZOLINES(2) AND SALTS THEREOF

Helmut Stahle, Herbert Koppe, Werner Kummer, and Klaus Stockhaus, Ingelheim am Rhein, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany
 No Drawing. Filed Nov. 18, 1970, Ser. No. 90,845
 Claims priority, application Germany, Nov. 19, 1969, P 19 58 212.8

Int. Cl. C07d 49/34, 57/48
 U.S. Cl. 260—254
 Compounds of the formula

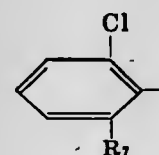


or



wherein

Y is 2,6-dichloro-phenyl, 2-chloro-6-methyl-phenyl, 2-chloro-4-methyl-phenyl, 2-methyl-4-chloro-phenyl, 2-chloro-phenyl, 2,4-dichloro-phenyl, 2-methyl-phenyl, 2,6-diethyl-phenyl, 4-bromo-phenyl, 2,6-dichloro-4-bromo-phenyl, 4-cyano-phenyl, 4-fluoro-phenyl, 2-trifluoromethyl-phenyl, 2-methoxy-4-chloro-phenyl or 2-chloro-3-methyl-phenyl, and
 Z is



where R₇ is chlorine or methyl,

and their non-toxic, pharmacologically acceptable acid addition salts; the compounds as well as their salts are useful as analgesics.

3,740,402
CERTAIN 2-(o-SULFONAMIDOPHENYL)-4(3H)-QUINAZOLINONES

Albert Anthony Cevasco, Middlesex, N.J., assignor to American Cyanamid Company, Stamford, Conn.
 No Drawing. Filed Mar. 1, 1971, Ser. No. 119,964
 Int. Cl. C07d 51/48

U.S. Cl. 260—256.5 R
 Fluorescent compositions which are not visible under ordinary light, said compositions having organic quinazolinone compounds as the fluorescent component.

3,740,403
3,6-BIS-(DIALKYLAMINOALKOXY)ACRIDINES
 Keith Chadwick Murdock, Pearl River, N.Y., assignor to American Cyanamid Company, Stamford, Conn.
 No Drawing. Filed Nov. 5, 1971, Ser. No. 196,222
 Int. Cl. C07d 37/24

U.S. Cl. 260—279 R
 This disclosure describes compounds of the class of 3,6-bis-(dialkylaminoalkoxy)acridines useful as antiviral agents.

3,740,404
PIPERIDINOMETHYLENEDIHYDRO-CARBAZOLONES

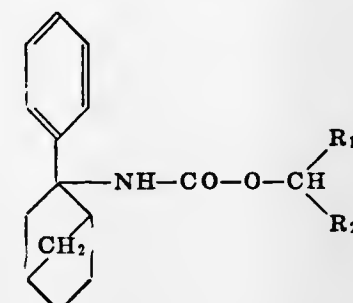
Ruddy Littell, Rivervale, and George Rodger Allen, Jr., Old Tappan, N.J., assignors to American Cyanamid Company, Stamford, Conn.
 No Drawing. Continuation-in-part of application Ser. No. 823,513, May 9, 1969, now Patent No. 3,634,420. This application July 9, 1971, Ser. No. 161,267
 Int. Cl. C07d 29/26

U.S. Cl. 260—293.61
 The preparation of substituted piperidinomethylenedi-hydrocarbazolones by reacting a 2,3-dihydrocarbazolone with paraformaldehyde and a piperidine is described. The products are useful for their central nervous system activity as tranquilizers.

3,740,405
N-SUBSTITUTED [2-(2-PHENYLBICYCLO-(2,2,1)-HEPTYL)]-CARBAMATES

Helmut Kraft, Neckarhausen, Germany, assignor to Knoll A.G. Chemische Fabriken, Ludwigshafen (Rhine), Germany
 No Drawing. Filed Nov. 24, 1970, Ser. No. 92,517
 Claims priority, application Germany, Nov. 26, 1969, P 19 59 365.8
 Int. Cl. C07d 39/06

U.S. Cl. 260—293.53
 Spasmodic and broncholytic N-substituted [2-(2-phenylbicyclo-(2,2,1)-heptyl)]-carbamates of the formula

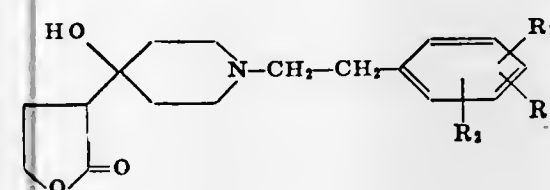


and acid addition and quaternary ammonium sulfate salts thereof; the method of making said carbamates by reaction of 2-phenylbicyclo-(2,2,1)-heptane-2-carbonic acid chloride with an alkali metal azide, conversion to the corresponding isocyanate by loss of nitrogen, and reaction of the isocyanate with an amino alcohol.

3,740,406
DIHYDRO-3 [4-HYDROXY-1-(DI OR TRI-SUBSTITUTED PHENETHYL) - 4 - PIPERIDYL]-2(3H) FURANONE

Anton Ebnöther, Arlesheim, and Erwin Rissi, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland
 No Drawing. Filed July 20, 1971, Ser. No. 164,452
 Claims priority, application Switzerland, July 29, 1970, 11,441/70
 Int. Cl. C07d 29/24

U.S. Cl. 260—293.67
 The invention concerns novel piperidyl-furanone derivatives of the formula:



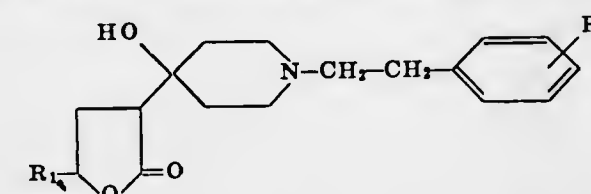
wherein

R₁ is fluorine, chlorine, bromine, trifluoromethyl, alkyl of 1 to 4 carbon atoms or alkoxy of 1 to 4 carbon atoms, R₂ is chlorine, bromine, fluorine, alkyl of 1 to 4 carbon atoms or alkoxy of 1 to 4 carbon atoms, and

R₃ is hydrogen, alkyl of 1 to 4 carbon atoms or alkoxy of 1 to 4 carbon atoms.
 A process for their production and intermediates therefor are also described.
 The compounds are useful as analgesics.

3,740,407
DIHYDRO-3-(4-HYDROXY-1-PHENETHYL)-4-PIPERIDYL-2-(3H)-FURANONES
 Anton Ebnöther, Arlesheim, and Erwin Rissi, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland
 No Drawing. Continuation-in-part of abandoned application Ser. No. 52,736, July 6, 1970. This application May 1, 1972, Ser. No. 249,222
 Int. Cl. C07d 29/24

U.S. Cl. 260—293.67
 The invention concerns novel compounds of formula:



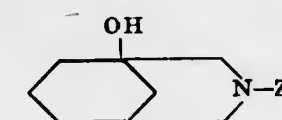
wherein R₁ is hydrogen or lower alkyl, and R₂ is hydrogen, fluorine, chlorine, bromine, lower alkyl, lower alkoxy or lower alkylthio, cyano, amino or trifluoromethyl, or —NHCOR₃, wherein R₃ is lower alkyl, and pharmaceutically acceptable acid addition salts thereof.

The compounds of Formula I possess useful analgesic properties.

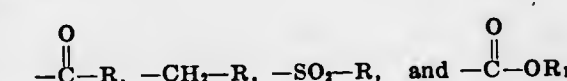
Processes for the production of the compounds I are also described.

3,740,408
OXYGENATED 3-AZA BICYCLO[3.3.1]NONANES
 Gunther S. Fonken, Galesburg, Milton E. Herr, Kalamazoo, and Herbert C. Murray, Hickory Corners, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.
 No Drawing. Continuation-in-part of application Ser. No. 666,991, Sept. 11, 1967, now Patent No. 3,556,943, which is a continuation-in-part of abandoned application Ser. No. 453,204, May 4, 1965. This application Oct. 23, 1970, Ser. No. 83,649
 Int. Cl. C07d 39/00

U.S. Cl. 260—293.54
 Oxygenated azabicyclononanes of the formula:



wherein Z₂ is selected from the group consisting of hydrogen,



in which R is aryl, and R₁ is aralkyl. The compounds of the above formula are of particular value as central nervous system stimulants.

3,740,409
2-AMINO(AND 2-AMINOMETHYL)-2-HETERO-CYCLIC-THIOACETAMIDES
 L. Martin Brenner, Upper Darby, and Bernard Loev, Broomall, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.
 No Drawing. Filed Mar. 21, 1972, Ser. No. 236,593
 Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 E
 The compounds are 2-amino(and 2-aminomethyl)-2-heterocyclic-thioacetamides which are inhibitors of gastric acid secretion.

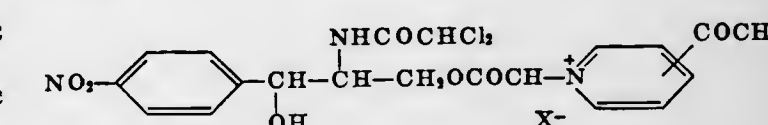
3,740,410
ACID ADDITION SALTS OF 2,3,5,6-TETRAAMINO-PYRIDINE AND A PROCESS FOR THEIR PREPARATION

Arthur H. Gerber, Cleveland, Ohio, assignor to Horizons Incorporated, a Division of Horizons Research Incorporated
 No Drawing. Filed Nov. 23, 1970, Ser. No. 92,154
 Int. Cl. C07d 31/42

U.S. Cl. 260—295 S
 Processes for the preparation of 2,6-diamino-3,5-dinitropyridine from 2,6-diaminopyridine and catalytic reduction of this dinitropyridine to 2,3,5,6-tetraaminopyridine free base and acid salts thereof, and processes for preparing polymers from said pyridines.

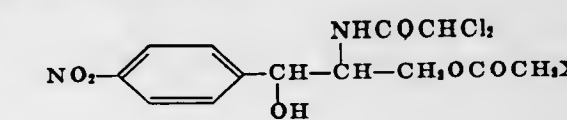
3,740,411
WATER-SOLUBLE ANTIBACTERIAL COMPOUNDS
 Hisao Akiyama, Nishinomiya, Shigeru Okano, Ibaraki, and Hiroyuki Suzuki, Kaoru Maezima, Toshiaki Komatsu, and Toyozo Katsura, Takarazuka, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan
 No Drawing. Filed June 18, 1971, Ser. No. 154,662
 Claims priority, application Japan, June 23, 1970, 45/55,447
 Int. Cl. C07d 31/44

U.S. Cl. 260—295 Q
 A novel water-soluble antibacterial compound of the formula

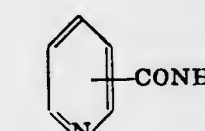


wherein X is a halogen anion.

These compounds are produced by reacting a halogeno-acetic acid ester of chloramphenicol or thiamphenicol represented by the formula:



wherein X is as hereinbefore defined, with carbamoyl-pyridine represented by



3,740,412
IMIDAZOLINE-3-OXIDE-1-OXYL DERIVATIVES
 Edwin F. Ullman, Atherton, Ludwig Call, Palo Alto, Richard K. Leute, Sunnyvale, and Jeanne H. Osiecki, Los Altos, Calif., assignors to Synvar Associates, Palo Alto, Calif.
 No Drawing. Filed Apr. 8, 1970, Ser. No. 26,750
 Int. Cl. C07d 49/30, 49/34

U.S. Cl. 260—309.6
 Dihydroimidazoles, tetrahydroimidazoles and tautomeric mixtures of dihydroimidazoles and tetrahydroimidazoles having tertiary carbon atoms in the number 4 and number 5 positions of the hydroimidazole ring, and having attached at the C₂ position of the imidazole ring a radical selected from the group consisting of —NR₁R₂, —NR₂, —NR₃, —S—, —SR₁, and —OR₁, wherein R₁ is hydrogen, alkyl, aryl, alkenyl, alkynyl cycloalkyl and

3,740,443

BRADYCARDIA COMPOSITIONS

Herbert Koppe, Ingelheim, Albrecht Engelhardt, Mainz, Gerhard Ludwig, Lippmadsdorf, and Karl Zeile, Ingelheim, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhine, Germany

No Drawing. Continuation-in-part of application Ser. No. 821,137, May 1 1969 now Patent No. 3,644,636, which is a continuation-in-part of application Ser. No. 619,141, Feb. 28, 1967, now Patent No. 3,459,782, which in turn is a continuation-in-part of abandoned application Ser. No. 391,012, Aug. 20, 1964. This application Feb. 22, 1971, Ser. No. 117,773.

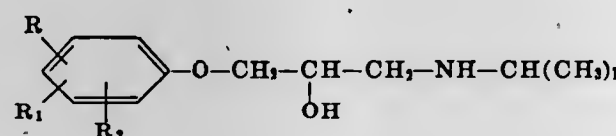
Claims priority, application Germany, Aug. 26, 1963, B 73,262; June 24, 1966, B 87,707; Dec. 30, 1966, B 90,543; and Feb. 6, 1967, B 91,070

Int. Cl. A61k 27/00

U.S. Cl. 424—330

12 Claims

Bradycardia compositions having N - isopropyl-noradrenaline antagonistic activity and method of inducing said activity in warm-blooded animals using as the active ingredient at least one 1-substituted phenoxy-2-hydroxy-3-N-isopropylamino propane of the formula



wherein R is selected from the group consisting of hydrogen, halogen, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, hydroxyalkyl of 1 to 4 carbon atoms, hydroxycarbonyl, alkoxy carbonyl of 1 to 4 carbon atoms, alkenyl of 2 to 4 carbon atoms, alkynyl of 2 to 4 carbon atoms, alkylthio of 1 to 4 carbon atoms and cyano, R₁ is —(CH₂)_x—NH₂ where x is an integer from 0 to 3 and R₂ is selected from the group consisting of hydrogen, halogen, alkyl of 1 to 4 carbon atoms and

alkoxy of 1 to 4 carbon atoms, either as a racemate or an optically active isomer, or its nontoxic, pharmaceutically acceptable acid addition salt.

3,740,444

THERAPEUTIC COMPOSITIONS AND METHOD
Herbert Koppe, Ingelheim (Rhine), Albrecht Engelhardt, Mainz (Rhine), and Karl Zeile, Ingelheim (Rhine), Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim (Rhine), Germany

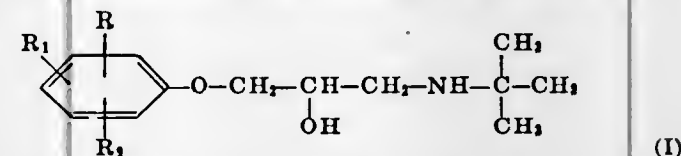
No Drawing. Continuation-in-part of application Ser. No. 700,376, Jan. 25, 1968, now Pat. No. 3,541,130. This application May 12, 1970, Ser. No. 36,676

Int. Cl. A61k 27/00

U.S. Cl. 424—330

11 Claims

A composition having bradycardia and isoproterenol activity comprising at least one compound selected from the group consisting of racemates of 1-phenoxy-2-hydroxy-3-tert-butylamino propanes of the formula



wherein R is selected from the group consisting of alkynyl of 2 to 4 carbon atoms, —(CH₂)_{x+1}—OH, —(CH₂)_x—CN and —(CH₂)_x—NH₂, where x is an integer from 0 to 3, COOH and COOR' where R' is alkyl of 1 to 4 carbon atoms; R₁ is selected from the group consisting of hydrogen, alkoxy and alkylthio of 1 to 4 carbon atoms, —CN and alkenyl and alkynyl of 2 to 4 carbon atoms and R₂ is selected from the group consisting of hydrogen, halogen and alkyl and alkoxy of 1 to 4 carbon atoms, their optically active isomers and their nontoxic, pharmaceutically acceptable acid addition salts of said racemates and said optically active isomers and a major amount of a pharmaceutical carrier and method of producing bradycardia and suppressing tachycardia effects of N-isopropyl-noradrenaline in warm-blooded animals.

ELECTRICAL

3,740,445

ELECTRODE ASSEMBLIES

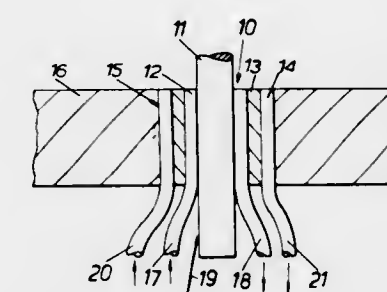
Donald Charlsworth, Cuddington, England, assignor to Pilkington Brothers Limited, Liverpool, England
Filed Apr. 12, 1972, Ser. No. 243,372

Claims priority, application Great Britain, Apr. 16, 1971, 9,691/71

Int. Cl. C03b 5/02

U.S. Cl. 13—6

6 Claims



An electrode assembly for insertion in a wall of a glass melting furnace comprises cooling means surrounding the electrode where it passes through the furnace wall, an insulating refractory sleeve surrounding the cooling means and further cooling means surrounding the insulating sleeve. Cooling of the insulating sleeve maintains it at a high resistivity level.

3,740,446

PERCEPTION APPARATUS FOR THE BLIND

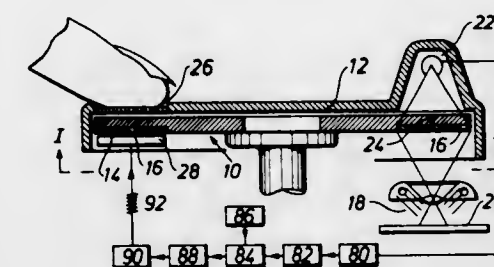
Bengt Anders Benson, Styckjunkargatan 5, Stockholm, Sweden

Filed Dec. 27, 1971, Ser. No. 212,090

Int. Cl. G09b 21/00; G06k 9/00

U.S. Cl. 35—35 A

8 Claims



A perception apparatus to aid the blind is provided in the form of a scanning disc of the Nipkow type having a spiral pattern of apertures adapted to scan in sequence an optically formed image, the scanning pulses controlling a high-frequency pulse generating system with low power, high tension output in the form of pulses of Tesla character capable of creating tactile stimulation of the human skin, which pulses are supplied to contact pegs insulatedly embedded in, and flush with the surface of, the scanning disc or a member associated therewith, said pegs being oriented in a spiral pattern corresponding to that of the scanning apertures. The tactile pulses are delivered to a picture gate onto which the blind user places a finger tip to receive through said gate a tactile display of the scanned image. The arrangement of the generator system and the control system is such that the low power, high tension tactile pulses are only transmitted when the scanning apertures detect a change of illumination, from light to darkness or vice versa, or both.

3,740,447

MUSIC BOX

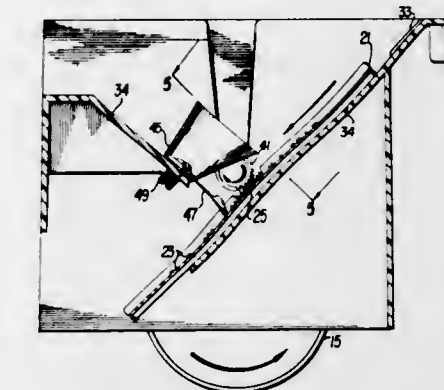
Michael Langieri, Jr., Little Falls, N.J., assignor to Questor Corporation, Toledo, Ohio

Filed Feb. 16, 1972, Ser. No. 226,873

Int. Cl. G10f 1/06

U.S. Cl. 84—101

7 Claims



A music box including a housing having a musical comb mounted therein. Rigid cards having protuberances on one face are mechanically driven along a guide surface so as to pass under and pluck the tines of the comb. The comb may be mounted to the interior of a bell.

3,740,448

ORGAN DROP-IN KEY ASSEMBLY

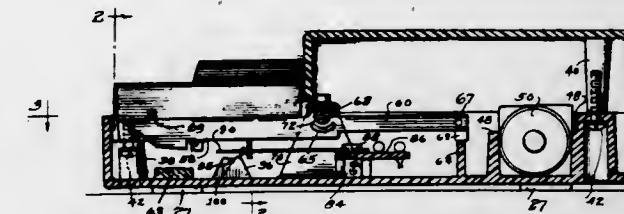
Robert F. Olszowka; Howard M. Thomas, and Ray F. Gong, all of North Tonawanda, N.Y., assignors to The Wurlitzer Company, Chicago, Ill.

Filed Apr. 12, 1971, Ser. No. 133,162

Int. Cl. G10h 1/00

U.S. Cl. 84—1.01

16 Claims



An organ is provided with a molded plastic case. The lower portion of the case has integral protuberances therein for supporting various structures including a key switch and key biasing assembly. All of the keys are preassembled on a single pivot rod, and the pivot rod is installed in saddles integral with the case whereby simultaneously to mount all of the keys, and to position the keys for cooperative action with the key switches and with the springs for biasing the keys, other structures likewise being simply dropped into place.

3,740,449

ELECTRIC ORGAN WITH CHORD PLAYING AND RHYTHM SYSTEMS

James S. Southard, Elkhart, Ind., assignor to C. G. Conn Ltd., Elkhart, Ind.

Filed June 24, 1971, Ser. No. 156,326

Int. Cl. G10h 1/00

U.S. Cl. 84—1.01

12 Claims

The electric organ of the invention includes tone generators and frequency dividers for providing musical tones extending through a number of octaves. Tones in different octaves are

3,740,457

REPRODUCTION OF MULTICOLOUR SCENES AND PRINTS IN MULTICOLOUR TELEVISION

Louis Achilles Meeussen, Mortsel, and Roger Joseph Huybrechts, Brussel, both of Belgium, assignors to Gevaert-Agfa N. V., Mortsel, Belgium

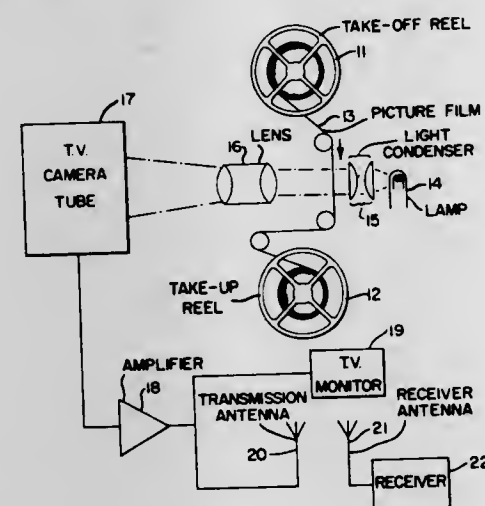
Filed Mar. 12, 1969, Ser. No. 806,447

Claims priority, application Great Britain, Mar. 13, 1968, 12,244/68

Int. Cl. H04n 5/84, 9/53

U.S. Cl. 178-5.4 CD

13 Claims



A process of electronically reproducing for television transmittal by conventional reproduction and transmittal equipment multicolor photographic film which has an overall optical contrast or gamma within the range of 0.5-0.7 so that conventional electronic modification of the electronic signal can be omitted.

3,740,458

IMAGE PICKUP TUBE

Yasuharu Kubota, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

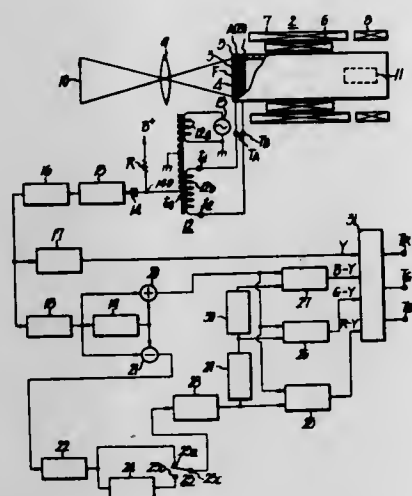
Continuation-in-part of Ser. No. 72,593, Sept. 16, 1970. This application Aug. 31, 1971, Ser. No. 176,553

Claims priority, application Japan, Sept. 3, 1970, 45/87715

Int. Cl. H04n 9/06

U.S. Cl. 178-5.4 ST

19 Claims



An image pickup tube for a color television camera has a photoconductive layer for the conversion of images projected thereon into an electrical output and onto which a color separated image of an object to be reproduced is projected through a color filter which is part of the tube or separate therefrom, indexing electrodes disposed in close proximity to the photoconductive layer to electrically produce an index image on such layer in response to the application of different voltages to the indexing electrodes so that the electrical output is a composite signal containing a color video signal corresponding to the color separated image and an index signal

corresponding to the index image and by which individual color component signals may be separated from the color video signal, and photoelectric transducing means, such as, photoconductive cells, photodiodes, photoswitches, phototransistors or photovoltaic cells, included in the image pickup tube and forming parts of circuits by which voltage differences are applied to the indexing electrodes for establishing the index image.

3,740,459

AUTOMATIC TINT CONTROL CIRCUIT

Hisao Okada, Midori-ku, Yokohama-shi, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

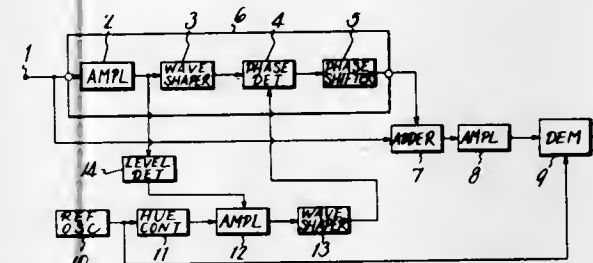
Filed Sept. 27, 1971, Ser. No. 183,803

Claims priority, application Japan, Sept. 25, 1970, 45/83882

Int. Cl. H04n 9/12

U.S. Cl. 178-5.4 HE

6 Claims



An automatic tint control circuit for a color television receiver adapted for reception of a composite color television signal containing a chrominance signal, the phase and level of which represent hue and color saturation, respectively. The circuit automatically imparts a phase corresponding to proper flesh tone to a chrominance signal which has a phase in a predetermined phase area that includes the phase of flesh tone and which has a signal level lower than a predetermined value.

3,740,460

AUTOMATIC CONTROL CIRCUIT FOR TELEVISION SOUND CARRIER

Kian Kie Ong, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

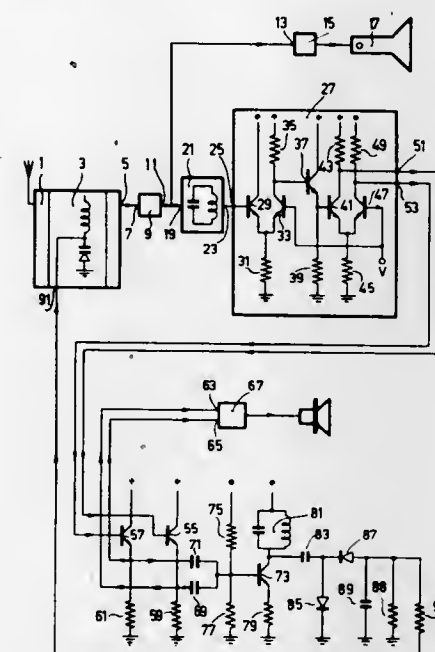
Filed Aug. 24, 1971, Ser. No. 174,355

Claims priority, application Netherlands, Aug. 29, 1970, 7012829

Int. Cl. H04n 5/60

U.S. Cl. 178-5.8 A

8 Claims



An automatic sound carrier suppression filter tuning circuit active on a detected intercarrier signal, which circuit includes an edge steepness detector after a limited circuit for the purpose of detecting the intercarrier signal.

3,740,461

DETECTOR CIRCUITS WITH SELF-REFERENCED BIAS

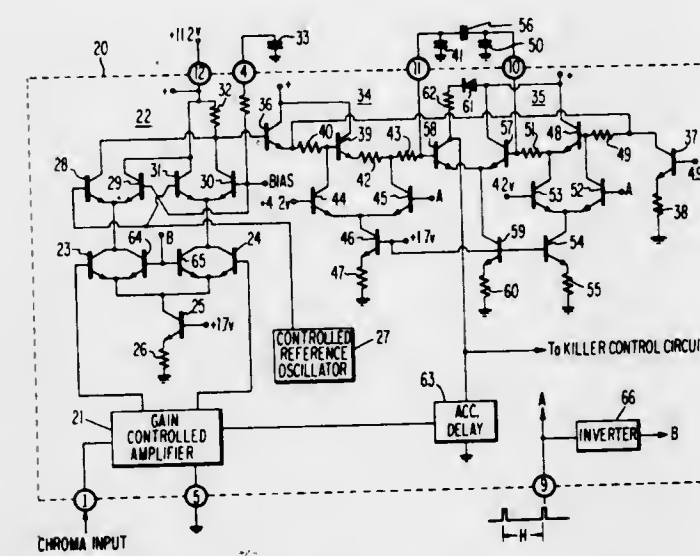
Leopold Albert Harwood, Somerville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 10, 1972, Ser. No. 242,322

Int. Cl. H04n 9/50

U.S. Cl. 178-5.4 SD

9 Claims



A sample and hold arrangement is disclosed having two similar detectors which operate in a complementary manner during each operating cycle. One detector is keyed on during a sampling interval to store information which is to be sampled while the second detector is keyed off. During the remaining part of each cycle, the second detector is keyed on to store quiescent level information while the first detector is keyed off. The sampled information and quiescent level information are applied to a differential comparator to produce an output signal substantially independent of quiescent level variations.

3,740,462

AUTOMATIC CHROMA GAIN CONTROL SYSTEM

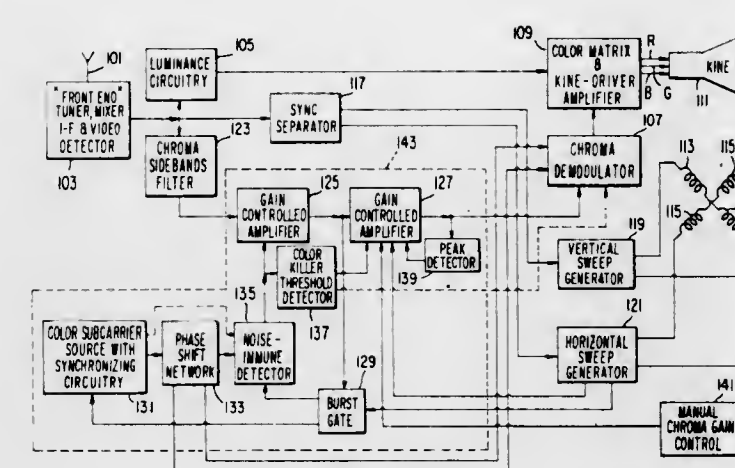
Leopold Albert Harwood, Somerville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 10, 1972, Ser. No. 242,466

Int. Cl. H04n 9/48

U.S. Cl. 178-5.4 AC

10 Claims



Cascaded first and second gain-controlled amplifiers are used in the chrominance channel of a color television receiver. The gain of the first amplifier is controlled by an ACC loop employing a noise-immune detector to detect color burst information. The gain of the second amplifier is controlled by the output of a peak detector which detects picture-interval information at the output of the second amplifier. An ACC system with improved performance during the reception of noisy signals results.

3,740,463

IMPROVED EDITING SYSTEM

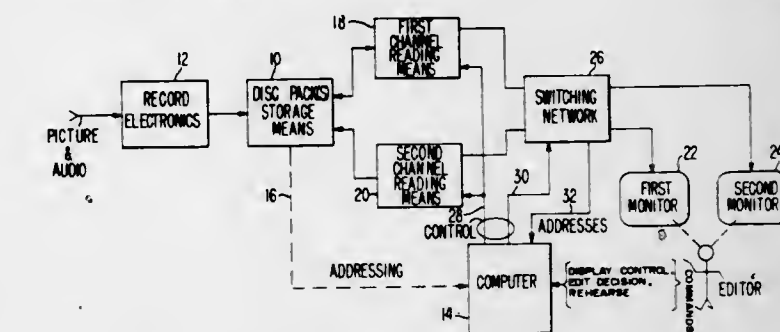
Jerry R. Youngstrom, Sunnyvale; Wilfred K. Anderson, San Jose; Martin Wallace Fletcher, Palo Alto; Calton H. Stroble, Los Altos Hills, and Kenneth T. Taylor, Menlo Park, all of Calif., assignors to Memorex Corporation, Santa Clara, Calif.

Filed Feb. 16, 1971, Ser. No. 115,673

Int. Cl. H04n 5/76

U.S. Cl. 178-6.6 A

11 Claims



A system for recording and randomly selecting and reproducing audio-video information signals is provided with means for encoding audio and frame code information signals within video information signals.

3,740,464

APPARATUS FOR SIMULTANEOUS REPRODUCTION OF IMAGES OF SELECTED SUPERIMPOSED PICTURES

Friedrich Bestenreiner, Grunwald; Reinhold Deml; Josef Helmberger, both of Munich, and Josef Pfeifer, Uterhaching, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

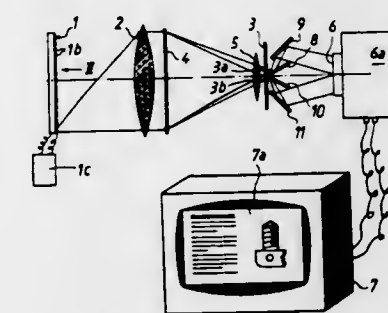
Filed Mar. 18, 1971, Ser. No. 125,474

Claims priority, application Germany, Mar. 21, 1970, P 20 13 584.6

Int. Cl. G02b 5/18; G11b 7/16; H04n 7/18

U.S. Cl. 178-6.8

18 Claims



Images of two or more pictures which are exposed in superimposition upon each other on a record carrier in the presence of diffraction gratings are reproducible in an apparatus which employs at least one light source for each image. The light sources are offset with reference to the optical axis of the apparatus. The first diffraction orders of pairs of selected images are projected onto separate portions of a photocathode tube in a television camera or onto the photocathode tubes of two discrete television cameras so that the selected images can be viewed on separate portions of the picture tube of a single television receiver or on the picture tubes of two discrete television receivers.

3,740,465

TELEVISION FRAME STORAGE APPARATUS

Denis Peter Dorsey, Levittown, Pa., assignor to RCA Corporation, New York, N.Y.

Filed June 14, 1971, Ser. No. 152,746

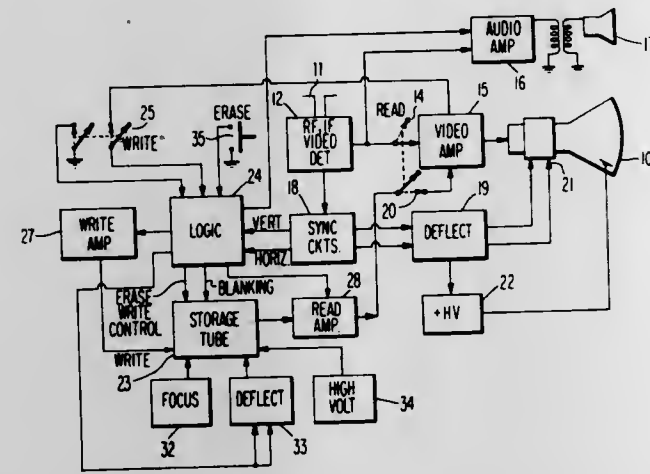
Int. Cl. H01j 29/41; H04n 5/76, 7/18

U.S. Cl. 178-6.8

4 Claims

There is disclosed a television storage system which utilizes a storage device of the type having a target, which comprises a

plurality of insulators arranged on a substrate; the insulators can be charged by a controlled electron beam to store a television image. Circuitry is shown which enables the coupling of such a storage device to a television receiver to permit opera-



tion of the system in a READ, WRITE and ERASE mode. This enables the consumer to store any desired television frame for later playback and further offers the advantage of changing the stored frame when desired.

3,740,466

SURVEILLANCE SYSTEM

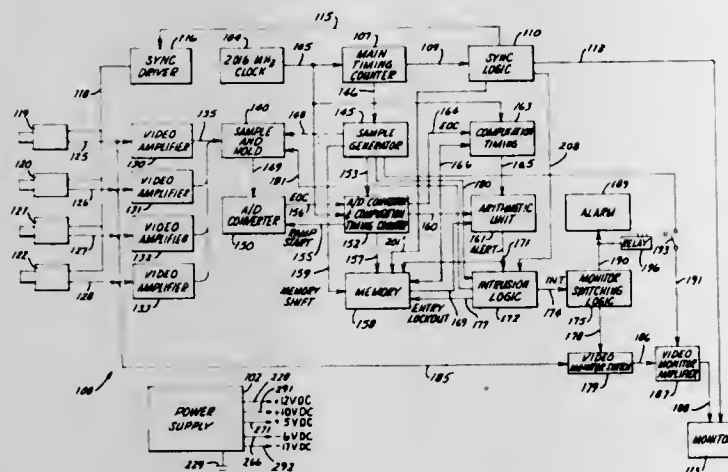
James M. Marshall, Melbourne Beach, and James W. Biglow, South Melbourne Beach, both of Fla., assignors to Jackson & Church Electronics Company, Inc., Satellite Beach, Fla.

Filed Dec. 14, 1970, Ser. No. 98,002

Int. Cl. H04n 7/18

U.S. Cl. 178—6.8

27 Claims



A method and apparatus by which surveillance can be maintained over a domain for detecting changes of interest in the domain and ignoring other changes. A parameter of the domain under surveillance is scanned resulting in an electrical signal which is sampled. The resulting sample signals each correspond to an individual sample point or line segment in the domain under surveillance and are digitized. Digitized samples are stored in a memory unit. An arithmetic unit based on a Karnaugh mapping technique compares to current sample with a prior sample from the memory unit for the same sample point or segment in the domain and provides an alert signal when these differ by more than a predetermined amount. A plurality of scanning devices may be provided to a monitor. If an alert occurs, an intrusion logic unit determines if an alert signal previously occurred during a prior scanning period for the same scanning device and if so an alarm is actuated and the monitor is switched to display the signal from that scanning device.

3,740,467
APPARATUS FOR INSPECTING THE APPEARANCE OF PRODUCTS

Moritada Kubo, and Yoshiaki Arimura, both of Tokyo, Japan, assignors to Tokyo Shibaura Electric Company, Ltd., Kawasaki-shi, Kanagawa-ken

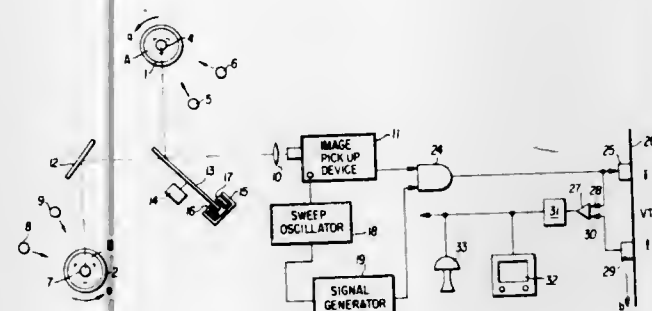
Filed Dec. 30, 1971, Ser. No. 214,288

Claims priority, application Japan, Dec. 31, 1970, 45/123630

Int. Cl. G01b 9/08; G01n 21/32; H04n 7/18

U.S. Cl. 178—6.8

11 Claims



An apparatus for inspecting the appearance of products is provided and includes an image pickup tube for photographing an image of a standard product whose appearance is complete and an image of a sample product whose appearance is to be inspected and for generating two video signals respectively corresponding thereto. Means are provided for delaying one of the two video signals which corresponds to either the standard product of the sample product. Further means are provided for comparing the delayed video signals corresponding to either the standard product or the sample product and the non-delayed video signals which correspond to the other of the two video signals to thereby obtain a comparison therebetween. In accordance with the comparison between the image signals of the standard product and the same of the sample product, it can be readily determined if the appearance of the sample product is the same or different from that of the standard product and accordingly whether a defect exists or not.

3,740,468

FEATURE PARAMETER MEASUREMENT BY LINE SCANNING

Gerald Marvin Gardner, Saffron Walden, and David William Glibbard, Melbourn, near Royston, both of England, assignors to Image Analysing Computers Limited, Royston, England

Filed Mar. 28, 1972, Ser. No. 238,893

Claims priority, application Great Britain, Apr. 17, 1971, 9,738/71; Sept. 21, 1971, 43,912/71

Int. Cl. H04n 3/00

U.S. Cl. 178—6.8

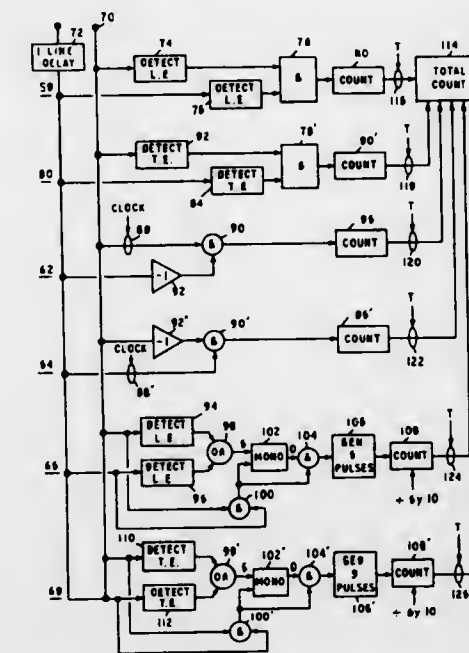
24 Claims

Methods and apparatus are described by which various dimensional measurements of features can be made using electrical pulses obtained from a video signal itself obtained by scanning the field or an image thereof.

Methods and apparatus specifically described relate to vertically and horizontally projected length measurements and perimeter measurement.

Measurements may be made simultaneously on all features in a field and total values obtained for the field without knowledge of the individual length measurements. Alternative

methods and apparatus are described by which individual measurements are possible on each detected feature.



Methods of combining measured values so as to produce shape factor information are also described.

3,740,469

REFLECTIVE PANORAMIC T.V. PROJECTION SYSTEM

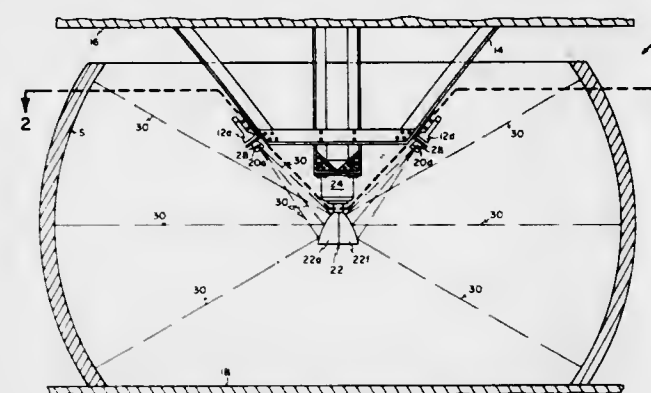
John W. Herndon, Orlando, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 19, 1972, Ser. No. 245,415

Int. Cl. H04n 7/00

U.S. Cl. 178—6.8

7 Claims



A 360° panoramic television display system employs a plurality of television projection tubes operating in a single-line-scan mode and located in fixed positions around the vertical axis of the display system. The projected single-line-scans from the tubes are mediated by a reflective assembly contoured and faceted such that, when rotated, the single-line-scans, oriented vertically, are caused to move on the display screen in the horizontal direction at the television field rate, thus generating a television raster through 360°.

3,740,470

NOISE SUPPRESSION CIRCUIT

Dong Woo Rhee, Williamsville, N.Y., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed Dec. 30, 1971, Ser. No. 214,265

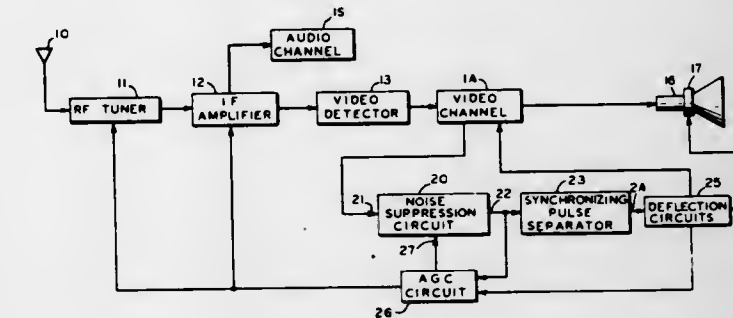
Int. Cl. H04n 5/08

U.S. Cl. 178—7.3 S

12 Claims

A noise suppression circuit for television receivers suitable for implementation in integrated circuit form on a monolithic semiconductor chip is shown. Noise pulses of an amplitude greater than the synchronizing pulse amplitude are detected and a signal indicative of the presence of the noise pulses is

used to turn on a transistor connected between an amplifier and a source of reference potential to suppress the noise pulses. First and second current sources where the second cur-



rent source provides a larger current than the first current source are connected in series with the transistor to prevent the transistor from remaining saturated and thereby improperly suppressing synchronizing pulses.

3,740,471

AUTOMATIC GAIN CONTROL CIRCUIT

Milton E. Wilcox, Mesa, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

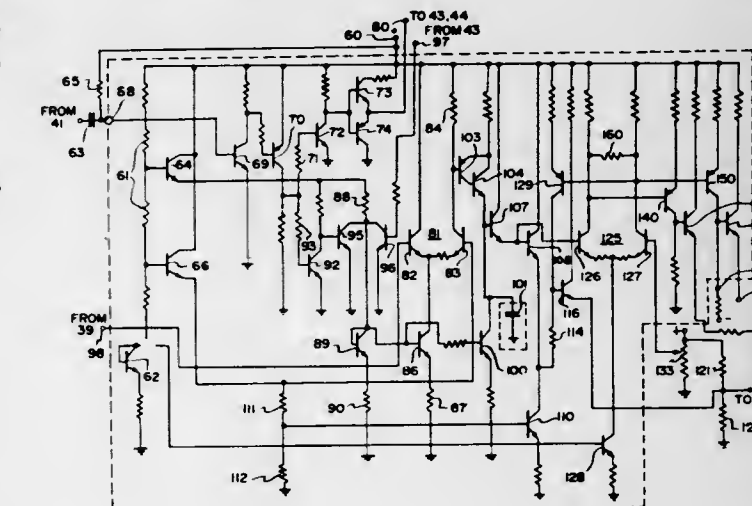
Division of Ser. No. 71,125, Sept. 10, 1970, Pat. No.

3,697,883. This application Feb. 24, 1972, Ser. No. 229,230

Int. Cl. H04n 5/52

U.S. Cl. 178—7.3 R

7 Claims



A gated sample and hold IF/RF integrated AGC circuit for a television receiver employs a combination of the synchronizing pulse and a flyback pulse for gating a peak detected video signal during the sync pulse interval to obtain the AGC voltage. A differential amplifier provides RF delay for the RF AGC, with negative feedback from the differential amplifier to the input of the IF AGC amplifier being employed to hold the IF AGC amplifier output constant during a transition period when the RF gain control is varied. Before and after this transition, the IF gain control follows the AGC voltage provided by the gated AGC input circuit.

3,740,472

WIDTH CONTROL CIRCUIT FOR A TELEVISION RECEIVER

William Vincent Fitzgerald, Jr., Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 24, 1971, Ser. No. 201,683

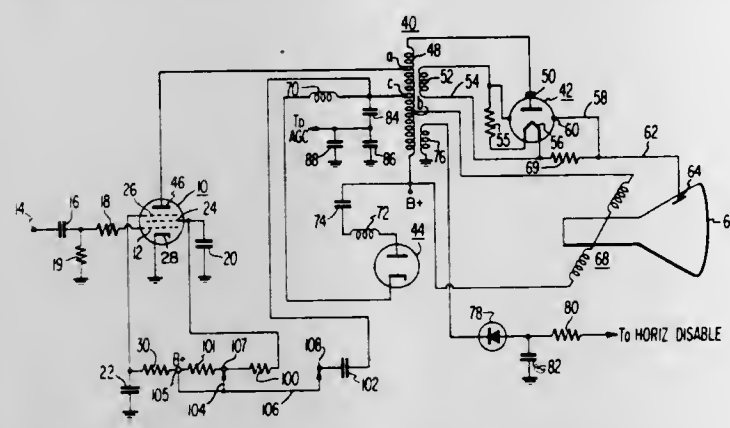
Int. Cl. H04n 3/22

U.S. Cl. 178—7.5 SE

4 Claims

Resistor and capacitor type width controls are combined in a manner to utilize the advantages of each in optimizing television picture reproduction, but in a manner to constrain the high voltages produced by the receiver's horizontal deflection

circuit under incorrect adjustment conditions. Such combination can be used to reduce the possibility of the high voltage



developed for the cathode-ray picture tube increasing to a value at which X-radiations can be produced.

3,740,473 TELEVISION RECEIVER HAVING A PHASE COMPARISON CIRCUIT AND A GAIN CONTROL CIRCUIT

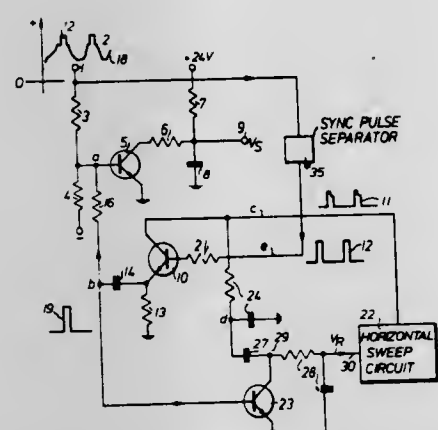
Wilfried von der Ohe, Ludersen, Germany, assignor to Licentia Patent Verwaltungs GmbH, Frankfurt, Germany
Filed Sept. 16, 1970, Ser. No. 72,666

Claims priority, application Germany, Sept. 19, 1969, P 19 47 524.2; Jan. 28, 1970, P 20 03 655.9

Int. Cl. H04n 5/20

U.S. Cl. 178—7.5 R

15 Claims



In a television receiver, the line frequency keying pulses applied to the respective control electrodes of the phase-frequency comparison circuit for the line synchronism and/or the video gain control circuit, are produced in an AND circuit to whose inputs are applied the line sync pulse and a line frequency pulse generated in the horizontal sweep circuit, i.e., the line flyback pulse.

3,740,474 VOLTAGE SUPPLIES

Wolfgang Friedrich Wilhelm Dietz, New Hope, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 1, 1971, Ser. No. 194,389

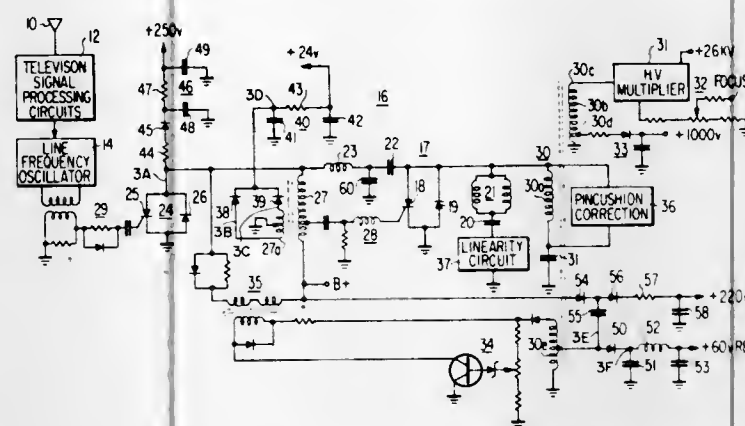
Int. Cl. H04n 5/44

U.S. Cl. 178—7.5 R

11 Claims

Direct operating voltages for a television receiver are derived from an associated line scanning circuit of the type employing semiconductor (e.g., SCR) trace and commutating switches, each of which conducts for a portion of each line scanning interval. One voltage supply is derived by means of a full wave rectifier circuit coupled to an input inductance, the inductance being coupled from a main direct operating voltage source to a circuit point intermediate the trace and commutating switches. Additional direct voltages are derived by

rectifying flyback pulses produced across various segments of an associated scanning output transformer. At least one of the flyback pulse rectifying circuits includes an arrangement of inductance and capacitance coupled to the associated rectifier



for constraining conduction of the rectifier mainly to the first half of the flyback pulse.

The derived voltages are relatively insensitive to changes in beam current and line voltage and, furthermore, do not deleteriously affect operation of the scanning circuit.

3,740,475 APPARATUS FOR PRODUCING CODING PULSE SEQUENCES

Kurt Ehrat, Zurich, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

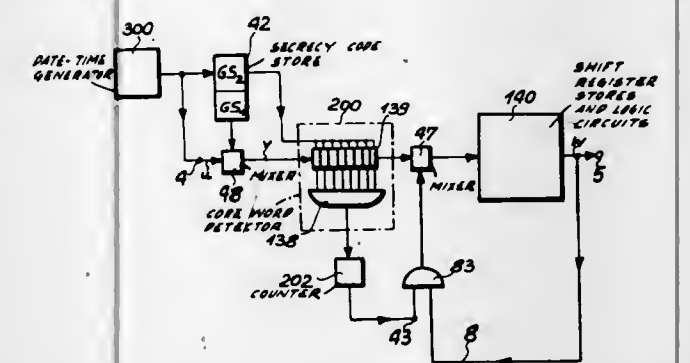
Filed Aug. 16, 1971, Ser. No. 172,135

Claims priority, application Switzerland, Aug. 24, 1970, 12592/70

Int. Cl. H04I 9/00

U.S. Cl. 178—22

15 Claims



Coding apparatus is provided which comprises a mixer for mixing a long-period pulse sequence with a secret code to produce a code pulse sequence which is fed to a number of shift registers interconnected by logic circuits so that each code pulse is defined by the binary values of previously occurring control pulses, the time duration of these previously occurring control pulses being made variable in dependence on the secret code.

ERRATUM

For Class 178—69.5 TV sec:
Patent No. 3,740,489

3,740,476 SPEECH SIGNAL PITCH DETECTOR USING PREDICTION ERROR DATA

Bishnu Saroop Atal, Murray Hill, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed July 9, 1971, Ser. No. 161,173

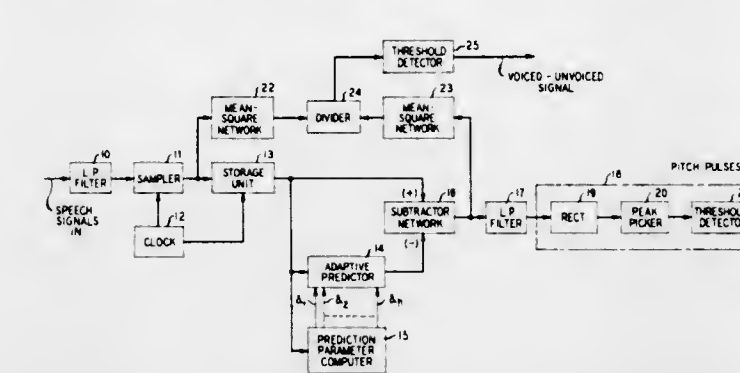
Int. Cl. G10I 1/04

U.S. Cl. 179—1 SA

8 Claims

Pitch periods in a complex speech signal are determined by evaluating the error in predicting the value of a sample of the

signal on the basis of past sample values, and by locating samples for which the prediction error is large. Advantageously, the prediction error signal is devoid of all formant structure,



so that there is no chance of confusing pitch signal peaks with formant peaks. A voiced-unvoiced decision is obtained from the ratio of the mean-squared value of the speech signal to the mean-squared value of the prediction error signal.

3,740,477 SIMPLE SPEECH SCRAMBLER

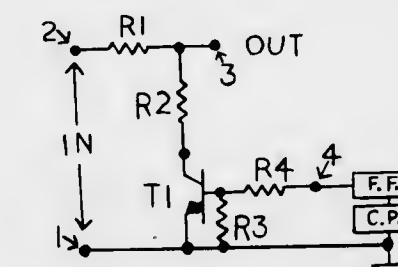
Henry N. Switsen, 17236 Bircher Street, Granada Hills, Calif.

Filed Sept. 16, 1971, Ser. No. 180,966

Int. Cl. H04I 9/00

U.S. Cl. 179—1.5 R

9 Claims



A system to make common speech unintelligible by causing the speech to be first broken up into high and low amplitude sections, and then to be made intelligible again by normalizing the amplitudes of the sections.

3,740,478 PSEUDO-RANDOM MULTIPLEX SYNCHRONIZER

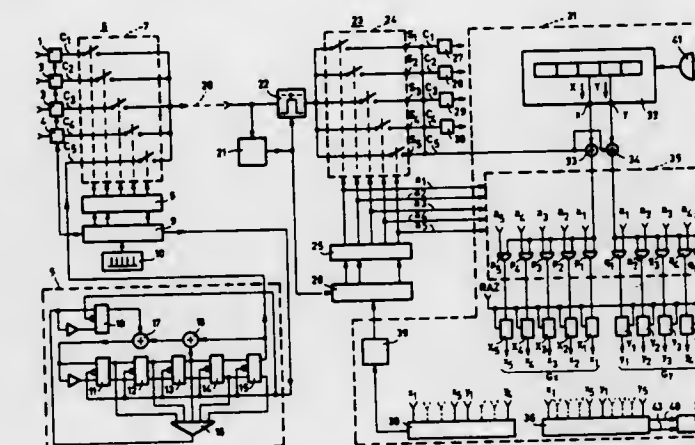
Pierre Louis Vincent Breant, Clamart; Guy Albert Jules David, Thiais; Francois Pares, Juvisy, and Jean-Claude Grima, Chatillon sous Bagneux, all of France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 19, 1971, Ser. No. 190,555

Int. Cl. H04J 3/06

U.S. Cl. 179—15 BS

8 Claims



The invention relates to a time division multiplex signal transmission system using pulse code modulation, in which the transmitter comprises a plurality of channels for the informa-

tion signals and at least one synchronizing channel to which a pseudo-random signal generator applies the multiplex synchronizing code pulses. The information signal pulses and the synchronizing code pulses are cyclically distributed in time within the frame period by means of a channel distributor operating at clock pulse frequency. The receiver comprises a clock frequency extractor for recovering the clock frequency from the received multiplex signals and further comprises, like the transmitter, a plurality of channels for the information signals and at least one synchronizing channel. The received multiplex signals are distributed in cyclic time sequence by means of a channel distributor under the control of the recovered clock pulses. The receiver finally comprises a device for synchronizing the channel distributor of the receiver with the channel distributor of the transmitter.

3,740,479 IMPROVEMENTS IN OR RELATING TO JUNCTORS

William Harry Francis Green, and John Brian Terry, both of Essex, England, assignors to The Marconi Company Limited, London, England

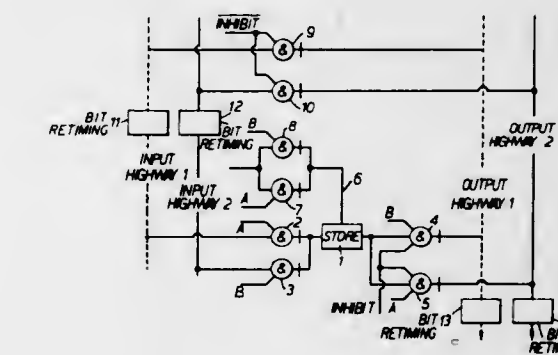
Continuation of Ser. No. 26,731, April 18, 1970. This

application Mar. 20, 1972, Ser. No. 236,273

Int. Cl. H04J 3/16

U.S. Cl. 179—15 AQ

3 Claims



A junctor for use in a time division multiplex telephone system comprising a plurality of stores equal in number to the number of time slots in one frame period, means for routing intelligence signal samples sampled during particular time slots into respective ones of said stores, means for controlling said stores such that said samples are stored for predetermined periods, means for routing each of said samples out of the respective store at the end of the respective predetermined period as another intelligence signal sample sampled during another particular time slot is routed into said store.

3,740,480 TIME DIVISION MULTIPLEX SWITCHING SYSTEM UTILIZING ALL TIME DIVISION TECHNIQUES

Roy Stephen Krupp, Rumson, and Lawrence Andrew Tomko, Middletown, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 27, 1971, Ser. No. 212,089

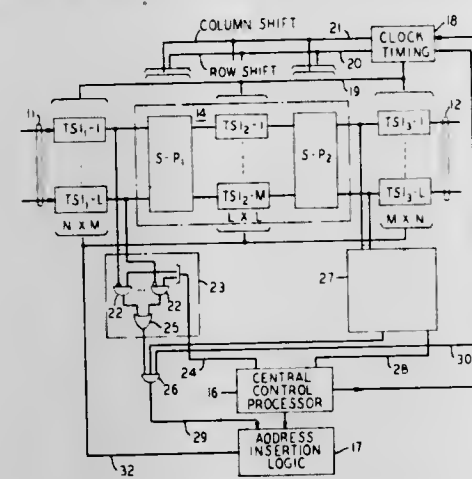
Int. Cl. H04J 3/16

U.S. Cl. 179—15 AQ

14 Claims

Time slot interchangers in each of plural input time division multiplex signal paths to a switching network shift input time slot signals to respective operational time slots corresponding to different switching circuits. A mass serial-parallel converter takes all of the input path signals from the mentioned interchangers in each time slot and steers them in series to the switching circuit corresponding to that operational time slot. Further, time slot interchangers shift the signals in the respective switching circuits to new time slot positions corresponding to different output circuits. Another converter steers the new time slot signals from all of the switching circuits in series to the output circuit corresponding to that new time slot.

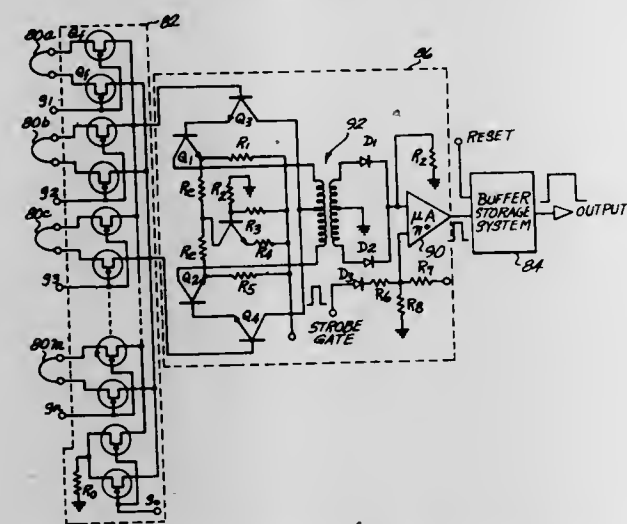
Finally, time slot interchangers in each of the output circuits shift the signals in their respective output circuits to destination time slot positions thereby completing both the line switching and the time slot interchanging operations.



3,740,481
SENSE LINE COUPLING STRUCTURES CIRCUITS FOR MAGNETIC MEMORY DEVICE
Shi Kyu Lee, Kent, Wash., assignor to The Boeing Company, Seattle, Wash.
Division of Ser. No. 855,227, Dec. 15, 1969. This application
Sept. 29, 1971, Ser. No. 184,919
Int. Cl. H04j 3/04

U.S. Cl. 179-15 BL

1 Claim



Sense line and sense amplifier configurations and circuits for coupling to magnetic memory elements. A sense line comprising a twisted pair of conductors provides coupling along its length to the memory elements. A pair of sense lines may be connected in series or parallel to provide sense signal output pulses of increased amplitude or provide redundancy in the sensing scheme. Further permutations and combinations of the twisted pair sense line provide sense signal output pulses of different amplitude to also provide, e.g., half select pulses. A sense amplifier system utilizes multiplexing techniques to simplify the sense scheme and reduce the amount of circuitry required between the sense lines and the buffer system.

3,740,482
TIME DIVISION MULTIPLEX TELEPHONE SYSTEM WITH PARALLEL TRANSMISSION

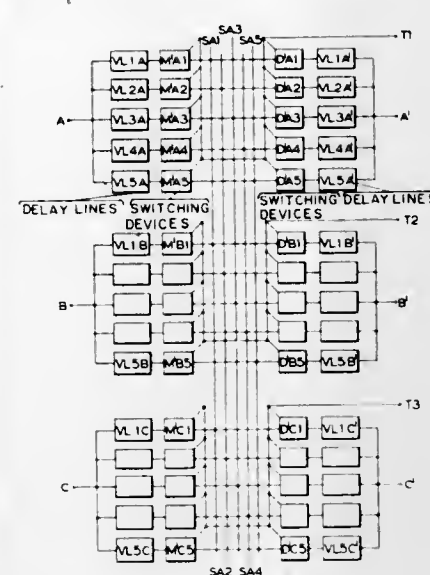
Karl-Ludwig Plank, Oberroden, and Michael Schwarzer, Frankfurt am Main-Schwanheim, both of Germany, assignors to Telefonbau und Normalzeit GmbH, Frankfurt am Main, Germany
Continuation of Ser. No. 833,833, April 14, 1969, abandoned.
This application Oct. 26, 1971, Ser. No. 192,304
Int. Cl. H04j 3/04

U.S. Cl. 179-15 A

3 Claims

A time division telephone system adapted to greatly increase the message pathways that can be established between

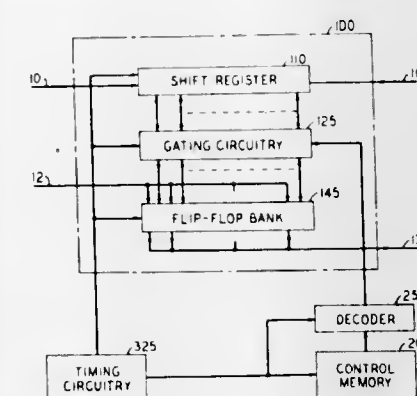
two central offices. Each message to be transmitted is sampled sequentially, these samples are stored temporarily at the transmitting end of the system, simultaneously transmitted by



3,740,483
TIME DIVISION SWITCHING SYSTEM WITH BILATERAL TIME SLOT INTERCHANGERS
Thomas Josef Pedersen, Lincroft, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 30, 1971, Ser. No. 214,144
Int. Cl. H04j 3/00

U.S. Cl. 179-15 AQ

7 Claims



A bilateral time slot interchanger with two registers and means for interchanging the contents of one register with those of the other is used in a time division multiplex communication system to provide time slot interchange functions for both connections in a two way communication. The apparatus takes advantage of the symmetry between the two connections to eliminate hardware redundancy in the interchangers themselves and to achieve control simplicity in the associated memory equipment. Bilateral time slot interchangers are, in typical embodiments of switching systems connected in links to crosspoint storage switching arrays or to junctor gate switching arrays.

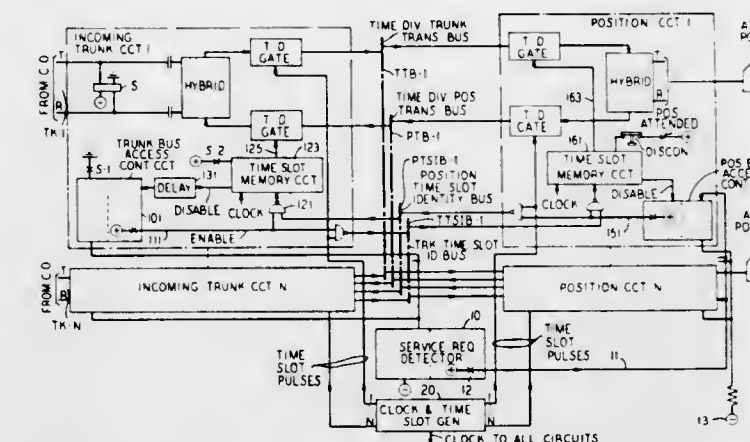
3,740,484
CALL DISTRIBUTING SYSTEM
William Joseph Laggy, Middletown, and Harold Frederick May, Holmdel, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Sept. 21, 1971, Ser. No. 182,364
Int. Cl. H04j 3/00

U.S. Cl. 179-18 J

20 Claims

A time division call distributing system for connecting trunks to operator positions is disclosed. The system includes

a four-wire time division bus, with each trunk and position being assigned a permanent time slot in the transmit direction. A trunk requesting connection to a position activates a two-stage lockout circuit which enables the requesting trunk and

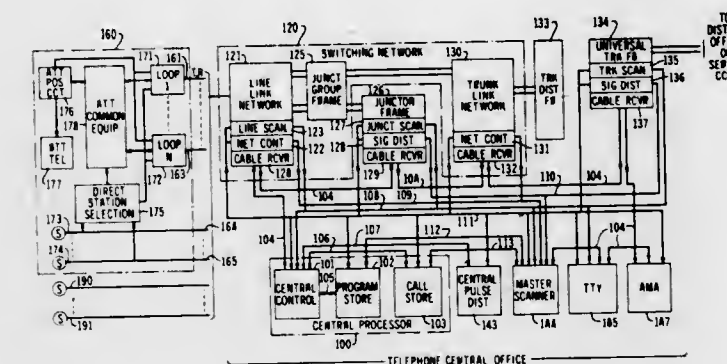


an idle position. When a trunk and position are enabled, they transmit to each other over an identity bus, a pulse in their respective permanently assigned transmit time slots. These pulses are utilized to store, in the trunk and the position circuits, time slot information for the receive direction.

3,740,485
CENTRAL OFFICE PRIVATE BRANCH EXCHANGE TELEPHONE SYSTEM
Charles Nickerson, Poughkeepsie, Wash., assignor to American Telephone and Telegraph Company, New York, N.Y.
Filed Nov. 24, 1971, Ser. No. 201,918
Int. Cl. H04m 3/58

U.S. Cl. 179-18 AD

7 Claims



Private branch exchange service is provided by the switching network of a telephone central office. The PBX attendant is provided with a console which includes circuitry for completing calls to PBX subscriber stations through the use of dial transfer circuits in the central office. Loops for the PBX attendant console comprise lines of the central office which are associated with a PBX main station directory number and the PBX subscriber stations also employ lines of the central office. However, these stations can be reached only through the action of the PBX attendant's console and the PBX stations do not have directory numbers of the telephone offices associated therewith.

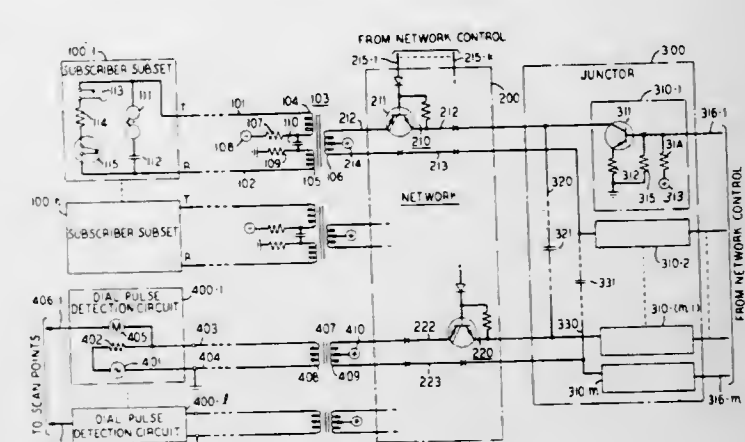
3,740,486
TELEPHONE SUBSCRIBER LINE DIAL PULSE DETECTOR CIRCUIT
Laimons Freimanis, Chicago, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 1, 1971, Ser. No. 203,585
Int. Cl. H04m 3/22

U.S. Cl. 179-18 FA

3 Claims

A service circuit arrangement for detecting telephone subscriber hookswitch and dialing operations through a subscriber line-transmission network transformer coupling. Applicable

particularly to solid state network systems, the circuit provides for the detection of the impedance difference presented to an alternating sensing current by the subscriber line during

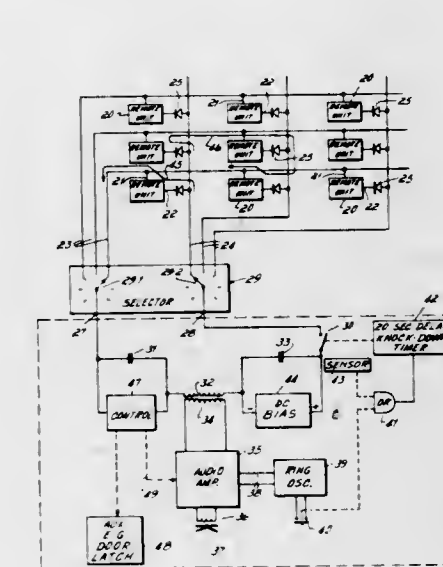


closed and open circuit states. The past necessity of providing detection circuits on a per-line basis in view of the direct current blocking transformers is thus eliminated.

3,740,487
INTERCOMMUNICATION AND REMOTE UNIT SELECTION SYSTEM EMPLOYING A MINIMUM OF INTERCONNECTING WIRE
William B. Ter Veen, Cincinnati, Ohio, assignor to Scovill Manufacturing Company, Waterbury, Conn.
Filed Apr. 5, 1971, Ser. No. 130,898
Int. Cl. H04m 5/00

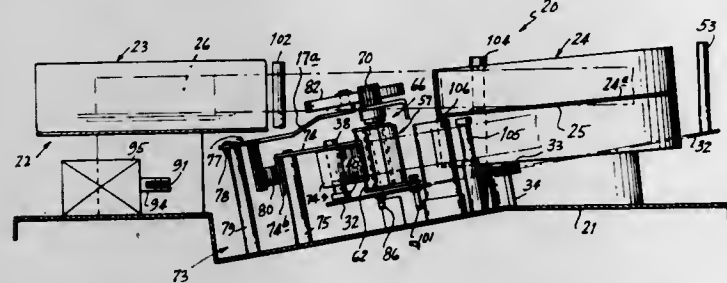
U.S. Cl. 179-37

45 Claims



A two way intercommunication system for selectively interconnecting one or more central units and individual remote units of an apartment building or the like. Included in the intercom systems are circuit features for providing selectivity, privacy, security and remote control. A basic two-wire embodiment uses two terminal units for two-way communication with the direction of the conversation controlled at the central unit by signals from the selected remote unit. Remote unit selection is made from the central unit. The selection concepts are employed in more sophisticated embodiments to control systems having separate common audio lines for the remote units. A minimum of interconnecting wire is maintained throughout the different embodiments. Zener diodes are employed to prevent sneak paths and allow for reduction in the amount of wire used without the sacrificing of desirable features.

scan a tape wrapped on the drum is provided with a device for automatically wrapping the tape on the guide drum, for example, from a cassette or cartridge containing the tape. Such device has a rotatable support, in the form of a ring, extending around the drum and carrying guides, and a tape engaging member also mounted on the ring and being movable into and out of a guide path spaced from the drum and defined by the



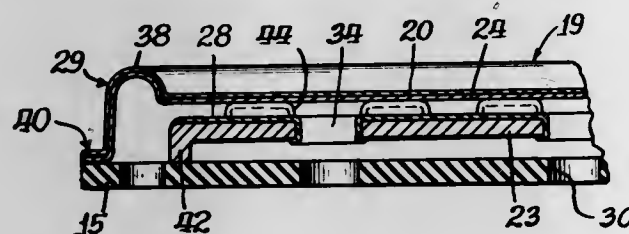
guides. The tape engaging member, in an inactive condition of the apparatus, is displaced out of the guide path to engage the tape in the cassette or cartridge, and is moved into the guide path upon turning of the ring to draw a loop of the tape from the cassette or cartridge and to wrap one side of the loop about the guide drum while the other side of the loop is engaged by the guides and maintained in the corresponding guide path.

3,740,496 DIAPHRAGM ASSEMBLY FOR ELECTRET TRANSDUCER

Elmer Victor Carlson, Prospect Heights, and Mead Clifford Killian, Elk Grove Village, both of Ill., assignors to Industrial Research Products, Inc., Elk Grove Village, Ill.
Filed Nov. 8, 1971, Ser. No. 196,592
Int. Cl. H04r 19/00

U.S. Cl. 179-111 E

7 Claims



A diaphragm assembly for an electret transducer wherein the diaphragm comprises a movable plate, and a compliant surround on the periphery of the plate. The diaphragm rests on supporting members of a backplate and is positioned to obtain a suitable stiffness of the vibrating portions without the use of a taut or tensioned diaphragm.

3,740,497 ARTIFICIAL LINE BRIDGE SUBSCRIBER DIAL LONG LINE EQUIPMENT TESTER

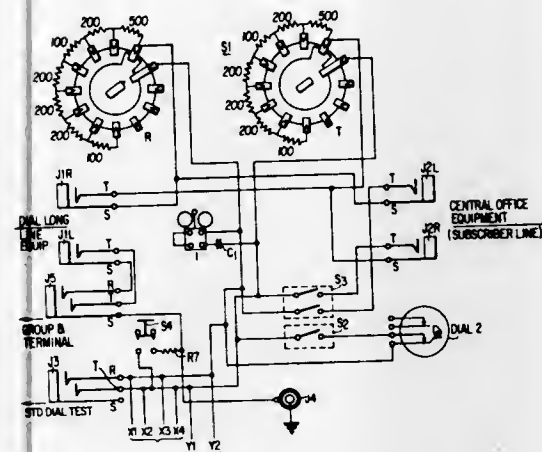
Gerald Wallace Danell, P. O. Box 984, 315 W. McLendon Circle, La Grange, Ga.
Filed June 29, 1971, Ser. No. 158,010
Int. Cl. H04b 3/46

U.S. Cl. 179-175.3

4 Claims

A unitary circuit for testing dial long line equipment in a telephone subscriber system having a central office. A resistance bridge operative to provide an equally divided predetermined resistance to balance tip and ring in the telephone system is used to simulate the operation of a cable pair in a long line. Switch means selectively connect the resistance bridge to the dial long line equipment under test, and dialing means are utilized for dialing into or out of the testing circuit to interpose said predetermined resistance between a

subscriber connected to the dial long line equipment under test and the central office to determine if the dial long line

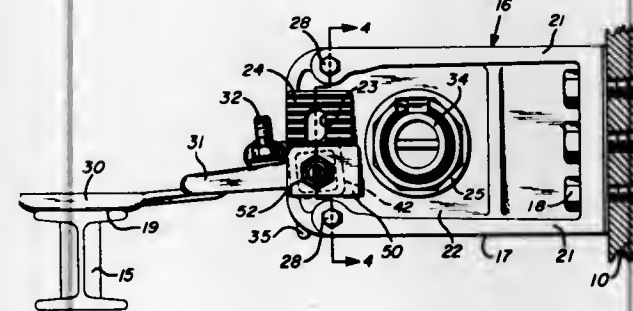


3,740,498 ELECTRIC CURRENT COLLECTOR

Donald L. Herbert, Lexington, Ohio, assignor to The Ohio Brass Company, Mansfield, Ohio
Continuation of Ser. No. 884,621, Dec. 12, 1969, abandoned.
This application Nov. 17, 1971, Ser. No. 199,463
Int. Cl. B601 5/38

U.S. Cl. 191-49

4 Claims



An electric current collector for railway vehicles, having a collector shoe for running engagement with an electrical distribution rail. The current collector shoe is pivotally and resiliently mounted on a support secured to the vehicle by an elastic torsion member carried by the support which torsion member maintains the collector shoe in working engagement with the distribution rails.

3,740,499 OIL FILLED STEPPING SWITCH

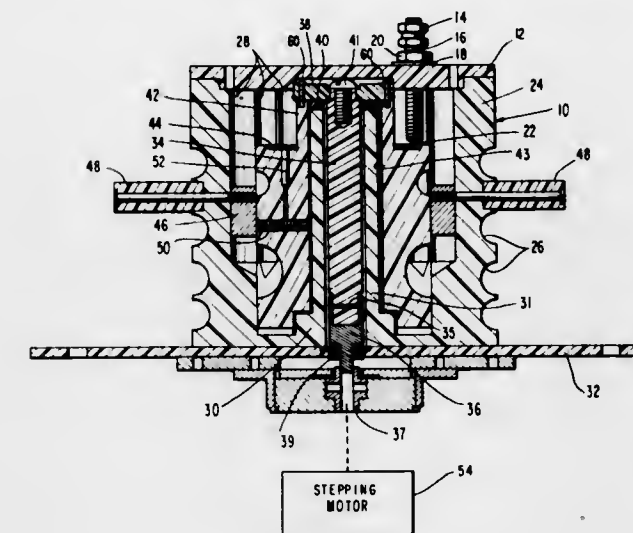
Arthur F. Standing, Rockville, Md., assignor to Communications Satellite Corporation, Washington, D.C.
Filed Apr. 6, 1971, Ser. No. 131,611
Int. Cl. H01h 19/56, 21/76

U.S. Cl. 200-8 R

11 Claims

A high voltage oil filled stepping switch connects a plurality of DC voltage sources to a common output terminal. The rotor and housing is formed of plastic and contains ap-

propriate grooves and flutes to increase electrical resistance to voltage breakdown while increasing the oil storage space. A



flexible self-aligning shaft incrementally positions the rotor contacts with the housing contacts.

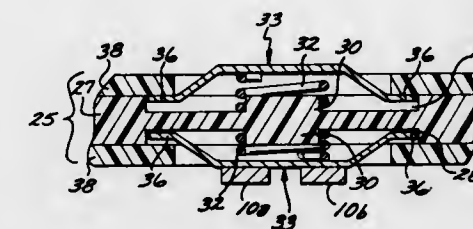
3,740,500

SLIDE SWITCH CUTOVER DEVICE CONTACTOR

Jim C. Garrett, 6331 Vera Crest Drive, Long Beach, Calif.; Robert H. Johnson, 4764 "M" La Villa Marina, Marina Del Ray, Calif.; Jack Shelton, 810 Rancho Drive, Long Beach, Calif., and Louis P. Labarge, Irvine, Calif., assignors to said Garrett, Johnson and Shelton, by said LaBarge
Filed Nov. 16, 1971, Ser. No. 199,243
Int. Cl. H01h 15/06

U.S. Cl. 200-16 C

6 Claims



The present invention relates to a switching device; and more particularly relates to a switching device that comprises a switching pad that makes and breaks electrical circuits as the switching device is moved from one position to another. The disclosure teaches how such a switching pad may be mounted in a freely floating manner, so that it provides optimal electrical contact at all times, with minimal danger of changing pressure and/or accumulation of corrosion.

3,740,501 MINIATURE OIL-TIGHT PUSH BUTTON AND SELECTOR SWITCH ASSEMBLY AND IMPROVED CONTACT UNIT THEREFOR

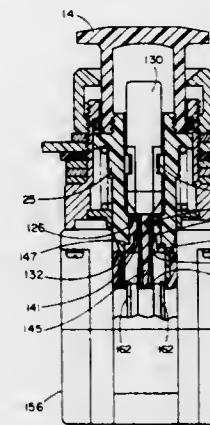
Rudolf H. Kiessling, Glendale, Wis., and Richard C. Rothweiler, Asheville, N.C., assignors to Square D Company, Park Ridge, Ill.

Filed May 4, 1971, Ser. No. 140,152
Int. Cl. H01h 15/00

U.S. Cl. 200-16 R

21 Claims

A plurality of modular contact units are adapted for attachment to a housing containing an operating means which may be of either the push-button or selector switch variety. Each contact unit comprises a single pair of contacts and indicating means to display the condition of the pair of contacts. Camming means may be interchangeably attached to the operating means externally of the switch units. Selector switch operation provides maintained switching for up to eight positions, momentary switching, or momentary-maintained



minimum number of parts. The operating means may be illuminated or non-illuminated and is adaptable for use as a pilot light or a push-to-test unit.

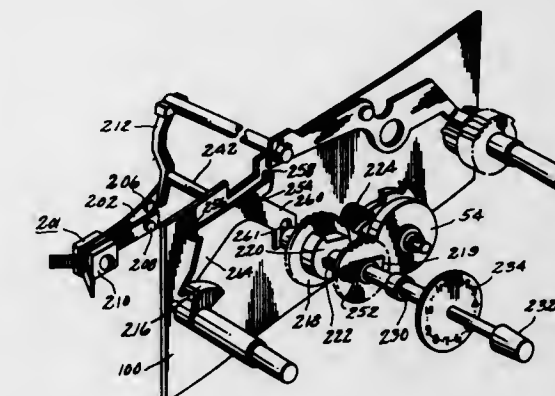
3,740,502 ALARM CLOCK TIMER WITH MANUALLY OPERABLE RESET MECHANISM

Robert L. Boyles, Wayland, and Samuel Polonsky, Medway, both of Mass., assignors to General Electric Company, Bridgeport, Conn.

Filed Apr. 7, 1972, Ser. No. 241,963
Int. Cl. H01h 43/04

U.S. Cl. 200-38 FA

6 Claims



An alarm clock timer mechanism having a pair of coaxially mounted gear driven cam members with one of the cam members being axially movable to actuate an alarm or other form of control mechanism at a preset alarm time. One of the cam members is provided with a resiliently mounted cam follower which moves axially toward the other cam member at the alarm time. The resilient mounting allows the follower to ride smoothly on a loer surface of the other cam after the alarm time, thus precluding any high torque resetting loads on a timing motor. A manually operable reset mechanism is provided for axially moving the cam members away from each other to move the control mechanism to its off position and to simultaneously reset the resiliently mounted cam follower on an upper surface of the other cam.

3,740,503 CONDUCTING FLUID INERTIA TYPE SWITCH WITH LINEARLY MOVABLE CONDUCTIVE PLUNGER CONTACT

Kazutaka Tomohiro, and Kenichi Onishi, both of c/o Omron Tateisi Electronics Co., 20, Igadera, Shimokaiinji, Nagaoka-cho, Otokuni-gun, Kyoto, Japan

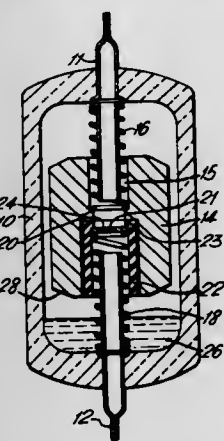
Filed May 8, 1972, Ser. No. 250,965
Int. Cl. H01h 35/02, 29/16

U.S. Cl. 200-61.47

12 Claims

A switch which is closed or opened by an external force applied thereto. A weight resiliently suspended in the switch cas-

ing and an electrically conductive liquid in the casing are alternatively caused by an external force applied thereto to



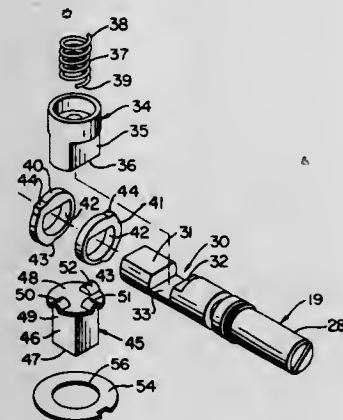
move thereby to establish electrical connection between the two switch terminals.

3,740,504

ACTUATOR MEANS FOR A SWITCH CONSTRUCTION AND THE LIKE

George M. Hipple, Jackson Township, Ohio, assignor to Robertshaw Controls Company, Richmond, Va.
Filed May 2, 1972, Ser. No. 249,522
Int. Cl. H01h 21/28; F16h 21/44
U.S. Cl. 200—47

22 Claims



An actuator for a switch construction and having an actuator shaft rotatably carried by a housing and being provided with cams thereon. An axially movable plunger is carried by the housing and has a plurality of abutments thereon cooperable with the cams. The plunger is rotatable to be set to one of a plurality of positions thereof relative to the housing so that the abutments cooperate with the cams in selected manners whereby the shaft must be rotated in a selected direction or directions to have one or more of the cams thereof cam against one or more of the abutments and thereby cause axial movement of the plunger to operate the switch construction interconnected to the actuator housing.

3,740,505

SPEED RESPONSIVE SWITCH

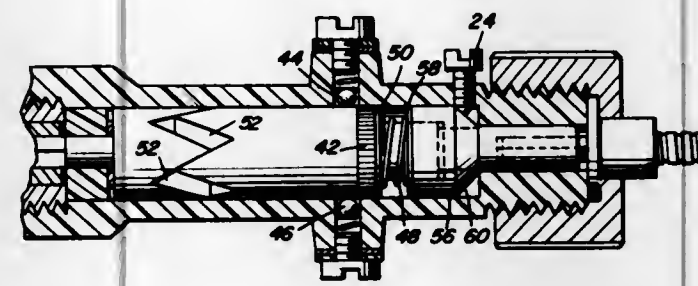
Clifford H. Brady, 329 Hillcrest, R.F.D. No. 4, Sulphur Springs, Tex.
Filed Feb. 3, 1972, Ser. No. 223,196
Int. Cl. H01h 35/06

U.S. Cl. 200—61.53

14 Claims

A speed responsive switch assembly comprising a housing adapted to be mounted between a conventional speedometer and cable, a first torque transfer member mounted in the housing for rotation by the cable, a second torque transfer member rotatably mounted in the housing and adapted to be connected to the speedometer, the first and second torque transfer members being coupled together through a plurality

of motion transfer services angularly offset from the axis of rotation, such that an increase in speed produces longitudinal displacement of the first torque transfer member to effect



switching. The assembly is also provided with adjustable compression spring for biasing the first torque transfer member axially toward the second, adjustment of the spring effecting the speed at which switching occurs.

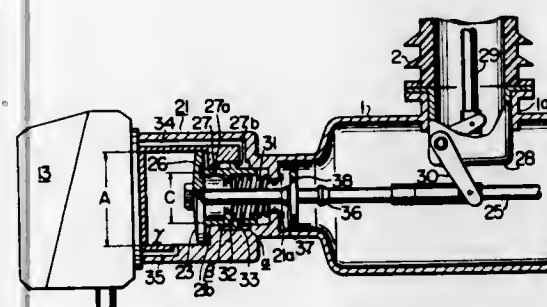
3,740,506

FLUID OPERATED PISTON CIRCUIT BREAKER WITH FLOATING POSITION VALVE ACTUATOR

Yoshio Yoshioka; Kunio Hirasawa, both of Hitachi, and Katsuchi Kashimura, Takahagi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed June 20, 1972, Ser. No. 264,507
Int. Cl. H01h 35/38

U.S. Cl. 200—82 B

28 Claims



A circuit breaker having an actuating system comprising a signal responsive valve member of large diameter and a making force imparting valve member of small diameter connected to each other by an actuating rod so that a first differential force relationship can be established therebetween. A movable valve seat of diameter smaller than that of the making force imparting valve member is movable toward and away from the signal responsive valve member so that a second differential force relationship can be established between the two valve members when the movable valve seat engages the signal responsive valve member to limit the effective area of the latter. The movable valve seat is moved toward and away from the signal responsive valve member and fluid under pressure applied to the signal responsive valve member is suitably controlled so as to selectively bias the actuating rod in one of the making and breaking directions. A control valve member is disposed in proximity to the movable valve seat so that it moves in response to the movement of the actuating rod in the breaking direction for controlling the application of the fluid pressure to the signal responsive valve member. This control valve member acts to reduce the moving distance of the movable valve seat following the movement of the signal responsive valve member so that the movable valve seat can take a floating position ready to move in the making direction.

3,740,507

VACUUM SWITCH WITH MAGNETICALLY CONTROLLABLE ARC

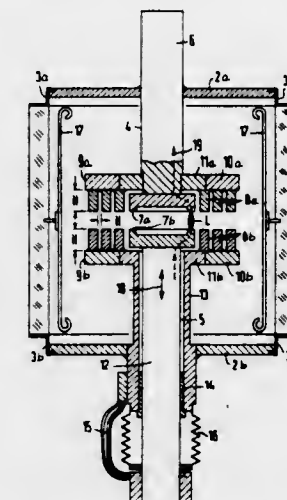
Wilfried Kuhl, Gross-Schwarzenlohe, and Leonhard Klug, Nurnberg, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Oct. 1, 1971, Ser. No. 185,666

Claims priority, application Germany, Oct. 2, 1970, P 20 48 506.7

Int. Cl. H01b 33/66

U.S. Cl. 200—144 B

7 Claims



A vacuum switch has at least two electrodes situated in an evacuable insulating housing hermetically sealed by end plates. The electrodes are coaxially positioned and are movable relative to one another. At the ends of their shafts facing each other, the electrodes comprise annular or cylindrically shaped main contact parts and spiral helically shaped spark contact parts which enclose the contact parts and consist of material of good electrical conductivity. The spark contact parts are affixed to a carrier comprising an outer annular disc of material of poor electrical conductivity. An inner annular disc of material of good electrical conductivity is fitted tightly into the outer disc. The distance and thickness of the turns of the spirals or helices of the spark contact parts are dimensioned so that the ratio of distance to thickness is 1:2 to 1:10.

3,740,508

BLOW-PISTON DISCONNECT APPARATUS FOR HIGH VOLTAGE

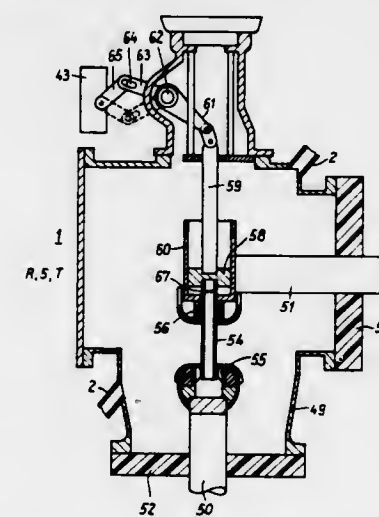
Willi Olsen, am Leubwald 3, 1 Berlin 13, and Heinz Beer, Oslanderweg 8, 1 Berlin 27, both of Germany
Filed June 11, 1971, Ser. No. 152,069

Claims priority, application Germany, June 30, 1970, P 20 33 853.8

Int. Cl. H01h 33/70

U.S. Cl. 200—148 A

6 Claims



A high-voltage blow-piston disconnect apparatus, for use with an electron-negative gas such as sulfurhexafluoride and

the like as an arc extinguishing and insulating gas has a blow-piston disconnect switch which in turn has contacts across which an arc develops when the switch opens under load. The disconnect switch includes a blast mechanism for blasting a quenching stream of the gas across the contacts for extinguishing the arc. A filter is connected to the disconnect switch for removing dissociation products produced when the gas extinguishes the arc. A pump is connected with the filter and the disconnect switch for pumping the gas through the filter independent of the quenching stream, whereby the dissociation products are removed from the gas by the filter.

3,740,509

COMPRESSED GAS CIRCUIT BREAKER HAVING COUPLED VARIABLE-VOLUME HIGH AND LOW PRESSURE CHAMBERS FOR EXPEDITING GAS PRESSURE RECOVERY IN THE HIGH PRESSURE CHAMBER

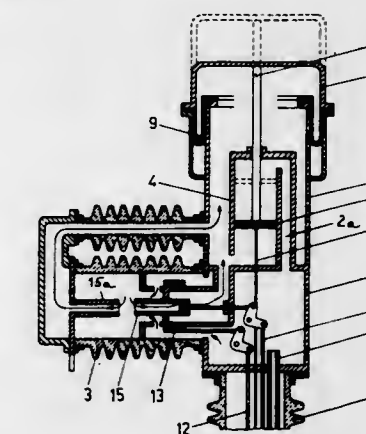
Henri Clerc, and Dieter Floessel, both of Fislisbach, Switzerland, assignors to Aktiengesellschaft Brown, Boveri & Cie., Baden, Switzerland

Filed Nov. 18, 1971, Ser. No. 199,869

Int. Cl. H01h 33/54

U.S. Cl. 200—148 B

3 Claims



A columnar type electrical circuit breaker of the gas blast type includes a switching chamber containing the breaker contacts, together with a high gas pressure readiness tank, and a low gas pressure tank and a blast valve mounted at the top of the column. When the blast valve is opened and the switch contacts are disengaged, the contacts are swept over by the high pressure gas discharged through the blast valve from the high pressure tank into the switching chamber, the gas then flowing into the low pressure tank and thence ultimately back into the high pressure tank to replenish the latter after passage through a compressor located at the lower end of the column. The low pressure tank is provided with a movable wall portion acting as a piston which is rigidly connected with a piston forming one end wall of the high pressure tank such that when the gas is discharged into the low pressure chamber it actuates the movable wall piston thereof in such direction as to increase the volume of the low pressure tank and simultaneously, and to the same extent, decrease the volume of the high pressure tank, thus maintaining the gas pressure in the latter at its initial high value and in readiness for a subsequently and rapidly reoccurring switching out operation.

3,740,510

CONTACTOR WITH IMPROVED CONTACT MEANS

Kurt A. Grunert, Beaver, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Division of Ser. No. 853,271, Aug. 27, 1969, Pat. No. 3,602,850. This application Apr. 21, 1971, Ser. No. 136,058

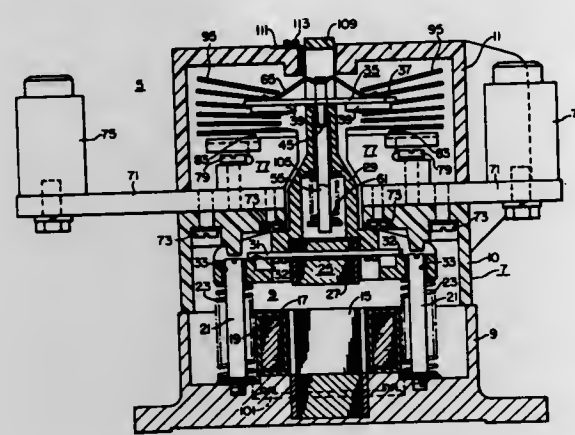
Int. Cl. H01h 9/00

U.S. Cl. 200—166 K

2 Claims

A contactor comprises improved contact means. The stationary contact structure comprises a conducting support with a contact and arc-runner supported thereon such that the arcs

leaving the stationary contact move directly onto the arc-runner. The stationary contact structure is constructed to facilitate removable mounting thereof on a conductor. A



metallic shield member is provided to protect the insulating material of the insulating contact carrier from the heat and impact of the bridging contact structure.

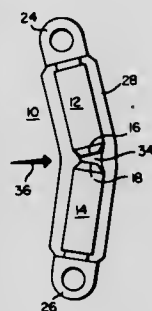
3,740,511 VACUUM SWITCH

Julius C. Westmoreland, 6607 Avenida de La Pescalas, La Jolla, Calif.

Filed May 6, 1971, Ser. No. 140,855
Int. Cl. H01h 9/02

U.S. Cl. 200-168 G

9 Claims



A sealed electrical switch is disclosed which includes a first conductive element and a second conductive element. The second conductive element is positioned with its first end in abutting relationship with the first end of the first conductive element, with the abutting surfaces of the conductive elements forming the contacts of the switch. Electrical terminals are connected to the other ends of the conductive elements, and an elastomer coating surrounds all of the switch except the electrical terminals.

3,740,512 METHOD FOR ADHERING FRICTION MATERIAL TO RING-LIKE ELEMENT

David C. Mitchell, Bloomfield Hills, and Charles W. Latreille, Detroit, both of Mich., assignors to D.A.B. Industries, Inc., Detroit, Mich.

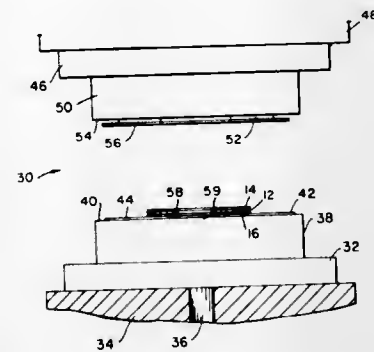
Filed Dec. 6, 1971, Ser. No. 204,859
Int. Cl. H05b 5/08

U.S. Cl. 219-10.41

4 Claims

A method is provided for adhering friction material to a metallic ring-like element to form clutch elements of the type generally utilized in automatic transmissions. In a preferred embodiment, the ring-like element is precoated with an adhesive material on both sides. The adhesive is then dried to a non-tacky state. A ring of friction material is then positioned on either side of the metallic ring-like element. This assembly is then placed in a press which includes an electrically conductive ring which constitutes a one turn coil. The press is closed to apply pressure to the assembly. At the same time, alternating current is caused to flow in the one turn coil to create a

magnetic field which induces current flow in the metallic ring-like element. The flow of current causes the metallic ring-like



element to become hot as a result of resistance and hysteresis losses. The heat causes the adhesive material to bond the friction material to the metallic ring-like element.

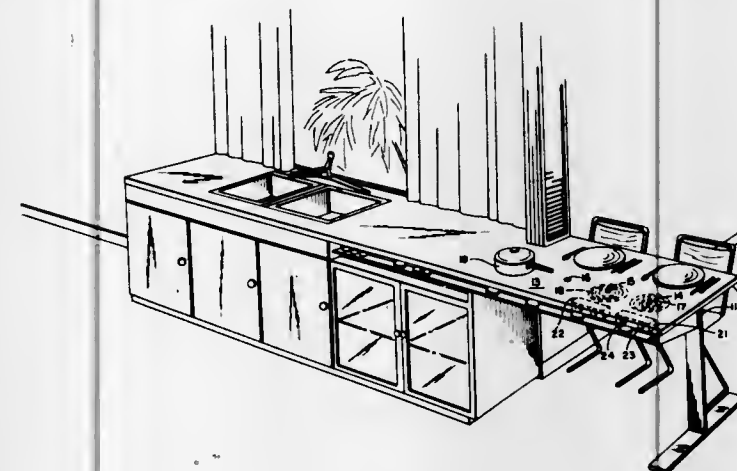
3,740,513 IMPROVED CONSUMER ORIENTED COMBINED COUNTER AND COOKING UNIT USING INDUCTION HEATING

Philip H. Peters, Jr., Greenwich, and John L. Matrone, Schenectady, both of N.Y., assignors to Environment/One Corporation, Schenectady, N.Y.

Filed Sept. 23, 1971, Ser. No. 183,005
Int. Cl. H05b 1/02

U.S. Cl. 219-10.49

17 Claims



An improved combined counter and electric cooking unit using induction heating coils for inductively heating metal base cookware. The unit is formed by a housing having a substantially continuous insulating top surface of an attractive appearance covering the top of the housing and a plurality of induction heating coils supported within the housing beneath the insulating surface at particular heating site locations where heating is to be performed. The insulating surface is transparent to magnetic induction fields with little or no losses and includes at particular heating site locations, areas which are transparent to infrared heat whereby the temperature of metal base cookware disposed at the heating site locations can be directly viewed for controlling operation of the induction heating coils. The control and power supply circuitry for the high frequency excitation electric current supplied to the respective induction heating coil, may be enclosed within the housing below the insulating surface or at some remote location. The insulating surface preferably is from the class of materials comprising plastics, tile, certain glasses, stoneware, ceramics, Pyrex, pyro-ceramics, marble, slate, natural stone, wood, specially treated wood and the like. The cooking site locations and infrared heat transparent areas may be formed from special materials such as a pyro-ceramic secured within appropriate openings, and the remainder of the smooth top insulating material may be formed from a much cheaper plastic material having the requisite characteristics of good ap-

pearance. Otherwise, the entire smooth-top insulating surface must have the capability of withstanding relatively high temperatures of the order of 450° F. The housing may be formed in the manner of a standard countertop which could be then custom used as a table (with legs supplied separately) or as a countertop surface range combination or as a pass through (kitchen-dining room) range surface combination, etc., or may be formed in the manner of a conventional range all of which have continuous, smooth-top surfaces to facilitate cleaning. If desired one of the induction heating units and/or induction coil alone and its overlying insulating surface can be made to be removable to allow for remote location cooking and/or warming. In addition, the unit could be built to have a special electrical jack into which a separate remote and portable induction coil and overlying insulating surface unit can be plugged to provide remote cooking and warming. In this case plugging in the remote unit automatically disconnects the built in counter induction coil. Providing a number of wall plugs allows plugging in the remote unit(s) in different locations.

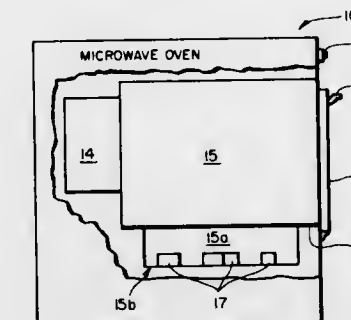
3,740,514 MODE-SHIFTING SYSTEM FOR MICROWAVE OVENS

Harold C. Anderson, New Brighton, Minn., assignor to Litter Systems, Inc., Minneapolis, Minn.

Filed July 1, 1970, Ser. No. 51,616
Int. Cl. H05b 9/06

U.S. Cl. 219-10.55

1 Claim



A mode-shifting system for microwave ovens comprising spaced dielectric blocks located within the cavity of a microwave oven to ensure uniform distribution of electromagnetic wave energy throughout the foodstuffs placed within such cavity.

3,740,515 MICROWAVE HEATING APPARATUS

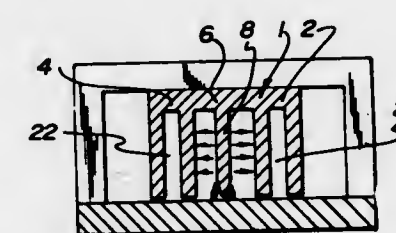
Allan L. Vankoughnet, Ottawa, Ontario, Canada, assignor to Canadian Patents and Development Limited, Ottawa, Ontario, Canada

Filed July 7, 1971, Ser. No. 160,416

Claims priority, application Canada, Nov. 27, 1970, 099304
Int. Cl. H05b 9/06

U.S. Cl. 219-10.55

1 Claim



A microwave heating apparatus for line heating a dielectric sheet material comprises a trough waveguide having a central ridge extending along the trough, and a metal member spaced from the ridge so that the sheet may be passed in the longitudinal direction of the ridge and between the ridge and the metal member. The dielectric sheet material may be a paper carrying an ink mark to be dried, and the metal member may be a metal drum having the paper extending around it. The

trough waveguide extends circumferentially around a portion of the drum and closely follows the drum contour.

3,740,516 RADIO FREQUENCY TRANSFORMER FOR INDUCTION HEATING INSTALLATION

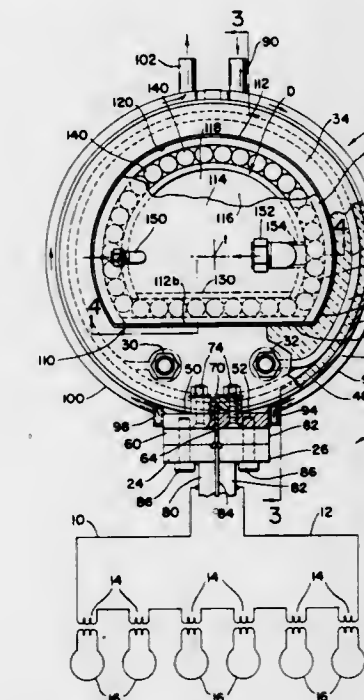
William J. Kec, Chippewa Lake, Ohio, assignor to Park-Ohio Industries, Inc., Cleveland, Ohio

Filed Jan. 10, 1972, Ser. No. 216,682

Int. Cl. H05b 5/06

U.S. Cl. 219-10.75

13 Claims



In a radio frequency transformer for an induction heating device including a primary winding and a secondary winding defining a central chamber there is provided a core structure including a closed, non-magnetic housing having an outer wall generally matching the inner surface of the chamber, a plurality of high permeability elements secured within the housing and adjacent the outer walls thereof, and means for circulating a coolant through the housing and in heat transfer relationship with the elements.

3,740,517 ELECTRICAL WIRE CUTTING APPARATUS

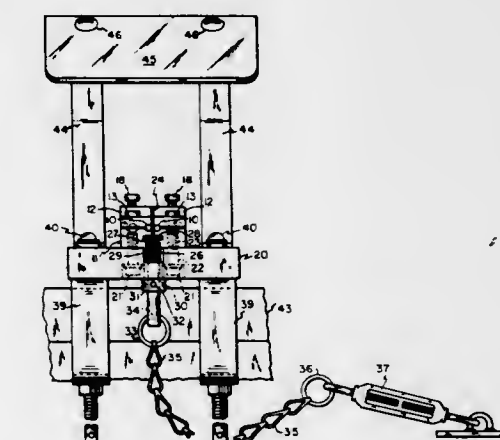
Cornelius Lauer, Stow, Ohio, assignor to The General Tire & Rubber Company, Akron, Ohio

Filed Feb. 17, 1972, Ser. No. 227,064

Int. Cl. B23p 1/00

U.S. Cl. 219-68

3 Claims



A wire cutting apparatus is provided having a pair of spaced apart, highly electrically conductive electrodes such as tungsten or platinum, and an insulated bias means for urging the wire to be cut against the electrodes. A power source applies a

low voltage, high power electrical signal between the electrodes preferably of between 1.5 and 5 volts and of at least 25 amperes. On insertion of a stranded wire or the like between the bias means and electrodes, a high current flows through portions of the wire between the electrodes to generate localized heat to melt and cut the wire while welding the ends of the stranded wire.

3,740,518

APPARATUS FOR ARC WELDING

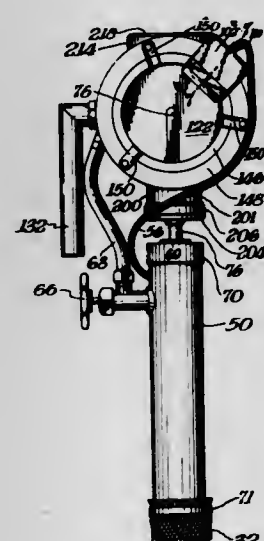
Ernest H. Berghof, Orlando, Fla., assignor to Anna Welding Corporation, Orlando, Fla.

Filed Mar. 9, 1972, Ser. No. 233,071

Int. Cl. B23k 9/16

U.S. Cl. 219-72

11 Claims



There is described herein an apparatus which facilitates electric arc welding either underwater or under adverse atmospheric conditions. This apparatus includes a housing chamber having three primary apertures therein. The first and second apertures are disposed oppositely of each other. A piston-like, hollow insert is adapted to be coaxially positioned in the first aperture. A transparent viewing member is disposed in the first aperture and held in place by the insert. A contact gasket is removably secured to the periphery of the second aperture to provide a seal between the work piece to be welded and the housing. A flexible sealing gasket is secured over the third aperture and is adapted to sealingly receive the welding gun. Finally, there is a means for introducing a shielding gas into the chamber to maintain it substantially free of the fluids from the surrounding environment during the welding operation.

In underwater applications the welding electrode is held by a welding gun having a hollow guide tube which supports the welding electrode. A gas valve in the welding gun permits the entry of a gas under pressure to be introduced in the annular space within the guide tube about the welding electrode to permit a jet of gas to be used to clear the work area either when initially started or at other times during the welding process. Similarly, the welding current control switch is adapted to be surrounded by pressurized shielding gas to maintain it substantially water-free and thereby avert short circuits. A rocker arm mechanism is utilized to actuate the gas valve and the welding control switch such that either but not both may be actuated at a time. This is necessary to prevent the electrical arc from being blown out by the sharp blast of cleaning gas. The gun itself is formed of a solid member having various channels formed therein to provide for the necessary gas conduits and electrical wiring. Suitable end caps are placed over either end of the gun member to provide a water seal and to strengthen the gun.

3,740,519 ELECTRODE FOR ELECTRO-EROSION MACHINING ELECTRODE

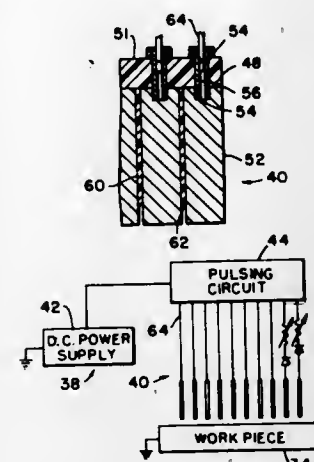
Thomas J. O'Connor, 100 Morgan Road, Ann Arbor, Mich.
Continuation of Ser. No. 33,216, April 30, 1970, abandoned.

This application Mar. 27, 1972, Ser. No. 238,126

Int. Cl. B23p 1/08, 1/04

U.S. Cl. 219-69 E

2 Claims



Apparatus for and a method of electro erosion machining with increased stock removal rate with a fine finish is disclosed. The electro erosion machining apparatus disclosed includes an electrode having a plurality of separate portions insulated from each other and separately connected to a single source of pulsed electrical energy whereby the current from the source of pulsed electrical energy is divided among the separate electrode portions to provide a small current for each electrode. The method of the invention includes varying the current passed through each portion of the electrode, limiting the current through each portion of the electrode to a single direction and moving the electrode transversely of the direction of movement of the electrode toward a workpiece during electrical erosion machining to provide rapid total form machining.

3,740,520

APPARATUS FOR MAKING CIRCULAR WELDS

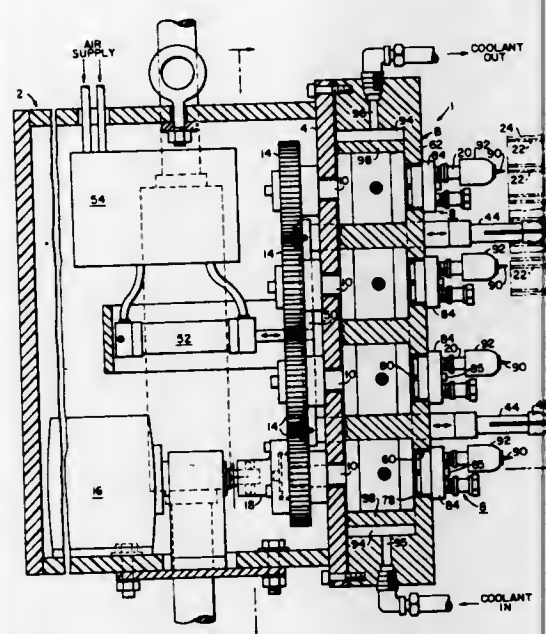
Eli M. Daughenbaugh, Prospect Park, and Thomas R. Platt, Narberth, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 3, 1972, Ser. No. 223,256

Int. Cl. B23k 9/02

U.S. Cl. 219-60 A

10 Claims



An apparatus for making circular welds as for example welding tubes to tube sheets in which the electrical conductors and gas lines do not rotate with the welding head.

3,740,521

SOLDERING APPARATUS FOR SAW CUTTING TEETH

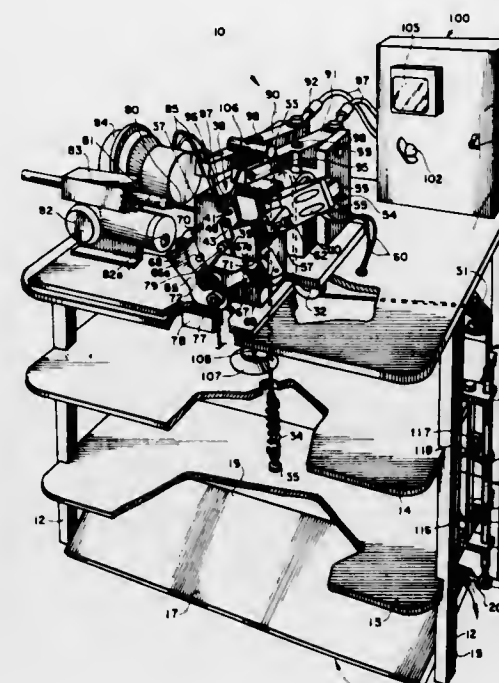
Martin Blythe Bullard, 7111 Pomelo Drive, Canoga Park, Calif.

Filed Aug. 16, 1971, Ser. No. 171,886

Int. Cl. B23k 1/04

U.S. Cl. 219-85

21 Claims



A mounting block has a retaining opening for receiving and holding a metal carrier supporting a carbide bit with necessary layers of silver solder and flux between the metal carrier and carbide bit. A pair of swing arms have jaws that engage opposing sides of the carbide bit to properly orient it on the metal carrier.

A pair of movable electrodes is selectively urged by a force applying means to bear against an electrical conductor and cause it to bear against the carbide bit with a predetermined and controlled amount of force.

With the metal carrier and carbide bit thus oriented and the metal carrier securely clamped against the mounting block, an electrical power supply circuit can be energized to solder the metal carrier and carbide bit together. Current flows through one electrode into the electrical conductor and outwardly through the other electrode without passing through either the carbide bit or the metal carrier. The duration is relatively short so that heat generated by the current passing through the joint does not penetrate very deeply into the metal carrier. A joint is thus produced with a controlled joint thickness and controlled distribution of the silver solder, a portion of which constitutes a fillet under and around the carbide bit to assist in stabilizing the joint.

3,740,522

PLASMA TORCH, AND ELECTRODE MEANS THEREFOR

Erich Muehlberger, Costa Mesa, Calif., assignor to Geotek, Inc., Amityville, Long Island, N.Y.

Filed Apr. 12, 1971, Ser. No. 133,126

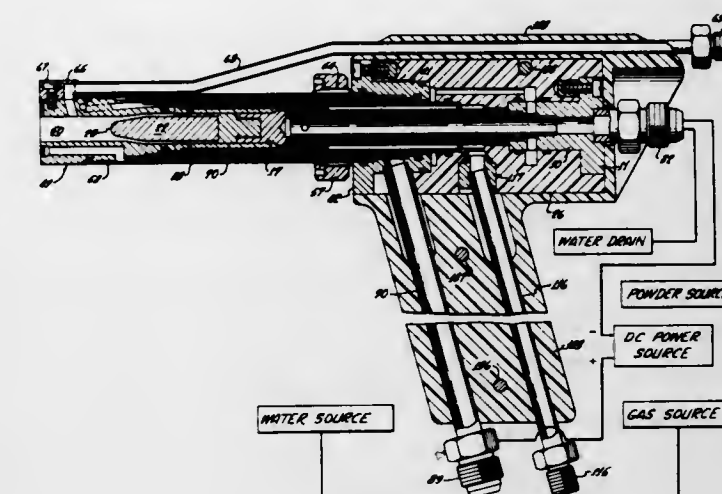
Int. Cl. B23k 9/00

U.S. Cl. 219-121 P

18 Claims

The torch comprises an insulating housing in which are mounted a metallic front housing and a metallic rear housing. Five coaxial metal tubes are provided in radially-spaced relationship to define four annuli and a central passage. The two inner tubes extend from the rear housing to the cathode holder to deliver electricity and cooling water thereto. The two outer tubes extend from the front housing to the anode for conduction of electricity and cooling water thereto. The intermediate tube extends from the insulating housing to the anode and cooperates with a fluted gas-injector and spacer sleeve to pass arc gas to the arc chamber. An external tube conducts spray powder to the anode.

The anode has alternating water-in and water-out longitudinal passages which efficiently cool it and permit a very small diameter in relation to power capabilities. The anode is removable and may be straight-flow, angular-flow, and/or supersonic. The outermost tube is removably secured in a clamping and current-conducting portion of the front housing.



The cooling water flows in series, and in four directions, through the central passage and inner annulus, through the outer two annuli, and also through the housings. All of the tubes are removable and may be long or short, thus adapting the torch for spray coating the interiors of various lengths of pipe. External protuberances on various tubes maintain concentricity regardless of tube length.

3,740,523

ENCODING OF READ ONLY MEMORY BY LASER VAPORIZATION

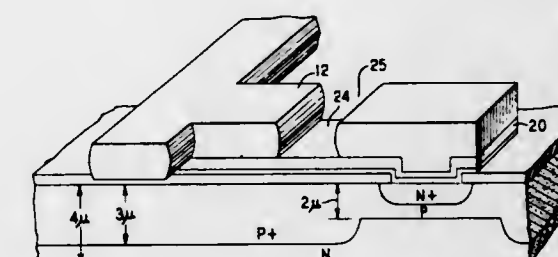
Melvin Irwin Cohen, Berkeley Heights, N.J., and Alan William Fulton, Naperville, Ill., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 30, 1971, Ser. No. 214,343

Int. Cl. B23k 9/00

U.S. Cl. 219-121 LM

4 Claims



A beam-lead silicon integrated circuit read-only memory is made in a conventional manner by forming an array of transistors on a silicon substrate, except that the gold portion of one conductive lead to each memory cell is severed, as by gold etching. Conductive connection to each memory cell is, however, maintained by the platinum-titanium intermediate layer that underlays the gold conductor. The array is permanently encoded by selectively vaporizing, with a laser beam, the exposed platinum layer of certain memory cells. This technique permits laser encoding of a beam-lead silicon integrated circuit with a sufficiently low power beam as not to endanger the silicon substrate.

3,740,524 METHOD FOR CUTTING CURVED PATTERNS IN GLASS SHEETS DISPOSED ON A FLUID AIR SUPPORT

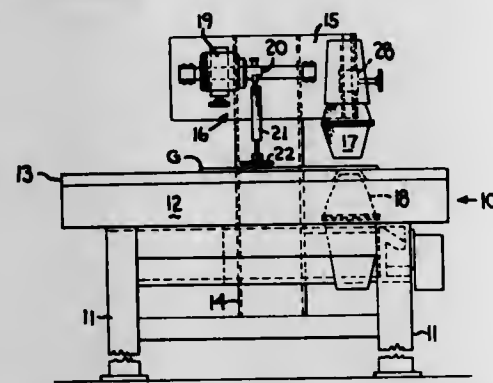
John R. Dahlberg, Jeannette, Pa., and Terrence A. Dear, Newark, Del., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 829,075, May 29, 1969, abandoned.
This application Mar. 26, 1971, Ser. No. 128,385

Int. Cl. B23k 9/00

U.S. Cl. 219—121 LM

8 Claims



A pattern-cutting apparatus for glass comprising an air-support table periodically supplied with compressed air for supporting the glass above the table, a source of thermal energy disposed above and below the glass sheet for inducing a fracture in the glass, and a motor and turning mechanism for turning the glass between the energy sources so as to describe a pattern in the glass sheet when it rotates between the sources and producing a pattern-cut piece of glass when the glass is severed along the fracture line.

3,740,525 PROCESS OF MAKING FULLY AUSTENITIC WELDED JOINTS WHICH ARE INSUSCEPTIBLE TO HOT CRACKING

Anton Baumel, Lank/Niederrhein, Germany, assignor to Bohler & Co., AG, Kalsfenberg, Austria

Filed Nov. 30, 1970, Ser. No. 93,878

Claims priority, application Germany, Nov. 29, 1969, P 19 60 025.0

Int. Cl. B23k 9/00

U.S. Cl. 219—137

3 Claims

A fully austenitic base material composed of 0.001–0.2 percent carbon, 0.1–5.0 percent silicon, 0.25–10.0 percent manganese, 15.0–25.0 percent chromium, 3.5–6.0 percent molybdenum, 8.0–30.0 percent nickel, 0.01–3.0 percent copper, 0.1–0.35 percent nitrogen, balance iron and inevitable impurities is joined with the aid of an electrode comprising a filler material composed of 0.001–0.2 percent carbon, 0.1–5.0 percent silicon, 0.25–10.0 percent manganese, 15.0–25.0 percent chromium, 3.5–6.0 percent molybdenum, 8.0–30.0 percent nickel, 0.01–3.0 percent copper, 0.1–0.35 percent nitrogen, balance iron and inevitable impurities to form a weld composed of 0.001–0.2 percent carbon, 0.1–5.0 percent silicon, 0.25–10.0 percent manganese, 15.0–25.0 percent chromium, 3.5–6.0 percent molybdenum, 8.0–30.0 percent nickel, 0.01–3.0 percent copper, 0.1–0.35 percent nitrogen, balance iron and inevitable impurities.

3,740,526 METHODS OF WELDING TOGETHER SHEETS TO FORM WALLS, TANKS OR THE LIKE

Robert G. Jackson, Hornchurch, and Edward Armstrong, Darlington, both of England, assignors to Conch International Methane Limited, Nassau, The Bahamas

Filed Mar. 8, 1971, Ser. No. 121,975

Claims priority, application Great Britain, Mar. 19, 1970, 13,248/70

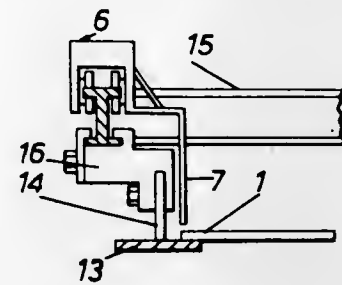
Int. Cl. B23k 9/12

U.S. Cl. 219—137

6 Claims

In welding together metal sheets to form walls, tanks or the like, a connecting strip is used which supports a rail spaced

from its edges and which serves as a track for mounting a welding machine. The edges of two adjacent sheets to be welded together are placed so that each overlaps one edge of



the connecting strip, and the welding machine is then traversed along the rail while welding at least one sheet edge to the part of the connecting strip which it overlaps.

3,740,527 ELECTRIC CONVECTOR HEATER

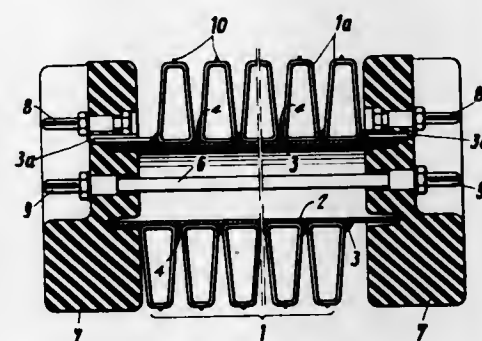
Franciscus Roffelsen, Mauritslaan 7, Helmond, Netherlands
Filed Jan. 16, 1970, Ser. No. 3,390

Claims priority, application Germany, Jan. 20, 1969, P 19 02 575.3

Int. Cl. H05b 3/02; F24h 3/00; H01c 3/00

U.S. Cl. 219—365

6 Claims



An electric convector space heater comprises a convector wire helix which is wound helically around a tubular support with the loops of the helix extending radially from the support and a heat source in the form of an electric resistance wire which is also wound around the tubular support and has means for connecting its ends to a source of electric current. In one form of the invention the convector wire helix is electrically insulated from the support and itself forms the electric resistance wire and in another form of the invention the electric resistance wire is in the form of an element in which it is surrounded with an insulating coating and a metal sheath. The element is wound helically around the support between the turns of the helical winding of the convector wire and the sheath is entirely encased in solder or brazing metal by which the element and the convector wire helix are fixed to the support.

3,740,528 BIMETALLIC TIMING MECHANISM FOR AUTOMATIC BREAD TOASTER

Kurt Wohlfart, Offenbach/Main, and Henz Marburger, Frankfurt am Main, Germany, assignors to Rowenta Werke GmbH, Offenbach am Main, Germany

Filed June 28, 1972, Ser. No. 267,101

Claims priority, application Germany, June 28, 1971, P 21 31 977.7

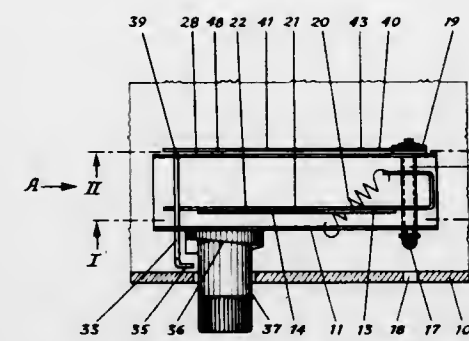
Int. Cl. H05b 1/02

U.S. Cl. 219—510

7 Claims

A timing mechanism for an automatic bread toaster is provided which has a regulating knob and a bimetallic element that is mounted on an adjustable calibrating spindle. When the toaster activated by the depression of the bread slide electrical current heats the bimetallic element, the element is thereby

deflected to a point where it engages a groove in a control slide and it also switches off its own heating current. The con-



trol slide is moved by the bimetallic element as it cools until it releases a latching pawl from engagement with the bread slide, thereby allowing the bread slide to return to its raised position.

3,740,529 HEATING UNIT

Richard B. Falk, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Nov. 1, 1971, Ser. No. 194,740

Int. Cl. H05b 3/58

U.S. Cl. 219—535

1 Claim

An in situ heating unit is provided by embedding an electric heating element in a flexible laminar structure impregnated with partially polymerized high-temperature-resistant resin. The object to be heated is easily and conformably wrapped in the laminate and electric current passed through the heating element to cure the resin, providing a low cost, adherent, void-free, efficient heating unit which is resistant to elevated temperatures and physical abuse.

3,740,530 APPARATUS AND METHOD FOR VERIFICATION OF A CREDIT CARD

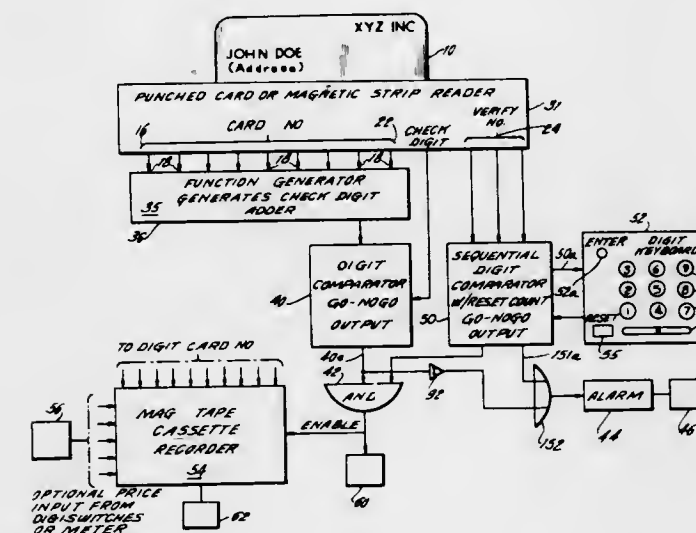
Arthur Hoffer, Dix Hills, and James Hall, East Northport, both of N.Y., assignors to Transvac Electronics Inc., Plainview, N.Y.

Filed Dec. 7, 1970, Ser. No. 95,469

Int. Cl. G06k 7/00

U.S. Cl. 235—61.7 B

13 Claims



Apparatus and method for verifying a credit card: The card has three groups of machine readable information. The first and second groups of information are functionally related and

a comparator compares them for validity. A second comparator sequentially compares them for validity. A second comparator sequentially compares the third group with information provided by the card holder. If both comparisons are favorable, recordation of purchase information is enabled. If either comparison is unfavorable, an alarm system is activated.

3,740,531 AUTOMATICALLY PRESETTABLE COPY COUNTER FOR AUTOMATIC PRINTING MACHINES, COPIERS, AND THE LIKE

Heinz Joachim Schinke, Unterkirnach, and Werner Lehmann, Gutach, both of Germany, assignors to Mathias Bauerle G.m.b.H., Georgen/Schev., Germany

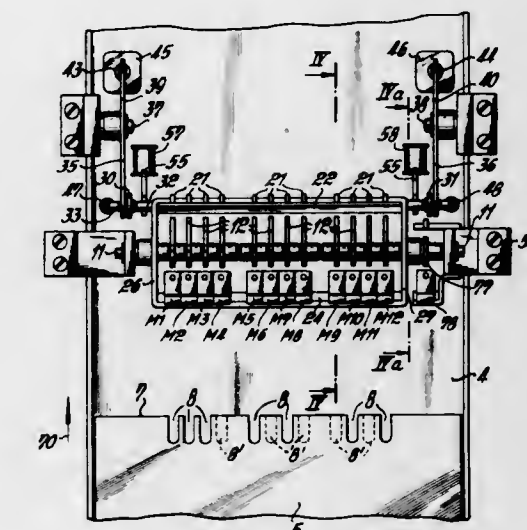
Filed June 11, 1971, Ser. No. 152,084

Claims priority, application Germany, June 16, 1970, G 70 22 582.0

Int. Cl. B41j 5/02; G06r 17/00

U.S. Cl. 235—61.7 R

19 Claims



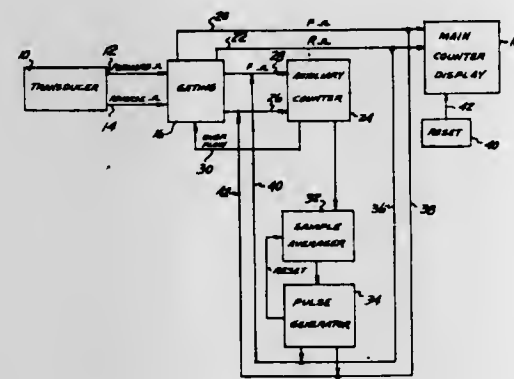
A plurality of control levers are pivotally mounted, on a common shaft, extending transversely of the path of movement of an original for deflection by the leading edge thereof. Each lever has a respective electric switch associated therewith for actuation responsive to deflection of the lever. The leading edge of each original is formed with one or more forwardly opening recesses, representing a binary code, with the recesses being arranged in groups, each group corresponding, for example, to units, ten, hundreds, etc. The recesses effect delayed deflection of the correspondingly located levers and corresponding delayed actuation of the associated electric switches. After each lever not opposite a recess has been deflected by the leading edge of an original, a transverse rod is engaged beneath hooked end of the deflected levers and a frame mounting both the deflected levers and the non-deflected levers is pivoted to move all of the levers out of the path of movement of the original. Only certain electric switches are actuated in accordance with those levers corresponding to the recesses in the leading edge of the original. The switches may be connected to a value storage, or the switches and the actuating levers therefor may constitute a value storage and be used in a coincidence circuit arrangement with corresponding switches actuated by a mechanical counter which counts the number of copies. When the number of copies reproduced is equal to the number set in the value storage, the reproduction is interrupted and all of the levers are returned to their initial positions. The forwardly opening recesses may be U-shaped, V-shaped, or rectangular.

3,740,532 DIGITAL COUNTER AVERAGING SYSTEM

Robert E. Esch, Dayton, Ohio, assignor to Kureha Kagaku
Kogyo Kabushiki Kaisha, Chuo-Ku, Tokyo, Japan
Filed May 25, 1971, Ser. No. 146,712
Int. Cl. H03k 21/02

U.S. Cl. 235—92 EV

7 Claims



An arrangement for averaging the count received from a bidirectional pulse source such as a measuring machine position transducer is disclosed in which a relatively small capacity auxiliary counter is utilized in conjunction with a main counter, and includes means for causing the incoming pulses in either direction to bypass the auxiliary counter and pass to the main counter whenever the auxiliary counter is full in the direction of the incoming pulse. The count in the auxiliary counter is periodically sampled with the samples taken at regular intervals and an update signal reflecting the direction of the average count being added to the main counter and subtracted from the auxiliary counter at regular intervals.

3,740,533 METHOD OF CONTROLLING A PROCESS AND APPARATUS FOR THE PERFORMANCE OF THE METHOD

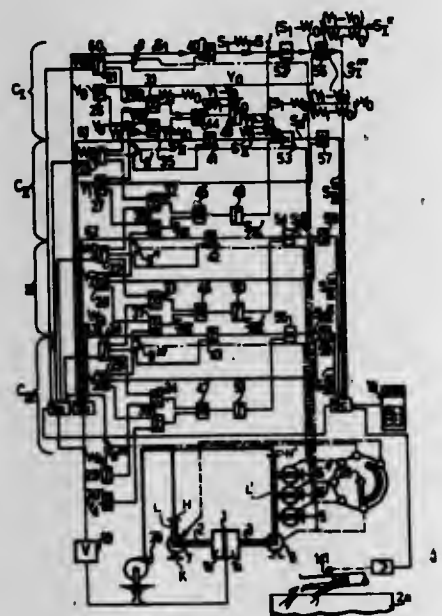
Gerrit Hendrik van Zeggelaar, Utrecht, Netherlands, assignor
to Ballast-Nedam Groep N.V., Amsterdam, Netherlands
Filed Jan. 19, 1971, Ser. No. 107,716

Claims priority, application Netherlands, Jan. 23, 1970,
7001014

Int. Cl. G01d 18/00

U.S. Cl. 235—151.3

6 Claims



A method and apparatus for controlling a process, which requires a control signal which varies linearly with a process

variable, by means of an instrumentality which measures the variable but does not produce the required linear output. The deviation of the instrumentality from the desired linear signal is compensated for by calibrating the instrumentality for a number of values of the variable between which successive pairs thereof the output of the instrumentality is reasonably linear. Thus, between each pair P_n and P_{n-1} of the variable the ideal control signal is uniquely defined as $Y=mx+b$ where x is the variable P , the slope m equals $(Y_n - Y_{n-1}) / (P_n - P_{n-1})$ and b equals Y_{n-1} , with Y_n and Y_{n-1} being the ideal values corresponding to the values P_n and P_{n-1} of the variable; whereas the output of the instrumentality is at least closely defined as $S=m'x+b'$ where x is again the variable P , the slope m' equals $(W_n - W_{n-1}) / (P_n - P_{n-1})$ and b' equals W_{n-1} , with W_n and W_{n-1} being the calibrated outputs of the instrumentality corresponding to the values P_n and P_{n-1} of the variable. With these conditions prevailing for that range of the variable between each pair, the instrumentality output is corrected to equal $(S - W_{n-1})[(Y_n - Y_{n-1}) / (W_n - W_{n-1})] + Y_{n-1}$ and is used to control the process with high degree of accuracy.

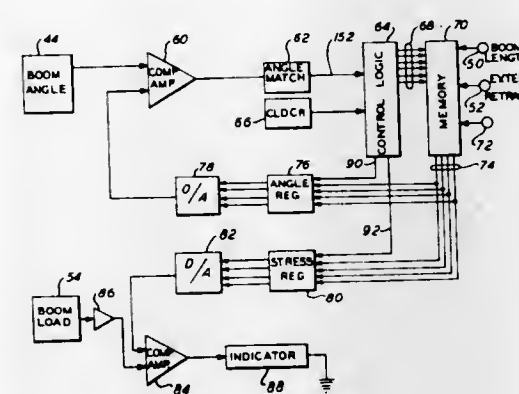
3,740,534 WARNING SYSTEM FOR LOAD HANDLING EQUIPMENT

Charles F. Kezer, and Soo Chul Chung, both of Mineola,
N.Y., assignors to Litton Systems, Inc., Beverly Hills, Calif.
Filed May 25, 1971, Ser. No. 146,682

Int. Cl. G06g 7/22; G08b 21/00

U.S. Cl. 235—151.3

12 Claims



A warning system for load handling equipment is shown capable of warning an operator of the load handling equipment, such as a crane hoist, that his lifted load is about to cause a failure due to the crushing of the boom or tipping of the crane. A memory stores information peculiar to the crane hoist, while control logic selects data corresponding to a set of boom angles and applies the data to a differential amplifier. The amplifier compares the selected angles against the actual boom angle and applies an indicating signal to the control logic as the selected angle matches the boom angle. The control logic then selects the stored maximum stress for the matched angle and applies this stress through a digital to analog converter to a second differential amplifier where a comparison is made with a stress generated by the lifted load. As the load approaches its maximum, an alarm circuit provides a warning to the equipment operator.

3,740,535 NUMERICAL CONTOURING CONTROL SYSTEM

Andras I. Szabo, Export, Pa., assignor to Westinghouse
Electric Corporation, Pittsburgh, Pa.
Filed Aug. 16, 1971, Ser. No. 172,074

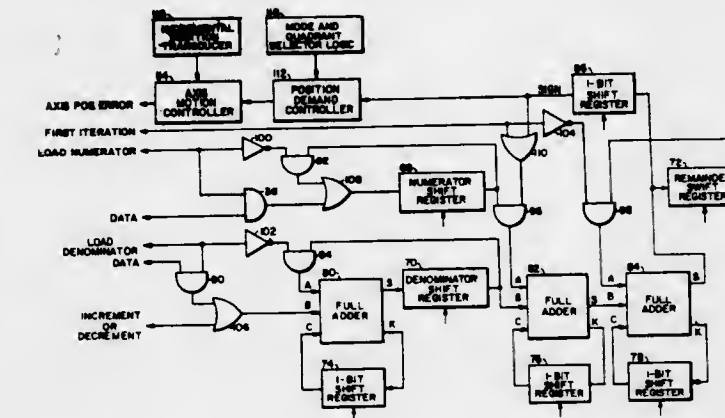
Int. Cl. G06f 15/46

U.S. Cl. 235—151.11

6 Claims

This disclosure relates to a numerical contouring control system for controlling the displacements of a machine tool

along two or more axes in response to intelligence indicia on a control media such as a tape. The time required to complete one block of information is arranged in digital form as an arithmetical numerator. The displacements in rectangular coordinate directions are respectively arranged in digital form as arithmetical denominators. Successively, each denominator is subtracted from the numerator. When a change in sign in the remainder is detected, a position signal is sent to command an incremental displacement ΔL along a rectangular coordinate direction. Upon detecting a change in sign in the remainder, the digital information in the numerator is added to the remainder at the advent of the next subtraction. The



subtraction process is iterative and continues until the position demand is equated to the end displacement indicator by the intelligence on the control media. A cooperating zero system continues to actuate associated drive mechanisms until the position demand and the actual position produce zero error signal.

When the rectangular coordinates are part of a circular quadrant, the denominator for each coordinate is appropriately adjusted as subtraction proceeds, the denominator for one of said coordinates being incrementally increased, while the denominator for the other coordinate is decrementally decreased.

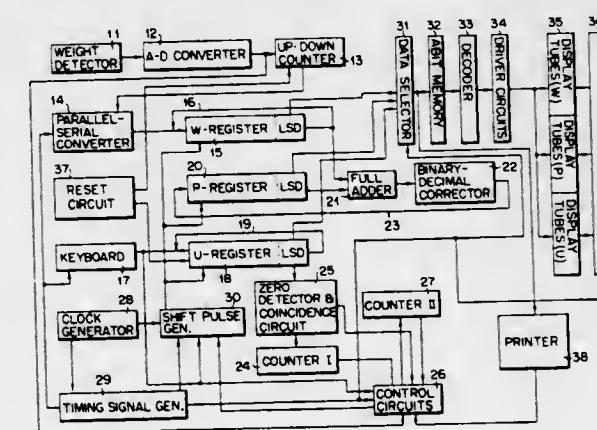
3,740,536 ELECTRONIC DIGITAL WEIGHING APPARATUS

Yasuyoshi Takahashi, Mishima; Nobuhiko Oshiro, Shizuoka-ken; Tsutomu Matsu, Mishima; Yoshiaki Tomokubo, Numazu, and Norihisa Osaka, Fuji, all of Japan, assignors
to Tokyo Electric Co., Ltd., Tokyo, Japan
Filed Aug. 25, 1971, Ser. No. 174,898

Int. Cl. G06f 7/48; G06f 15/20, 7/39

U.S. Cl. 235—151.33

15 Claims



An electronic digital weighing apparatus comprising a weight detecting section for detecting the weight of an object as an analog quantity and an analog-digital converter for converting the analog quantity to a digital quantity. The digital quantity is counted by an UP-DOWN counter the contents of which are drawn out in serial form. A unit price per unit weight of an object weighed is read into a unit price register. The serial output representing the contents of the UP-DOWN counter and the contents of a price register are added by the

911 O.G.—38

same number of times as the numerals stored in the unit price register. The results of the addition are introduced into the price register, and the serial output representing the contents of the UP-DOWN counter, and the contents of the unit price register and price register are indicated in digits.

3,740,537 MODIFIED INTEGRATE AND DUMP FILTER

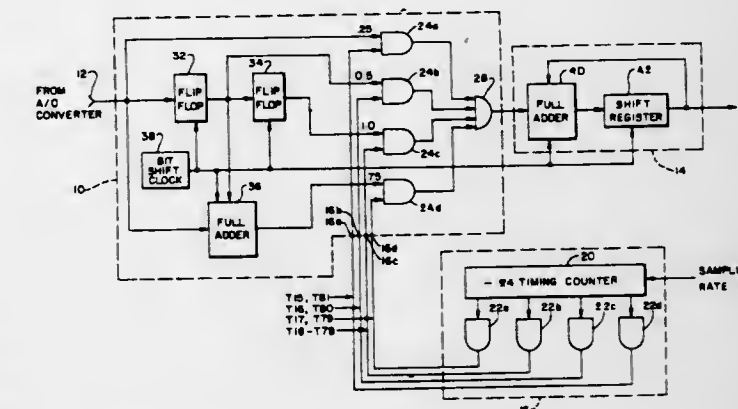
George R. Giles, Williamsville, N.Y., and John A. Lockitt, Holliston, Mass., assignors to GTE Sylvania Incorporated, New York, N.Y.

Filed Dec. 1, 1971, Ser. No. 203,545

Int. Cl. G06f 1/02

U.S. Cl. 235—152

4 Claims



A modified integrate and dump (I&D) filter employs an input terminal coupled to a selector gate through a plurality of data paths, each path including bit delay elements of different values. The output connection of the selector gate is coupled to a digital integrate and dump filter. Each of the data paths is selectively energized to vary the bit delay of selected data samples to thereby weight the value of the selected samples before supplying the samples to the I&D filter.

3,740,538 DIGITAL SORTER AND RANKER

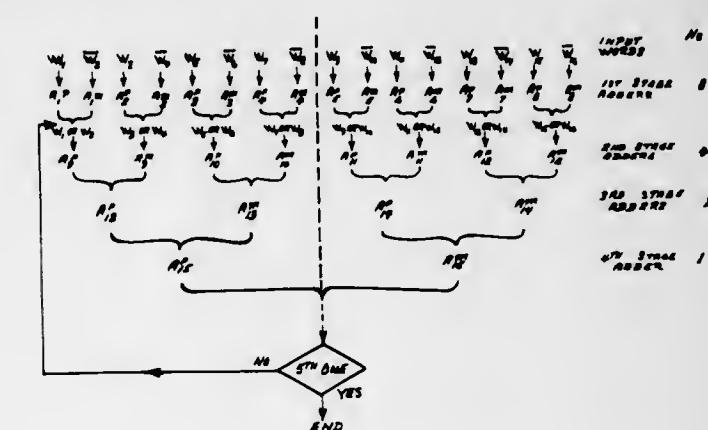
Julie A. Hemphill, Los Altos, Calif., assignor to The United States of America as represented by the Secretary of the Air Force

Filed July 28, 1971, Ser. No. 166,898

Int. Cl. G06f 7/06, 7/00

U.S. Cl. 235—177

2 Claims



A digital sorter and ranker in which pairs of binary words are subtracted from each other in adders by feed-in in one word of the pair together with the adjacent word one's complement. A carry output indicates which word is the lowest and this output is fed through coincidence logic circuits to additional series of address and logic circuits in pyramid fashion until a single output is obtained from a final adder. The adder logic circuits, the carry output and the output of the final

adder are fed through minimum value logic circuits to a series of minimum value flip-flops with the outputs thereof being fed back to the adders and their logic circuits. To record the rank of each word, a series of flip-flop groups with each group corresponding to a binary word is set according to the word's rank, the flip-flops being controlled by gating circuits fed by preceding logic circuits, the final adder, and a binary counter.

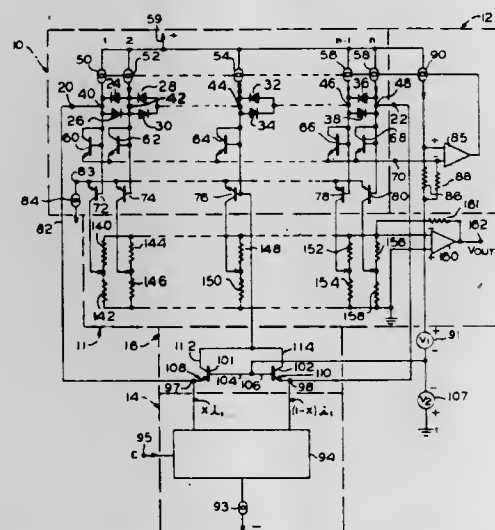
3,740,539

PROGRAMMABLE FUNCTION GENERATOR

John W. Pace, Aloha, Oreg., assignor to Tektronix, Inc., Tektronix Industrial Park, Beaverton, Oreg.
Filed Feb. 28, 1972, Ser. No. 229,901
Int. Cl. G06g 7/26

U.S. Cl. 235—197

14 Claims



A programmable function generator, which is suitable for construction in integrated circuit form, includes a current ladder which produces an output voltage or current which is a programmable function of an input voltage or current at n evenly spaced values of the input voltage or current corresponding to n spaced output points along the current ladder. For values of the input signal between any two of the n values, the output is a linear interpolation between the output values at the corresponding output points along the current ladder. The programming of each point is independent of all other points, and the output at any point is established by the ratio of a resistor pair. Accurately controlled current sources or current drivers control the flow of currents to each of the n points and the flow of current from terminals of said current ladder including compensated current drivers, one of which differentially controls current flow from end terminals of the current ladder in response to a variable input control voltage or current which, for example may be a linear ramp of voltage or current.

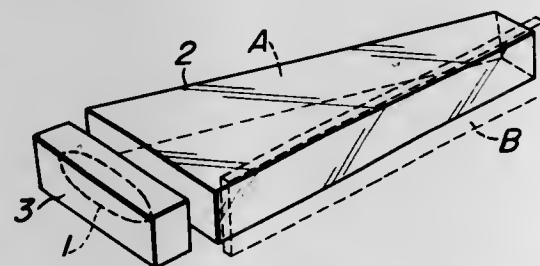
3,740,540

DIAL ILLUMINATING DEVICE

Kenzo Takeichi, Hirakata-shi, and Shigeru Hama, Moriguchi-shi, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Feb. 19, 1969, Ser. No. 800,639
Int. Cl. G01t 1/128

U.S. Cl. 240—2.1

1 Claim



A dial illuminating device for use in a dial device for a radio receiver or the like, which is capable of illuminating the dial plate uniformly and clearly.

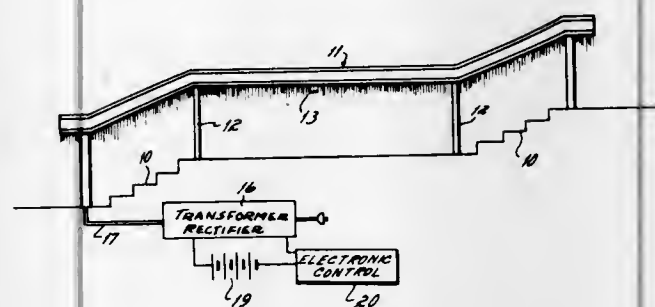
3,740,541

LIGHTED STAIR RAIL

James C. Conradt, Hamilton, Ohio, assignor to L&J Specialty Corp., Hamilton, Ohio
Filed Dec. 23, 1971, Ser. No. 211,207
Int. Cl. F21v 33/00

U.S. Cl. 240—2 W

8 Claims



An illuminated stair rail in which a channel-shaped main rail forming member has a downwardly directed opening which is covered over the major portion of its length by a translucent plate. The channel member has a plurality of lamp bulbs connected to a low voltage supply by means of a transformer which is in turn connected to conventional alternating current line voltage, for example, 115 volts, the power supply having selectively connectable storage batteries and a control system for connecting the storage batteries to the bulbs upon failure of the household supply.

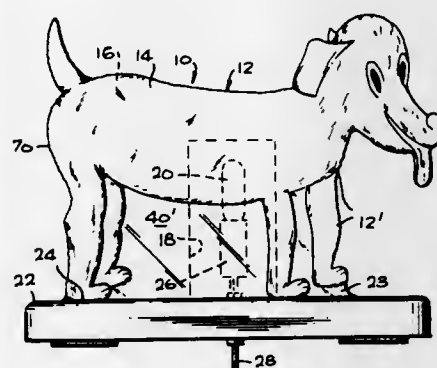
3,740,542

DECORATIVE LAMP

Norman M. Brody, Los Angeles, Calif., assignor to Norman Industries, Inc., Santa Fe Springs, Calif.
Filed June 5, 1972, Ser. No. 259,582
Int. Cl. F21p 1/00

U.S. Cl. 240—10 F

25 Claims



Decorative lamp comprising three-dimensional plastic colored article, e.g., a reproduction of a cartoon character and the like, in the form of a clear transparent, preferably cast polyester, resin body having a colored fiber glass paper inlay embedded in the resin, such inlay preferably being a silk screened multicolored configuration, the resin body having an external shape corresponding to the external shape of the colored inlay, forming a three-dimensional plastic duplicate of the colored inlay having substantially the corresponding coloration and outlines of the colored fiber glass paper inlay, and creating a three-dimensional effect to the eye of an ob-

server, such resin body being provided with a cavity in the rear portion thereof and behind the embedded fiber glass paper inlay, and an artificial lighting means such as an electric lamp positioned within the cavity, whereby light from the lighting means is transmitted through the fiber glass paper inlay and through the resultant colored resin body to the front surface thereof, to brightly and uniformly light the entire colored resin body. According to another embodiment, a translucent or opaque resin body is attached to the rear surface of the transparent resin body and substantially surrounding the cavity therein, reducing the amount of light passing through the rear of the lamp assembly and also providing a more finished appearance of the article.

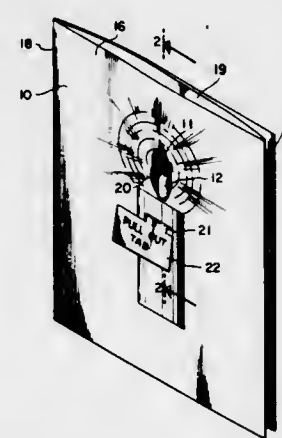
3,740,543

BATTERY POWERED ILLUMINATED ORNAMENT

Charles Franc, 1501 First Avenue, New York, N.Y.
Continuation-in-part of Ser. No. 52,963, July 7, 1970, abandoned. This application Aug. 10, 1971, Ser. No. 170,425
Int. Cl. F21v 33/00

U.S. Cl. 240—6.4 R

8 Claims



A portable, illuminated ornament for illuminating a greeting card, gift package or the like, consisting of a flat, substantially rectangular battery having a horizontally disposed, rectangular-shaped positive terminal affixed to one side thereof. A negative battery terminal, consisting of the battery casing and a rectangular member affixed to the same side of the battery as the positive terminal, is disposed parallel to the positive terminal. Either the positive or negative terminal may be provided with an aperture for receiving the base of a flame-shaped lamp. The ornament may be mounted in a greeting card which has an aperture in one surface thereof behind which the flame-shaped lamp is disposed, and an elongated slot which receives a flat tab disposed between the lamp base and the battery terminal to control illumination of the lamp.

3,740,544

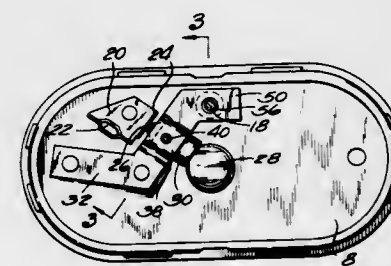
WARNING LIGHT WITH SPRING SOCKET FOR A BULB

Charles J. Newman, Madison, Ind., assignor to The Grote Manufacturing Company, Madison, Ind.
Filed May 3, 1971, Ser. No. 139,419

Int. Cl. B60q 1/32

U.S. Cl. 240—8.22

4 Claims



A light primarily intended for trucks and trailers has a generally tubular socket designed to receive lamp bulb bases

having radially projecting pins registrable with radial holes in the socket into which the pins are entered by rotation of the bulb in the sockets. The socket comprises separable parts, one of which is a spring which may be lifted manually to release the bulb without requiring reverse rotation thereof. The free end of the spring socket wall may be anchored in the assembly of the socket to prevent accidental bulb release.

3,740,545

LUMINAIRE

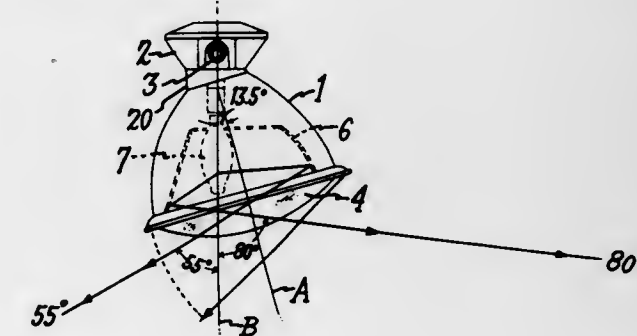
John S. Franklin, Hendersonville, and Samuel L. Baldwin, East Flat Rock, both of N.C., assignors to General Electric Company

Filed Sept. 17, 1971, Ser. No. 181,517

Int. Cl. F21s 1/00

U.S. Cl. 240—25

8 Claims



Luminaire optical system for providing asymmetric semi-directional light distribution along a one-way highway comprises a concave reflector having a bottom opening inclined toward the direction of travel. The reflector has opposite beam reflecting areas formed of a plurality of vertically extending horizontally adjacent stepped reflecting sections, each section formed of vertically adjacent reflecting surfaces which are parabolic in vertical section with foci at the light center and with axes oriented at different vertical angles for spreading the outgoing light vertically. The reflecting surfaces are formed of horizontally adjacent reflecting surface portions oriented in different horizontal directions for spreading the outgoing light laterally.

3,740,546

PILOT LIGHT ASSEMBLY FOR CIRCUIT CARD MOUNTING DEVICE

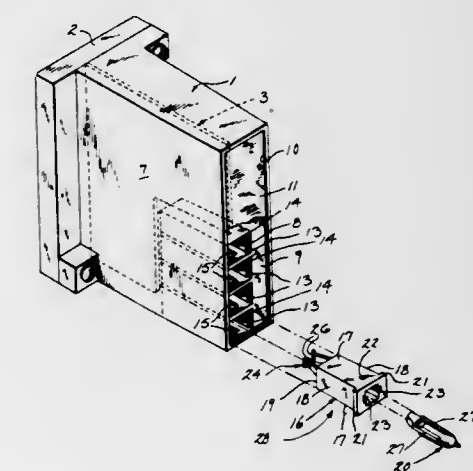
Gerd C. Boysen, Milwaukee, and Lawrence F. Freitag, Bayside, both of Wis., assignors to Allen Bradley Company, Milwaukee, Wis.

Filed Oct. 4, 1971, Ser. No. 186,114

Int. Cl. F21v 21/08

U.S. Cl. 240—52.1

6 Claims



A pilot light assembly for a circuit card enclosure having a cover into which the card is inserted for retention therein, which cover has an inner tier of light receptacles adjacent one

another in a front corner. The circuit card has several pairs of terminal pads disposed on one end, which pads are electrically connected to key circuit points on the card. A plurality of pilot light units are insertable into the light receptacles through apertures in a front wall of the cover, and a pair of fingers extend from each light unit to slidably engage one pair of the terminal pads on the circuit card to complete an electrical circuit between the light unit and a circuit card monitor point.

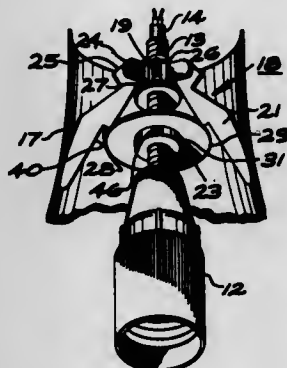
3,740,547 GLOBE SUPPORT

James Contratto, Livermore, and Frederic L. Green, El Cerrito, both of Calif., assignors to U.S. Industries, Inc., New York, N.Y.

Filed Sept. 9, 1971, Ser. No. 178,968
Int. Cl. F21v 17/02

U.S. Cl. 240—144

11 Claims



A universal support for globes of varied configurations and sizes on a light fixture. The support includes a hub having a plurality of circumferentially spaced radially projecting fingers secured to a threaded sleeve projecting upwardly from the light socket of the fixture and traversed by the electrical power cord thereof. The fingers are pivotally secured to the hub so as to be movable between downwardly and upwardly extended positions, and means are provided for selectively retaining the fingers in a plurality of intermediate positions conducive to internal-engaging support with globes of varied configurations and sizes. The fingers may be moved to their upwardly extended positions to permit entry of the socket and support through the globe opening into the interior thereof, whereupon the fingers are released to their selectively retained position for internal supporting engagement with the globe.

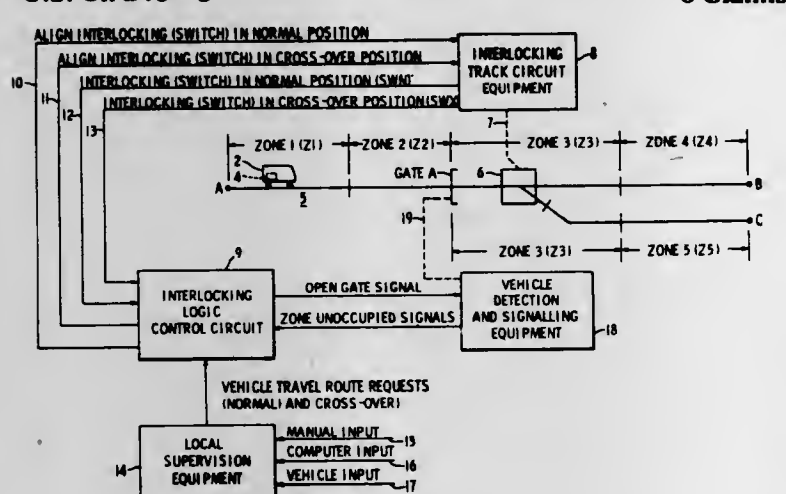
3,740,548 CONTROL OF AN INTERLOCKING IN A VEHICLE CONTROL SYSTEM

Robert C. Hoyler, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 25, 1971, Ser. No. 156,908
Int. Cl. B611 27/00

U.S. Cl. 246—3

6 Claims



Fail-safe electronic logic elements having unidirectional failure modes are used in the construction of a fail-safe logic circuit which controls the interlocking in a vehicle control

system. The logic circuits provide control signals for properly aligning the interlocking such that vehicles which are operational in the system may travel along selected vehicle travel routes. There are also provided a group of status signals which are indicative of whether or not it is safe for a vehicle to enter the interlocking zone.

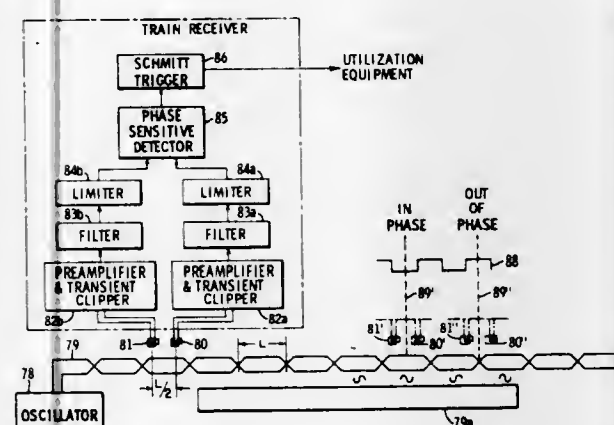
3,740,549 REMOTE SIGNALING SYSTEM FOR TRAIN CONTROL

George M. Thorne-Booth, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 637,684, May 11, 1967, abandoned. This application Dec. 24, 1969, Ser. No. 887,825
Int. Cl. B611 25/00

U.S. Cl. 246—122

4 Claims



A remote signaling system is described for the monitoring and control of one or more moving trains from a remote wayside location by means of a vehicle carried antenna and signal transmitter coupled with a track-side cable and designed to introduce a movement variable periodic phase shift into the coupled signals from the train back to the wayside located receiver to enable the desired train position monitoring function. The train carried antenna is magnetically coupled to this track-side cable arrangement such that undesired signal changes due to train vehicle rock and sway motion are minimized, and signal transmission difficulties introduced by the physical position variation of the track-side cable wires relative to the track path are minimized. The track-side cable comprises two closely spaced signal transmission lines each having a crossover at predetermined length intervals, with the physical crossover of each transmission line being equally spaced and substantially half-way between the adjacent physical crossovers of the other transmission line.

An alternate embodiment employs a signal signal transmission line of cable having crossovers at predetermined intervals at the track-side. This track-side transmission line is driven by an oscillator. Two train carried antennae, spaced a predetermined longitudinal distance apart, receive a movement variable periodic phase shift signal to enable the desired position monitoring function.

3,740,550 PULSE CODED RAILWAY SIGNAL SYSTEM

Willard L. Geiger, Chagrin Falls, Ohio, assignor to Erico Products, Inc., Cleveland, Ohio

Filed Jan. 11, 1971, Ser. No. 105,509

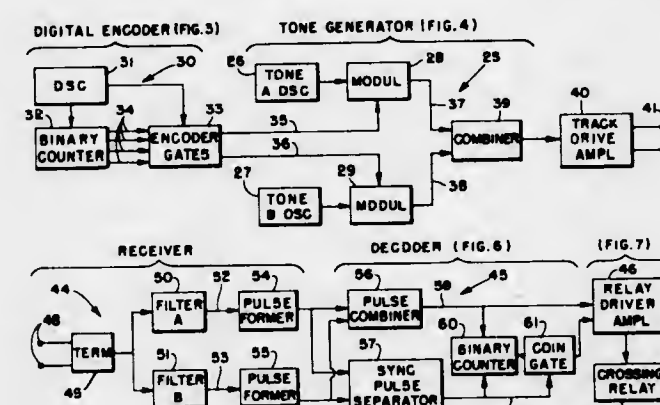
Int. Cl. B611 29/32

U.S. Cl. 246—125

12 Claims

A railway crossing signalling system using coded digital signals impressed on the tracks for actuation of a crossing relay, the presence of a train at the crossing location causing shunting of the signals and an indication from the relay which operates in a fail-safe configuration. In each signal circuit first and second tone oscillators provide carrier signals which are modulated in a specific digital pattern and applied to the tracks. A tone sensitive receiver separately detects the carrier signals and provides pulse train outputs which are decoded in

a binary counter and coincidence gate circuit for ascertaining that the correct digital code pattern has been received. Signals are developed for energization of an oscillator, the output of the latter being amplified for direct actuation of the



crossing relay. More than one signal circuit can be employed on common tracks for separate or overlapping signal control by the selection of different pairs of operating frequencies, readily accommodated by plug-in filter substitution.

3,740,551 PLURAL BEAM MASS SPECTROMETER

Brian Noel Green, Sale, England, assignor to Associated Electrical Industries Limited, London, England

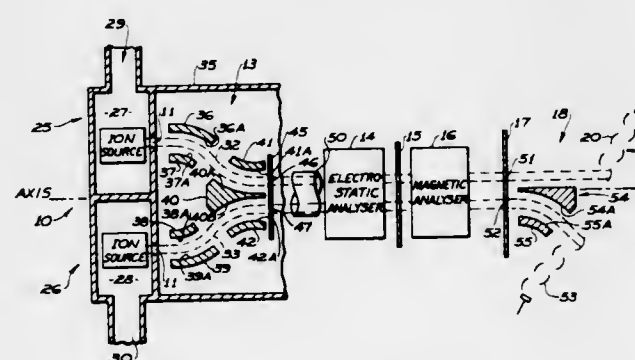
Filed Sept. 17, 1970, Ser. No. 73,072

Claims priority, application Great Britain, Sept. 18, 1969, 46,162/69

U.S. Cl. 250—41.9 ME

Int. Cl. H01j 39/34

15 Claims



A mass spectrometer in which plural beams of ions can be generated simultaneously in separate sources. Convergent deflectors bring the beams close together for passage through an analyzer region.

A divergent deflector separates an analyzed beam to provide adequate beam spacing for the positioning of detectors to respectively receive the beams.

3,740,552 METHOD AND APPARATUS FOR MASS SEPARATION EMPLOYING PHOTO ENHANCED SURFACE IONIZATION

Jerome Pressman, 4 Fessenden Way, Lexington, Mass.

Filed Apr. 29, 1971, Ser. No. 138,640

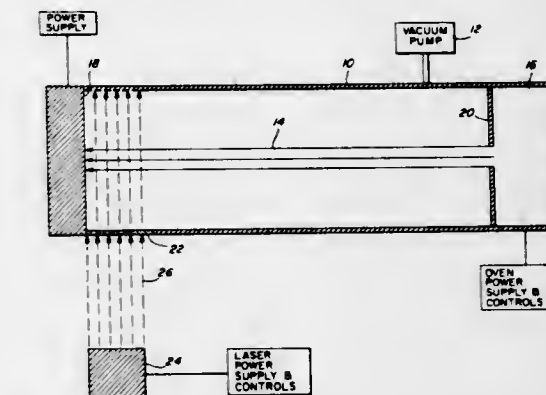
Int. Cl. H01j 39/34

U.S. Cl. 250—41.9 SE

20 Claims

Photo-assisted surface ionization techniques are employed for the separation of isotopes and the purification of materials, the formation of relatively pure and intense ion beams and plasmas and the detection of minor constituents, pollutants and leaks. A species intermingled with other constituents in an atomic or molecular beam or in a gas, for example, is selectively excited by irradiation at a resonance frequency in close proximity to an ionizing surface. The selected species, while

still in the excited level, interacts with the surface and is ionized. The specimen is excited by the radiation to a level



such that the energy required to ionize the atom is less than the work function of the solid surface.

3,740,553 METHOD AND APPARATUS FOR MEASURING SIZE DISTRIBUTION OF PARTICLES USING A TWO-DIMENSIONAL ALTERNATING CURRENT ELECTRIC FIELD

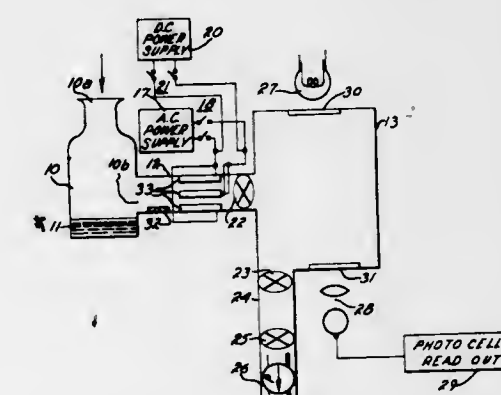
Nathan Rey Whetten, Burnt Hills, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Feb. 2, 1972, Ser. No. 222,774

Int. Cl. H01j 39/34

U.S. Cl. 250—41.9 DS

19 Claims



The size distribution of particles including particulate matter in a gas sample is determined by generating a two-dimensional alternating current electric field for mass-selective sorting of the particles whereby condensable vapor saturated charged particles in the gas sample which are in a particular range of charge-to-mass ratio, are directed to an expansion chamber. An expansion of the gas in the expansion chamber causes condensation of droplets on the particles, and a condensation nuclei counter may be used for detecting the number of the droplets which corresponds to a like number of the particles in the particular range of charge-to-mass ratio in the gas sample.

3,740,554 MULTI-AMPERE DUOPIGATRON ION SOURCE

Ora B. Morgan, Jr., Oak Ridge, Tenn., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 13, 1972, Ser. No. 243,676

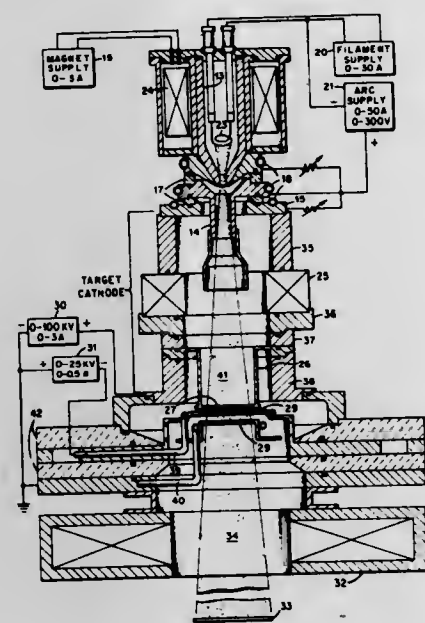
U.S. Cl. 250—41.9 SE

Int. Cl. H01j 37/08

6 Claims

A duoplasmatron ion source is modified to provide a large plasma surface with a uniform density at a target cathode. The target cathode and the acceleration and deceleration electrodes are gridded or multi-apertured and are spaced in close proximity each to the others with the apertures being in align-

ment. With such an arrangement, it is possible to extract film device and ejected from either the top or the front of the multi-ampere bright ion beams at energies of tens of KeV. spot film device. A plurality of biased rollers is employed to



Conversion of the ion beam to a neutral particle beam can be readily accomplished by addition of a gas cell.

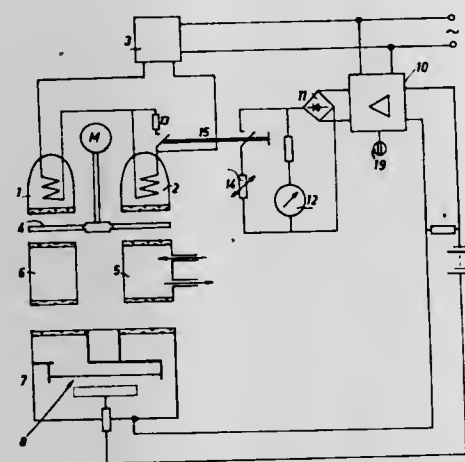
3,740,555

TWIN BEAM INFRARED ABSORPTION ANALYZER
Werner Schaefer, Kelkheim, Taunus, Germany, assignor to Hartmann & Braun Aktiengesellschaft, Frankfurt am Main, Germany

Filed July 22, 1968, Ser. No. 746,618
Int. Cl. G01n 21/34

U.S. Cl. 250—43.5 R

3 Claims



A modulated twin beam selective radiation absorption monitoring analyzer. Beam modulation is converted to modulated electrical quantity fed to an amplifier and thence to a rectifier to give reading, the rectifier having a sensitivity threshold exceeding the amplified zero drift prior to rectification. Sample cell length is chosen such that the amount of absorption therein is in the range of 40 to 60 percent. The absorption by a sample of known composition is simulated by a change in beam intensity.

3,740,556

SPOT FILM DEVICE

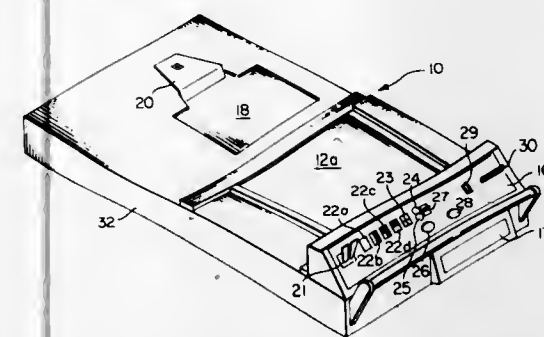
George W. Otto, Jr., Elmhurst, Ill., assignor to Litton Medical Products, Inc., Des Plaines, Ill.

Filed Nov. 26, 1971, Ser. No. 202,288
Int. Cl. G03b 17/26

U.S. Cl. 250—66

16 Claims

An improved spot film device which includes a front loading and unloading area and a top loading and unloading area. A cassette carriage assembly, a cassette tray assembly and accompanying electromechanical means are utilized to allow a cassette to be loaded into either the front or the top of the spot



allow cassettes of varying thicknesses to be retained within the cassette tray assembly.

3,740,557

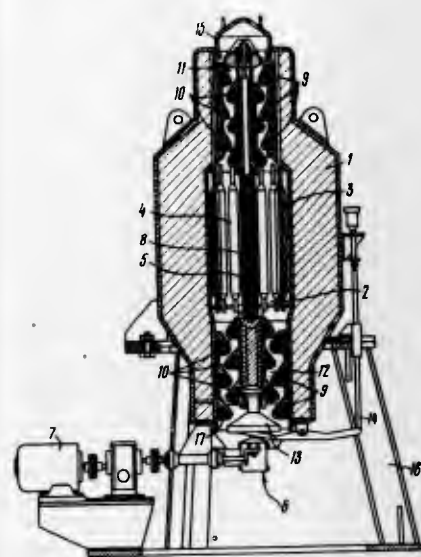
GAMMA-IRRADIATION APPARATUS FOR GRANULAR MATERIALS OF BIOLOGICAL ORIGIN

David Aronovich Kaushansky, Belyaev-Bogorodskoe Kyartal, 48; Yakov Adolfovich Gurevich, Ulitsa Vavilova, 49; Boris Grigorievich Zhukov, Leningradsky, Prospekt, 75; Rigo Artemievich Srapenians, Khlebozavodskoi Proezd, 5, and Dmitry Maximovich Kalyanov, Ulitsa Profsojuznaya, 58/32, korpus 3, kv. 52, all of Moscow, U.S.S.R.

Filed May 27, 1970, Ser. No. 40,935
Int. Cl. G21h 5/00

U.S. Cl. 250—106 R

6 Claims



A gamma-irradiation apparatus for granular materials of biological origin, comprising an irradiator and an irradiation chamber located in a shielding enclosure, in which there is a rotating shaft arranged along the longitudinal axis of the apparatus and passing through the center of the chamber and having shielding elements which together with the annular shielding projections of said enclosure form respective inlet and outlet labyrinths.

The apparatus is intended for use primarily in farming, to irradiate seeds prior to sowing.

3,740,558

RADIOACTIVE ISOTOPE GENERATOR OF SHORT-LIVED NUCLIDES

Sadatake Kato, Tokyo, and Kunio Kurata, Matsudo, both of Japan, assignors to Dainabot Radioisotope Laboratories, LTD, Tokyo, Japan

Filed Feb. 17, 1971, Ser. No. 116,055
Int. Cl. G21h 5/00

U.S. Cl. 250—106 T

5 Claims

A radioactive isotope generator for conducting parent-daughter radio-nuclide separations and containing a relatively

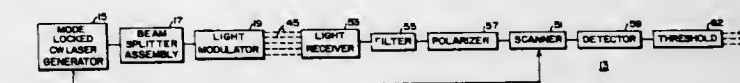
3,740,560

COMMUNICATION MEANS

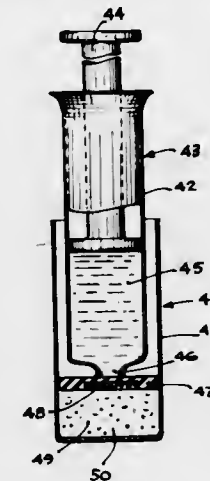
John L. Wentz, Ellicott City, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 8, 1971, Ser. No. 178,601
Int. Cl. H04b 9/00

U.S. Cl. 250—199

7 Claims



There is disclosed optical communication apparatus for transferring digital information at high rates, as high as 10^{10} bits per second. The communication channel is a mode-or phase-locked CW laser which generates optical pulses of very short duration, typically of 10^{-9} seconds, at short intervals. Typically 10^8 pulses are transmitted per second. Each pulse is subdivided into time-spaced sub-pulses by beam splitters and each sub-pulse, in its turn, is incident on one of an array of electro-optic cells. The cells are electrically modulated in accordance with the intelligence to be communicated. For ten cells there are a total of 10^8 sub-pulses per second each pulse carrying a bit of information. In transmission to a receiver the sub-pulses overlap to produce a beam. The receiver includes a line scanner which converts the timed distribution of the sub-pulses into spaced distribution. The beam scans an array of photo-multiplier detectors which derive the intelligence from the beam.



chambers as a suspension. The open end of the column proximate the empty chamber is sealed by a puncturable stopper. By evacuating the empty chamber by means of a syringe inserted through the puncturable stopper, for example, the solution containing the daughter nuclide will pass through the filter and into the empty chamber, from which it is available for use.

3,740,559

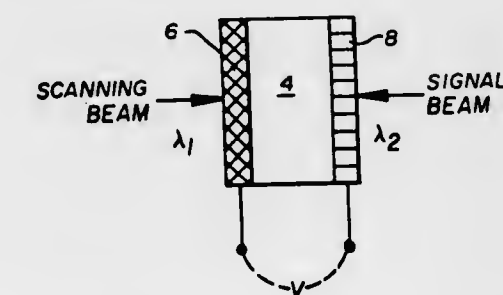
VOICE COMMUNICATION SYSTEM

Joseph C. Scanlon, Elizabeth; Alfred Brauner, Wanaque; Robert Carvalho, Englewood, all of N.J., and Cecil B. Ellis, White Plains, N.Y., assignors to The Singer Company, New York, N.Y.

Division of Ser. No. 820,572, April 30, 1969. This application June 29, 1971, Ser. No. 158,096
Int. Cl. H04b 9/00

U.S. Cl. 250—199

5 Claims



A voice communication system is provided which includes a photosensitive element, an amplifier connected to the photosensitive element, a loudspeaker connected to the amplifier, a first light beam producing device adapted to project a first light beam spot on one side of the photosensitive element, a second light beam producing device adapted to project a second light beam spot on the other side of the photosensitive element, and a speaker adapted to modulate the first light beam according to the output of a voice which it senses. The photosensitive element has a cell plate which is sandwiched between first and second radiation transmitting electrodes. The first electrode is a film of metal bonded to the cell plate. A non-ohmic photovoltaic junction is formed between the metal film and the material of the cell plate. The metal film and the cell plate have respective work functions, wherein the metal film work function is greater than the cell plate work function. The speaker is a vibratory conical member which has a portion containing a pinhole, through which the first light beam is projected so that the conical member modulates the light beam.

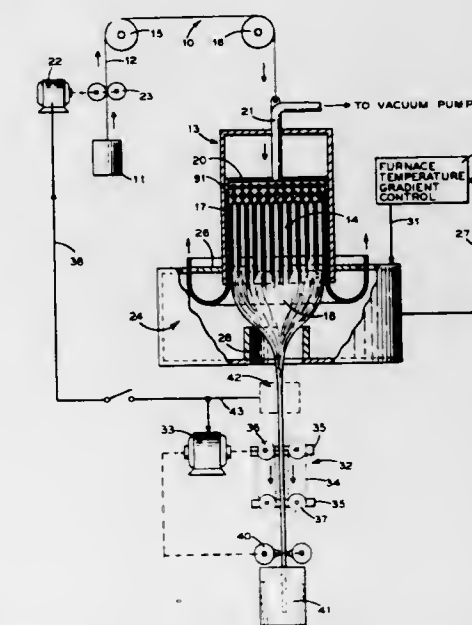
3,740,561

DIMENSION CONTROLLING APPARATUS FOR DRAWING

Horst G. Fleck, San Antonio, Tex.; Martin Rome, Princeton, and Joseph M. Wixted, Princeton Junction, both of N.J., assignors to Weston Instruments Inc., Newark, N.J.
Division of Ser. No. 830,007, June 3, 1969, Pat. No. 3,622,291.
This application May 5, 1971, Ser. No. 140,622
Int. Cl. G01j 1/20; G01n 21/30

U.S. Cl. 250—201

1 Claim



An illustrative embodiment of the invention is directed to method and apparatus for manufacturing microchannel devices. Typically, the individual glass tubes in a hexagonal bundle are sealed on one end to individual hangers from which they are suspended vertically in a furnace. A vacuum is drawn within the furnace so that the inner surfaces of the tubes, exposed to atmospheric pressure, will not collapse during heating and drawing. At temperature, the bundle is drawn and elongates under the controlled forces applied through a modified Atwood's machine to reduce the bundle cross section by a ratio of about 50 to 1. The elongated bundle is cut

into lengths as it is drawn, and these individual lengths are stacked together within a tube of glass that has a higher melting point than the glass in the drawn lengths.

The channels are once more sealed and the assemblies are subjected to a secondary fusion process prior to slicing into thin discs. The annular glass rings are removed from the discs and the microstructures are placed in a molten wax bath in order to fill the channels with wax before grinding and polishing. After grinding and polishing, the wax is removed.

3,740,562

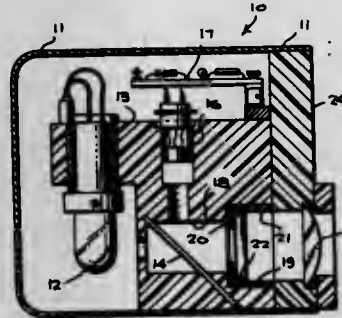
RETRO-REFLECTIVE TYPE DETECTOR HEAD WITH FAIL-SAFE FEATURE

Raymond Baines Fertig, Ronceverte, W. Va., assignor to Appalachian Electronic Instruments, Inc., Ronceverte, W. Va.
Filed Feb. 17, 1972, Ser. No. 227,161

Int. Cl. G01n 21/32; G06m 7/00; H01j 5/02

U.S. Cl. 250-219 DF

12 Claims



An optical detector head system for projecting light rays toward a surface to be inspected and receiving reflected light from the inspection zone to detect selected conditions, which detector head system includes fail-safe components to produce a failure indicating signal upon failure of the light source in the detector head. The detector head includes a photodetector device, and retro-reflective surface portions disposed relative to the light source and the photodetector to direct a selected quantum of light to the photodetector when the light source is illuminated at normal intensity, and fail-safe circuitry is included responsive to the output signals from the photodetector to produce a failure indicating signal when the output signals fall below a selected amplitude.

3,740,563

ELECTROOPTICAL SYSTEM AND METHOD FOR SENSING AND CONTROLLING THE DIAMETER AND MELT LEVEL OF PULLED CRYSTALS

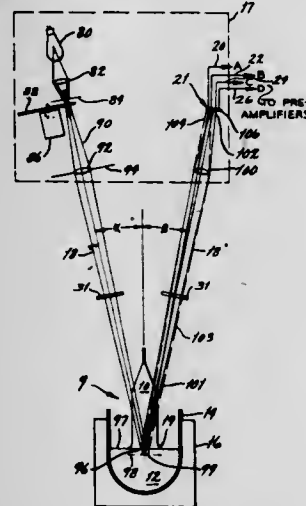
Thomas E. Reichard, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed June 25, 1971, Ser. No. 156,760

Int. Cl. B01d 9/00

U.S. Cl. 250-222 R

20 Claims



An electrooptical system for controlling the diameter of crystals pulled from a melt wherein separate process control

loops simultaneously provide: (1) closed loop melt tracking for the system optics, (2) direct crystal diameter closed loop control, and (3) normalizing brightness control for a novel photodetector and associated novel optical geometry of the system. This photodetector is uniquely constructed to simultaneously provide the above three functions and is further especially adapted for use as an integral portion of various feedback loops which comprise the electrooptical system.

3,740,564

AUTOMATIC STARTING DEVICE FOR AUTOMOTIVE ENGINES AND THE LIKE

Gim Wong, 1849 Gibbs Road, Estevan, Saskatchewan, Canada

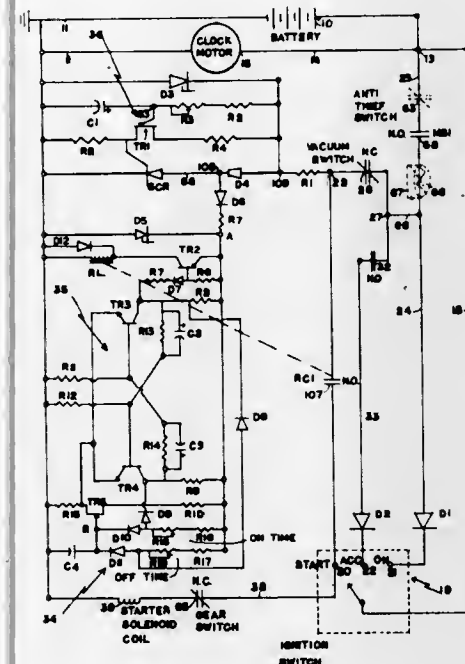
Continuation-in-part of Ser. No. 2,250, Jan. 12, 1970,

abandoned. This application May 3, 1971, Ser. No. 139,800

Int. Cl. H02p 9/04

U.S. Cl. 290-38

11 Claims



A 24-hour time clock has a plurality of setting pins which enable the automatic starting device to be programmed to operate at any interval desired and can eliminate certain days such as Saturday and Sunday if desired. In conjunction with the clock, means limit the attempts to start to a predetermined time interval. The device also switches the engine off after any predetermined amount of running time.

3,740,565

AIR DRIVEN MODULAR TANDEM ELECTRICAL GENERATOR

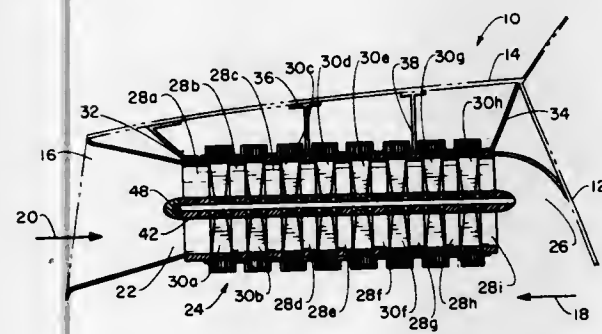
Neil G. Wesley, Canoga Park, Calif., assignor to Beatrice N. Adams, Canoga Park, Calif.

Filed Apr. 26, 1971, Ser. No. 118,942

Int. Cl. F03d 9/00

U.S. Cl. 290-55

2 Claims



Herein described is an air driven generator for providing electrical energy for charging storage batteries. A plurality of rotors including a round rim, a hub and connecting vanes are alternately interdisposed upon a fixed shaft between a plurali-

ty of corresponding hollow stators. A segmented permanent magnet is mounted around the periphery of the rim of each rotor and creates a moving magnetic field. A corresponding stationary armature is positioned on stators adjacent to a corresponding rotor and suspended around and over the corresponding rotor.

3,740,566

LINING WEAR INDICATORS

Charles Newstead, Walsall, England, assignor to Girling Limited, Birmingham, England

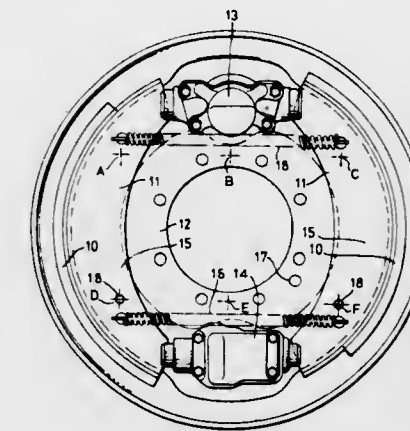
Filed June 23, 1971, Ser. No. 155,700

Claims priority, application Great Britain, June 26, 1970, 31,004/70; Sept. 25, 1970, 45,697/70; Jan. 16, 1971, 2,210/71

Int. Cl. H01h 3/16

U.S. Cl. 307-10 R

15 Claims



A brake lining wear indicator comprises a preferably normally closed switch. The switch can be operated by feelers in a disc brake or the switch can be incorporated in a tie. The normally closed switches are connected in series to a relay preferably having a delayed action.

3,740,567

HIGH-DISCRIMINATION ANTENNA ARRAY FOR CAPACITANCE-RESPONSIVE CIRCUITS

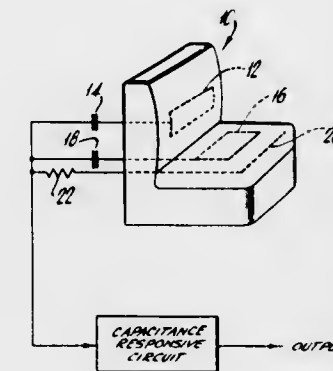
Carl E. Atkins, Montclair, N.J., assignor to Wagner Electric Corporation, Newark, N.J.

Filed Apr. 20, 1972, Ser. No. 245,799

Int. Cl. H02g 3/00

U.S. Cl. 307-10 SB

10 Claims



A multi-element antenna array for use with capacitance-responsive circuits to enable discrimination between human occupants and animals or packages resting on an automobile seat.

3,740,568

PUSHBUTTON LOCK

Sadatoshi Ikeda, Itakomachi, Japan, assignor to Niles Parts Co. Ltd., Tokyo, Japan

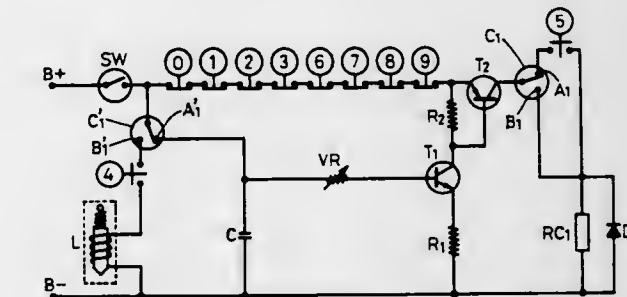
Filed Aug. 31, 1971, Ser. No. 176,528

Claims priority, application Japan, Oct. 29, 1970, 45/95659

Int. Cl. H02g 3/00

U.S. Cl. 307-10 AT

2 Claims



This invention relates to a pushbutton lock which unlocks only when the right combination of numbers is pushed in the proper order within a short period. Said lock is provided with two transistors, one of them actuating relays to maintain contacts for an unlocking solenoid while the other controls the time constant of the circuit. If a wrong button is pushed down after one or more right buttons, the procedure should be repeated anew.

3,740,569

DIRECT-CURRENT POWER SUPPLY SYSTEM

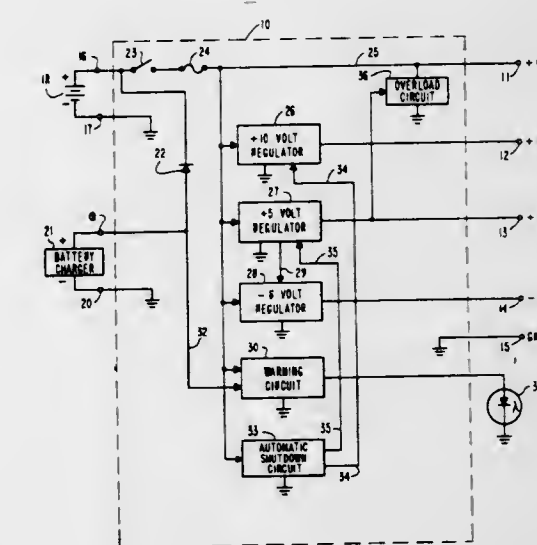
Hernando J. Garcia, San Francisco, Calif., assignor to Integrated Systems Technology, Inc., Garland, Tex.

Filed Aug. 26, 1971, Ser. No. 175,305

Int. Cl. H02j 7/00

U.S. Cl. 307-11

10 Claims



A plurality of voltage regulator circuits are connected to a battery for producing regulated positive and negative output voltages of different values. A warning circuit is provided for causing a light emitting diode to blink when the battery voltage falls below a first value. An automatic shutdown circuit is provided for disabling the regulator circuits when the battery voltage falls below a second and lower value. An overload circuit is provided for rapidly blowing a protective fuse when the output voltage of one of the regulator circuits exceeds a desired value.

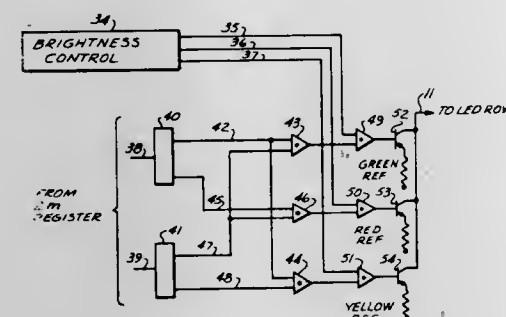
3,740,570

DRIVING CIRCUITS FOR LIGHT EMITTING DIODES
George R. Kaelin, Woodland Hills, and James A. Pellegrino, Thousand Oaks, both of Calif., assignors to Litton Systems, Inc., Beverly Hills, Calif.

Filed Sept. 27, 1971, Ser. No. 184,076
Int. Cl. H05b 33/00

U.S. Cl. 307—40

17 Claims



LEDs are arranged in a matrix and driven by a pair of registers. A column register sequentially enables the columns of LEDs and a row register selectively operates the LEDs of each column in accordance with a predetermined binary code. A color control and a brightness control circuit may be included in connection with the row register to selectively control driving currents to the LEDs to control color hue, and to selectively control the duration of "on" time to control apparent brightness.

3,740,571

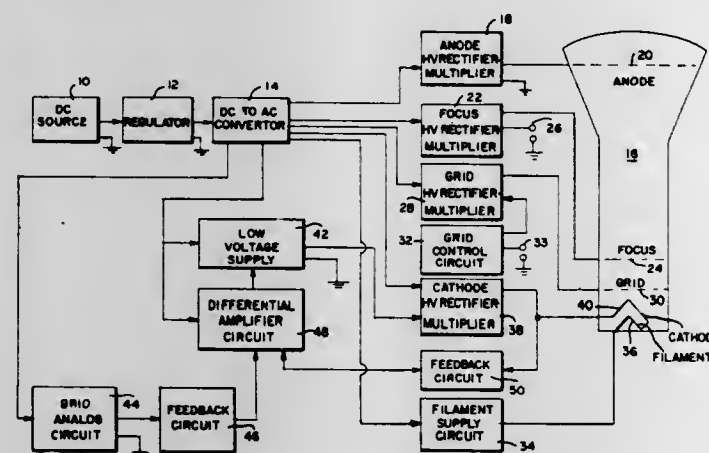
HIGH VOLTAGE DUAL ISOLATED OUTPUT TRACKING POWER SUPPLY

George Gilman Richards, Jr., Middletown, and Alton Edgar Cherry, East Petersburg, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Apr. 18, 1972, Ser. No. 245,075
Int. Cl. H02j 1/12

U.S. Cl. 307—55

14 Claims



A cathode ray tube power supply circuit is disclosed which permits the voltage differential between cathode and grid electrodes to be precisely controlled. The circuit includes a floating grid voltage supply, to which blanking and control signals may be applied. A grid analogue circuit, which is identical to the grid voltage supply circuit in all respects, is included to duplicate the behavior of the grid voltage supply circuit. The grid analogue circuit is coupled through a feedback network to a differential amplifier circuit, which also receives a feedback signal from a cathode voltage supply circuit. The output of the differential amplifier circuit controls a low voltage supply which in turn supplies a component voltage which controls the cathode voltage output. This arrangement causes the cathode voltage supply to vary in the same manner as the grid voltage supply, and accordingly maintains a precise differential between the voltages applied to the cathode and grid.

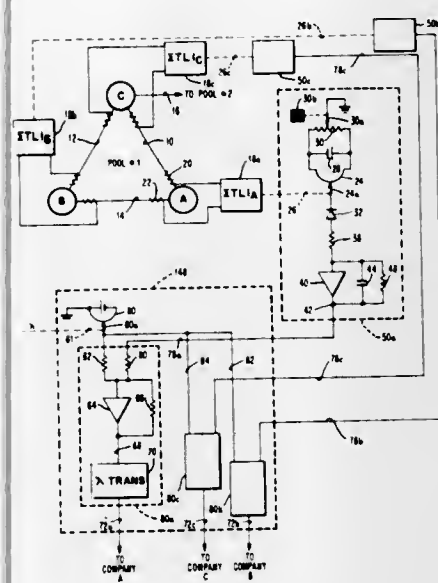
3,740,572
CONTROL OF POWER SYSTEM FOR OPTIMUM ECONOMY

Nathan Cohn, Jenkintown, Pa., assignor to Leeds & Northrup Company, Philadelphia, Pa.

Filed July 3, 1972, Ser. No. 268,234
Int. Cl. H02j 3/00

U.S. Cl. 307—57

7 Claims



Economic loading of generators in the interconnected companies of a power pool may be normally carried out by producing and broadcasting to the participating companies a common λ signal of value sufficient to provide through control the desired total generation. Such control is modified by biasing the common λ signal to a particular company whose net tie-line interchange has exceeded a predetermined limit. The modification is such that the net interchange is not allowed to exceed the limit. Similar modification may be made when it is desired to prevent a particular tie from exceeding a limit.

3,740,573

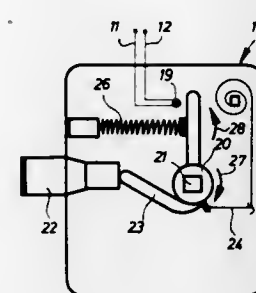
CIRCUIT ARRANGEMENT WITH DOOR LOCK SWITCH
Christian Kellermeyer, Valtinstr. 6, D-8858 Neuburg, Germany

Filed Sept. 10, 1971, Ser. No. 179,426
Claims priority, application Germany, Sept. 15, 1970, P 20 45 527.0

U.S. Cl. 307—116

Int. Cl. H01h 35/00

3 Claims



A door lock switch installation in which the door lock switch is connected, via the door hinge, to an impulse relay connected in series with the load, for example a lamp for illumination of the room closed by the door. When the door lock is actuated in a predetermined manner, the switch is momentarily closed to deliver a pulse to the impulse relay which then makes or breaks the load circuit.

3,740,574

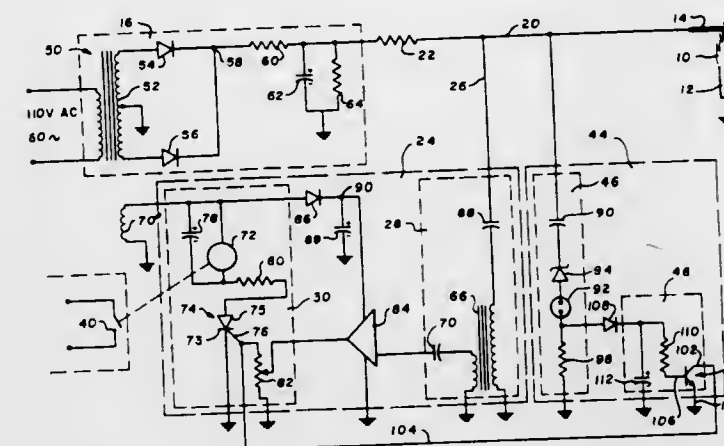
IONIC FLAME MONITOR

Jonathan Todd Taylor, Simsbury, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 30, 1971, Ser. No. 214,129
Int. Cl. G08b 21/00

U.S. Cl. 307—117

7 Claims



A protection circuit for an ionic flame monitor to insure that high voltage AC signals appearing across the flame electrodes and arising from sources other than a flame will not be effective to provide a false output indication of flame presence. The flame monitor is sensitive to AC signals above a certain frequency or above a certain voltage to indicate flame presence. Non-flame AC signals having voltages above or below the certain frequency, but above the certain voltage are prevented from indicating flame presence if their voltage is above a second certain level which is above that of most flame signal voltages.

A voltage level detection circuit clamps the monitor output circuitry to a "no-flame" condition whenever the AC signal voltage is above the second certain level.

3,740,575

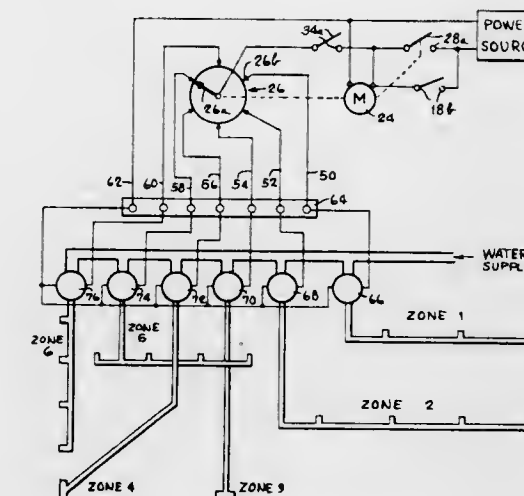
IRRIGATION CONTROL SYSTEM TIMING DEVICE FOR CONTROLLING WATERING CYCLE OF A PLURALITY OF WATERING ZONES

Michael D. Bizzoco, White Plains, N.Y., assignor to Tork Time Controls Inc., Mount Vernon, N.Y.

Filed June 29, 1971, Ser. No. 157,867
Int. Cl. H01h 43/16

U.S. Cl. 307—141.4

4 Claims



An irrigation control system which provides a watering cycle for a number of individual watering zones under the control of a timing device, and according to which the time interval assigned to the individual watering zones may be programmed, that is to say, the on and off times for fluid flow in each of the zones may be independently and flexibly varied over the widest possible range.

3,740,576

DYNAMIC LOGIC INTERCONNECTION

Tegze Haraszti, Heilbronn, Germany, assignor to Licentia Patent-Verwaltungs GmbH, Frankfurt am Main, Germany

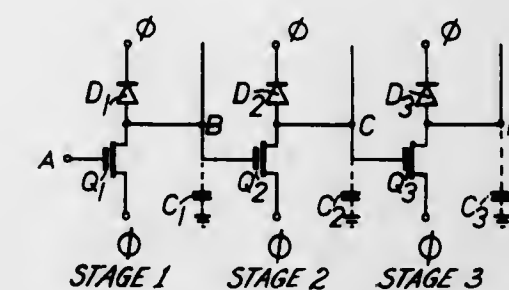
Filed Aug. 4, 1971, Ser. No. 168,966

Claims priority, application Germany, Aug. 4, 1970, P 20 38 633.8; Aug. 4, 1970, P 70 29 281.8

U.S. Cl. 307—205

Int. Cl. H03k 19/08

9 Claims



A dynamic logic interconnection comprises a plurality of individual logic circuits connected in series, the individual logic circuits including a diode element in series with the controlled current path of an active circuit element, to which individual circuits single phase clock pulses are applied at the same time.

3,740,577

CAPACITIVE STORE SHIFT REGISTER

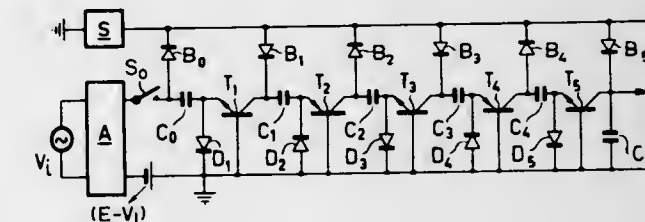
Frederik Leonard Johan Sangster, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 2, 1970, Ser. No. 7,524

Claims priority, application Netherlands, Feb. 4, 1969, 6901778

Int. Cl. H03k 17/60; G11c 11/24, 19/00
U.S. Cl. 307—221 D

3 Claims



A capacitive store comprising a sequence of capacitors and transistors, in which the capacitors are connected in series with the main current paths of the transistors in order to reduce the distortion of the signal to be handled and to increase the frequency range in which the store can be used.

3,740,578

CIRCUIT ARRANGEMENT FOR DIGITAL SAMPLED-DATA THREE-POINT CONTROL SYSTEM

Nico Nissen, Hamburg, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed May 3, 1971, Ser. No. 139,511

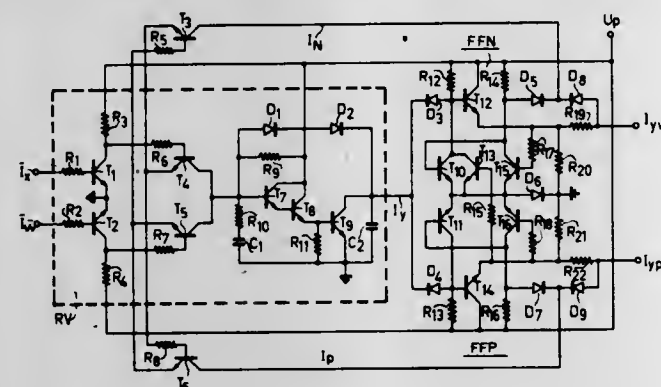
Int. Cl. H03k 5/20

U.S. Cl. 307—232

3 Claims

In digital sampled-date three-point control in which the desired and actually measured values are represented by pulse durations, the duration of the control signal is also influenced in accordance with the difference between the desired value and the actual value. In addition, a special circuit arrangement

for this purpose is described which may readily be manufactured in integrated-circuit form and in which the actually measured value deviation is stored in a capacitor the discharge of which controls the pulse duration of the control signal.



3,740,579

ZENER COUPLED AMPLIFIER CIRCUIT WITH FEEDBACK

Robert W. Drushel, Farmington, Mich., assignor to EX-Cell-O Corporation, Detroit, Mich.

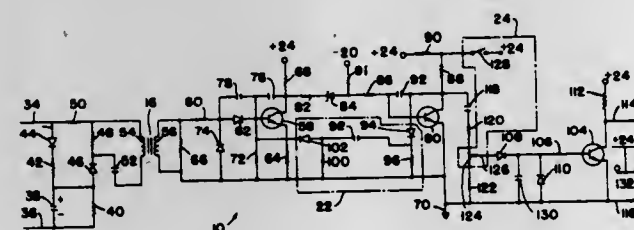
Division of Ser. No. 583,875, Oct. 3, 1966, Pat. No. 3,591,851.

This application July 6, 1971, Ser. No. 160,041

Int. Cl. H03k 5/20

U.S. Cl. 307—235

4 Claims



A highly sensitive and completely stable circuit for and method of detecting low amplitude, short duration direct current signal variations associated with sparking between an electrode tool and a conducting workpiece in an electrochemical machining process or the like and substantially immediately producing a control signal in response to a predetermined detected signal level is disclosed. The structure includes a polarity discriminating sensing circuit for initially detecting the signal variations, an amplifier circuit for providing an amplified and stabilized signal substantially immediately on sensing a signal variation of the proper polarity and output circuit for providing an output signal in response to a selected portion of the amplified and stabilized signal, including means for selecting the level of the selected signal portion operable to provide the output signal, means for cutting off the amplified and stabilized signal when the selected level is below a predetermined minimum and means responsive to a number of amplified and stabilized signal, which have a level below the selected level received in a predetermined time for providing an output signal.

3,740,580

THRESHOLD VALUE SWITCH

Johann Spies, Pfaffenhofen/Im, Germany, assignor to Messerschmitt-Bölkow-Blohm Gesellschaft Mit Beschränkter Haftung, Munich, Germany

Filed Jan. 26, 1972, Ser. No. 221,007

Claims priority, application Germany, Feb. 13, 1971, P 21 06 957.8

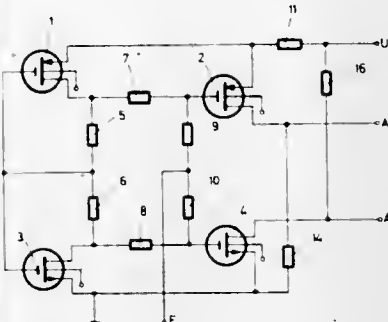
Int. Cl. H03k 17/30, 17/72, 3/284

U.S. Cl. 307—251

7 Claims

The switch, which is designed for input signals of both polarities, provides an output signal when a threshold value,

which is equal in magnitude for both polarities, is exceeded, and includes at least four field effect transistors of the excitation type. The transistors include two paired first field effect transistors of respective different channel type, whose gate electrodes are interconnected and connected to the midpoint of a voltage divider, interconnecting the two drain electrodes and comprising two identical resistors. Two paired second field effect transistors, of respectively different channel types, are provided, and the gate electrode of each second transistor is connected to the drain electrode of that first transistor which is of the same channel type, through the medium of a resistor, these two resistors being identical. The gate elec-



trodes of the two second transistors are interconnected by a second voltage divider consisting of two identical resistors, and an input signal terminal of the switch is connected to the midpoint of the second voltage divider. The source electrodes of the transistors of the same channel type are connected to each other and to respective supply voltage terminals. The output signals of the switch are provided by terminals connected to the drain electrodes of the two second transistors. The setting of the threshold value can be varied by varying the supply voltage, as by using a series resistance with the supply voltage source. The switch may be modified by providing feedback arrangements.

3,740,581

PRECISION SWITCHING CIRCUIT FOR ANALOG SIGNALS

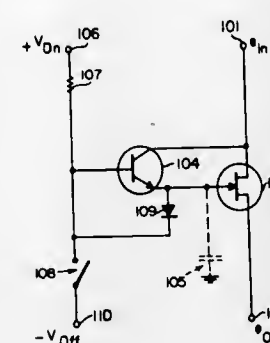
Harold J. Pfiffner, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Mar. 8, 1972, Ser. No. 233,083

Int. Cl. H03k 17/60

U.S. Cl. 307—251

5 Claims



A precision high-speed, low impedance switching circuit is disclosed which is suitable for use with video or other high frequency analog signals. A J-FET is used as the switching element but is controlled by means of a novel circuit which minimizes channel impedance modulation effects. The gate of the J-FET is connected to the output of a control transistor, the input of the control transistor being connected to the input signal, thereby allowing the effective parasitic input capacity at the gate of the J-FET switch to be charged and discharged in accordance with the fluctuations of the input signal.

3,740,582

POWER CONTROL SYSTEM EMPLOYING PIEZO-FERROELECTRIC DEVICES

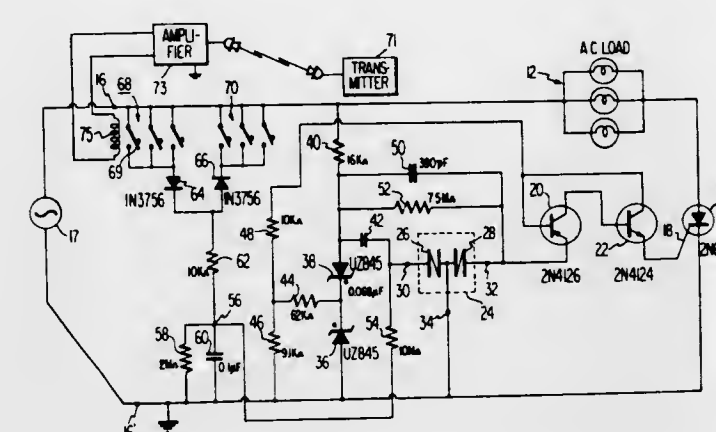
Joseph Henry McCusker, and Stuart Stanley Perlman, both of Princeton, N.J., assignors to RCA Corporation, New York, N.Y.

Filed June 28, 1971, Ser. No. 157,214

Int. Cl. H03k 17/66, 17/72; H01v 7/00

U.S. Cl. 307—252 N

24 Claims



An AC switch device, as for example, a silicon controlled rectifier or triac, is operably connected with an AC load and a source of alternating potential to regulate the amount of electrical power delivered to the load. Signals are applied between a first and a common terminal of a three terminal piezo-ferroelectric device to generate output signals between a second and the common terminal. The second and common terminals are connected in a circuit coupled to the AC switch device. The AC switch device is turned on or keyed into conduction when a voltage developed in the circuit reaches a predetermined level. The point in time or phase relative to the alternating potential when the predetermined voltage level occurs is controlled by adjusting the gain of the piezo-ferroelectric device.

3,740,583

SILICON CONTROLLED RECTIFIER GATE DRIVE WITH BACK BIAS PROVISIONS

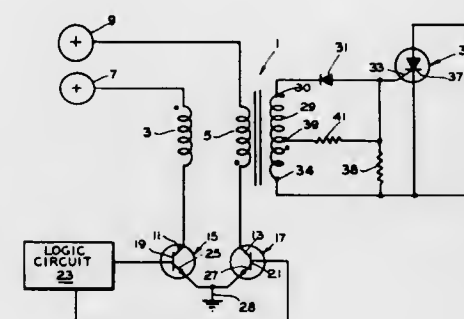
Albert W. Compoly, Belmar, and Robert F. Kautz, Spring Lake, both of N.J., assignors to The Bendix Corporation, Teterboro, N.J.

Filed May 25, 1971, Ser. No. 146,761

Int. Cl. H03k 17/72, 17/30, 1/10

U.S. Cl. 307—252 H

11 Claims



A gating circuit for a silicon controlled rectifier for alternately providing a voltage drop across an impedance connected between the gate and the cathode of the SCR with the gate voltage more positive than the cathode voltage to permit the SCR to conduct and a voltage drop across the impedance with the cathode voltage more positive than the gate voltage to prevent the SCR from conducting.

3,740,584

HIGH ARRANGEMENT FREQUENCY SCR GATING

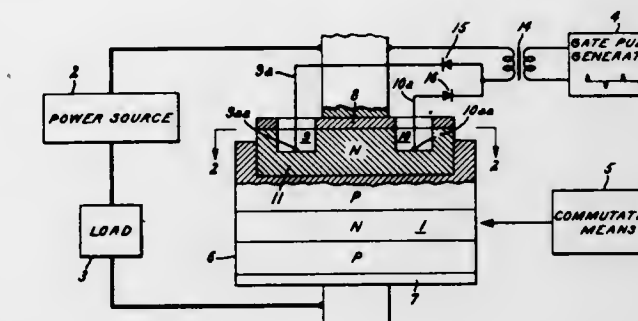
James E. McIntyre, Crum Lynne; Dante E. Piccone, Philadelphia, and Istvan Somos, Lansdowne, all of Pa., assignors to General Electric Company, Philadelphia, Pa.

Filed June 8, 1971, Ser. No. 150,969

Int. Cl. H011 1/10, 13/00

U.S. Cl. 307—252 G

2 Claims



A semiconductor controlled rectifier being particularly suited for high power, high frequency applications is disclosed. The rectifier includes at least two gates which are spaced from each other. One gate is triggered with positive signals to initiate current conduction through the rectifier for one cycle of operation and the other gate is triggered with negative pulses to initiate the immediately succeeding cycle of operation.

3,740,585

POWER CONTROL SYSTEM

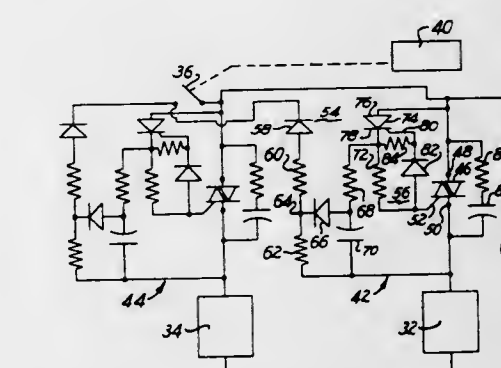
David J. Squiers, Attleboro Falls, Mass., assignor to Texas Instrument Incorporated, Dallas, Tex.

Filed Sept. 13, 1971, Ser. No. 180,039

Int. Cl. H03k 17/66; H03 17/72; H03k 17/28

U.S. Cl. 307—252 B

11 Claims



Control of the power being selectively applied to a plurality of similar or dissimilar loads connected in parallel relationship is effected. Switching networks are provided for selectively controlling the application of power to each of the loads. Each of the switching networks includes a selectively energizable a.c. power switch for coupling the load to an a.c. power source, the a.c. power switch having a control terminal for controlling its conduction. A first trigger means is coupled to the control terminal of the a.c. power switch for supplying energizing signals thereto for rendering the a.c. power switch conductive only during a.c. half cycles of a first predetermined polarity, while maintain the control terminal electrically isolated from the a.c. power source during a.c. half cycles of a second opposite predetermined polarity. A second trigger means is coupled to the control terminal for supplying energizing signals thereto in order to render the a.c. power switch conductive during a.c. half cycles of a second opposite predetermined polarity only responsive to conduction of the a.c. powerswitch during a.c. half cycles of the first predetermined polarity.

3,740,586

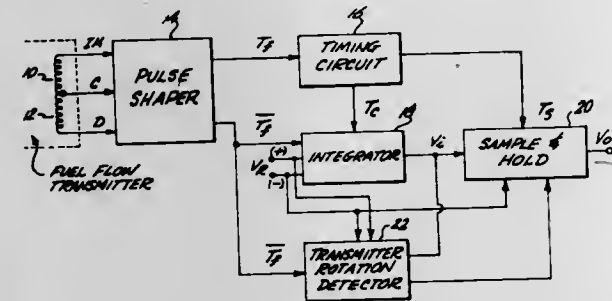
PULSE WIDTH - DC CONVERTER COMPENSATING FOR PULSE REPETITION RATE CHANGES

Robert B. Banks, Bellevue, and Roger E. Baker, Redmond, both of Wash., assignors to Electro Development Corporation, Lynnwood, Wash.

Filed Dec. 13, 1971, Ser. No. 207,298
Int. Cl. G06g 7/12; H03k 5/00

U.S. Cl. 307-229

7 Claims



A signal conditioner particularly useful for providing an output DC signal from the drum and impeller signals of a motorless fuel flow transmitter includes a pulse shaper providing a series of output pulses whose width is proportional to the time difference between the drum and impeller signals and whose repetition rate is variable in response to the frequency thereof. At the leading edge of each output pulse, a reference voltage is connected to the input of an integrator which thereafter produces a ramp waveform at its output. The operation of the integrator is stopped at the trailing edge of each output pulse and the signal stored on the integrator output is sampled and held in a storage capacitor shortly thereafter. The stored voltage is then applied through an output stage as a continuous DC output signal proportional to the average pulse width of the output pulses from the pulse shaper. To avoid erroneous indications, a detector clamps the output voltage of the integrator at the negative reference voltage when the rotational speed of the fuel flow transmitter, and therefore the repetition rate of the output pulses from the pulse shaper, falls below a predetermined level.

3,740,587

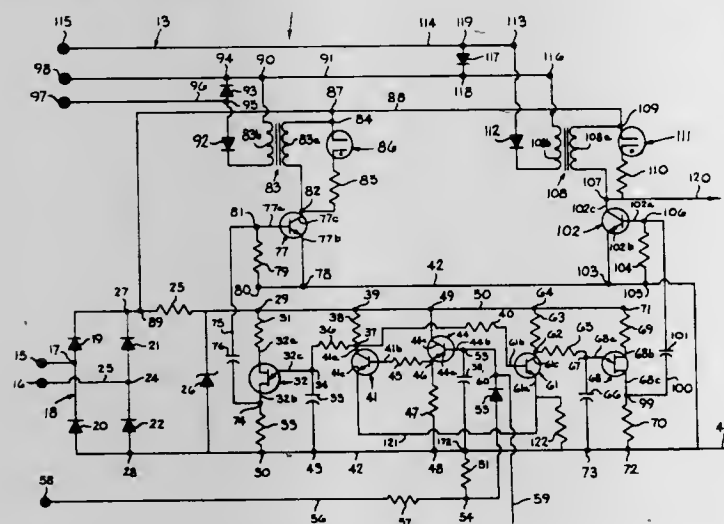
SOLID STATE UNIPOLAR RELAY

Art Lee, El Paso, Ill., assignor to General Electric Company, New York, N.Y.

Filed Sept. 20, 1971, Ser. No. 182,059
Int. Cl. H03k 17/72, 3/295; H01h 47/32

U.S. Cl. 307-252 B

9 Claims



A solid state unipolar relay, preferably for use in a modular system for providing solid state power control, comprising two discrete elements employable in different combinations to form a multipole relay with convertible contact functions and including a circuit which supplies two discrete output terminals with a train of pulses to enable gating of a Triac or

Triacs associated with that particular output terminal, and wherein the operation of the circuit is such that during normal operation a train of pulses is applied to one output terminal which is connected, in turn, to an associated gate circuit of one or more Triacs but when a control signal is applied to an appropriate point within the circuit the first train of pulses is inhibited and a second train of pulses, fed to a second output terminal, is actuated to control the associated gate circuit of one or more Triacs that are independent of the first mentioned Triac or Triacs.

3,740,588

TIME RATIO SWITCHING CONTROL SYSTEM

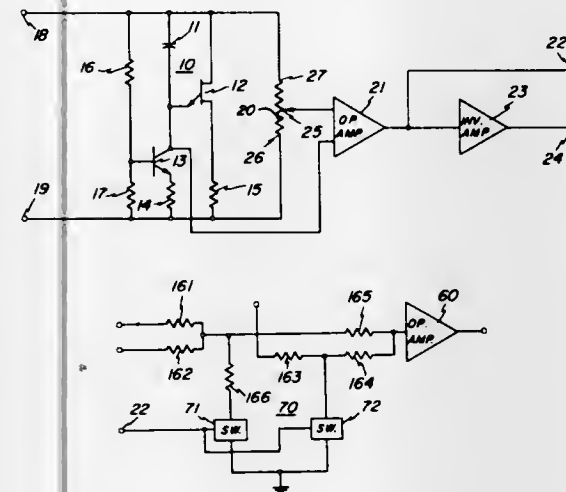
Jerry L. Stratton, Canon City, Colo., and George W. Kessler, Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 883,221, Dec. 8, 1969, Pat. No. 3,637,319.
This application Mar. 16, 1971, Ser. No. 124,977

Int. Cl. H03k 5/00, 17/00

U.S. Cl. 307-260

6 Claims



A dual mode control system is disclosed wherein the changeover from one mode to the other is made by the use of time ratio switching. A pulse generator produces a series of pulses whose duty cycle varies from zero to one hundred percent and controls a switching element to accomplish the changeover in accordance with the percent duty cycle.

3,740,589

BLOCKING OSCILLATOR WITH CURRENT MODE TRANSFORMER

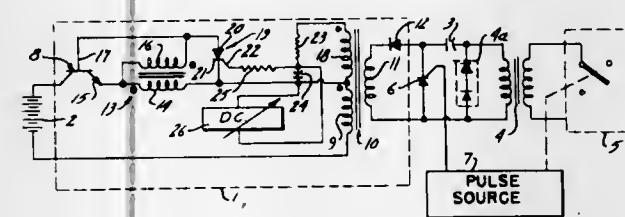
Floyd M. Minks, Route 1, Box 41, Kissimmee, Fla.

Filed Feb. 16, 1971, Ser. No. 115,652

Int. Cl. H03k 3/30

U.S. Cl. 307-275

15 Claims



A blocking oscillator of free running or triggered input type includes a non-saturable current transformer connected in series with a transistor and a storage inductor to provide a feedback signal with means independent and separate from the transformer initiating and terminating the charging cycle. The storage inductor may be provided with a special current feedback sensing winding paralleled with a resistor and capacitor to fire a control rectifier connected directly across the input circuit of the transistor. The capacitor may be discharged to a

3,740,592

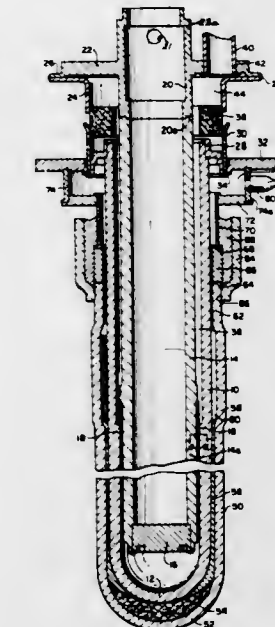
THERMIONIC CONVERTER

Richard E. Engdahl, Danbury, Conn., and John R. Bedell, North Salem, N.Y., assignors to Energy Research Corporation, Bethel, Conn.

Filed Nov. 12, 1970, Ser. No. 88,953
Int. Cl. H01j 45/00

U.S. Cl. 310-4

17 Claims



A thermionic converter is provided in which a protective silicon carbide shell is provided around the refractory metal emitter of the converter to shield it from the hot gases of a fossil fuel heat source and prevent oxidation of the emitter. The silicon carbide shell is spaced from the emitter so that stresses are not set up which would cause cracking or breaking of the shell. Heat transfer between the protective shell and the emitter is effected by means of a metal conductor which is liquid at the operating temperature of the converter. To obtain a long-life unit the silicon carbide shell is formed by uniformly depositing silicon carbide on the outer surface of a rotating, heated graphite mandrel.

3,740,590

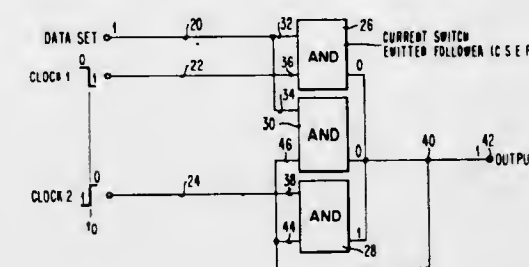
LATCH CIRCUIT

Robert L. Hart, Longmont, Colo., and Joel C. Leininger, Pleasant Valley, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 17, 1971, Ser. No. 209,332
Int. Cl. H03k 3/286, 19/22

U.S. Cl. 307-289

6 Claims



A latch circuit in which false output and skewing of binary output signals on the latch output terminal are eliminated comprising conventional set and hold-clear logic sections. The improvement comprising logic means having an input terminal adapted for connection to the set signals and an output terminal connected to the output latch terminal and being responsive to the set signals for maintaining the state of the latch output terminal during a clock signal transition, and means for simultaneously applying binary clock signals of a first state to the set section and binary clock signals of opposite state to the hold-clear sections so as to allow one or the other to be activated.

3,740,591

BUCKET-BRIGADE TUNED SAMPLED DATA FILTER

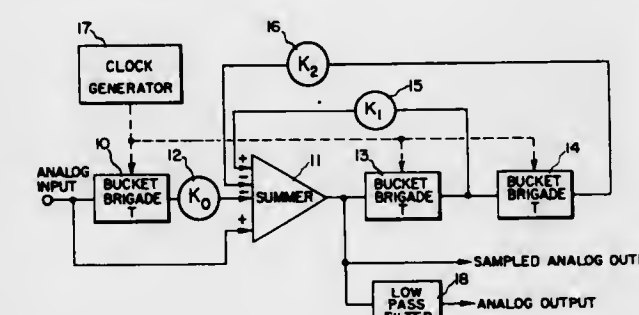
Walter J. Butler; Charles M. Puckette, both of Scotia, and Donald A. Smith, Schenectady, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Feb. 25, 1972, Ser. No. 229,342

Int. Cl. H03k 1/16

U.S. Cl. 307-295

29 Claims



A tuned filter circuit having response characteristics of a tuned LC circuit includes bucket-brigade delay lines and gain factor components connected in feedback circuit relationship around a summing amplifier, and in forward circuit relationship. The resonant frequency of the filter is primarily controlled by the frequency of a digital clock input to the bucket-brigade delay lines. The filter Q and the filter transient response are controlled by the gains established by the gain factor components.

3,740,593

SUPERCONDUCTIVE MAGNETS USED IN MAGNETOHYDRODYNAMIC DEVICES

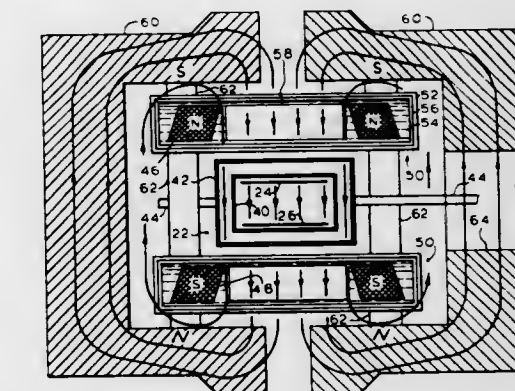
Jacob L. Zar, North Andover, Mass., assignor to Avco Corporation, Cincinnati, Ohio

Filed Dec. 27, 1971, Ser. No. 212,004

Int. Cl. H02n 3/00

U.S. Cl. 310-11

8 Claims



A magnetohydrodynamic generator is shown in which a superconductive magnet is employed to create a magnetic field normal to the direction of flow of a high temperature, conductive gas stream. The magnet comprises opposed coils embraced by U-shaped iron frames which essentially neutralize the forces of attraction and repulsion created in these coils. The coils are mounted in Dewars, the inner casings and outer casings of which are interconnected by a spoke rod system

which minimizes heat losses of liquid helium which is circulated through the inner casings to maintain the coils in a super cooled condition.

3,740,594

PERMANENT-ELECTROMAGNETIC RECIPROCATING DEVICE

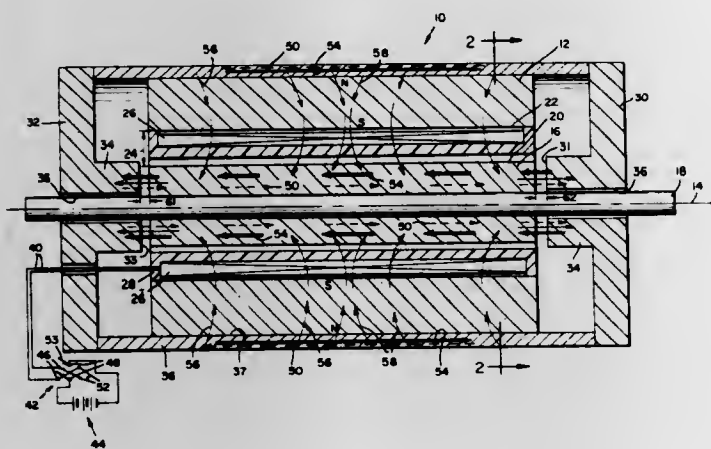
Gerald F. Casey, Los Angeles, Calif., assignor to Fema Corporation, Pacima, Calif.

Filed Aug. 30, 1971, Ser. No. 175,924

Int. Cl. H02k 33/12

U.S. Cl. 310—30

11 Claims



The device, configured to have a small width with respect to its length in the direction of armature movement, comprises a long tubular, radially magnetized permanent magnet coaxially surrounding a long length armature to provide a large circumferential area of the armature. The permanent magnet and the armature are closely spaced along their facing lengths to provide a small annular gap therebetween. The large area compensates for the size of the gap and permits placement of an electro-magnetic coil in the gap.

3,740,595

WATER COOLED ROTOR FOR DYNAMOELECTRIC MACHINES

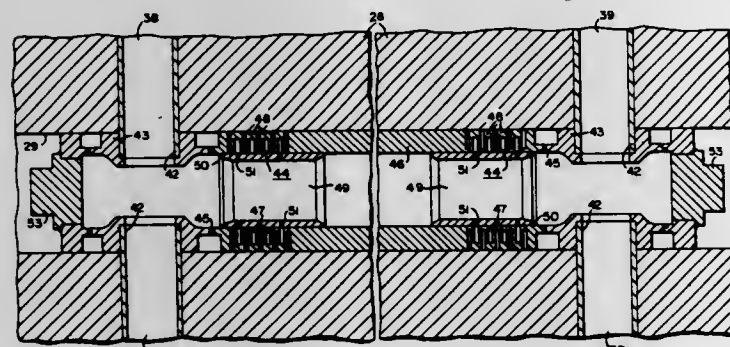
Paul R. Heller, Murrysville; Sul-Chun Ying, and James E. Luzader, both of Monroeville, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 28, 1971, Ser. No. 166,684

Int. Cl. H02k 9/00

U.S. Cl. 310—54

4 Claims



A water cooled rotor for large turbine generators in which the water passages are protected against corrosion by liners of stainless steel or other corrosion resistant material. In order to permit differential thermal expansion, the liner in the axial shaft bore includes a bellows of special design to absorb the expansion of the liner.

LIQUID COOLED ROTOR FOR DYNAMOELECTRIC MACHINES

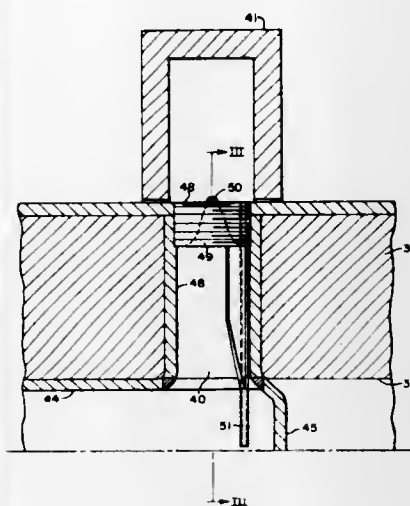
Little P. Curtis, Murrysville; Sul-Chun Ying, Monroeville, and George F. Dailey, Pittsburgh, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 21, 1971, Ser. No. 182,368

Int. Cl. H02k 9/20

U.S. Cl. 310—54

6 Claims



A liquid cooled rotor for dynamoelectric machines in which a coolant liquid such as water circulates through passages in the rotor and is discharged through an axial bore and radial passages in the rotor shaft, and in which flow restricting arrangement are provided in the radial passages for controlling the flow of liquid due to the self-pumping action of the radial passages and for improving the pumping action, the flow restricting arrangement having a curved and convergent orifice which changes the direction of the discharged liquid from radial to a direction approaching the tangential and opposite to the direction of rotation of the rotor.

3,740,597

PRIME MOVER SYSTEM HAVING ROTATING AND RECIPROCATING MULTI-AMPLIFICATION

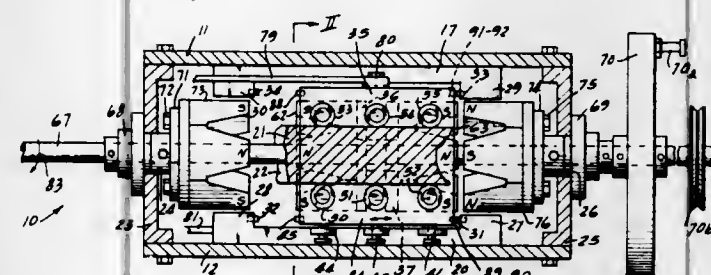
Dzermal Mulasmajic, 338 Pleasant Hill Boulevard, Palatine, Ill.

Filed Sept. 17, 1971, Ser. No. 181,379

Int. Cl. H02k 7/06

U.S. Cl. 310—80

29 Claims



A rotatable shaft carries a pair of multi-pole magnets which attract and repel similar magnets disposed therebetween and carried on a wheeled carriage. The poles of the magnets are aligned annularly about the axis of rotation of the shaft and annularly positioned so that two magnets are attracting while the other two magnets are repelling. The shaft can be rotated by any expedient arrangement, such as, manual, small electric motor, etc. This arrangement may include a feedback system connected between the reciprocating carriage and the shaft. In one embodiment, the feedback system comprises a fluid circuit including a compressor connected to the carriage, an air tank connected to the compressor and an air-driven motor connected between the air tank and the shaft. In another em-

bodiment, a mechanical motion translation device is connected between the carriage and the shaft for converting the reciprocating motion into rotary motion.

3,740,598

ELECTRIC MOTORS OR OTHER ELECTRIC ROTARY MACHINES AND METHOD FOR THE MANUFACTURING THEREOF

Stig Lennart Hallerback, Vastra Frolunda, Sweden, assignor to SKF Industrial Trading and Development Company N.V., Amsterdam, Netherlands

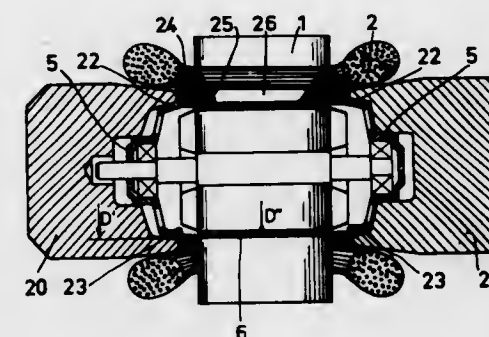
Filed Nov. 1, 1971, Ser. No. 194,374

Claims priority, application Sweden, Nov. 2, 1970, 14729/70

Int. Cl. H02k 5/10

U.S. Cl.

3 Claims



An electric motor or other electric rotary machine comprising bearing support means of cup-like shape mounted to the stator radially inside the stator end windings is provided with a thin walled lining fitting closely in the stator bore and projecting slightly from the stator end face. The projecting lining portion serves as abutment and aligning means for the cup-like bearing support without having to take up mechanical loads. The lining blanks off the stator bore against bonding agents or molding compounds employed for joining the bearing support means to the stator and for embedding and insulating the stator windings in the stator slots.

3,740,599

DYNAMOELECTRIC MACHINE ASSEMBLY

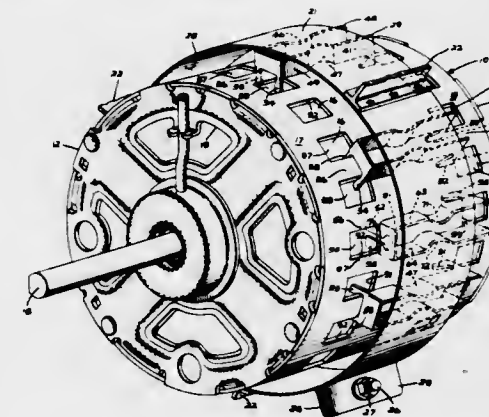
Richard W. Dochterman, Fort Wayne, Ind., assignor to General Electric Company, Fort Wayne, Ind.

Filed Nov. 19, 1971, Ser. No. 200,525

Int. Cl. H02k 5/00

U.S. Cl. 310—91

9 Claims



Predetermined outer peripheral configuration of motor with spaced apart coolant passing openings therein may be augmented with adapter. Such may be clips fastened to the motor adjacent surface. Clips have resiliently movable elements that snap fit in motor structure openings so as to facilitate assembly and yet provide a reliable and stable arrangement. Clips resist undesirable distortion or deformation thereof during use and include offset stabilizing segments. Clips may be fabricated by stamping clip blanks from a strip of sheet material and then forming the stamped blanks to a desired clip configuration.

3,740,600

SELF-SUPPORTING COIL BRACE

Barry J. Turley, Wattsburg, Pa., assignor to General Electric Company, Erie, Pa.

Filed Dec. 12, 1971, Ser. No. 206,826

Int. Cl. H02k 3/52

U.S. Cl. 310—194

5 Claims



A wedge-shaped device to be frictionally inserted between adjacent pressed-to-form, edge-wise-wound, coils of a salient pole machine to prevent separation of the coils from the poles by the tangential component of centrifugal force acting on the coils. A flange portion integrally secured to the inner end of the wedge extends in opposite directions to be interposed in close relationship between the rotor core and each of the adjacent coils to hold the wedge in place.

3,740,601

DYNAMOELECTRIC MACHINE SLOT WEDGE AND FILLER LOCKING MEANS

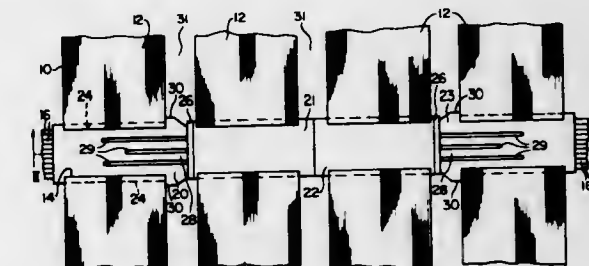
Richard L. Amasino, Trafford, and Paul S. Johrde, Murrysville, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 26, 1971, Ser. No. 137,466

Int. Cl. H02k 3/48

U.S. Cl. 310—214

5 Claims



For retention of a coil in dynamoelectric machine core slots, a slot wedge is provided with a compressible end that is normally oversized in relation to the slot width. The wedge is compressed when driven through the slot. The oversized portion then expands when it reaches the first vent duct and locks the wedge in the slot. Another feature is to use a flexible insulating tape between the coil and the slot filler strips with ends extending from the slot so that they can be wrapped around the ends of the filler strips and be secured by a locking type wedge, which may be as described above, at each end of the stack.

3,740,602

STORAGE TUBE WITH PHOTOCONDUCTOR ON MESH SIDE FACING CONDUCTIVE COATING

Rheinhold C. Salgo, Richardson, Tex., assignor to General Electrodynamics Corporation, Garland, Tex.

Division of Ser. No. 834,452, June 18, 1969, Pat. No. 3,649,866. This application Dec. 16, 1971, Ser. No. 208,769

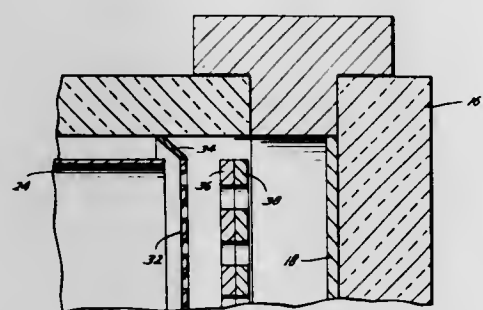
Int. Cl. H01J 31/26

U.S. Cl. 313—65 A

4 Claims

A television camera storage tube having the photoconductor deposited on a mesh positioned between the conductive

coating and the source of electrons, the photoconductor being on the side of the mesh facing the conductive coating, and acting as a potential barrier to flow of electrons to the conductive coating, such flow of electrons varying in proportion to the



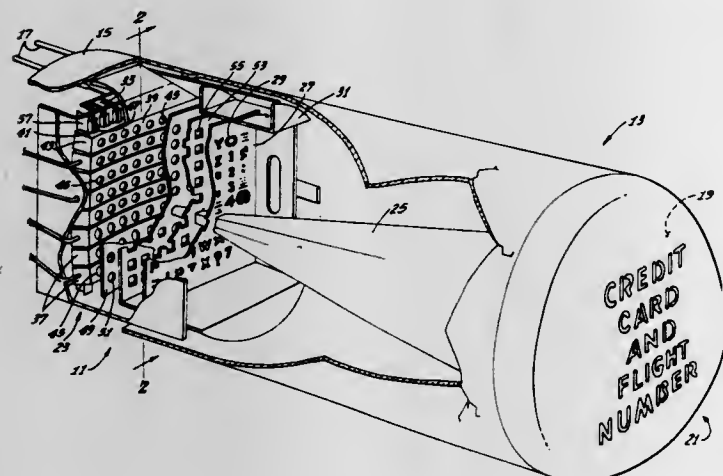
degree of illumination on elemental areas of the photoconductor, and the method of operating such a tube in which a charge pattern on the photoconductor is erased by the impingement of electrons on it.

3,740,603

CATHODE RAY DISPLAY TUBE WITH BLANKING GRID
Kurt W. Kuhn, Woodland Hills, Calif., assignor to Industrial Electronic Engineers, Inc., Van Nuys, Calif.
Filed Mar. 30, 1972, Ser. No. 239,534
Int. Cl. H01J 29/46

U.S. Cl. 313-86

19 Claims



A display tube having a vacuum envelope with a fluorescent screen at one end thereof and a plurality of electron flood guns projecting a plurality of characters upon the screen from the other end of the display tube. The flood guns disposed in rows and columns and including a plurality of first means collectively energizable to provide a cloud of electrons for each one of the columns of the flood guns. A plurality of second means each associated with a respective row of the flood guns divides each of the clouds of electrons into a plurality of individual portions each associated with one of the flood guns. Third means accelerate each of the portions of the clouds of electrons into an individual stream of electrons to project one of the characters upon the screen. The second means can be selectively energized to inhibit the formation of the streams of electrons associated with a row of the flood guns.

A plurality of fourth means each associated with one of the first means are selectively energizable to inhibit the formation of the cloud of electrons by the associated energized first means. Thus the fourth means enable the columns of the flood guns to be individually inhibited and the second means enable rows of the flood guns to be individually inhibited so that a single character can be displayed.

3,740,604
ELECTRIC GAS-DISCHARGE LAMP
Jean Philippe Fauroux, Paris, France, assignor to Societe Anonyme dite: Societe Nationale des Petroles d'Aquitaine, Courbevoie, France
Filed Mar. 16, 1971, Ser. No. 124,823

Claims priority, application France, Mar. 17, 1970, 7009499

Int. Cl. H01J 17/16

U.S. Cl. 313-220

2 Claims



An electric gas-discharge lamp consisting of an elongated burner filled with a volatilizable substance and with an electrode at each end, and a tube surrounding this burner, characterized in that the elongated tube has at least one concave end section, this lamp, when it is excited, emitting light the wavelength of which depends of the substance with which the burner is filled.

3,740,605

HIGH PRESSURE MERCURY VAPOR DISCHARGE LAMP
Jacques Climeut Divoix, Mesnil-le-Roi, and Andre Marc V. Taxil, Ruell-Malmaison, both of France, assignors to Claude, Paris, France
Filed Aug. 24, 1971, Ser. No. 174,535

Claims priority, application France, Aug. 27, 1970, 7031287

Int. Cl. H01J 61/20

U.S. Cl. 313-229

2 Claims

The addition of suitable proportions of mercury iodide and other selected metals to a mercury vapor lamp containing sodium iodide limits the change in operating voltage with time and provides longer life.

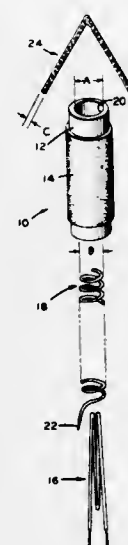
3,740,606

VIBRATION SUPPRESSOR IN CATHODE ASSEMBLY FOR ELECTRON DISCHARGE DEVICE
Thomas O'Marah Hoppel, Hollidaysburg, Pa., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.
Filed Sept. 1, 1971, Ser. No. 177,040

Int. Cl. H01J 1/24

U.S. Cl. 313-340

2 Claims



An insulator coil vibration suppressor comprised of a resilient member which is electrically insulating is force fitted into the top of a hollow tubular cathode between the interior wall thereof and the outside surface of an insulator which sur-

rounds the heater. The suppressor eliminates vibrations from the coil and thus reduces extraneous noise developed by the tube.

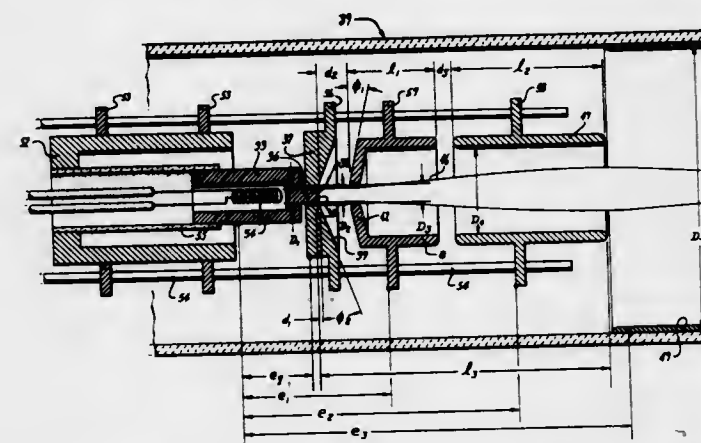
3,740,607

LAMINAR FLOW ELECTRON GUN AND METHOD
Aris Silzars, Redwood City, and David J. Bates, Los Altos, both of Calif., assignors to Watkins-Johnson Company, Palo Alto, Calif.
Filed June 3, 1971, Ser. No. 149,445

Int. Cl. H01J 29/56

U.S. Cl. 315-15

24 Claims



A laminar flow electron gun for forming an electron beam including a cathode for emitting electrons, an apertured dish-shaped electrode surrounding the cathode surface and an anode spaced from said cathode and electrode and cooperating therewith to provide a substantially uniform electric field at the surface of said cathode to cause electrons to emit normally from the entire surface in a beam, said anode also forming a divergent electrostatic lens along the path of the beam and accelerating and focusing means disposed further along the path of the beam to accelerate and focus the beam at a target.

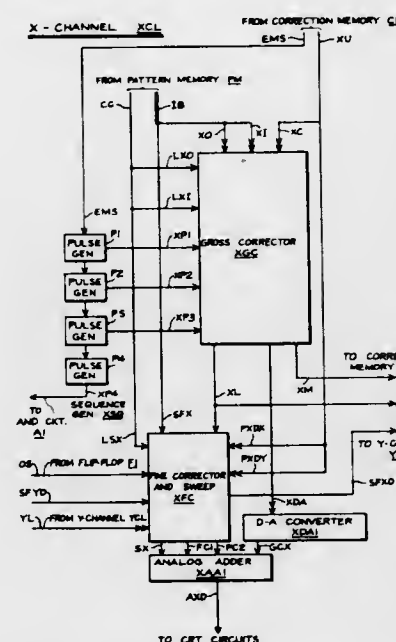
3,740,608

SCANNING CORRECTION METHODS AND SYSTEMS UTILIZING STORED DIGITAL CORRECTION VALUES
Solomon Manber, Sands Point; Michael J. McGovern, Huntington, both of N.Y., and Wesley E. Stupar, Granada Hills, Calif., assignors to Alphanumeric Incorporated, Lake Success, N.Y.
Filed Aug. 18, 1970, Ser. No. 64,739

Int. Cl. H01J 29/70

U.S. Cl. 315-27 GD

5 Claims



There is disclosed a method and several embodiments of apparatus for the correction of pin-cushion and other distortions

in a cathode-ray tube wherein there are stored digital correction values associated with particular regions of the tube. As these regions are called for the associated correction values are used to modify the electron-beam deflection, focus, and intensity signals.

3,740,609

ARRANGEMENT FOR THE IGNITION AND ALTERNATING CURRENT SUPPLY FOR A GAS-AND/OR VAPOR DISCHARGE LAMP

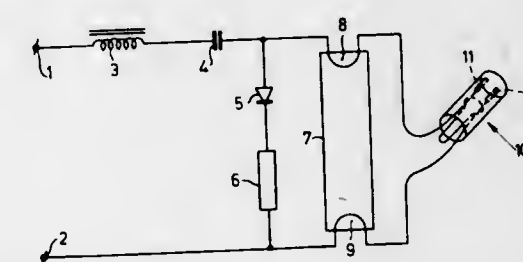
Jozef Cornelis Moerkens, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Nov. 15, 1971, Ser. No. 198,838

Claims priority, application Netherlands, Nov. 21, 1970, 7017064

Int. Cl. H05b 41/00

U.S. Cl. 315-200

11 Claims



The invention relates to an arrangement for igniting and supplying a discharge lamp, particularly a long low-pressure mercury vapor discharge lamp of about 2.5 meter. Said lamp has a relatively high ignition voltage so that it can not be ignited with the aid of a normal glow discharge starter.

According to the invention a circuit is used in which with the aid of a diode branch a voltage doubling is effected at which the lamp can be ignited. In addition this circuit includes a resistor having a positive temperature characteristic which, after ignition of the lamp, renders the diode branch inoperative. By using the voltage doubling, a glow discharge starter can be used which must, however, be proportioned for a voltage which is generally higher than the conventional voltage.

3,740,610

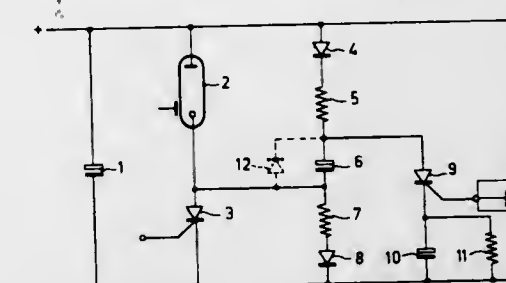
SWITCH ARRANGEMENT INCLUDING A THYRISTOR
Gerhard Roncke, Hamburg, Germany, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Mar. 19, 1971, Ser. No. 126,152

Claims priority, application Germany, Mar. 26, 1970, P 20 14 923.9

Int. Cl. H05b 41/32, 41/40

U.S. Cl. 315-241 P

10 Claims



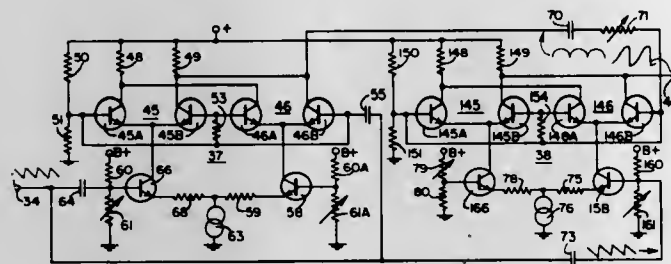
A switching circuit for a flash discharge tube includes a first thyristor in series with the tube across a DC voltage source. The thyristor is rapidly extinguished by an auxiliary circuit that includes, in series, a first capacitor, a second thyristor, and the parallel connection of a second capacitor and a resistor. A charge circuit for the first capacitor is connected partly in parallel with the tube and is exclusive of the first thyristor. A preferred embodiment also includes a diode in shunt with the first capacitor. The novel circuit is arranged to prevent reverse charging of the capacitors so that electrolytic capacitors may be used which results in a compact flash unit.

3,740,611

VERTICAL DEFLECTION WAVEFORM GENERATOR
William H. Slavik, Palos Hills, Ill., assignor to Motorola, Inc., Franklin Park, Ill.Filed July 28, 1971, Ser. No. 166,837
Int. Cl. H01J 29/70

U.S. Cl. 315—27 GD

6 Claims



A waveform generator for supplying driving current to the vertical deflection coils of a television receiver includes a source of linear sawtooth signals which are applied in phase opposition to a first product multiplier to produce a parabolic waveform. This waveform is applied to one of two inputs of a second product multiplier, the other input of which is supplied with the sawtooth signals to produce at the output of the second product multiplier a third order waveform used to supply driving current to the vertical deflection coils of the television receiver.

3,740,612

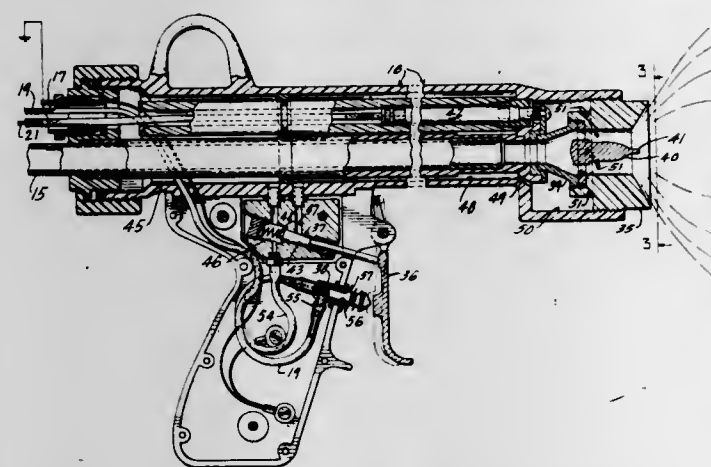
APPARATUS FOR COATING WITH ELECTROSTATICALLY CHARGED PARTICULATE MATERIALS

William D. Gauthier, Sylvania Township, and Daniel M. Rogers, Toledo, both of Ohio, assignors to Champion Spark Plug Company, Toledo, Ohio

Filed May 28, 1971, Ser. No. 147,752
Int. Cl. B05b 5/00

U.S. Cl. 317—3

8 Claims



An improved control device for apparatus for coating articles with an electrostatically charged material in discrete form. The apparatus includes a nozzle having an inlet and a discharge outlet for the particulate material, an electrode for electrostatically charging the particulate material and at least one passage for directing a stream of vortex gas to impart a vortical motion to the particulate material discharged from the nozzle. A trigger on the apparatus operates first and second gas valves. The first valve controls a stream of gas to the vortex gas passages in the nozzle for controlling the pattern of the sprayed material and the second valve operates a pneumatic control to cause a high voltage to be applied to the electrode in the nozzle and to cause a pump to deliver to the nozzle inlet a stream of gas having the particulate material dispersed therein. In a preferred form, the trigger opens the first valve before the second valve and closes the second valve before the first valve. Provision is made for easily cleaning

residual material from the pump, the nozzle and an interconnecting tube when changing the material to be sprayed.

3,740,613

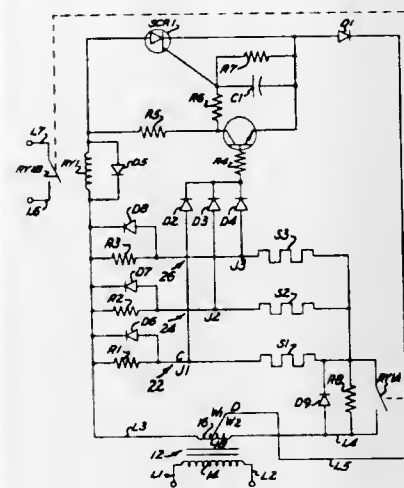
APPARATUS FOR CONTROLLING THE ENERGIZATION OF A LOAD

Richard W. Strachan, Providence, R.I., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 12, 1972, Ser. No. 243,328
Int. Cl. H02h 7/08

U.S. Cl. 317—13 C

8 Claims



A plurality of condition responsive impedances, such as PTC thermistors are each connected to reference impedances to form voltage dividers which form half of a bridge circuit. The voltage divider junctions are coupled through diodes to the base of an NPN transistor in the detector of the bridge circuit, the emitter-collector circuit of the transistor being connected across the gate cathode circuit of a silicon controlled rectifier which is used to control the energization of a serially connected relay coil. In the absence of a predetermined condition, such as excessive temperature in a load, the silicon controlled rectifier is gated on each half cycle thereby allowing current to flow through the relay coil to energize the load. On the occurrence of the predetermined condition, i.e., excessive temperature, the impedance value of the condition responsive impedances change and cause conduction of the transistor which shunts current away from the gate of the silicon controlled rectifier thereby deenergizing the relay coil. Differential between the temperature at which energization and deenergization of the system occurs is provided by a reset impedance with contacts coupled thereacross, the contacts being closed when the relay coil is energized. Bypass diodes are connected across the reset and reference impedances to increase the temperature differential and to effect a longer delay before reenergization.

3,740,614

FRAME FOR MOUNTING ELECTRICAL EQUIPMENT
Miklos Baso, and Edgar Wiessner, both of Amberg, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Sept. 28, 1971, Ser. No. 184,469

Claims priority, application Germany, Oct. 1, 1970, P 20 48 237.5; Aug. 14, 1971, P 21 40 801.5

Int. Cl. H02b 1/04, 1/20

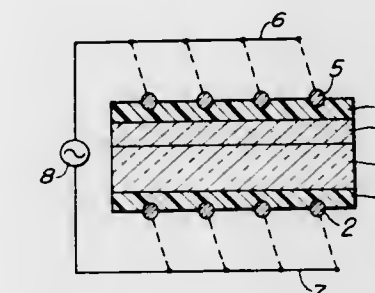
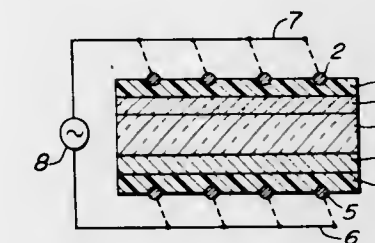
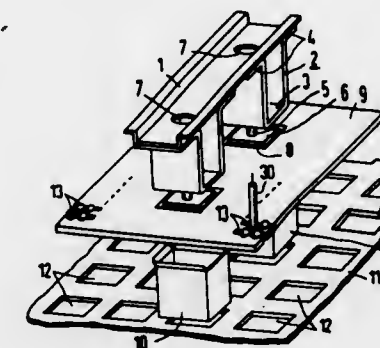
U.S. Cl. 317—99

8 Claims

A frame comprises spaced equipment carrier units for mounting electrical equipment and accommodates the electrical wiring of such equipment in wiring spaces beneath the mounting surface of the electrical equipment carriers. The equipment carrier units are affixed to a base plate by spacers arranged in mushroom stem fashion. The wiring is thus disposable beneath the electrical equipment. Comb plates are provided between the equipment carrier units and the base plate for holding individual wires between the comb teeth

thereof. Lip-shaped extensions are provided in the comb teeth for holding the individual wires between them. The lip-shaped

extensions have cutouts or projections formed therein which provide detent action for the individual electrical wires in the direction of their insertion between the comb teeth.

**3,740,615**
ACTUATING AND CONFIRMING DEVICE FOR PRINTING ELECTROMAGNETS

Giorgio Vignini, Milan, Italy, assignor to Honeywell Information Systems Italia, Caluso, Italy

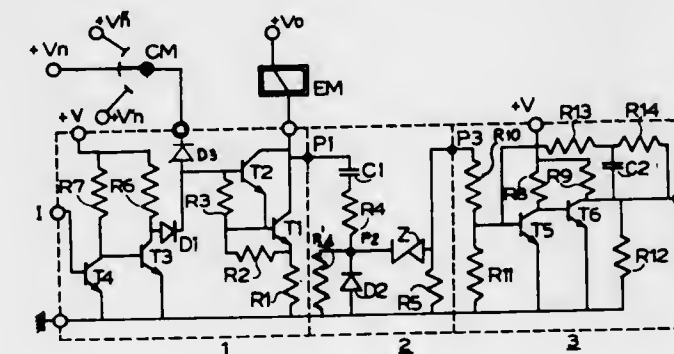
Filed Mar. 10, 1972, Ser. No. 233,660

Claims priority, application Italy, Mar. 20, 1971, 22041 A/71

Int. Cl. H01h 47/32

U.S. Cl. 317—148.5 R

7 Claims



A device is provided for commanding and confirming the operation of an electromagnet used for actuating print hammers in high speed printers. The electromagnet windings are fed through a constant current source and a threshold device detects the voltage pulse caused by armature movement, this pulse being discriminated from other pulses by suitable timing devices. The detection of the pulse causes interruption of current to the electromagnet and its absence triggers an alarm.

metal film on the gap portion of the gapped electrode in such a manner as to conform with the shape of a character or pattern to be displayed can easily attain the luminous display of the character or pattern.

3,740,617

SEMICONDUCTOR STRUCTURE AND METHOD OF MANUFACTURING SAME

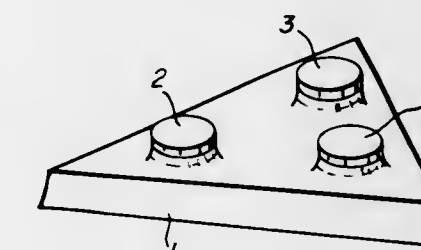
Iwao Teramoto, Ibaragi-shi; Shinichi Nakashima, Suita-shi; Hitoo Iwasa, Takatsuki-shi, and Yukio Miyai, Osaka, all of Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan

Filed Nov. 13, 1969, Ser. No. 876,280

Claims priority, application Japan, Nov. 20, 1968, 43/85703
Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317—234 R

1 Claim

**3,740,616**
ELECTRICALLY LUMINESCENT DEVICE
Norio Suzuki, Tokyo; Yoshimi Takiguchi, Tendo, and Tadao Kohashi, Yokohama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 677,138, Oct. 23, 1967, abandoned.

This application Jan. 2, 1970, Ser. No. 482

Claims priority, application Japan, Oct. 27, 1966, 41/71302; Oct. 27, 1966, 41/71304; Oct. 27, 1966, 41/71305; Oct. 27, 1966, 41/71306; Oct. 27, 1966, 41/71307; Oct. 27, 1966, 41/71308

Int. Cl. H01l 15/00

U.S. Cl. 317—234 R

7 Claims

An electrically luminescent device having an electroluminescent element and associated power supply electrodes, at least one of the electrodes being in the form of a gapped structure consisting of fine metal wires which are arranged in paral-

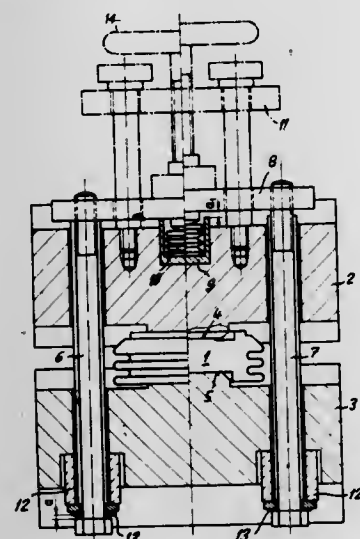
A semiconductor structure and a method of manufacturing same wherein at least three mesa semiconductor units are formed in a regularly spaced relationship on a single substrate and a heat dissipator is attached to the mesa surface of each of the units, thereby stabilizing and ensuring the mounting of the heat dissipator as well as attaining a considerably improved heat dissipation property. The structure is useful for a large heat loss semiconductor such as a microwave generating avalanche diode.

3,740,618 SEMICONDUCTOR UNIT AND METHOD OF MANUFACTURE THEREOF

Xaver Vogel, Nussbaumen, Switzerland, assignor to Aktien-
gesellschaft Brown, Boveri & Cie, Baden, Switzerland
Filed Sept. 14, 1971, Ser. No. 180,415
Claims priority, application Switzerland, Sept. 29, 1970,
14565/70

Int. Cl. H011.3/00, 5/00
U.S. Cl. 317-234 R

3 Claims



A semiconductor unit which comprises one or more semiconductor elements in disc form assembled between two clamping members which are drawn towards each other by means of clamping bolts which pass through the clamping members and terminate in a bridging yoke. Tightening of the bolts moves the yoke in the direction of the clamping members and this movement is transmitted to one of the clamping members by way of spring means thereby to apply pressure to the semiconductor element. The spring means is provided to allow for movement of the clamping members at they heat up and expand during operation of the semiconductor unit.

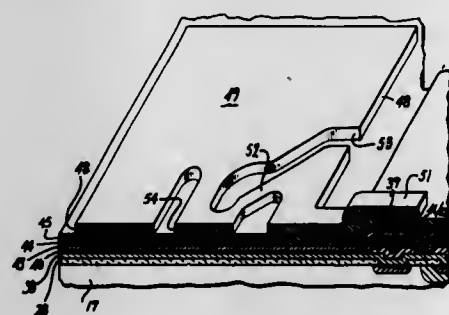
3,740,619 SEMICONDUCTOR STRUCTURE WITH YIELDABLE BONDING PADS HAVING FLEXIBLE LINKS AND METHOD

Warren C. Rosvold, Sunnyvale, Calif., assignor to Signetics
Corporation, Sunnyvale, Calif.

Filed Jan. 3, 1972, Ser. No. 214,592
Int. Cl. H011.5/00

U.S. Cl. 317-234 R

18 Claims



A semiconductor structure comprising a semiconductor body having a surface with devices formed therein having portions thereof extending to the surface. A layer of insulating material is disposed on the surface. Contact means is carried by said layer and extends through said layer to make contact to said portions of said device. Bonding pads overlie the semiconductor body. Flexible links are formed as a part of the pads and secure the pads to the contact means. The bonding pads are also secured to the semiconductor body by shearable means which will permit the bonding pads to be sheared from

the semiconductor body at the shearable means rather than in the semiconductor body and causing damage to the semiconductor body.

In the method, flexible links are formed as a part of the bonding pads and the bonding pads are secured to the semiconductor body by shearable means so that when external pressure is applied to the bonding pads, they will separate from the semiconductor body without causing damage to the semiconductor body.

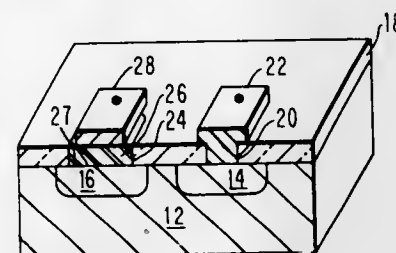
3,740,620 STORAGE SYSTEM HAVING HETEROJUNCTION- HOMOJUNCTION DEVICES

Benjamin Agusta, Burlington, and Joseph J. Chang, Shel-
burne, both of Vt., assignors to International Business
Machines Corporation, Armonk, N.Y.

Filed June 22, 1971, Ser. No. 155,498
Int. Cl. H011.19/00

U.S. Cl. 317-235 R

7 Claims



This invention describes a homojunction transistor having a heterojunction diode formed on its emitter which can be used as a memory storage cell in a large capacity monolithic semiconductor memory array.

The heterojunction diode has two stable impedance states into which it can be switched to provide the memory portion of the element while the homojunction transistor provides an isolation voltage of a specified threshold value between the forward and reverse characteristics of the heterojunction diode.

The array can perform main storage, associated storage and logical functions and does not contain aberrant or "sneak" conductive paths through the memory that can provide false output signals.

The cell and a method of making it is disclosed. A storage system incorporating these memory cells or elements as an array is also disclosed.

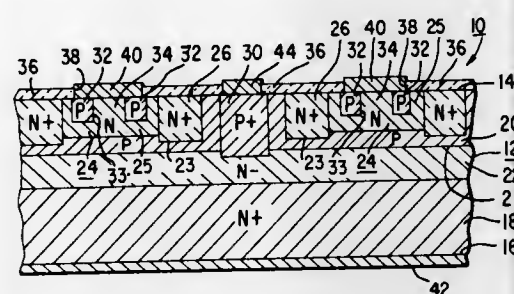
3,740,621 TRANSISTOR EMPLOYING VARIABLE RESISTANCE BALLASTING MEANS DEPENDENT ON THE MAGNITUDE OF THE EMITTER CURRENT

Donald Raymond Carley, Somerville, N.J., assignor to RCA
Corporation, New York, N.Y.

Filed Aug. 30, 1971, Ser. No. 176,176
Int. Cl. H011.11/00, 15/00

U.S. Cl. 317-235 R

5 Claims



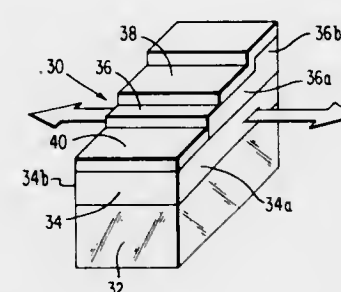
A transistor includes emitter, base, and collector regions formed in a semiconductor body. The transistor has means coupled to the emitter region to provide a variable ballasting resistance which is dependent upon emitter current.

3,740,622 ELECTROLUMINESCENT SEMICONDUCTOR DEVICE FOR GENERATING ULTRA VIOLET RADIATION

Jacques Isaac Pankove, and Peter Edward Norris, both of Prin-
ceton, N.J., assignors to RCA Corporation, New York, N.Y.
Filed July 10, 1972, Ser. No. 270,220
Int. Cl. H011.3/00

U.S. Cl. 317-235 R

6 Claims



An electroluminescent semiconductor device including a body of crystalline gallium nitride, a layer of silicon nitride on a surface of the body, a metal layer on the silicon nitride layer and an ohmic metal contact on the body. When a bias is applied between the metal layer and the contact which with respect to the ohmic contact is first negative and then positive, ultra violet radiation will be emitted from the body.

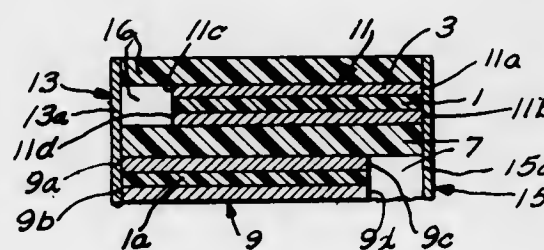
3,740,623 SELF-HEALING NON-METALLIZED POLYSTYRENE CAPACITOR

Joseph A. Toro, Ogallala, Nebr., assignor to TRW Inc., Cleve-
land, Ohio

Continuation-in-part of Ser. No. 93,735, Nov. 30, 1970,
abandoned. This application Jan. 14, 1972, Ser. No. 217,980
Int. Cl. H01g.3/215

U.S. Cl. 317-258

2 Claims



A self-healing capacitor made by forming carrier electrodes by metallizing both surfaces of a polycarbonate film without margins, convoluting two carrier electrodes with a polystyrene dielectric film therebetween and with the side edges of the two carrier electrodes offset from each other, and then metal spraying the side edges of the convolute to conductively join the metallized coatings on the opposite surfaces of the carrier electrodes.

3,740,624 MONOLITHIC CAPACITOR HAVING CORNER INTERNAL ELECTRODE TERMINATIONS

Arthur C. McAdams, Jr., and Vincent A. Tomaselli, both of
Wichita Falls, Tex., assignors to Sprague Electric Company,
North Adams, Mass.

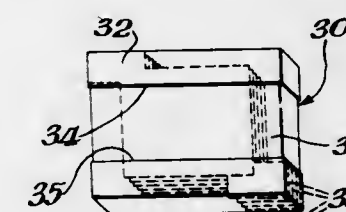
Filed June 21, 1972, Ser. No. 265,070
Int. Cl. H01g.1/14

U.S. Cl. 317-258

4 Claims

A monolithic ceramic capacitor has its alternate internal electrodes terminating in opposite corners of the ceramic chip, so as to facilitate the application of external metal terminations by automatic metallizing equipment. This internal electrode arrangement, especially useful in a square-shaped

ceramic chip, eliminates the need for chip orientation prior to the introduction of the chip to automatic metallizing equip-



ment. The finished chip, when metallized in either of the two possible orientations, is physically and electrically identical.

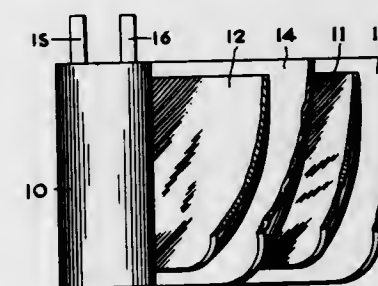
3,740,625 ELECTRICAL CAPACITORS WITH ESTER IMPREGNANTS

Sidney D. Ross, Williamstown, and Manuel Finkelstein, North
Adams, both of Mass., assignors to Sprague Electric Com-
pany, North Adams, Mass.

Filed Nov. 4, 1971, Ser. No. 195,856
Int. Cl. H01g.3/19

U.S. Cl. 317-259

10 Claims



Esters are used as impregnants in AC and energy storage capacitors, wherein the esters have alkyl groups substituted around the carbonyl carbon atom to effectively prevent hydrolytic attack thereof by water or hydroxide ions. Appropriate substitution in both the acid and the alcohol moieties insures a hydrolytic stability for the esters produced thereby.

3,740,626 ATMOSPHERIC CONTAMINANT COLLECTOR

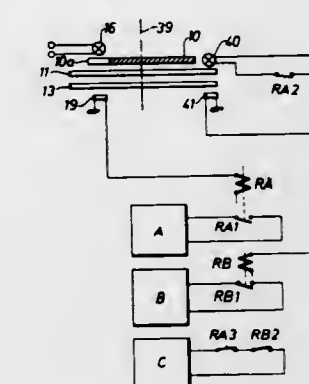
Knut Raymond Knutson, Sundbyberg; Michele Morichetto,
Ekero, and P. Magnus Wannfors, Stenhamra, all of Sweden,
assignors to Incentive Research & Development AB., Brom-
ma, Sweden

Filed Dec. 16, 1971, Ser. No. 208,739
Claims priority, application Sweden, Dec. 23, 1970,
17532/70

Int. Cl. G01n.31/00

U.S. Cl. 317-262 R

5 Claims



A device for controlling the operation of an atmospheric contaminants collecting apparatus comprises means, which

are responsive to the prevailing wind velocity at the site of the collecting apparatus and which generate a control signal maintaining the collecting apparatus in operation only when the prevailing wind velocity is on the one side of a predetermined limit value, that is exceeds or alternatively is less than this limit value. In a preferred embodiment the device comprises also means responsive to the prevailing wind direction for modifying or influencing the control signal to the contaminants collecting apparatus in such a manner that the collecting apparatus is maintained in operation only when the prevailing wind velocity is on the one side of the predetermined limit value and at the same time the prevailing wind direction lies within a predetermined sector angle.

3,740,627

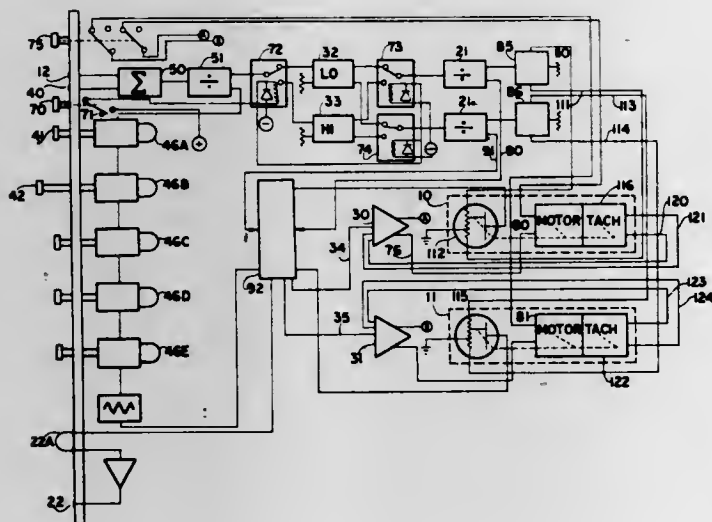
SERVO MOTOR DRIVEN R.F. ATTENUATOR

David R. Martin, and Walter A. Sauter, both of c/o John E. Wagner, 1041 East Green Street, Suite 202, Pasadena, Calif. Continuation-in-part of Ser. No. 65,561, Aug. 20, 1970, Pat. No. 3,648,176. This application Sept. 22, 1971, Ser. No. 182,810

Int. Cl. H04q 9/00

U.S. Cl. 318—16

4 Claims



A system for cancelling or suppressing the amplitude of the carrier and sideband signals of a radio transmitter to facilitate analysis of spurious and noise outputs from the transmitter is disclosed. The system includes means for deriving a carrier cancelling signal from an actual sample of the transmitter output, signal processing circuitry and summing means. Also, an electromechanical signal controller is disclosed capable of continuously correcting the amplitude of the cancellation signal by a selected ratio with respect to the transmitter test signal.

3,740,628

LINEAR ELECTRIC MOTOR

Junpei Inagaki and Susumu Tadokuma, both of Yokohama, Japan, assignors to Tokyo Shibaura Electric Company, Ltd., Kawasaki-shi, Kanagawa-ken, Japan

Filed June 8, 1971, Ser. No. 151,111

Claims priority, application Japan, June 11, 1970, 45/49985

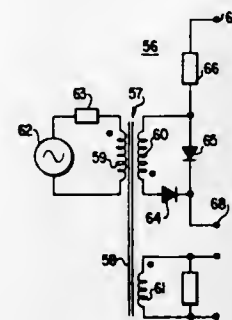
Int. Cl. H02k 41/02

U.S. Cl. 318—135

6 Claims

A linear electric motor, which includes an elongated reaction rail having north and south magnetic poles alternately disposed therealong and an armature having polyphase windings which is moved along the reaction rail, is provided with a position detector for detecting the relative position between the magnetic poles of the reaction rail and the armature. The armature windings are energized from an electric power supply through a static commutator formed of semicon-

ductor elements. The position detector responds to the speed electromotive force induced in the armature windings and



causes the semiconductor elements in the static commutator to turn on and off in a predetermined sequence.

3,740,629

A.C. MOTOR DRIVE CIRCUIT

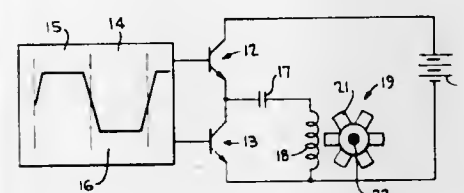
Walter Kohlhausen, 818 Oakley Avenue, Elgin, Ill.

Continuation-in-part of Ser. No. 57,495, July 23, 1970, abandoned. This application Mar. 11, 1971, Ser. No. 123,304

Int. Cl. H02p 7/00

U.S. Cl. 318—138

26 Claims



A synchronous self-starting motor is driven with constant rotational velocity in response to current fed to an excitation winding thereof from a D.C. power source. Switch means is responsive to gating voltages derived from a time reference source having first and second consecutive time periods. During the two time periods, current is smoothly flowing with constantly changing slope in a series circuit including the excitation winding and a capacitor. The relative length of each period and the natural frequency of the drive circuit and excitation winding are equal to or less than the average frequency of the time reference source to achieve a sine-like voltage waveform across the capacitor. The switching means can be either like or complementary type transistors, having the ability to conduct current in either direction when forward biased, as well as electromechanical switches or vacuum tubes with shunting diodes. A flywheel is freely mounted relative to the motor shaft to assist in maintaining constant rotational velocity of the shaft. The first and second time periods can be of the same duration or of different durations as long as approximately the same force is applied to the motor rotor during each period. The same force is applied to the motor rotor during each period.

3,740,630

VARIABLE-RELUCTANCE ELECTRIC MOTOR

Jean Jarret, La Champanelle, Chemin du Clos Baron, Fourqueux, and Jacques Jarret, 35, avenue du Belloy, Le Vesinet, both of France

Filed Feb. 28, 1972, Ser. No. 229,805

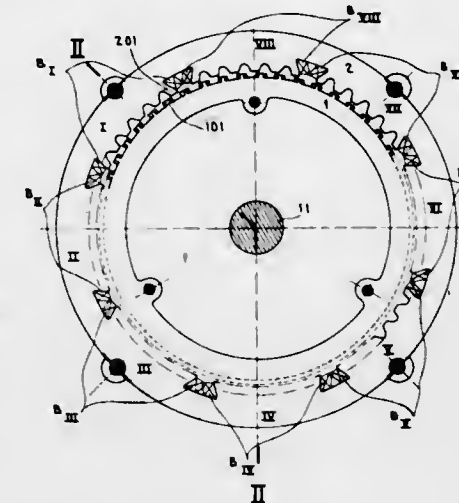
Int. Cl. H02k 23/42

U.S. Cl. 318—138

3 Claims

Variable reluctance electric motor. Said motor comprises a rotor having uniformly distributed teeth, an annular stator having magnetic studs grouped in equal length sectors but shifted by a quarter of a stud pitch from a sector to the following, and a set of peripheral fixed windings each surrounding all the studs of a sector and supplied by signals from a timing

generator controlled by a direct current source and by the movement of the rotor so that the half of said windings are



energized at any time and are switched for each rotation of the rotor of a quarter of a stud pitch.

Said motor may operate at a low speed.

3,740,631

VOLTAGE COMPARATOR CONTROLLED MOTOR STARTING CIRCUIT

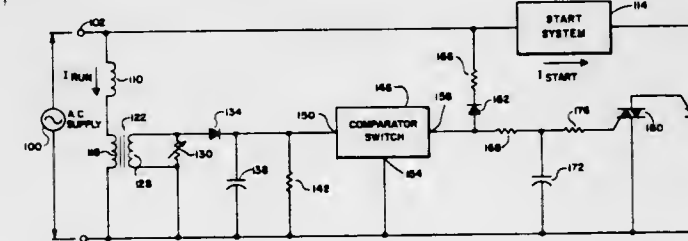
David C. Fricker, Hurst; Thomas F. Whittaker, Fort Worth; Leon Fink, Jr., Arlington, and Stephen K. Lam, Dallas, all of Tex., assignors to ECC Corporation, Euless, Tex.

Filed July 23, 1971, Ser. No. 165,670

Int. Cl. H02p 1/44

U.S. Cl. 318—221 E

19 Claims



A speed responsive motor starting circuit includes a pair of bilateral triode switches connected to the motor start system for controlling the current flow therethrough. A capacitor is connected to the control electrode of one of the triode switches for supplying enabling current thereto. Current supplied to the capacitor by an A. C. supply, the amount supplied being controlled by a comparator switch in accordance with the relative magnitudes of two voltages applied to the comparator switch. One such voltage is inversely proportional to the speed of the motor and is generated by a current-sensing transformer coupled in circuit with the motor run winding. The other such voltage is applied by the A. C. supply through a diode to the comparator switch. Various solid state devices may be utilized as the comparator switch.

3,740,632

MOTOR REVERSING AND STOPPING CIRCUIT

John A. Whitney, Fort Wayne; Richard E. Woods, Markle, and William H. Hohman, Bluffton, all of Ind., assignors to Franklin Electric Co., Inc., Bluffton, Ind.

Continuation-in-part of Ser. No. 72,675, Sept. 16, 1970, abandoned. This application Nov. 1, 1971, Ser. No. 194,744

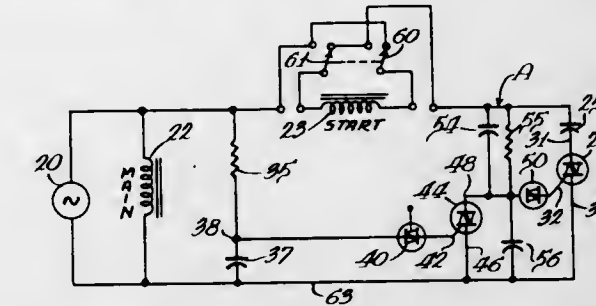
Int. Cl. H02k 1/42

U.S. Cl. 318—289

22 Claims

In an AC motor having a main winding and a start winding, a triac uncouples the start winding from AC power when the motor reaches a preselected cut-out speed. When the motor is to be decelerated, a manual switch is actuated to reversely

connect the start winding, producing an instant step change in phase which actuates the triac to recouple the start winding to AC power. In one embodiment for reversing the direction of rotation, the motor decelerates through zero and immediately accelerates in the opposite direction until the cut-out speed is reached, causing the triac to again uncouple the start winding.



A second embodiment, for stopping the motor, passes current for the main and start windings through a master power triac controlled by a gating circuit including a switch mounted to the rotor of the motor. As the motor decelerates to zero and just begins to accelerate in the opposite direction, the rotor mounted switch opens and deactuates the master power triac.

3,740,633

FREQUENCY-TO-VOLTAGE CONVERTER DEVICE

Pietro Buttafava, Milan, Italy, assignor to Honeywell Information Systems Italia, Caluso, Italy

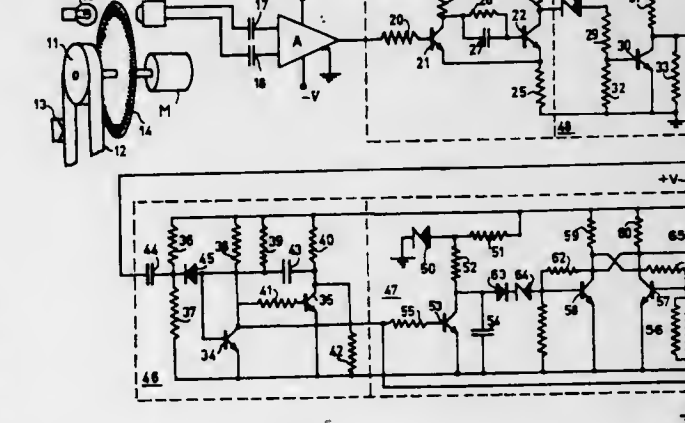
Filed Feb. 14, 1972, Ser. No. 225,887

Claims priority, application Italy, Feb. 3, 1971, 21248 A/71

Int. Cl. H02p 5/16

U.S. Cl. 318—328

4 Claims



A frequency-to-voltage converter for use with such devices as magnetic tape handling equipment is provided having a frequency error signal generator providing pulses, a constant current generator, a capacitor and two switches controlled by the pulses. One of the switches discharges the capacitor within a fixed time interval and the other switch connects the capacitor to the current generator for a time interval determined by the pulses. The capacitor is thus charged to reach a voltage of the next pulse, thereby providing a voltage across the capacitor terminals which is a continuous voltage error signal suitable for control purposes.

3,740,634

APPARATUS FOR CONTROLLING THE FEEDING OF PAPER IN HIGH-SPEED PRINTERS

Giorgio Bonzano, Caluso, Italy, assignor to Honeywell Information Systems Italia S.p.A., Milan, Italy

Division of Ser. No. 54,815, July 14, 1970, Pat. No. 3,656,041

This application Nov. 17, 1971, Ser. No. 199,809

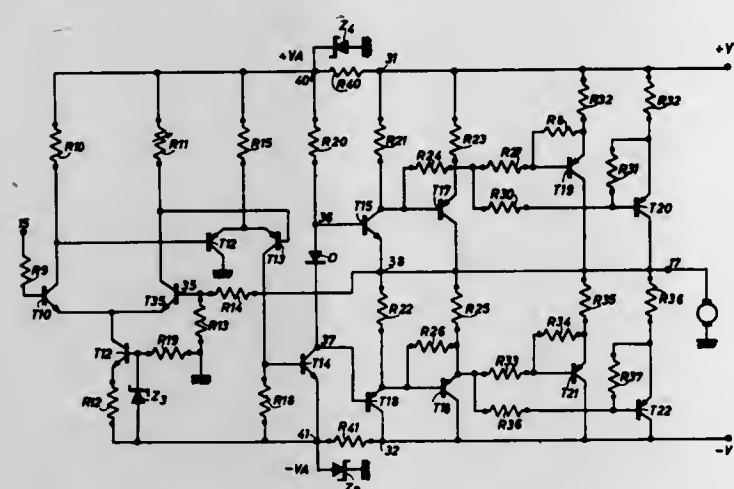
Int. Cl. H02p 5/16

U.S. Cl. 318—345

2 Claims

Apparatus for controlling the paper feeding in printing apparatus, wherein the feed motor speed is controlled by the

combined effect of a speed-space detector whose output is speed-proportional voltage and said pulses are compared with a predetermined pulse number, and wherein the results of said

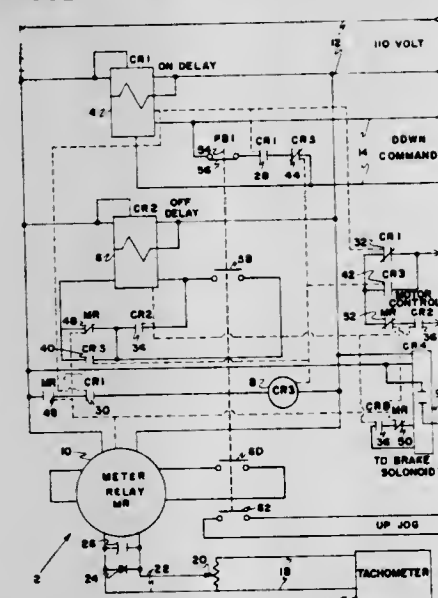


comparison are employed in combination to provide a suitable paper feed power control through a bidirectional amplifier which does not require a stabilized power supply.

3,740,635

OVERSPEED SENSOR FOR SAFETY BRAKE SYSTEM
Scott C. Grover, Bountiful, Utah, assignor to Kenway Engineering, Incorporated, Woods Cross, Utah
Filed Oct. 5, 1971, Ser. No. 186,742
Int. Cl. B66b 5/02

U.S. Cl. 318—382



A brake control system for elevating platforms comprising a timing relay connected to receive "Down" command signals, a meter relay connected to receive signals from a tachometer driven by the platform, and means responsive to signals from said timing relay and meter relay for controlling the elevating motor and brake systems of said platform.

3,740,636

CHARGE REGULATOR AND MONITOR FOR SPACECRAFT SOLAR CELL/BATTERY SYSTEM CONTROL

Arthur F. Hogrefe, Silver Spring, and Ralph M. Sullivan, Beltsville, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 5, 1971, Ser. No. 196,029

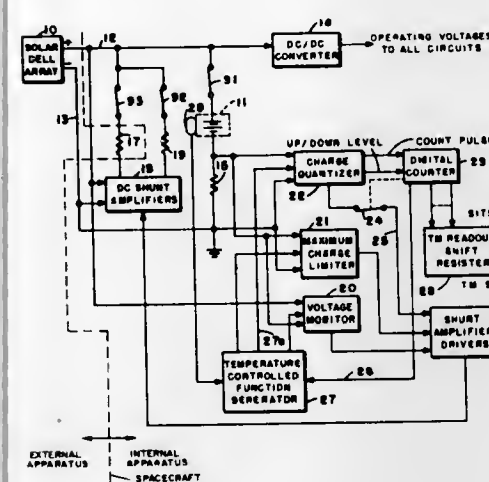
Int. Cl. H02J 7/14

U.S. Cl. 320—2

9 Claims

An electronic system for providing fully automatic control of a spacecraft solar cell/battery electrical power system, including the provision of continuous telemetry monitoring of

the battery charge state. Circuitry accurately measures, on an ampere-minute basis, the charging and discharging of the battery and functions to maintain the battery in a fully charged condition, with a provision for automatic reduction of the charge current to a temperature-dependent trickle value when the proper amount of charge has been returned to the battery after a previous discharge. A bipolar charge quantizer circuit is utilized to monitor battery charge and discharge operations and includes a finite time integrator circuit capable of supply-



ing an output signal pulse each time the battery is charged or discharged by a predetermined amount. The quantizer is designed with a predetermined offset factor to account for battery inefficiency. Temperature dependent maximum battery voltage limiting and maximum charge current limiting are also provided, along with means which operate to automatically shunt excess electrical power from the solar cell array into the spacecraft instrument package in order to provide temperature control therein.

3,740,637

AUTOMOBILE BATTERY CHARGER WITH PROTECTION MEANS

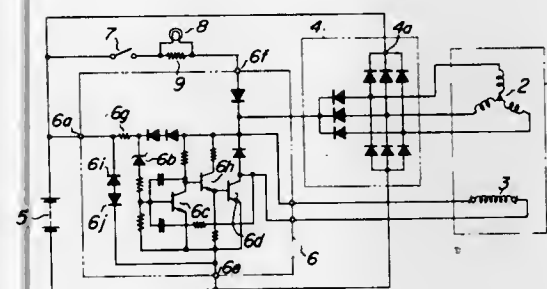
Katsutaro Iwaki, Chiryu; Kazumasa Mori, Kariya; Masaru Ishihama, and Yukio Kobayashi, both of Tokyo, all of Japan, assignors to Nippondenso Co., Ltd., Kariya-shi, Aichi-ken, Japan

Filed Aug. 31, 1971, Ser. No. 176,511

Int. Cl. H02J 7/14

U.S. Cl. 320—61

9 Claims



A device for charging storage batteries of a vehicle comprising a voltage regulator whereby the storage batteries are charged by a DC voltage obtained by rectifying an AC output voltage from an AC generator mounted on a vehicle, particularly, an automobile, so that the voltage across the storage batteries is detected thereby controlling the interruptions of an exciting current for the AC generator. Means including diodes arranged with selected polarity connections are included so as to provide paths for both overload voltages and inadvertent reverse connections of the vehicle storage battery.

3,740,638

CONVERTER CIRCUIT FOR GENERATION OF ASYMMETRIC REACTIVE POWER
Kjeld Thorborg, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

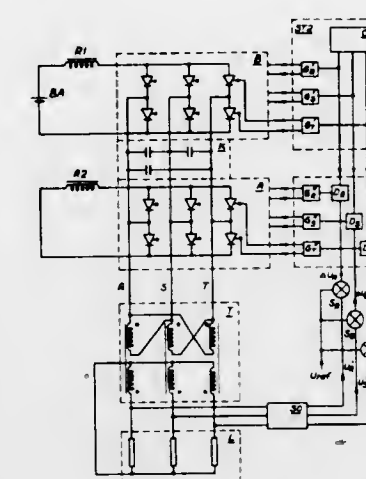
Filed Jan. 18, 1972, Ser. No. 218,790

Claims priority, application Sweden, Jan. 18, 1971, 507/71

Int. Cl. H02m 7/22

U.S. Cl. 321—5

9 Claims



A converter connection for improving the symmetry of a three-phase network comprises a three-phase line-commutated controlled converter which has its AC terminals connected to the network and its DC terminals to a reactor. Firing pulses are supplied to the rectifiers of the three rectifier groups of the converter, each of which comprises the two rectifiers connected to one of the three phase conductors of the network to fire the two rectifiers of each group at a fixed 180° interval. The phase angle in relation to the AC network voltage of the firing pulses is individually controlled for each of the three groups in dependence upon the deviation of the AC voltage of a point in the network from a reference level, the reference levels of the three groups being substantially equal.

3,740,639

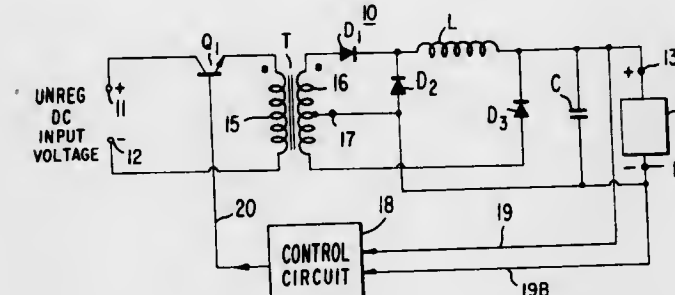
TRANSFORMER COUPLED SWITCHING REGULATOR
Finis Claude Easter, Canoga Park, Calif., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 6, 1972, Ser. No. 241,677

Int. Cl. H02m 3/28

U.S. Cl. 321—2

8 Claims



A switching regulator, of the type having a switching device whose state of conduction is controlled in response to the voltage across a load, which includes a transformer whose primary winding is connected in circuit with the switching device. A rectifier and inductive storage device are connected in circuit with the secondary winding, a diode being connected from one end of the secondary winding to one load terminal, for transferring energy from the secondary winding to the load at times when the switching device is rendered non-conductive.

3,740,640

RADAR POWER SUPPLY

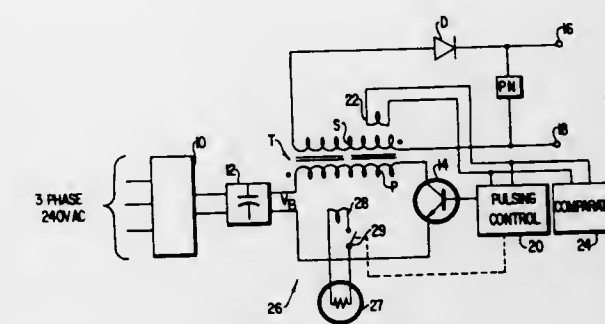
Richard J. Ravas, Monteville; Paul F. Pittman, and Gary F. Saletta, both of Pittsburgh, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 8, 1970, Ser. No. 79,179

Int. Cl. G05f 1/56; H03k 17/60

U.S. Cl. 323—17

14 Claims



A radar power supply charges a pulse network in a sequence of high frequency charging pulses. Transformation, providing isolation and voltage boost between the primary power source and the pulse network, performed at high frequency, minimizes transformer size and weight. Means are provided for selectively adjusting the number of charging pulses and damping the last of the charging pulses, thereby eliminating requirements for filtering and precise regulation of primary power source while affording precise regulation of the voltage of the output energy pulse.

3,740,641

PROCESS FOR DETERMINING HYDROCARBON MATURITY USING ELECTRON SPIN RESONANCE

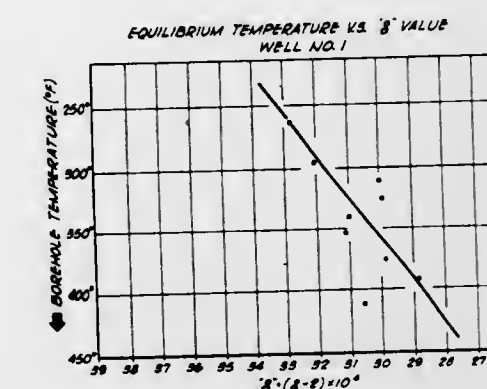
Philip T. R. Hwang, and Walter C. Pusey, III, both of Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Filed Aug. 25, 1971, Ser. No. 174,758

Int. Cl. G01n 27/78

U.S. Cl. 324—0.5 R

13 Claims



A process for predicting the presence and maturity of hydrocarbon material in a subterranean situs by initially treating a number of rock samples derived from an exploratory well or surface outcrops to remove certain materials therefrom, including carbonates and layered silicates. The samples, as thus prepared, are then subjected to observation of the paramagnetic resonance (electron spin resonance) properties of the kerogen entrapped in the samples, and from these properties, the maximum thermal histories of the samples are evaluated, and a maximal geothermal gradient for the formation is derived. The maximal geothermal gradient is extrapolated to a depth of interest to predict the type of hydrocarbon production, if any, which may be reasonably contemplated from that depth in the formation.

3,740,642

SPARK PLUG GAP RESISTANCE METER

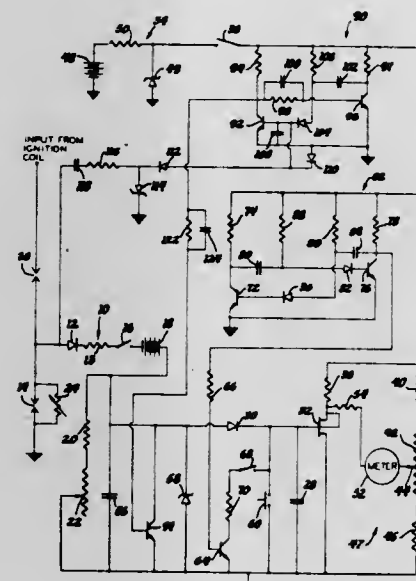
David W. Taylor, Davison, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 24, 1972, Ser. No. 246,971

Int. Cl. G01m 15/00

U.S. Cl. 324-16 R

4 Claims



A spark plug gap resistance meter for monitoring the resistance across a spark plug under dynamic conditions including a sampling circuit comprised of a voltage source and a resistor in shunt with the spark plug gap. The sampling circuit samples the resistance of the spark plug gap between ignition pulses supplied thereto. The output of the sampling circuit is a series of voltage pulses, each of which has a magnitude representing the resistance of the spark plug gap during the time period between two ignition pulses. A memory circuit memorizes the magnitude of the voltage pulse representing the minimum resistance across the spark plug gap and drives a meter to indicate the minimum resistance detected which corresponds to the maximum fouling of the spark plug gap. A circuit is provided for preventing the sampling circuit from detecting an erroneous spark plug gap resistance indication resulting from ionization currents during and immediately following ignition and burning of the combustible material in the combustion chamber by disabling the output of the sampling circuit for a predetermined time after burn-out of the combustible material. Another circuit is provided for enabling the memory circuit to track the spark plug gap resistance as represented by the output of the sampling circuit so as to provide a continuous indication thereof.

3,740,643

APPARATUS FOR MEASURING THE DISTANCE BETWEEN A WORKPIECE SURFACE AND A DATUM

Robert M. Lady, Sr., Cumming, and William G. Steiner, Smyrna, both of Ga., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 30, 1971, Ser. No. 176,125

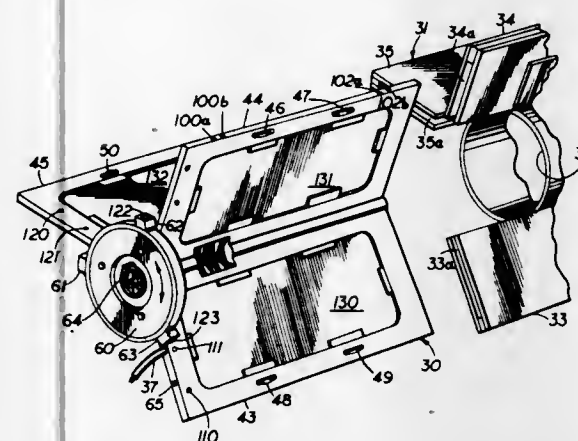
Int. Cl. G01r 33/00

U.S. Cl. 324-34 D

11 Claims

Measuring apparatus which accurately measures the distance between a surface and an imaginary datum line or plane. One or more transducers are mounted on a carrier which is positionable adjacent a surface which is to be measured with respect to an imaginary datum. The surface being

measured may be in the form of a complex shape, and the transducers need not physically contact the surface. Cor-



rection factors are provided for possible misalignment of the transducer carrier and also for the possible non-linear response of the transducer.

3,740,644

APPARATUS FOR IDENTIFYING INDIVIDUAL WIRES OF A MULTI-WIRE CABLE

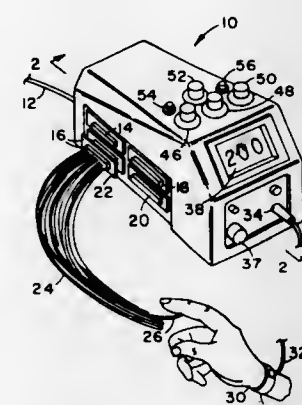
Ronald H. Schag, Orange, and David M. Landis, Fullerton, both of Calif., assignors to Thomas & Betts Corporation, Elizabeth, N.J.

Filed June 15, 1970, Ser. No. 46,424

Int. Cl. G01r 19/16, 31/02

U.S. Cl. 324-66

15 Claims



A wire detector for determining a pre-established designation of a wire in a random bundle of wires forming a cable and attached to a cable connector at one end thereof comprising, a means for receiving said connector for connecting each wire to an encoding network to cause a signal from a particular wire randomly contacted to illuminate a display for designating that wire. The detector incorporates a capability for detecting specific wires in the bundle by excluding all other wires from electronic consideration and is further equipped with a sensitive circuit and an appropriate signal source for performing the detection of a wire by contact and conduction through the body of a user.

3,740,645

CIRCUIT TESTING BY COMPARISON WITH A STANDARD CIRCUIT

Harold D. Cook, Wheaton, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed Oct. 19, 1970, Ser. No. 81,914

Int. Cl. G01r 15/12

U.S. Cl. 324-73 R

3 Claims

A circuit for comparing a known electronic circuit card with an unknown card of similar type wherein clock pulses are delivered to a multistage binary counter which delivers its output identically to the inputs of the known card and to the cor-

3,740,647

PULSED REPEATER AMPLIFIER

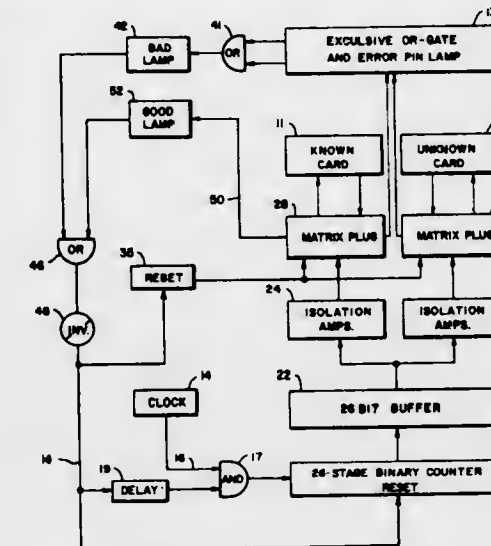
Jack C. Greene, Syosset, N.Y., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 29, 1959, Ser. No. 809,894

Int. Cl. H04b 7/14

U.S. Cl. 325-6

3 Claims



ment between the two cards. A disagreement signal causes the termination of the operation of the binary counter. This permits an operator to note the input or output of the unknown card that did not agree with the corresponding input or output of the known card and to repair the unknown card.

3,740,646

TESTING OF NON-LINEAR CIRCUITS BY ACCUMULATED RESULT COMPARISON

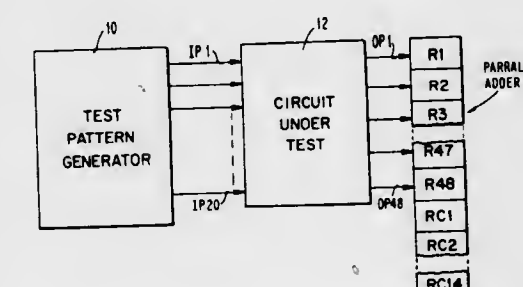
Maurice T. McMahon, Jr., Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 2, 1971, Ser. No. 168,259

Int. Cl. G01r 15/12

U.S. Cl. 324-73 R

23 Claims



A method and apparatus for testing complex, nonlinear, binary circuits by applying a bilevel input electrical signal pattern, made up of a plurality of pattern increments, in sequence, each comprising a plurality of parallel bilevel signals to a plurality of corresponding input points in a circuit reference. A resulting output signal pattern is sensed at a plurality of output points in the circuit reference. The output signal pattern is made up of a plurality of pattern increments, in sequence, each respectively resulting from one of the input pattern increments. The output pattern increments are added in parallel to provide a reference total.

The procedure is then repeated using the identical input electrical signal pattern, except that the actual circuit to be tested is used in place of the circuit reference. The signal pattern is applied to a plurality of input points in the circuit being tested corresponding to the input points in the circuit reference, and the resulting output is sensed at a plurality of output points in said circuit corresponding to the output points in the reference. The resulting output pattern increments are then added together in the same manner to provide a total for the tested circuit. This should be equal to the reference total; otherwise, the tested circuit is defective.

3,740,648

DISTRESS CALL SIGNALIZER OF THE MINIATURE TRANSMITTER TYPE

Alfred Grotjahn, Schmiedestr. 35, Burgdorf, Germany

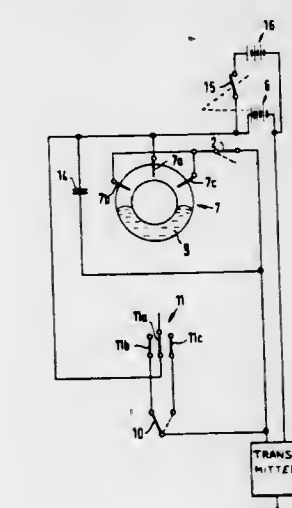
Filed Oct. 27, 1971, Ser. No. 192,835

Claims priority, application Germany, Oct. 28, 1970, P 20 52 939.9

Int. Cl. H04b 1/04

U.S. Cl. 325-113

4 Claims



A distress signal transmitter circuit comprising a position-sensitive mercury switch, and a pressure-sensitive mechanical switch, coupled in parallel to a transmitter and a power supply. A continuously charging-discharging capacitor, coupled to the power supply and the transmitter, causes the

generation and transmission of signals at predetermined intervals. Displacement of the mercury switch or pressure on the mechanical switch, interrupts the transmission of the signals at the predetermined intervals and causes a continuous signal to be transmitted by the circuit, thus indicating a distress condition.

3,740,649

LINEAR BEAM TUBE MODULATION SYSTEM USING MODULATION OF FIRST GRID

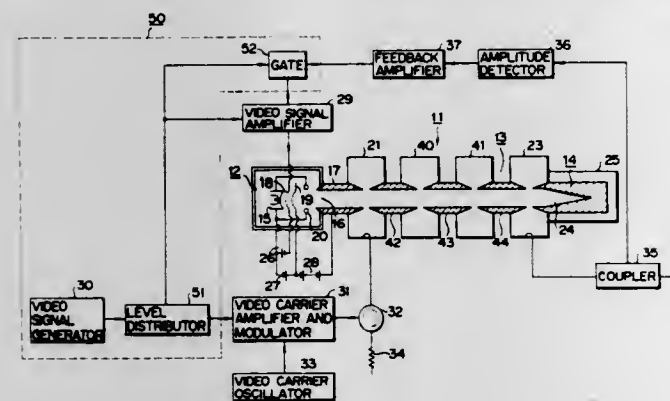
Takeshi Itoh, Yokohama, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Nov. 18, 1970, Ser. No. 90,762

Claims priority, application Japan, Nov. 19, 1969, 44/92143
Int. Cl. H03c 1/28; H04b 1/04

U.S. Cl. 325-120

6 Claims



A system for operating a linear beam or an O-type microwave tube comprising a linear beam microwave tube having an electron gun with grid electrode for emitting electron beams, a microwave amplifying portion having input and output cavities so as to amplify television video signal carrier waves by the action of said electron beams, a collector for collecting said electron beams; means for supplying said input cavity with carrier waves modulated by television video signals; and means for subjecting said electron beams to density modulation by television video signals in the grid electrodes of the electron gun.

3,740,650

ELECTROMAGNETIC SWITCH

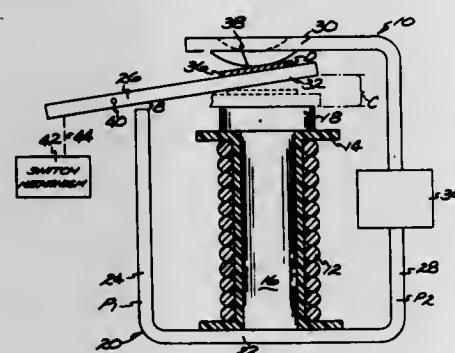
Alme J. Grenier, North Attleboro; Richard E. Suter, Norton, and Lawrence E. Cooper, Attleboro, all of Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 19, 1971, Ser. No. 134,997

Int. Cl. H01f 7/18

U.S. Cl. 335-239

8 Claims



In an electromagnetic switch assembly having a solenoid and a movable armature attractable to the solenoid by a first electromagnetic force, improved control of armature movement is achieved including maintaining the armature away from the solenoid until a predetermined current condition exists and then causing the armature to move with improved

rapid motion, that is with snap action, by applying a second force in the form of a magnetic bias to the armature in a direction opposing or negating a portion of the first force maintaining the armature away from the solenoid until the predetermined current condition comes into existence at which point the ratio of the first force to the second force changes to reverse the direction of the resultant force to allow the armature to move to the solenoid with the first force increasing as the second force is decreasing with armature movement.

A second embodiment uses the first and second forces to avoid nuisance tripping upon momentary overloads by utilizing the position of a movable core within the solenoid. In a first position, the second force, tending to maintain the armature away from the solenoid, is significantly higher than the first force even upon an overload while in a second position the first force, tending to attract the armature to the solenoid, is significantly higher than the second force.

3,740,651

ARRANGEMENTS FOR TUNING A RECEIVER

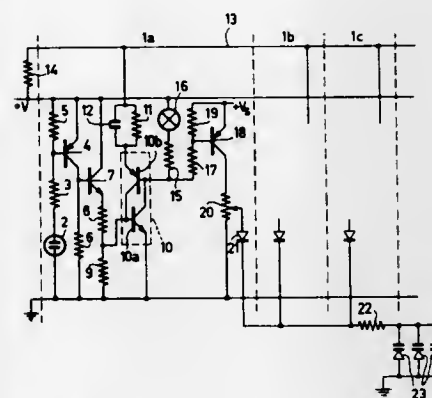
Johannes Jan Mons, Emmasingel, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 5, 1971, Ser. No. 186,651

Claims priority, application Netherlands, Oct. 10, 1970, 7014892

Int. Cl. H04b 1/26

4 Claims



The invention relates to an arrangement for pre-adjustable transmitter tuning of a receiver tunable by electronically controllable reactances, by means of a tuning voltage optionally derived from a plurality of tuning potentiometers. Each tuning potentiometer is connected to a collector of a four-layer semiconductor device, the base electrode of which is coupled to a signalling device and the anode of which is connected via an RC-network to a common resistor . . .

3,740,652

SIGNAL SELECTOR CIRCUIT

Willis R. Burgener, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Nov. 17, 1971, Ser. No. 199,688

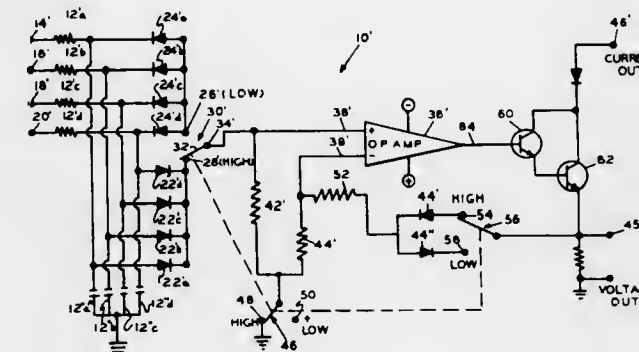
Int. Cl. H03k 17/74, 19/30

U.S. Cl. 328-137

3 Claims

Described herein is an analog signal selector circuit including an input circuit comprising two arrays of semiconductor diodes, all having substantially identical forward-bias characteristics, and an input circuit comprising a noninverting operational amplifier having a feedback loop, in which is operatively connected a forward-biased semiconductor diode having characteristics matched to those of the two diode arrays. The arrays are connected to input terminals to which discrete analog input signals (DC) are applied. Selective actuation of the diode arrays results in the highest or lowest of the input

signals being selected and applied to the operational amplifier, the output of which precisely reproduces the selected input



signal, notwithstanding variations in the electrical characteristics of the array diodes as a result of temperature changes.

3,740,653

THREE WIRE DIGITAL SYNCHRONIZER

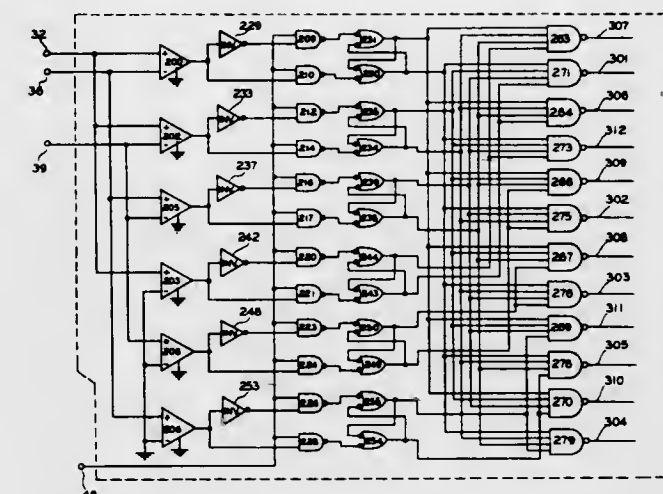
John C. Strole, Dumont, N.J.; Laszlo I. Szerenyi, Frederick, Md., and Harold Moreines, Springfield, N.J., assignors to The Bendix Corporation, Teterboro, N.J.

Division of Ser. No. 738,045, June 18, 1968, Pat. No. 3,629,711. This application Dec. 21, 1970, Ser. No. 100,501

Int. Cl. H03k 17/00

U.S. Cl. 328-150

2 Claims



A three-wire digital synchronizer for use in an aircraft for synchronizing flight data to prevent an abrupt change in aircraft attitude when switching from manual to automatic control. Converting means are provided for converting the intermediate output of a three-wire signal device, such as a synchro, to pulses related in quantity to the actual flight of the aircraft. A counter/register counts the pulses and applies the count to a register until control of the aircraft is switched from manual to automatic control whereupon the count present in the register is locked in but the count in the counter/register continues to change in accordance with the flight data. A subtractor determines the difference in count contained in the counter/register and the register and the difference is used to automatically correct flight of the aircraft.

3,740,654

SIGNAL CONDITIONING CIRCUIT

Dennis R. Rossbach, and Dong G. Kim, both of Dayton, Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Mar. 7, 1972, Ser. No. 232,490

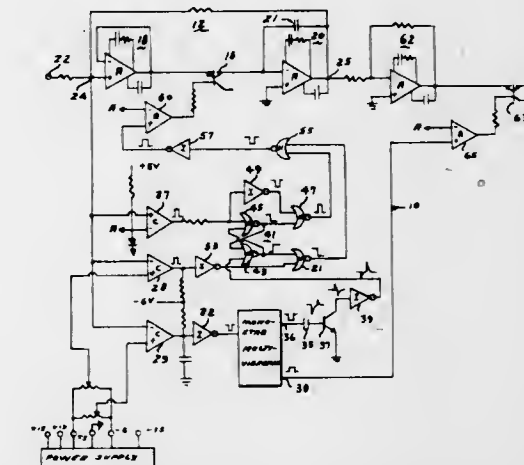
Int. Cl. H03k 5/153, 5/118, 17/30

U.S. Cl. 328-151

3 Claims

A pulse conditioning circuit having a two-stage feedback amplifier with a bipolar switch between the stages. A logic circuit samples the signal at the summing junction of the feed-

back amplifier and closes the switch each time the summing junction exceeds a predetermined voltage level. Another portion of the logic circuit closes the switch each time the summing junction exceeds a predetermined negative voltage. A monostable multivibrator, responsive to the summing voltage exceeding a second negative level, provides an output at



the level of the sample and hold at that time. The logic circuit has a nor-gate flip-flop which flips one way when the summing voltage exceeds the predetermined positive level and acts to delay the operation of the switch, for a negative voltage of the summing junction, until the monostable circuit has had time to operate.

3,740,655

DIGITAL GENERATION OF QUADRATURE SAMPLES

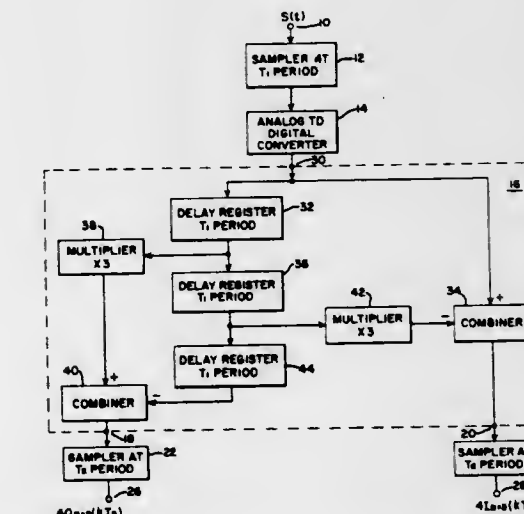
Frank R. Dickey, Jr., Dewitt, N.Y., assignor to General Electric Company, Syracuse, N.Y.

Filed Nov. 24, 1971, Ser. No. 201,689

Int. Cl. H03k 5/00

U.S. Cl. 328-166

7 Claims



A method and apparatus for generating digitized quadrature samples which approximate the sampled complex envelope of an input waveform by digitally sampling the input signal and applying the resultant digital samples to a digital processing system to obtain pairs of quadrature samples of the input signal. The input digital samples are digitally combined, delayed, and multiplied by the digital processor to form the quadrature samples. An alternative method and apparatus takes digital samples from a plurality of input signals, applies the digital samples to an alternative form of digital processor, and generates multiplexed quadrature samples of the input signal.

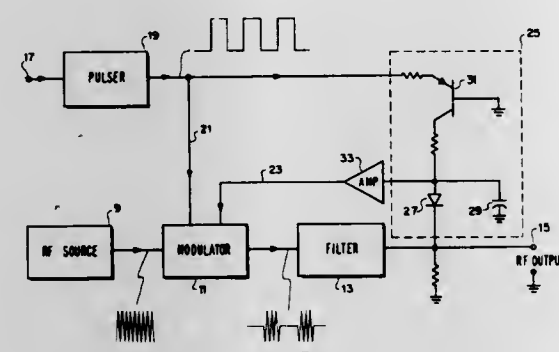
3,740,656 PULSE MODULATED SIGNAL DETECTOR

Russell B. Riley, Portola Valley, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jan. 3, 1972, Ser. No. 214,935
Int. Cl. H03k 9/00

U.S. Cl. 329-104

2 Claims



An improved automatic signal levelling circuit for pulsed radio frequency (RF) signals includes a sampling detector to eliminate distortion of the pulse-modulated RF signal.

3,740,657 TRANSISTOR PUSH-PULL AMPLIFIER

Poothathamby Tharmaratnam, Mollenhutsseweg, Nijmegen, Netherlands, assignor to U.S. Philips, New York, N.Y.

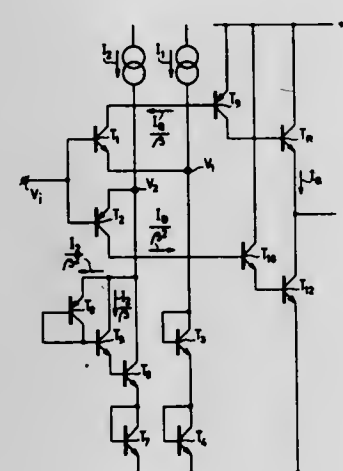
Filed Apr. 1, 1971, Ser. No. 130,187

Claims priority, application Netherlands, June 13, 1970, 7008685

Int. Cl. H03f 3/26

U.S. Cl. 330-15

2 Claims



A transistor amplifier includes two coupled push-pull amplifier stages and bias stabilization is achieved by the use of a diode-transistor combination in the emitter leads of the respective complementary transistors which comprise the first stage.

3,740,658 TEMPERATURE COMPENSATED AMPLIFYING CIRCUIT

Robert O. Loving, Jr., Streamwood, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Mar. 3, 1970, Ser. No. 16,156

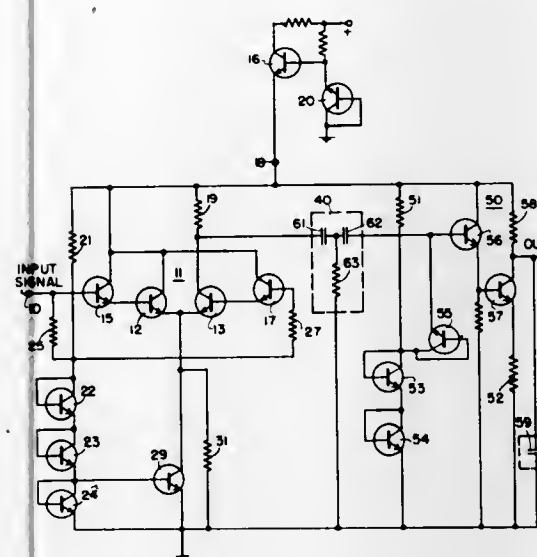
Int. Cl. H03f 1/32

U.S. Cl. 330-23

7 Claims

An integrated circuit differential amplifier incorporates dual current sources having opposite temperature coefficients to compensate the operation of the differential amplifier for variations in ambient temperature. The output of the dif-

ferential amplifier is applied through a coupling network to a peak-to-peak amplifying detector subject to input impedance



variations, with the coupling network including an impedance connected in parallel with the input impedance of the detector circuit and of smaller value.

3,740,659 AC AMPLIFIER SYSTEM

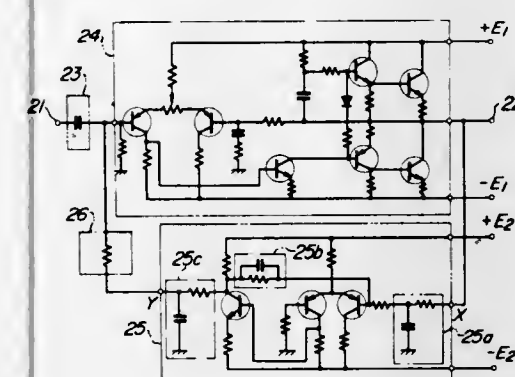
Hiroshi Matsushima, Osaka; Ichiro Arimura, Kyoto; Hiroshi Goto, Osaka; Yoshikazu Nakao, Hirakata, and Hazime Oziro, Takeda, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Aug. 27, 1971, Ser. No. 175,621

Int. Cl. H03g 3/30

U.S. Cl. 330-25

6 Claims



An AC amplifier system which comprises an all-stage direct coupling type AC amplifier and a negative feedback circuit connected across the all-stage direct coupling type AC amplifier which includes a DC amplifier connected to the output side of the AC amplifier and designed such that the drift and offset involved therein are extremely small compared to that of the AC amplifier, the DC amplifier having a voltage amplification degree greater than unity for a DC and super-low frequency range, the output of the DC amplifier being coupled to the input side of the AC amplifier for the negative feedback of part of the output of the AC amplifier, thereby greatly reducing the drift and offset of the AC amplifier system.

3,740,660 MULTIPLE PHASE CLOCK GENERATOR CIRCUIT WITH CONTROL CIRCUIT

Thomas J. Davies, Jr., Anaheim, Calif., assignor to North American Rockwell Corporation, El Segundo, Calif.

Filed May 27, 1971, Ser. No. 147,555

Int. Cl. H03b 5/20, 19/12; H03k 23/08

U.S. Cl. 331-45

11 Claims

A clock signal generating circuit including an oscillator circuit for supplying complementary square wave signals. A con-

3,740,662 LASER DISCHARGE TUBE

Jean-Claude Farcy, Saint-Michel-sur-Orge; Roger Dumanchin, Orsay, and Jean Rocca-Serra, Paris, all of France, assignors to Compagnie Generale D'Electricite, Paris, France

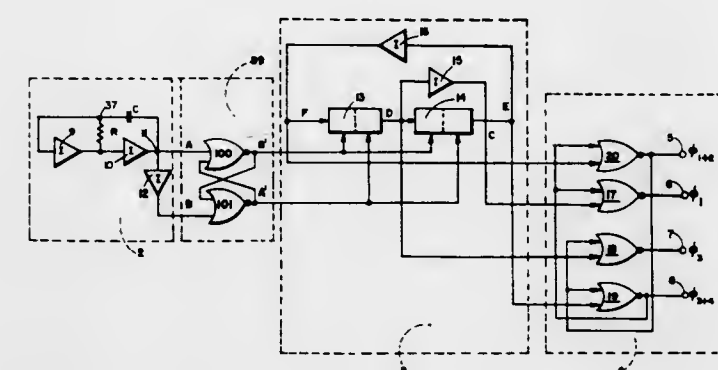
Filed Mar. 17, 1971, Ser. No. 125,037

Claims priority, application France, Mar. 23, 1970, 7010379

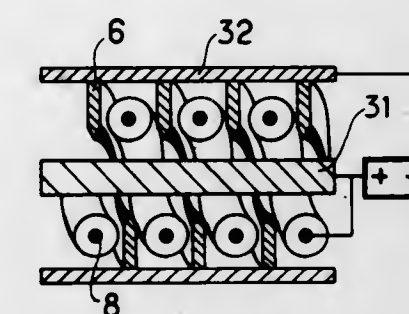
Int. Cl. H01s 3/09, 3/02, 3/22

U.S. Cl. 331-94.5

18 Claims



Output signals from the shift register are provided as input signals to output logic gates for generating multiple phase output signals. The output logic gates receive feedback signals from certain of the output logic gates for synchronizing the phase relationship between the multiple phase clock signals produced by the output logic gates.



Disclosed are devices for causing electrical discharges in gases. The devices are characterized by the fact that the cathode includes sharp edged protuberances.

3,740,663 Q-SWITCHED LASER SYSTEM

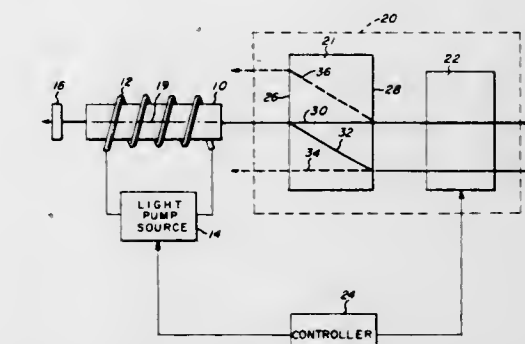
Keimpe Andringa, Sherborn, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Dec. 21, 1970, Ser. No. 99,857

Int. Cl. H01s 3/11

U.S. Cl. 331-94.5

7 Claims



A Q-switched laser system wherein a simple electrooptical switching arrangement is provided, such arrangement permitting randomly polarized light radiated by a laser crystal to resonate within a resonant chamber and pass through such crystal during regenerative action. Such chamber is bounded by a pair of end reflectors and includes the laser crystal, a birefringent crystal and a Pockels cell. When the resonant chamber is in a low Q condition, during a light pumping cycle, the randomly polarized light radiated by the laser crystal is separated into an ordinary ray and an extraordinary ray by the birefringent crystal. Each such ray passes simultaneously through the Pockels cell, is each then reflected by an end reflector and repasses through the Pockels cell; however, during this low Q condition the Pockels cell is placed in a condition such that the electric field of each such ray is rotated 90° after repassage through the Pockels cell. Each ray, having had its electric field so rotated, repasses through the birefringent crystal in a direction such that neither such ray passes through the laser crystal. When the resonant chamber is a high Q condition, during the regenerative action, the Pockels cell is placed in a condition such that no rotation results to rays passing therethrough and therefore the ordinary ray and the extraordinary ray combine on repassing through the birefringent material to form randomly polarized light, such light passing through the laser crystal and thereby resonating within the resonant chamber.

3,740,661 MINOR LOBE SUPPRESSION IN SEMICONDUCTOR INJECTION LASERS

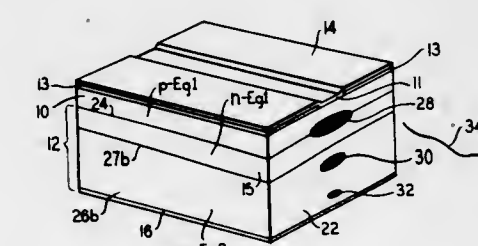
Lucian A. D'Asaro, Madison, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 6, 1969, Ser. No. 831,003

Int. Cl. H01s 3/00

U.S. Cl. 331-94.5 C

14 Claims



The minor lobes present in the intensity profile of a semiconductor injection laser are suppressed by an absorbing region located at and beyond the plane of minimum intensity between the major lobe and the first minor lobe. The absorbing region illustratively comprises an n⁺-region located in the n-side of the p-n junction or alternatively a narrower band gap region located in the n-side. The use of such absorbing regions results in substantially a Gaussian intensity profile.

3,740,664

HYBRID FREQUENCY STABLE LASER SYSTEM

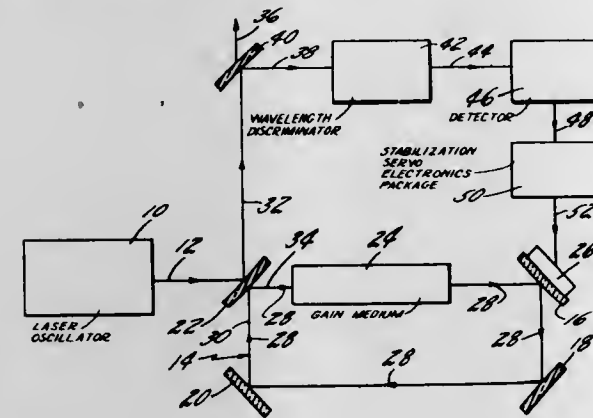
Robert J. Freiberg, South Windsor, and Carl J. Buczek, Manchester, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Feb. 22, 1972, Ser. No. 228,185

Int. Cl. H01s 3/11

U.S. Cl. 331—94.5

4 Claims



The output beam from a low power, stable frequency laser is injected into a higher power laser having a high gain medium therein to provide an output beam from the over all system which has the characteristics of both high power and stable frequency. The higher power laser is capable of self oscillation when no external stimulating signal is provided. A stable frequency drive signal, having a competitive line, is injected into the high gain medium causing the higher power laser to operate on a line different from the self oscillating line. A wavelength discriminator which samples the system output is used to tune the higher power laser to the wavelength of the stable frequency laser. An analysis of the locking phenomenon is also provided.

3,740,665

TRANSVERSE FLOWING LIQUID LASER

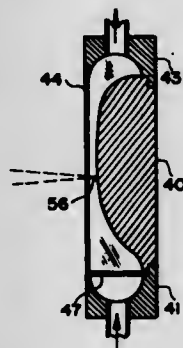
Irving Itzkan, Boston, Mass., assignor to Avco Corporation, Cincinnati, Ohio

Filed Mar. 16, 1972, Ser. No. 235,217

Int. Cl. H01s 3/20

U.S. Cl. 331—94.5

7 Claims



Stimulated emission of radiation (laser action) is produced in materials generally classed as dyes. These dyes may be dissolved in a liquid solution. A quantity of dye in a flowing liquid solution in a module or cavity is pumped or excited by a laser beam radiating in the ultraviolet region which is focused to a line with a cylindrical lens. A rectangular cross sectional beam of such radiation is produced by a pulsed crossed field nitrogen gas laser. The focused line which is transverse to the beam produced by the exciting laser, and transverse to the direction of the flowing dye lies near the surface of the dye material in the cell, and is substantially as long as the cell is wide. The cell lies within an intensifying optical cavity which may be formed by a 100 percent reflecting mirror and a partially reflecting mirror both perpendicular to the line of focus of the pumping radiation. The stimulated emission from the

dye material is characterized by a short pulse width and a little loss of energy between the two lasers. High pulse rates with dye circulation, and high conversion efficiencies of the dye when so pumped, are obtained. For frequency adjustment the optical cavity substitutes for the 100 percent mirror a grating or Ligtrow prism at the appropriate angle. Further spectral narrowing may be obtained by inserting a tilted Fabry-Perot etalon in the cavity. By using such a frequency tuner and a plurality of dye materials which emit stimulated radiation over different portions of the spectrum, the present device can provide laser radiation for virtually the whole visible spectrum and into the infrared and ultraviolet.

3,740,666

CIRCUIT FOR SUPPRESSING THE FORMATION OF HIGH FIELD DOMAINS IN AN OVERCRITICALLY DOPED GUNN-EFFECT DIODE

Hartwig Thim, No. 61, Lindenstrasse, Gundelfingen, Germany

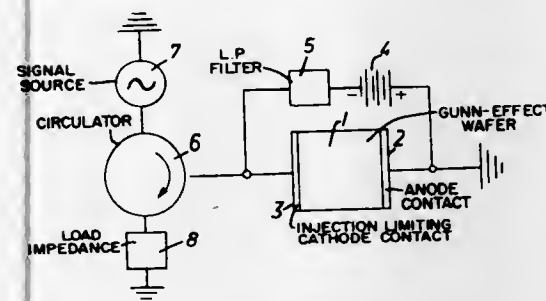
Filed Dec. 13, 1971, Ser. No. 207,083

Claims priority, application Germany, Dec. 16, 1970, P 20 61 834.2

Int. Cl. H03b 7/00; H03f 3/04, 3/10

U.S. Cl. 331—107 G

5 Claims



A circuit for suppressing the formation of high field domains in an overcritically doped semiconductor diode made of Gunn-Effect material and having an anode contact (ohmic or Schottky barrier contact) and an injection limiting-cathode contact. The circuit can be used as a microwave amplifier or oscillator, for instance in radar or relay systems, at frequencies in the order of up to about 100 GHz.

3,740,667

VARIABLE RELAXATION OSCILLATOR HAVING TIME CONSTANT CIRCUIT DEPENDENT ON POWER SUPPLY VARIATIONS

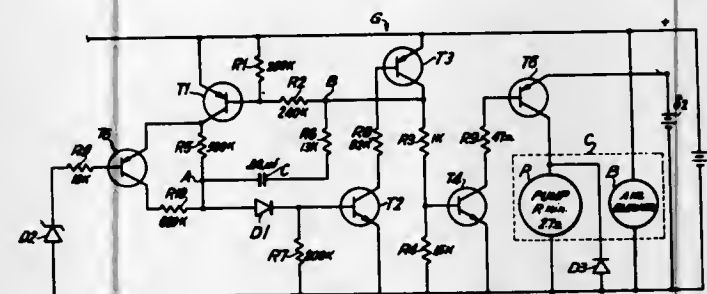
Fritz Reuter, Esslingen, Neckar, Germany, assignor to J. Eberspacher, Esslingen, Neckar, Germany

Continuation-in-part of Ser. No. 71,192, Sept. 10, 1970, abandoned. This application July 3, 1972, Ser. No. 268,714

Int. Cl. H03k 3/281

U.S. Cl. 331—111

10 Claims



An electronic switching arrangement for an electronic pulse generator, has a condenser and a resistor as pulse frequency determining members, the condenser and the resistor being controlled by an active electronic element such as a first transistor. A series connection of a second transistor and a

second resistor is connected in parallel with the time determining resistor associated with the first transistor and the pulse generator. A Zener diode is connected to the base of the second transistor to provide a predetermined voltage-dependent control of the second transistor.

3,740,668

VARIABLE DUTY-CYCLE AND FREQUENCY OSCILLATOR CIRCUIT

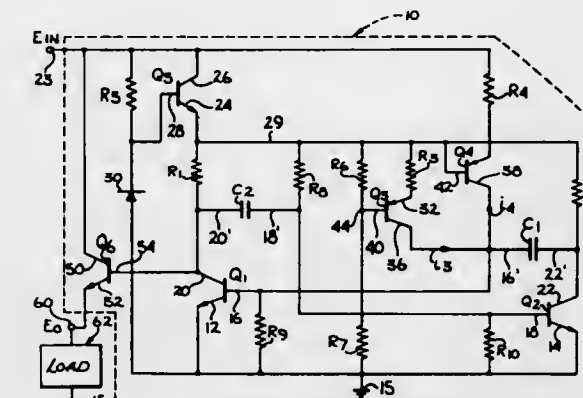
Jagdish C. Chopra, Inglewood, Calif., assignor to TRW Inc., Los Angeles, Calif.

Filed Sept. 20, 1971, Ser. No. 182,062

Int. Cl. H03k 3/282

U.S. Cl. 331—113 R

1 Claim



An oscillator circuit having a variable duty-cycle and frequency, both of which are determined by the amplitude of an input analog signal. The output of the invented circuit is a waveform having a fixed off-time and a variable on-time, the latter being inversely proportional to the amplitude of the input signal voltage level. The significant characteristic of the output waveform is that in each cycle the product of (i) the output voltage and (ii) the on-time is substantially constant. This output characteristic of the present invention makes it useful in a number of applications, one of which is as a voltage regulator. The invented circuit comprises, in part, (i) a pair of switches, typically transistors, which cyclically and alternately switch on and off, and (ii) a pair of charging capacitors which cyclically and alternately control the switching times of the switches. The fixed time constant with which one of the two charging capacitors is charged determines the fixed off-time of the circuit's output waveform, while the variable charging rate of the second capacitor, a rate which is proportional to the input signal voltage, determines the variable on-time of the output waveform.

ERRATUM

For Class 331—177 R see:
Patent No. 3,740,681

3,740,669

M-ARY FSK DIGITAL MODULATOR

Lawrence Paul Nahay, Cinnaminson, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 1, 1971, Ser. No. 194,429

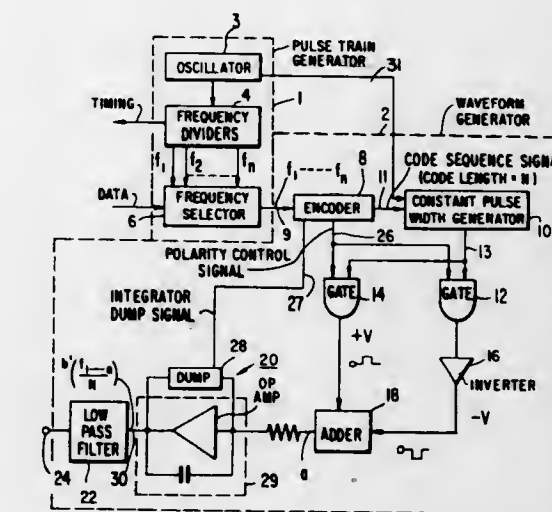
Int. Cl. H04l 27/12

U.S. Cl. 332—11 R

3 Claims

A M-ARY digital modulator for phase continuous frequency shift keying a digital data signal includes a pulse train generator for frequency encoding the data signal and a

waveform generator for generating by synthetic means an alternating signal the frequency of which is determined by the



frequency of the pulse train applied thereto and whose shape being derived synthetically is independent of the waveshape of the frequency encoded pulse train.

3,740,670

INTEGRAL RF MODAMP

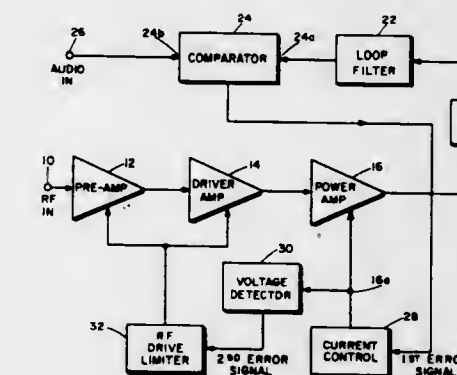
Gary Robert Hoffman, Baltimore, Md., assignor to The Bendix Corporation, Southfield, Mich.

Filed May 15, 1972, Ser. No. 253,373

Int. Cl. H03c 3/08

U.S. Cl. 332—18

10 Claims



An RE modulator amplifier in a first feedback loop includes a comparator which produces an error signal whenever the audio input differs from a sampled portion of an AM modulated output. The error signal controls the current supply to the last RF amplifier stage. The voltage at the last RF amplifier stage is maintained constant by a second feedback loop which includes a voltage detector which senses this voltage to generate a second error signal which is used to set the drive of first and second RF amplifiers.

3,740,671

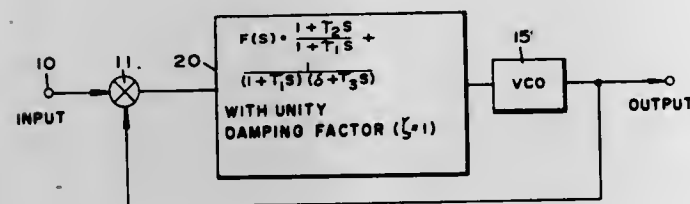
FILTER FOR THIRD-ORDER PHASE-LOCKED LOOPS
Robert B. Crow, Sierra Madre, and Robert C. Tausworthe,
Pasadena, both of Calif., assignors to National Aeronautics &
Space Administration, Washington, D.C.

Filed Apr. 6, 1972, Ser. No. 241,614

Int. Cl. H03h 7/06

U.S. Cl. 333-70 CR

4 Claims



Filters for third-order phase-locked loops used in receivers to acquire and track carrier signals, particularly signals subject to high doppler-rate changes in frequency, are provided by employing a loop filter with an open-loop transfer function

$$F(s) = (1 + \tau_{s1}s / 1 + \tau_{s2}s) + 1 / (1 + \tau_{s3}s) (\delta + \tau_{s4}s)$$

and, for a given set of loop constants, setting the damping factor equal to unity.

3,740,672

SEMICONDUCTOR CARRIER FOR MICROWAVE APPLICATIONS

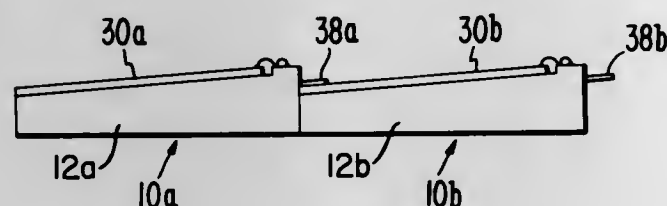
Adolph Presser, Kendall Park, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 22, 1971, Ser. No. 200,693

Int. Cl. H01p 3/08; H01l 1/16

U.S. Cl. 333-84 M

4 Claims



A semiconductor carrier, having microstrip transmission means designed integrally into the carrier structure, includes a ground plane member of electrical and thermally conductive material having a notch therein extending continuously from two adjacent surfaces thereof. A microstrip transmission pedestal of thermally conductive material is mounted within the notch and has its upper surface partially covered with an electrically conductive film that is separated from the ground plane member. A semiconductor element, having at least two electrodes on its surface is mounted on the conductive film on the upper surface of the pedestal. An input microstrip transmission section is mounted on an upper-surface of the ground plane member and extends to an edge of the notch. One semiconductor element electrode is electrically connected to the ground plane member and another electrode is electrically connected to the input microstrip section. The semiconductor carrier can be cascaded with an identical carrier for amplifier applications wherein the input microstrip transmission section of each carrier is dimensioned to obtain a desired gain over a large frequency band when loaded with an impedance necessary for optimum power output.

3,740,673

BI-FILAR DELAY LINE

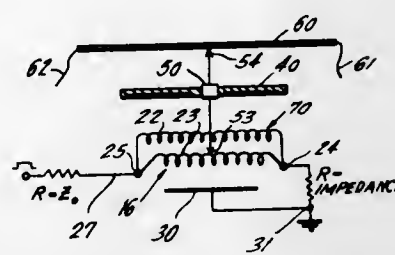
Howard Bernstein, New York, N.Y., assignor to Bel Fuse Inc., Jersey City, N.J.

Filed Apr. 27, 1972, Ser. No. 247,963

Int. Cl. H03h 7/34, 7/36

U.S. Cl. 333-29 R

3 Claims



This invention involves a bi-filar wound distributed constant variable delay line, exhibiting increased delay and bandwidth performance for a given volume, as compared to presently known designs and methods. A wiper arm is used to adjust the delay. The greatly enhanced figure of merit of electrical parameters of this bi-filar device is noted at all settings of the delay line, i.e., whether the wiper arm is set for one-fourth, one-half or full delay, etc.

ERRATUM

For Class 335-239 see:
Patent No. 3,740,650

3,740,674

SCROLL TRANSDUCER

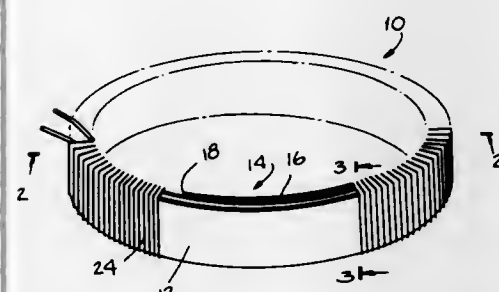
David E. Parker, Pawcatuck, Conn., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 6, 1972, Ser. No. 215,741

Int. Cl. H01f 21/00

U.S. Cl. 335-215

5 Claims



A free-flooding magnetostrictive scroll transducer and method of making it. The transducer construction allows free-flooding water to fill the scroll interstices, thus eliminating the need for bonding of proximate layers of magnetostrictive material with a resinous material, as considered necessary in making a conventional scroll transducer.

3,740,675

YIG FILTER HAVING A SINGLE SUBSTRATE WITH ALL TRANSMISSION LINE MEANS LOCATED ON A COMMON SURFACE THEREOF

Robert A. Moore, Severna Park, and Theodore M. Nelson, Catonsville, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 17, 1970, Ser. No. 64,361

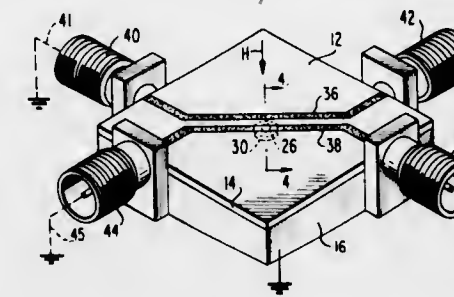
Int. Cl. H01p 3/08; H03h 7/08

U.S. Cl. 333-73 R

10 Claims

One or more non-overlapping transmission line conductors fabricated on one planar surface of a single slab of an electric material mounted on a ground plane. At least one YIG resonator

tor element is located in a cavity formed in the surface of the substrate facing the ground plane. The YIG resonator element, moreover, is positioned in close proximity to said one or



more transmission line conductors a selected distance below the outer surface of the substrate and below the transmission line circuitry.

3,740,676

CONTINUOUSLY VARIABLE RESISTANCE ATTENUATOR USING LOSSY TRANSMISSION LINE AND HAVING CONSTANT SIGNAL TRANSIT TIME

Valdis E. Garuts, Beaverton, Oreg., assignor to Tektranix, Inc., Beaverton, Oreg.

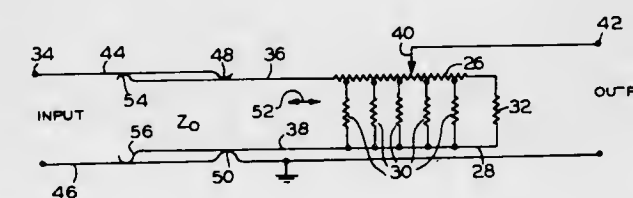
Continuation of Ser. No. 85,678, Oct. 30, 1970. This

application Mar. 29, 1972, Ser. No. 239,375

Int. Cl. H03h 7/26; H01p 1/22

U.S. Cl. 333-81 A

15 Claims



A continuously variable resistance attenuator is described in which the signal conductor of a distortionless lossy transmission line is employed as an attenuation resistance uniformly distributed along such line, and the connection of an output contact is moved along such signal conductor to change the attenuator setting. The transmission line has a plurality of separate shunt resistors of equal value extending between the signal conductor and the ground conductor of the line and uniformly distributed along the line to provide a lossy line of uniform characteristic impedance. The input end of such lossy line is connected to a non-lossy line of the same characteristic impedance, and its other end is terminated in a termination resistor equal to such characteristic impedance. In one embodiment, the lossy transmission line is moved relative to a fixed input contact and a fixed output contact to provide a constant transit time for the signal to pass through the attenuator, due to the fixed distance between such contacts and to reduce the size of the contacts for improved high frequency response. The input contact is provided by a fixed portion of the non-lossy line which engages its movable portion attached to the lossy line to provide a transmission line stretcher of variable length.

3,740,677

RESONANT CAVITY FILTER TEMPERATURE COMPENSATION

Richard S. Kommrusch, Hoffman Estates, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Nov. 5, 1971, Ser. No. 196,150

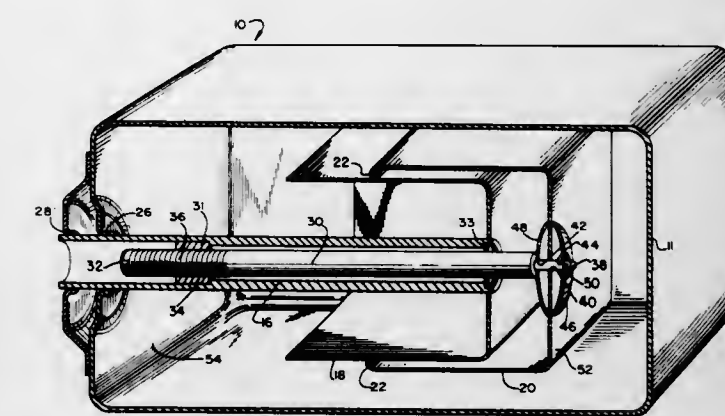
Int. Cl. H01p 1/30, 7/04

U.S. Cl. 333-82 BT

9 Claims

Resonant cavity filter having temperature compensation provided by complimentary cupped bimetallic washers positioned on opposite sides of the plunger of the resonant cavity

filter. The washers support the plunger on a shaft which is adjustable within a fixed tube supported by the outer conductor or housing of the cavity. The shaft and support are threaded to



provide longitudinal movement of the shaft to set the plunger to the resonant frequency, with the bimetallic washers providing temperature compensation to maintain the resonant frequency of the cavity filter.

3,740,678

STRIP TRANSMISSION LINE STRUCTURES

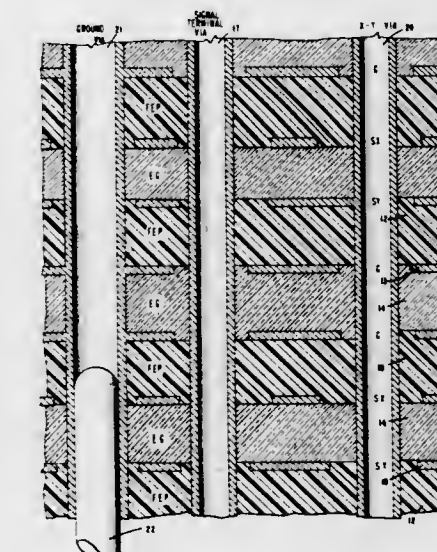
Yates M. Hill, Endicott, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 19, 1971, Ser. No. 125,971

Int. Cl. H01p 3/08

U.S. Cl. 333-84 M

4 Claims



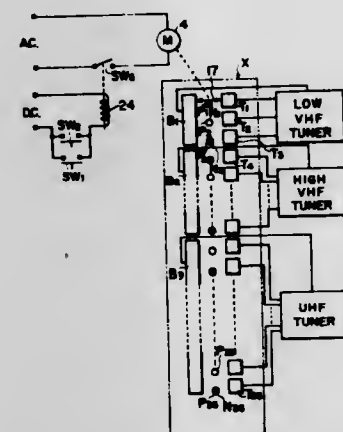
Strip transmission line structures which feature multilayer compositions with FEP (fluorinated ethylene propylene) Teflon* (Trademark, E. I. du Pont de Nemours & Co., Inc.) and Epoxy Glass (EG) as the dielectric materials. The fabrication with FEP material having substantially lower dielectric constant (Er) than commonly used Epoxy Glass enables the provision of high performance transmission lines of simplified construction with superior characteristics designed to meet the microminiaturization of current technological developments and adapted for use in present day computer systems. Retention of some Epoxy-Glass promotes fabrication without a major sacrifice in performance. The strip transmission lines having the more commonly used characteristic impedances (Zo) of 50 to 90 ohms are disclosed.

3,740,679

BROADCAST CHANNEL SELECTING MECHANISM HAVING MOTOR OPERATED ROTARY MEMBER
 Sachio Kimura, and Yoshiaki Aoki, both of Tokyo-to, Japan, assignors to Kabushiki Kaisha Kaparu, Tokyo-to, Japan
 Filed Nov. 29, 1971, Ser. No. 202,745
 Claims priority, application Japan, Dec. 2, 1970, 45/106549
 Int. Cl. H03j 5/18

U.S. Cl. 334—9

13 Claims



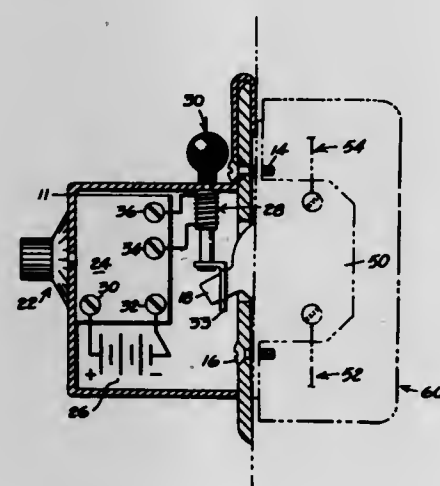
A broadcast channel selecting mechanism for all-channel tuning means, arranged so that, in order to make tuning circuits for the respective receivable channels as the circuit of the applied signals to a variable capacity element is switched by a changeover means, the mechanism is provided with a rotary member rotated by a motor and interlocked with the changeover means and having individual different channel positions established thereon for every different rotational angle assumed by the changeover means, and also provided with selected channel position limiting members which are pre-set to those selected ones of the channels in such a way that only in these pre-set positions, the rotation of the rotary member is automatically halted so that any desired channel can be selected.

3,740,680

LIGHT SWITCH TIMING DEVICE
 Carl Schneidinger, 4 Sorrel Lane, Rolling Hills Estates, Calif.
 Filed Oct. 12, 1971, Ser. No. 188,235
 Int. Cl. H01h 43/02

U.S. Cl. 335—59

1 Claim



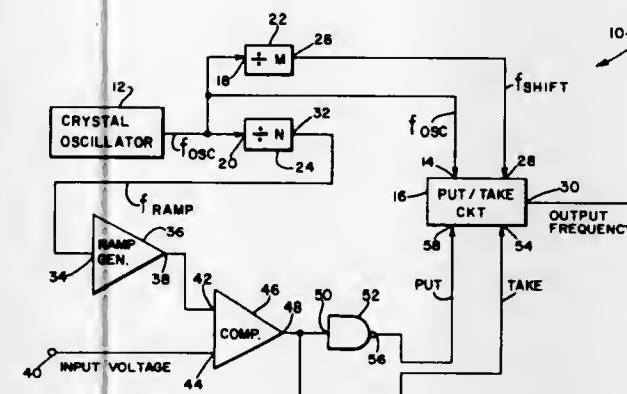
This is an actuating device to be attached to a wall-mounted switch plate for actuating a light switch in a room or other place at a predetermined time interval either for turning such light on or off, or a combination. The device is particularly characterized in that it may mount flush into the wall and in a standard light box receptacle or it may be attached to an existing light switch. It is further characterized by a simple, manual override switch.

3,740,681

VOLTAGE CONTROLLED CRYSTAL OSCILLATOR
 Philip L. Epstein, Elizabeth, N.J., assignor to Quindar Electronics, Inc., Springfield, N.J.
 Filed June 16, 1972, Ser. No. 263,478
 Int. Cl. H03b 3/04

U.S. Cl. 331—177 R

9 Claims



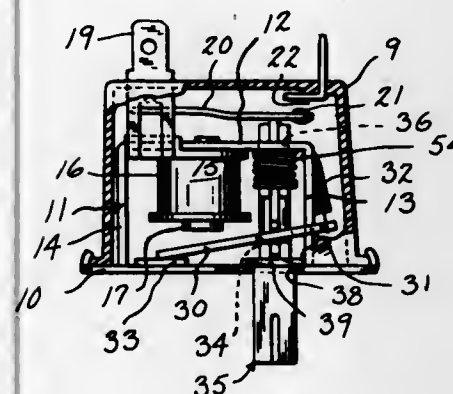
A crystal oscillator frequency signal and a shift frequency signal are selectively combined in a PUT and TAKE circuit comprising digital dividers and logic gating. An output signal from a ramp generator which is derived from the crystal oscillator frequency signal is compared in a comparator with an input D.C. voltage. PUT and TAKE signals generated by the comparator are applied to the PUT and TAKE circuit for selective control thereof. The PUT and TAKE circuit generates a signal having a frequency which is determined by the magnitude of the input D.C. voltage and varies linearly with changes in the input D.C. voltage.

3,740,682

PUSH-TO-START SWITCH
 Spencer C. Schantz, New Berlin, Wis., assignor to U.S. Controls Corp., New Berlin, Wis.
 Filed Sept. 13, 1971, Ser. No. 179,697
 Int. Cl. H01h 3/20

U.S. Cl. 335—186

3 Claims



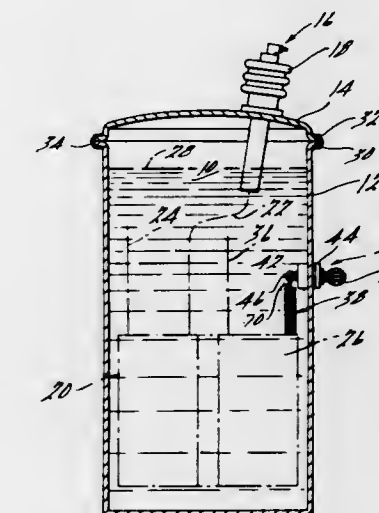
An armature is fulcrumed near one end and its other end is normally spring-urged in a direction away from the pull of an electromagnet. An actuator is slideably associated with a manually operable plunger for movement axially thereof, and there is inter-engagement so that pushing of the plunger causes movement of the armature toward the electromagnet. The handle of the plunger is square to coact non-rotatably with a square opening in the front plate and the portion of the handle that passes through the front plate has tapered wedges on all four sides. Before the armature engages the core, the actuator causes closing of contacts in an electric circuit to energize the coil so that the armature thereafter holds the actuator in contact-closing position, there being spring means for returning the plunger to starting position while the actuator is

3,740,685

TRANSFORMER WITH CONNECTOR AND METHOD OF ASSEMBLY
 John L. Fisher, Lexington, Ky., assignor to Kuhlman Corporation, Troy, Mich.
 Filed Nov. 4, 1971, Ser. No. 195,748
 Int. Cl. H01f 15/10

U.S. Cl. 336—192

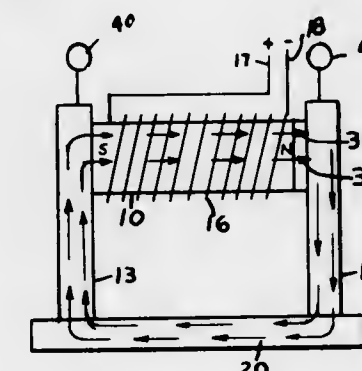
22 Claims



ELECTROMAGNETIC TURNOFF SYSTEM FOR PERMANENT MAGNETS
 William H. Benson, Erie, Pa., assignor to Eriez Manufacturing Company, Erie, Pa.
 Continuation-in-part of Ser. No. 64,685, Aug. 18, 1970, abandoned. This application Apr. 7, 1972, Ser. No. 241,974
 Int. Cl. H01f 13/00

U.S. Cl. 335—284

4 Claims



A magnetic circuit made of a permanent magnet of high coercivity material, for example, barium ferrite ceramic material having a coercive force sufficiently high that the domains of the permanent magnet will not be reversed, and an electrical coil wound closely around the permanent magnet over its entire length. The electrical coil may be excited by a direct current of value and direction such that the magnetic field from the permanent magnet will be partially or completely neutralized, however, the domains of the permanent magnet will not be reversed and when the current in the coil is reversed from the first condition, the strength of the magnet becomes equal to the combined magnetic field from the permanent magnet and the magnetic field from the coil. This magnetic circuit is particularly useful for use in lifting magnets, although it is also applicable to magnets used for separating, holding, or otherwise exerting an external magnetic influence.

A connector assembly for the low voltage, aluminum, output conductors of a transformer which includes a copper stud forming the through connection from the interior of a transformer casing to the external connector. The low voltage leads from the transformer assembly are preferably formed of aluminum and are attached to the copper stud by means of a concentrically grooved brass washer which is forced into the face of dead-soft aluminum strip by means of a compression nut. The electrical path for the connector assembly includes the dead-soft aluminum strip, the concentrically grooved brass washer, the brass compression nuts and the copper stud.

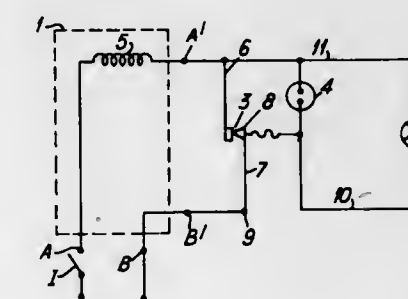
3,740,686

IGNITION DEVICE FOR HIGH PRESSURE DISCHARGE LAMPS

Georges Roger Jarrige, deceased, late of Bagneux, France (by Jeannine Germaine Jarrige, administratrix), and Dat Nhiep Nguyen, Chatenay-Malabry, France, assignors to ITT Industries, Inc., New York, N.Y.
 Claims priority, application France, June 25, 1970, 7023616
 Filed June 7, 1971, Ser. No. 150,481
 Int. Cl. H01h 61/00

U.S. Cl. 337—22

1 Claim



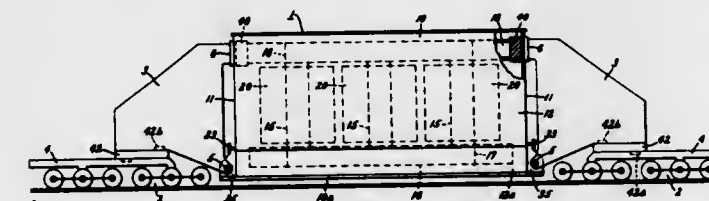
This is an ignition device for a high pressure Mercury or Sodium Discharge Lamp. The device consists of a thermal switch which applies the starting voltage to the lamp after the switch heats up. The thermal switch is located outside the lamp.

3,740,684

TRANSPORT VEHICLE FOR LARGE ENCLOSED ELECTRIC INDUCTION APPARATUS
 Russell K. Niederjohn, Pittsfield, and Stanley H. Wilk, Dalton, both of Mass., assignors to General Electric Company
 Filed May 1, 1972, Ser. No. 249,106
 Int. Cl. H01f 15/02, 27/02

U.S. Cl. 336—65

7 Claims



A composite transport vehicle comprises a large enclosed electric induction apparatus supported between bell crank end frames. The end frames carried on separate wheel trucks and pivoted to opposite lower ends of the apparatus casing. Tensile stress between the end frame pivots is transferred to the casing base and a transverse end wall rib by vertical bearing brackets therebetween; compressive stress at opposite upper ends of the casing is transferred to the internal magnetic core clamps through internal blocking between core and casing.

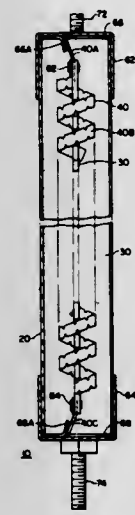
3,740,687 CURRENT LIMITING FUSE

Frank L. Cameron, Irwin, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 12, 1971, Ser. No. 114,881
Int. Cl. H01h 85/16

U.S. Cl. 337—233

6 Claims



A current limiting fuse structure comprising a generally tubular, electrically insulating casing having terminal means disposed adjacent to the opposite ends thereof. One or more fusible elements is connected between the terminal means. An electrically insulating support member is disposed in the casing of the fuse structure with the ends axially spaced from the respective terminal means. The intermediate portion only of each fusible element is disposed on the associated insulating support member and the end portions extend axially between the ends of the associated support member and the adjacent respective terminal means.

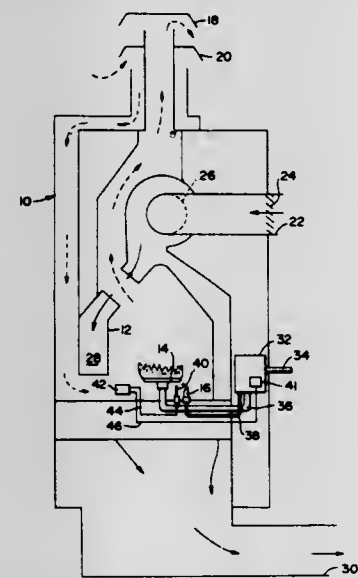
3,740,688 FUSIBLE LINK ASSEMBLY

Harold A. McIntosh, South Pasadena; Gordon K. Slocum, Downey, both of Calif., and Nick J. Koskolos, St. Louis, Mo., assignors to Robertshaw Control Company, Richmond, Va.

Division of Ser. No. 884,063, Dec. 11, 1969, Pat. No. 3,652,195. This application Jan. 13, 1972, Ser. No. 217,509
Int. Cl. H01h 37/76

U.S. Cl. 337—414

8 Claims



A fusible link assembly for use in a heating control system or the like which includes a pair of conductors joined together by a mass of fusible material such as solder which melts at a predetermined temperature to open a circuit having the conductors therein. The mass of fusible material is contained in a housing or encapsulated and is biased for positively opening the circuitry of the conductors upon melting of the mass of fusible material.

3,740,689 MECHANO-ELECTRICAL TRANSDUCER DEVICE

Akio Yamashita, Ikeda-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

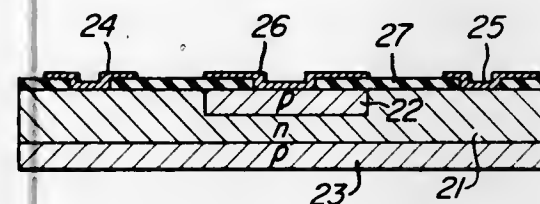
Filed Nov. 30, 1971, Ser. No. 203,231

Claims priority, application Japan, Nov. 30, 1970, 45/106525

U.S. Cl. 338—2

Int. Cl. G011 1/22

6 Claims



A mechano-electrical transducer device having a high stress sensitivity and high reliability comprising a semiconductor device including a thin single crystal semiconductor wafer having a narrow portion, said semiconductor device having a controllable function.

3,740,690 ELECTRO-OPTICAL DETECTOR

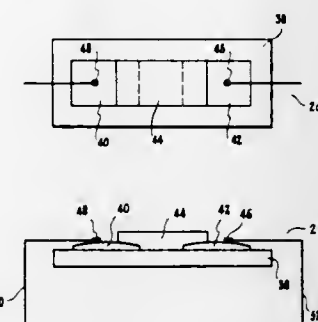
Peter Scharnhorst, Beltsville, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 14, 1972, Ser. No. 234,627

Int. Cl. H01c 7/08

U.S. Cl. 338—18

17 Claims



An infrared detector comprising an amorphous film of $(A_{1-x})(B_{1-y})Sn_{x-y}$, wherein A is Ge or Si, B is Te or Se, x varies from 0 to 1, y varies from 0 to 1 and z varies from 0 to 1 which is contacting glass.

3,740,691 ELECTRIC BRAKE CONTROLLER

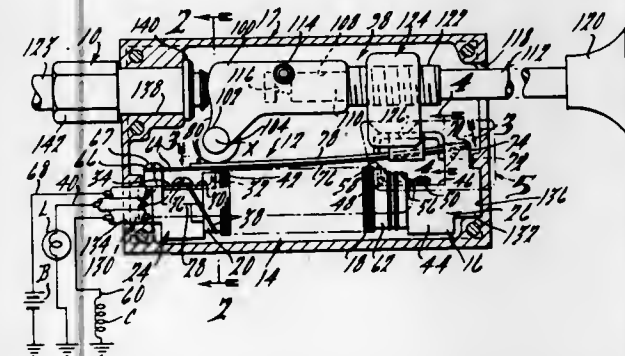
Donald D. Brown, Dearborn Heights, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich.

Filed June 1, 1971, Ser. No. 148,784

Int. Cl. H01c 13/00

U.S. Cl. 338—39

26 Claims



An electric brake controller having a wound resistor and having an elongated electrical contact strip which is supported

3,740,694 SHIELD FOR ELECTRICAL PLUG

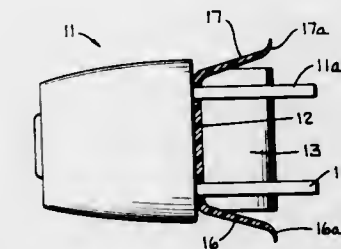
Donald M. Fisher, P. O. Box D, Clayton, Ind.

Filed Apr. 19, 1972, Ser. No. 245,580

Int. Cl. H01r 13/44, 13/52

U.S. Cl. 339—36

6 Claims



Disclosed is a safety shield for an electrical connector plug formed of a flexible resilient material having a base wall from which the plug prongs extend and including flaps which extend along a substantial portion of the length of the prongs. The flaps extend at an obtuse angle to the plane of the base wall and are provided with a curved lip which engages the receptacle as the plug is inserted and pushed into the receptacle and insures that the flaps are driven outwardly away from the prongs as the plug moves into the receptacle.

3,740,695 CAMERA PHOTOFLASH DEVICE

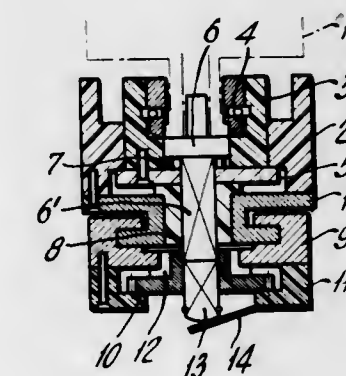
Tohru Karikawa, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-tu, Japan

Filed Mar. 3, 1971, Ser. No. 120,419

Claims priority, application Japan, June 11, 1970; 45/57691
Int. Cl. G03b 15/05; H01r 13/62

U.S. Cl. 339—45 T

7 Claims



A flash gun and flash cube mounting and coupling mechanism includes a metal shoe mount located on the camera and a film advance rotated drive member is positioned below the shoe and has a square axial bore in which a corresponding metal shaft is slidable and spring urged to a raised position with its top level with that of the bore. A flash cube adapter includes a bottom metal coupler slideably engaging the shoe and an insulator outer body member fixed to the coupling member and an insulator socket member rotatable in the body member. A second metal shaft is rotatable with and slideably engages the socket member and is spring raised and is urged to a depressed condition with the insertion of a flash cube into engagement with the first shaft and the drive member bore. Contacts in the body member are connected to the first shaft and the coupling member. A flash gun includes a tube provided with a coupling releasably engaging the shoe and having a resiliently depressed contact ball urged into engagement with the first shaft.

3,740,692 UNDERGROUND DISTRIBUTION CONNECTOR ASSEMBLY

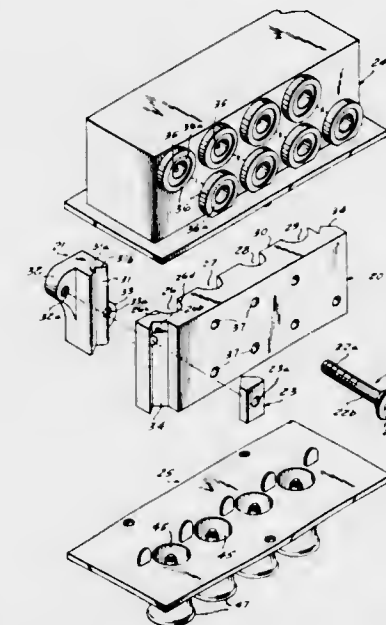
Ilmar J. Filhaber, Poughkeepsie, N.Y., assignor to Fargo Mfg. Company, Inc., Poughkeepsie, N.Y.

Filed May 10, 1972, Ser. No. 252,321

Int. Cl. H01r 31/08, 11/32

U.S. Cl. 339—19

15 Claims



A rugged and compact electrical cable connector assembly for direct burial applications using a limited number of components which can be readily assembled into numerous configurations to provide stable electrical connections for a range of cables and tap lines.

3,740,693 BUS BAR WITH INTEGRAL TERMINALS

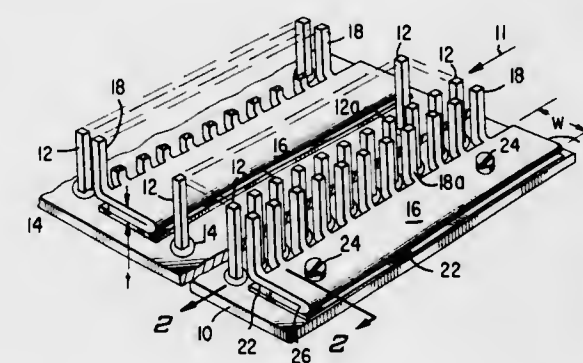
John Thomas Gorman, Pennsauken, N.J., assignor to RCA Corporation, New York, N.Y.

Filed May 24, 1971, Ser. No. 146,123

Int. Cl. H01r 31/08

U.S. Cl. 339—19

2 Claims



A bus bar is provided having terminals formed from and integral with the bus bar for interconnection to high density arrayed wire wrap terminals. The current carrying cross-sectional area of the bus bar is provided with any preselected width or thickness regardless of the terminal cross-sectional area, the dimensions defining the terminal cross-sectional area being less than either the width or thickness dimensions of the bus bar. Additionally, the width and thickness dimensions of the bus bar are preselected in accordance with the current carrying requirements of the bus bar independently of the terminal cross-section dimensions without affecting the integrity of the connection of the terminals to the bus bar.

3,740,696

LOCKING MECHANISM

Helmut Schleicher, and Werner Haufe, both of Berlin, Germany, assignors to Schleicher GmbH & Co., Berlin, Germany

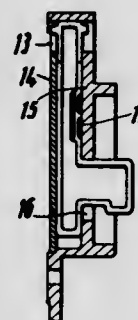
Filed June 3, 1971, Ser. No. 149,669

Claims priority, application Germany, June 23, 1970, P 20 32 307.3

Int. Cl. H01r 13/54

U.S. Cl. 339—75 M

4 Claims



A removable locking mechanism for a plug-in connection of two complementary parts contains one part of the connection and a locking element. This element comprises a shoulder which is located on a base and which also has a lug. When assembled in the connection part the element can be caused to slide in a longitudinal direction between two limiting positions by means of locating means actuable from outside the connection. In one position the shoulder, passing through the contact surface of the plug-in connection, causes the lug to engage with the other connection part thereby preventing separation of the plug-in connection in a transverse direction.

3,740,697

ELECTRICAL CONNECTOR

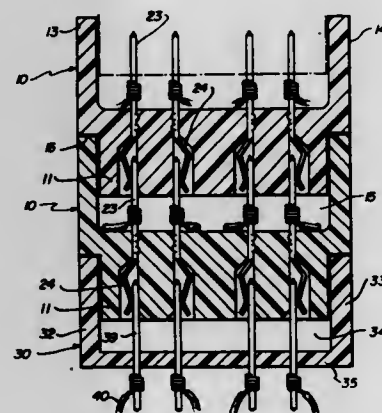
Darryl J. Van Son, Downers Grove, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Dec. 23, 1971, Ser. No. 211,460

Int. Cl. H01r 13/58, 13/64

U.S. Cl. 339—103 M

8 Claims



A stackable electrical connector having a base portion with vertically disposed walls extending therefrom is disclosed. The walls form a receptable cavity and the base forms a plug which is proportioned such that it may be inserted into the receptable cavity of another connector. The base includes a plurality of pin receiving apertures into which connector pins are disposed. A portion of the pins extend into the cavity to permit electrical connection to another connector which may be plugged into the cavity.

3,740,698

RIBBON CABLE CONNECTOR SYSTEM HAVING STRESS RELIEVING MEANS

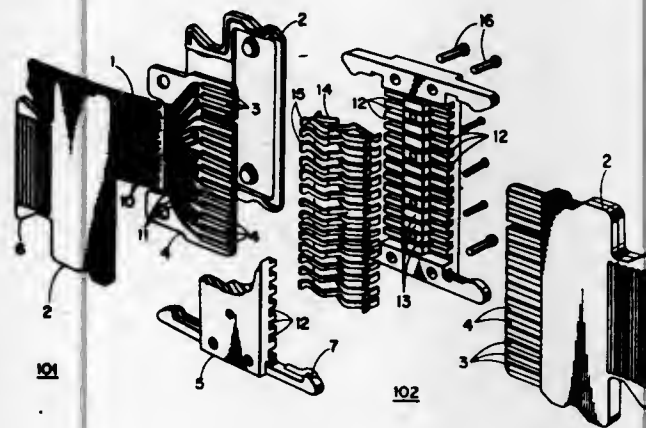
Raymond Jerominek, Sherborn, Middlesex, Mass., assignor to Honeywell Information Systems, Waltham, Mass.

Filed May 12, 1971, Ser. No. 142,651

Int. Cl. H05k 1/04; H01r 13/58

U.S. Cl. 339—17 F

8 Claims



An improved ribbon cable connector for accurate and reliable connection of flat multiconductor electrical ribbon cable to other electrical components or subsystems. A plurality of flat conductive fingers embedded in a non-conductive medium are connected one each to a wire of the flat multiconductor ribbon cable and encapsulated in a protective case which grips the ribbon cable so as to minimize stresses on the electrical connections.

3,740,699

PRINTED CIRCUIT BOARD CONNECTOR

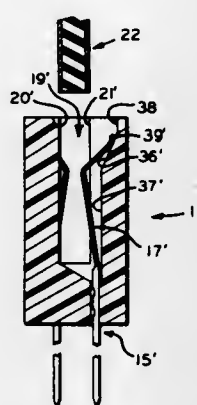
Richard E. Johnson, Sugar Grove, and George D. Powley, Johnsonburg, both of Pa., assignors to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed Dec. 2, 1971, Ser. No. 204,225

Int. Cl. H05k 1/07

U.S. Cl. 339—176 MP

4 Claims



A printed circuit board connector having an insulative body in which are positioned a plurality of contacts designed to slidably engage angular indentations within corresponding recesses situated within the body during circuit board insertion. This motion results in a substantial reduction of the insertion forces encountered by the circuit board, these forces common in most connectors of this variety.

3,740,700

SAFETY CONNECTOR

Eugene P. Robertson, 9820 W. 16th Street, Saint Louis Park, Minn.

Filed May 11, 1972, Ser. No. 252,372

Int. Cl. H01r 13/50

U.S. Cl. 339—206 R

11 Claims

A safety connector for high energy electrical distribution systems. An output bushing or source plug on a source of

3,740,702

ELECTRICAL WIRE TERMINAL

Forest J. Moray, 1513 Brooks Street, Renton, Wash.

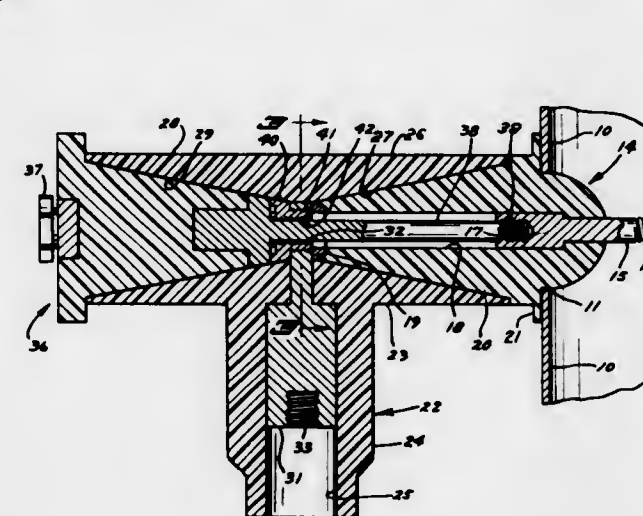
Continuation of Ser. No. 743,424, July 9, 1968, abandoned.

This application May 21, 1971, Ser. No. 145,898

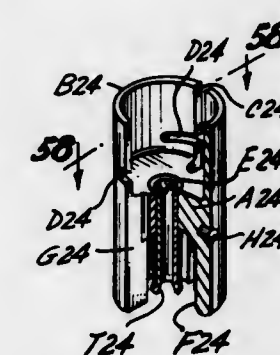
Int. Cl. H01r 11/06

U.S. Cl. 339—223 S

3 Claims



The connect plug has an axially extending conductive portion that extends through the aperture in the distribution conductor and the apertured body of the output bushing to conductively engage the conductive portion at one end of the output bushing. The disconnect plug has a conductive portion extending axially from one end to another so that one end may be grounded while the other end is in conductive engagement with the aperture in the distribution conductor. The plugs are provided with indicia to show the status of the connector.



A connecting body has at one end a wire-engaging socket which is of hole or channel type extending lengthwise of a wire a considerable distance. Such channel can be of the side-opening type or the end-opening type so that a wire can be moved lengthwise or transversely of its length into the channel. Such channel may be of a size to embrace the wire snugly or may be brought into intimate contact with the wire by being closed on it. The body may also carry a collar or band for embracing the insulation encircling the wire. In addition, the body has a cylindrical contact surface either of internal type engageable with a post or of external type engageable in a socket of an electrical component such as a distributor, a spark plug or an ignition coil. The wire may be secured in its socket by soldering, clamping or wedging.

3,740,703

TERMINAL CLAMP

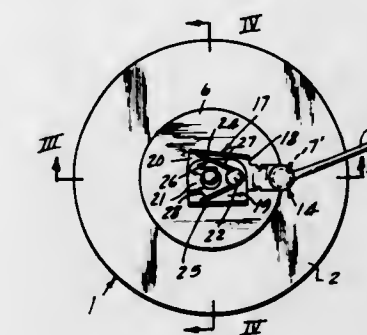
Robert W. Sessions, German Church Road, Hinsdale, Ill.

Filed Nov. 24, 1971, Ser. No. 201,799

Int. Cl. H01r 11/22

U.S. Cl. 339—255 P

11 Claims



A terminal clip, particularly for connecting a lead conductor to an electrode structure for making electrical connection to human skin surface and the like, especially a disposable type electrode, in which the electrode structure is provided with a button type male terminal, the clip being constructed to engage such a terminal by relative lateral movement of respective terminal clamping portions thereof transverse to the axis of such a button terminal wherein the clip may be attached to or detached from such a button terminal with slight, if any, pressure being applied to the electrode in the direction of the skin surface to which the electrode may be applied.

3,740,704

SONIC DETECTION METHOD AND APPARATUS

Henry Suter, Hathboro, Pa., assignor to The United States of America as represented by the Secretary of the Navy

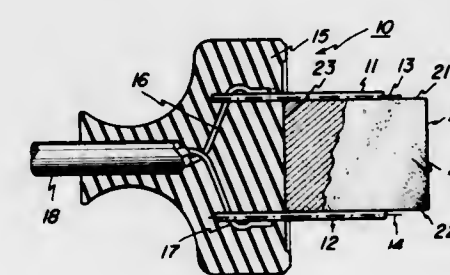
Filed Oct. 28, 1968, Ser. No. 772,058

Int. Cl. G01s 9/66

U.S. Cl. 340—3 D

19 Claims

A sonic detection system installed adjacent the upstream side of a bridge for detecting and indicating the intrusion of



At least one of the elongated electrodes of a protective connector are provided with elongated extensions of metal oxide varistor material. The metal oxide varistor material has an alpha in excess of 10 in the current density range of 10^{-3} to 10^2 amperes per square centimeter. Accordingly, when the electrodes are disengaged from the electrodes of a mating connector, the metal oxide varistor extension of the protective connector is the last to be disengaged from the electrodes of the mating connector, thereby placing such an extension in series with any discharge currents and thus limiting the magnitude of any voltage developed by the disengagement of the connectors.

puter with a signal indicating that stored data is available and being held in at least one of the data buffers for transfer to the computer. Upon receipt of such signals, the transfer of data is initiated by the computer controlling the multiplexer to scan the bank of buffers, by groups, in accordance with a programmed sequence. Available data is transferred from a buffer in which it is stored, when the buffer is scanned. The data may be first confirmed for accuracy. Each data buffer is individually reset by the computer subsequent to the transfer of data stored therein. A visual indication is provided at the data terminal keyboard, from which the data originated, after each successful transfer of a complete data word.

3,740,726

LEFT ZERO CIRCUIT FOR KEY ENTRY DEVICE

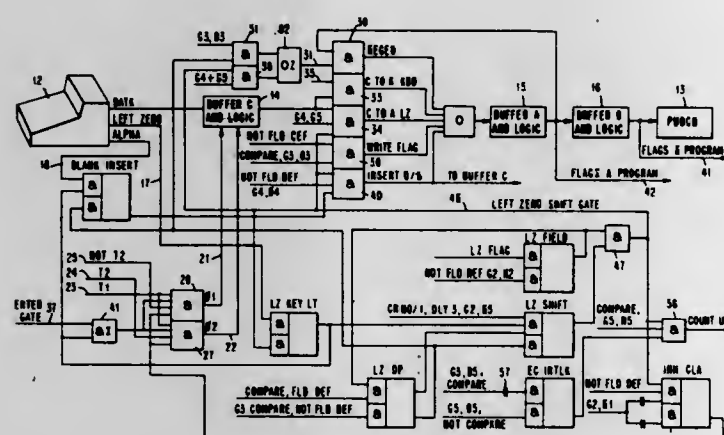
Richard B. Battistoni, Pleasant Valley; Vincent Ferreri, Poughkeepsie; George A. Gates, Hyde Park, and John Lettieri, Woodstock, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 7, 1971, Ser. No. 187,479

Int. Cl. G06f 3/00

U.S. Cl. 340—172.5

12 Claims



An improved left zero circuit is provided for a buffered key entry device such as a card punch. Keyed characters are entered into the first and second buffers of the key entry device through a third buffer that stores fields of the record being keyed. Logic and timing circuits are provided for transferring characters from the third buffer to the first buffer in a succession of shifts that move an entry to the right most position of a data field.

3,740,727

SYSTEM FOR TIME RECORDATION

Gene E. Griffin, 9625 North May Avenue, Oklahoma City, Okla.

Division of Ser. No. 813,121, April 3, 1969, abandoned. This application Dec. 2, 1971, Ser. No. 204,008

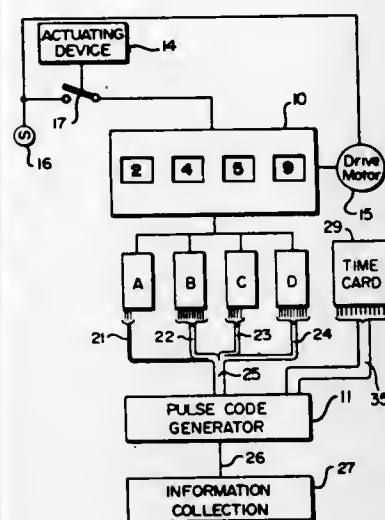
Int. Cl. G01d 9/32; G11b 13/00

U.S. Cl. 340—172.5

15 Claims

This disclosure provides a system for the recordation of time on a data storage means including a continuous record medium. The continuous record medium contemplates the use of punched paper tape, magnetic tape, or any other type of continuous record medium for effecting the entry of time and other information to provide a cost analysis for any type of business operation. The system of this invention includes a time keeping mechanism interfaced with a pulse code generator and a collection information bank which includes the continuous record medium. The pulse code generator translates

the time as produced by the time keeping mechanism to a pulse train upon the energizing of actuating means included in



the system. Additional apparatus is provided to prevent entries of two identical bits of information to be sensitively marked on a record card.

3,740,728

INPUT/OUTPUT CONTROLLER

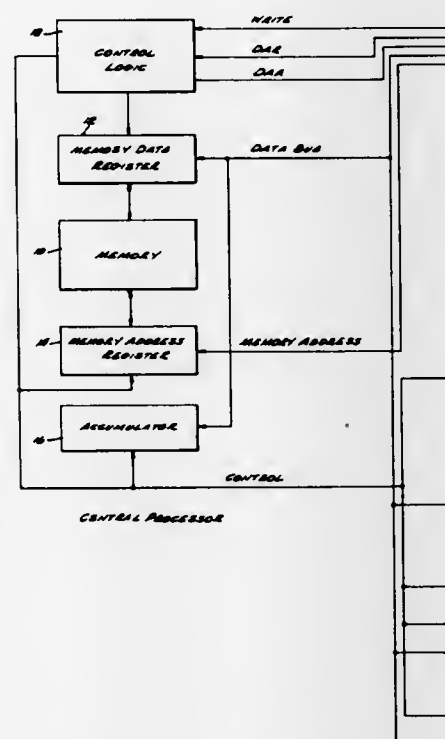
Charles A. Pullen, Culver City, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Continuation-in-part of Ser. No. 43,495, June 4, 1970. This application Jan. 19, 1972, Ser. No. 218,980

Int. Cl. G06f 3/00

U.S. Cl. 340—172.5

5 Claims



An input/output controller which is substantially independent of the central processor of a computer system for controlling data transfer between the central processor memory and a plurality of input/output channels. The central processor, under program control, sets initial conditions and starts the controller for each input/output channel on which data transfer is to take place. The controller has control of the data transfer with the central processor not involved further until a memory access is required. The initial conditions are retained in the controller until changed by the central processor to enable a block of data to be repetitively transferred.

3,740,729

READ-ONLY MEMORY DEVICE WITH CAPACITIVE COUPLING OF INFORMATION

Gianni Colombo, Sesto Calende, and Giovanni Ippolito, Milan, both of Italy, assignors to AGES S.P.A. - Azienda Generale Elettronica Servomeccanismi, Borgotricino (Prov. Novara), Italy

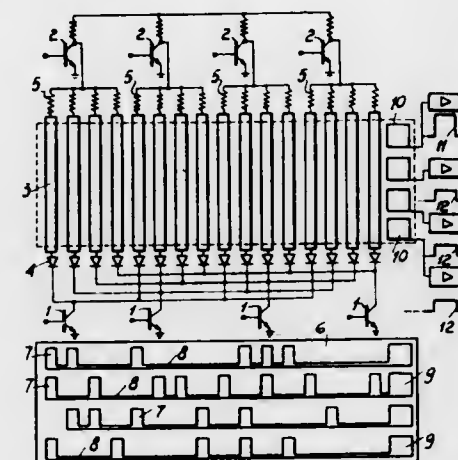
Filed May 3, 1971, Ser. No. 141,062

Claims priority, application Italy, Oct. 1, 1971, 892908

Int. Cl. G11c 11/24, 17/00

U.S. Cl. 340—173 CA

1 Claim



A read-only storage device including a first plate element defining a first printed circuit with a plurality of parallel conductive strips and a number of square conductive areas separated from the strips, and a second plate element defining a second printed circuit with a number of lines and conductive zones electrically connected to the lines. These first and second plate elements are supposed to be one another, thereby to define a double capacitive coupling between their conductive portions, the first plate element being connected to addressing circuits and differential reading amplifiers by permanent electrical connections while the second plate element has no electrical connections and may be easily replaced for changing the information stored in the storage device.

3,740,730

LATCHABLE DECODER DRIVER AND MEMORY ARRAY

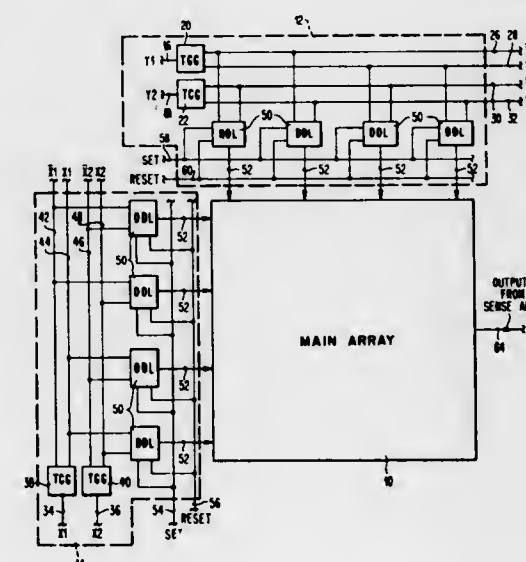
Irving Tze Ho, Poughkeepsie, and Teh-Sen Jen, Fishkill, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1971, Ser. No. 158,316

Int. Cl. G11c 7/00

U.S. Cl. 340—173 R

9 Claims



A monolithic memory comprising an array of semiconductor storage cells and a plurality of decoders for accessing information to the storage cells during a given duty cycle.

Reduced power consumption is achieved by the application of addressing signals to the decoder input lines for a given time period less than the accessing duty cycle in order to attain full duty cycle activating signals on the decoder output lines for accessing the memory array, and also by virtue of the selected address input lines associated with a selected decoder not drawing current during the given time period.

3,740,731

ONE TRANSISTOR DYNAMIC MEMORY CELL

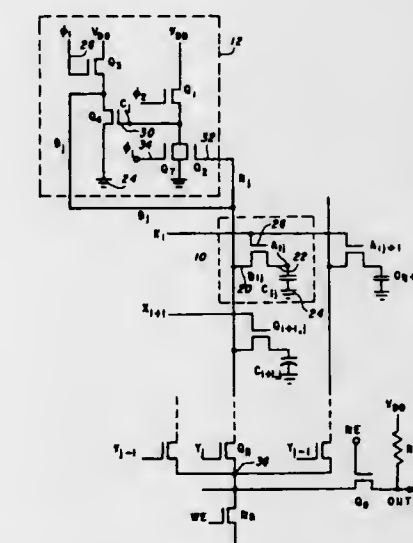
Atsushi Ohwada, and John A. Arnold, both of Houston, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 2, 1971, Ser. No. 168,324

Int. Cl. G11c 11/40, 11/24

U.S. Cl. 340—173 CA

3 Claims



A dynamic memory storage cell requires only one field effect transistor to store binary data. The data is represented in the form of stored charge utilizing the inherent metal-insulator-semiconductor capacitance and P-N junction capacitance at the source node of the field-effect transistor. An extended portion of the source diffusion in combination with overlying thin oxide and metal layers form a capacitor that further enhances charge storage. A matrix of the memory cells form an extremely high density random access memory.

3,740,732

DYNAMIC DATA STORAGE CELL

Pierre M. Frandon, Cagnes-sur-Mer, France, assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 12, 1971, Ser. No. 171,280

Int. Cl. G11c 11/40

U.S. Cl. 340—173 R

6 Claims



A dynamic data storage cell is disclosed that requires only one insulated gate field effect transistor (IGFET) to store binary data. The drain of the FET is connected to a data input line and data is stored at the source node of the transistor by the inherent capacitance between the source diffusion and the substrate. The capacitance of the source electrode is enhanced by forming a heavily doped layer to underlie a portion of the source diffusion. Using the substrate as circuit ground enables the fabrication of an array of transistors for a random access memory wherein the surface area of the semiconductor chip is minimized.

3,740,733

STORING DIGITAL DATA ON A GROOVED RECORD MEDIUM

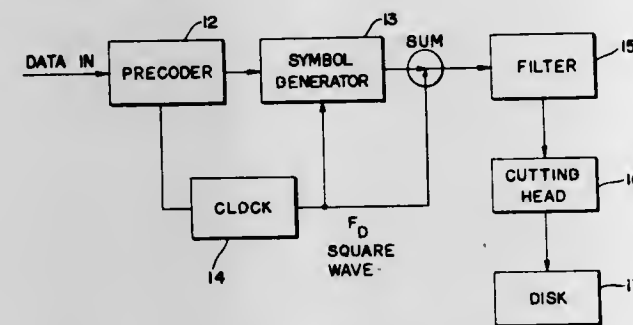
Allan Chertok, Cambridge, Mass., assignor to EG & G, Inc., Bedford, Mass.

Division of Ser. No. 788,441, Jan. 2, 1969. This application Nov. 1, 1971, Ser. No. 194,262

Int. Cl. G11b 3/00; G06j 3/00; G08c 13/00

U.S. Cl. 340-173 R

5 Claims



Apparatus for storing digital data on a grooved record medium including circuit means for converting a series of digital signals of the form a_1, a_2, \dots, a_n to control signals of the form b_1, b_2, \dots, b_n wherein $b_n = [a_n + b_{n-1}] \text{ mod } 2$, a staircase type symbol generator for converting the control signals into a series of superposed signals, each having substantially the form in the time domain

$$S(t) = 1/2 \left[\frac{\sin \pi(T+t)}{\pi(T-t)} - \frac{\sin \pi(T-t)}{\pi(T-t)} \right]$$

wherein t = the instantaneous time
and T = the interval between the superposed symbols, a record cutter head and means for driving the record cutter head to inscribe the waveform on a record medium.

3,740,734

COARSE GRAIN POLYCRYSTALLINE FERROELECTRIC CERAMIC OPTICAL MEMORY SYSTEM

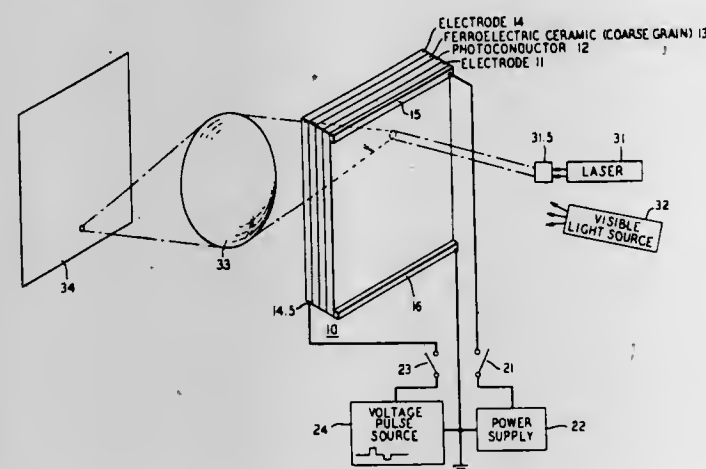
Juan Ramon Maldonado, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 15, 1972, Ser. No. 234,965

Int. Cl. G11c 13/04

U.S. Cl. 340-173 LM

10 Claims



A coarse grain ferroelectric ceramic sandwiched between a pair of transparent electrodes and a photoconductive layer is used as a memory element. Write-in of information to be stored in selected portions of the plate (initially everywhere preset in a thermally depolarized state) is achieved by applying a sequence of two suitable voltage pulses of opposite

polarity to the pair of electrodes. Advantageously, this voltage pulse sequence is applied in the presence of selectively scanning optical radiation incident on the photoconductive layer at locations corresponding to the selected portions of the plate, whereby the internal electrical polarization and hence optical scattering property (forward transmissivity) of the plate is modified selectively at those portions. Readout of the resulting pattern of information (internal polarization pattern) is performed simply by flooding the plate with visible light and viewing the image intensity pattern of the visible light transmitted by the plate. Erasure of all the information in the plate is accomplished by applying a suitable voltage across the extremities of one (or both) of the electrodes, in order to heat the whole plate to a suitable depolarization temperature.

3,740,735

AIR CIRCULATION APPARATUS

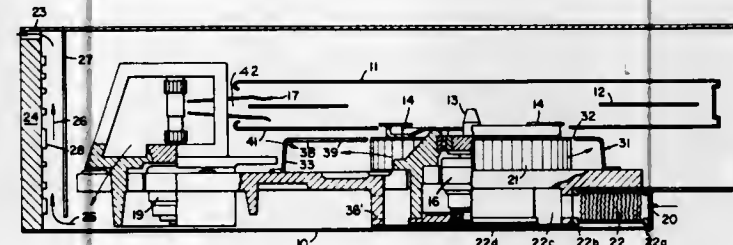
Andrew Gabor, Danville, Calif., assignor to Diablo Systems, Inc., Haywood, Calif.

Filed Sept. 14, 1970, Ser. No. 71,893

Int. Cl. G11b 25/04, 5/82

U.S. Cl. 340-174.1 E

7 Claims



Air circulation apparatus, especially useful within magnetic disk memory units, recirculates a portion of the filtered air within the housing for the unit and disk drive to provide increased air velocity to dislodge dust particles from the disk unit and at the same time reduce the air flow requirements of the cleaning filter.

3,740,736

SPIRAL RECORDING WITH ERROR CHECKING

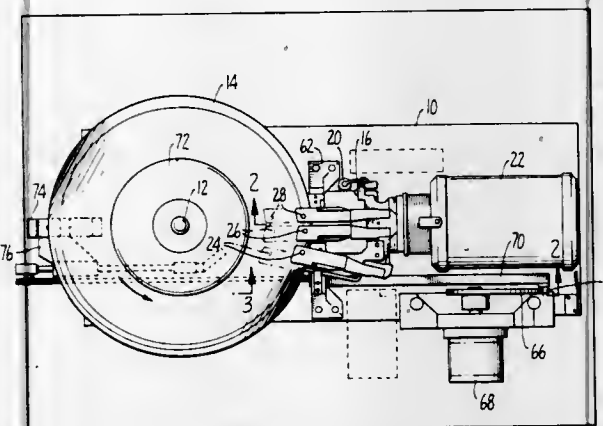
C. Norman Dion, and Dennis T. Maruyama, both of San Jose, Calif., assignors to Memorex Corporation, Santa Clara, Calif.

Filed Feb. 28, 1972, Ser. No. 229,709

Int. Cl. G11b 27/36

U.S. Cl. 340-174.1 G

4 Claims



A certifier for computer disc memories in which a voice coil motor drives cam loaded read-write flying heads radially across a disc restrained by a control cam so that the heads follow a single continuous spiral path over the disc. Three read-write heads examine the disc at a test location on the spiral after D.C. erasure to read for extra bits, write data and read for missing bits. Error comparisons are made against a one revolution integration of the output of the data read head. A modulation test compares the one revolution integration of data head output to a part revolution integration of the data head output.

3,740,737

HOME PROTECTION SYSTEM EMPLOYING BARKING DOG TAPE

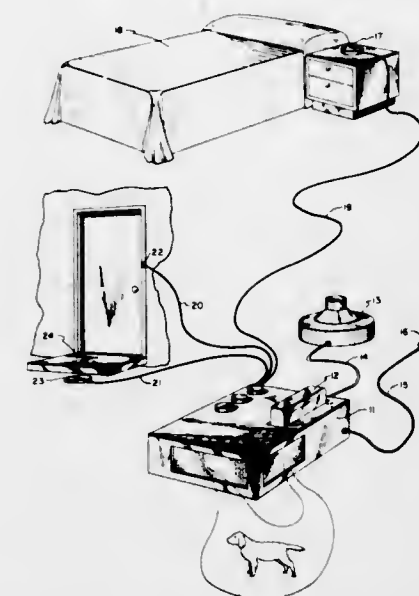
Margery P. Carleson, 3466 South 27th East, Salt Lake City, Utah

Filed Nov. 26, 1971, Ser. No. 202,365

Int. Cl. G08b 19/00

U.S. Cl. 340-221 R

5 Claims



A protection system arranged to provide the periodic and activity stimulated sound of a barking dog. A timer is provided to initiate periodic operation of a recorded dog bark that tends to discourage prowlers from entering a building where a barking dog may be maintained. In addition, one or more remote stations can also be provided to initiate playing of the recorded bark upon the occurrence of specified activity at the station or stations. Such stations typically include a control button positioned near a persons bed, a doorbell, and/or a pressure actuated plate embedded in a doorstep or yard.

3,740,738

UNDERVOLTAGE TRIP CIRCUIT FOR CIRCUIT BREAKER

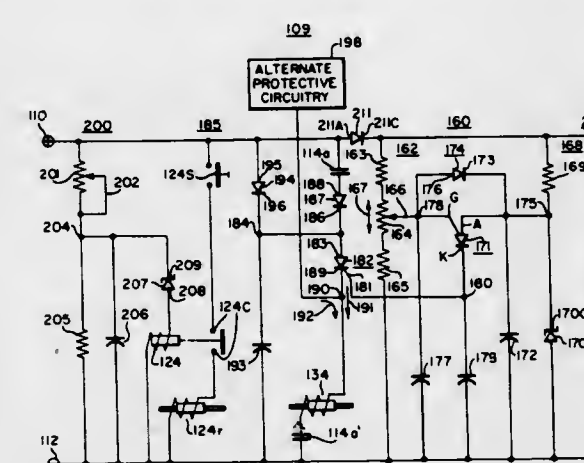
Nicholas S. Kusanovich, W. Palm Beach, Fla., and Morley P. Langley, Trafford, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 26, 1971, Ser. No. 137,475

Int. Cl. G08b 21/00

U.S. Cl. 340-248 B

22 Claims



A means for detecting low voltage in a circuit breaker control system comprising a static device and a voltage divider. Upon sensing low control voltage, the static device produces a signal which is applied to a silicon controlled rectifier which then provides a current path for energizing the associated circuit breaker tripping coil from a previously charged capacitor. In addition, a circuit is provided which disables the closing circuit or means of the circuit breaker when an undervoltage

condition occurs or is present. Where desired, a capacitive network may be used in conjunction with the static undervoltage detector to delay its operation and to prevent slight fluctuations in voltage from causing the undervoltage detector to actuate a tripping operation of the associated circuit breaker.

3,740,739

WELL MONITORING AND WARNING SYSTEM

Phil H. Griffin, III, and Martin J. Sharki, both of Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.

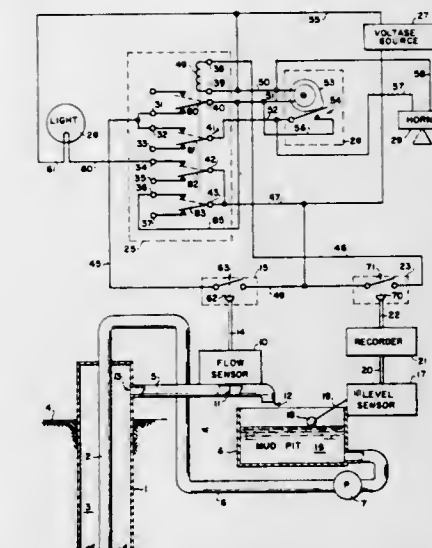
Continuation of Ser. No. 862,215, Sept. 30, 1969, abandoned.

This application Nov. 30, 1971, Ser. No. 203,460

Int. Cl. G08b 19/00

U.S. Cl. 340-239 R

7 Claims



A method and apparatus for monitoring at least two process parameters and giving distinctive warnings when each of the parameters varies beyond the desired limit and a separate and distinctive warning when two or more of the parameters vary beyond desired limits at the same time.

3,740,740

LIQUID CRYOGEN DETECTOR

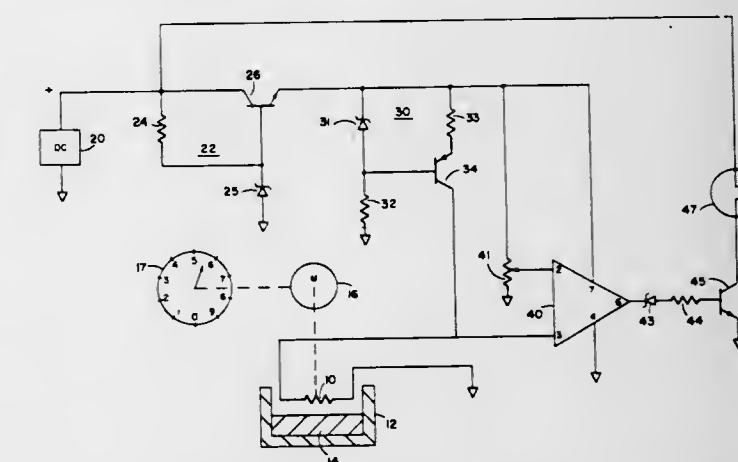
William C. Milo, Anaheim, Calif., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 12, 1972, Ser. No. 217,179

Int. Cl. G08b 21/00

U.S. Cl. 340-244 R

1 Claim



A carbon composition resistor sensor is lowered to a cryogen material which is in its cryogenic state. The current through the sensor is maintained constant by a regulator, and when a substantial change in the resistance of the carbon sensor occurs, an amplifier having its input connected across the regulator senses the change in the resistance of the regulator and causes a light to go on or off so as to indicate the top level of the cryogenic material.

3,740,741

ALARM SET POINT CONTROL SYSTEM

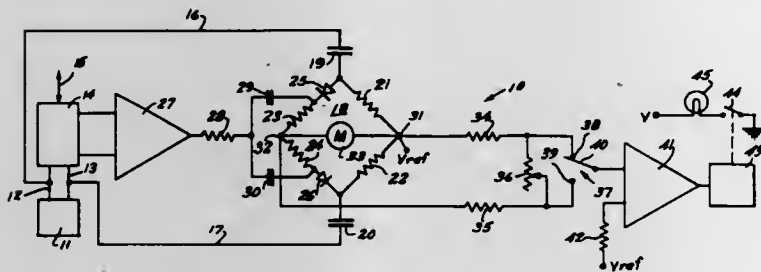
William H. Jones, Villa Park, Ill., assignor to Eaton Corporation, Cleveland, Ohio

Filed May 26, 1971, Ser. No. 146,870

Int. Cl. G08c 19/00

U.S. Cl. 340-272

4 Claims



A preset amount of weight change with respect to a load cell is monitored by a circuit which provides an alarm at an adjustable point prior to the weight change reaching the predetermined amount. A load cell and a phase detector circuit are driven by an oscillator which provides a pair of different phase signals. The phase detector is further provided with an output signal from the load cell indicative of the weight carried by the load cell and at the frequency and phase of one of the signals of the oscillator. The phase detector provides a direct current signal representative of weight carried on the load cell in response to its input alternating signals and the direct current signal is utilized for determining operation of an alarm device. An adjustable and switchable set point circuit is provided for developing an operating signal for the alarm device in response to the direct current signal from the phase detector, the switching function being effective to permit the direct current signal to approach a reference signal representative of the predetermined weight change unidirectionally regardless of whether the load cell is being loaded or unloaded.

3,740,742

METHOD AND APPARATUS FOR ACTUATING AN ELECTRIC CIRCUIT

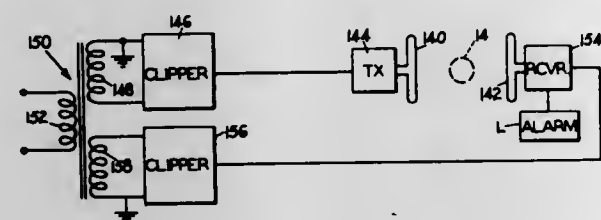
Thomas F. Thompson, 3660 Harlow Road, Eugene, Oreg., and Joseph W. Griffith, 8705 S. W. White Court, Portland, Oreg.

Continuation-in-part of Ser. No. 879,080, Nov. 24, 1969, abandoned, which is a continuation-in-part of Ser. No. 797,053, Feb. 6, 1969, abandoned. This application May 11, 1971, Ser. No. 142,132

Int. Cl. G08b 13/24

U.S. Cl. 340-280

20 Claims



A field of electrostatic, electromagnetic or high frequency radiant energy is provided on a predetermined intermittent cycle in a confined space through which persons are directed. A tuned resonant circuit, concealed on merchandise being carried through the space, is activated by the energy field. During the time interval when the energy field is cut off, the decaying electric signal from the tuned resonant circuit is radiated to a receiver. The received electric signal functions to activate an alarm.

3,740,743

CHARACTER GENERATING APPARATUS FOR TELEVISION TITLING

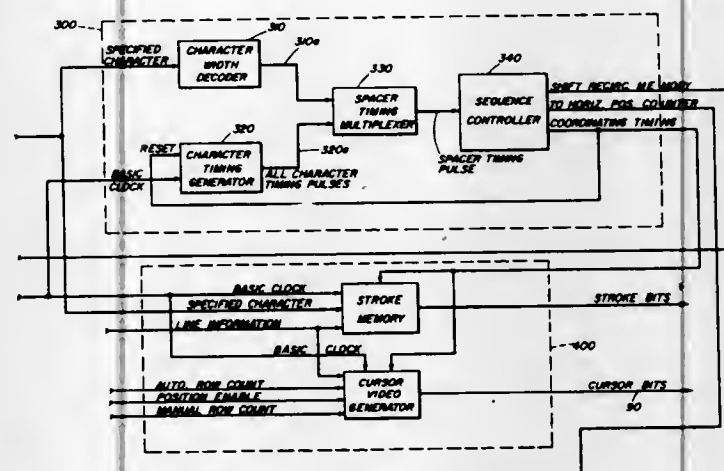
Stanley N. Baron, Stamford, Conn., assignor to Columbia Broadcasting System, Inc., New York, N.Y.

Filed Mar. 29, 1971, Ser. No. 128,727

Int. Cl. G06f 3/14

U.S. Cl. 340-324 A

15 Claims



An apparatus which receives a sequence of character representative signals and which generates stroke signals that are suitable for controlling a scanned display to present the sequence of characters on the display with proportional spacing. The system includes a timing generator for generating timing signals which are synchronized with the display scan and a recirculating storage for storing the character-representative signals, reading out specified character-representative signals which correspond to a specified character in the sequence and then restoring the specified character signals. The recirculating storage is shifted in response to spacer timing signals generated by a spacer detector which is responsive to the specified character signals and includes means for generating spacer timing signals that are a function of the width of the specified character. A stroke generator which is responsive to the timing signals and the spacer timing signals generates a stroke of the specified character.

3,740,744

DATA INPUT KEY APPARATUS

Yasuo Nakada, Tokyo, and Yoshinori Tanaka, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan

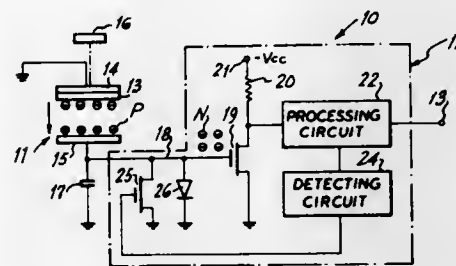
Filed Feb. 2, 1972, Ser. No. 222,739

Claims priority, application Japan, Feb. 4, 1971, 46/4332

Int. Cl. H04I 15/06

U.S. Cl. 340-365 C

11 Claims



A data input device for an electronic computer or calculator has an electro-mechanical transducer, preferably comprised of an electret and an electrode confronting each other with a gap therebetween which is narrowed by manual operation of a key, to electrostatically induce an electric charge by which a field effect transistor is controlled for producing an output, and a switch, preferably constituted by a second field effect transistor, for shunting the first mentioned field effect

transistor and thereby removing the controlling electric charge from the latter so that only a single output is obtained from the first field effect transistor for each manual operation of the electro-mechanical transducer. A diode is further preferably connected between the electrode and ground potential and has its polarity arranged to remove the induced charge which remains on such electrode after the shunting operation of the second field effect transistor and the return of the electret and electrode to their normal spacing.

3,740,745

RING CORE KEYBOARD ENTRY DEVICE

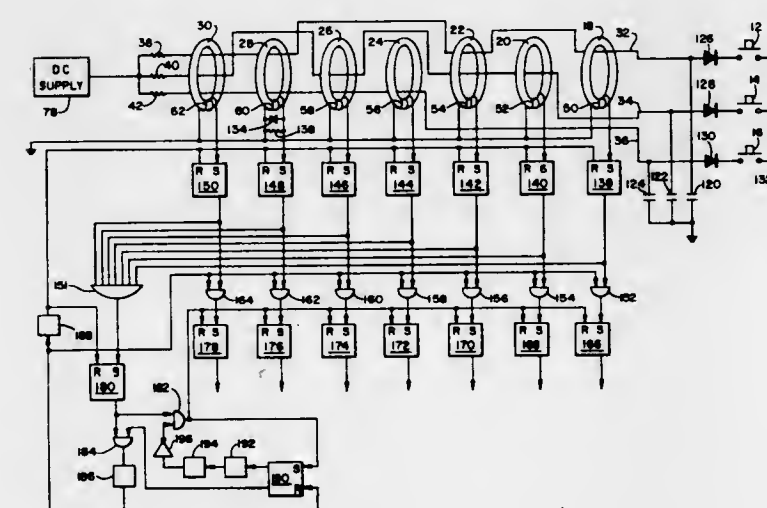
Stanley K. Chao, Lexington, Mass., assignor to Eaton Corporation, Cleveland, Ohio

Continuation-in-part of Ser. No. 76,189, Sept. 28, 1970, Pat. No. 3,688,307. This application Jan. 14, 1972, Ser. No. 217,923

Int. Cl. H04q 3/100

U.S. Cl. 340-365 E

6 Claims



A keyboard entry device has ring transformer cores each core having a different combination of electrically conductive input lines threaded therethrough. Each input line is connected to a switch and a capacitor. Each input line is connected to a switch and a capacitor, the capacitor storing charge from a D. C. supply. When the switch is activated a current pulse is transmitted over the input lines as a result of the capacitor being discharged. An output signal will be provided in the secondary windings of the cores in which the pulse is transmitted through. Registers, utilized for temporarily storing output signals from the secondary windings, as well as a unique N-key rollover feature are provided.

3,740,746

MAGNETIC KEYBOARD

Gabriel Dureau, Le Perreux; Leon Roche, Chatillon-sous-Bagneux, and Marcel Villain, Fresnes, all of France, assignors to Compagnie Industrielle Des Telecommunications Cit-Alcatel, Paris, France

Filed Nov. 30, 1971, Ser. No. 203,228

Claims priority, application France, Nov. 30, 1970, 7043007

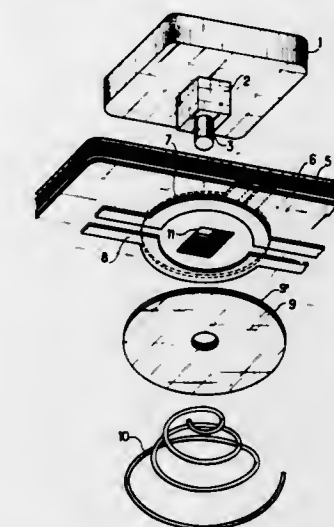
Int. Cl. H04q 3/100

U.S. Cl. 340-365 L

12 Claims

Magnetic keyboard transforms the depression of a key to electric signals corresponding to a numerical code, comprising

circuits having superimposed coils, magnetically decoupled by a conductive disc placed in the immediate vicinity of the pri-



mary circuit. The depression of a key moves the conductive disc away and couples the secondary coil to the primary coil.

3,740,747

CROSS-CORRELATOR

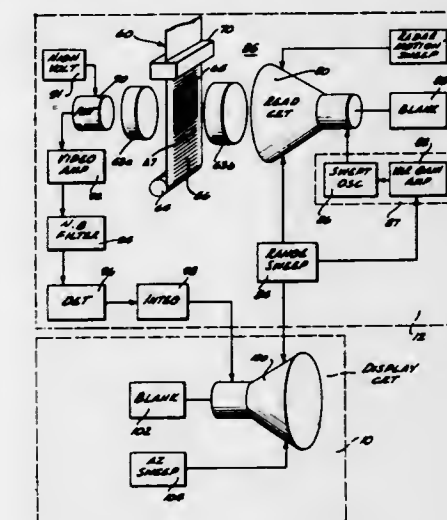
Harold V. Hance, Palo Alto, and Henry L. McCord, Los Angeles, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Feb. 27, 1964, Ser. No. 348,898

Int. Cl. G01s 9/02

U.S. Cl. 343-5 MM

13 Claims



1. A cross-correlator for processing signal data stored on film comprising, in combination, means for scanning said film with an electron beam; a reference signal; means for modulating said electron beam with said reference signal; means for focusing said modulated beam onto said film; signal forming means operatively disposed to develop information signals in response to energy from said beam penetrating said film; filter means coupled to said signal forming means for passing a predetermined portion of said information signal; and means coupled to said filter means for determining the integral of said portion.

3,740,748

ELECTRONIC IMAGE CANCELLATION FOR DOPPLER RECEIVERS

Eddy Hoes, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed May 31, 1968, Ser. No. 736,927

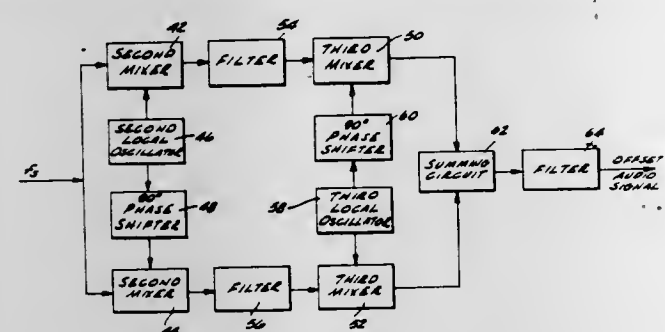
Int. Cl. G01s 9/44

U.S. Cl. 343-8

12 Claims

A double channel pulsed doppler radar receiver utilizing, in one embodiment, double mixing in each channel in which an

oscillator having quadrature signal outputs is coupled between respective mixers in each channel for each mixing action in-



volved, so that any remaining image noise component appearing at the output of the mixers is cancelled in a summing circuit.

3,740,749

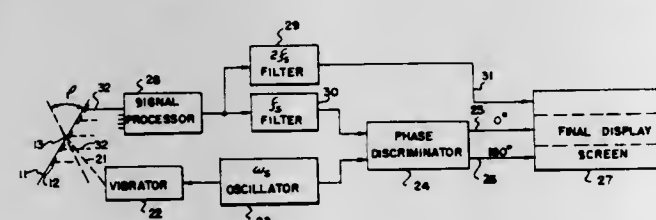
INCREASED FIELD OF VIEW DETECTOR ARRAY
Emanuel Marom, Tel Aviv, Israel, assignor to The Bendix Corporation, Southfield, Mich.

Filed Feb. 22, 1971, Ser. No. 117,535

Int. Cl. G01s 3/16

U.S. Cl. 343-100 LE

11 Claims



A system for increasing the field of view of an array of detectors is described. The system also unambiguously identifies the location of a target with respect to the array. The increase of the field of view and the unambiguous locating of the target are obtained by oscillating the detector array about an axis which passes through the plane of the detector array. The angle of oscillation is related to the wavelength of the detected radiation and the separation of the detectors so that a target falling within the main lobe or either side lobe is detected and unambiguously located.

3,740,750

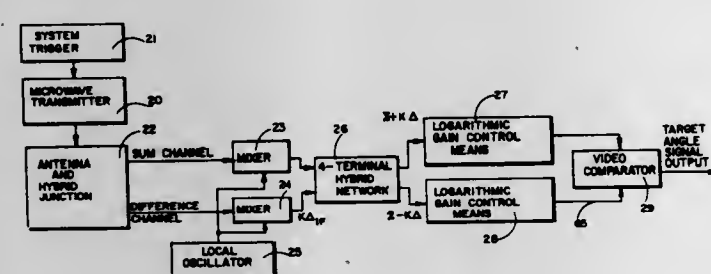
MONOPULSE RECEIVER SYSTEM
James A. Moulton, Santa Ana, Calif., assignor to North American Aviation, Los Angeles, Calif.

Filed Aug. 29, 1962, Ser. No. 221,653

Int. Cl. G01s 3/22

U.S. Cl. 343-119

16 Claims



1. In a monopulse receiver system having a depressed antenna and having a first and second signal channel indicative of the microwave output from a first and second one respectively of two coplanar antenna elements, target angle detection means comprising: first and second logarithmic gain means respectively connected to said first and second signal channel respectively for providing an output as a logarithmic function

of the amplitude of the respective inputs thereto; and a signal amplitude comparator responsively connected to the outputs of said each of said logarithmic gain control means comprising automatic gain control means including video output means and a logarithmic-shaping feedback network responsively coupled to the output of said video output means.

3,740,751

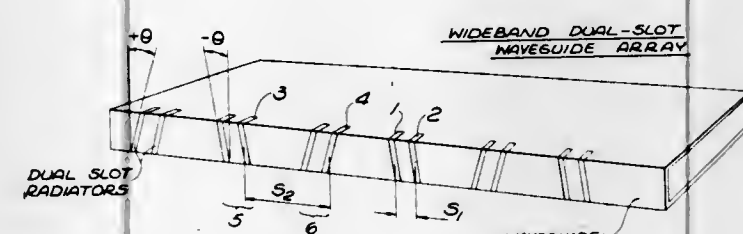
WIDEBAND DUAL-SLOT WAVEGUIDE ARRAY
Jeffrey T. Nemit, Canoga Park, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed June 19, 1972, Ser. No. 264,033

Int. Cl. H01q 13/10

U.S. Cl. 343-771

10 Claims



A slotted waveguide array having a unique dual-slot configuration which significantly increases the bandwidth and scanning angle capability of a linear waveguide slot array. The pattern of the array sub-group has a null in the direction at which a grating lobe would normally occur. With the grating lobe suppressed in this manner, slot conductances are stable with frequency. The result is good pattern integrity and high antenna efficiency.

3,740,752

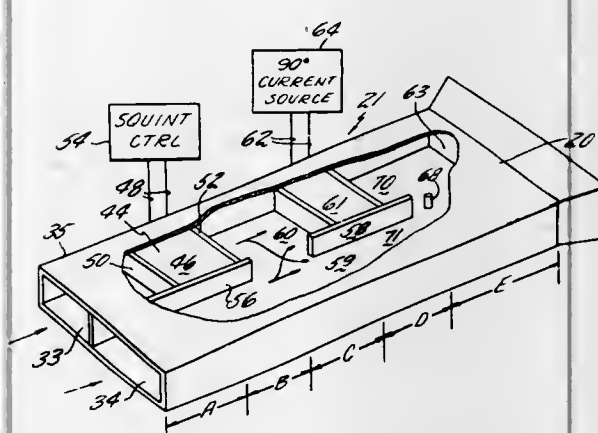
MODE INTERFEROMETER SQUINTING RADAR ANTENNA
Irving I. Goldmacher, Stamford, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Jan. 21, 1972, Ser. No. 219,731

Int. Cl. H01q 3/26

U.S. Cl. 343-781

10 Claims



Lateral displacement of the phase center of the electromagnetic wave feeding a reflector from a feed horn is achieved by interference between a plurality of modes created by combining suitably adjusted and mixed waves from each of two waveguides into a single waveguide which is twice the width of either. The displaced phase center provides a squint angle, off of boresight, to the wave reflected from the reflector.

3,740,753

MULTIBAND QUAD AND LOOP ANTENNA
Wilbert E. Monola, Erie, Pa., assignor to Mini-Products, Inc., Erie, Pa.

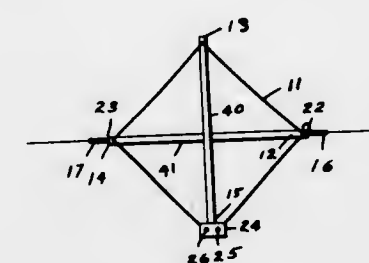
Continuation-in-part of Ser. No. 158,424, June 30, 1971. This

application Feb. 28, 1972, Ser. No. 229,951

Int. Cl. H01q 1/12

U.S. Cl. 343-744

6 Claims



The specification discloses a structure of a single and a dual band antenna utilizing two loading units, each comprising a single inductor and a single capacitor connected in series therewith and mounted 180° apart at the high voltage points of the quad or loop antenna, and with the feed point midway between.

3,740,754

BROADBAND CUP-DIPOLE AND CUP-TURNSTILE ANTENNAS

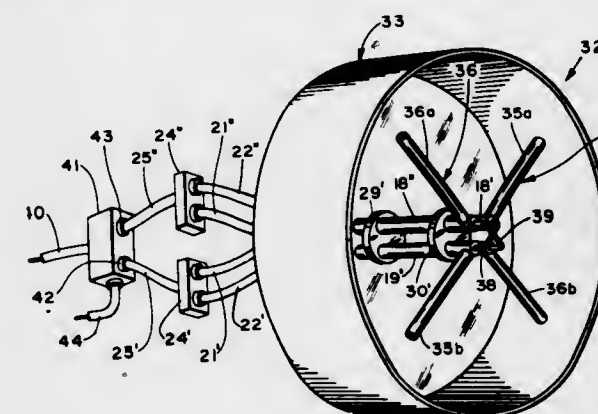
James J. Epis, Sunnyvale, Calif., assignor to GTE Sylvania Incorporated, Mountain View, Calif.

Filed May 24, 1972, Ser. No. 256,357

Int. Cl. H01q 21/26

U.S. Cl. 343-797

7 Claims



A cup-dipole antenna features two colinear monopole elements mounted close to the plane of the cup mouth or aperture and electrically connected at their inner ends to the outer conductors, respectively, of a pair of coaxial lines whose inner conductors are electrically connected together adjacent the monopole elements. The input ends of these coaxial lines are connected to the output or secondary-winding terminals of an impedance transformer constituting a lumped-circuit component with a secondary winding having an r.f. grounded center tap. The two monopole elements are thereby excited as a center-fed dipole. In addition, a shorting plate electrically interconnects the outer conductors of the coaxial lines between the dipole and the bottom of the cup in order to neutralize adverse effects of mutual coupling between currents flowing on the inside surface of the cup and on the outer conductors of the coaxial lines. In practice, each coaxial line is housed in a rigid pipe to which the outer conductor is electrically connected and which electrically and mechanically supports the associated monopole element. The cup turnstile form of the invention comprises four monopole elements which comprise two such dipoles disposed at right angles to each other with the two pairs of end-connected coaxial feed lines adapted to be energized in phase quadrature to produce a circularly polarized radiation pattern.

3,740,755

MICROWAVE ANTENNA WITH RADOME

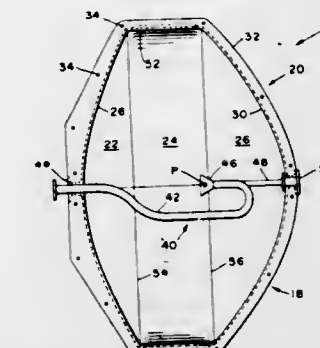
Robert J. Grenzeback, c/o Systems Resources Corp., 7 Corporation Way Ext., Medford, Mass.

Filed Jan. 12, 1972, Ser. No. 217,158

Int. Cl. H01q 19/12

U.S. Cl. 343-840

14 Claims



A microwave antenna having a parabolic reflector with a confocal parabolic radome. The coincident foci of the reflector and radome cause reflections from the latter to be incident upon the reflector in the same direction as the energy directly incident thereon from the feed. The antenna is integrally formed in nestable segments each comprising portions of the reflector, the radome and any interconnecting shroud.

3,740,756

SWITCHING SYSTEM FOR PLURAL ANTENNAS CONNECTED TO PLURAL INPUTS

Boleslaw Marian Sosin, Chelmsford, England, assignor to The Marconi Company Limited, Chelmsford, England

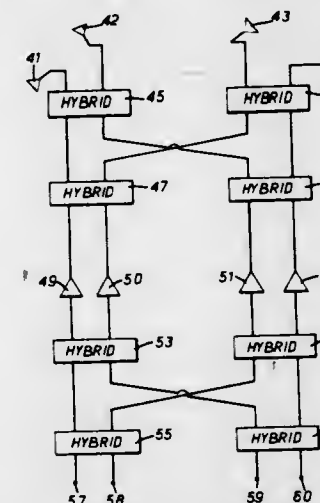
Filed Mar. 20, 1972, Ser. No. 236,272

Claims priority, application Great Britain, Mar. 26, 1971, 8,032/71

Int. Cl. H01q 21/00

U.S. Cl. 343-853

6 Claims



Signals having a pre-determined phase relationship are switched to one of four aeries by two pairs of hybrid circuits. The signals are applied to the four inputs of the first pair of hybrid circuits, and the aeries are connected to the outputs of the second pair. Each output of each circuit in the first pair is connected to an input on a different one of the second pair of circuits. A further two pairs of hybrid circuits, similarly interconnected, may be used to derive the required phase relationship from a signal applied to a single input.

3,740,757

PEAK SHOCK RECORDER

Paul D. Engdahl, 2850 Monterey Avenue, Costa Mesa, Calif.

Filed Dec. 1, 1971, Ser. No. 203,713

Int. Cl. G01d 9/02

U.S. Cl. 346-7

13 Claims

A recording accelerometer of the general type known as a reed gage, for recording the shock spectrum of mechanical

DESIGNS

JUNE 19, 1973

227,318
HAT

Charles P. Martyn, R.R. 1, Hutchinson Island,
Stuart, Fla. 33494
Filed June 16, 1970, Ser. No. 23,515
Term of patent 14 years
Int. Cl. D2—03

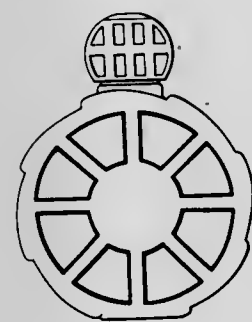
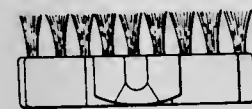
U.S. Cl. D2—247



227,319
HAIRBRUSH

Douglas M. Small, Springfield, Mass., assignor to Stanley
Home Products, Inc., Westfield, Mass.
Filed Mar. 15, 1972, Ser. No. 235,101
Term of patent 14 years
Int. Cl. D4—02

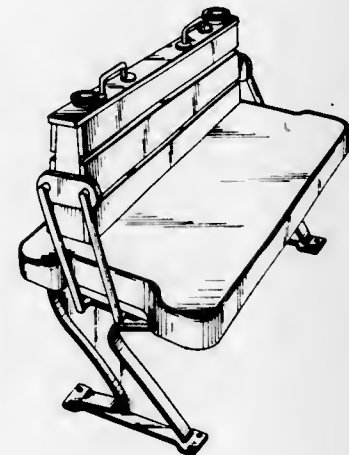
U.S. Cl. D4—29



227,320
PILOT SEAT

Robert J. Dougherty, Hingham, Mass., assignor to The
Fisher-Pierce Company, Inc., Rockland, Mass.
Filed June 28, 1971, Ser. No. 157,814
Term of patent 14 years
Int. Cl. D6—02

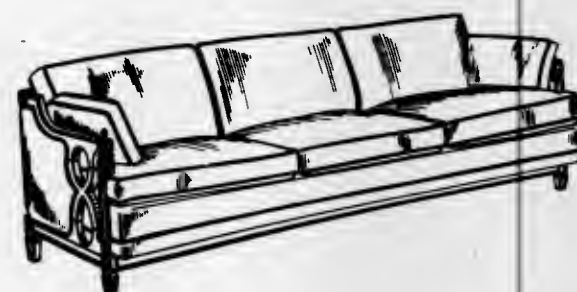
U.S. Cl. D6—48



227,321
SOFA

Morris F. Fisher, Carmel, Ind., assignor to Jackson
Chair Company, Inc., Danville, Ky.
Filed Oct. 26, 1971, Ser. No. 192,707
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D6—62



JUNE 19, 1973

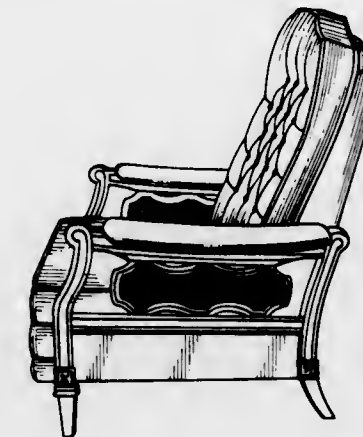
U. S. PATENT OFFICE

1107

227,322
CHAIR

Don Ray Gill, Hammond, Ind., assignor to Mohasco
Industries, Inc., Amsterdam, N.Y.
Filed Apr. 22, 1971, Ser. No. 136,637
Term of patent 14 years
Int. Cl. D6—02

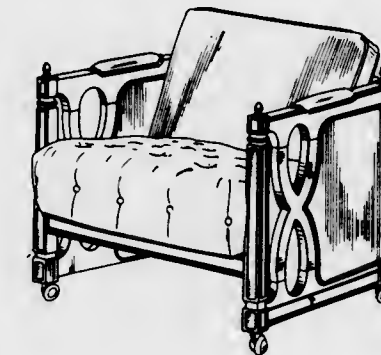
U.S. Cl. D6—68



227,323
CHAIR

Morris F. Fisher, Carmel, Ind., assignor to Jackson
Chair Company, Inc., Danville, Ky.
Filed Oct. 26, 1971, Ser. No. 192,708
Term of patent 14 years
Int. Cl. D6—01

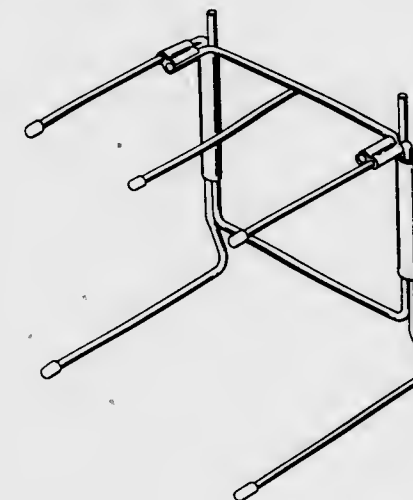
U.S. Cl. D6—68



227,324
DISPLAY RACK

David Rauch, Worcester, Mass., assignor to Van Brode
Milling Co., Inc., Clinton, Mass.
Filed June 1, 1971, Ser. No. 149,098
Term of patent 14 years
Int. Cl. D6—06

U.S. Cl. D6—85

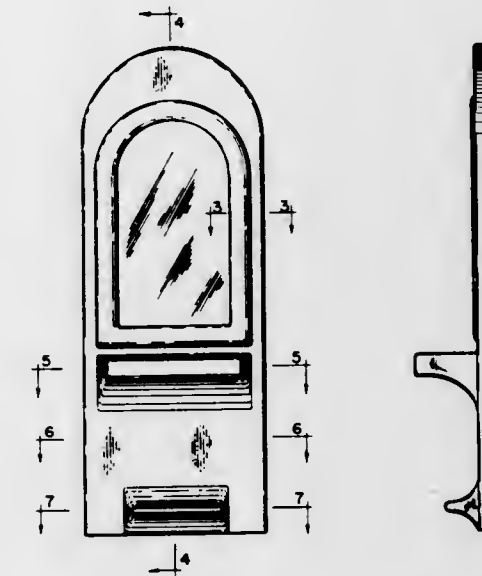


227,325

WALL-MOUNTED VANITY FOR BEAUTY SALONS

Max G. Peterson, P.O. Box 1992,
Stockton, Calif. 95201
Filed May 3, 1971, Ser. No. 140,003
Term of patent 14 years
Int. Cl. D6—04

U.S. Cl. D6—132

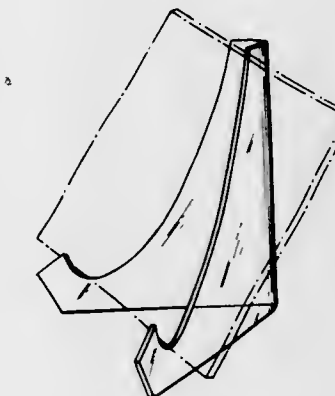


227,326

DISPLAY HOLDER FOR PICTURES, PLAQUES,
CARDS OR THE LIKE

Benay Venuta, 50 E. 79th St., New York, N.Y. 10021
Filed Mar. 24, 1971, Ser. No. 127,860
Term of patent 14 years
Int. Cl. D6—06

U.S. Cl. D6—140



**227,327
CABINET**

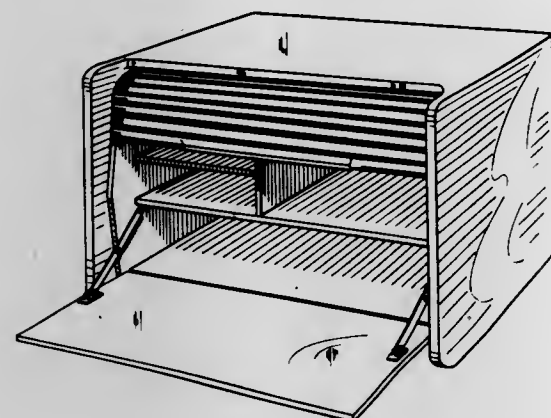
William H. Tucker, Columbus, and Samuel C. Von Brock, Lancaster, Ohio, assignors to Martec Corporation, Columbus, Ohio

Filed Apr. 26, 1971, Ser. No. 137,746

Term of patent 14 years

Int. Cl. D6—04

U.S. Cl. D6—150



**227,328
STUDENT WORK BENCH**

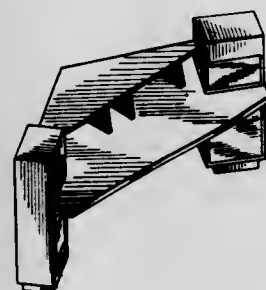
Ralph San Vioanni, Plainfield, N.J., assignor to Buck Engineering Co., Inc., Freehold, N.J.

Filed Mar. 5, 1971, Ser. No. 121,614

Term of patent 7 years

Int. Cl. D6—04

U.S. Cl. D6—157



**227,329
TABLE**

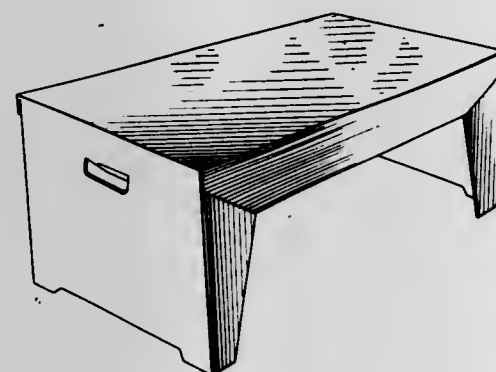
Charles Grossman, Nassau County, N.Y., assignor to Southern Container Corp., Deer Park, N.Y.

Filed Jan. 12, 1972, Ser. No. 217,419

Term of patent 14 years

Int. Cl. D6—03

U.S. Cl. D6—177



**227,330
FURNITURE LEG**

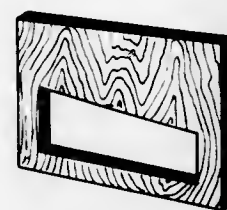
Fuller Robinson, Laval, Quebec, Canada, assignor to Standard Desk Company, Laval, Quebec, Canada

Filed Oct. 29, 1970, Ser. No. 25,712

Term of patent 3½ years

Int. Cl. D6—06

U.S. Cl. D6—194



**227,331
ADJUSTABLE GARMENT HANGER**

Benjamin Levitin, P.O. Box 18948, Los Angeles, Calif. 90018

Filed May 3, 1971, Ser. No. 139,994

Term of patent 14 years

Int. Cl. D6—08

U.S. Cl. D6—252



**227,332
SKILLET OR SIMILAR ARTICLE**

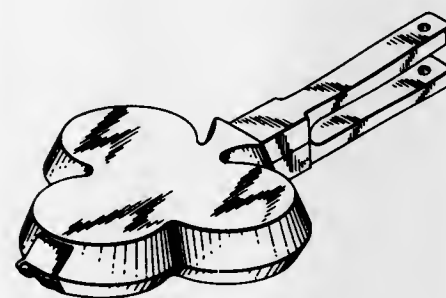
John Di Lorenzo, 235 W. 46th St., New York, N.Y. 10036

Filed Feb. 1, 1972, Ser. No. 222,714

Term of patent 14 years

Int. Cl. D7—02

U.S. Cl. D7—85



**227,333
SKILLET OR SIMILAR ARTICLE**

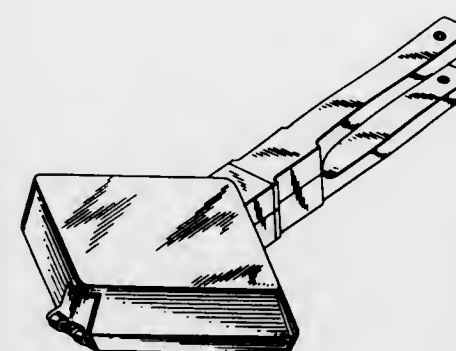
John Di Lorenzo, 235 W. 46th St., New York, N.Y. 10036

Filed Feb. 1, 1972, Ser. No. 222,717

Term of patent 3½ years

Int. Cl. D7—02

U.S. Cl. D7—85



**227,334
SKILLET OR SIMILAR ARTICLE**

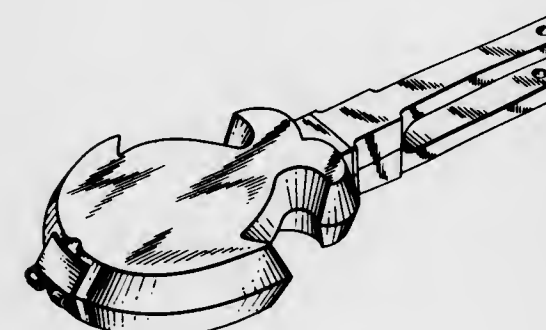
John Di Lorenzo, 235 W. 46th St., New York, N.Y. 10036

Filed Feb. 7, 1972, Ser. No. 224,370

Term of patent 3½ years

Int. Cl. D7—02

U.S. Cl. D7—85



**227,335
SKILLET OR SIMILAR ARTICLE**

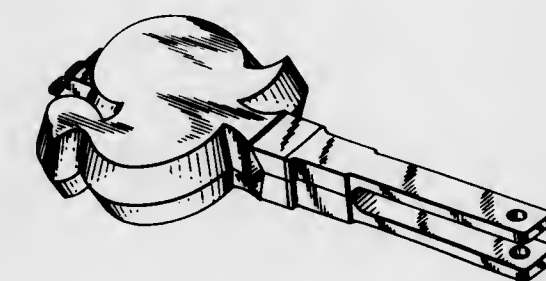
John Di Lorenzo, 235 W. 46th St., New York, N.Y. 10036

Filed Feb. 7, 1972, Ser. No. 224,371

Term of patent 3½ years

Int. Cl. D7—02

U.S. Cl. D7—85



**227,336
SKILLET OR SIMILAR ARTICLE**

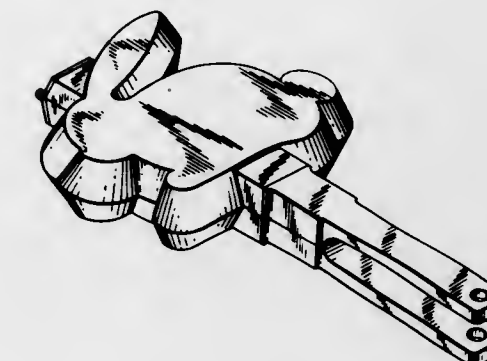
John Di Lorenzo, 235 W. 46th St., New York, N.Y. 10036

Filed Feb. 7, 1972, Ser. No. 224,372

Term of patent 14 years

Int. Cl. D7—02

U.S. Cl. D7—85



**227,337
HYDROCARBON GAS FUEL TORCH**

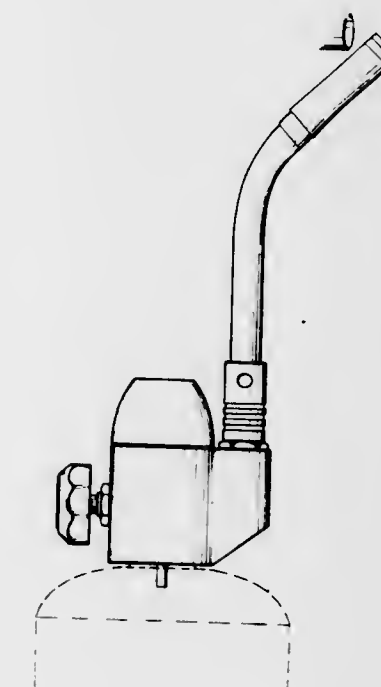
Cadet E. Bowman, Sycamore, Ill., assignor to Olin Corporation

Filed Nov. 19, 1971, Ser. No. 200,651

Term of patent 14 years

Int. Cl. D8—05

U.S. Cl. D8—30



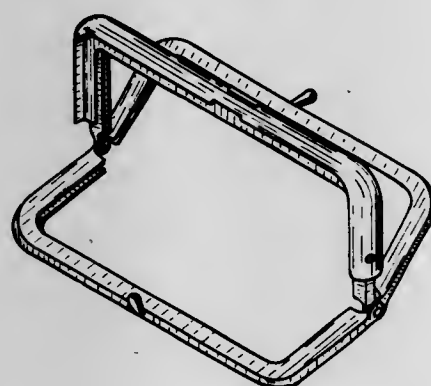
227,338
SCISSORS
Olof Backstrom, Fiskars, Finland, assignor to Oy Fiskars AB, Helsinki, Finland
Filed May 24, 1971, Ser. No. 146,611
Claims priority, application Belgium Jan. 22, 1971
Term of patent 14 years
Int. Cl. D8—03

U.S. Cl. D8—57



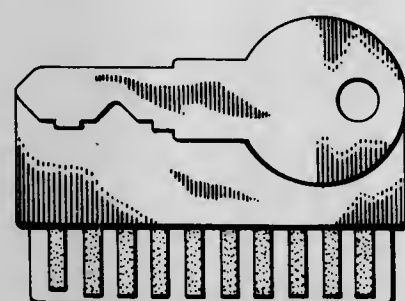
227,339
FRAME MOLDING FOR A PURSE
Karl H. Nos, Steinheimer Str. 58, Brd, Germany
Continuation-in-part of design application Ser. No. 22,758, May 1, 1970. This application Nov. 26, 1971, Ser. No. 202,725
Term of patent 14 years
Int. Cl. D3—02

U.S. Cl. D8—125



227,340
ELECTRICAL KEY
Robert B. Phinixy, Yorba Linda, Calif., assignor to Eaton Corporation, Cleveland, Ohio
Filed Oct. 4, 1971, Ser. No. 186,371
Term of patent 14 years
Int. Cl. D8—07

U.S. Cl. D8—136



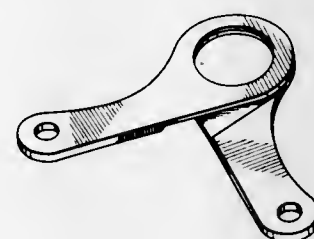
227,341
HAND LEVER
Raymond U. H. Tegner, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill.
Filed Jan. 10, 1972, Ser. No. 216,907
Term of patent 14 years
Int. Cl. D8—07

U.S. Cl. D8—161



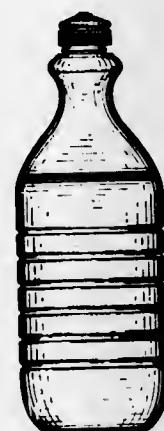
227,342
ADJUSTABLE SWITCH ADAPTER BRACKET
Fred W. Buckman, 943 1/2 Agate, San Diego, Calif. 92109
Filed May 7, 1971, Ser. No. 141,458
Term of patent 14 years
Int. Cl. D8—08

U.S. Cl. D8—233



227,343
BOTTLE
Henry Finkel, Montreal, Quebec, Canada, assignor to Twincraft Ltd., Montreal, Quebec, Canada
Filed Feb. 22, 1972, Ser. No. 228,482
Term of patent 7 years
Int. Cl. D9—01

U.S. Cl. D9—117



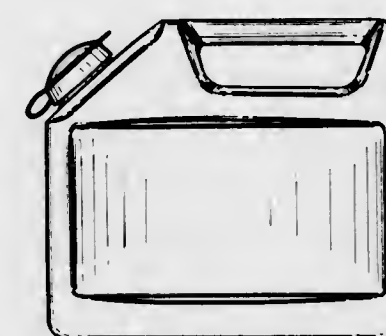
227,344
BOTTLE
Nathan B. Lerner, Chicago, Ill., assignor to W. Braun Company, Chicago, Ill.
Filed Oct. 20, 1971, Ser. No. 191,154
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—143



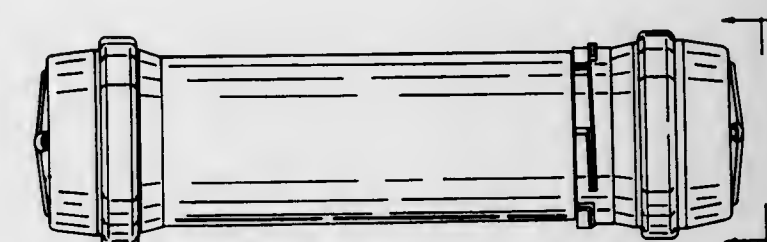
227,345
CONTAINER FOR LIQUIDS
Mace H. Bell, Rowayton, and Richard H. Yagami, Westport, Conn., assignors to General Foods Corporation, New York, N.Y.
Filed Feb. 18, 1972, Ser. No. 227,704
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—175



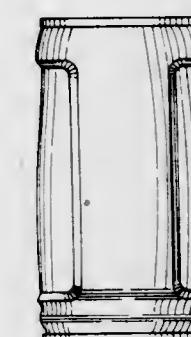
227,346
CONTAINER FOR PNEUMATIC CONVEYING SYSTEM
Anthony Philip Fischer, 1567 Kerr Ave., St. Lambert, Quebec, Canada
Filed May 21, 1971, Ser. No. 146,003
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—216



227,347
CAN OR SIMILAR ARTICLE
Dexter M. Bystedt, Clarendon Hills, and Thomas R. Stanley, Downers Grove, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
Filed Dec. 10, 1971, Ser. No. 206,765
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—216



227,348

CAN OR SIMILAR ARTICLE

Richard B. Bagguley, Orland Park, and Carmen T. Mascia, Westmont, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
 Filed Feb. 22, 1972, Ser. No. 228,464
 Term of patent 14 years
 Int. Cl. D9—03

U.S. Cl. D9—216



227,349

CAN OR SIMILAR ARTICLE

Richard B. Bagguley, Orland Park, and Carmen T. Mascia, Westmont, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
 Filed Feb. 22, 1972, Ser. No. 228,465
 Term of patent 14 years
 Int. Cl. D9—03

U.S. Cl. D9—216



227,350

CAN OR SIMILAR ARTICLE

Richard B. Bagguley, Orland Park, and Carmen T. Mascia, Westmont, Ill., assignors to Continental Can Company, Inc., New York, N.Y.
 Filed Feb. 22, 1972, Ser. No. 228,466
 Term of patent 14 years
 Int. Cl. D9—03

U.S. Cl. D9—216

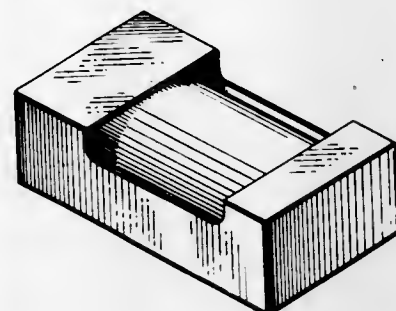


227,351

PACKAGING CONTAINER

Franklin W. Winton, Stratford, Conn., assignor to Warnaco Inc., Bridgeport, Conn.
 Filed May 19, 1971, Ser. No. 145,099
 Term of patent 14 years
 Int. Cl. D9—03

U.S. Cl. D9—224

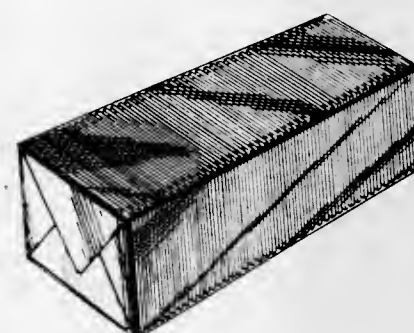


227,352

PACKAGE WITH STAGGERED PRODUCT SLICES

John C. Meng and Gerald J. Driessen, Green Bay, Wis., assignors to L. D. Schreiber Cheese Co., Inc.
 Filed July 15, 1970, Ser. No. 23,972
 Term of patent 14 years
 Int. Cl. D9—05

U.S. Cl. D9—250

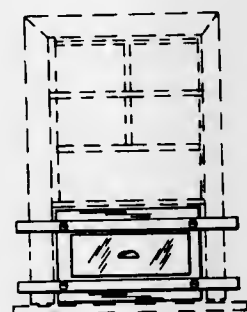


227,353

RETRACTABLE WINDOW CASE STRUCTURE

John P. Francis, 20 Boston St., Haverhill, Mass. 01830
 Filed Mar. 22, 1971, Ser. No. 127,063
 Term of patent 14 years
 Int. Cl. D25—02

U.S. Cl. D13—1 M

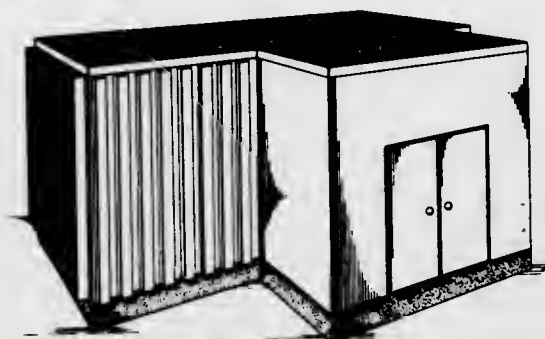


227,354

UTILITY BUILDING

Donald Michael Genaro, Haworth, N.J., and Gordon Elliott Sylvester, Jamaica, N.Y., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
 Filed Dec. 29, 1971, Ser. No. 213,792
 Term of patent 14 years
 Int. Cl. D25—03

U.S. Cl. D13—1 R

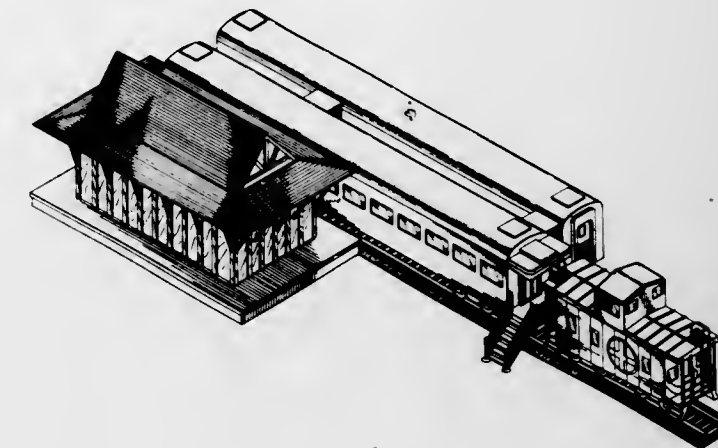


227,356

BUILDING

Reginald E. Winter, 1003 W. Highland Ave., Redlands, Calif. 92373
 Filed May 17, 1972, Ser. No. 254,354
 Term of patent 14 years
 Int. Cl. D25—03

U.S. Cl. D13—1 F

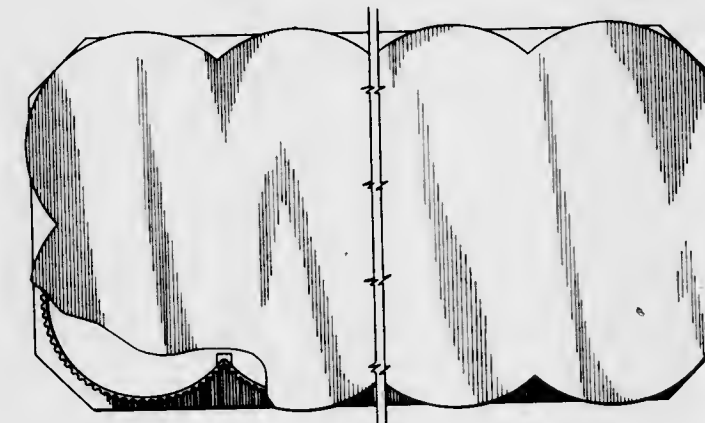


227,355

BUILDING

Charles R. Turner, Hopkins, Mo., assignor to Advance Concrete and Asphalt Co., Maryville, Mo.
 Filed Mar. 9, 1972, Ser. No. 233,405
 Term of patent 14 years
 Int. Cl. D25—03

U.S. Cl. D13—1 R

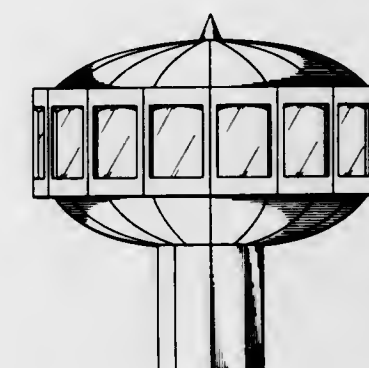


227,357

BUILDING STRUCTURE

Alton D. Wheeler, 3940 Fox Meadow, Pasadena, Tex. 77502
 Filed May 18, 1972, Ser. No. 254,841
 Term of patent 14 years
 Int. Cl. D25—03

U.S. Cl. D13—1 E

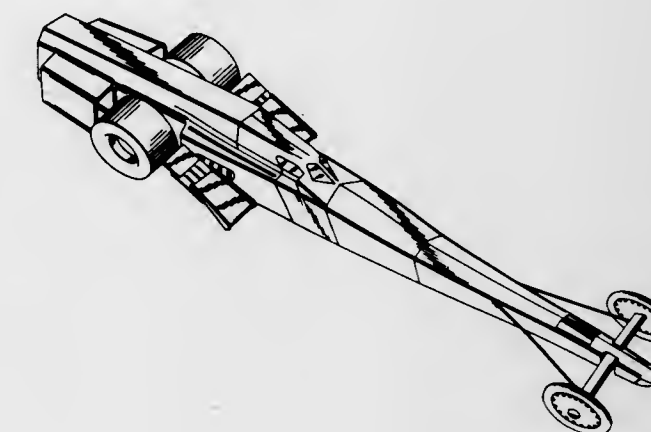


227,358

RACING VEHICLE

Robert S. Kachler, 1047 Pine Ave., Long Beach, Calif. 90813
 Filed Mar. 3, 1971, Ser. No. 120,803
 Term of patent 14 years
 Int. Cl. D12—08

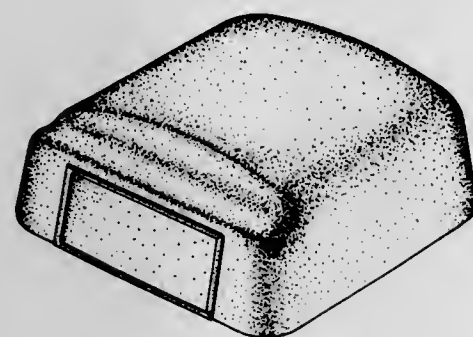
U.S. Cl. D14—3 G



227,359
CAR-TOP CARRIER
Sidney L. Perry, 5145 Kelvin Ave.,
Los Angeles, Calif.

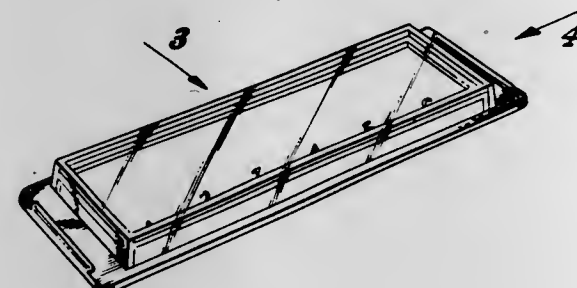
Original design application May 21, 1968, Ser. No. 12,035,
now Patent No. 214,727, dated July 22, 1969. Divided
and this application June 16, 1969, Ser. No. 19,796
Term of patent 14 years
Int. Cl. D12—09, 16

U.S. Cl. D14—27 C



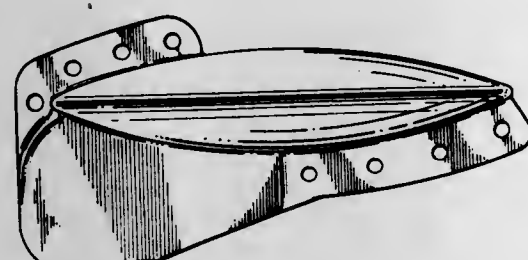
227,360
DIFFUSION PLATE FOR BLOOD ANALYSIS
Kingdon Lou, Tustin, Calif., assignor to
ICL Scientific, Fountain Valley, Calif.
Filed Mar. 29, 1971, Ser. No. 129,277
Term of patent 14 years
Int. Cl. D24—02

U.S. Cl. D16—1 R



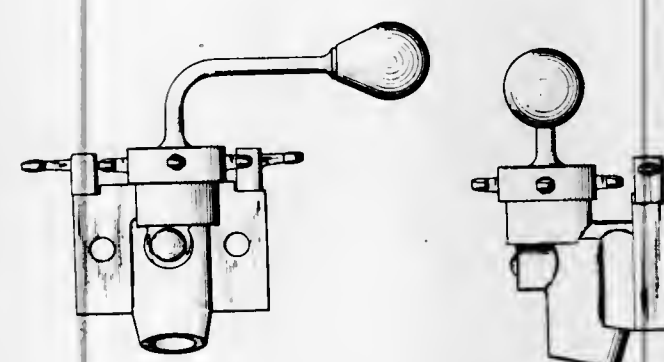
227,361
DEPTH CONTROL FOR A TROLLED
FISHING LURE
Max E. Kleman, 4750 Franklin Blvd.,
Eugene, Oreg. 97405
Filed Dec. 27, 1971, Ser. No. 212,889
Term of patent 14 years
Int. Cl. D22—05

U.S. Cl. D22—30



227,362
DISPENSING FAUCET OR SIMILAR ARTICLE
Ronald J. Mrugala, Brooklyn Park, Minn., assignor to
The Corneliuss Company, Anoka, Minn.
Filed June 28, 1971, Ser. No. 157,791
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—23



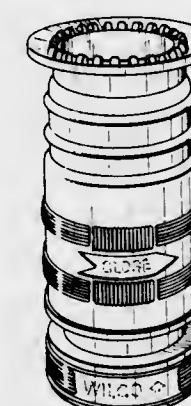
227,363
SPOUT END
Donald M. Genaro, Haworth, N.J., and Charles W.
Pelly, Scarsdale, N.Y., assignors to American Standard
Inc., New York, N.Y.
Filed Mar. 6, 1972, Ser. No. 232,349
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—32



227,364
NOZZLE
Duncan Horatio Campbell, Etobicoke Borough, Ontario,
Canada, assignor to Wilson & Cousins Co. Limited,
Brampton, Ontario, Canada
Filed Apr. 16, 1971, Ser. No. 134,917
Term of patent 14 years
Int. Cl. D23—01

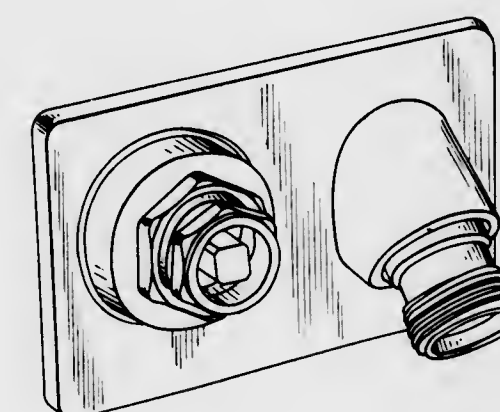
U.S. Cl. D23—34



227,365
WALL HYDRANT
Joseph C. Woodford, Spring Lake, Mich., assignor to
Woodford Manufacturing Company, Des Moines, Iowa
Original design application Aug. 21, 1968, Ser. No. 13,229,
now Design Patent No. 216,791, dated Mar. 10, 1970.
Divided and this application Mar. 9, 1970, Ser. No.
21,776

The portion of the term of the patent subsequent to
Mar. 10, 1984 has been disclaimed
Term of patent 14 years
Int. Cl. D23—01

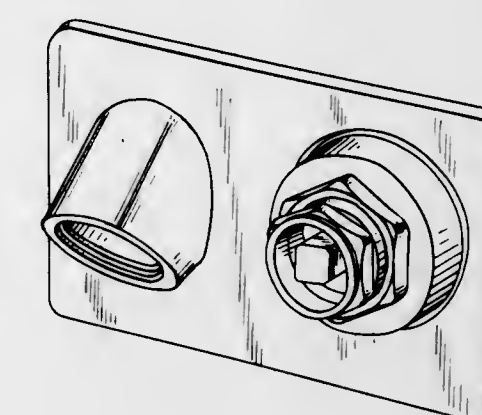
U.S. Cl. D23—12



227,366
WALL HYDRANT
Joseph C. Woodford, Spring Lake, Mich., assignor to
Woodford Manufacturing Company, Des Moines, Iowa
Original design application Aug. 21, 1968, Ser. No. 13,228,
now Design Patent No. 216,790, dated Mar. 10, 1970.
Divided and this application Mar. 9, 1970, Ser. No.
21,777

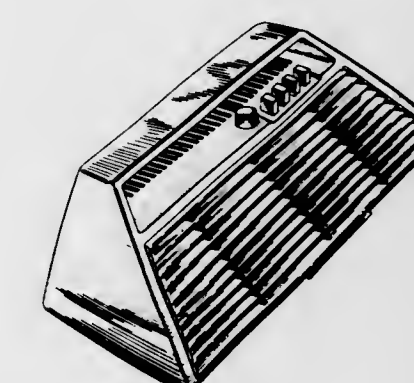
Term of patent 14 years
The portion of the term of the patent subsequent to
Mar. 10, 1984, has been disclaimed
Int. Cl. D23—01

U.S. Cl. D23—12

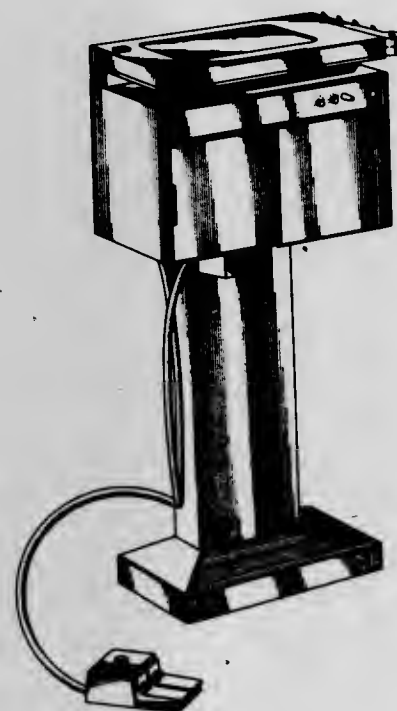


227,367
AIR HEATER
Hermann R. Schaefer, 375 Midland Ave.,
Bridgeport, Conn. 06605
Filed Dec. 9, 1971, Ser. No. 206,589
Term of patent 14 years
Int. Cl. D23—03

U.S. Cl. D23—122



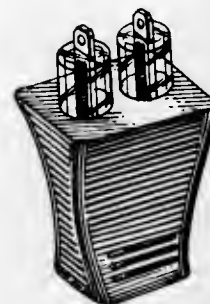
227,368
DENTAL UNIT
 Lawrence Emmerson House II, Overland Park, Kans.,
 and Theodore Frisland, Evanston, Ill., assignors to
 Litton Medical Products, Inc., Beverly Hills, Calif.
 Filed Sept. 28, 1972, Ser. No. 293,207
 Term of Patent 14 years
 Int. Cl. D24—01
 U.S. Cl. D24—1 B



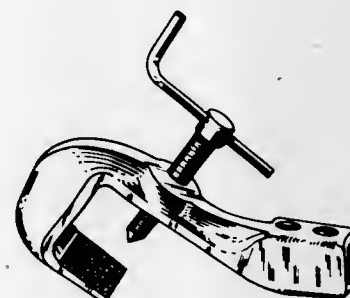
227,369
DENTAL PROPHYLAXIS INSTRUMENT
 John R. Hedrick, La Crescenta, and George D. Peverly,
 Northridge, Calif., assignors to The Columbus Dental
 Manufacturing Company, Columbus, Ohio
 Filed Dec. 15, 1971, Ser. No. 208,526
 Term of patent 14 years
 Int. Cl. D24—03
 U.S. Cl. D24—1 D



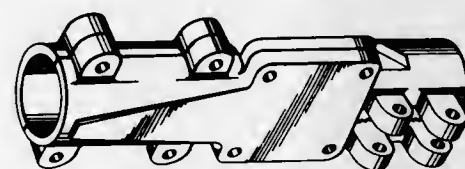
227,370
SAFETY OUTLET PLUG HAVING INSULATED ELECTRODES
 Laurice D. Ely, Culver City, Calif.
 (2862 Stromboli Road, Costa Mesa, Calif. 92626)
 Filed Mar. 15, 1971, Ser. No. 124,656
 Term of patent 14 years
 Int. Cl. D13—03
 U.S. Cl. D26—1 B



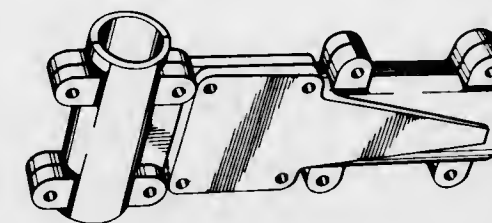
227,371
ELECTRICAL CABLE CLAMP
 Alfonso Leto, 12255 Gerald Ave., Granada Hills, Calif.
 91344, and Frank Leto, 8936 Amestoy Ave., North-
 ridge, Calif. 91324
 Filed May 10, 1971, Ser. No. 142,122
 Term of patent 14 years
 Int. Cl. D13—03; D8—08
 U.S. Cl. D26—1 A



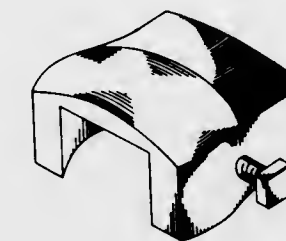
227,372
CONNECTOR
 Edward Price McLean, Jr., Moultrie, Ga., assignor to
 Ampersand, Inc., Moultrie, Ga.
 Filed July 2, 1971, Ser. No. 159,155
 Term of patent 14 years
 Int. Cl. D13—03
 U.S. Cl. D26—1 C



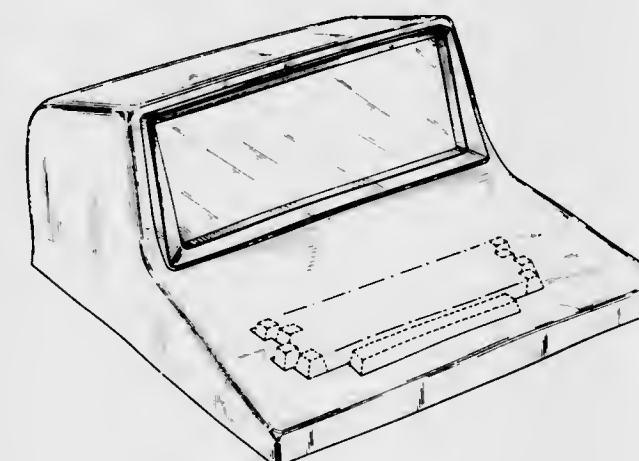
227,373
CONNECTOR
 Edward Price McLean, Jr., Moultrie, Ga., assignor to
 Ampersand, Inc., Moultrie, Ga.
 Filed July 2, 1971, Ser. No. 159,220
 Term of patent 14 years
 Int. Cl. D13—03
 U.S. Cl. D26—1 C



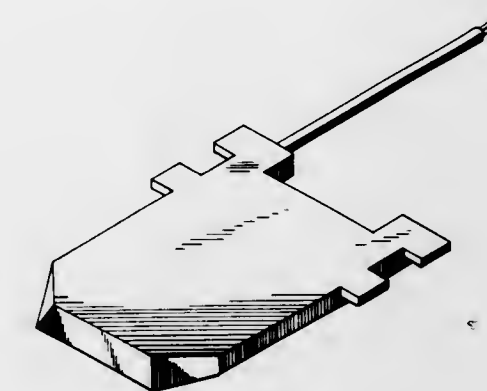
227,374
BATTERY TERMINAL CAP
 Robert A. Julian, 1608 Brenda Drive,
 Bellevue, Nebr. 68005
 Filed Nov. 15, 1971, Ser. No. 199,094
 Term of patent 14 years
 Int. Cl. D13—03
 U.S. Cl. D26—1 E



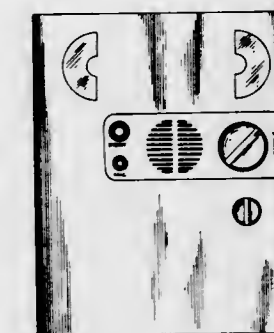
227,375
CASING FOR A COMPUTER TERMINAL
 Robert Howard, New York, N.Y., assignor to Centronics
 Data Computer Corp., Hudson, N.H.
 Filed July 24, 1972, Ser. No. 274,477
 Term of patent 14 years
 Int. Cl. D14—02
 U.S. Cl. D26—5 C



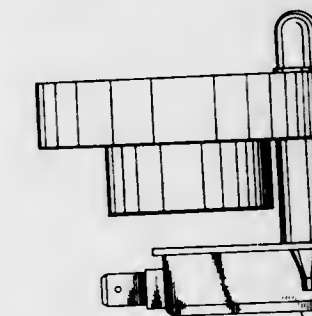
227,376
TELEPHONE LIGHT
 David C. Frison, 1418 Germantown St.,
 Dayton, Ohio 45408
 Filed Dec. 23, 1971, Ser. No. 211,846
 Term of patent 3½ years
 Int. Cl. D14—03
 U.S. Cl. D26—14 A



227,377
PANEL FOR AN AUTOMATIC TELEPHONE ANSWERING DEVICE
 Neal J. Buglewicz, Hermosa Beach, Calif. (12 Empty
 Saddle Road, Rolling Hills Estate, Calif. 90274)
 Filed Mar. 26, 1971, Ser. No. 128,652
 Term of patent 14 years
 Int. Cl. D14—03
 U.S. Cl. D26—14 A



227,378
COMBINED SWITCH AND MICROPHONE FOR AN ACOUSTIC COUPLER
 John P. Kennedy, Columbus, Ohio, assignor to
 Design Elements, Inc.
 Filed Jan. 3, 1972, Ser. No. 215,269
 Term of patent 14 years
 Int. Cl. D14—03
 U.S. Cl. D26—14 A

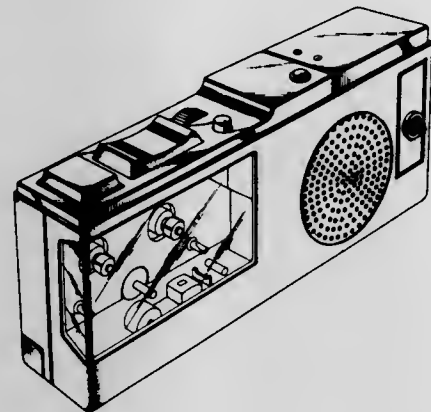


227,379

TAPE RECORDER

Masayuki Sakuma, Yokohama, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
 Filed June 16, 1972, Ser. No. 263,695
 Claims priority, application Japan Dec. 21, 1971
 Term of patent 14 years
 Int. Cl. D14-01

U.S. Cl. D26-14 B



227,380

PLAYGROUND EQUIPMENT FRAME

Erwin N. Korte, Carbondale, and Donal D. Hock, Herrin, Ill., assignors to Mattel, Inc., Hawthorne, Calif.
 Filed Nov. 17, 1971, Ser. No. 199,823
 Term of patent 14 years
 Int. Cl. D21-03

U.S. Cl. D34-5 M

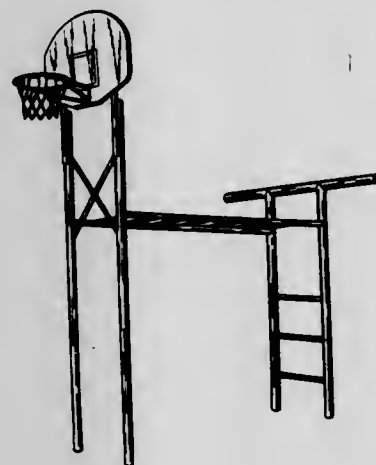


227,381

PLAYGROUND APPARATUS

Erwin N. Korte, Carbondale, and Donal D. Hock, Herrin, Ill., assignors to Mattel, Inc., Hawthorne, Calif.
 Filed Nov. 17, 1971, Ser. No. 199,824
 Term of patent 14 years
 Int. Cl. D21-03

U.S. Cl. D34-5 H

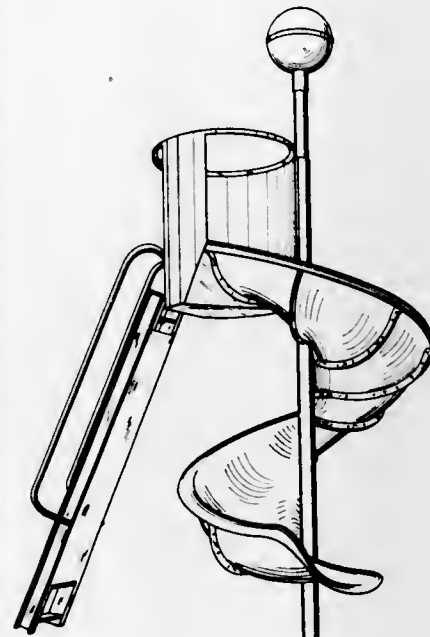


227,382

PLAYGROUND SPIRAL SLIDE

Robert S. Wormser and Ronald L. Ewers, Hillsdale, Mich., assignors to Game Time, Inc., Litchfield, Mich.
 Filed Feb. 14, 1972, Ser. No. 226,359
 Term of patent 14 years
 Int. Cl. D21-03

U.S. Cl. D34-5 E

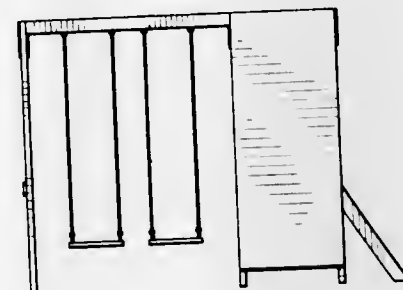


227,383

COMBINATION SWING SET AND PLAY HOUSE

Clifford W. Sanderson, 9817 Shepherds Drive, Kansas City, Mo. 64131
 Filed Feb. 22, 1972, Ser. No. 228,442
 Term of patent 14 years
 Int. Cl. D21-03

U.S. Cl. D34-5 M

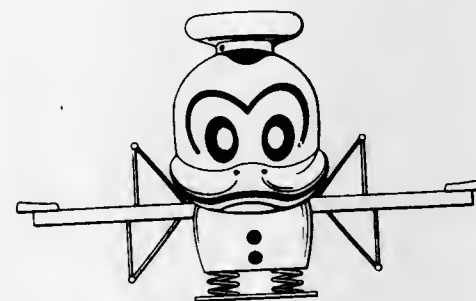


227,384

PLAYGROUND SEESAW

Claude W. Ahrens, West Highway 6, Grinnell, Iowa 50112
 Filed July 24, 1972, Ser. No. 274,462
 Term of patent 14 years
 Int. Cl. D21-03

U.S. Cl. D34-5 C

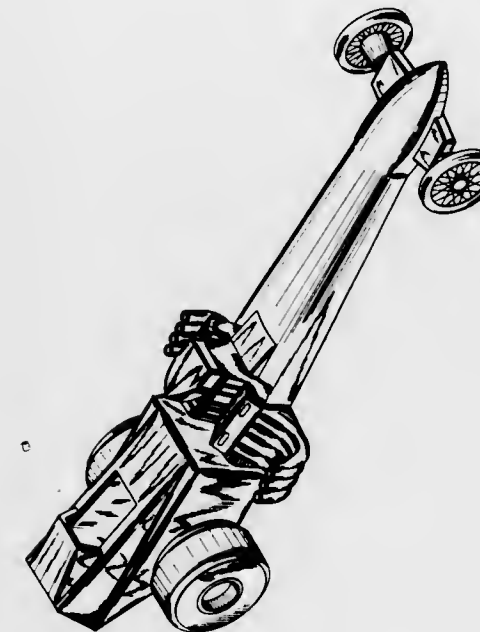


227,385

TOY DRAGSTER

Larry R. Wood, Lawndale, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
 Filed Oct. 4, 1971, Ser. No. 186,598
 Term of patent 14 years
 Int. Cl. D21-01

U.S. Cl. D34-15 AJ

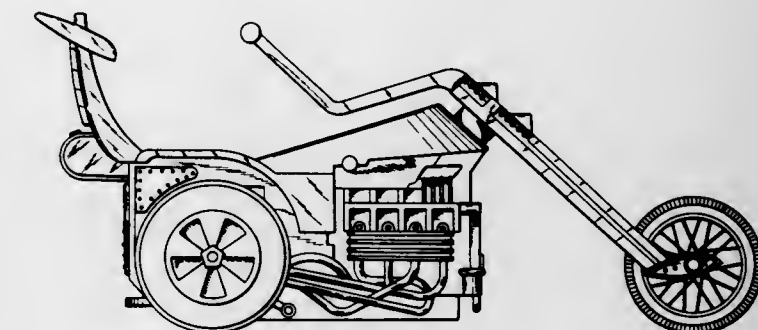


227,387

TOY MOTORCYCLE

Larry R. Wood, Redondo Beach, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
 Filed Aug. 8, 1972, Ser. No. 278,860
 Term of patent 14 years
 Int. Cl. D21-01

U.S. Cl. D34-15 AJ

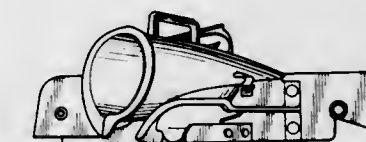


227,388

COMBINATION ROTARY MOWER HOUSING WITH DISCHARGE DEFLECTOR AND BAG CHUTE

Richard A. Thorud, Minneapolis, Minn., assignor to Toro Manufacturing Corporation, Minneapolis, Minn.
 Filed Jan. 14, 1971, Ser. No. 106,618
 Term of patent 14 years
 Int. Cl. D15-03, 99

U.S. Cl. D40-1 B

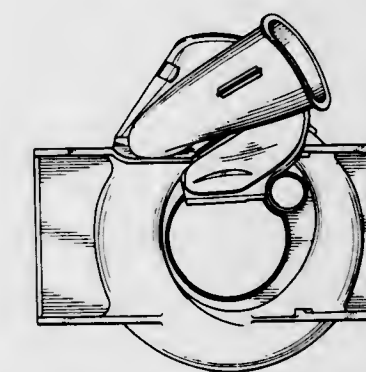
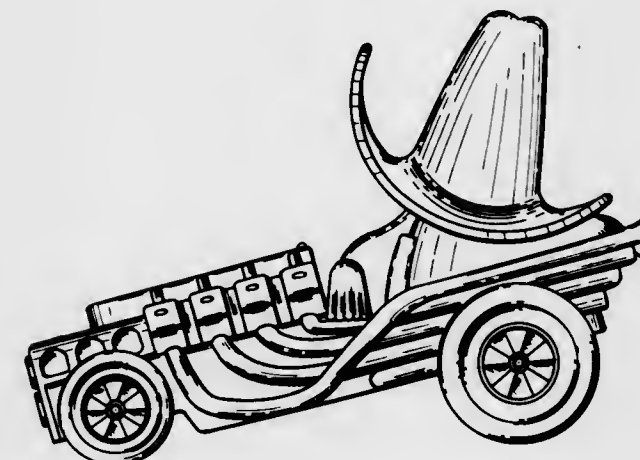


227,386

STYLIZED TOY VEHICLE

Larry R. Wood, Redondo Beach, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
 Filed Apr. 19, 1972, Ser. No. 245,684
 Term of patent 14 years
 Int. Cl. D21-01

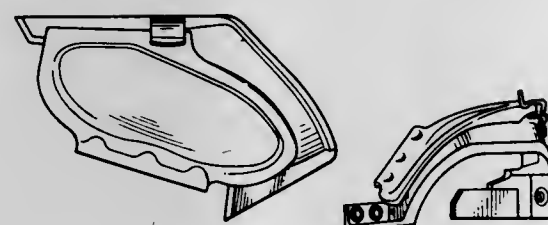
U.S. Cl. D34-15 AJ



227,389
DISCHARGE DEFLECTOR FOR MOWERS
AND THE LIKE

Richard A. Thorud, Minneapolis, Minn., assignor to Toro Manufacturing Corporation, Minneapolis, Minn.
Filed Jan. 14, 1971, Ser. No. 106,622
Term of patent 14 years
Int. Cl. D15-03, 99

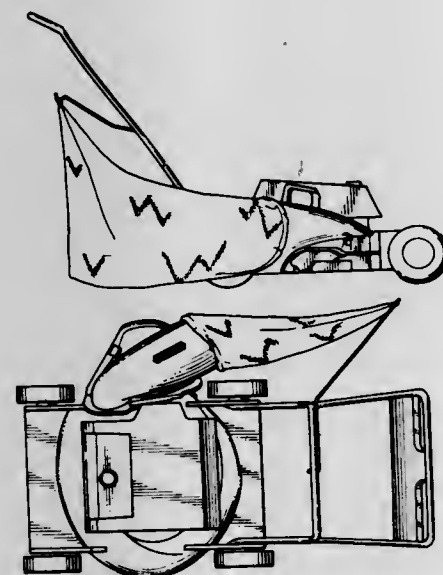
U.S. Cl. D40-1 A



227,390
ROTARY MOWER

Richard A. Thorud, Minneapolis, Minn., assignor to Toro Manufacturing Corporation, Minneapolis, Minn.
Filed Jan. 14, 1971, Ser. No. 106,624
Term of patent 14 years
Int. Cl. D15-03, 99

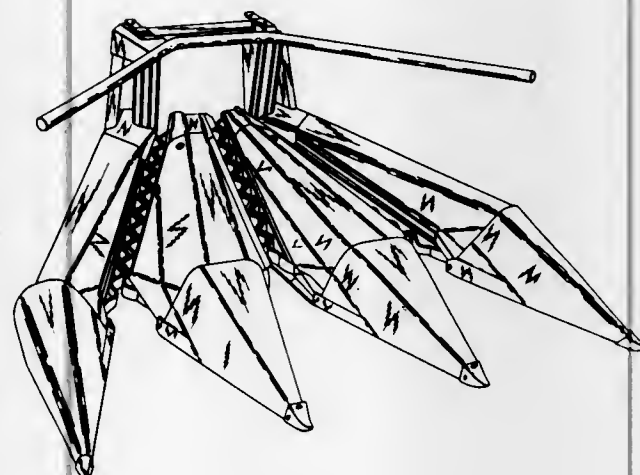
U.S. Cl. D40-1 B



227,391
ROW CROP HARVESTING ATTACHMENT

Allan Keith Lawrence, Ottumwa, Iowa, assignor to Deere & Company, Moline, Ill.
Filed July 24, 1972, Ser. No. 274,567
Term of patent 14 years
Int. Cl. D15-03

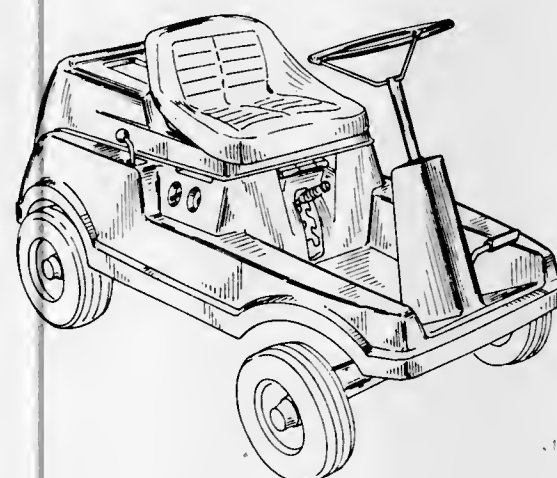
U.S. Cl. D40-1 E



227,392
VEHICLE FOR USE WITH A MOWER

Robert A. Skyer, Palatine, and George E. Bowman, Country Club Hills, Ill., assignors to International Harvester Company, Chicago, Ill.
Filed Aug. 28, 1972, Ser. No. 284,296
Term of patent 14 years
Int. Cl. D15-03

U.S. Cl. D40-1 D



227,393
HOO FOR PIPE COUPLERS OR THE LIKE

Francis L. Bickham, Dickinson, Tex., assignor to H. C. Price Co., Bartlesville, Okla.
Filed Apr. 23, 1971, Ser. No. 137,120
Term of patent 14 years
Int. Cl. D12-05; D8-08

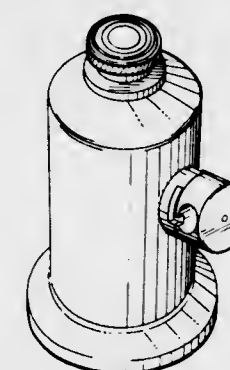
U.S. Cl. D41-1 R



227,394
LIFTING JACK

Arthur Dewhurst Hey-Shipton, 39 Westroyd Crescent, Pudsey, England
Filed Mar. 29, 1972, Ser. No. 239,400
Claims priority, application Great Britain Nov. 13, 1971
Term of patent 14 years
Int. Cl. D12-05

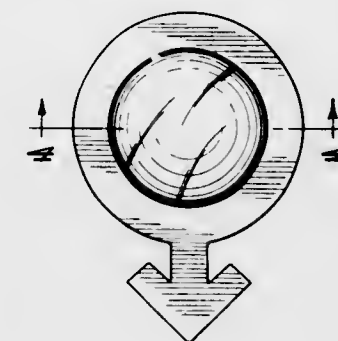
U.S. Cl. D41-1 D



227,395
JEWELRY FINDING

Michael P. Patterson, Wayzata, Minn., assignor to Great Things Incorporated, Minneapolis, Minn.
Filed Apr. 20, 1971, Ser. No. 135,824
Term of patent 14 years
Int. Cl. D11-01

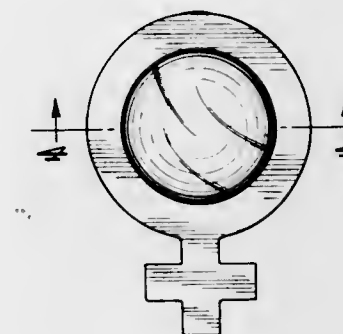
U.S. Cl. D45-1 R



227,396
JEWELRY FINDING

Michael P. Patterson, Wayzata, Minn., assignor to Great Things Incorporated, Minneapolis, Minn.
Filed Apr. 20, 1971, Ser. No. 135,825
Term of patent 14 years
Int. Cl. D11-01

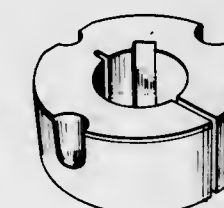
U.S. Cl. D45-1 R



227,397
SHAFT BUSHING

Fred J. Steinke, South Bend, Ind., assignor to Reliance Electric Company, Mishawaka, Ind.
Filed Dec. 14, 1970, Ser. No. 26,441
Term of patent 14 years
Int. Cl. D15-99

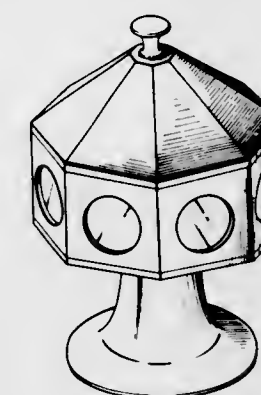
U.S. Cl. D46-1



227,398
LAMP

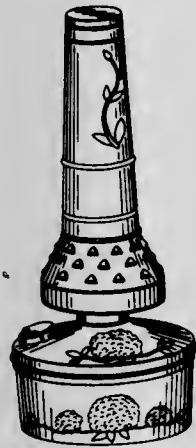
S. Leonard Ginsberg, 66 Lovelace Drive, West Hartford, Conn. 06117
Filed Dec. 1, 1971, Ser. No. 203,935
Term of patent 14 years
Int. Cl. D26-05

U.S. Cl. D48-20 R



227,399
LAMP
Kendall R. Foster, 14762 Foxcroft Road,
Tustin, Calif. 92680
Filed July 7, 1971, Ser. No. 160,579
Term of patent 7 years
Int. Cl. D26—02

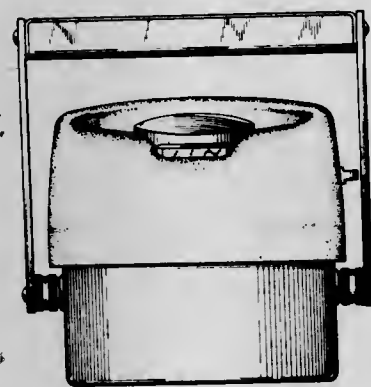
U.S. Cl. D48—24 R



227,400
**PORTABLE NUCLEAR DENSITY-MOISTURE
INSTRUMENT**

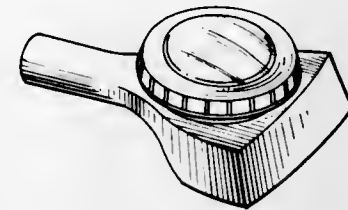
John R. Martin, Glendale, Wis., assignor to
Soiltest, Inc., Evanston, Ill.
Filed May 11, 1971, Ser. No. 142,421
Term of patent 14 years
Int. Cl. D10—99

U.S. Cl. D52—1



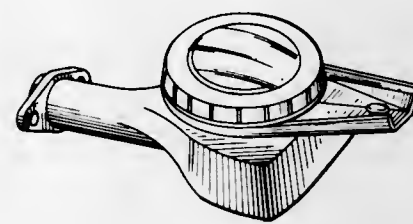
227,401
OIL GAGE OR THE LIKE
Richard A. Thorud, Minneapolis, Minn., assignor to Toro
Manufacturing Corporation, Minneapolis, Minn.
Filed Dec. 28, 1970, Ser. No. 26,653
Term of patent 14 years
Int. Cl. D10—05

U.S. Cl. D52—6



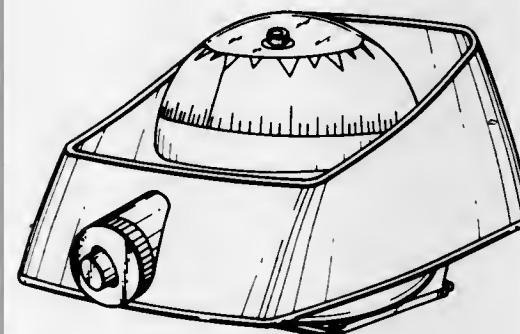
227,402
VISUAL OIL GAGE OR THE LIKE
Richard A. Thorud, Minneapolis, Minn., assignor to Toro
Manufacturing Corporation, Minneapolis, Minn.
Filed Dec. 28, 1970, Ser. No. 26,666
Term of patent 14 years
Int. Cl. D10—05

U.S. Cl. D52—6



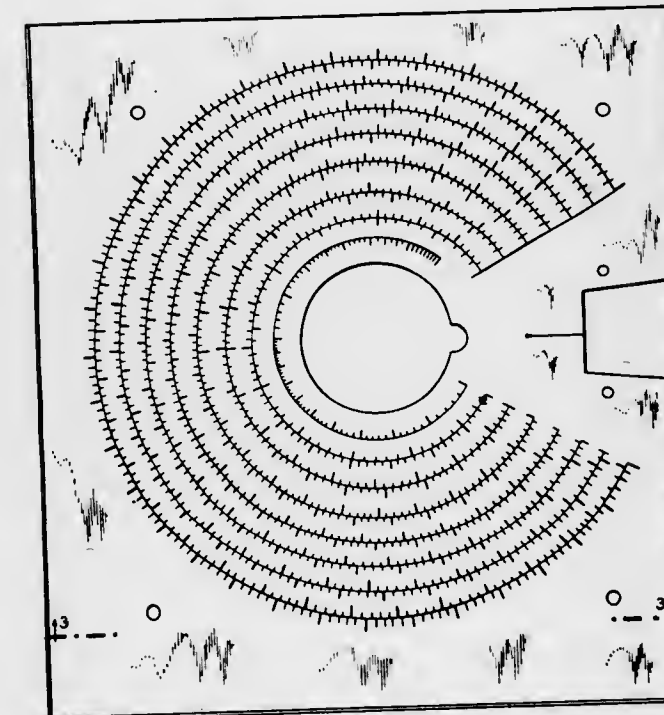
227,403
MAGNETIC COMPASS
Toshikazu Yusa, 8-15 Oyama-cho, Tokyo, Japan
Filed Dec. 29, 1970, Ser. No. 26,694
Term of patent 7 years
Int. Cl. D10—07

U.S. Cl. D52—6



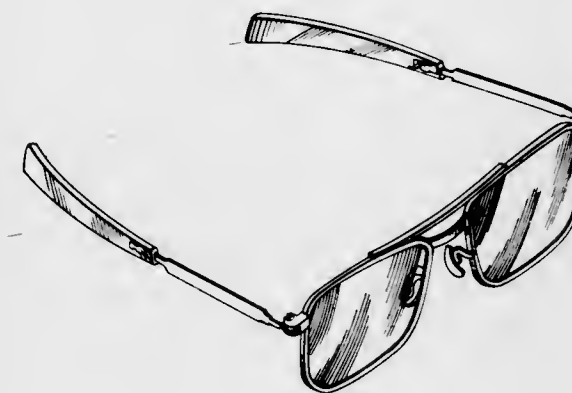
227,404
DIAL FACE FOR A SCALE
Alfred G. Stanton, Nyack, N.Y., assignor to Alfred
Suter Co., Inc., New York, N.Y.
Filed Nov. 26, 1971, Ser. No. 202,711
Term of patent 14 years
Int. Cl. D10—04

U.S. Cl. D52—10 A



227,405
PAIR OF SPECTACLES
Anthony Shindler, Brookline, Mass., assignor to American
Optical Corporation, Southbridge, Mass.
Filed Aug. 27, 1970, Ser. No. 24,737
Term of patent 14 years
Int. Cl. D16—06

U.S. Cl. D57—1 F



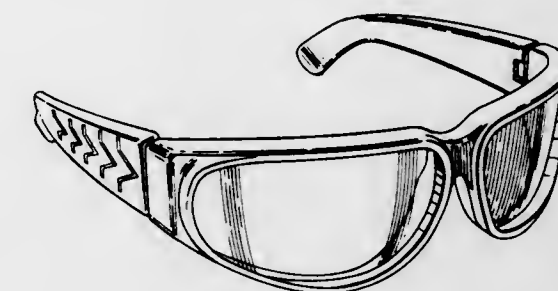
227,406
CONTACT LENS CASE
David L. Nathan, Maplewood, N.J., assignor to
Opticase, Inc., Rockaway, N.J.
Filed Dec. 1, 1971, Ser. No. 203,942
Term of patent 14 years
Int. Cl. D16—06

U.S. Cl. D57—1 B



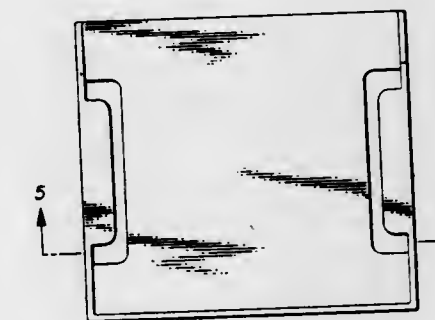
227,407
PAIR OF SPORT SPECTACLES
Vitalino Marchi, Concord, Mass., assignor to Foster
Grant Co., Inc., Leominster, Mass.
Filed Feb. 11, 1972, Ser. No. 225,698
Term of patent 14 years
Int. Cl. D16—06

U.S. Cl. D57—1 F



227,408
CARD HOLDER
John E. Hotchkiss, Corte Madera, Calif., assignor to
Hotchkiss Instruments, Inc.
Filed May 27, 1970, Ser. No. 23,167
Term of patent 14 years
Int. Cl. D16—05

U.S. Cl. D61—1 E



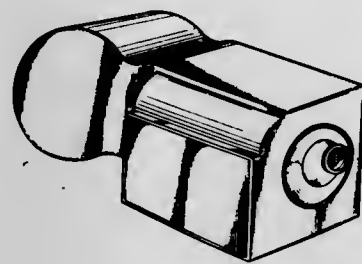
227,409

MOTION PICTURE CAMERA HOUSING
Walter H. Bach, 1771 N. Crescent Heights Blvd.,
Los Angeles, Calif. 90069

Continuation of design applications Ser. No. 25,132 and
Ser. No. 25,133, both Sept. 22, 1970. This application
Dec. 20, 1971, Ser. No. 210,310

Term of patent 14 years
Int. Cl. D16—01

U.S. Cl. D61—1 C



227,410

BURGLAR ALARM

Wan Kwong Yip, Kowloon, Hong Kong, assignor to
Chung AH Manufacturing Company Limited, San Po
Kong, Kowloon, Hong Kong

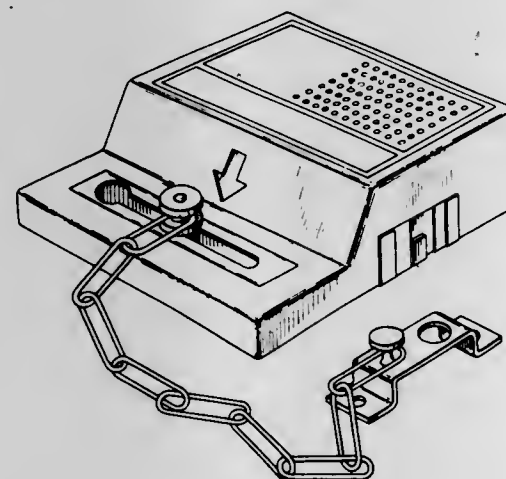
Filed Dec. 20, 1971, Ser. No. 210,309

Claims priority, application Great Britain Oct. 13, 1971

Term of patent 14 years

Int. Cl. D29—99; D8—07

U.S. Cl. D72—1 A



227,411

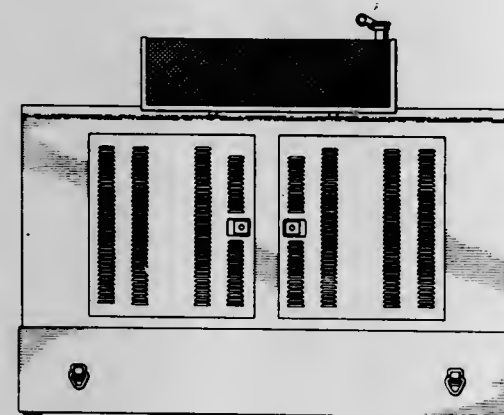
PORTABLE ENGINE-GENERATOR UNIT
Gasper V. De Bella, Hillsborough, Calif., assignor to
Cal-West Electric Inc.

Filed May 5, 1971, Ser. No. 140,647

Term of patent 14 years

Int. Cl. D13—01

U.S. Cl. D77—1 R



227,412

DISPLAY STAND

Andrew Wyzenbeek, Chicago, Ill., assignor to Christian
Business Men's Committee International, Glen Ellyn,
Ill.

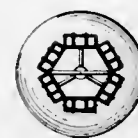
Filed Dec. 9, 1966, Ser. No. 4,976

The portion of the term of the patent subsequent to
July 19, 1984 has been disclaimed

Term of patent 14 years

Int. Cl. D20—02

U.S. Cl. D80—10



227,413

**FUNNEL FOR A SANITARY SPECIMEN
COLLECTOR**

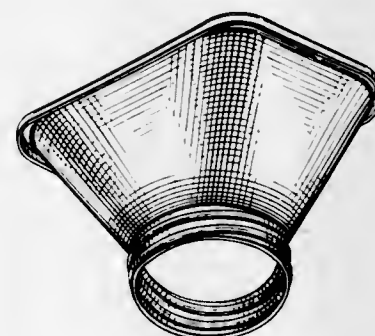
Michael H. Sherin, Fontana, Wis., assignor to Sage
Products Inc., Elk Grove, Ill.

Continuation-in-part of design application Ser. No.
133,484, Apr. 12, 1971. This application Mar. 16,
1972, Ser. No. 222,816

Term of patent 14 years

Int. Cl. D24

U.S. Cl. D83—1 U



227,414

COMB

William Samuel Terry, Culver City, Calif.

(932 Vernon Ave., Venice, Calif. 90291)

Filed Feb. 3, 1972, Ser. No. 223,401

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D86—8



227,415

CASING FOR AN ELECTRIC HAIRSETTER

William J. Cook, Trumbull, Conn., assignor to

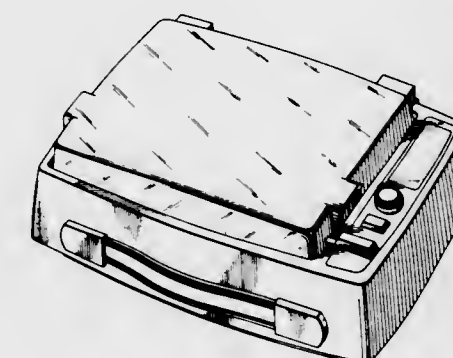
General Electric Company

Filed Mar. 24, 1972, Ser. No. 237,998

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D86—10 E



227,416

BICYCLE STEERING POST

Carlton P. Pawsat, Maysville, Ky., assignor to Wald
Manufacturing Company, Inc., Maysville, Ky.

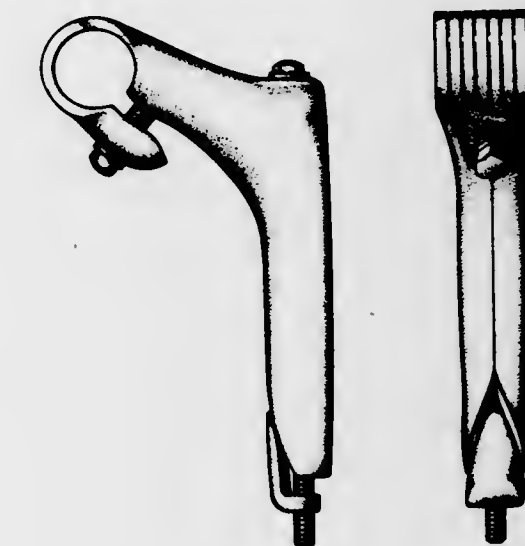
Continuation-in-part of abandoned design applications Ser.
No. 22,181 and Ser. No. 22,182, both Apr. 1, 1970.

This application Nov. 5, 1970, Ser. No. 127,056

Term of patent 14 years

Int. Cl. D12—11

U.S. Cl. D90—9



227,417

NAMEPLATE

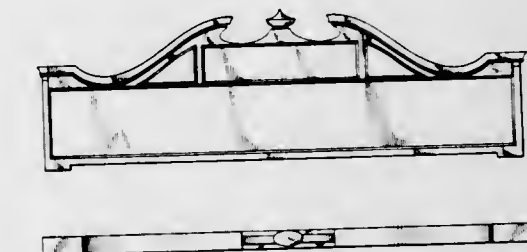
Frank B. Roth, St. Louis, Mo., assignor to Jackes-Evans
Manufacturing Company, St. Louis, Mo.

Filed Mar. 15, 1971, Ser. No. 124,644

Term of patent 14 years

Int. Cl. D20—03

U.S. Cl. D96—12 F



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Bartles, Alfred; Drews, Jurgen; and Pinkerneil, Gunther, to Nordischer Maschinenbau Rud. Baader. Skinning machine for fish filets, 3,739,428, Cl. 17-62.000.
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Baum, Melvin E.; and Hatton, John A., Jr., to Koppers Company, Inc. Chemically thickened polyester resin, 3,740,372, Cl. 260-40.00r.
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Baumel, Anton, to Bohler & Company. Process of making fully austenitic welded joints which are insusceptible to hot cracking, 3,740,525, Cl. 219-137.000.
Baxley, James R., to Peanut Research & Testing Laboratories, Inc. Partially defatted nut coating and reconstituting process, 3,740,236, Cl. 99-126.000.
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- Caldwell, Samuel I.; and Cline, Lawrence R., to Caterpillar Tractor Company. Swing transmission for excavators. 3,739,652, Cl. 74-421.00a.
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- Campbell, Craig C., to Mobil Oil Corporation. Pesticidal compositions. 3,740,419, Cl. 424-21.000.
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- Carley, Donald Raymond, to RCA Corporation. Transistor employing variable resistance ballasting means dependent on the magnitude of the emitter current. 3,740,621, Cl. 317-235.00r.
- Carlson, Edwin S., to Union Tank Car Company. Jacket flashing. 3,739,729, Cl. 105-358.000.
- Carlson, Elmer Victor; and Killion, Mead Clifford, to Industrial Research Products, Inc. Diaphragm assembly for electret transducer. 3,740,496, Cl. 179-111.00e.
- Carlson, Per Arvid Emil; Corrodi, Hans Rudolf; Florwall, Gosta Lennart; and Ross, Svante Bertil, to Aktiebolaget Astra. Method for inhibiting dopamine- β -hydroxylase using piperazine derivatives of dithiocarbonylates, and pharmaceutical preparations thereof. 3,740,430, Cl. 424-250.000.
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- Cason, George Acker, Jr.; and Simmons, James Wesley, to Dresser Industries, Inc. Pressure equalizing system for rock bits. 3,739,864, Cl. 175-228.000.
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- Clark Automation, Inc.: See—
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- Clifford, Gloria L.; and Clifford, Richard P. Ski binding tester adapted for testing heel bindings. 3,739,631, Cl. 72-133.00a.
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- Clody, Donald E.; Beer, Bernard; Vogel, John; and Horovitz, Zula P., to Squibb, E. R. & Sons, Inc. Anti-anxiety composition and method of use. 3,740,433, Cl. 424-253.000.
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- Coen Company, Inc.: See—
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- Cohn, Nathan, to Leeds & Northrup Company. Control of power system for optimum economy. 3,740,572, Cl. 307-57.000.
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- Cole, Edward L.; and Hess, Howard V., to Texaco Inc. Process for treating septic biological wastes in arctic climates. 3,740,332, Cl. 210-63.000.
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- Cole, John J.: See—
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- Colehower, William S., to Jomac Inc. Work gloves. 3,739,400, Cl. 2-161.00r.
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- Colf, Henry B., to American Optical Corporation. Fiberscope viewing system with dynamic image enhancer. 3,740,115, Cl. 350-96.00b.
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- Colombo, Gianni; and Ippolito, Giovanni, to AGES S.p.A.-Azienda Generale Elettronica Servomeccanismi. Read only memory device with capacitive coupling of information. 3,740,729, Cl. 340-173.00a.
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- Compoly, Albert W.; and Kautz, Robert F., to Bendix Corporation, The. Silicon controlled rectifier gate drive with back bias provisions. 3,740,583, Cl. 307-252.00h.
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- Comstock, Gilbert L., to Weyerhaeuser Company. Orifice pattern for jet dryers. 3,739,490, Cl. 34-162.000.
- Conch International Methane Limited: See—
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- Control Data Corporation: See—
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- Cook, Harold D., to Teletype-Corporation. Circuit testing by comparison with a standard circuit. 3,740,645, Cl. 324-73.00r.
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- Cooper, Lawrence E.: See—
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- Copley, Stephen M.; Giamei, Anthony F.; Hornbecker, Merton F.; and Kear, Bernard H., to United Aircraft Corporation. Process of making shell molds. 3,739,835, Cl. 164-35.000.
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- Cox, Paul L., to Cox Athletics, Inc. Exercise shoe. 3,739,500, Cl. 36-2.50a.
- Cranston, Benjamin Howell, to Western Electric Company, Incorporated. Explosive metal-working process. 3,739,614, Cl. 72-56.000.
- Craven, David L., to United States of America, Navy. Fluidic failure detection system. 3,739,689, Cl. 91-3.000.
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- Cremer, Walter; and Stanke, Walter, to Head Wrightson and Company, Limited. Apparatus for cooling hot material in bulk. 3,739,495, Cl. 34-187.000.
- Cretors, C., & Co.: See—
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- Crispe, Stanley William, to Simon-Vicars Limited. Biscuit handling machinery. 3,739,901, Cl. 198-30.000.
- Crittenden, Odell D. Carton stitching machine. 3,739,972, Cl. 227-3.000.
- Crivello, James V., to General Electric Company. Method for making polyimides from aliphatically unsaturated bis-imides. 3,740,378, Cl. 260-78.00a.
- Cronin, Dennis C., to Beloit Corporation. Structure for threading paper machine. 3,740,312, Cl. 162-306.000.
- Crooks, James W., to Allis-Chalmers Corporation. Planetary transmission. 3,739,647, Cl. 74-15.630.
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- Cub, Fritz; Kleinert, Paul; Lammermann, Heinz; and Schacht, Hans, to Bosch, Robert, G.m.b.H. Filter element for filtering of liquids. 3,739,916, Cl. 210-493.000.
- Cupler, John A., II. Method of producing clean walled bores in laminates workpieces. 3,739,461, Cl. 29-557.000.
- Cupp, James E. Anti-jacking trailer coupling. 3,740,076, Cl. 280-432.000.
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- Curtis, Little P.; Ying, Sui-Chun; and Dailey, George F., to Westinghouse Electric Corporation. Liquid cooled rotor for dynamoelectric machines. 3,740,596, Cl. 310-54.000.
- Curtis, Malcolm Rex. Kite. 3,740,009, Cl. 244-153.00r.
- Curtis, Malcolm Rex. Kite controller. 3,740,010, Cl. 244-155.00a.
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- Cutler Laboratories, Inc.: See—
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- D.A.B. Industries, Inc.: See—
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- Dahl, Erik Ovale; and Husted, Ohep Nsray, to Elkem A/S. Discharging device for containers in which particulate material is treated with gases in counter-current flow. 3,739,494, Cl. 34-174.000.
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- Dahlmans, Johannes J.; and Boesten, Wilhelmus H. J., to Stamicarbon N.V. Preparation of peptides. 3,740,386, Cl. 260-112.500.
- Dahms, Gerhard: See—
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- Daniel, David J. Ben; Fielding, John O.; and Hurwitz, Henry, Jr. Audio reproducing apparatus for random access playback systems. 3,740,055, Cl. 274-9.00a.
- Daniell, Gerald Wallace. Artificial line bridge subscriber dial long line equipment tester line. 3,740,497, Cl. 179-175.300.
- Dappen, Glen Marshall, to Eastman Kodak Company. Fogged, direct-positive silver halide emulsions containing triazolium salts and the use thereof in reversal processes. 3,740,226, Cl. 96-64.00r.
- Dart Industries, Inc.: See—
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- D'Asaro, Lucian A., to Bell Telephone Laboratories, Incorporated. Minor lobe suppression in semiconductor injection lasers. 3,740,661, Cl. 331-94.50c.
- Data Electronics Corporation: See—
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- Daughenbaugh, Eli M.; and Platt, Thomas R., to Westinghouse Electric Corporation. Apparatus for making circular welds. 3,740,520, Cl. 219-60.00a.
- David, Guy Albert Jules: See—
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- Davidson, Jodelle. Novelty party cup. 3,739,975, Cl. 229-8.000.
- Davies, Daniel J.: See—
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- Davies, Peter H.: See—
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- Davies, Thomas J., Jr., to North American Rockwell Corporation. Multiple phase clock generator circuit with control circuit. 3,740,660, Cl. 331-45.000.
- Davis, Elbert, to Nupla Corporation. Method of connecting attachments to fiberglass rods. 3,739,457, Cl. 29-460.000.
- Davis, Francis A., Jr., to Paramount Packaging Corporation. Apparatus for making plastic bags. 3,739,694, Cl. 93-33.00h.
- Dawsin, Joseph H., Jr.: See—
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- Dayco Corporation: See—
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- De Bono, Edward. Board game apparatus. 3,740,037, Cl. 273-134.0af.
- De Carlo, Frank S.: See—
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- De Haes, Louis Maria; Hofman, Emiel Alexander; and Gevers, Hugo Karel, to Agfa-Gevaert. Photographic material. 3,740,220, Cl. 96-29.00r.
- De Toma, Samuel M., to Eduj Corporation. Intermittent gearing arrangement. 3,739,654, Cl. 74-461.000.
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- Dearmont, Donald D., to Phillips Petroleum Company. Bowling ball core containing sponge rubber chips. 3,740,354, Cl. 260-2.50h.
- Deering Milliken Research Corporation: See—
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- Degaetano, Ben. Liquid-proof safety closure. 3,739,933, Cl. 215-9.000.
- Deibel, Erwin, to Maschinenfabrik Lorenz Aktiengesellschaft. Work-piece magazine. 3,739,450, Cl. 29-211.00r.
- Demel, Gerhard: See—
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- Deml, Reinhold: See—
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- deMontigny, Maseleine C.: See—
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- Denton, Clyde T., to Resilient Services Incorporated. Base and border assemblies for floor coverings and the like. 3,739,423, Cl. 16-16.000.
- Desalination Systems, Inc.: See—
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- Deumu Deutsche Erz-und Metall-Union Gesellschaft mit beschränkter Haftung: See—
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- Deutsch, Ralph, to North American Rockwell Corporation. Apparatus and method for simulating chief in a sampled amplitude electronic organ. 3,740,450, Cl. 84-1.240.
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- DeVries, Richard Alan, to Minnesota Mining and Manufacturing Company. Apparatus for photographing a person while a document is handled at a work station. 3,739,698, Cl. 95-1.100.
- DeWitt, John H., Jr., to Laser Systems & Electronics, Inc. Timing and measuring methods and means for laser distance measurements. 3,740,141, Cl. 356-5.000.
- Di Drusco, Giovanni; and Galli, Paolo, to Montecatini Edison S.p.A. Purification of olefinic polymers obtained in liquid phase. 3,740,381, Cl. 260-80.780.
- Di Giovanni, Samuel J. Loading dock safety guard. 3,740,022, Cl. 256-24.000.
- Diablo Systems, Inc.: See—
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- Dickey, Frank R., Jr., to General Electric Company. Digital generation of quadrature samples. 3,740,655, Cl. 328-166.000.
- Dickson, Colin G.; and Wickersheim, Kenneth A., to Spectrotherm Corporation. Tilttable instrument support head. 3,740,011, Cl. 248-183.000.
- Diehl, H. L., Co., Inc.: See—
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- Dietz, Wolfgang Friedrich Wilhelm, to RCA Corporation. Voltage supplies. 3,740,474, Cl. 178-7.50r.
- Dillon, John R. Method for making tubing. 3,740,284, Cl. 156-171.000.
- Dion, C. Norman; and Maruyama, Dennis T., to Memorex Corporation. Spiral recording with error checking. 3,740,736, Cl. 340-174.10g.
- Divoix, Jacques Climeut; and Taxil, Marc V., to Claude. High pressure mercury vapor discharge lamp. 3,740,605, Cl. 313-229.000.
- Dixie Manufacturing Company, Inc.: See—
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- Dochterman, Richard W., to General Electric Company. Dynamoelectric machine assembly. 3,740,599, Cl. 310-91.000.
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- Doerfer Corporation: See—
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- Dolgoplosk, Boris Alexandrovich; Tinyakova, Elena Ivanovna; Beilin, Solomon Isaakovich; Makovetsky, Kirill Lvovich; Chernenko, Galina Moiseevna; Ostrovskaya, Irina Yakovlevna; Krol, Vladimir Alexandrovich; and Khrennikov, Elena Konstantinovna. Stereospecific synthetic rubber based on 1,3-butadiene and method of producing same. 3,740,382, Cl. 260-82.100.
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- Dorschner, Kenneth P.; and Albright, James A., to SCM Corporation. Alpha-aryl-N-lower alkyl nitrene-containing compositions useful as anti-microbial agents. 3,740,441, Cl. 424-327.000.
- Dorsey, Denis Peter, to RCA Corporation. Television frame storage apparatus. 3,740,465, Cl. 178-6.800.
- Dosso, Felice: See—
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- Dubouchet, Jacques L., to Societe Generale de Constructions Electrique et Mecaniques (Alstom). Automatic water gate construction. 3,739,585, Cl. 61-25.000.
- Dubreuil, Serge, to Societe S.B.F. Connecting device for fluid-circuit. 3,739,804, Cl. 137-269.000.
- Duckett, John C.; Ensley, Rufus Neal; Williams, Leland E.; and Logan, Arthur D., to Dayco Corporation. Rotary anvil construction. 3,739,675, Cl. 83-659.000.
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- Eichers, Ursula; Hahmann, Otto; Meyer, Heinz-Hermann; Rombusch, Konrad; and Rossbach, Manfred, to Chemische Werke Huels Aktiengesellschaft. Crystalline thermoplastic compositions. 3,740,380, Cl. 260-78.00a.
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- Ferm, Richard L., to Chevron Research Company. Nonionic emulsifiers for controlling the setting rate of anionic emulsion. 3,740,344, Cl. 252-311.500.
- Fernlund, Lars Martin Ingemar, to SKF Industrial Trading and Development Company N.V. Cylindrical roller bearing. 3,740,108, Cl. 308-212.000.
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- Feulner, Ronald W. Environmental board game apparatus. 3,740,038, Cl. 273-134.00d.
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- Fidelity File Box, Inc.: See—
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- Fiderer, Leo. Method of making printed circuit boards. 3,740,225, Cl. 96-43.000.
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- Fielding, John O.: See—
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- Fihaber, Ilmar J., to Fargo Mfg. Company, Inc. Underground distribution connector assembly. 3,740,692, Cl. 339-19.000.
- Fink, Leon, Jr.: See—
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- Finkelstein, Manuel: See—
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- Firearm Development, Inc.: See—
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- Fisher, Donald M. Shield for electrical plug. 3,740,694, Cl. 339-36.000.
- Fisher, John L., to Kuhlman Corporation. Transformer with connector and method of assembly. 3,740,685, Cl. 336-192.000.
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- Flingler, Josef P., to Thermex, Inc. Open end thermometer. 3,739,642, Cl. 73-371.000.
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- Fonken, Gunther S.; Herr, Milton E.; and Murray, Herbert C., to Upjohn Company. The Oxygenated 3-aza bicyclo[3.3.1]nonanes. 3,740,408, Cl. 260-293.540.
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- Graham, Thomas A. Portable charcoal igniter. 3,739,732, Cl. 110-1,00f.
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- Green, William Harry Francis; and Terry, John Brian, to Marconi Company Limited. Junctions. 3,740,479, Cl. 179-15,00a.
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- Gregory, John, to M. L. Aviation Company, Limited. Respirators. 3,739,774, Cl. 128-142,700.
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- Griffin, Gene E., to Lambert, Bruce, mesne. System for time recordation. 3,740,727, Cl. 340-172,500.
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- Gross, Frederick A., to International Rectifier Corporation. Four-way valve. 3,739,811, Cl. 137-625.270.
- Grossman, Milton J., 1/4 to Baisch, J. Carroll. Ball tossing game having slidably adjustable receptacles. 3,740,035, Cl. 273-96.00r.
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- Grotjahn, Alfred. Distress call signalizer of the miniature transmitter type. 3,740,648, Cl. 325-113.000.
- Grover, Scott C., to Kenway Engineering, Incorporated. Overspeed sensor for safety brake system. 3,740,635, Cl. 318-382.000.
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- Grunert, Kurt A., to Westinghouse Electric Corporation. Contactor with improved contact means. 3,740,510, Cl. 200-166.00k.
- GTE Automatic Electric Laboratories, Incorporated: See—
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- GTE Sylvania Incorporated: See—
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- Gugler, Victor F. Apparatus for continuously panning dough. 3,739,900, Cl. 198-19.000.
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- Gulf States Paper Corporation: See—
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- Haas, Paul J., to Singer Company, The. Driving disc for toothed yarn controller ring. 3,739,602, Cl. 66-95.000.
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- Hakala, John R., to Harrison Jet Guns Inc. Perforating gun. 3,739,723, Cl. 102-20.000.
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- Hall, James M. Mar; and Biglow, James W., to Jackson & Church Electronics Company, Inc. Surveillance system. 3,740,466, Cl. 178-6.800.
- Hallerback, Stig Lennart, to SKF Industrial Trading and Development Company, N.V. Electric motors for other electric rotary machines and method for the manufacture thereof. 3,740,598, Cl. 310-86.000.
- Halliday, Robert B., to Singer Company, The, mesne. Printed circuit board assembly aid. 3,739,447, Cl. 29-203.00b.
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- Hansel, Otto, G.m.b.H.: See—
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- Harnden, John D., Jr., to General Electric Company. Protective connector devices. 3,740,701, Cl. 338-220.000.
- Harrelson, Glen R., to Olinkraft, Inc. Longitudinal stabilizer tab for basket-style carriers. 3,739,940, Cl. 220-113.000.
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- Harris, Hilary. Motion picture sound processing apparatus. 3,740,125, Cl. 352-17.000.
- Harris, Roland G., to Automated Mail Systems, Inc. Envelope opening apparatus and method. 3,739,543, Cl. 53-3.000.
- Harris, Samuel W.: See—
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- Harrison, David Blackburn, to Lucas, Joseph, (Industries) Limited. Automatic transmission system. 3,739,661, Cl. 74-866.000.
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- Harrison, Marqueterie D.: See—
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- Harwood, Leopold Albert, to RCA Corporation. Electronic signal processing circuit. 3,740,456, Cl. 178-5.4d.
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- Hasty, Turner Elijah, to Texas Instruments, Incorporated. Method for encapsulating discrete semiconductor chips. 3,739,462, Cl. 29-577.000.
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- Hattori, Tatsuki. Method for the manufacture of a highly water resistant paper. 3,740,253, Cl. 117-62.000.
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Schleicher, Helmut; and Haufe, Werner, 3,740,696.
- Haugwitz, Rudiger D.; and Narayanan, Venkatachala L., to Squibb, E. R., & Sons, Inc. Thiazolyl and thiazinyl derivatives of benzotriazoles. 3,740,396, Cl. 260-243.00r.
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- Haylock, John Christopher, to Allied Chemical Corporation. Method of cleaning apparatus used in processing polyethylene terephthalate. 3,740,267, Cl. 134-10.000.
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- Heap, Nicholas: See—
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- Hede, Nils Erik Allan: See—
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- Hederich, Volker; Gehrke, Gunter; Neef, Rutger; and Wegner, Peter, to Bayer Aktiengesellschaft. Continuous dyeing of synthetic fibers with water immiscible organic solvents and amino anthraquinones. 3,740,186, Cl. 8-39.000.
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- Hedwall, Roberta: See—

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- Heider, Joachim; Nickl, Josef; Eberlein, Wolfgang; Kobinger, Walter; and Dahms, Gerhard, to Boehringer Ingelheim GmbH. Cardenolide rhamnosides. 3,740,390, Cl. 260-210.500.
- Heider, Joachim; Eberlein, Wolfgang; and Engelhardt, Gunther, to Ingelheim Boehringer G.m.b.H. Heterocyclic carboxylic acid esters of fluocinolone acetone. 3,740,392, Cl. 260-239.55d.
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- Heinemann, Robert W., to United States of America. Self-destructible fuse. 3,739,725, Cl. 102-70.000.
- Heins, Sidney M., to Thieme Corporation, mesne. Galvanizing preflux wash composition. 3,740,275, Cl. 148-26.000.
- Heinzer, Hans, to Schweizerische Industrie-Gesellschaft. Device for connecting parallel bands or oppositely disposed wall portions of a tube by transverse welding seams. 3,740,300, Cl. 156-583.000.
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- Helgeson, Peter L., to Raytheon Company. Fuel burner structure. 3,739,766, Cl. 126-19.00r.
- Heller, Paul R.; Ying, Sui-Chun; and Luzader, James E., to Westinghouse Electric Corporation. Water cooled rotor for dynamoelectric machines. 3,740,595, Cl. 310-52.000.
- Hellerich, Walter; and Sadowski, Volker, to Arbed S.A. Arbed-Felten & Guillaume Vereinigte Drahtwerke. Reinforced post of synthetic plastic material. 3,740,024, Cl. 256-51.000.
- Hellner, Lars Ivar; Hede, Nils Erik Allan; and Johansson, Hans Eloff, to Aktiebolaget Bofors. Stainless ferrite austenitic steel. 3,740,213, Cl. 75-128.000.
- Helm, Laszlo; Kosa Gyorgy; and Szucas, Attila, to Medicor Muvek. Pneumatic pressure type respirator. 3,739,775, Cl. 128-145.800.
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- Herbert, Donald L., to Ohio Brass Company, The. Electric current collector. 3,740,498, Cl. 191-49.000.
- Herbsthofer, Franz L.; Karlen, Harvey R.; and Wagner, Herbert E., to Cory Corporation. Beverage brewer. 3,739,709, Cl. 99-289.000.
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- Herron, William L.; and Adams, Kenneth D., to Singer Company, The. Electric motor mount for sewing machines. 3,739,735, Cl. 112-220.000.
- Herschler, Robert J.; and Jacob, Stanley W., said Jacob assor. to Crown Zellerbach Corporation, mesne. Pharmaceutical compositions with dimethyl sulfoxide. 3,740,420, Cl. 424-45.000.
- Herzog, Hershel L.; Weber, Lois; and Shapiro, Elliot L., to Schering Corporation. Hydrolysis of steroidal 21-carbonates. 3,740,316, Cl. 195-51.00r.
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- Hevia, Rafael J.; and Soto-Krebs, Luis. Rhenium extraction process. 3,739,549, Cl. 55-72.000.
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- Hill, Robert D., Jr., to Spectrol Electronics Corporation. Method of making a variable resistor. 3,739,468, Cl. 29-613.000.
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- Himmelmann, Wolfgang: See—
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- Hirane, Seichi: See—
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- Ho, Irving Tze; and Jen, Teh-Sen, to International Business Machines Corporation. Latchable decoder driver and memory array. 3,740,730, Cl. 340-173.00r.
- Hoback, John T.; and Holub, Fred F., to General Electric Company. Composite materials bonded with siloxane containing polyimides. 3,740,305, Cl. 161-183.000.
- Hochman, Arthur. Display device aperatured for holding support hooks. 3,739,919, Cl. 211-57.000.
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- Hoening, George. Pantograph apparatus. 3,739,824, Cl. 144-144.000.
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- Hoffman, Gary Robert, to Bendix Corporation, The. Integral RF modamp. 3,740,670, Cl. 332-18.000.
- Hoffmann, Hellmut; Behrenz, Wolfgang; and Hammann, Ingeborg, to Farbenfabriken Bayer Aktiengesellschaft. Insecticidally active lower alkyl-substituted 2-chloro-2-thiono-1,3,2-dioxaphosphorinane. 3,740,427, Cl. 424-209.000.
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- Hofman, Emiel Alexander: See—
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- Hohman, William H.: See—
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- Holland, Joan. Umbrella with heat generating means. 3,739,792, Cl. 135-16.000.
- Holling, John H. Line controllable boat. 3,739,516, Cl. 43-26.100.
- Holmes, Alton B., to North American Rockwell Corporation. Integrated anti-wheel lock control valve assembly. 3,740,105, Cl. 303-21.00f.
- Holub, Fred F.: See—
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- Honeywell Information Systems, Inc.: See—
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Horowitz, Frederick A. Cubical block from two axially fitted identically molded sections. 3,739,730, Cl. 108-161.000.
Horton, Murray Robert; and Kutay, Robert Stephen, to RCA Corporation. Fabrication method for gas lasers having integral mirrors. 3,740,110, Cl. 316-21.000.
Hose, Eddy, to Hughes Aircraft Company. Electronic image cancellation for doppler receivers. 3,740,748, Cl. 343-8.000.
Hotten, Bruce W.: See—
Allphin, Nylen L., Jr.; and Hotten, Bruce W., 3,740,338.
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Howard, William E., to Materials Handling Systems, Inc. Device for holding and bundling newspapers. 3,739,714, Cl. 100-34.000.
Hoyler, Robert C., to Westinghouse Electric Corporation. Control of an interlocking in a vehicle control system. 3,740,548, Cl. 246-3.000.
Hoyt, Michael T.; Junker, Bernhard T.; Hedrick, Ross M.; and Breeding, Terry G., to Monsanto Company. Inlet reservoir for continuous polymer casting machine. 3,740,177, Cl. 425-115.000.
Hubbert, B. H., & Sons, Inc.: See—
Costa, Ralph E.; and Trevillian, Walter W., 3,739,710.
Hubby, Laurence M., Jr., to Hewlett-Packard Company. Acousto-optic filter having an increased optical beam aperture. 3,740,117, Cl. 350-149.000.
Huber, William B., to Motorola, Inc. Magnetic tape head indexing assembly for cartridge type tape player. 3,740,493, Cl. 179-100.2ca.
Huffman, George W.; and Rustad, Norman E., to Quaker Oats Company. The. One-step preparation of a polyurethane-urea resin using a tetraalkylguanidine or isocyanate adduct thereof as a catalyst. 3,740,377, Cl. 260-75.0nc.
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Hurwitz, Henry, Jr.: See—
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Hutchison, Robert B., to Emery Industries, Inc. Compositions useful as sperm oil substitutes. 3,740,333, Cl. 252-48.600.
Huybrechts, Roger Joseph: See—
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Hwang, Philip T. R.; and Pusey, Walter C., III, to Continental Oil Company. Process for determining hydrocarbon maturity using electron spin resonance. 3,740,641, Cl. 324-50c.
Hyde, James A.; and Youngs, Roger W., to Nalco Chemical Company. Method and apparatus for detecting and controlling foamability of a liquid system. 3,739,795, Cl. 137-5.000.
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Ideal Equipment Co., Ltd.: See—
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Ignatiev, Vladimir. Tamper resistant lock. 3,739,611, Cl. 70-364.00r.
Iida, Yoshihiko; and Goto, Yasushi, to Bridgestone Tire Company, Limited. Method for optimizing tire uniformity. 3,739,533, Cl. 51-281.00r.
Ikeda, Sadatoshi, to Niles Parts Co., Ltd. Pushbutton lock. 3,740,568, Cl. 307-10.0at.
Ikigai Tekko Kabushiki Kaisha: See—
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Inagaki, Junpei; and Tadakuma, Susumu, to Tokyo Shibaura Electric Company, Ltd. Linear electric motor. 3,740,628, Cl. 318-135.000.
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Itoh, Takeshi, to Tokyo Shibaura Electric Co., Ltd. Linear beam tube modulation system using modulation of first grid. 3,740,649, Cl. 325-120.000.
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Itzuka, Kiyoshi, to Nippon Kogaku K.K. Device for detecting the boundary between different brightness regions of an object. 3,740,152, Cl. 356-156.000.
Iwaki, Katsutaro; Mori, Kazumasa; Ishihama, Masaru; and Kobayashi, Yukio, to Nippondenso Co., Ltd. Automobile battery charger with protection means. 3,740,637, Cl. 320-61.000.
Iwasa, Hitoo: See—
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Iwasaki, Tatuo: See—
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Jablonsky, Louis, to United States of America, Army. In-line explosion arrester. 3,739,796, Cl. 137-68.000.
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Jackson, Harold Ernest, 1/2 to Petrol Injection Limited. Fuel injection systems. 3,739,762, Cl. 123-139.0bg.
Jackson, Robert G.; and Armstrong, Edward, to Conch International Methane Limited. Methods of welding together sheets to form walls, tanks or the like. 3,740,526, Cl. 219-137.000.
Jacob, Stanley W.: See—
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Jarrige, Georges Roger; deceased (by Jarrige, Jeannine Germaine; administrator); and Nguyen, Dat Nhiep, to ITT Industries, Inc. Ignition device for high pressure discharge lamps. 3,740,686, Cl. 337-22.000.
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Jenkins, Robert B., Sr.; and Jenkins, Robert B., Jr., to Jenkins Metals Shops, Inc., mesne. Method and apparatus for building card screens. 3,740,047, Cl. 260-40.000.
Jensen, Arthur E. Sealing arrangement for irrigation pipe line sections. 3,740,061, Cl. 277-178.000.
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Jesmore, William D.; and Simon, Joseph A., to U.S. Manufacturing Corporation. Process for forming a flared end tubular metal part. 3,739,620, Cl. 72-256.000.
Jespersen, Paul W.; and Bump, Edward L., to Georgia-Pacific Corporation. Dispenser for flexible sheet material and a perforating mechanism adapted to be used therein. 3,739,965, Cl. 225-96.000.
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Johnson, Calvin N., 33 1/3 to Chilton, Kenneth M. Adjustable mattress. 3,739,409, Cl. 5-345.000.
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Johnson, Glenn D.: See—
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Johnson, Robert H.: See—
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Johnson, Wayne F.; and Miller, William R., to United States of America, Atomic Energy Commission. Reaction end-point recorder for use with a rotary analytical photometer. 3,740,760, Cl. 346-74.00e.
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Jones, Raymond E., to Brown & Root, Inc. Method and apparatus for evaluating offshore pipeline laying operations. 3,739,591, Cl. 61-72.300.
Jones, Samuel Paul, to General Electric Company. Heat exchanger having resiliently mounted tubular members. 3,739,840, Cl. 165-69.000.
Jones, Stanley C.; Roszell, Wayne O.; and Svaldi, Marvin A., to Marathon Oil Company. High water content oil-external micellar dispersions. 3,740,343, Cl. 252-308.000.
Jones, Thomas C., and Cantarutti, Armindo, to NRM Corporation. Tire building machine. 3,740,293, Cl. 156-415.000.
Jones, William H., to Eaton Corporation. Alarm set point control system. 3,740,741, Cl. 340-272.000.
Joseph, Sebastian J., to Specialized Electronics Inc. Transducer mounting apparatus. 3,740,706, Cl. 340-8.500.
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Karkow, Waldemar B., Jr.: See—
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Kaufmann, Edward A. Bicycle lock. 3,739,609, Cl. 70-234.000.
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Kaye, Gordon E., to Mallory, P. R., & Co., Inc. Power handle. 3,739,769, Cl. 127-106.000.
Kazama, Kazuo: See—
Sakurai, Tooshi; Tada, Satoshi; and Kazama, Kazuo, 3,740,119.
Kazama, Toshio: See—
Seki, Kazunori; and Kazama, Toshio, 3,740,166.
Kear, Bernard H.: See—
Copley, Stephen M.; Giamei, Anthony F.; Hornbecker, Merton F.; and Kear, Bernard H., 3,739,835.
Kec, William J., to Park-Ohio Industries, Inc., mesne. Radio frequency transformer for induction heating installation. 3,740,516, Cl. 219-10.750.
Kehoe, Edward C.; deceased (by Kehoe, Jean West; executrix), to Johns-Manville Products Corporation. Internal pressure precoat filter. 3,739,915, Cl. 210-394.000.
Kehoe, Jean West: See—
Kehoe, Edward C., 3,739,915.
Keith, Clarence E.: See—
Keith, Earl G.; and Keith, Clarence E., 3,739,671.
Keith, Earl G.; and Keith, Clarence E. Interleaving paper feeders. 3,739,671, Cl. 83-230.000.
Keldmann, Erik; and Johansen, Geni G., to Bristol-Myers Company. Hairsetting apparatus having applicator means for moistening the surface of the hair roller. 3,739,787, Cl. 132-9.000.
Keldmann, Erik, to Bristol-Myers Company. Hair curlers. 3,739,788, Cl. 132-33.00r.
Kell, Nathaniel B., to General Motors Corporation. Rotary machine apex seal. 3,740,175, Cl. 418-113.000.
Keller, Peter H.; and Fokett, Roger D., to Syntex Corporation. Colorimeter probe. 3,740,155, Cl. 356-188.000.
Kellermeyer, Christian. Circuit arrangement with door lock switch. 3,740,573, Cl. 307-116.000.
Kelly, Michael A.: See—
Chaney, Robert; and Kelly, Michael A., 3,740,151.
Kelsey, David H.; Putzier, Charles W.; and McColgan, John M., to Sloane, R. & G. Manufacturing Company, Inc. Color bond surveillance system. 3,740,290, Cl. 156-310.000.
Kelsey-Hayes Company: See—
Ayers, David T., Jr., 3,740,101.
Brown, Donald D., 3,740,691.
Kent Air Tool Co.: See—
Gunning, Samuel D., 3,739,862.
Kent Instruments Limited: See—
Boden, Peter Standidge, 3,739,655.
Kenway Engineering, Incorporated: See—
Grover, Scott C., 3,740,635.
Kertzman, Norman. Compartmented portable case. 3,739,886, Cl. 190-49.000.
Kessell, Archie; and Phelan, Charles Stephens, to Rohe Scientific Corporation. Zero displacement diaphragm valve. 3,740,019, Cl. 251-129.000.
Kessler, George W.: See—
Stratton, Jerry L.; and Kessler, George W., 3,740,588.
Kezer, Charles F.; and Chung, Soo Chul, to Litton Systems, Inc. Warning system for load handling equipment. 3,740,534, Cl. 235-151.300.
Khan, Amir U., to United States of America, Agriculture. Heated sand dryer. 3,739,488, Cl. 34-95.000.
Khrennikova, Elena Konstantinovna: See—

Dolgoplosk, Boris Alexandrovich; Tinyakova, Elena Ivanovna; Beilin, Solomon Isaakovich; Makovetsky, Kirill Lvovich; Chernenko, Galina Moiseevna; Ostrovskaya, Irina Yakovlevna; Krol, Vladimir Alexandrovich; and Khrennikova, Elena Konstantinovna, 3,740,382.
Kieserling, Th., & Albrecht: See—
Pfeiffer, Hans, 3,739,621.
Kiesling, Rudolf; and Rothweiler, Richard C., to Square D Company. Miniature oil-tight push button and selector switch assembly and improved contact unit therefor. 3,740,501, Cl. 200-16.00r.
Kietzman, Richard C.: See—
Carl, David G.; Kietzman, Richard C.; and Knapp, William A., 3,740,259.
Kihara, Nobutoshi, to Sony Corporation. Magnetic recording and/or reproducing apparatus with automatic tape loading and unloading device. 3,740,495, Cl. 179-100.20t.
Kilbourn, Barry Tarbutt: See—
Ballard, Denis George Harold; Heap, Nicholas; Jones, Eric; Kilbourn, Barry Tarbutt; and Wyatt, Ronald John, 3,740,384.
Kilgour, John; Payne, Peter Charles John; Reid, Stewart; and Everett, Eric George, to Rotary Hoes Limited and National College of Agricultural The Governors of the. Agricultural machine. 3,739,907, Cl. 209-26.000.
Killion, Mead Clifford: See—
Carlson, Elmer Victor; and Killion, Mead Clifford, 3,740,496.
Kim, Dong G.: See—
Rosbach, Dennis R.; and Kim, Dong G., 3,740,654.
Kimberly-Clark Corporation: See—
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Kimoto, Yohichi: See—
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Kimura, Akira; and Tajima, Masaharu, to Ikigai Tekko Kabushiki Kaisha. Numerical controlled boring machine. 3,740,160, Cl. 408-2.000.
Kimura, Kazuyoshi: See—
Yano, Nobumitsu; Fukushima, Masao; Fukinbara, Itaru; Kishi, Masanori; and Kimura, Kazuyoshi, 3,740,244.
Kimura, Sachio; and Aoki, Yoshiaki, to Kabushiki Kaisha Koparu. Broadcast channel selecting mechanism having motor operated rotary member. 3,740,679, Cl. 334-9.000.
Kincaid, Norman L.: See—
Grip, Leonard P.; Kincaid, Norman L.; and Henaleigh, Melvin A., 3,739,613.
King, Herbert P., to Deering Milliken Research Corporation. Yarn guide. 3,739,564, Cl. 57-36.000.
Kishi, Masanori: See—
Yano, Nobumitsu; Fukushima, Masao; Fukinbara, Itaru; Kishi, Masanori; and Kimura, Kazuyoshi, 3,740,244.
Kishino, Shigeo: See—
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Kisor, Ray C.; Solomon, Thomas P.; and Sutcliffe, Grenville G., to Husky Corporation. Liquid discharge nozzle and splash baffle. 3,739,988, Cl. 239-288.000.
Kitamura, Koichiro: See—
Kumabe, Junichiro; Kitamura, Koichiro; and Taniguchi, Osamu, 3,739,665.
Kitchen, Llywn L., Jr.: See—
Cwycyshyn, Walter; and Kitchen, Llywn L., Jr., 3,739,906.
Kiwallo, Josef; and Sage, Ira H., to Production Technology Inc., mesne. Conversion of variable delivery pump to fixed delivery pump for a friction welder. 3,739,974, Cl. 228-2.000.
Klein, David M.: See—
Creapo, Ralph W.; Downham, Roy E.; Eckelaert, Jack F.; Frost, John W.; and Klein, David M., 3,739,491.
Kleinert, Paul: See—
Cub, Fritz; Kleinert, Paul; Lammernann, Heinz; and Schacht, Hans, 3,739,916.
Klett, Gene R.; Kokaly, Joseph; Risk, Norman E.; and Smith, Roger M., to Caterpillar Tractor Company. Scraper apron closing mechanism. 3,739,506, Cl. 37-126.0aa.
Kline, Robert J.: See—
Kangas, Larry G.; and Kline, Robert J., 3,739,749.
Klingler, George A. Gas particle accumulator, treating and test apparatus. 3,739,627, Cl. 73-28.000.
Klockner-Humboldt-Deutz Aktiengesellschaft: See—
Wehren, Peter; Haas, Helmut; and Demel, Gerhard, 3,739,991.
Klockner-Werke AG: See—
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Klug, Walther H., to PGC Scientifics Corporation. Method of preparing bodies on the basis of urea-formaldehyde resins. 3,740,355, Cl. 260-2.5fp.
Knapp, George F., to MKM Corporation. Smoke-fume exhaust system. 3,739,707, Cl. 98-33.00r.
Knapp, Heinrich; Schwartz, Reinhard; and Eckert, Konrad, to Bosch, Robert, G.m.b.H. Regulator mechanism for fuel injection apparatus. 3,739,758, Cl. 123-119.00r.
Knapp, William A.: See—
Carl, David G.; Kietzman, Richard C.; and Knapp, William A., 3,740,259.
Knemeyer, Siegfried: See—
Doniger, Jerry; Morse, Carson; and Knemeyer, Siegfried, 3,740,004.
Knoll A.G. Chemische Fabriken: See—
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Knox, John D., to Vermont American Corporation. Screwdriver. 3,739,825, Cl. 145-51.000.
Knutson, Knut Raymond; Morichetto, Michele; and Wannfors, P. Magnus, to Incentive Research & Development AB. Atmospheric contaminant collector. 3,740,626, Cl. 317-262.00r.
Kobayashi, Yukio: See—
Iwaki, Katsutaro; Mori, Kazumasa; Ishihama, Masaru; and Kobayashi, Yukio, 3,740,637.
Kobinger, Walter: See—
Heider, Joachim; Nickl, Josef; Eberlein, Wolfgang; Kobinger, Walter; and Dahms, Gerhard, 3,740,390.
Kochhar, Rajindar K.; Jones, Joseph W., Jr.; and Henry, Raymond M., to Gulf Research & Development Company. Process for the preparation of manufactured articles. 3,740,263, Cl. 117-126.0gr.
Kodis, Rudolf, to Phillips Petroleum Company. Yarn coating device. 3,739,746, Cl. 118-62.000.
Koei Chemical Co., Ltd.: See—
Wada, Yasuo; and Ishihara, Katsumi, 3,740,322.
Koenig, Elmer A., to Sherwood Medical Industries, Inc. Locking stackable container. 3,739,939, Cl. 220-97.00c.
Koetter, Helmut, to Stieglmeier, Joh., & Co., G.m.b.H. Adjustable bed. 3,739,406, Cl. 5-68.000.
Kohashi, Tadao: See—
Suzuki, Norio; Takiguchi, Yoshimi; and Kohashi, Tadao, 3,740,616.
Kohke, Stephen, to Thomas & Betts Corporation. Bundling strap. 3,739,430, Cl. 24-16.0pb.
Kohke, Stephen J., to Thomas & Betts Corporation. Bundling strap. 3,739,429, Cl. 24-16.0pb.
Kohlhagen, Walter. A.C. motor drive circuit. 3,740,629, Cl. 318-138.000.
Kohn, Kurt W., to Industrial Electronic Engineers, Inc. Cathode ray display tube with blanking grid. 3,740,603, Cl. 313-86.000.
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Kolec, Robert F.: See—
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Bogrets, German Nikolaevich; Bondar, Nikolai Pavlovich; Sizonenko, Grigory Alexandrovich; Minakov, Anatoly Gavrilovich; Barsukov, Mikhail Ivanovich; Mitkevich, Grigory Iosifovich; Dudkin, Vyacheslav Fedorovich; Teslya, Andrei Mikhailovich; and Kolomiets, Nikolai Emelyanovich, 3,740,207.
Komatsu, Toshiaki: See—
Akiyama, Hisao; Okano, Shigeru; Suzuki, Hiroyuki; Maezima, Kaoru; Komatsu, Toshiaki; and Katsura, Toyozo, 3,740,411.
Kommrusch, Richard S., to Motorola, Inc. Resonant cavity filter temperature compensation. 3,740,677, Cl. 333-82.0bt.
Komori, Shigehiro; Sato, Jiro; and Hattori, Hiroyuki, to Canon Kabushiki Kaisha. Electrophotographic apparatus. 3,740,132, Cl. 355-3.000.
Komori, Shigehiro; Sato, Jiro; and Hattori, Hiroyuki, to Canon Kabushiki Kaisha. Electrophotographic copying apparatus of slit exposure type. 3,740,133, Cl. 355-8.000.
Kondo, Eiji; and Mitsugi, Takashi, to Shionogi & Co., Ltd. Degradation of side chain in sapogenins. 3,740,317, Cl. 195-51.00g.
Kondo, Taizo: See—
Nakamura, Akihiko; Ito, Iko; Kondo, Taizo; and Inamura, Keizo, 3,740,370.
Kontes Glass Company: See—
Kontes, James C., 3,739,948.
Kontes, James C., to Kontes Glass Company. Variable-volume predetermined-bulk liquid dispenser. 3,739,948, Cl. 222-166.000.
Koon, Homer E., Jr., to Firearm Development, Inc. Shoulder stock and receiver combination for firearms. 3,739,515, Cl. 42-75.00c.
Koppe, Herbert: See—
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; and Stockhaus, Klaus, 3,740,401.
Koppe, Herbert; Engelhardt, Albrecht; Ludwig, Gerhard; and Zeile, Karl, to Boehringer Ingelheim G.m.b.H. Bradycardia compositions. 3,740,443, Cl. 424-330.000.
Koppe, Herbert; Engelhardt, Albrecht; and Zeile, Karl, to Boehringer Ingelheim G.m.b.H. Therapeutic compositions and method. 3,740,444, Cl. 424-330.000.
Koppers Company, Inc.: See—
Baum, Melvin E.; and Hutton, John A., Jr., 3,740,372.
Kormos, Kalman, to General Signal Corporation. Particle wetting apparatus. 3,740,027, Cl. 259-69.000.
Kosa Gyrogy: See—
Helm, László; Kosa Gyrogy; and Szucas, Attila, 3,739,775.
Kosonovich, Nicholas S.; and Langley, Morley P., to Westinghouse Electric Corporation. Undervoltage trip circuit for circuit breaker. 3,740,738, Cl. 340-248.00b.
Kosbab, Paul O.; Roach, Robert F.; and Laumann, Paul A., to Milprint, Inc. Multiple-layer packaging film with intermediate protective layer. 3,740,306, Cl. 161-214.000.

- Kosche, Horst Heinz-Joachim, to Renker GmbH. Photoconductive isocyanate reaction products and deposited layers. 3,740,219, Cl. 96-1.800.
- Koskolos, Nick J.: See—
McIntosh, Harold A.; Slocum, Gordon K.; and Koskolos, Nick J., 3,740,688.
- Kovar, Robert F.: See—
Arnold, Fred E.; and Kovar, Robert F., 3,740,374.
- Kowalski, Xavier, to Monsanto Company. Processes for bleaching textiles. 3,740,187, Cl. 8-111.000.
- Kraft, Helmut, to Knoll A.G. Chemische Fabriken. N-substituted 2-(2-phenylbicyclo-(2,2,1)-heptyl) carbamates. 3,740,405, Cl. 260-293.530.
- Kraftco Corporation: See—
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- Kraje, Adolf: See—
Romer, Kurt; Schmid, Josef; and Kraje, Adolf, 3,739,465.
- Kramenic, Zdenek; Vasek, Vitezslav; Miks, Zbynek; and Solik, Zdenek, to Vyzkumny Ustav Bavlarsky. Control apparatus for wave shed forming means. 3,739,816, Cl. 139-12.000.
- Kramer, Hyman. Method of making hinge brackets. 3,739,623, Cl. 72-339.000.
- Krauch, Carl Heinrich: See—
Barzynski, Helmut; and Krauch, Carl Heinrich, 3,740,224.
- Krbchek, Le Roy O.: See—
Montgomery, Rex; Bateson, George F.; Corcoran, John D.; and Krbchek, Le Roy O., 3,740,388.
- Kreitzburg, Oliver Dean, to Fabricmaster, Inc. Cloth bolt holder. 3,739,918, Cl. 211-44.000.
- Krejo, Joseph, III. Energy absorbing seat assembly. 3,740,091, Cl. 296-68.000.
- Krol, Vladimir Alexandrovich: See—
Dolgoplosk, Boris Alexandrovich; Tinyakova, Elena Ivanovna; Beilin, Solomon Isaakovich; Makovetsky, Kirill Lvovich; Chernenko, Galina Moiseevna; Ostrovskaya, Irina Yakovlevna; Krol, Vladimir Alexandrovich; and Khrennikova, Elena Konstantinovna, 3,740,382.
- Kruel, Martin; Zurawsky, Dieter; and Jung, Harald, to Bergwerk-sverband GmbH. Adsorbent for desulfurization of sulfur dioxide containing waste gases. 3,739,550, Cl. 55-73.
- Krupp, Roy Stephen; and Tomko, Lawrence Andrew, to Bell Telephone Laboratories, Incorporated. Time division multiplex switching system utilizing all time division techniques. 3,740,480, Cl. 179-15.04q.
- Kubo, Moritada; and Arimura, Yoshiaki, to Tokyo Shibaura Electric Company, Ltd. Apparatus for inspecting the appearance of products. 3,740,467, Cl. 178-6.800.
- Kubota Tekko Kabushiki Kaisha (Kubota, Ltd.): See—
Hino, Masamichi; and Yoneda, Rinosuke, 3,739,866.
- Kubota, Yasuhiro, to Sony Corporation. Image pickup tube. 3,740,458, Cl. 178-5.4st.
- Kudale, Jagannath M.; and Lumby, Donovan H., to Land O'Lakes, Inc. Injecting apparatus. 3,739,713, Cl. 99-533.000.
- Kuga, Mutsuo; Iwasaki, Tatuo; Kyo, Kayomon; and Yoshioka, Atsuo, to Unitika Kabushiki Kaisha. Polyamide films. 3,740,246, Cl. 117-7.000.
- Kuhl, Bernard A., to General Motors Corporation. Cushioned hook for a push-pull type vehicle coupling. 3,740,080, Cl. 280-481.000.
- Kuhl, Wilfried; and Klug, Leonhard, to Siemens Aktiengesellschaft. Vacuum switch with magnetically controllable arc. 3,740,507, Cl. 200-144.00b.
- Kuhlman Corporation: See—
Fisher, John L., 3,740,685.
- Kumabe, Junichiro; Kitamura, Koichiro; and Taniguchi, Osamu, to Rikagaku Kenkyusho. Vibrating cutting method and apparatus. 3,739,665, Cl. 82-9.000.
- Kummer, Werner: See—
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- Kunz, Max, to Ruti Machinery Works, Ltd. Drive arrangement for the terry warp on a terry loom. 3,739,817, Cl. 139-25.000.
- Kurschi, Masami Mike. Hygienically shielded rotary toothbrush. 3,739,416, Cl. 15-23.000.
- Kurata, Kunio: See—
Kato, Sadatake; and Kurata, Kunio, 3,740,558.
- Kureha Kagaku Kogyo Kabushiki Kaisha: See—
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- Kurkin, Jury Georgievich: See—
Boborykin, Jury Alexandrovich; and Kurkin, Jury Georgievich, 3,739,962.
- Kuroki, Shigenobu, to Kabushiki Kaisha Honda Rokku. Locking apparatus combined with ignition switch in a motorcar. 3,739,610, Cl. 70-252.000.
- Kusnetz, Jacob: See—
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- Kutay, Robert Stephen: See—
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- Kuth, Robert: See—
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- Kwarsick, Edmund J.: See—
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- Kyo, Kayomon: See—
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- L & J Speciality Corporation: See—
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- La Flame, Frank E., to General Motors Corporation. Viscous fluid clutch. 3,739,891, Cl. 192-58.00c.
- LaBarge, Louis P.: See—
Garrett, Jim C.; Johnson, Robert H.; Shelton, Jack; and LaBarge, Louis P., 3,740,500.
- Lachnit, Friedrich, to Deutsche Babcock & Wilcox Aktiengesellschaft. Multi-wheel underwater excavation machine. 3,740,098, Cl. 299-8.000.
- Laden, Karl: See—
Chafitz, Steven Roy; and Laden, Karl, 3,739,952.
- Lady, Robert M., Sr.; and Steiner, William G., to United States of America. Measuring the distance apparatus for between a workpiece surface and a datum. 3,740,643, Cl. 324-340.000.
- Lafon, Louis, to Societe Oriymonde. 1-(3,5-Dialkoxy-phenoxy)-2-(tertiary amino)-ethanes. 3,740,397, Cl. 260-247.70c.
- Laggy, William Joseph; and May, Harold Frederick, to Bell Telephone Laboratories, Incorporated. Call distributing system. 3,740,484, Cl. 179-18.00j.
- Lahtvee, Toivo; Sethi, Bal Krishan; and Stark, William Hubbard. Process for treating ammonia-base waste sulfite liquor. 3,740,309, Cl. 162-36.000.
- Laing, Ralph R.: See—
Nuttall, Fleet E.; Laing, Ralph R.; Marshall, James E.; Rhodes, Tony; Sergeant, John E.; and Workman, Larry D., 3,740,056.
- L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procédes Georges Claude: See—
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- Lamb, Stephen K.: See—
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- Lambert, Bruce, mesne: See—
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- Lambrecht, Richard A., to Union Carbide Corporation. System for molding electronic components. 3,739,438, Cl. 29-25.420.
- Lammermann, Heinz: See—
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- Lancer Boss Limited: See—
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- Land, Cecil W.; and Smith, Willis D., to United States of America. Atomic Energy Commission. Self strain biased ferroelectric electrooptics. 3,740,118, Cl. 350-150.000.
- Land O'Lakes, Inc.: See—
Kudale, Jagannath M.; and Lumby, Donovan H., 3,739,713.
- Landherr, Lawrence R., to Milwaukee Cylinder Corporation. Hydraulic shock damping device. 3,739,808, Cl. 137-493.000.
- Landis, David M.: See—
Schag, Ronald H.; and Landis, David M., 3,740,644.
- Landrus, James D.; Norris, Allan S.; and Edmunds, John O., to General Motors Corporation. Valving arrangement. 3,739,807, Cl. 137-469.000.
- Lane, George C.; Cartwright, Cyril A.; and Elmslie, Keith W., to Warner-Lambert Company, mesne. Sputter coating apparatus with shrouding means. 3,740,327, Cl. 204-298.000.
- Lang, William D.: See—
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- Langenfeld, Frank H.; and Overall, Wilson W., to Monsanto Company. Hydrogen embrittlement inhibitors for organic compositions. 3,740,336, Cl. 252-70.000.
- Langieri, Michael, Jr., to Questor Corporation. Music box. 3,740,447, Cl. 84-101.000.
- Langley, Morley P.: See—
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- Lannerd, Robert P.: See—
Fabianic, William S.; Jancowskis, Benno B.; and Lannerd, Robert P., 3,740,758.
- Lansbury, Robert Clive; and Mann, David, to Imperial Chemical Industries Limited. Method of vacuum metallizing thermoplastic polymer film and resulting product. 3,740,254, Cl. 117-71.00r.
- Larson, Raymond Lee, to General Electric Company. Portable cleaning tool for electrical conductors. 3,739,415, Cl. 15-23.000.
- Laser Systems & Electronics, Inc.: See—
DeWitt, John H., Jr., 3,740,141.
- Lashar, Walter B., Jr., to American Chain & Cable Company, Inc. Laminated chain link construction. 3,739,571, Cl. 59-84.000.
- Lasky, Daniel J., to DS Electro-Optical Incorporated. Photographic plate development system. 3,739,705, Cl. 95-89.00r.
- Lassig, Wolfgang: See—
Woff, Erich; Lassig, Wolfgang; Seelig, Eckart; and Bergisch, Gunther Kolf, 3,740,376.
- Lassy, Carl O.; and Lassy, William A. Instant two-way lock for work holders. 3,740,048, Cl. 269-59.000.
- Lassy, William A.: See—
Lassy, Carl O.; and Lassy, William A., 3,740,048.
- Latreille, Charles W.: See—
Mitchell, David C.; and Latreille, Charles W., 3,740,512.
- Lattke, Horst G., to Emhart Corporation. Method and apparatus for packaging articles. 3,739,545, Cl. 53-29.000.

- Lauer, Cornelius, to General Tire & Rubber Company, The. Electrical wire cutting apparatus. 3,740,517, Cl. 219-68.000.
- Laumann, Paul A.: See—
Kosbab, Paul O.; Roach, Robert F.; and Laumann, Paul A., 3,740,306.
- Lawson, Jimmie B.; and Mijneff, Pieter F., to Shell Oil Company. Water-thickening polymer-surfactant adsorption product. 3,739,848, Cl. 166-274.000.
- Le Feuvre, Thomas: See—
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- Leach Company: See—
Gollnick, Cyril R., 3,739,927.
- Learn, Leland L.; and Moreland, William C., II, to Westinghouse Electric Corporation. Flexible mold ice maker control. 3,739,595, Cl. 62-135.000.
- Leblanc, Conrad: See—
Goodman, Abraham; and Leblanc, Conrad, 3,740,124.
- Leblond, Jean, to Uniroyal Englebert France S.A. Tire building machine. 3,740,292, Cl. 156-396.000.
- Leclercq, Robert: See—
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- Lecoeur, Jacques, to Eclair International. Camera film moving mechanism. 3,740,129, Cl. 352-193.000.
- Lee, Art, to General Electric Company. Solid state unipole relay. 3,740,587, Cl. 307-252.00b.
- Lee, Hanju: See—
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- Lee, Raymond, Organization, Inc.: See—
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- McNamara, Gerald J., 3,739,562.
- Lee, Richard J.; and Harris, Samuel W., to Standard Oil Company. Reaction products of nitro-nitrito alkanes with alkylene poly-amines and sulfur; and compositions containing the same. 3,740,387, Cl. 260-132.000.
- Lee, Shi Kyu, to Boeing Company, The. Sense line coupling structures circuits for magnetic memory device. 3,740,191, Cl. 179-15.0bl.
- Lee, William F.: See—
Purves, William F.; Lee, William F.; Davies, Peter H.; and Jeffery, William J., 3,740,232.
- Leeds & Northrup Company: See—
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- Lehmann, Werner: See—
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- Leighton, Sally C.: See—
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- Leininger, Joel C.: See—
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- Leisure Vehicle Inc.: See—
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- Leitl, Jimmy M.: See—
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- Marin, Glenn R., to Carborundum Company. The Disc brake with resilient torque connection. 3,739,883, Cl. 188-71.100.
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- Maschinenfabrik Lorenz Aktiengesellschaft: See—
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- Mitoff, Stephen P., to General Electric Company. Method of charging sodium-sulfur cell. 3,740,268, Cl. 136-6.06.
- Mitsubishi Jidosha Kogyo Kabushiki Kaisha: See—
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- Mitsubishi Jukogyo Kabushiki Kaisha: See—
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- Mitsugi, Takashi: See—
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- Miyagawa, Fumihiko, to Ricoh Co., Ltd. Data recording device for use with cameras. 3,739,697, Cl. 95-1.100.
- Miyamoto, Osamu: See—
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- Miyata, Akira; Okubo, Hideyo; Tomita, Chikayoshi; and Suzuki, Akio, to Nippon Kokan Kabushiki Kaisha. Molten salt electroplating method. 3,740,323, Cl. 204-25.000.
- MKM Corporation: See—
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- Moatti, Samuel Georges. Self-cleaning filter elements. 3,739,914, Cl. 210-333.000.
- Mobil Oil Corporation: See—
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- Modicon Corporation: See—
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- Moerkens, Jozef Cornelis, to U.S. Philips Corporation. Arrangement for the ignition and alternating current supply for a gas-and/or vapour discharge lamp. 3,740,609, Cl. 315-200.000.
- Mogil, Bernard: See—
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- Mohan, Raam R.: See—
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- Mohr, Theo Richard; and Wolf, Vladimir. Restraint and metabolism cage for test animals. 3,739,751, Cl. 119-103.000.
- Mohri, Etsuzo; Saito, Hiroshi; Hayakawa, Toshio; and Ochiai, Shigeru, to Matsushita Electric Industrial Co., Ltd. UHF tuner. 3,739,650, Cl. 74-10.600.
- Molly, Patrick C.: See—
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- Monestere, Martin, Jr.; and Pronier, Frederick, to Bard, C. R., Inc. Catheter introduction system. 3,739,778, Cl. 128-214.000.
- Monola, Wilbert E., to Mini-Products, Inc. Multiband quad and loop antenna. 3,740,753, Cl. 343-744.000.
- Mons, Johannes Jan, to U.S. Philips Corporation. Arrangements for tuning a receiver. 3,740,651, Cl. 325-464.000.
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- Hoyt, Michael T.; Junker, Bernhard T.; Hedrick, Ross M.; and Breeding, Terry G., 3,740,177.
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- Montecatini Edison S.p.A.: See—
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- Moog Industries, Inc.: See—
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- Moore, George E.; and Tomlinson, Lee H., to General Electric Company. Burner-flame arrester for burning off-gas from a boiling water reactor power plant. 3,740,313, Cl. 176-37.000.
- Moore, Glenn E.; and Guertin, Robert W., to Dover Corporation. Mixing valve for fluid dispensing nozzle. 3,739,945, Cl. 222-129.000.
- Moore, Harold Edward, to McCulloch Corporation. Chain saw safety method and apparatus. 3,739,475, Cl. 30-383.000.
- Moore, Ralph J. Automatic loading cross-bow. 3,739,765, Cl. 124-25.000.
- Moore, Robert A.; and Nelson, Theodore M., to Westinghouse Electric Corporation. Yig filter having a single substrate with all transmission line means located on a common surface thereof. 3,740,675, Cl. 333-73.00r.
- Morales, Juan G.: See—
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- Moray, Forest J. Electrical wire terminal. 3,740,702, Cl. 339-223.00s.
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- Morgan, Ora B., Jr., to United States of America, Atomic Energy Commission. Multi-ampere duopigatron ion source. 3,740,554, Cl. 250-41.9se.
- Mori, Kazumasa: See—
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- Morse, Carson: See—
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- Mulasmajic, Dzemal. Prime mover system having rotating and reciprocating multi-amplification. 3,740,597, Cl. 310-80.000.
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- Munsterlyn, Charles R., to Tropel, Inc. Surface measurement by interferometer. 3,740,150, Cl. 356-109.000.
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- Nagel, Ernst, to Luwa AG. Method and apparatus for cleaning the spinning rotors of open-end spinning equipment. 3,739,565, Cl. 57-58.890.
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- Nahay, Lawrence Paul, to RCA Corporation. M-ARY FSK digital modulator. 3,740,669, Cl. 332-11.00r.
- Nail, Walter Philip. Inflatable support structure. 3,740,095, Cl. 297-454.000.

- Najvar, Daniel J.: See—
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- Nakamura, Akihiko; Ito, Iko; Kondo, Taizo; and Inamura, Keizo, to Sumitomo Chemical Co., Ltd. and Kansai Paint Company, Limited. Coating composition comprising a copolymer of vinyl chloride and an unsaturated glycidyl compound. 3,740,370, Cl. 260-31.80u.
- Nakao, Yoshikazu: See—
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- Nakashima, Shinichi: See—
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- Newman, Charles J., to Grote Manufacturing Company, The. Warning light with spring socket for a bulb. 3,740,544, Cl. 240-8.220.
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- Newstead, Charles, to Girling Limited. Lining wear indicators. 3,740,566, Cl. 307-10.00r.
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- Nimerick, Kenneth H., to Dow Chemical Company, The. Sealing composition and method. 3,740,360, Cl. 260-17.4st.
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- Nippon Kokan Kabushiki Kaisha: See—
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- Nitto Electric Industrial Co., Ltd.: See—
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- Nitz, Rolf-Eberhard: See—
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- Oak Electro-Netics Corporation: See—
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- Ogle, Robert Walter, to IMS Limited, mesne. Saf-t-jet. 3,739,780, Cl. 128-220,000.
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- Ohlschlager, Hans; and Himmelmann, Wolfgang, to Agfa-Gevaert Aktiengesellschaft. Light sensitive photographic material. 3,740,228, Cl. 96-84,00a.
- Ohlson, Carl-Eric; and Ohlson, Eric Oscar, to Swift & Company. Control device for selectively removing and returning adjacent items contained in a magazine. 3,739,510, Cl. 40-78,050.
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- Olsen, Willi; and Beer, Heinz. Blow-piston disconnect apparatus for high voltage. 3,740,508, Cl. 200-14,80a.
- Olson, Melvin M., to Minnesota Mining and Manufacturing Company. Composition of matter. 3,740,414, Cl. 260-32,60a.
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- Olympic Fastening Systems, Inc.: See—
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- O'Neill, Joseph Thomas, to Du Pont of Canada Limited. Apparatus for packaging dow into cartons. 3,739,546, Cl. 53-116,000.
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- Otis Elevator Company: See—
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- Otis Engineering Corporation: See—
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- Otto, George W., Jr., to Litton Medical Products, Inc. Spot film device. 3,740,556, Cl. 250-66,000.
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- Owens-Illinois, Inc.: See—
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- Pagano, Joseph F.; and Valenta, Joseph R., to Smith Kline & French Laboratories. Cell propagator. 3,740,321, Cl. 195-127,000.
- Page, Robert J. Collapsible cover assembly for truck boxes and the like. 3,740,092, Cl. 296-105,000.
- Page, Wilbur Mills; and Coupland, Ralph, to Clayton Dewandre Company, Limited. Control valves for spring brake units. 3,739,802, Cl. 137-116,300.
- Pagels, Rolf W., to Crown Zellerbach Corporation. Contoured bed sheet. 3,739,408, Cl. 5-334,00c.
- Pankove, Jacques Isaac; and Norris, Peter Edward, to RCA Corporation. Electroluminescent semiconductor device for generating ultra violet radiation. 3,740,622, Cl. 317-235,00r.
- Papen, Eduard L. J., to National Forge Company. High pressure generating device. 3,740,169, Cl. 417-397,000.
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- Parke, Davis & Company: See—
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- Patchen, Paul J.; and Berti, Jerome L., to Allis-Chalmers Corporation. Connecting rod lubrication oil hole. 3,739,657, Cl. 74-587,000.
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- Pateuk, Constantine J.; and Schneider, Harold M., to Honeywell Information Systems Inc. Internal actuator for impacting a serial printer print head. 3,739,897, Cl. 197-55,000.
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- Patrick, Frank D.; and Najivar, Daniel J., to Dow Chemical Company. The. Low density low shrink thermoset resin foams. 3,740,353, Cl. 260-2,50n.
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- Payst, Michael W., to International Business Machines Corporation. Roller band reciprocating drive mechanism. 3,739,648, Cl. 74-39,200.
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- Peacock, Carl R., to Phillips Petroleum Company. Bottom member inserting apparatus for container-forming machine. 3,739,695, Cl. 93-39,10r.
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- Pearson, Reinhold A.; deceased (by Pearson, Alma; executrix). Carton delivery and expanding apparatus. 3,739,696, Cl. 93-53,0ed.
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- Pelzel, Erich, to Stolberger Zink AG fur Bergbau und Huttenbetrieb. Zinc alloy. 3,740,214, Cl. 75-178,00r.
- Pere, Gerard, to Creusot-Loire. Coupling for joining two shafts liable to non-alignment and to displacement along their axes, about a mean position. 3,739,600, Cl. 64-19,000.
- Perego, Giuseppe. Device for quick fixing or dismounting respectively of a wheel from the supporting frame of a vehicle, particularly a pram or push-chair for children. 3,740,100, Cl. 301-121,000.
- Peres, Anthony R., to Peres Electronic Machinery, Inc. Apparatus for automatically opening and emptying containers into a blending tank. 3,739,471, Cl. 30-4,00r.
- Peres, Anthony R., to Peres Electronic Machinery Inc. Barrel opener. 3,739,472, Cl. 30-6,400.
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- Perrot, Alexander; and Schucker, Emil. Method and device for the sprinkling of a cultivated field. 3,739,982, Cl. 239-1,000.
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- Pfaffle, Ernst, to Sickinger, Hans, Company. Paper punching machine. 3,739,672, Cl. 83-256,000.
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- Pfiffner, Harold J., to Hughes Aircraft Company. Precision switching circuit for analog signals. 3,740,581, Cl. 307-251,000.
- Pfizer, Inc.: See—
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- Hess, Hans-Jurgen E.; and Nelson, Roger P.; 3,740,417.
- Pfleger, Frederick W., to Medical Electroscience & Pharmaceuticals, Inc. Hypodermic syringe and needle construction. 3,739,779, Cl. 128-218,0da.
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- Phillips Petroleum Company: See—
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- Kodis, Rudolfs; 3,739,746.
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- Piffath, Rodney S.; and Cole, John J., to Butane Match A.G. Lighter with delayed flame shutoff. 3,740,183, Cl. 431-276,000.
- Pilkington Brothers Limited: See—
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- Pintell, Robert H., to Intron International Inc. Electronic fuse. 3,739,726, Cl. 102-70,20r.
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- Plake, William Edgar, to Brown & Root, Inc. Conical stabbing guide and clamp system for riser pipe installation. 3,739,592, Cl. 61-72,100.
- Plank, Karl-Ludwig; and Schwarzer, Michael, to Telefonbau und Normalzeit G.m.b.H. Time division multiplex telephone system with parallel transmission. 3,740,482, Cl. 179-15,00a.
- Plath, Ernst-Dieter, to Mayer & Cie. Jacquard-pattern arrangement for circular knitting machines. 3,739,601, Cl. 66-50,00b.
- Platt, Richard Bibby; and McCue, Bernard Beverly, to RCA Corporation. Method for separating chemically-oxidizable phosphor particles from mixtures with essentially nonoxidizable phosphor particles. 3,740,342, Cl. 252-301,650.
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- Pober, Zalmon. Method of inhibiting appetite for food. 3,740,440, Cl. 424-320,000.
- Pogonowski, Ivo C. Clamping device for closing an uncontrollably flowing submerged well. 3,740,017, Cl. 251-5,000.
- Pohndorf, Henry L.: See—
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- Ruget, Gabriel, to Creusot-Loire. Electromagnetic powder couplings. 3,739,887, Cl. 192-21.500.
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- Sanderson, Frank Thomas; and Zdanowski, Richard E., to Rohm & Haas Company. Pressure sensitive adhesive containing carboxylic acid groups and polyvalent metal. 3,740,366, Cl. 260-29.60m.
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- Schaevitz, Abraham R., to Super Tire Engineering Company. Tire undertread probe. 3,739,828, Cl. 152-209.00r.
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- Tokyo Shibaura Electric Company, Ltd.: See—
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- Tomko, Lawrence Andrew: See—
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- Daughenbaugh, Eli M.; and Platt, Thomas R., 3,740,520.
- Gripp, Leonard P.; Kincaid, Norman L.; and Hensleigh, Melvin A., 3,739,613.
- Grunert, Kurt A., 3,740,510.
- Heller, Paul R.; Ying, Sui-Chun; and Luzader, James E., 3,740,595.
- Hoyler, Robert C., 3,740,548.
- Kosanovich, Nicholas S.; and Langley, Morley P., 3,740,738.
- Lear, Leland L.; and Moreland, William C., II, 3,739,595.
- Linfield, Robert F.; Farstad, Arnold J.; and Allen, James W., 3,740,488.
- McNair, Robert E., 3,739,872.
- Melvin, Waymon A., Jr., 3,740,718.
- Moore, Robert A.; and Nelson, Theodore M., 3,740,675.
- Ravas, Richard J.; Pittman, Paul F.; and Saletta, Gary F., 3,740,640.
- Repscher, Robert W., 3,740,251.
- Rogerson, Thomas, 3,739,944.
- Savino, Henry C., 3,740,709.
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- Thorne-Booth, George M., 3,740,549.
- Wentz, John L., 3,740,560.
- Wood, Wilbur R., 3,740,153.
- Westmoreland, Julius C. Precision disc springs. 3,740,045, Cl. 267-162.000.
- Westmoreland, Julius C. Vacuum switch. 3,740,511, Cl. 200-168.000.
- Weston Instruments, Inc.: See—
- Fleck, Horst G.; Rome, Martin; and Wixted, Joseph M., 3,740,561.
- Westover, Virginia, to Chemex Corporation. Protective holder. 3,739,932, Cl. 215-100.00a.
- Weyerhaeuser Company: See—
- Comstock, Gilbert L., 3,739,490.
- Whalen, James M., to Remcor Products Company. Water cooler heat exchanger. 3,739,842, Cl. 165-164.000.
- Wheeler, Eugene F. Clamp for well pipe. 3,739,434, Cl. 24-249.0dp.
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- Webster, Harold F.; and Whetten, N. Rey, 3,739,552.
- Whetten, N. Rey; and Webster, Harold F., to General Electric Company. Air filter utilizing alternating current electric fields. 3,739,554, Cl. 55-123.000.
- Whetten, Nathan Rey, to General Electric Company. Method and apparatus for measuring size distribution of particles using a three-dimensional alternating current electric field. 3,740,149, Cl. 356-102.000.
- Whetten, Nathan Rey, to General Electric Company. Method and apparatus for measuring size distribution of particles using a two-dimensional alternating current electric field. 3,740,553, Cl. 250-41.9ds.
- Whippman, Ronald Lee, to Abbott Laboratories. Label useful for blind clinical studies of a medicament and method of the manufacture thereof. 3,740,081, Cl. 283-6.000.
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- Johnson, Robert E.; Swanson, Donald F.; and Westergren, George A., 3,739,422.
- White, Douglas F.; Scardon, Marvin D.; and Faul, Joseph C., to American Standard, Inc. Airspeed and altitude measuring device. 3,739,638, Cl. 73-181.000.
- White, Edward L.; Schwarcz, Joseph; and Lang, William D., to N L Industries, Inc. Antimony-containing inorganic composition of matter and method for preparing same. 3,740,245, Cl. 106-303.000.
- White, Lawrence K. Snow leveler. 3,739,859, Cl. 172-145.000.
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- Whitfield, John H., Jr., to Esso Production Company. Stinger connection. 3,739,590, Cl. 61-72.300.
- Whitney, John A.; Woods, Richard E.; and Hohman, William H., to Franklin Electric Co., Inc. Motor reversing and stopping circuit. 3,740,632, Cl. 318-289.000.
- Whittake, Thomas E.: See—
- Fricker, David C.; Whittake, Thomas F.; Fink, Leon, Jr.; and Lamb, Stephen K., 3,740,631.
- Wickersheim, Kenneth A.: See—
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- Wiessner, Edgar: See—
- Baso, Miklos; and Wiessner, Edgar, 3,740,614.
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- Wilcox, Milton E., to Motorola, Inc. Automatic gain control circuit. 3,740,471, Cl. 178-7.30r.
- Wildman, J. Grant. Crease cutter. 3,739,473, Cl. 30-164.900.
- Wilham, Treo, to Bosch, Robert, Photokino G.m.b.H. Operating means for use in fading mechanisms of motion picture cameras. 3,740,146, Cl. 352-91.000.
- Wilhelmson, Jack L.; Weichselbaum, Theodore B.; and Braun, Vernon F., to Sherwood Medical Industries, Inc. Infusion system. 3,739,943, Cl. 222-59.000.
- Wilk, Stanley H.: See—
- Niederjohn, Russell K.; and Wilk, Stanley H., 3,740,684.
- Wilke, Joseph V., to Graco Inc. Liquid agitator and dispensing system. 3,740,026, Cl. 259-67.000.
- Wilkening, Gail A.; and Hefley, Ervin R., to Prentice, E. V., Co. Pressure regulating system for a dryer apparatus. 3,739,484, Cl. 34-51.000.
- Willems, Jozef Frans; and Schots, Paul Maurice, to Agfa-Gevaert. Development of photographic material. 3,740,221, Cl. 96-29.00r.
- Williams, Laurence Lyman; and Coscia, Anthony Thomas, to American Cyanamid Company. Thermosetting glyoxalated ionic glucopyranosyl polymer and wet strength paper having a content thereof. 3,740,391, Cl. 260-233.30r.
- Williams, Leland E.: See—
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- Williams, Richard D.; and Michaels, Fred G., to General Motors Corporation. Shift control mechanism. 3,739,656, Cl. 74-473.00r.
- Williams, Russell T. Shiftable footing for trailers. 3,740,077, Cl. 280-475.000.
- Williamson, David Vincent Stewart, to Du Pont de Nemours, E. I., and Company. Coated yarns. 3,739,567, Cl. 57-153.000.
- Willis, Donald Henry, to RCA Corporation. Horizontal oscillator control for plural operating mode television receivers. 3,740,489, Cl. 178-69.5lv.
- Willow, J. Hebben. Tamper-resistant guard duct for electric pole riser cables. 3,740,455, Cl. 174-101.000.
- Wilms, Carl Alfred, to Jackson, Byron, Inc. Chain actuated pipe tongs. 3,739,663, Cl. 81-57.390.
- Wilson, Allen B. Aid for use in sitting down or standing up. 3,739,793, Cl. 135-45.000.
- Wilson, David G., to Massachusetts Institute of Technology. Vortex classifier. 3,739,910, Cl. 209-144.000.
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- Windstrup, Robert F., to Continental Can Company, Inc. Modular conveyor support assembly. 3,739,904, Cl. 196-204.000.
- Winkelblech, Kermit W., to Du Pont de Nemours, E. I., and Company. Colloidal dispersions of ammonia-communited particles of methylmethacrylate-acid-copolymers. 3,740,367, Cl. 260-29.67a.
- Winkelman, Earl A.; and Fitzsimmons, Paul A., to Matthews, Jas H., & Co. Retread tire marking method and apparatus. 3,739,662, Cl. 76-107.00r.
- Winn, James B., Jr., to Archilithic Co., The. Dispensing gun for fiber rovings and cementitious materials. 3,740,260, Cl. 117-104.00r.
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- Wohlart, Kurt; and Marburger, Heinz, to Rowenta-Werke Gesellschaft mit beschränkter Haftung. Bimetallic timing mechanism for automatic bread toaster. 3,740,528, Cl. 219-510.000.
- Wohlwend, Maurice. Reciprocating linear hydraulic motors. 3,739,863, Cl. 173-119.000.
- Wolda, Tietje O., to Boyles Industries, Limited. Wireline core barrel with resilient latch fingers. 3,739,865, Cl. 175-244.000.
- Wolf, Lloyd J. Fluid brake system with skid control. 3,740,104, Cl. 303-21.0bb.

- Wolf, Margery S.; and Beispel, Robert, to Extex, Inc., mesne. Contact printing on a moving layer of light-sensitive material. 3,740,140, Cl. 355-91.000.
- Wolfe, Russell C., to Dixie Manufacturing Company, Inc. Mating shear seal device for connecting vessels and the like together. 3,739,589, Cl. 61-69.00r.
- Wolff, Erich; Lassig, Wolfgang; Seelig, Eckart; and Bergisch, Gunther Kolb, to Agfa-Gevaert Aktiengesellschaft. Photosensitive polymer layers of vinyl alcohol polymers. 3,740,376, Cl. 260-73.00r.
- Wolfgang, Georg: See—
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- Sander, Benjamin; Rueff, Robert C.; and Woltzen, Herschel E., 3,739,432.
- Wong, Gim. Automatic starting device for automotive engines and the like. 3,740,564, Cl. 290-38.000.
- Wood, Wilbur R., to Westinghouse Electric Corporation. Optical straight line detector. 3,740,153, Cl. 356-170.000.
- Woodruff, Gene N., to Phillips Petroleum Company. Polyolefin emulsions containing N,N-dimethylsulfenyl dithiocarbamates. 3,740,201, Cl. 260-29.70m.
- Woods, Edward G.; and West, Robert C., to Esso Production Research Company. Thermal process for recovering oil. 3,739,852, Cl. 166-303.000.
- Woods, Richard E.: See—
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- Wootton, Kent; Short, Jeffrey R., III; and Roach, Kenneth N., to Short, J. R., Milling Company. Method for making foundry moulds. 3,739,834, Cl. 164-18.000.
- Worden, Donald A., to Marietta Scientific Controls, Inc. Power and speed control for double-acting cylinder-and-piston motor. 3,739,813, Cl. 137-625.650.
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- Wroblewski, Richard J., to Eastman Kodak Company. Strip take-up treading device. 3,740,001, Cl. 242-210.000.
- Wunning, Joachim, to Archelin, J. Apparatus for the production of bound bodies of bulking clay. 3,740,182, Cl. 425-446.000.
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- Ernst, Richard J., 3,739,667.
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- Yamashita, Akio, to Matsushita Electric Industrial Co., Ltd. Mechano-electrical transducer device. 3,740,689, Cl. 338-2.000.
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- Yelin, Robert Emil: See—
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- Underwood, Joe B.; and Yerman, Alexander J., 3,739,644.
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- Curtis, Little P.; Ying, Sui-Chun; and Dailey, George F., 3,740,596.
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- Yonaites, Rosemary C.: See—
- Yonaites, Gary A.; and Yonaites, Rosemary C., 3,739,418.
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- Yoshida, Mitsutoshi: See—
- Nagase, Yukihiko; Yoshida, Mitsutoshi; Kimoto, Yohichi; and Sakano, Toyoshi, 3,739,577.
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- Yost, Edward F., Jr., to Spectral Data Corporation. Preregistered multispectral photographs. 3,739,700, Cl. 95-12.200.
- Young, Henry J. Auxiliary door lock. 3,739,608, Cl. 70-209.000.
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- Youngstrom, Jerry R.; Anderson, Wilfred K.; Fletcher, Martin Wallace; Stroble, Calton H.; and Taylor, Kenneth I., to Memorex Corporation. Editing system. 3,740,463, Cl. 178-6.60a.
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- Umezawa, Hamao; Takeuchi, Tomio; Aoyagi, Takaaki; Hamada, Masa; Maeda, Kenji; and Okami, Toshiro, 3,740,319.
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- Koppe, Herbert; Engelhardt, Albrecht; and Zeile, Karl, 3,740,444.
- Zemke, Hubert: See—
- Manning, Lindley; Mc Kee, Robert B.; Zemke, Hubert; and Douglas, Bruce M., 3,740,301.
- Zenhausen, Heinrich. Mounting support for climbing elements. 3,740,083, Cl. 287-20.300.
- Zerlauth, Ferdinand, to Brown, Boveri Sulzer Turbomachinery, Limited. Deflection control means for machine housings. 3,740,164, Cl. 415-134.000.
- Zhukov, Boris Grigorievich: See—
- Kaushansky, David Aronovich; Gurevich, Yakov Adolfovich; Zhukov, Boris Grigorievich; Srapenians, Rigo Artemievich; and Kalyanov, Dmitry Maximovich, 3,740,557.
- Zhuravlev, Semen Vladimirovich: See—
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- Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen: See—
- Ruf, Eberhard, 3,740,025.
- Zimmermann, Jean Pierre: See—
- Gerecke, Max; and Zimmermann, Jean Pierre, 3,740,416.
- Zimmermann, Max: See—
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- Zimmermann, Vincent H.: See—
- Bland, Aubrey M.; and Zimmermann, Vincent H., 3,739,580.
- Zottoli, Robert A., to Grass Instrument Company. Print roll and mounting means. 3,739,722, Cl. 101-375.000.
- Zucchini, Paul: See—
- Versaci, Antonio A.; and Zucchini, Paul, 3,739,636.
- Zupancic, Anton Z., to Addressograph-Multigraph Corporation. Imprinting device. 3,739,718, Cl. 101-45.000.
- Zurawsky, Dieter: See—
- Kruel, Martin; Zurawsky, Dieter; and Juntgen, Harald, 3,739,550.
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Bayer Aktiengesellschaft: See—
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mer, Streib, and Fritz. Re. 27,682.
Bell Telephone Laboratories, Inc.: See—
McNair, Irving M., Jr. Re. 27,680.
Bentholm, Svend A. R., and W. E. Koenen, to Akzona Inc.
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mer, Streib, and Fritz. Re. 27,682.
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Erickson, Albin R., to Textron Inc. Ski mounting apparatus
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Celery harvester. Re. 27,674, 6-19-73, Cl. 56-327.
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mer, Streib, and Fritz. Re. 27,682.
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hammer, H. Streib, and G. Fritz, to Bayer Aktiengesell-
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ISSUED JUNE 19, 1973

NOTE.—First number, class; second number, subclass; third number, patent number

2	CLASS 2	203H	3,739,448	232	3,739,521	69R	3,739,589	815	3,739,660	84A	3,740,228
69.5	3,739,397	208B	3,739,449	34.13	CLASS 47	72.1	3,739,592	866	3,739,661	91R	3,740,229
161R	3,739,400	211R	3,739,450	38.1	3,739,522	72.3	3,739,590		CLASS 75	CLASS 96	
175	3,739,401	237	3,739,451		3,739,523		3,739,591		3,740,210	33R	3,739,707
224R	3,739,398	254	3,739,452	44	3,739,524				3,740,211	72	3,739,708
		401	3,739,453		3,739,525	14	CLASS 62	122	3,740,212	CLASS 99	
1	CLASS 3	407	3,739,454			93	3,739,593	128C	3,740,213	48	3,740,233
	3,739,402	425	3,739,455	180M	3,740,203	135	3,739,594	128	3,740,214	69	3,740,230
	3,739,403	447	3,739,456	202	3,740,193	158	3,739,595	178R	3,740,215	71	3,740,231
27	3,739,404	460	3,739,457	215	3,740,204	311	3,739,597	208	3,740,216		3,740,232
		469	3,739,458						3,740,217	107R	3,740,234
172.15	CLASS 4	477.3	3,739,459	CLASS 49		14D	3,739,599	107R	3,739,662		3,740,235
	3,739,405	516	3,739,460	197	3,739,526	29R	3,739,598	57.39	3,739,663	126	3,740,236
		557	3,739,461	466	3,739,527			414	3,739,664	171CT	3,740,238
68	CLASS 5	577	3,739,462			19	3,739,600		3,740,218	171B	3,740,239
81B	3,739,406	580	3,739,463	5	3,739,528			9	3,739,665	171S	3,740,237
334C	3,739,407	592	3,739,464	92R	3,739,529	25A	3,740,205	59	3,739,666	289	3,739,709
345	3,739,408	596	3,739,465	105R	3,739,530	36	3,740,206		3,740,666	348	3,739,710
	3,739,409	604	3,739,466		3,739,531	67	3,740,207				3,739,711
39	CLASS 8		3,739,467	135R	3,739,532	90	3,740,208		3,740,667	349	3,739,712
	3,740,185	613	3,739,468	281R	3,739,533			92	3,739,668	533	3,739,713
111	3,740,186	625	3,739,469	284	3,739,534			102	3,739,669		
	3,740,188	628	3,739,470	356	3,739,535	50B	3,739,601	123	3,739,670	34	3,739,714
128R	3,740,189					95	3,739,602	210	3,739,671	100	3,739,715
137	3,740,190	4R	3,739,471	63	3,739,536	132	3,739,603	230	3,739,672		
	3,740,191	6.4	3,739,472	64	3,739,537			256	3,739,673	37	3,739,716
		164.9	3,739,473	108	3,739,538	35S	3,739,604	639	3,739,674	45	3,739,717
2A	3,739,410	215	3,739,474	169	3,739,539	20	3,739,605	651	3,739,675	93C	3,739,718
8R	3,739,411	383	3,739,475	175	3,739,540			659	3,739,676		3,739,719
				220	3,739,541	18	3,739,607	745	3,739,677	366	3,739,720
5	CLASS 11	10A	3,739,476	669	3,739,542	58	3,739,608	789	3,739,678	375	3,739,721
	3,739,412	35	3,739,477			209	3,739,609		3,739,679		3,739,722
1A	3,739,413			3	3,739,543	234	3,739,610		3,739,680		
142R	3,739,414	75R	3,739,478	24	3,739,544	252	3,739,611	1.01	3,740,448	20	3,739,723
		125	3,739,479	29	3,739,545	364R	3,739,612	1.24	3,740,449	28R	3,739,724
6	CLASS 13	321	3,739,480	116	3,739,546	380	3,739,613	101	3,740,450	70	3,739,725
	3,740,445			182	3,739,547			266	3,739,681	70.2R	3,739,726
23	CLASS 15	8	3,739,481			87	3,740,209	322	3,739,682		
	3,739,415	12	3,739,482	45	3,739,548				3,739,683	103	3,739,727
92	3,739,416	23	3,739,483	72	3,739,549	19	3,739,613	41	3,739,684	173	3,739,728
104.8	3,739,417	51	3,739,484	73	3,739,550	56	3,739,614	70	3,739,685	358	3,739,729
187	3,739,418	57A	3,739,485	90	3,739,551	57	3,739,615	73	3,739,686		
211	3,739,419	70	3,739,486	123	3,739,552				3,739,687	38.25	3,740,240
319	3,739,420	77	3,739,487	158	3,739,553	63	3,739,616	33F	3,739,688	47R	3,740,241
397	3,739,421	95	3,739,488	233	3,739,554	133A	3,739,617		3,739,689	54	3,740,242
	3,739,422	109	3,739,489	257	3,739,555	239	3,739,618	1.6	3,739,690	65	3,740,243
16	CLASS 16	156	3,739,490	302	3,739,556	255	3,739,619	15.1R	3,739,691	291	3,740,244
98	3,739,423	162	3,739,491	387	3,739,557	287	3,739,620	21R	3,739,692	303	3,740,245
189	3,739,424	163	3,739,492			316	3,739,621		3,739,693		
	3,739,425	167	3,739,493	13.9	3,739,559	339	3,739,622	3	3,739,694	161	3,739,730
33	CLASS 17	174	3,739,494	228	3,739,560	422	3,739,623	28	3,739,695		
49	3,739,426	187	3,739,495	327R	Re. 27,674			506	3,739,696	49.5	3,739,731
62	3,739,427	210	3,739,496	329	3,739,561				3,739,697		
	3,739,428			400.06	3,739,562	12	3,739,625		3,739,698	1F	3,739,732
58	CLASS 21	35A	3,740,446			16	3,739,626	13	3,739,699		
	3,740,192			CLASS 36		28	3,739,627		3,739,700	121.12	3,739,733
230A	CLASS 23	2.5AC	3,739,497	36	3,739,564	67.7	3,739,628		3,739,701	219A	3,739,734
232R	3,740,194	2.5AH	3,739,499	45	3,739,565		3,739,629	33H	3,739,694	220	3,739,735
253TP	3,740,195	2.5A	3,739,498	58.89	3,739,566	77	3,739,630	39.1R	3,739,695		
281	3,740,196		3,739,500	90	3,739,567	81	3,739,631	53SD	3,739,696		
288F	3,740,197	11.5	3,739,501	153	3,739,568	144	3,739,632		3,739,697		
		17R	3,739,502			146.3	3,739,633		3,739,698		
				CLASS 37		147	3,739,634	730	3,739,699		
16PB	CLASS 24	67	3,739,503	24	3,739,569	148	3,739,635		3,739,700		
	3,739,429	124	3,739,504	58	3,739,570	181	3,739,636		3,739,701		
81C	3,739,430	126AD	3,739,505	76	3,739,571	190R	3,739,637	1.1	3,739,702	144R	3,739,738
201HE	3,739,431	126IA	3,739,506			194EM	3,739,638		3,739,703		
230CF	3,739,432			84	3,739,572	194E	3,739,639		3,739,704		
249DP	3,739,433			13	3,739,573	194M	3,739,640	12.2	3,739,705	119	3,739,739
257R	3,739,435			37	3,739,574	313	3,739,641	12.5	3,739,706	121	3,739,740
				39.03	3,739,575	371	3,739,642	13	3,739,707	124	3,739,741
				39.18B	3,739,576	378.3	3,739,643	14	3,739,708		
				39.74R	3,739,577	398AR	3,739,644	15	3,739,709	7	3,740,246
				54.6R	3,739,578	407R	3,739,645	57	3,739,710	8	3,740,247
								89D	3,739,711	13	3,740,248
								89R	3,739,712	21	3,740,249
									3,739,713	33.5C	3,740,250
									3,739,714	33.5L	3,740,251
									3,739,715	62	3,740,252
									3,739,716	71R	3,740,253
									3,739,717	74	3,740,254
									3,739,718	93.1CD	3,740,255
									3,739,719	93.1DH	3,740,256
									3,739,720	94	3,740,257
									3,739,721		3,740,258
									3,739,722		3,740,259
									3,739,723		3,740,260
									3,739,724		3,740,261

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136 3,740,264	CLASS 139	315 3,739,853	CLASS 191	CLASS 240
235 3,740,265	CLASS 140	61 3,739,854	CLASS 192	2W 3,740,541
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2 3,739,742	CLASS 142	21 3,739,856	CLASS 194	6.4R 3,740,543
7 3,739,743	CLASS 143	22 3,739,857	CLASS 195	8.22 3,740,544
19 3,739,744	CLASS 144	59 3,739,858	CLASS 196	10F 3,740,545
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44C 3,739,756	CLASS 154	101.5 3,740,456	CLASS 206	82 3,739,998
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136 3,739,760	CLASS 158	178 3,739,866	CLASS 210	3.22 3,740,003
139BG 3,739,762	CLASS 159	82 3,739,867	CLASS 211	77D 3,740,004
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11R 3,739,764	CLASS 162	5.4HE 3,740,464	CLASS 214	137P 3,740,007
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19R 3,739,766	CLASS 164	5.4ST 3,740,466	CLASS 216	155A 3,740,010
113 3,739,767	CLASS 165	5.8A 3,740,467	CLASS 217	183 3,740,011
106 3,739,769	CLASS 166	6.8 3,740,468	CLASS 218	201 3,740,012
2 3,739,768	CLASS 167	7.3R 3,740,469	CLASS 219	224 3,740,013
6 3,739,770	CLASS 168	7.3S 3,740,470	CLASS 220	229 3,740,014
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80G 3,739,772	CLASS 170	7.5R 3,740,472	CLASS 222	256.5R 3,740,016
92BC 3,739,773	CLASS 171	22 3,740,473	CLASS 223	41.9DS 3,740,553
142.7 3,739,774	CLASS 172	69.5TV 3,740,489	CLASS 224	20.927 3,740,554
145.8 3,739,775	CLASS 173	15A 3,740,476	CLASS 225	52.08 3,740,555
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218DA 3,739,779	CLASS 176	15D 3,740,479	CLASS 228	106R 3,740,558
220 3,739,780	CLASS 177	15E 3,740,480	CLASS 229	199 3,740,559
263 3,739,781	CLASS 178	15F 3,740,481	CLASS 230	201 3,740,560
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285 3,739,783	CLASS 180	15H 3,740,483	CLASS 232	222R 3,740,563
295 3,739,784	CLASS 181	15I 3,740,484	CLASS 233	2 3,740,564
320 3,739,785	CLASS 182	15J 3,740,485	CLASS 234	47 3,740,565
86 3,739,786	CLASS 183	15K 3,740,486	CLASS 235	96 3,740,566
9 3,739,787	CLASS 184	15L 3,740,487	CLASS 236	102 3,740,567
33R 3,739,788	CLASS 185	15M 3,740,488	CLASS 237	30 3,740,568
88.7 3,739,789	CLASS 186	15N 3,740,489	CLASS 238	31 3,740,569
10 3,740,267	CLASS 187	15O 3,740,490	CLASS 239	75 3,740,570
60 3,739,790	CLASS 188	15P 3,740,491	CLASS 240	172 3,740,571
157 3,739,791	CLASS 189	15Q 3,740,492	CLASS 241	120 3,740,572
16 3,739,792	CLASS 190	15R 3,740,493	CLASS 242	135 3,740,573
45 3,739,793	CLASS 191	15S 3,740,494	CLASS 243	136 3,740,574
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86E 3,740,269	CLASS 194	15V 3,740,497	CLASS 246	139 3,740,577
107 3,740,270	CLASS 195	15W 3,740,498	CLASS 247	140 3,740,578
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1 3,739,794	CLASS 201	15AC 3,740,504	CLASS 253	146 3,740,584
5 3,739,795	CLASS 202	15AD 3,740,505	CLASS 254	147 3,740,585
68 3,739,796	CLASS 203	15AE 3,740,506	CLASS 255	148 3,740,586
81.5 3,739,814	CLASS 204	15AF 3,740,507	CLASS 256	149 3,740,587
85 3,739,797	CLASS 205	15AG 3,740,508	CLASS 257	150 3,740,588
88 3,739,798	CLASS 206	15AH 3,740,509	CLASS 258	151 3,740,589
93 3,739,799	CLASS 207	15AI 3,740,510	CLASS 259	152 3,740,590
102 3,739,800	CLASS 208	15AJ 3,740,511	CLASS 260	153 3,740,591
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294 3,739,804	CLASS 212	15AN 3,740,515	CLASS 264	157 3,740,595
359 3,739,805	CLASS 213	15AO 3,740,516	CLASS 265	158 3,740,596
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3 3,740,422	CLASS 385	124 3,740,773	CLASS 417
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31B 3,740,429	CLASS 395	134 3,740,783	CLASS 427
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96R 3,740,432	CLASS 398	137 3,740,786	CLASS 430

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D 4—	29	227,319		227,336	D13—	1	227,353	D26—		227,370		227,403				
D 6—	48	227,320	D 8—	30	227,337		227,354		1	227,371		227,404				
	62	227,321		57	227,338		227,355			227,372	D57—	10	227,405			
	68	227,322		125	227,339		227,356			227,373			227,406			
		227,323		136	227,340		227,357			227,374			227,407			
	85	227,324		161	227,341	D14—	3	227,358	5	227,375	D41—		227,392			
	132	227,325	D 9—	233	227,342		27	227,359	14	227,376			227,393			
	140	227,326		117	227,343	D16—	1	227,360		227,377	D45—		227,394			
	150	227,327		143	227,344	D22—	30	227,361		227,378			227,395			
	157	227,328		175	227,345	D23—	12	227,365		227,379	D46—	10	227,412			
	177	227,329		216	227,346			227,366	D34—	5	227,380	D83—	1	227,413		
	194	227,330			227,347		23	227,362		227,381	D48—	20	227,398	D86—	8	227,414
	252	227,331			227,348		32	227,363		227,382	24	227,399		10	227,415	
D 7—	85	227,332			227,349		34	227,364		227,383	D52—	1	227,400	D90—	9	227,416
		227,333			227,350		122	227,367		227,384	6	227,401		12	227,417	
		227,334		224	227,351	D24—	1	227,368	15	227,385						

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PATENTS

1 : 3,740,003	3,739,780	3,740,290	3,739,518	3,739,507	3,739,842
3,740,198	3,739,805	3,740,324	3,739,609	3,739,525	3,739,861
3,740,363	3,739,806	3,740,330	3,739,851	3,739,576	3,739,878
2 : 3,739,451	3,739,811	3,740,338	3,740,343	3,739,608	3,739,904
4 : 3,740,277	3,739,827	3,740,344	3,740,488	3,739,793	3,739,941
3,740,471	3,739,836	3,740,412	3,740,588	3,739,800	3,739,953
5 : 3,739,810	3,739,876	3,740,428	3,740,590	3,739,818	3,739,974
6 : Re.27,674	3,739,888	3,740,429	Re.27,673	3,739,838	3,739,986
3,739,405	3,739,894	3,740,437	3,739,535	3,739,879	3,740,016
3,739,416	3,739,900	3,740,450	3,739,545	3,739,929	3,740,026
3,739,417	3,739,912	3,740,463	3,739,555	3,739,935	3,740,046
3,739,423	3,739,932	3,740,477	3,739,611	3,740,033	3,740,052
3,739,431	3,739,950	3,740,500	3,739,623	3,740,041	3,740,054
3,739,435	3,739,961	3,740,511	3,739,645	3,740,337	3,740,059
3,739,437	3,739,972	3,740,521	3,739,714	3,740,441	3,740,070
3,739,455	3,739,975	3,740,522	3,739,736	3,740,466	3,740,073
3,739,457	3,739,984	3,740,538	3,739,752	3,740,469	3,740,081
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3,739,479	3,740,007	3,740,565	3,739,815	13 : 3,739,534	3,740,091
3,739,516	3,740,011	3,740,569	3,739,821	3,739,976	3,740,106
3,739,517	3,740,013	3,740,570	3,739,835	3,739,985	3,740,136
3,739,521	3,740,018	3,740,581	3,739,839	3,740,497	3,740,140
3,739,523	3,740,019	3,740,594	3,739,944	3,740,643	3,740,170
3,739,527	3,740,022	3,740,603	3,739,956	16 : 3,739,824	3,740,173
3,739,538	3,740,028	3,740,607	3,739,965	17 : 3,739,418	3,740,231
3,739,553	3,740,032	3,740,619	3,739,979	3,739,420	3,740,233
3,739,563	3,740,035	3,740,627	3,739,990	3,739,442	3,740,238
3,739,575	3,740,036	3,740,639	3,740,006	3,739,504	3,740,275
3,739,581	3,740,042	3,740,644	3,740,048	3,739,505	3,740,312
3,739,582	3,740,045	3,740,656	3,740,121	3,739,506	3,740,314
3,739,588	3,740,056	3,740,660	3,740,262	3,739,509	3,740,328
3,739,615	3,740,061	3,740,668	3,740,327	3,739,556	3,740,377
3,739,616	3,740,076	3,740,671	3,740,369	3,739,572	3,740,387
3,739,626	3,740,082	3,740,680	3,740,391	3,739,578	3,740,425
3,739,631	3,740,089	3,740,688	3,740,417	3,739,607	3,740,455
3,739,637	3,740,116	3,740,716	3,740,574	3,739,638	3,740,486
3,739,663	3,740,117	3,740,721	3,740,592	3,739,642	3,740,493
3,739,668	3,740,128	3,740,725	3,740,664	3,739,652	3,740,496
3,739,679	3,740,138	3,740,728	3,740,674	3,739,653	3,740,523
3,739,681	3,740,144	3,740,735	3,740,743	3,739,657	3,740,556
3,739,682	3,740,151	3,740,736	3,740,752	3,739,667	3,740,587
3,739,685	3,740,163	3,740,740	10 : 3,739,453	3,739,680	3,740,597
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	3,740,761	3,740,663	3,739,568	3,739,646	3,740,092	3,740,148
	3,739,712	3,740,665	3,739,583	3,739,656	Re.27,684	3,740,167
	3,739,720	3,740,684	3,739,614	3,739,666	3,739,444	3,740,190
	3,739,729	3,740,698	3,739,632	3,739,678	3,739,492	3,740,191
	3,739,807	3,740,707	3,739,636	3,739,684	3,739,532	3,740,202
	3,739,954	3,740,722	3,739,725	3,739,688	3,739,551	3,740,215
	3,739,969	3,740,733	3,739,735	3,739,695	3,739,627	3,740,240
	3,740,097	3,740,745	3,739,771	3,739,700	3,739,634	3,740,250
	3,740,175	3,740,755	3,739,779	3,739,718	3,739,643	3,740,257
	3,740,197	3,739,458	3,739,796	3,739,719	3,739,660	3,740,321
	3,740,222	3,739,488	3,739,813	3,739,726	3,739,707	3,740,352
	3,740,235	3,739,561	3,739,828	3,739,740	3,739,767	3,740,366
	3,740,320	3,739,562	3,739,843	3,739,748	3,739,797	3,740,372
	3,740,449	3,739,619	3,739,881	3,739,769	3,739,814	3,740,409
	3,740,472	3,739,620	3,739,913	3,739,789	3,739,833	3,740,413
	3,740,489	3,739,622	3,739,915	3,739,792	3,739,862	3,740,436
	3,740,544	3,739,658	3,739,919	3,739,799	3,739,880	3,740,452
	3,740,599	3,739,659	3,739,924	3,739,809	3,739,891	3,740,465
	3,740,632	3,739,691	3,739,948	3,739,832	3,739,942	3,740,474
	3,740,694	3,739,715	3,739,977	3,739,883	3,739,945	3,740,510
	3,740,710	3,739,730	3,739,981	3,739,899	3,739,992	3,740,520
	3,740,758	3,739,741	3,740,002	3,739,933	3,740,043	3,740,535
19	3,739,477	3,739,753	3,740,004	3,739,934	3,740,053	3,740,548
	3,739,485	3,739,760	3,740,111	3,739,964	3,740,071	3,740,549
	3,739,903	3,739,867	3,740,124	3,739,973	3,740,080	3,740,571
	3,740,388	3,739,873	3,740,147	3,739,978	3,740,094	3,740,572
20	3,739,559	3,739,874	3,740,156	3,740,001	3,740,096	3,740,584
	3,739,683	3,739,892	3,740,188	3,740,008	3,740,171	3,740,595
	3,739,743	3,739,893	3,740,230	3,740,038	3,740,181	3,740,596
	3,739,856	3,739,902	3,740,245	3,740,040	3,740,259	3,740,600
	3,739,857	3,739,906	3,740,248	3,740,055	3,740,283	3,740,601
	3,739,860	3,739,909	3,740,251	3,740,064	3,740,293	3,740,606
	3,739,898	3,739,928	3,740,261	3,740,065	3,740,297	3,740,621
	3,739,930	3,739,938	3,740,280	3,740,067	3,740,333	3,740,640
	3,740,263	3,740,021	3,740,287	3,740,074	3,740,335	3,740,683
21	3,740,435	3,740,062	3,740,296	3,740,086	3,740,354	3,740,687
	3,739,597	3,740,063	3,740,302	3,740,112	3,740,374	3,740,699
	3,739,820	3,740,101	3,740,315	3,740,125	3,740,410	3,740,704
	3,739,825	3,740,103	3,740,316	3,740,135	3,740,438	3,740,712
	3,739,936	3,740,105	3,740,326	3,740,143	3,740,487	3,740,753
	3,740,685	3,740,161	3,740,329	3,740,145	3,740,498	3,739,599
22	3,739,847	3,740,258	3,740,331	3,740,149	3,740,504	3,740,027
	3,739,940	3,740,318	3,740,349	3,740,158	3,740,516	3,740,582
	3,740,193	3,740,359	3,740,350	3,740,158	3,740,517	3,740,613
23	3,739,499	3,740,408	3,740,351	3,740,165	3,740,518	3,739,438
24	3,739,461	3,740,421	3,740,362	3,740,172	3,740,532	3,739,564
	3,739,526	3,740,454	3,740,371	3,740,174	3,740,541	3,739,566
	3,739,589	3,740,512	3,740,385	3,740,177	3,740,550	3,739,746
	3,739,596	3,740,519	3,740,396	3,740,206	3,740,612	3,739,514
	3,739,689	3,740,579	3,740,400	3,740,210	3,740,654	3,739,693
	3,739,710	3,740,642	3,740,402	3,740,212	Re.27,681	3,740,141
	3,739,778	3,740,691	3,740,404	3,740,216	3,739,456	3,740,199
	3,739,886	3,740,711	3,740,418	3,740,217	3,739,625	3,740,554
	3,739,952	3,740,714	3,740,419	3,740,218	3,739,783	3,740,760
	3,740,153	Re.27,676	3,740,422	3,740,223	3,739,841	3,739,397
	3,740,154	3,739,422	3,740,424	3,740,226	3,739,870	3,739,402
	3,740,196	3,739,425	3,740,432	3,740,268	3,739,871	3,739,462
	3,740,264	3,739,466	3,740,433	3,740,274	3,739,911	3,739,497
	3,740,284	3,739,486	3,740,434	3,740,288	3,740,201	3,739,513
	3,740,347	3,739,536	3,740,447	3,740,305	3,740,360	3,739,515
	3,740,499	3,739,539	3,740,453	3,740,313	3,740,641	3,739,540
	3,740,560	3,739,664	3,740,456	3,740,332	3,740,705	3,739,548
	3,740,636	3,739,698	3,740,461	3,740,334	3,740,727	3,739,590
	3,740,670	3,739,713	3,740,462	3,740,339	3,740,739	3,739,591
	3,740,675	3,739,925	3,740,476	3,740,378	3,740,378	3,739,592
	3,740,690	3,739,926	3,740,480	3,740,403	3,739,484	3,739,598
25	Re.27,678	3,740,072	3,740,483	3,740,448	3,740,090	3,739,641
	Re.27,683	3,740,109	3,740,484	3,740,470	3,740,203	3,739,708
	3,739,449	3,740,389	3,740,490	3,740,513	3,740,265	3,739,723
	3,739,474	3,740,414	3,740,559	3,740,529	3,740,539	3,739,745
	3,739,489	3,740,514	3,740,567	3,740,530	3,740,676	3,739,747
	3,739,501	3,740,700	3,740,583	3,740,534	3,740,742	3,739,765
	3,739,520	3,739,500	3,740,622	3,740,537	3,739,400	3,739,791
	3,739,522	3,739,399	3,740,653	3,740,543	3,739,415	3,739,831
	3,739,528	3,739,432	3,740,661	3,740,553	3,739,446	3,739,844
	3,739,573	3,739,464	3,740,669	3,740,575	3,739,454	3,739,845
	3,739,604	3,739,580	3,740,672	3,740,591	3,739,531	3,739,846
	3,739,605	3,739,801	3,740,681	3,740,608	3,739,547	3,739,848
	3,739,633	3,739,823	3,740,693	3,740,646	3,739,560	3,739,849
	3,739,649	3,739,918	3,740,709	3,740,647	3,739,571	3,739,850
	3,739,654	3,739,939	3,740,713	3,740,655	3,739,579	3,739,852
	3,739,687	3,739,943	3,740,717	3,740,666	3,739,594	3,739,853
	3,739,701	3,739,968	3,740,734	3,740,673	3,739,595	3,739,864
	3,739,716	3,739,988	3,740,759	3,740,678	3,739,618	3,739,869
	3,739,717	3,740,069	3,740,051	3,740,692	3,739,662	3,739,877
	3,739,722	3,740,099	3,740,118	3,740,701	3,739,671	3,740,009
	3,739,895	3,740,187	3,740,340	3,740,720	3,739,673	3,740,010
	3,739,897	3,740,336	3,739,407	3,740,723	3,739,674	3,740,017
	3,739,910	3,740,358	3,739,419	3,740,726	3,739,694	3,740,034
	3,739,920	3,740,563	3,739,424	3,740,730	3,739,734	3,740,078
	3,740,015	3,740,652	3,739,433	3,739,409	3,739,737	3,740,104
	3,740,030	3,739,541	3,739,447	3,739,502	3,739,755	3,740,114
	3,740,031	3,740,623	3,739,463	3,739,574	3,739,766	3,740,239
	3,740,057	3,739,606	3,739,469	3,739,602	3,739,786	3,740,260
	3,740,060	3,739,826	3,739,471	3,739,648	3,739,812	3,740,276
	3,740,127	3,740,301	3,739,472	3,739,651	3,739,840	3,740,291
	3,740,155	Re.27,680	3,739,511	3,739,675	3,739,872	3,740,353
	3,740,159	3,739,519	3,739,519	3,739,819	3,739,905	3,740,373
	3,740,357	3,739,429	3,739,552	3,739,858	3,739,908	3,740,505
	3,740,440	3,739,430	3,739,554	3,740,047	3,739,921	3,740,561
	3,740,502	3,739,445	3,739,557	3,740,234	3,739,957	3,740,602
	3,740,552	3,739,448	3,739,585	3,740,236	3,739,958	3,740,624
	3,740,583	3,739,460	3,739,603	3,740,282	3,739,963	3,740,631
	3,740,593	3,739,470	3,739,612	3,740,545	3,739,995	3,740,708
	3,740,625	3,739,480	3,739,613	3,740,718	3,740,039	3,740,731

49	3,740,739	3,739,785	3,739,863	55	3,739,443	3,739,782	3,740,093
	3,739,629	3,740,267	3,739,955		3,739,491	3,739,808	3,740,123
	3,739,960	3,740,491	3,740,012		3,739,496	3,739,859	3,740,237
	3,739,994	3,739,408	3,740,077		3,739,512	3,739,927	3,740,256
	3,740,079	3,739,490	3,740,295		3,739,524	3,739,966	3,740,270
	3,740,635	3,739,617	3,740,420		3,739,593	3,740,014	3,740,289
50	3,740,737	3,739,696	3,740,451		3,739,647	3,740,020	3,740,306
	3,739,635	3,739,724	3,740,481		3,739,686	3,740,049	3,740,325
	3,740,620	3,739,728	3,740,485		3,739,738	3,740,058	3,740,501
51	3,739,401	3,739,756	3,740,586		3,739,749	3,740,066	3,740,546
	3,739,411	3,739,837	3,740,702		3,739,759	3,740,075	3,740,682
	3,739,640	3,739,855	3,740,562	54	3,739,781		

DESIGN PATENTS

6 :	227,325		227,399		227,344	20 :	227,368		227,395		227,334
	227,331		227,408		227,347	21 :	227,416		227,396		227,335
	227,340		227,409		227,348	25 :	227,319		227,401		227,336
	227,342		227,411		227,349		227,320		227,402		227,354
	227,356		227,414		227,350		227,324	29 :	227,355		227,375
	227,358	9 :	227,345		227,380		227,353		227,383	39 :	227,404
	227,359		227,351		227,381		227,405		227,417		227,327
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	227,370		227,415	18 :	227,321		227,366		227,363	48 :	227,378
	227,371	12 :	227,318		227,322		227,382		227,406		227,357
	227,377	13 :	227,372		227,323	27 :	227,362	36 :	227,326		227,393
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PATENT OFFICE NOTICES

TITLE 37—PATENTS, TRADEMARKS AND COPYRIGHTS

Chapter I—Patent Office, Department of Commerce

PARTS 2 AND 6—RULES OF PRACTICE IN TRADEMARK CASES.

International Trademark Classification

A proposal was published at 37 F.R. 6404 to revise § 6.1 of the Rules of Practice in Trademark Cases. The Patent Office proposed to establish the "International Classification of Goods and Services to Which Trademarks Are Applied" (the subject of the "Nice Agreement Concerning the International Classification of Goods and Services for the Purposes of the Registration of Marks" of 1957, as revised at Stockholm on July 14, 1967) as the primary classification of goods and services for registration of trademarks and service marks. Pursuant to the Notice, written comments have been received, and a public hearing was held on June 14, 1972. Full consideration has been given to all matter presented, and changes in the text of the original proposal have been made in view thereof. It has been determined that adoption of the international classification system is desirable.

The Patent Office has studied the international classification and, since Mar. 5, 1968, has indicated the appropriate international class in all publications and on all issued registrations and renewals as a subsidiary classification. Based on this experience and the comments received, it is now believed that adoption of the international schedule as the primary classification system is desirable. The international system is easier to administer because of fewer classes of goods and the availability of an alphabetical listing of goods and services.

The Nice Agreement provides for an International Committee of Experts whose objective is to keep the classification current. The classification of specific goods and services is set forth in the Alphabetical List entitled "International Classification of Goods and Services to Which Trademarks Are Applied" (published by the World Intellectual Property Organization). In addition, the International Trademark Classification List contains the names of the classes setting forth the basic contents of each class. The Alphabetical List also comprises explanatory notes which serve as guidelines for determining the appropriate international class for a specific product or service.

The alphabetical listing within the International Trademark Classification Manual is currently used by the Office as a guideline for determining the degree of particularity of identification of goods. See "Identification of Goods and Services in Trademark Applications," 38 F.R. 13232; July 16, 1971.

Applications for registrations filed on or after Sept. 1, 1973, and registrations issued thereon, will be classified according to the international classification set forth in the new § 6.1. Accordingly, the international classification is adopted under Section 30 of the Trademark Act for all purposes under the statute and rules; and, therefore, will be the criterion for determining, inter alia, fees.

Applications for the registration of marks filed on or before Aug. 31, 1973, appeals or petitions to revive or oppositions filed in connection with said applications, and affidavits, renewals and petitions for cancellation filed in connection with registrations issued thereon, will continue to be processed under the classification system existing at the time the mark was registered.

All applications which are published and registrations which are issued will carry both the appropriate international classification and existing U.S. classification number.

An insufficient fee, in connection with an appeal or opposition on any application or in connection with an affidavit or renewal filed in connection with any registration, will not render the same unacceptable, if the proper fee is submitted within a time limit set forth in a notification of the defect, providing the proper fee for at least one class has been originally submitted within the applicable time limit. This will be the case even if the full fee is not received within the sixth year in the case of an affidavit filed under Section 8 or before the end of the twentieth year, including the grace period, in the case of renewal applications, or within the six-month statutory response period in the case of an appeal,

or within the thirty-day opposition period, or any extension thereof in the case of the filing of an opposition.

The existing classification system will continue to be used for searching registered and pending marks until all documents in the search file are organized on the basis of the international system of classification. Until this changeover is effected, the U.S. class designation will continue to be printed on all published applications and registrations issued under the existing or the international classification system to facilitate searching on the basis of the existing U.S. system of classification.

Until all applications filed on or before Aug. 31, 1973, have been disposed of, the trademark sections of the OFFICIAL GAZETTE, which are organized by class, will include two sections: one for applications published or registrations issued on the basis of applications filed on or before Aug. 31, 1973, organized by class according to the U.S. schedule of classes; the other section for applications published or registrations issued on the basis of applications filed on or after Sept. 1, 1973, organized by class according to the new international schedule.

Certification marks and collective membership marks will continue to be classified as set forth in redesignated §§ 6.3 and 6.4.

Efforts will be made to have the International Trademark Classification List printed by the Government Printing Office or otherwise assure the availability of the List from local sources. Notification will appear in the OFFICIAL GAZETTE when the List is available from local sources or the Government Printing Office.

The English edition of the "International Classification of Goods and Services to Which Trademarks Are Applied" can presently be ordered from:

Sales Branch, The Patent Office, Block C
Station Square House, St. Mary Cray
Orpington, Kent, England

Certain modifications and additions to the international trademark classification have been published as supplements and are also available from the British Office. In addition, and inasmuch as the World Intellectual Property Organization (WIPO) has issued the List in several languages, it is anticipated that an English version will be published by that organization.

We have been advised by the Patent Office of the United Kingdom that the only acceptable methods of payment for the International Trademark Classification List are by International Postal Money Order or by banker's draft payable in sterling and drawn on a bank in the United Kingdom. Orders for the international classification and for the supplements can be made by remittance in the following amount(s):

International Trademark Classification	50 pence
Nov. 15, 1967, supplement	5 pence
Mar. 18, 1970, supplement	Free
Mar. 3, 1971, supplement	10 pence
Total cost (including postage by surface mail)	65 pence
Additional charge for postage by air mail	1 pound 55 pence
Total cost by airmail	2 pounds 20 pence

Effective Date.—This revision shall become effective as of Sept. 1, 1973. In consideration of the comments and pursuant to the authority contained in section 8 of the Act of July 19, 1952 (66 Stat. 792, 35 U.S.C. 6), as amended Oct. 5, 1971 (85 Stat. 384), and in section 30 of the Trademark Act of 1946 as amended (Oct. 9, 1962, 76 Stat. 773, 15 U.S.C. 1112), Parts 2 and 6 of Chapter I of Title 37 of the Code of Federal Regulations are hereby amended as follows:

1. Section 2.85 is revised to read as follows:

§ 2.85. Classification Schedules

(a) Section 6.1 of Part 6 of this chapter specifies the system of classification for goods and services which applies for all statutory purposes to trademark application filed in the

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Patent Office on or after Sept. 1, 1973, and to registrations issued on the basis of such applications. It shall not apply to applications filed on or before Aug. 31, 1973, nor to registrations issued on the basis of such applications.

(b) With respect to applications filed on or before Aug. 31, 1973, and registrations issued thereon, including older registrations issued prior to that date, the classification system under which the registration was granted will govern for all statutory purposes, including, inter alia, the filing of petitions to revive, appeals, oppositions, petitions for cancellation, affidavits under Section 8 and Renewals, even though such petitions to revive, appeals, etc., are filed on or after Sept. 1, 1973.

(c) Section 6.2 of Part 6 of this chapter specifies the system of classification for goods and services which applies for all statutory purposes to all trademark applications filed in the Patent Office on or before Aug. 31, 1973, and to registrations issued on the basis of such applications, except when the registration may have been issued under a classification system prior to that set forth in § 6.2. Moreover, this classification will also be utilized for facilitating trademark searches until all pending and registered marks in the search file are organized on the basis of the international system of classification.

(d) Renewals filed on registrations issued under a prior classification system will be processed on the basis of that system.

(e) Where the amount of the fee received on filing an appeal or petition to revive in connection with an application or on filing an affidavit under § 8(a) or § 8(b) or on an application for renewal or in connection with an opposition or petition for cancellation is sufficient for at least one class of goods or services but is less than the required amount because a multiple class application or registration is involved, the appeal or petition to revive or the affidavit or renewal application or opposition or petition for cancellation will not be refused on the ground that the amount of the fee was insufficient if the required additional amount of the fee is received in the Patent Office within the time limit set forth in the notification of this defect by the Examiner.

(f) Sections 6.3 and 6.4 specify the system of classification which applies to certification marks and collective membership marks.

(g) Classification schedules shall not limit or extend the applicant's rights.

2. Sections 6.1, 6.2 and 6.3 are redesignated as §§ 6.2, 6.3 and 6.4, respectively.

3. A new § 6.1 is added and reads as follows:

§ 6.1. International schedule of classes of goods and services

Goods

- Chemical products used in industry, science, photography, agriculture, horticulture, forestry; artificial and synthetic resins; plastics in the form of powders, liquids or pastes, for industrial use; manures (natural and artificial); fire extinguishing compositions; tempering substances and chemical preparations for soldering; chemical substances for preserving foodstuffs; tanning substances; adhesive substances used in industry.
- Paints, varnishes, lacquers; preservatives against rust and against deterioration of wood; colouring matters, dyestuffs; mordants; natural resins; metals in foil and powder form for painters and decorators.
- Bleaching preparations and other substances for laundry use; cleaning, polishing, scouring and abrasive preparations; soaps; perfumery, essential oils, cosmetics, hair lotions; dentifrices.
- Industrial oils and greases (other than oils and fats and essential oils); lubricants; dust laying and absorbing compositions; fuels (including motor spirit) and illuminants; candles, tapers, night lights and wicks.
- Pharmaceutical, veterinary, and sanitary substances; infants' and invalids' foods; plasters, material for bandaging; material for stopping teeth, dental wax, disinfectants; preparations for killing weeds and destroying vermin.
- Unwrought and partly wrought common metals and their alloys; anchors, anvils, bells, rolled and cast building materials; rails and other metallic materials for railway tracks; chains (except driving chains for vehicles); cables and wires (nonelectric); locksmiths' work;
- metallic pipes and tubes; safes and cash boxes; steel balls; horseshoes; nails and screws; other goods in nonprecious metal not included in other classes; ores.
- Machines and machine tools; motors (except for land vehicles); machine couplings and belting (except for land vehicles); large size agricultural implements; incubators.
- Hand tools and instruments; cutlery, forks, and spoons; slide arms.
- Scientific, nautical, surveying and electrical apparatus and instruments (including wireless), photographic, cinematographic, optical, weighing, measuring, signaling, checking (supervision), life-saving and teaching apparatus and instruments; coin or counterfreed apparatus; talking machines; cash registers; calculating machines, fire extinguishing apparatus.
- Surgical, medical, dental and veterinary instruments and apparatus (including artificial limbs, eyes and teeth).
- Installations for lighting, heating, steam generating, cooking, refrigerating, drying, ventilating, water supply and sanitary purposes.
- Vehicles; apparatus for locomotion by land, air or water.
- Firearms; ammunition and projectiles; explosive substances; fireworks.
- Precious metals and their alloys and goods in precious metals or coated therewith (except cutlery, forks and spoons); jewellery, precious stones, horological and other chronometric instruments.
- Musical instruments (other than talking machines and wireless apparatus).
- Paper and paper articles, cardboard and cardboard articles: printed matter, newspaper and periodicals, books; bookbinding material; photographs; stationery, adhesive materials (stationery); artists' materials; paint brushes; typewriters and office requisites (other than furniture); instructional and teaching material (other than apparatus); playing cards; printers' type and clichés (stereotype).
- Gutta percha, India rubber, balata and substitutes, articles made from these substances and not included in other classes; plastics in the form of sheets, blocks and rods, being for use in manufacture; materials for packing, stopping or insulating; asbestos, mica and their products; hose pipes (nonmetallic).
- Leather and imitations of leather, and articles made from these materials and not included in other classes; skins, hides; trunks and travelling bags; umbrellas, parasols and walking sticks; whips, harness and saddlery.
- Building materials, natural and artificial stone, cement, lime, mortar, plaster and gravel; pipes of earthenware or cement; roadmaking materials; asphalt, pitch and bitumen; portable buildings; stone monuments; chimney pots.
- Furniture, Mirrors, Picture Frames; articles (not included in other classes) of wood, cork, reeds, cane, wicker, horn bone, ivory, whalebone, shell, amber, mother-of-pearl, meerschaum, celluloid, substitutes for all these materials, or of plastics.
- Small domestic utensils and containers (not of precious metals, or coated therewith); combs and sponges; brushes (other than paint brushes); brushmaking materials; instruments and material for cleaning purposes, steel wool; unworked or semi-worked glass (excluding glass used in building); glassware, porcelain and earthenware, not included in other classes.
- Ropes, string, nets, tents, awnings, tarpaulins, sails, sacks; padding and stuffing materials (hair, kapok, feathers, seaweed, etc.); raw fibrous textile materials.
- Yarns, threads.
- Tissues (piece goods); bed and table covers; textile articles not included in other classes.
- Clothing, including boots, shoes and slippers.
- Lace and embroidery, ribbons and braid; buttons, press buttons, hooks and eyes, pins and needles; artificial flowers.
- Carpets, rugs, mats and matting; linoleums and other materials for covering existing floors; wall hangings (nontextile).
- Games and playthings; gymnastic and sporting articles (except clothing); ornaments and decorations for Christmas trees.

29. Meat, fish, poultry and game; meat extracts; preserved, dried and cooked fruits and vegetables; jellies, jams; eggs, milk and other dairy products; edible oils and fats; preserves, pickles.
30. Coffee, Tea, cocoa, sugar, rice, tapioca, sago, coffee substitutes; flour, and preparations made from cereals; bread, biscuits, cakes, pastry and confectionery, ices; honey, treacle; yeast, baking powder; salt, mustard, pepper, vinegar, sauces, spices; ice.
31. Agricultural, horticultural and forestry products and grains not included in other classes; living animals; fresh fruits and vegetables; seeds; live plants and flowers; foodstuffs for animals, malt.
32. Beer, ale and porter; mineral and aerated waters and other nonalcoholic drinks; syrups and other preparations for making beverages.
33. Wines, spirits and liqueurs.
34. Tobacco, raw or manufactured; smokers' articles; matches.

SERVICES

35. Advertising and business.
36. Insurance and financial.
37. Construction and repair.
38. Communication.
39. Transportation and storage.
40. Material treatment.
41. Education and entertainment.
42. Miscellaneous.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Date: May 14, 1973.

Approved:

BETSY ANCKER-JOHNSON,
Assistant Secretary for
Science and Technology.

(Pub. in 38 F.R. 14681, June 4, 1973)

Patent Office Services

A notice concerning delays in furnishing Certified Copies was published Aug. 8, 1972 (901 O.G. 412). This notice announced the initiation of a special "Expedited Service" for obtaining copies of pending applications promptly. As indicated in the notice, this special service would be terminated upon restoration of our regular service to an acceptable level.

I am pleased to report that our regular service has been restored to an acceptable level and this special program is being terminated.

However, our efforts to improve our services in these areas will continue. We have made progress, but are not resting on that record. We recognize that there are still problems of accuracy and quality in the filling of orders. These are currently being examined in an effort to bring about necessary improvements.

Thank you for your cooperation and understanding during this difficult period.

ROBERT GOTTSCHALK,
Commissioner of Patents.

May 30, 1973.

Registration to Practice

The following list contains the names of persons applying for registration to practice before the United States Patent Office on the basis of 4 years or more service in the Examining Corps. Information tending to affect the eligibility of said applicants on moral, ethical, or other grounds should be furnished the Commissioner of Patents on or before July 27, 1973.

Andewelt, Roger B., 2000 S. Eads St., Arlington, Va. 22202
Huberfeld, Harold, 815 Thayer Ave., #1234, Silver Spring, Md. 20910

Leipold, Paul A., 8442 Vallance Road, Le Roy, N.Y. 14482

LUTRELLE F. PARKER,
Chairman, Committee on Enrollment.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,509,888, T. Miller, MAGNIFYING AND LIGHT CONCENTRATING DEVICE FOR TELEPHONE DIALS, filed Nov. 18, 1971, D.C., N.D. Ohio (Toledo), Doc. C71-349, *Tobias Miller v. General Telephone Company*. Patent invalid; question of infringement moot, Court reserves ruling on that issue. Complaint ordered dismissed, Dec. 11, 1972.

2,712,507, B. K. Green, PRESSURE SENSITIVE RECORD MATERIAL, filed Sept. 18, 1969, D.C., S.D. Ohio (Cincinnati), Doc. 7243, *The National Cash Register Co. v. U.S. Plywood-Champion Papers, Inc.*, changed name to *Champion International Corporation*. Ordered, action dismissed without prejudice as to either the complaint or counterclaim, Dec. 13, 1972.

2,753,809, M. A. Garrison, ROTARY MOTOR OR PUMP; 3,076,514, same, DEEP WELL MOTOR DRILL; 3,594,106, same, VARIABLE SPEED MOTOR DRILL, filed Jan. 19, 1973, D.C. Colo. (Denver), Doc. C-4701, *Empire Oil Tool Company and Marion A. Garrison v. Ingersoll-Rand Company*.

2,776,587, W. Killus, AUTOMOBILE BUMPER, GRILLE AND BODY BENDING TOOL, filed Jan. 24, 1973, D.C., N.D. Tex. (Fort Worth), Doc. CA-4-2190, *Walter D. Whitney, doing business as Whitney Manufacturing Company v. H. W. Sprague, doing business as Ezy-Way Tool Company*.

2,811,068, A. H. Faulkner, ELECTRICAL MUSICAL INSTRUMENT, filed Jan. 17, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c187, *Alfred H. Faulkner v. Thomas Organ Co.*

2,906,875, E. T. Molinaro, STATION SAMPLING RADIO, filed May 12, 1972, D.C., M.D. Pa. (Scranton), Doc. C-72-250, *Edward T. Molinaro and Anthony P. Catanzaro v. Lafayette Radio Electronics Associated Stores of Hart Electronics Corporation*. Same, filed June 29, 1972, D.C., E.D.N.Y. (Brooklyn), Doc. 72C882, *Edward T. Molinaro and Anthony P. Catanzaro v. Senar Radio Corporation*. Same, filed Aug. 15, 1972, D.C., M.D. Pa. (Scranton), Doc. C-72-418, *Edward T. Molinaro and Anthony P. Catanzaro v. Radio Shack*. Same, filed Dec. 11, 1972, D.C., M.D. Pa. (Scranton), Doc. C-72-611, *Edward T. Molinaro and Anthony P. Catanzaro v. J. U. Penney Company, Inc.*

2,948,524, Sweeney and Kaji, PUMP FOR MOLTEN METAL, filed Dec. 12, 1972, D.C., N.D. Ohio (Cleveland), Doc. C72-1327, *The Carborundum Company v. High Temperature Sales and Fenton C. Koch*.

3,005,282, G. K. Christiansen, TOY BUILDING BRICK, filed Jan. 30, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73-189-CC, *Interlego A.G. v. Entex Industries, Inc.*

3,029,291, A. J. Dietzler, METHOD FOR MAKING ALKYLIDENE BIS (DIBROMOPHENOLS), filed Oct. 18, 1972, D.C., W.D. Ark. (Fort Smith), Doc. ED-72-C-48, *Great Lakes Chemical Corporation v. The Dow Chemical Company*.

3,046,110, M. P. Schmidt, PROCESS OF MAKING PRINTING PLATES AND LIGHT SENSITIVE MATERIAL SUITABLE FOR USE THEREIN, filed Nov. 14, 1972, D.C. Md. (Baltimore), Doc. 19764, *Azoplate Corporation v. James E. Harper*.

3,069,580, A. L. Babson, METHOD OF DETERMINING GLUTAMIC-OXALACETIC TRANSAMINASE AND COMPOSITION THEREFOR, filed Sept. 18, 1969, D.C., S.D.N.Y., Doc. 69-4088, *Warner-Lambert Pharmaceutical Co. v. Technicon Corporation*. Final Judgment; all parties agreed upon a basis of determination of the matters alleged in the complaint; ordered that this action is hereby dismissed, Dec. 27, 1972.

3,076,514. (See 2,753,809.)

3,091,912, Stoddard and Seem, METHOD OF PROCESSING STRETCH YARN AND YARNS PRODUCED THEREBY, filed Oct. 31, 1972, D.C., S.D. Fla. (Miami), Doc. 72-1720-C-CA, *Lex-Tez Ltd., Inc. v. Georgia Griffin Fashions, Inc.*

3,093,538, R. L. Reich, LABEL APPLYING MEANS, filed Mar. 14, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72-586-ALS, *Compac Corporation v. Synchro Electronics, Inc.* Consent judgment, patent valid, plaintiff is owner, defendant restrained, Sept. 21, 1972.

3,141,872, Natta, Pino and Mazzanti, POLYMERIZATION CATALYST AND STEREOSPECIFIC POLYMERIZATION OF PROPYLENE THEREWITH, filed Nov. 16, 1972, D.C. Del. (Wilmington), Doc. 4518, *Montecatini Edison v. Phillips Petroleum Company and Diamond Shamrock Corporation*.

3,143,610, G. W. Gustafson, MOISTURE RESPONSIVE CONTROL APPARATUS, filed Aug. 2, 1972, D.C. Del. (Wilmington), Doc. 4440, *General Time Corporation v. Honeywell Inc.*

3,299,304, B. B. Hull, LAMINATED CORE HAVING LOW COMPRESSIBILITY CHARACTERISTIC FOR AN ELECTRICAL INDUCTIVE DEVICE; 3,490,143, same, METHOD OF MANUFACTURING A CORE FOR AN ELECTRICAL INDUCTIVE DEVICE; Re. 26,788, same, MOTOR STATOR STACK OF BONDED LAMINATIONS WITH LESS BONDING MATERIAL AT BOLT HOLE REGIONS, filed Jan. 29, 1973, D.C., E.D. Ky. (Lexington), Doc. 2478, *General Electric Company v. A. O. Smith Corporation*.

3,301,331, Looker and Greedy, METHOD OF AND APPARATUS FOR HARVESTING VINE CROPS, filed Feb. 1, 1973, D.C., S.D. Ill. (Peoria), Doc. P-C-73-10, *FMC Corporation v. Hart-Carter Company*.

3,351,289, R. J. Demaison, APPARATUS FOR APPLYING A PROTECTIVE REFRACTORY COATING TO THE REFRACTORY LININGS OF BASIC OXYGEN FURNACES; 3,351,460, same, METHOD FOR PROLONGING THE LIFE OF REFRACTORY LININGS IN FURNACES OF THE KALDO, LINZ-DONOWITZ, DEMAY OR BASIC OR ACID CONVERTER TYPES; 3,460,983, same, METHOD OF CONCURRENTLY OPERATING FURNACES OF THE ACID OR BASIC CONVERTER TYPES, filed Mar. 20, 1970, D.C. Del. (Wilmington), Doc. 3862, *Quigley Company, Inc. v. Bethlehem Steel Corporation*. Stipulation and order signed by Chief Judge Wright, parties have entered into an agreement to settlement of this suit. Complaint is dismissed with prejudice, counterclaim is dismissed with prejudice, Feb. 22, 1972.

3,351,460. (See 3,351,289.)

3,409,916, Billig and Schleeweiss, OVAL SWIMMING POOL, filed Mar. 29, 1972, D.C.N.J. (Newark), Doc. 571-72, *Bilnor Corporation v. Home & Roam Leisure Products, Inc.* Consent judgment releasing defendant from any patent infringement claim; releasing plaintiff from all counterclaims filed, Jan. 31, 1973.

3,454,210, Spiegel and Monla, EASY OPENING AND RE-CLOSABLE PACKAGE, FILM THEREFOR AND PROCESS, filed Jan. 29, 1973, D.C., N.D. Ohio (Youngstown), Doc. C-73-98-Y, *Standard Packaging Corporation v. Superior's Brand Meats, Inc.*

3,460,983. (See 3,351,289.)

3,478,700, Lundvall, Loomis and Breen, FLOOR LATOH STRIP FOR RAILWAY CARS; 3,570,416, J. A. Shook, FREIGHT-BRACING APPARATUS, filed Oct. 4, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c2492, *Unarco Industries, Inc. v. Evans Products Company et al.*

3,490,143. (See 3,299,304.)

3,502,081, S. P. Amolis, CRYOSURGICAL INSTRUMENT, filed Mar. 27, 1970, D.C. Conn. (New Haven), Doc. 13771, *Dynatech Corp. v. Frigitrance, Inc.* Stipulation for dismissal filed Aug. 9, 1972 by parties.

3,570,416. (See 3,478,700.)

3,594,106. (See 2,753,809.)

Re. 26,788. (See 3,299,304.)

D. 202,172, R. Paulich, DOOR KNOCKER, filed Aug. 18, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72-1910-R, *Columbia Specialty Company, Inc. v. Personally Yours, Charles A. Larrain and Donald M. McLean*. Filed stipulation for dismissal with prejudice and order thereon, Jan. 29, 1973.

Certificates of Correction for the Week of June 26, 1973

Re. 27,490	3,671,468	3,698,780	3,706,818
D. 225,260	3,672,282	3,698,987	3,707,272
D. 226,008	3,672,890	3,699,830	3,707,433
3,523,420	3,676,385	3,700,339	3,708,385
3,546,361	3,679,535	3,700,502	3,708,433
3,550,790	3,679,612	3,700,819	3,708,501
3,552,502	3,679,911	3,701,017	3,708,929
3,598,536	3,680,945	3,701,401	3,709,741
3,608,146	3,681,008	3,701,582	3,709,782
3,609,143	3,681,241	3,701,720	3,709,955
3,616,773	3,682,215	3,701,844	3,710,015
3,622,256	3,682,590	3,701,891	3,710,048
3,628,887	3,683,822	3,701,898	3,711,438
3,631,470	3,684,807	3,702,010	3,712,131
3,632,998	3,685,908	3,702,446	3,712,233
3,633,127	3,685,982	3,702,474	3,712,498
3,636,238	3,686,476	3,702,757	3,713,205
3,642,721	3,687,638	3,703,241	3,713,541
3,647,818	3,688,198	3,703,328	3,713,557
3,650,906	3,690,363	3,704,250	3,714,122
3,653,079	3,690,833	3,704,348	3,715,290
3,655,842	3,691,217	3,704,394	3,715,650
3,659,369	3,691,509	3,705,443	3,716,412
3,663,298	3,691,829	3,706,016	3,716,426
3,665,314	3,692,552	3,706,126	3,719,867
3,668,116	3,695,335	3,706,417	
3,670,638	3,695,661	3,706,646	

Disclaimers

3,428,904.—*Rahmat A. Aziz*, San Jose, Calif. DATA DETECTOR FOR MAGNETIC STORAGE DEVICE. Patent dated Feb. 18, 1969. Disclaimer filed Feb. 2, 1973, by the assignee, *International Business Machines Corporation*.

Hereby enters this disclaimer to all claims of said patent.

3,681,087.—*Theodore R. Johnson, Jr.*, Weston, Mass. CHEWING GUM COMPOSITION. Patent dated Aug. 1, 1972. Disclaimer filed Feb. 2, 1973, by the assignee, *Mirlin Corporation*.

Hereby disclaims the portion of the term of the patent subsequent to July 11, 1989.

3,682,881.—*Lajos F. Fekete*, Valinda and *Edward Shanbrom*, Santa Ana, Calif. FRACTIONATION OF PLASMA USING GLYCINE AND POLYETHYLENE GLYCOL. Patent dated Aug. 8, 1972. Disclaimer filed Jan. 7, 1972, by the assignee, *Baxter Laboratories, Inc.*

Hereby disclaims the portion of the term of the patent subsequent to Dec. 28, 1988.

3,696,027.—*Alan G. Bridge*, El Cerrito, Calif. MULTI-STAGE DESULFURIZATION. Patent dated Oct. 3, 1972. Disclaimer filed May 15, 1972, by the assignee, *Chevron Research Company*.

Hereby disclaims the portion of the term of the patent subsequent to Feb. 17, 1987.

Dedications

2,737,758.—*Joseph E. Jendrisak*, Northville, Mich. GLASS BENDING MOLD. Patent dated Mar. 13, 1956. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,744,359.—*Joseph E. Jendrisak*, Rossford, Ohio. METHOD AND APPARATUS FOR BENDING GLASS SHEETS OR PLATES. Patent dated May 8, 1956. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,746,153.—*Harry A. Kuntz*, Toledo, Ohio. SHEET GLASS CUTTING MACHINE. Patent dated May 22, 1956. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,746,209.—*Emmett L. Walters*, Toledo, Ohio. EQUIPMENT FOR BENDING GLASS SHEETS. Patent dated May 22, 1956. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,747,342.—*George F. Ritter*, Toledo, Ohio. OSCILLATING EDGE GRINDER. Patent dated May 29, 1956. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,748,007.—*Alfred E. Badger* and *Donald E. Sharp*, Maumee, Ohio. GLASS REFRACTORY COMPOSITION. Patent dated May 29, 1956. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,755,212.—*Wilbur F. Brown*, Toledo, Ohio. SHEET GLASS. Patent dated July 17, 1956. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,758,422.—*Joseph E. Jendrisak*, Rossford, Ohio. MOLD FOR SHAPING GLASS SHEETS. Patent dated Aug. 14, 1956. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,766,555.—*Joseph E. Jendrisak*, Rossford, and *Frank J. Carson*, Toledo, Ohio. GLASS BENDING METHODS AND FURNACES. Patent dated Oct. 16, 1956. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,774,189.—*Joseph E. Jendrisak*, Rossford, Ohio. APPARATUS FOR BENDING GLASS SHEETS OR PLATES. Patent dated Dec. 18, 1956. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,784,119.—*William E. McCown*, Maumee, and *James W. McAuley*, Perrysburg, Ohio. ULTRASONIC CLEANING OF CURVED SURFACES, AND APPARATUS THEREFOR. Patent dated Mar. 5, 1957. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,795,086.—*George Vincent Clark*, Ottawa, Ill. EDGE FINISHING METHOD AND APPARATUS. Patent dated June 11, 1957. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,798,338.—*Joseph E. Jendrisak*, Northville, Mich. GLASS BENDING APPARATUS. Patent dated July 9, 1957. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,800,175.—*Donald E. Sharp*, Maumee, Ohio. FIRING TANK FURNACES. Patent dated July 23, 1957. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,804,981.—*James F. La Plante* and *Delmar E. Carney*, Toledo, Ohio. APPARATUS FOR SUPPLYING BATCH MATERIALS TO A GLASS FURNACE. Patent dated Sept. 3, 1957. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,814,164.—*Frank J. Carson*, Toledo, and *Gerald White*, Rossford, Ohio. GLASS BENDING APPARATUS. Patent dated Nov. 26, 1957. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,824,411.—*David H. Goodwillie*, deceased, late of Toledo, Ohio, by *Commerce National Bank of Toledo*, executor, and *Wilbur F. Brown*, Toledo, Ohio. METHOD OF APPLICATION OF WATER-SOLUBLE CARBOHYDRATE TO HEATED ANNEALED GLASS. Patent dated Feb. 25, 1958. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,893,905.—*Frank J. Makovic, Jr.*, and *Arthur W. Goralske*, Toledo, Ohio. APPARATUS FOR PRESSING CURVED GLASS LAMINATIONS. Patent dated July 7, 1959. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

2,957,277.—*Gerald White*, Rossford, and *Frank J. Carson*, Toledo, Ohio. APPARATUS FOR BENDING GLASS SHEETS. Patent dated Oct. 25, 1960. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

3,009,017.—*Harry E. Conner* and *Paul T. Mattimoe*, Toledo, Ohio. LAMINATED TELEVISION SCREEN. Patent dated Nov. 14, 1961. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

3,023,542.—*Eugene W. Babcock*, Toledo, Ohio. SHEET GLASS BENDING APPARATUS. Patent dated Mar. 6, 1972. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

3,029,177.—*James H. Boicey* and *Charles H. Cowley*, Toledo, Ohio. METHOD OF AND APPARATUS FOR PRESSING SHEETS OF LAMINATED SAFETY GLASS. Patent dated Apr. 10, 1962. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

3,089,319.—*Frank J. Carson*, Toledo, and *Gerald White*, Rossford, Ohio. GLASS BENDING APPARATUS. Patent dated May 14, 1963. Dedication filed Mar. 5, 1973, by the assignee, *Libbey-Owens-Ford Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

3,673,089.—*John H. Wright*, Elnora, N.Y. METHYL ALKYL SILICONE GREASE COMPOSITION AND METHOD OF MAKING SAME. Patent dated June 27, 1972. Dedication filed Jan. 26, 1972, by the assignee, *General Electric Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Nov. 3, 1987.

National Technical Information Service

GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for licensing in accordance with the GSA "Patent Licensing Regulations."

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Paper copies of patents not purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at \$0.50 each. Requests for licensing information should be directed to the address cited below for each agency.

DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Information Service.

U.S. ATOMIC ENERGY COMMISSION
Assistant General Counsel for Patents,
Washington, D.C. 20545

Patent application 137,062. Baths and Processes for the Electrodeposition of Nickel. Filed Apr. 23, 1971. PC \$3/MF \$0.95.

Patent application 152,836. A Selectable Level Alarming Personal Dosimeter. Filed June 14, 1971. PC \$3/MF \$0.95.

Patent application 234,877. Improved Method and Reagent for Determining Nitrogen Oxides. Filed Apr. 13, 1972. PC \$3/MF \$0.95.

Patent application 238,977. Preparation of (238) Pu (16) 02. Filed Mar. 28, 1972. PC \$3/MF \$0.95.

Patent application 257,965. In Situ Coal Bed Gasification. Filed May 30, 1972. PC \$3.25/MF \$0.95.

Patent application 258,399. High-Current Cable Engagement Tool. Filed May 31, 1972. PC \$3/MF \$0.95.

Patent application 262,802. Method for Storing Radioactive Combustible Waste. Filed June 14, 1972. PC \$3/MF \$0.95.

Patent application 266,092. Anhydrous Hydrogen Fluoride Electrolyte Battery. Filed June 26, 1972. PC \$3/MF \$0.95.

Patent 3,695,834. Cation Exchange Conversion of Hydroxylamine Sulfate to Hydroxylamine Nitrate. Filed Oct. 12, 1970. Patented Oct. 3, 1972. Not available NTIS.

Patent 3,697,373. Nuclear Fuel Element. Filed June 2, 1970. Patented Oct. 10, 1972. Not available NTIS.

Patent 3,697,374. Gradient-Type Nuclear Fuel Plate. Filed Nov. 3, 1970. Patented Oct. 10, 1972. Not available NTIS.

Patent 3,697,436. Production of Uranium and Plutonium Carbides and Nitrides. Filed Nov. 26, 1969. Patented Oct. 10, 1972. Not available NTIS.

Patent 3,697,756. Device for Inserting Tagged Sand Into Ocean Floor. Filed July 7, 1971. Patented Oct. 10, 1972. Not available NTIS.

Patent 3,699,337. Personnel Neutron Dosimeter. Filed Mar. 16, 1971. Patented Oct. 17, 1972. Not available NTIS.

Patent 3,700,482. Uranium Surface Preparation for Electroless Nickel Plating. Filed Dec. 1, 1970. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,700,535. Carbon Fiber Structure and Method of Forming Same. Filed Mar. 12, 1971. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,700,551. Device To Prevent Sodium Freezing Around Shaft Penetration. Filed Feb. 18, 1971. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,700,554. Space Reactor Ground Safety and Control System. Filed June 20, 1968. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,700,568. Electrochemical Carbon Meter. Filed Apr. 14, 1969. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,700,602. Method for Mass Tagging Sand With a Radioactive Isotope. Filed Sept. 4, 1969. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,700,899. Method for Producing a Beam of Polarized Atoms. Filed Aug. 26, 1971. Patented Oct. 24, 1972. Not available NTIS.

Patent 3,702,936. Dose Rate Dosimeter Circuit. Filed Mar. 19, 1971. Patented Nov. 14, 1972. Not available NTIS.

Patent 3,706,511. Laminated Plastic Propeller. Filed Apr. 6, 1971. Patented Dec. 19, 1972. Not available NTIS.

Patent 3,711,591. Reductive Stripping Process for the Recovery of Uranium From Wet-Process Phosphoric Acid. Filed July 8, 1970. Patented Jan. 16, 1973. Not available NTIS.

Patent 3,700,892. Separation of Mercury Isotopes. Filed Aug. 25, 1971. Patented Oct. 24, 1972. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Assistant General Counsel for Patent Matters, NASA—
Code GP-2, Washington, D.C. 20546

Patent application 325,784. Reconstituted Asbestos Matrix. Filed Jan. 22, 1973. PC \$3/MF \$0.95.

Patent application 322,997. Bonding of Sapphire to Sapphire by Eutectic Mixture Aluminum Oxide and Zirconium Oxide. Filed Jan. 12, 1973. PC \$3/MF \$0.95.

Patent application 244,440. Star Tracking Reticles and Process for the Production Thereof. Filed Apr. 17, 1972. PC \$3.25/MF \$0.95.

Patent application 331,759. Cascade Plug Nozzle. Filed Feb. 13, 1973. PC \$3.25/MF \$0.95.

Patent 3,711,042. Aircraft Control System. Patented Jan. 16, 1973. Not available NTIS.

Patent 3,713,163. Plural Beam Antenna. Patented Jan. 23, 1973. Not available NTIS.

Patent 3,714,526. Phototransistor. Patented Jan. 30, 1973. Not available NTIS.

Patent 3,712,712. Apparatus for Photographing Meteors. Patented Jan. 23, 1973. Not available NTIS.

Patent 3,712,121. Self-Recording Portable Soil Penetrometer. Patented Jan. 23, 1973. Not available NTIS.

Patent 3,712,120. Multi Axes Vibration Fixtures. Patented Jan. 23, 1973. Not available NTIS.

Patent 3,712,591. Zero Gravity Liquid Mixer. Patented Jan. 23, 1973. Not available NTIS.

[FR Doc. 73-11173; Filed 6-5-73; 8:45 am]

GOVERNMENT-OWNED INVENTIONS

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The inventions listed below are owned by the U.S. Government and are available for licensing in accordance with the GSA "Patent Licensing Regulations."

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Paper copies of patents cannot be purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at \$0.50 each. Requests for licensing information should be directed to the address cited below for each agency.

DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Informa-
tion Service.

U.S. ATOMIC ENERGY COMMISSION
Assistant General Counsel for Patents,
Washington, D.C. 20545

Patent application 107,382. Fibrous Fibrin Sheet and Method for Producing Same. Filed Jan. 18, 1971. PC \$3/MF \$0.95.

Patent application 114,769. Improved Apparatus for Leaching Core Material From Sheared Segments of Clad Nuclear Fuel Pins. Filed Feb. 12, 1971. PC \$3/MF \$0.95.

Patent application 183,659. Gold Recovery From Aqueous Solutions. Filed Sept. 24, 1971. PC \$3/MF \$0.95.

Patent application 268,262. A Method of Repressing the Precipitation of Calcium Fluozirconate. Filed July 3, 1972. PC \$3/MF \$0.95.

Patent application 284,810. Catalytic Reduction of Nitrogen Oxides. Filed Oct. 30, 1972. PC \$3/MF \$0.95.

Patent application 243,365. A Solid State Radiation Detector. Filed Apr. 11, 1972. PC \$3/MF \$0.95.

Patent 3,683,975. Method of Vibratory Loading Nuclear Fuel Elements. Filed Feb. 12, 1971. Patented Aug. 15, 1972. Not available NTIS.

Patent 3,693,012. Passive Source of Secondary Radiation With a Source-Shield Grid. Filed Jan. 22, 1971. Patented Sept. 19, 1972. Not available NTIS.

Patent 3,697,235. Method of Purifying Uranium Hexafluoride by Reduction To Lower Uranium Fluorides. Filed Mar. 31, 1960. Patented Oct. 10, 1972. Not available NTIS.

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
National Institutes of Health, Westwood Bldg.,
Bethesda, Md. 20014

Patent application 275,777. Countercurrent Chromatography With Flow-Through Coil Planet Centrifuge. Filed July 27, 1972. PC \$3/MF \$0.95.

Patent application 272,144. Vibrating Pipette Probe Mixer. Filed July 17, 1972. PC \$3/MF \$0.95.

Patent application 335,155. Method of Making Thin Defect-Free Silicone Rubber Films and Membranes. Filed Feb. 23, 1973. PC \$3/MF \$0.95.

Patent application 274,291. Preparation of Urushiol From Poison Ivy or Poison Oak. Filed July 21, 1972. PC \$3/MF \$0.95.

[FR Doc. 73-11174; Filed 6-5-73; 8:45 am]

Pub. in 38 F.R. 14870, June 6, 1973

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JUNE 6, 1973

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director.....	3-22-72
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director.....	6-01-72
Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director.....	4-03-72
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director.....	2-02-73
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director.....	2-05-72
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director.....	11-01-72
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director.....	9-21-72
Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director.....	7-03-73
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director.....	2-09-72
Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director.....	5-08-72
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
DESIGNS, GROUP 290—R. L. CAMPBELL, Director.....	7-06-71
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director.....	7-03-72
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director.....	3-13-72
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding; Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director.....	6-02-72
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director.....	3-06-72
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director.....	4-24-72
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	

Expiration of patents: The patents within the range of numbers indicated below expire during June 1973, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,748,385 to 2,762,694, inclusive
Plant Patents..... Numbers 1,481 to 1,491, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED JUNE 26, 1973

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

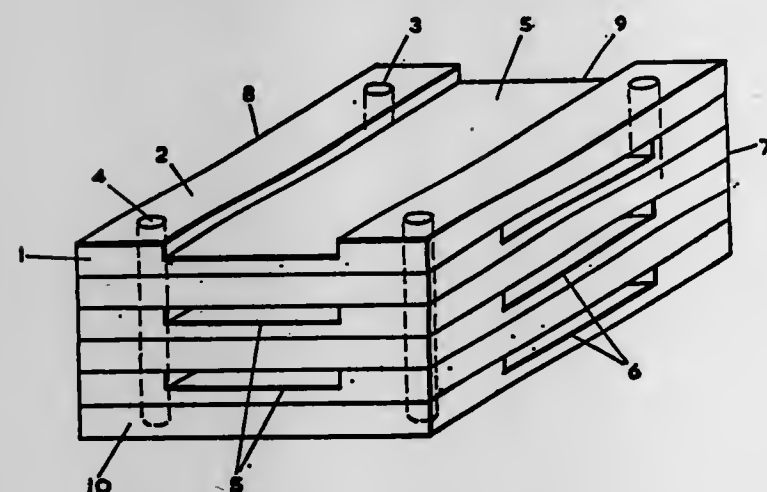
T911,012
SPRAYABLE, SAG-RESISTANT METHACRYLATE SYRUP AND PROCESS FOR PREPARING A FINAL GEL COAT THEREFROM
Ronald Newell Llesemer, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation of abandoned application Ser. No. 811,255, Mar. 27, 1969. This application July 21, 1971, Ser. No. 164,899

Int. Cl. C08f 15/16, 45/52
U.S. Cl. 260—28.5 R

No Drawing, 20 Pages Specification

A sprayable, sag-resistant methacrylate syrup containing a monomer liquid containing methyl methacrylate, a polymer containing methyl methacrylate polymerized units, a thixotropic agent, pigment and paraffin wax; and a process for preparing a final gel coat therefrom by mixing said syrup with an initiator system, curing for up to 3 hours at ambient conditions; and postcuring at 95° C. to 140° C. for from 30 minutes to 16 hours.

T911,013
HEAT EXCHANGERS
David Evan Bryan Morgans, Hatfield, and Frank Smith, Widnes, England, assignors to Imperial Chemical Industries Limited, London, England
Filed Aug. 13, 1971, Ser. No. 171,426
Claims priority, application Great Britain, Aug. 28, 1970, 41,603/70
Int. Cl. F28f 3/00
U.S. Cl. 165—166
5 Sheets Drawing, 10 Pages Specification



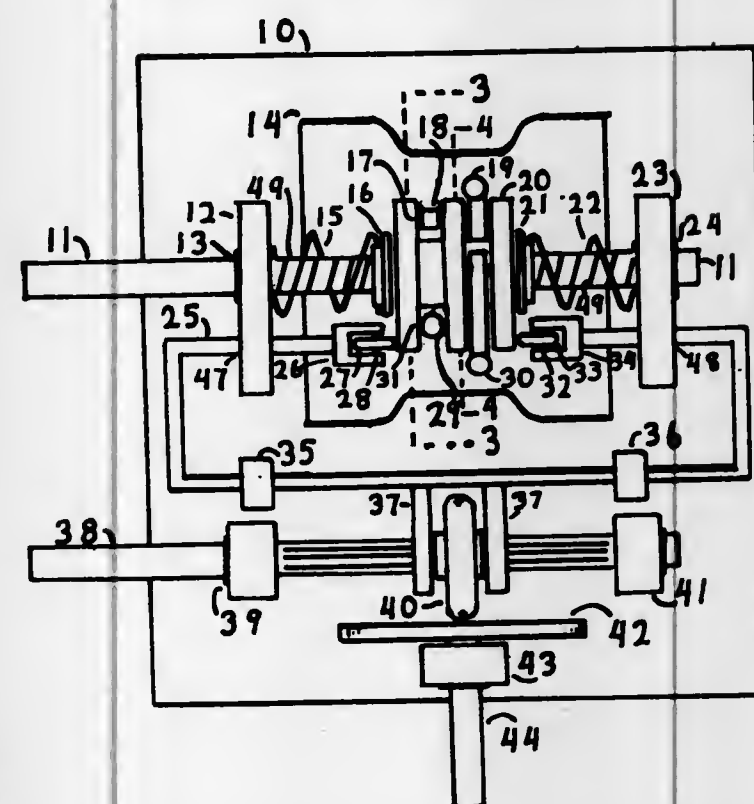
Heat exchangers for transfer of heat from one fluid to another through thin walled members made of a plastics material resistant to corrosive action of the fluids. The heat exchanger is a block formed from plates of plastics material spaced apart from each other, at least over areas intermediate their edges, for flow of fluid therebetween and spacers of plastics material at opposite edges of the plates forming seals between adjacent plates at the edges and defining passages for fluids between spaced apart areas of the plates. In one embodiment one set of passages

terminates at one pair of faces of the block and another set of passages, not communicating with the first set, terminates at a different pair of faces of the block. Thus a fluid of one temperature circulates adjacent a fluid of a different temperature, the fluids being separated from each other by a thin walled member.

Suitable plastics materials include any polymeric material capable of withstanding the temperature, pressure and corrosive conditions within the heat exchanger. Illustrative materials include polytetrafluoroethylene, high density polyethylene and polypropylene.

Sheet thickness, sufficient to provide fluid separation yet thin enough to provide for sufficient heat transfer, is usually from 0.01–1.0 mm., preferably 0.25–0.5 mm. Spacer thickness is not critical but should be chosen to provide sufficient flow of fluid through the exchanger.

T911,014
SYSTEM FOR A ROTARY MECHANICAL TRANSLATING DEVICE
Thomas A. W. K. Watson, 2720 Goyer, Apt. 24, Montreal, Quebec, Canada
Filed Nov. 4, 1971, Ser. No. 195,663
Int. Cl. F16h 15/04
U.S. Cl. 74—190.5
1 Sheet Drawing, 5 Pages Specification



A rotary mechanical translating device which produces rotary mechanical amplification, transfers power from a prime mover to an output shaft as a magnified function of an angular displacement of an input shaft. The device exhibits a power gain, since it transfers power from a

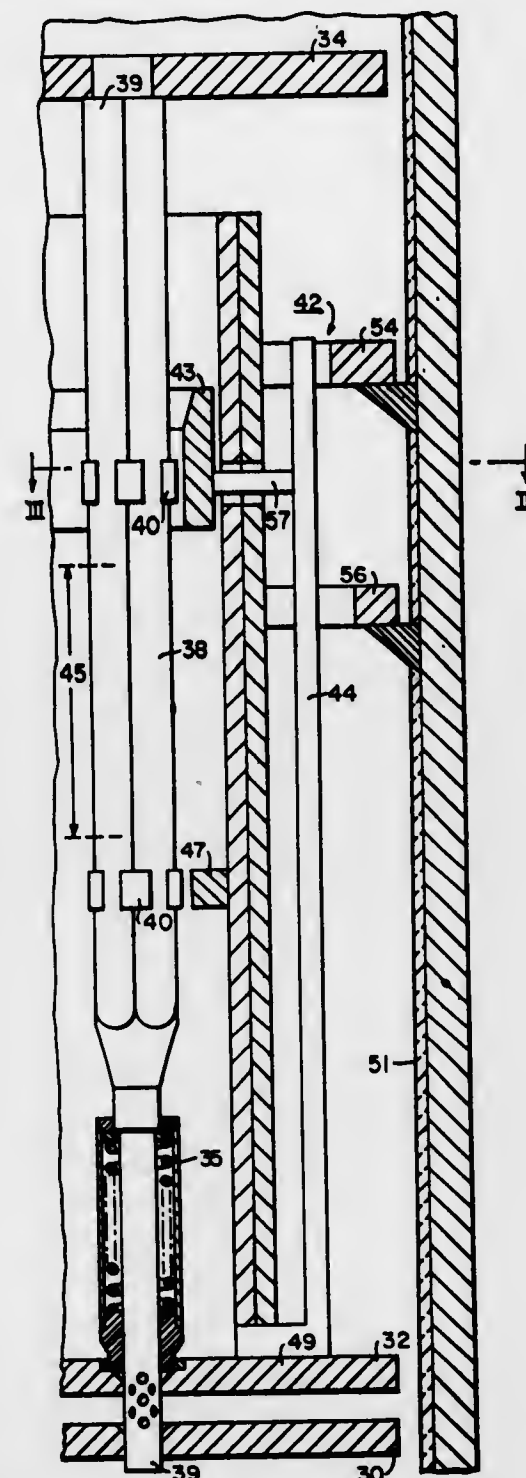
JUNE 26, 1973

U. S. PATENT OFFICE

1137

prime mover to an output shaft, the power transfer being controlled by the rotation of an input shaft. The translating device described comprises a variable speed transmission having a speed control which is activated by a tachometer. The tachometer adjusts the speed control of the transmission as a function of the speed of rotation of its input shaft. The output is derived from the transmission which is driven by a prime mover.

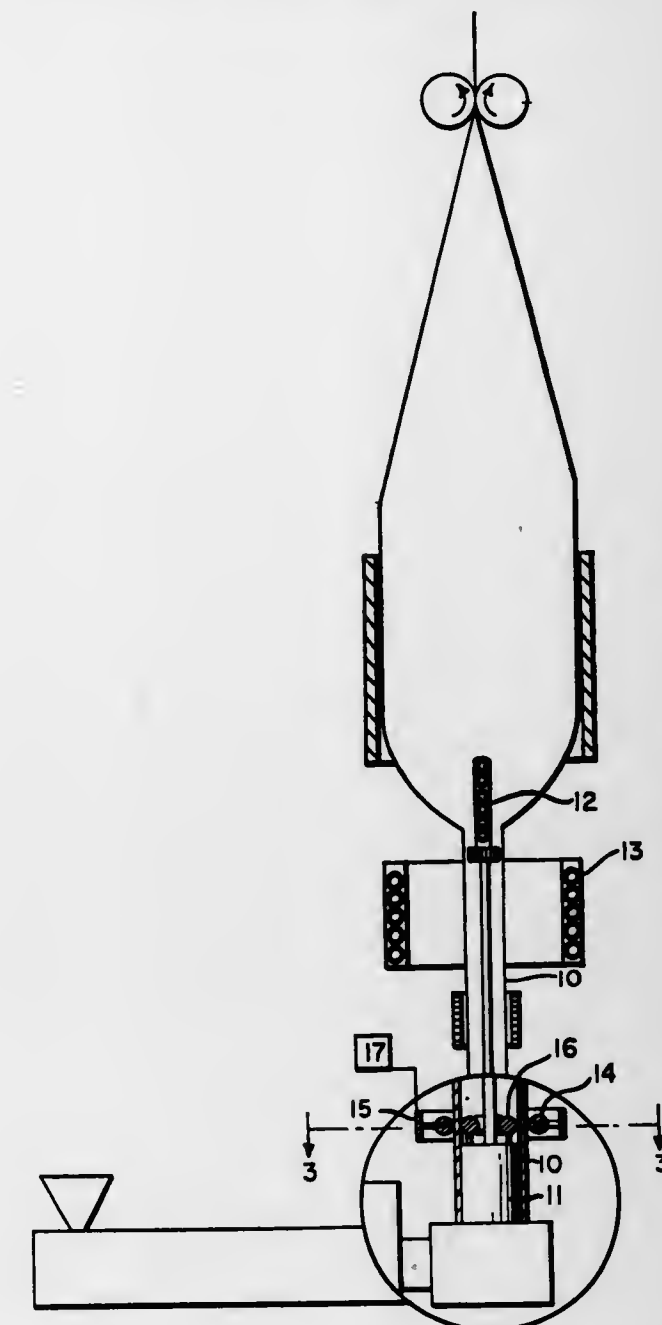
T911,015
NUCLEAR CORE POSITIONING SYSTEM
Hans Dieter Garkisch, Irwin, Howard W. Yant, Greensburg, and John F. Patterson, Murrysville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Dec. 21, 1971, Ser. No. 210,447
Int. Cl. G21c 3/30
U.S. Cl. 176—85
3 Sheets Drawing, 14 Pages Specification



A structural support system for the core of a nuclear reactor which achieves relatively restricted clearances at operating conditions and yet allows sufficient clearance between fuel assemblies at refueling temperatures. Axially displaced spacer pads having variable between pad spacing and a temperature compensated radial restraint system are utilized to maintain clearances between the fuel elements. The core support plates are constructed of

metals specially chosen such that differential thermal expansion produces positive restraint at operating temperatures.

T911,016
TUBULAR PREPARATION OF THERMOPLASTIC FILM
Edward J. Moore, Florence, S.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation of abandoned application Ser. No. 36,034, May 11, 1970. This application Mar. 30, 1972, Ser. No. 239,768
Int. Cl. B29c 5/04, 23/00; B29d 9/24
U.S. Cl. 264—95
2 Sheets Drawing, 3 Pages Specification



In a continuous process for producing an oriented thermoplastic film comprising extruding a thermoplastic material in its formative state into the form of a tube, quenching the tube to a temperature below its formative state, reheating the tube to a temperature within its orientation temperature range, expanding the tube and thereafter collapsing and collecting the tube, the improvement which comprises oscillating the tube about its axis by applying rotational torque to the tube after quenching and before reheating to distribute gauge irregularities about the circumference of the tube.

It is preferred that the tube be oscillated through a rotational cycle of 180° at a rotational speed of $v/2d$ wherein v is the linear speed of the tube being extruded and d is the distance between the extrusion die and the

region of initial orientation expansion to distribute gauge irregularities throughout the full circumference of the tube.

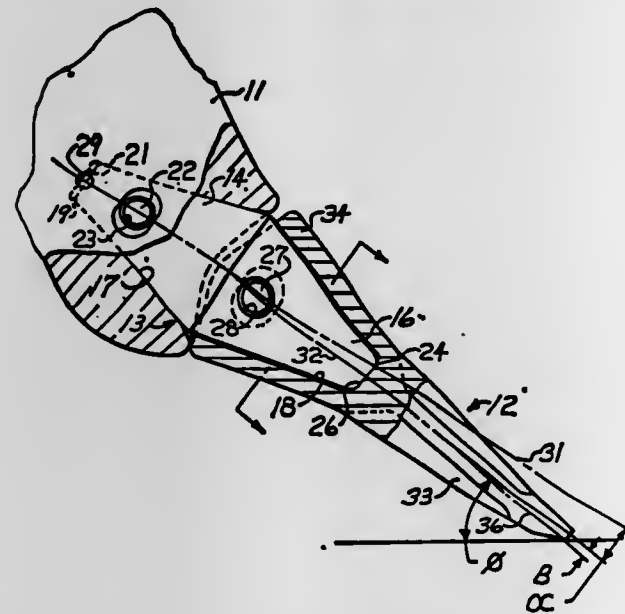
Oscillation of the tube is accomplished by rotation of a tube advancer comprising a plurality of idler rolls circularly disposed around the internal wall of the quenched tube and a plurality of driven rolls in cooperative arrangement with the idler rolls circumferentially positioned immediately exterior to the tube, the idler rolls and the driven rolls each being mounted on rotatable frames.

T911,017
RECONSTITUTED TOBACCO
Eugene D. Klug, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.
Filed June 13, 1972, Ser. No. 262,390
Int. Cl. A24b 3/14
U.S. Cl. 131—17 A

No Drawing. 9 Pages Specification

An improved reconstituted tobacco is disclosed having as a binder a modified hydroxypropyl cellulose having a cloud point less than about 30° C. Phenylhydroxyethyl-, benzyl- and hydroxybutyl hydroxypropyl cellulose are preferred modifications. Tobacco products based on such materials are less moisture-sensitive when in contact with the user's lips than are those based on presently used binder systems. Since the binders are both thermoplastic and water-soluble, the reconstituted tobacco can be processed by either thermal or solution techniques.

T911,018
QUICK CHANGE ADAPTER FOR RIPPER SHANKS AND THE LIKE WITH TIP ANGLE ADJUSTMENT
Michael T. Radigan, Rte. 1, Diane Way, Manhattan, Ill. 60442
Filed July 28, 1972, Ser. No. 276,179
Int. Cl. E02f 9/28
U.S. Cl. 37—142 R
2 Sheets Drawing. 10 Pages Specification



An adapter for securing a ground engaging tooth to a support such as a ripper shank wherein the adapter is of double frusto-pyramidal configuration with one end removably secured in a socket in the support and the opposite end removably secured in a mating socket of the ground engaging tooth. The opposite frusto-pyramidal ends of the adapter as shown in FIG. 1 are askew of one another such that by rotation of the adapter 180° in the support socket, two different tooth tip angles with respect to the ground surface are obtained. The ground engaging tip end of the tooth may also be askew from the socket portion thereof whereby rotation of the tooth 180° on the leading frusto-pyramidal end of the adapter provides two different tip angles with respect to the ground

surface for each of the reversible positions of the adapter in the support socket, i.e., a total of four different tip angle adjustments.

T911,019
n-BUTYRIC ACID HAVING ANTI-FUNGAL ACTIVITY
Emma-Jane E. Drury, 575 Britton Road, Rochester, N.Y. 14616, and David C. Herting, 2778 Nicholas St., Spencerport, N.Y. 14559
Filed Sept. 15, 1972, Ser. No. 289,388
Int. Cl. A23k 1/02; A23l 3/34
U.S. Cl. 99—6

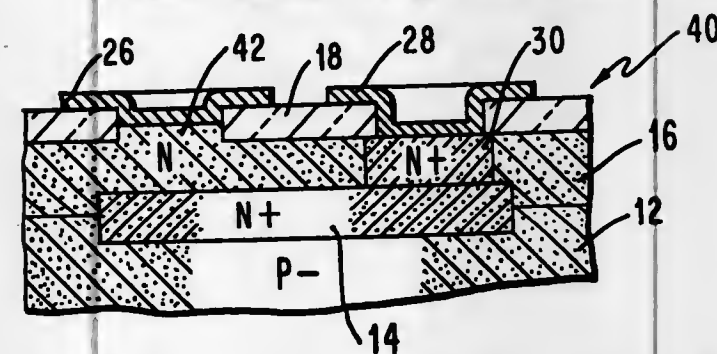
No Drawing. 7 Pages Specification
n-Butyric acid in amounts of only about 0.25% to 4% by weight of feed is found to have overall higher anti-fungal activity than acetic, propionic, or isobutyric volatile fatty acids tested on animal feeds containing molasses.

T911,020
ISOMERIZATION OF CYCLOHEXANE-DICARBOXYLIC ACID ESTERS
Theodore Edward Stanin, 1300 Greenfield Place 37662, and Robert Estes Gee, Jr., 2140 Swannanoa Ave. 37664, both of Kingsport, Tenn.
Continuation of abandoned application Ser. No. 114,432, Feb. 11, 1971. This application Nov. 3, 1972, Ser. No. 303,590

Int. Cl. C07c 69/74
U.S. Cl. 260—468 K

2 Sheets Drawing. 11 Pages Specification
Organic carboxylic acids have been found to be active catalysts for the isomerization of cis-1,4- and cis-1,3-cyclohexanedicarboxylic acid dialkyl esters into their corresponding trans derivatives. The preferred isomerization catalysts are the dicarboxylic acids and their monoesters, (such as trans-1,4-cyclohexanedicarboxylic acid or its monoester), since these compounds need not be removed from the product preliminary to use of the isomerize product in polyester manufacture.

T911,021
SURFACE BARRIER DIODE AND METHOD OF MAKING
Narasipur G. Anantha and Kanu G. Ashar, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation of application Ser. No. 851,598, Aug. 20, 1969. This application Nov. 10, 1972, Ser. No. 305,636
Int. Cl. H01l 5/02, 19/00
U.S. Cl. 317—234
1 Sheet Drawing. 16 Pages Specification



A surface barrier diode, commonly referred to as a Schottky Barrier diode, having a semiconductor body, a projecting portion on the body, a low barrier metal on the top surface of the projecting portion, a layer of insulating material over the body, and a terminal means in electrical contact with the layer of low barrier metal, and a second terminal in ohmic contact with the semiconductor body. The method for forming the diode includes the step of forming a projecting portion on a monocrystalline semiconductor body, depositing a low barrier metal on the top surface of the projecting portion, and establishing contact terminals with the low barrier metal and the semiconductor body.

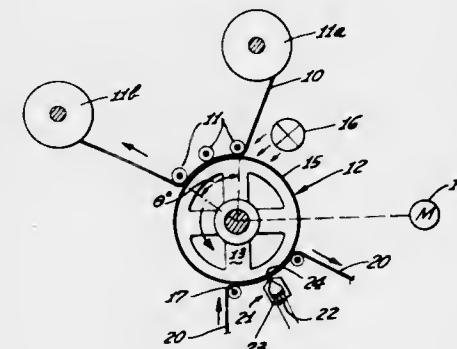
REISSUES

JUNE 26, 1973

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,685
DOUBLE TRANSFER CURIE-POINT AND MAGNETIC BIAS TAPE COPY SYSTEM
Alfred M. Nelson, Redondo Beach, Calif., assignor to The Magnavox Company
Original No. 3,496,304, dated Feb. 17, 1970, Ser. No. 599,268, Dec. 5, 1966. Application for reissue Nov. 1, 1971, Ser. No. 194,763
Int. Cl. G11b 5/86
U.S. Cl. 179—100.2 E

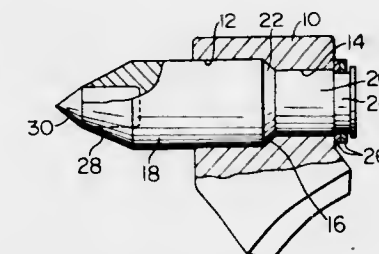
12 Claims



Method and system is disclosed for copying magnetic recording, for example, on a regular magnetic tape onto another tape, for example, of the same type, by using an intermediary carrier having a relatively low Curie point, preferably a lower Curie point than the master tape, and having a room temperature coercivity above the coercivity of the copy tape. The content of the master tape is progressively copied onto the intermediary by thermomagnetic technique and after cooling, the information is transferred from the intermediary again progressively to the copy tape by magnetic high-frequency bias slowly decaying as the respective tape increment recedes from the bias source.

27,686
PICK TYPE MINING BIT AND SUPPORT BLOCK THEREFOR
Thomas J. Kniff, Bedford, Pa., assignor to Kennametal Inc., Latrobe, Pa.
Original No. 3,650,565, dated Mar. 21, 1972, Ser. No. 34,249, May 4, 1970. Application for reissue July 28, 1972, Ser. No. 276,234
Int. Cl. E21c 35/18
U.S. Cl. 299—86

10 Claims



The specification discloses a heavy duty pick type mining bit and a support block therefor in which the block

has a bore completely therethrough with a shoulder intermediate the ends of the bore and the pick type tool or bit is shaped to conform to the bore in the block and to take a seat on the shoulder therein and is retained in the block by retaining rings on the small end of the pick outside the block.

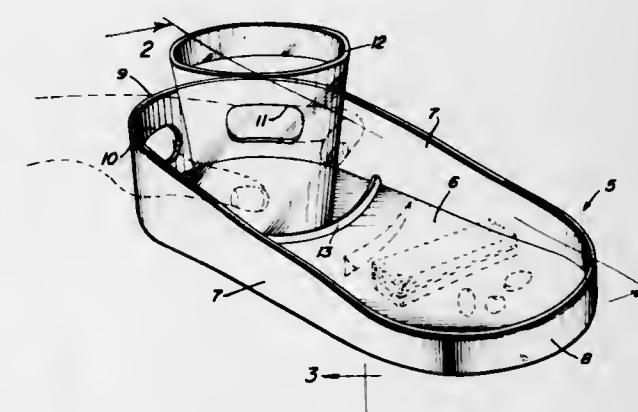
27,687
QUENCHING THE FLUORESCENCE OF OPTICAL BRIGHTENER COMPOUNDS IN PAPER BY MEANS OF HYDROXYMETHYLAMINO NITRILE
Donald V. Speese, Moorestown, N.J., and Chester B. Brown, Broadview, Ill., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Original No. 3,542,642, dated Nov. 24, 1970, Ser. No. 709,782, Mar. 1, 1968. Application for reissue June 1, 1972, Ser. No. 258,676
Int. Cl. D21d 3/00
U.S. Cl. 162—158

6 Claims

The fluorescent effect of optical brightener compounds on substrates employed in paper making is effectively quenched by the application to the substrate of from about one-quarter part to about 5 parts by weight, for every part of optical brightener compound present, of the compound hydroxymethylamino [aceto]nitrile from an aqueous solution.

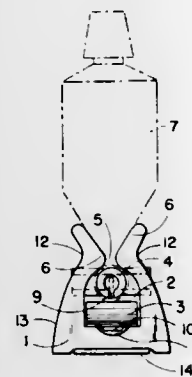
27,688
SERVICE TRAY
Mary Lee White and Donald C. White, both of 304 The Royal St. Andrews, 555 S. Gulfstream Ave., Sarasota, Fla. 33577
Original No. 3,401,858, dated Sept. 17, 1968, Ser. No. 663,382, Aug. 25, 1967. Application for reissue Sept. 15, 1970, Ser. No. 72,556
Int. Cl. B65d 1/34
U.S. Cl. 224—48 R

9 Claims



A service tray having a bottom which is bounded by a substantially vertical, peripheral wall. At one end of the tray the wall is provided with a pair of transversely spaced, oval openings for respectively receiving the thumb and index finger of a user's hand so as to embrace a beverage container resting on the bottom adjacent the openings. The remainder of the tray bottom is designed to receive hors d'oeuvres and the like.

27,689
DEVICE FOR HOLDING AND EMPTYING TUBES
 Else Hausmann and Heinrich Hausmann, both of
 3 Hegauweg, Jestetten, Baden, Germany
 Original No. 3,525,457, dated Aug. 25, 1970, Ser. No.
 804,109, Mar. 4, 1969. Application for reissue June 8,
 1972, Ser. No. 261,113
 Claims priority, application Germany, Mar. 7, 1968,
 1,611,934
 Int. Cl. B65d 35/34
 U.S. Cl. 222—100 7 Claims



This invention relates to a holder for grasping tubes, such as toothpaste tubes, at their lower ends. A simple construction utilizes a housing, a plate spring which snaps into the housing, and a wind up key.

PLANT PATENTS

GRANTED JUNE 26, 1973

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,365
BEGONIA PLANT
 Otto Rieger, deceased, by Gertrud Rieger, legal representative, Nürtingen, Germany, assignor to Mikkelsen, Inc., Ashtabula, Ohio
 Filed Jan. 27, 1972, Ser. No. 221,456
 Int. Cl. A01h 5/00

U.S. Cl. Plt.—68 1 Claim
 1. A new and distinct variety of begonia characterized particularly as to uniqueness by its distinctive, strongly indented foliage with serrated edges, prolific production of underground adventitious shoots when propagated from leaf cuttings, its abundance of leaves which give the finished plant a compact, full appearance; its abundance of petals and by its orange-red flower color with good clarity, and doubleness and full flower form.

3,366
WHITE NARCISSUS
 Herut Yahel, Rishon Lezion, Israel, assignor to The State of Israel, Ministry of Agriculture, Jerusalem, Israel
 Filed Feb. 3, 1972, Ser. No. 223,377
 Int. Cl. A01h 5/00

U.S. Cl. Plt.—68 1 Claim
 1. A new variety of white narcissus, sub-genus Tazetta, originating from Narcissus Paperwhite and having desired properties especially as regards growth capacity, propagative characteristics, blooming ability, earliness of blooming, flower size and form and stem strength.

3,367
CARNATION PLANT
 William E. Duffett, Akron, Ohio, and Thomas G. Harcharick, Salinas, Calif., assignors to Yoder Brothers, Inc., Barberton, Ohio
 Filed Nov. 29, 1971, Ser. No. 203,087
 Int. Cl. A01h 5/00

U.S. Cl. Plt.—73 1 Claim
 1. A new and distinct cultivar of carnation characterized particularly as to its uniqueness when compared to the cultivar Diplomat by its stems which are stronger and average five inches shorter; its response or flowering peaks which are approximately three to four weeks earlier on the first crop from comparative single pinch crops planted and pinched on approximately the same date, with the return crop peaking approximately four to six weeks earlier; by its higher production, producing approximately 13 more stems per square foot from crops of approximately 11 month duration from plant date to discard date; by its splitting and slabbing percentages which are significantly less; by its flower size which is one-quarter to three-quarters of an inch larger in diameter,

with approximately 20–30 more petals, with the petal margin being more deeply serrated and developing less burn or dehydration of the petal margin, and by its keeping quality, with the flowers keeping approximately three to four days longer.

3,368
CHRYSANTHEMUM PLANT
 Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio
 Filed Sept. 30, 1971, Ser. No. 185,458
 Int. Cl. A01h 5/00

U.S. Cl. Plt.—77 1 Claim
 1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the cultivar Neptune by its flowers which are approximately one-half inch larger; flowers which provide approximately two to four days longer bench life; no pink tinging of the flowers at temperatures below 60° F.; broader, more ridged petals; no disc florets or pollen, no development of any longitudinal petal roll under low light conditions; larger foliage, more coarse in texture and lighter in color, with a more coarse serration to the leaf margin, and by its approximately three inch more spread to a pinched plant in flower; and characterized particularly as to uniqueness when compared to the cultivar Winter Carnival by its stronger, more compact, less upright plant habit; darker green foliage; a smaller flower form but one with better symmetry and less reflexing; pure white flower color that never tinges with a cool finish, and by its approximately 5–7 days longer bench and home life.

3,369
CHRYSANTHEMUM PLANT
 William E. Duffett, Akron, Ohio, assignor to Framptons Nurseries Limited, Sussex, England
 Filed Aug. 13, 1971, Ser. No. 171,781
 Int. Cl. A01h 5/00

U.S. Cl. Plt.—78 1 Claim
 1. A new and distinct variety of *Chrysanthemum morifolium* Bailey, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a wiry, upright plant with incurving, decorative yellow flowers having from 220 to 250 ray petals and 30 to 100 disc petals, excellent resistance to damping off under humid conditions, and an improved response time of 1½ weeks during short day seasons in poor light conditions.

PATENTS

GRANTED JUNE 26, 1973

GENERAL AND MECHANICAL

3,740,762

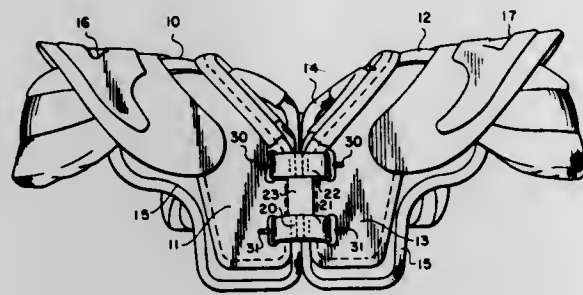
PAD INTERLOCKING APPARATUS

John H. Truelove, Vernon, Tex., assignor to Protective Pads Inc., Grand Prairie, Tex.

Filed Apr. 22, 1971, Ser. No. 136,490

Int. Cl. A41d 13/00

U.S. Cl. 2-2



Disclosed is an apparatus for interconnecting the opposed U-shaped pad members of football shoulder pads. The interlocking device includes a pair of lugs interconnected by a strap. The lugs have expanded end portions adapted to be inserted and locked into elongated slots in the opposed U-shaped pads.

3,740,763

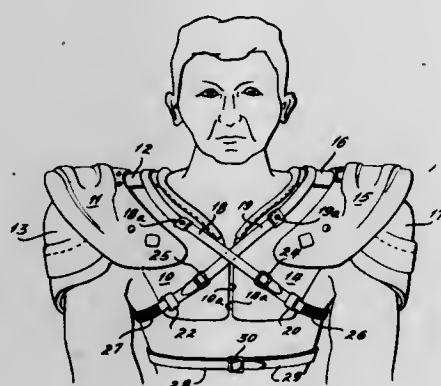
FOOTBALL SHOULDER PAD

Hal D. Mitchell, Aptos, Calif., assignor to A-t-o Inc., Wiloughby, Ohio

Filed Dec. 22, 1971, Ser. No. 210,811

Int. Cl. A41d 13/00

U.S. Cl. 2-2



A football shoulder pad and upper torso protective covering in which the assembly is separated into flexibly connected right and left side portions, instead of the usual inflexible unitary assembly, thereby affording greater protection in vulnerable areas of the upper torso and shoulders combined with greater flexibility to more nearly conform with the natural movements of the anatomy.

3,740,764

DIVING SUIT

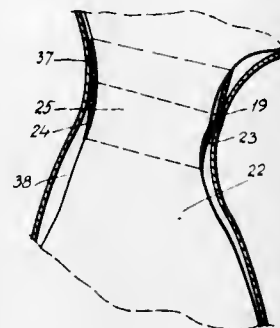
Ingvar B. Elfstrom, Varvadersgatan 11, 417 31 Goteborg, and Dennis E. Osterlund, Box 7047, 434 00 Kungsbacka, both of Sweden

Continuation-in-part of Ser. No. 742,288, July 3, 1968, abandoned. This application June 1, 1971, Ser. No. 148,742

Int. Cl. B63c 11/04, 11/28

U.S. Cl. 2-2.1 R

5 Claims



A diving suit made of an air-proof material, namely a closed cell porous rubber with a fabric cover on both sides, whereby the material has inherent heat-insulating properties, as well as a certain buoyancy. The suit has a close fit so that in normal pressure conditions a minimum air layer can form between the interior of the suit and the diver's body, the suit being provided with means for controlling the supply of air from a pressurized source to the interior of the suit, as well as the removal of the air from the suit, air supplies normally taking place for the purpose of compensating the compressing action upon the air layer, which is generated by the pressure of the water in dependence upon the diving depth.

3,740,765

GARMENT CONSTRUCTION

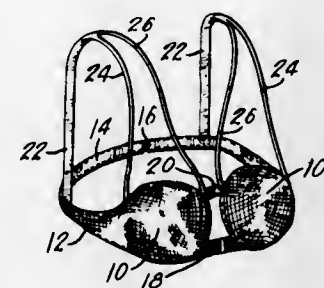
Michel Delplace, 4892 Victoria Avenue, Montreal, Quebec, Canada

Filed Oct. 14, 1971, Ser. No. 189,214

Int. Cl. A41d 7/00

U.S. Cl. 2-67

5 Claims



A garment comprising a top brassiere portion and a bottom panty portion. The brassiere portion includes a front section having cups for enclosing the breasts and a flexible side strap connected to each of the cups at the lateral side thereof. A shoulder strap is connected to each of the side straps at one end thereof and to one of the cups at the other end thereof. The panty portion has a pair of flexible back straps, each of which is connected at one end thereof to the front of the panty portion at one side thereof and the other end of the back straps being connected to the juncture of the shoulder strap and the side strap on the opposite side of the brassiere portion to which it is connected to the panty portion.

JUNE 26, 1973

GENERAL AND MECHANICAL

1143

3,740,766

GOLF GLOVES

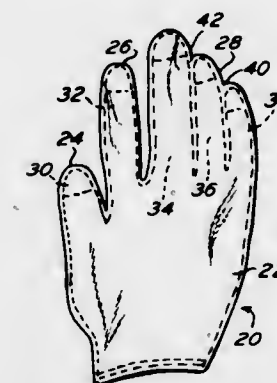
Edward J. Kobylarz, 303 Maple Avenue, Wallington, N.J.

Filed Jan. 24, 1972, Ser. No. 220,109

Int. Cl. A41d 19/00

U.S. Cl. 2-161 A

6 Claims U.S. Cl. 2-174



A pair of golf gloves is provided to facilitate the gripping of a golf club. One of the pair of gloves has a compartment for maintaining the middle, ring and little fingers of a first hand together when gripping a golf club and the other glove has a compartment for maintaining the index, middle and ring finger of the other hand together when gripping a golf club.

3,740,768

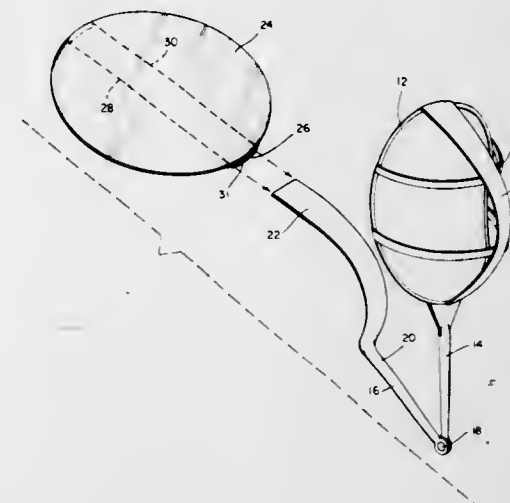
SANITARY FACE MASK

Doris C. McCosker, 9206 Winchester Avenue, Margate, N.J.

Filed Dec. 22, 1971, Ser. No. 210,962

Int. Cl. A45d 44/12

11 Claims



A frame defines a face mask and has a tongue pivotally mounted to a handle depending from the frame. The tongue is inserted into an envelope in a transparent plastic-like material and positioned to retain the material against the inside of the frame.

3,740,767

KNITTED HEADWEAR WITH WIND BARRIER

Richard D. Schuessler, 564 Meadow Road, Winnetka, Ill.

Filed Feb. 17, 1971, Ser. No. 116,080

Int. Cl. A42b 1/18

U.S. Cl. 2-173

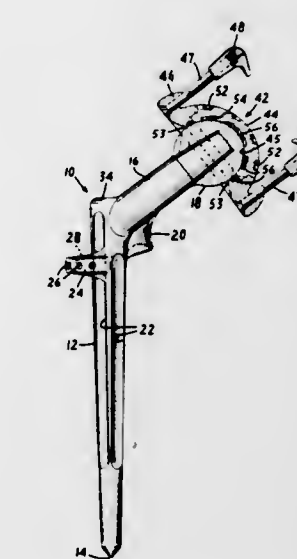
30 Claims

U.S. Cl. 3-1

3 Claims



A cap and hood combination wherein the hood portion is composed of inner and outer layers of stretchable, porous, knitted material having aligned eye openings. Between the inner and outer knitted layers is a relatively non-porous and relatively non-stretchable intermediate layer formed of plastic or other suitable material, such intermediate layer having free lateral portions slidable with respect to the knitted layers and being positioned to protect the wearer's face against blasts of cold air which might otherwise pass through the porous knitted layers. The intermediate layer has an eye opening larger than, but aligned with, the eye openings of the knitted inner and outer layers, the lower portion of the intermediate layer's opening being defined by a flap which is foldable downwardly between the knitted layers when the eye openings of the inner and outer layers are expanded to expose the lower portion of a wearer's face. Means are provided for urging the flap into a raised position when the lower portion of the face is again covered by the inner and outer knitted layers.



A prosthesis for hip joints is formed as a one-piece unit and has a spike-like stem that is inserted axially into the femur. An arm integral with the upper end of the stem projects outwardly at an obtuse angle relative to it and a ball is attached at the outer end of the arm for connecting the prosthesis to the acetabulum or artificial socket, whichever is used. A cup-shaped indexing means dimensioned and positioned to fit over the lesser trochanter projects outwardly from the stem. The axis of the arm and a ball is disposed at an angle relative to the cross-sectional axes of the stem so that when the indexing means engages the lesser trochanter, the arm and ball are aligned at the proper angle of anteversion.

3,740,770 INTEGRAL EDGE STRUCTURE FOR URINE COLLECTION BAG

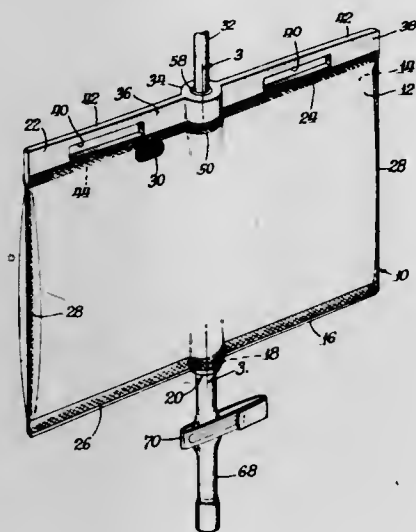
Frank K. Villari, Oak Park, Ill., assignor to The Kendall Company, Boston, Mass.

Filed June 21, 1971, Ser. No. 155,016

Int. Cl. E03d 13/00

U.S. Cl. 4—110

20 Claims



A liquid collection bag combining a rigid support member with flexible side walls, the support including as an integral part thereof a drip site chamber. A similar support member can also be utilized at the opposite end to complete the closure of the bag, with the drip site chamber functioning as an exit portal.

3,740,771 AIR VENTING DEVICE FOR A TOILET

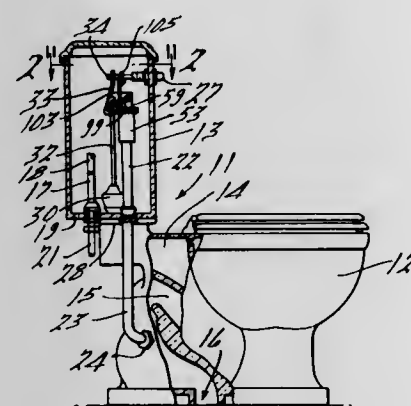
John W. Bond, 3547 Merrick, Dearborn, Mich.

Filed May 12, 1971, Ser. No. 142,619

Int. Cl. E03d 9/04, 9/05, 11/00

U.S. Cl. 4—215

9 Claims



The venting device for a toilet is mounted upon a vent drain tube and a bowl fill tube within the tank. The operating handle for the toilet when moved clockwise opens a valve which moves a piston to raise a sealing head from the vent drain tube and direct atomized water from an atomizing head thereto to create a suction. The created suction draws air upwardly through the bowl fill tube or overflow pipe from the bowl and discharges it downwardly through the vent drain tube into the drain. When the handle is operated in the opposite direction, that is to say counterclockwise, the water is shut off to the piston and atomizing head and the sealing valve is moved downwardly over the end of the vent drain tube. The end of the tube is below the water level controlled by the bowl fill tube so as to have the water rise above the vent drain tube to provide a further seal therefor. The water passage, to the atomizing head is also sealed from the drain when the vent drain tube is closed by the sealing head.

3,740,772 VENTILATING SYSTEMS FOR SANITARY SYSTEMS

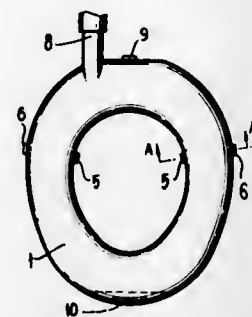
Arthur Chester Paley, 21 Boldrewood Street, Turner Canberra, Australia

Continuation-in-part of Ser. No. 784,538, Dec. 6, 1968, Pat. No. 3,564,624. This application Dec. 15, 1970, Ser. No. 98,283

Int. Cl. A47k 13/00; E03d 9/04

U.S. Cl. 4—217

6 Claims



A ventilating means for the top of the pan or seat portion of the sanitary system. The ventilating means is provided by complementary top sections which are joined together in such a manner that intermediate portions thereof are spaced apart to provide a hollow member. Malodorous gases pass through ventilating holes in the lower section into the space between the complementary sections. An exhaust communicates with the space of the hollow device for carrying off the malodorous gases.

3,740,773 METHOD AND APPARATUS FOR DISPOSING OF HUMAN WASTE IN A VEHICLE

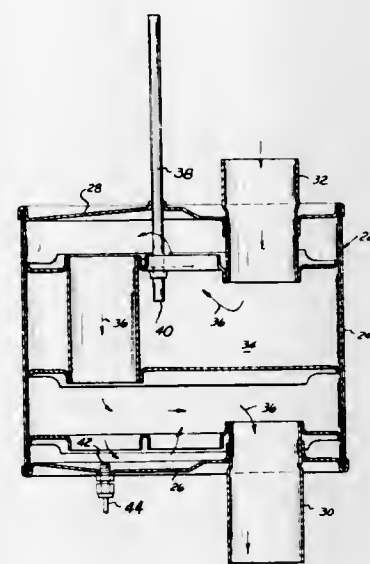
Charles L. Sargent, Ypsilanti, Mich., assignor to Thermason Corporation, Ann Arbor, Mich.

Filed June 24, 1971, Ser. No. 156,403

Int. Cl. B60r 15/04

U.S. Cl. 4—114

12 Claims



A method and apparatus for disposing of liquid and organic waste in a vehicle wherein the waste is periodically moved by a pump from a holding tank to a heating chamber which utilizes the heat of the vehicle exhaust. In the heating chamber, all bacteria in the waste are vaporized and destroyed by the heat of the vehicle exhaust which converts the waste to a product that is principally steam and which can be harmlessly passed through the remainder of the exhaust system. The pump which conveys the waste from the holding tank to the heating chamber operates only when a combination of two circumstances exist, namely, only when the vehicle is travelling at a speed above a predetermined speed and when the temperature in the heating chamber is above a predetermined temperature.

perature. Limiting the operation of the apparatus to those times when the vehicle is moving is also utilized to prevent clogging of the filtered inlet of the pipe which extends into the holding tank so as to employ the agitation of the liquid therein to wash the pipe inlet.

3,740,774 SOFA BED

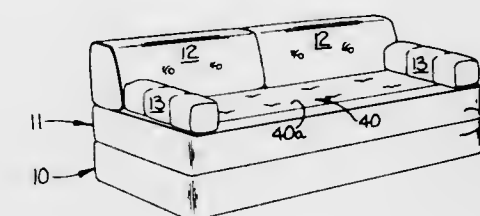
Lynn L. Powell, Lincolnton, N.C., assignor to Burris Industries, Incorporated, Lincolnton, N.C.

Filed Feb. 9, 1972, Ser. No. 224,772

Int. Cl. A47c 17/14, 27/22

U.S. Cl. 5—12 R

8 Claims



A sofa bed formed of two rectangular blocks of foam hingedly connected together by the covering and readily convertible from a sofa to a single bed or double bed as desired.

3,740,775 PIECE OF FURNITURE ADAPTED TO BE CONVERTED FROM A SEAT INTO A BED

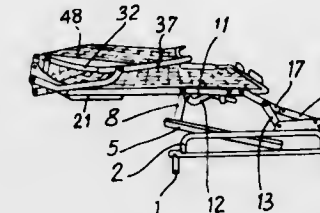
Albert Metayer, Genneteil, France, assignor to Etablissements Metayer & Cie, Sarthe, France

Filed Dec. 15, 1971, Ser. No. 208,103

Int. Cl. A47c 17/14

U.S. Cl. 5—13

8 Claims



The piece of furniture is adapted to constitute a bed which, in the folded position obtained by an easy maneuver ensuring the locking of the folded elements, presents very reduced overall dimensions. The bed base comprises two head elements followed by an horizontal element, an intermediary element and a final leg element. The locking in the folded position is ensured by side plates each directly pivoted on the intermediary element and, through links, on two legs the maneuver of which is automatically ensured when the bed base is actuated. The leg element comprises a flexible seating to be used in the seat position of the piece of furniture.

3,740,776 HEADBOARD SUPPORT

Alan R. Lazarus, 709 E. Lincoln, Anaheim, Calif.

Filed June 21, 1971, Ser. No. 154,984

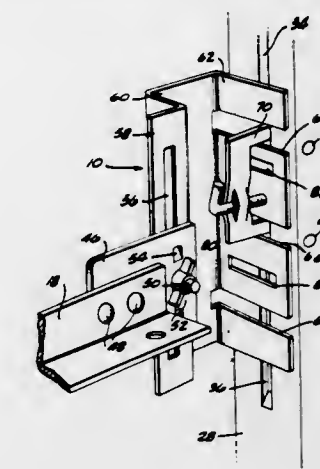
Int. Cl. A47c 19/02

U.S. Cl. 5—296

3 Claims

The support is an intermediate connecting structure between a bedframe which has its own self-supporting legs and

a headboard which is to be supported by the bedframe. The structure has lateral and vertical adjustability for headboards



of different widths and heights, and can secure to the headboard by being bolted thereto or by hooking into the conventional crosspins therein.

3,740,777 BED SUPPORT

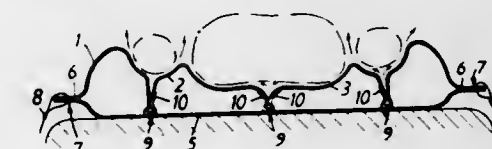
Colin William Dee, "Greenacres", 64, Canford Bottom, Colehill, Wimborne, Dorset, England

Filed Nov. 27, 1970, Ser. No. 93,185

Claims priority, application Great Britain, Nov. 28, 1969, 58,285/69 Int. Cl. A 47 C 27/08

U.S. Cl. 5—348

8 Claims



Apparatus for supporting an item, and particularly all or part of the human body, includes a chamber having an upper wall at least part of which is of thin flexible sheet material, e.g. rubber film, adapted when supported by gas pressure in the chamber to define a trough in which the item may lie, means being provided for supplying at a position within the confines of the area of sheet material overlaid by the item an outward flow of gas selected to result in creation and maintenance of a substantially steady laminar flow of gas between the sheet material and the item, to exhaust subsequently to atmosphere.

3,740,778 CARRYING DEVICE FOR MEDICAL AND VETERINARY USE

Donald Alfred Jordan, 53 Bayswater Road, Croydon, Victoria 3136, and Laurence John Hartnett, "Rubra" Watts Parade, Mt. Eliza, Victoria 3930, both of Australia

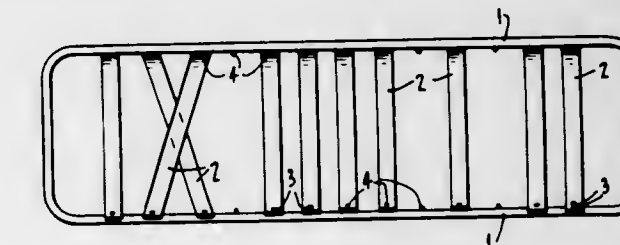
Filed Mar. 14, 1972, Ser. No. 234,548

Claims priority, application Australia, Mar. 16, 1971, 4326; Nov. 24, 1971, 7155

Int. Cl. A47b 83/04; A61g 1/02

U.S. Cl. 5—82

2 Claims



A lifting and carrying device comprising a frame and flexible battens having variable attachment means adapted to co-

operate with corresponding means on the frame. The battens are adapted to be tensioned so that substantially equal support is given to all parts of the body. The frame is raised slightly in relation to the body to be lifted to ensure that proper tensioning of the battens is achieved.

3,740,779

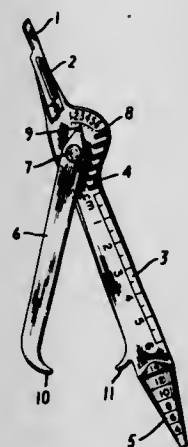
SURGICAL DEVICE

Jeanette L., Rubricuis, Brooklyn, N.Y., assignor to Harry H. Leveen, Brooklyn, N.Y.

Filed Nov. 26, 1971, Ser. No. 202,294
Int. Cl. B25f 1/04; A61b 17/00

U.S. Cl. 7-14.1 R

9 Claims



A surgical tool which comprises a surgical scalpel containing on one end thereof a scalpel blade. On the shaft thereof a series of metered markings for the purpose of longitudinal measurement and on the other end of the shaft a device for measuring the circumferential diameter of an orifice or mouth of a tube or duct.

3,740,780

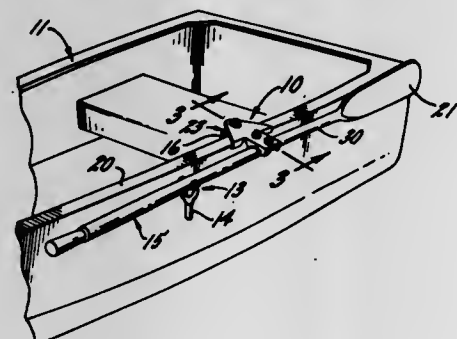
OAR BRACKET

Howard F. Knipple, 2416 Lawndale, Rockford, Ill.
Filed May 12, 1971, Ser. No. 142,558

Int. Cl. B63h 16/06

U.S. Cl. 9-1 R

8 Claims



A bracket mountable on an oar includes a support plate with a pin carried by one end of the plate. A U-bolt is fastenable to the other end of the plate and around the oar at its longitudinal center of gravity to hold the bracket on the oar. The pin telescopically interfits with an oar lock socket on the sidewall of a boat with the plate resting across the top edge of the sidewall thereby to hold the oar in an out-of-the-way position along the outer sidewall of the boat.

3,740,781

RACING DRAGON BOAT

Dickson T. W. Lau, 450 17th Avenue, San Francisco, Calif.
Filed Nov. 3, 1971, Ser. No. 195,157

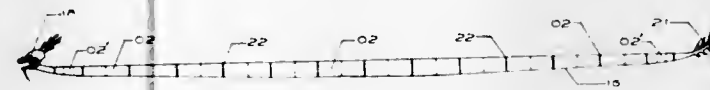
Int. Cl. B63b 7/04

U.S. Cl. 9-2 S

5 Claims

A new racing dragon boat is built of steel, aluminum or synthetic materials in sections which are connected together

by bolts and nuts into one piece nearly or over 100 feet long. The hull of the new racing dragon boat is painted with a special



cial colorful pigment which will shine in the bright days as well as in the dark nights when it is illuminated by light.

3,740,782

METHOD AND APPARATUS FOR SERVICING COUNTERBALANCED LIFTING DEVICE

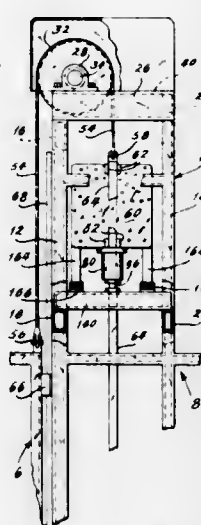
Owen G. Newman, Lemay, Mo., assignor to Sverdrup & Parcel and Associates Inc., Saint Louis, Mo.

Filed Dec. 23, 1971, Ser. No. 211,241

Int. Cl. E01d 15/02

U.S. Cl. 14-42

14 Claims



A counterbalanced lifting apparatus includes two weighted members suspended from cables which are trained over sheaves supported in an elevated position on a framework. One of the weighted members may be a bridge span and the other a counterweight. The first weighted member (bridge span) normally seats against a terminal surface while the second weighted member (counterweight) is normally suspended. During operational cycles, the relative positions of the weighted members reverse, and the counterweight may seat on cylinder-type buffers affixed to its underside. Some servicing operations require slack in the cables and this is achieved by seating the first weighted member against its terminal surface and then supporting jacking beams on a temporary support system installed directly beneath the cylinder-type buffers of the second weighted member. Thereafter, a hydraulic pump is connected with the barrels of the cylinder-type buffers and hydraulic fluid is pumped into these barrels to cause the piston rods therein to extend against the jacking beams. This raises the second weighted member and thereby loosens the cables.

3,740,783

RAKE DEVICE FOR SHAG CARPETS

Louis E. Kopecky, 4th and Downing St., Hollister, Mo.
Filed May 20, 1971, Ser. No. 145,329

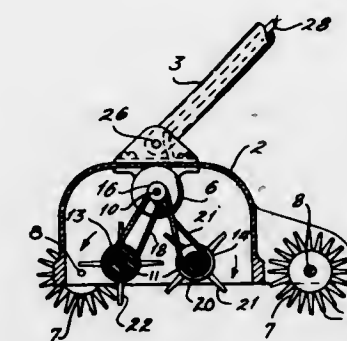
Int. Cl. A471 13/00

U.S. Cl. 15-3

13 Claims

A rake device for shag carpets having a housing with a handle thereon so that the rake having teeth can be moved over a shag carpet. The housing contains movable means therein

which are positioned a predetermined distance above the shag carpet and which contact the shag carpet to fluff up the nap.



This device may be used at any time to fluff up the shag rug, including after said rug has been cleaned with a vacuum cleaner.

3,740,784

CLEANER DEVICE FOR BALLS

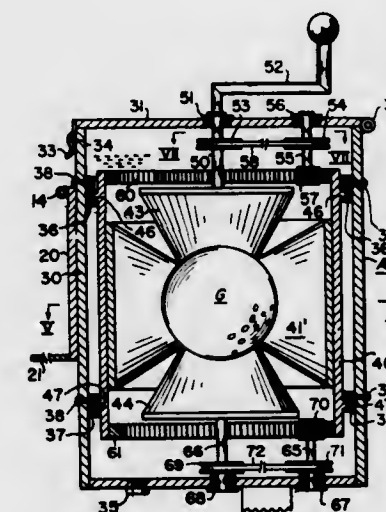
William D. Morrissey, 1961 Bower Hill Road, Pittsburgh, Pa.
Continuation-in-part of Ser. No. 870,275, Oct. 30, 1969,

abandoned. This application Oct. 26, 1971, Ser. No. 192,250

Int. Cl. A63b 47/04

U.S. Cl. 15-21 A

16 Claims



A mechanical cleaner device for brush-washing of golf balls and the like having a liquid container for receiving a golf ball is provided with rotatable brush means which defines a central ball-receiving area that is opened and closed by swinging one brush with a top container lid or door into and out of a cooperating position with respect to the other brushes. The device is capable of portable utilization and has an adjustable mounting means for positioning it in a vertically aligned relation, even when carried by a golf bag or cart in an inclined relation. A cylinder is rotatably mounted within the container and serves as a mounting and rotation effecting means for horizontally disposed brush means. A ball is cleaned within the container by a balanced type of rotation in which brushes of an opposed pair are rotated in the same direction and a right angular disposed brush or brushes of a second pair are rotated right angular disposed brush or brushes of a second pair are rotated in a reverse direction.

3,740,785

HYDRAULIC SEWER PIPELINE CLEANER

Roy C. Latall, Des Plaines, Ill., assignor to O'Brien Manufacturing Company, Inc., Chicago, Ill.

Continuation of Ser. No. 40,275, May 25, 1970, abandoned.

This application July 14, 1971, Ser. No. 190,314

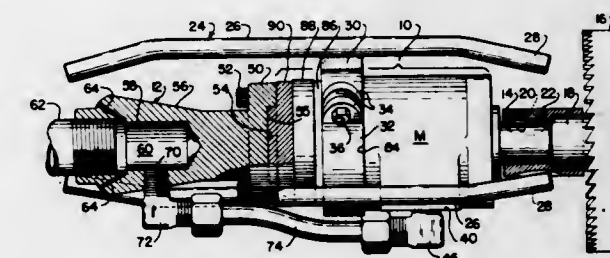
Int. Cl. B08b 9/02

U.S. Cl. 15-104.12

9 Claims

A skid-mounted, jet-propelled, hydraulic, pipeline cleaner which is activated from a stationary high pressure water

pumping unit to which it is connected by a flexible hose. A novel skid arrangement of extreme rigidity, a selectively positionable water jet capable of assuming either a propelling position or a tool flushing position, and a jet propulsion system



which is so designed that the jets produced thereby discharge directly into the pipeline void and do not impinge against any portion of the pipeline cleaner as a whole so that no retarding influence is offered to the free forward motion of the cleaner, constitute the salient features of the invention.

3,740,786

DRILL STEM CLEANER

James D. Hall, 405-1275 Haro Street, Vancouver, British Columbia, Canada

Filed July 2, 1971, Ser. No. 159,168

Int. Cl. E21b 9/35

U.S. Cl. 15-104.16

4 Claims



Apparatus for cleaning interior walls of a sectionalized drill stem of a rotary drill, the drill having a rotating drilling head to which sections of a drill stem can be secured, the apparatus having a scraper having a sliding fit in a clean drill stem and secured by a cable from the drilling head so that when, during a drilling operation, the drill head is disconnected from an upper end of the drill stem and lifted to add a new drill stem section the scraper is automatically drawn upwards through the upper section of the drill stem so as to scrape the walls of the latter.

3,740,787

SCREEN GUARD FOR GUTTERS HAVING A DUAL PURPOSE MANUAL OPERATOR

Allan H. Bowermaster, Lakewood Circle North, Greenwich, Conn.

Filed Nov. 1, 1971, Ser. No. 194,707

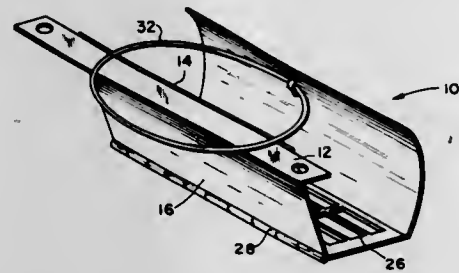
Int. Cl. E04d 13/06

U.S. Cl. 15-105

8 Claims

An open-mesh guard for roof gutters which fits over the downspout in the leader and prevents the clogging of the downspout by leaves and other debris. The guard is hinged at two locations in order to permit the device to clear the usual

roof shingle overhang of the gutters when it is desired to empty the same on the ground. A pole is provided for



manually emptying the guard and additionally serves the function of scraping the leaves and other debris from the gutters.

3,740,788

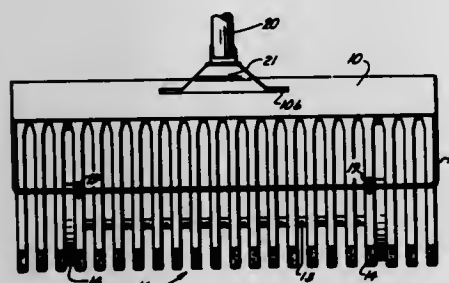
SHAG RUG GROOMER

Kenneth D. Kingston, 524 N. 12th Avenue Broken Bow, Nebr.
Filed Oct. 29, 1971, Ser. No. 193,674

Int. Cl. A471 13/00

U.S. Cl. 15—142

1 Claim



A groomer for shag rugs having two parallel rows of resiliently flexible tines which extend past rug-engaging wheels to rake the strands of the carpet when the device is pushed or pulled across the carpet.

3,740,789

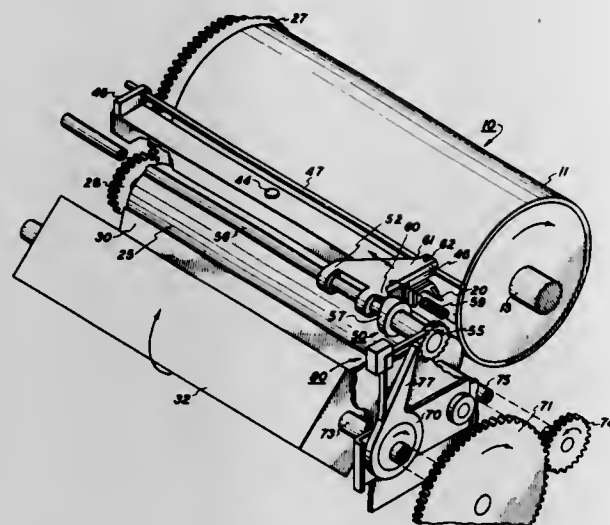
XEROGRAPHIC ROLLER OSCILLATING CLEANING BLADE WITH DRIVE MECHANISM THEREFOR

Raymond G. Ticknor, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Sept. 27, 1971, Ser. No. 183,831
Int. Cl. G03g 13/08

U.S. Cl. 15—256.53

6 Claims



Apparatus is herein disclosed for removing residual dry toner particles from the photoconductive surface of a reusable xerographic plate preparatory to reusing the plate in an automatic xerographic reproducing machine. The apparatus includes an elastomeric doctor blade disposed across the path of

movement of the plate and having a cutting edge thereon biased into contact with the photoconductive surface. The blade is supported within a carriage and the carriage arranged to move along a path of travel substantially transverse to the path of movement of the plate. A drive mechanism, operatively associated with the carriage, is provided to periodically reposition the blade incrementally along its path of travel thereby improving the blade efficiency and blade life as well as reducing the possibility of foreign matter from being permanently entrapped between the blade and the photoconductor.

3,740,790

APPARATUS FOR CLEANING WAVEGUIDE AND SIMILAR PIPES

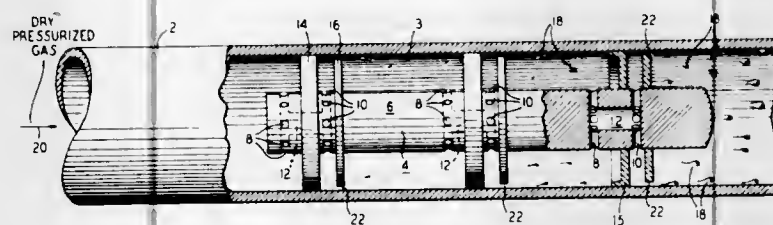
David Nelson Koppes, Bernards Township, County of Somerset, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 6, 1971, Ser. No. 204,983

Int. Cl. A471 5/14

U.S. Cl. 15—312 R

5 Claims



A device for cleaning waveguide and similar pipes comprises a piston having inlet and outlet gas ports therein joined by passages through the piston and gas seals and gas deflecting means located on opposite sides of the outlet ports. When pressurized gas is introduced against a seal, it is directed into the inlet port, through the passage and out the gas outlet port. The gas is then directed by the gas deflecting means at relatively high velocity along the inner surface of the waveguide thereby driving any contaminants along the waveguide. The high velocity gas flow along the inner surface provides both a moisture absorbing effect and a moisture driving effect for more efficient cleaning. The pressure differential across the gas seal propels the device forward through the waveguide.

3,740,791

CONTROL ARM ASSEMBLY FOR HINGED MEMBERS

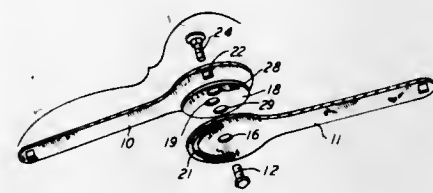
Shelly A. Bulin, Bettendorf, Iowa, assignor to J. I. Case Company, Racine, Wis.

Filed Apr. 24, 1972, Ser. No. 246,707

Int. Cl. E05d 11/10

U.S. Cl. 16—139

7 Claims



A control arm assembly for hinged members, and including a pair of arms pivotally connected together and with the free ends of the arms being attachable to a hinged member and an anchor point, and with the arms limiting the extent of pivot of the hinged member. The arms serve as either left-hand or right-hand assembly, depending upon arrangement of parts, and one of the arms includes an arcuate slot and the other of the arms has two spaced-apart openings for alternately receiving a bolt which also goes through the slot, and, depending

upon which of the two holes the bolt is received in, the arms are either left-hand or right-hand in assembly. The arms may also be fastened together, by means of a threaded knob, so that they can be retained in a selected pivoted position to hold the hinged member in a certain pivoted position.

3,740,792

RESILIENT HINGING DEVICE FOR CHAIRS AND THE LIKE

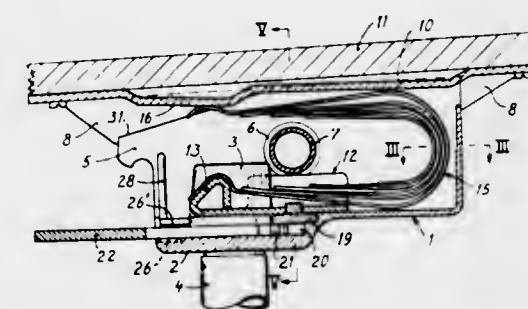
Per Gunnar Werner, 1460 Spro, Norway

Filed Apr. 6, 1971, Ser. No. 131,781

Int. Cl. E05f 1/12

U.S. Cl. 16—180

14 Claims



In a resilient hinge for chairs and the like, having an upper hinge part to be attached to the seat or back of the chair and pivoted on a bottom hinge part to be fixed to the bottom frame, with a biased spring member acting therebetween for resiliently opposing backward tilting, the spring member is capable of being displaced radially to the pivotal axis for adjusting the biasing torque, the spring member engaging an entraining slide guided in the fixed hinge part. Movement of the entraining slide is caused by operating a handle on a lever pivoted on an upwardly projecting cone on the fixed hinge part and having teeth engaging a rack guided in the fixed hinge part for motion parallel to the hinge axis and carrying studs engaging oblique slots in the entraining member so as to afford a force-increasing transmission of motion from the lever to the spring member. The handle extends substantially to the edge of the seat so as to be easily accessible. The cone is hollow for matching a column in the bottom frame of the chair. The spring member is composed of leaf springs bent into U-shape opening towards the rear and placed one outside the other. They are in mutual contact at the bend and at the ends of the respective inner springs, with the lengths of the springs increasing from the innermost to the outermost. The lower legs of the leaf springs are bifurcated with diverging inner edges and straddle the cone, and the upper legs have a substantially complementary taper.

3,740,793

FEATHER PICKER HAVING SECTIONAL FINGER SUPPORTS

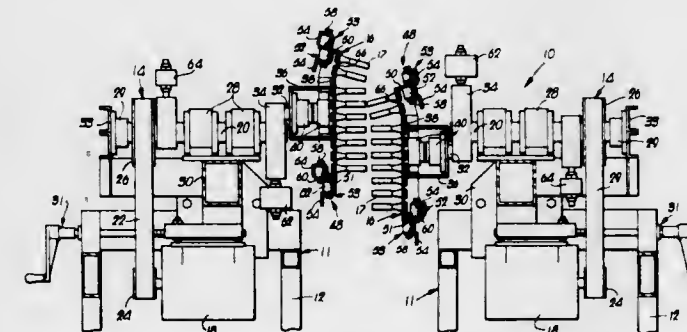
Robert D. Crawford, and Ralph D. Johnson, both of Kansas City, Mo., assignors to Gordon Johnson Company, Kansas City, Mo.

Filed July 26, 1971, Ser. No. 166,019

Int. Cl. A22c 21/02

U.S. Cl. 17—11.1

11 Claims



A feather picker having a plurality of fingers mounted on a sectionalized support for removing the feathers from poultry

carcasses as they are suspended from a conveyor line. The support comprises a pair of sections in spaced, end-to-end relationship having yieldable structure interconnecting the ends thereof permitting limited relative movement of the sections as they are driven by eccentrics in unison through a predetermined orbital path. The sectionalizing of the finger support with relative movement between the sections serves to minimize as well as make it easier to compensate for the inertial stresses imposed upon the support as it constantly changes direction while moving through its orbital path. Furthermore, the requirement for a perfectly timed drive mechanism to maintain the eccentrics in perfect synchronization is thus eliminated.

3,740,794

FISH FILLET AID

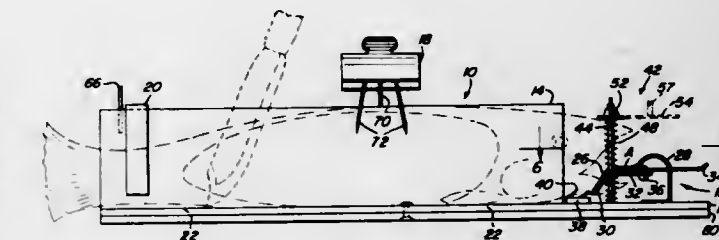
George R. Smith, 54½ E. Market Street, Jamestown, Ohio

Filed Dec. 15, 1971, Ser. No. 208,213

Int. Cl. A22c 25/00

U.S. Cl. 17—70

12 Claims



A device for securely holding a fish during the filleting thereof includes an L-shaped base member for supporting the fish in a vertical position and clamps to rigidly hold the fish at its head, body and tail portions to the member. The head clamp comprises depending spring-loaded fingers which cooperate with a plurality of upwardly projecting pins to rigidly hold the lower jaw of the fish. The body clamp includes arcuate arm portions to grasp the backbone or flesh of the fish and hold it securely against the base member. The tail clamp includes a spiked member movable laterally relative to the base member to securely engage the tail of the fish.

3,740,795

SEAFOOD PEELER USING ROLLERS ON AN ENDLESS CONVEYOR AND A BANK OF INCLINED ROLLERS

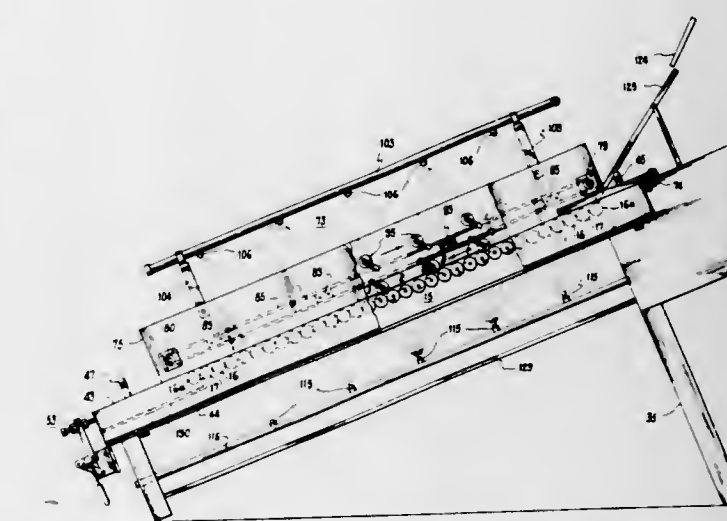
James S. Cox, Falls Church, Va., assignor to The United States of America as represented by the Secretary of Commerce, Washington, D.C.

Filed June 25, 1971, Ser. No. 156,758

Int. Cl. A22c 29/00

U.S. Cl. 17—73

14 Claims



Adjoining rollers in an inclined bank rotate in opposite directions. The bank is sprayed with water. Seafood, such as

shrimp, is delivered to a crotch between a first and second roller. When the contacting surface between the rollers move downward, they draw the peels through the bottom of the crotch and reject the slippery meat. On the reverse movement of the surfaces, the rejected meat is carried over the second roller to the next crotch. Here the operation of peeling and discharging is repeated, and the shrimp are delivered to successive crotches along the bank. Rollers on an endless conveyor roll over the bank to prevent shrimp from floating down the inclined bank and to press them between the crotches.

3,740,796

APPARATUS FOR PREVENTING SPLITTING OF TEXTILE FIBER LAPS

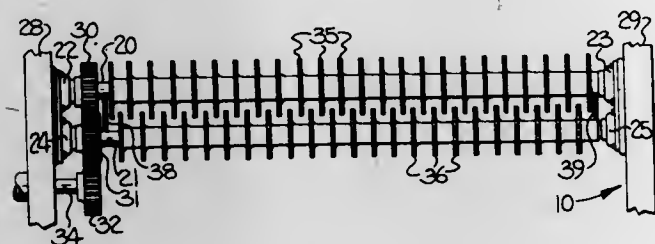
William L. Blalock, and Marcus G. Whitehurst, both of Gastonia, N.C., assignors to Piedmont Machine Shop, Inc., Gastonia, N.C.

Filed Aug. 3, 1971, Ser. No. 168,597

Int. Cl. D01g 25/00

U.S. Cl. 19—155

2 Claims



Faults otherwise possibly occurring during the unwinding of a wound lap of compacted textile fiber web are resisted due to the formation in the web of longitudinally extending zones which vary in density across the width of the compacted web. Such zones are brought into being by passage of the web of textile fibers between spaced, interleaved rotating disc members to divert the web into a plurality of longitudinal corrugations immediately prior to compacting of the web between calender rolls.

3,740,797

METHOD OF FORMING WEBS AND APPARATUS THEREFOR

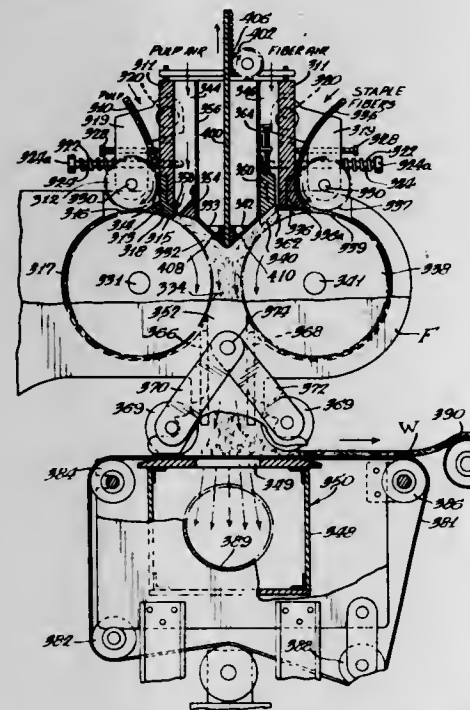
Allan P. Farrington, Englishtown, N.J., assignor to Johnson & Johnson, New Brunswick, N.J.

Filed Jan. 21, 1971, Ser. No. 108,545

Int. Cl. D01g 25/00

U.S. Cl. 19—156.3

17 Claims



A process and apparatus for forming an air-laid, nonwoven web from separate supplies of individualized fibers, such as

textile and papermaking fibers. Supplies of fibers are fed to oppositely rotating lickerins that are rotated at speeds which are optimum for the fibers being individualized by the lickerins. The individualized fibers are doffed from the lickerins by centrifugal force and high velocity air streams directed against the fibers clinging to the lickerin clothing. The fibers from each supply are entrained in their respective air streams, which are impelled at high rates of speed toward each other, and the air streams come together in a mixing zone. The doffed fibers are given an initial trajectory as they leave their respective lickerins, and the inertia of the fibers in the air streams is sufficient to bring the fibers to the mixing zone and effect blending of at least a portion of the fibers from each supply in the mixing zone. In communication with the mixing zone is a suction actuated condensing means where the fibers are deposited to produce a nonwoven web of fibers, for example, an isotropic nonwoven web.

The process and apparatus can be varied to form a variety of nonwoven webs, using as the fibers of these webs two different fibers of the same, or of different lengths. A variable that can be introduced to vary the web construction includes a baffle that can be interposed between the two separate air streams to control the location where the two air streams are intermixed.

3,740,798

APPARATUS FOR MOUNTING CARRIER ARMS IN SPINNING MACHINES

Franz Brichta, Stuttgart-Weilimdorf, and Franz Driesel, Oberweissach, both of Germany, assignors to SKF Kugellagerfabriken GmbH, Schweinfurt, Germany

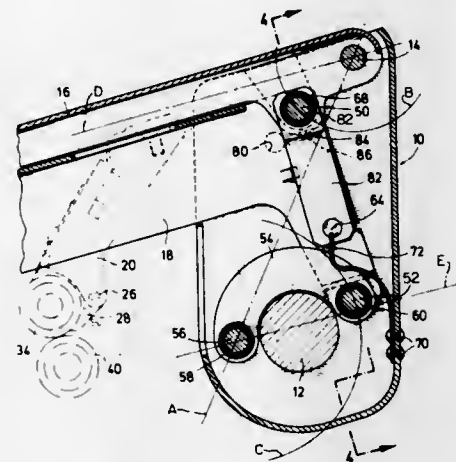
Filed Mar. 8, 1971, Ser. No. 121,719

Claims priority, application Germany, Mar. 12, 1970, P 20 11 641.0

Int. Cl. D01h 5/46

U.S. Cl. 19—267

10 Claims



The top roller carrier for spinning yarn is mounted within a support and a lever is pivoted at one end to the support. The carrier is pivoted at a first point to the lever, and at a second point to the support. The lever is adapted to raise and lower the arm so that the pivot points move in arcuate paths, into closed and open positions.

3,740,799

SAFETY SPLICE FOR HANDRAIL BREAK

Henry Leonard Earle, 18 Colgate Road, Maplewood, N.J.

Filed Aug. 3, 1972, Ser. No. 277,808

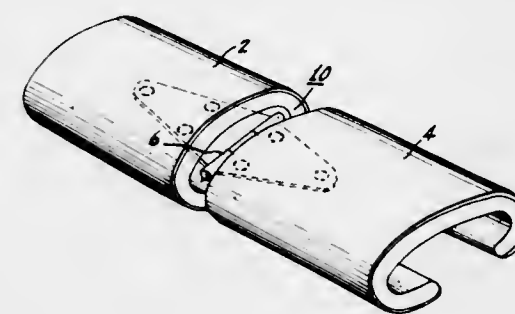
Int. Cl. B66b 9/14; F16g 3/00

U.S. Cl. 24—33 B

6 Claims

A safety splice for joining the ends of a break in a handrail of an escalator or moving sidewalk where the handrail is a normally endless belt having an outer covering made of molded rubber, comprising flexible means attached to the severed ends and drawing them together but leaving a space

therebetween, a sheet of tough plastic material, shaped to the contour of the molded rubber covering and disposed so as to cover the space between the ends being joined and overlapping them. The plastic material is cemented and stapled to



the rubber covering. An outer covering member of relatively thin, flexible plastic material covers the first plastic sheet and is stitched thereto at the edge adjacent the direction of travel of the handrail and is cemented to the first plastic sheet.

3,740,800
FASTENER

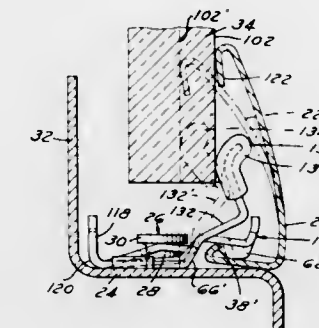
Engelbert A. Meyer, Union Lake, Mich., assignor to USM Corporation, Boston, Mass.

Continuation-in-part of Ser. No. 35,056, May 6, 1970, Pat. No. 3,670,368. This application June 30, 1971, Ser. No. 158,168

Int. Cl. B60r 13/00

U.S. Cl. 24—73 HS

8 Claims



A fastener or adapter for attaching a molding member or the like to a panel surface having a headed button upstanding therefrom, comprising a panel engaging body having means for retaining the molding member tensioned against the panel and an inclined ramp tensioned against the underside of the button head, with a slot in the ramp accommodating the button shank and having there being a seat portion spaced laterally from the slot axis to prevent dislodgment of the fastener from the button once the molding is assembled on the fastener. An arcuately shaped edge on the slot serves to cam the button into the slot seat as the fastener is slid onto the button. One embodiment of the fastener includes a pair of spaced upwardly extending arms interconnected by a glass-engaging means for resiliently retaining an automobile windshield or backlight in position with respect to the panel.

3,740,801

RETENTION OF PRESSURE LINE TO WELL TUBING

Edgar A. Sears, Jr., Whittier, and Harry M. Taylor, Laguna Hills, both of Calif., assignors to Hydril Company, Los Angeles, Calif.

Filed Aug. 23, 1971, Ser. No. 173,997

Int. Cl. F16i 3/22

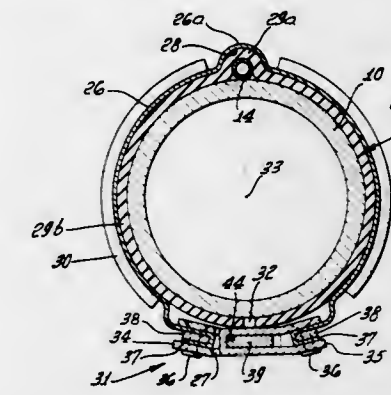
U.S. Cl. 24—81 CC

8 Claims

The invention concerns coupling of a control pressure line to larger diameter well tubing, as by a coupling comprising:

- a C-shaped metallic retainer body adapted for lateral connection about the tubing,
- said body forming a longitudinally extending recess,

c. elastomer means at the inner side of the retainer body for reception in said recess to be compressed between the



3,740,802

OIL WELL SLIP HANDLE

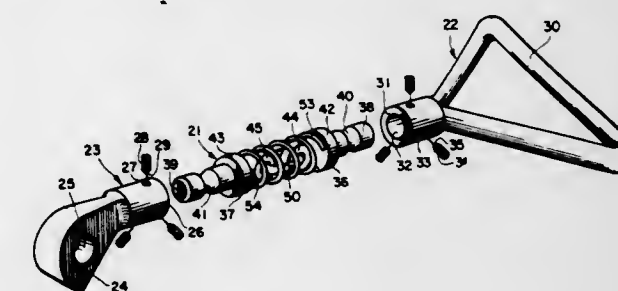
Harold C. Clark, 2446 N. Ventura Avenue, Ventura, Calif.

Filed Apr. 6, 1972, Ser. No. 241,660

Int. Cl. A44b 21/00

U.S. Cl. 24—263 HA

12 Claims



A handle has essentially three parts constituting a flexible, self-aligning, virtually indestructible heavy duty slip handle.

A spring loaded central holding unit has opposite ends formed with bearing raceways that aid in making swivel connections with a removable hand grip and a removable attachment element structured for securement to a slip body. The attachment element and hand grip are interchangeable.

3,740,803

FISHING WEIGHT CLIP

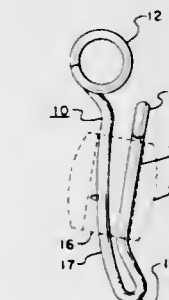
Royce L. Arteburn, 2810 Cedar Street, Baker, Oreg.

Filed Mar. 15, 1972, Ser. No. 234,721

Int. Cl. A44b 21/00; A01k 95/00

U.S. Cl. 24—261 R

1 Claim



This invention is a substantially compressible resilient V-shaped body having a coil-like portion at one of its terminal ends operable to engage a fishing line and a hook at its opposite terminal end. The V-shaped body portion is operable to hold a fishing weight having a hole disposed in the body thereof by the opposing forces exerted by each of the oppos-

ing legs of the V-shaped body portion of the clip against the peripheral walls of the weight. The body portion comprises a pair of leg portions issuing upwardly at respective opposing angles from a hook-like stop portion at the lowermost portion of the body portion opposite the coil portion at the terminal end of one of the leg portions and the hook at the terminal end of the opposing leg portion.

3,740,804 WATCH END

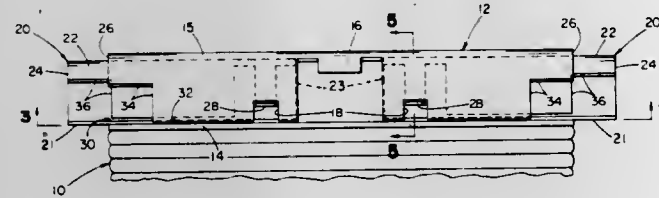
Paul Levinger, Providence, R.I., assignor to Pale Corporation, Providence, R.I.

Filed Sept. 15, 1971, Ser. No. 180,700

Int. Cl. A44c 5/18

U.S. Cl. 24—265 WS

7 Claims



A watch end is provided as a tubular member on the end of a bracelet, the member having a pair of sleeves inserted therein one in each end and of a size to receive therethrough a pin for fastening the bracelet between spaced watch arms, each sleeve being slidable in the member to a first fixed position in which a tang on the sleeve engages a notch in the tubular member so that the sleeve projects a first distance beyond the end of the member and to a second fixed position in which the sleeve engages a stop so as to project a second distance beyond the end of the member, thereby enabling the watch end to fit closely between differently spaced watch arms.

3,740,805 FABRIC EDGE DECURLING AND CONTROLLING APPARATUS

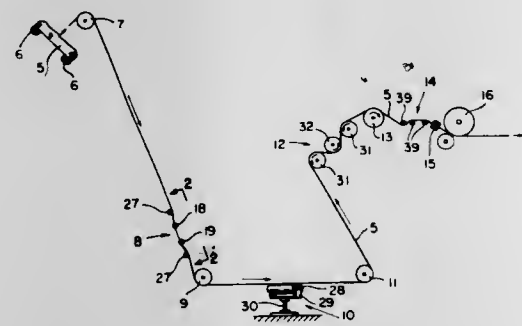
Frank Catallo, Elmont, N.Y., assignor to Fab-Con Machinery Development Corporation, Patterson, N.J.

Filed Nov. 17, 1971, Ser. No. 199,517

Int. Cl. D06c 3/00

U.S. Cl. 26—54

10 Claims



This invention is directed to apparatus for removing edge curl or roll from a continuously advancing fabric web by contacting the respective curled edge portions with oppositely moving flight portions of a single continuously running belt. The apparatus also includes a device for centering the web after its edges have been uncurled and a multiple scroll roll unit, a feed roll and a finger type edge flattener for shaping the web into a fully flattened squared condition as an incident to its introduction into a subsequent processing unit. The multiple scroll roll unit also may be adjusted to remove any skew in the web as it advances therethrough.

3,740,806 AUTOMATIC TOOL MACHINE HAVING A MULTI-POSITION INDEXING ARRANGEMENT

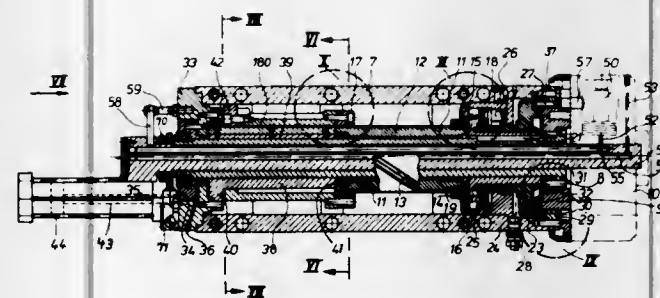
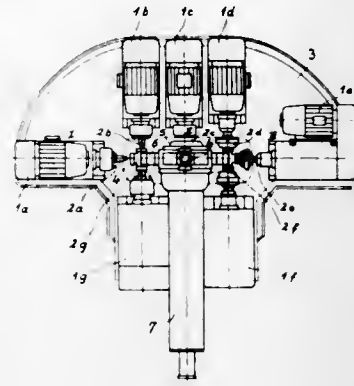
Emil Karl Witzig, Stuttgart-Weilimdorf, and Rudolf Frank, Ludwigsburg, both of Germany

Filed Mar. 2, 1971, Ser. No. 120,111

Int. Cl. B23b 39/20, 39/22

U.S. Cl. 29—38 C

20 Claims



To selectively position a workpiece in indexed position with respect to machine tool heads, a carrier is mounted for rotational movement in an elongated hollow body 7, rotation being transmitted by a shaft 8 placed in approximate indexed alignment by means of inclined spline threads formed thereon which engage a longitudinally moving nut 17. Accurate index positioning is obtained by radially aligned profile positioning faces 30, 31, 32 secured to elements cooperating with the hollow body 7 and the shaft 8, engagement of the profiled faces locking the workpiece carrier in properly indexed position. Movement of the spindle nut, preferably over controllable distances, as well as locking of the shaft in position is obtained by hydraulic cylinder-piston arrangements.

3,740,807 INSERTED BLADE CUTTING TOOL WITH LOCKING PIN

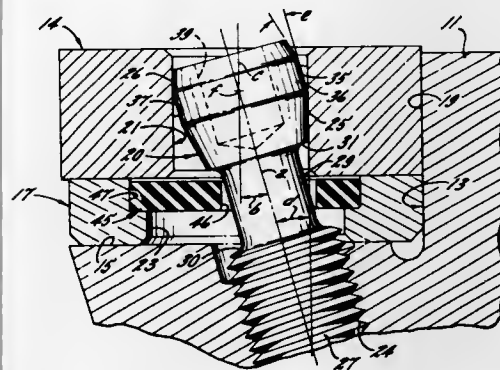
Sidney Arthur Getts, Lake Mills, Wis., assignor to Metal Cutting Tools, Inc., Rockford, Ill.

Continuation-in-part of Ser. No. 185,189, Sept. 30, 1971, abandoned. This application May 25, 1972, Ser. No. 229,429

Int. Cl. B26d 1/00

U.S. Cl. 29—96 R

21 Claims



The head of the locking pin is formed with a lower portion which cams the cutting insert edgewise against a pair of locat-

ing walls and with an upper portion which engages the insert to limit bending of the pin after the insert has been pressed against the walls, both portions of the head serving to clamp the insert to an underlying platform. A washer is captivated on the pin and retains a hardened insert-supporting shim on the pin when the latter is loosened to enable replacement or indexing of the insert.

3,740,808

CUTTER, PARTICULARLY FOR GEAR HOBBING
Kazuma Shioya, Yao-shi, Osaka-fu, Japan, assignor to Dijet Industrial Company Limited, Osaka, Japan

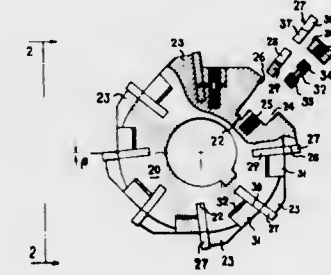
Filed Dec. 16, 1971, Ser. No. 208,823

Claims priority, application Japan, Dec. 16, 1970, 45/113348; Dec. 16, 1970, 45/126976

Int. Cl. B26d 1/12

U.S. Cl. 29—105 R

4 Claims



The present invention relates to a cutter for gear cutting work, particularly a cutter capable of gear cutting work of high precision, and having throw-away type insert cutter tips which can be replaced easily.

3,740,809

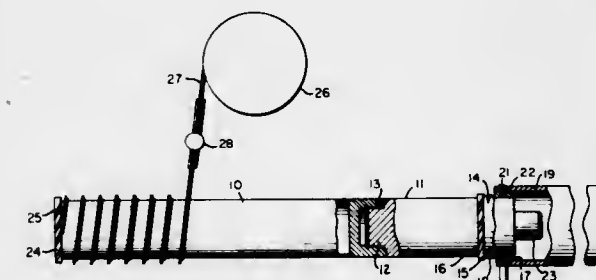
PROCESS FOR FABRICATING CARD CLOTHING DRUMS
Michael John Wolstencroft, Collins Bay, Ontario, Canada, assignor to Du Pont of Canada Limited, Montreal, Quebec, Canada

Filed June 30, 1971, Ser. No. 158,427

Int. Cl. B21d 53/12; B21h 1/12, 1/14; B21k 1/02, 1/04

U.S. Cl. 29—148.4 D

5 Claims



An improvement in a process for constructing a carding or garnetting drum wherein an extension piece is added to extend the length of a smooth surfaced drum and a number of metallic card clothing wires are wound on the drum and extension piece under tension in a multistart helical configuration to form coils, a space being left between each coil. The wires are clamped to prevent them unwinding, and the coils are compressed together and simultaneously moved onto the drum surface only. The extension piece is removed and the wires are permanently attached to the drum. The application is useful in the preparation of drums suitable for fibrillation.

3,740,810 FIXTURE FOR MOLDING AND ASSEMBLING VISCID STICKS

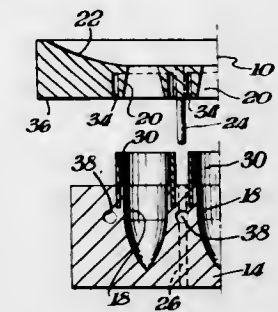
Willis R. Austin, Franklin Square, N.Y., assignor to Pfizer Inc., New York, N.Y.

Filed Oct. 15, 1971, Ser. No. 189,690

Int. Cl. B23p 19/00

U.S. Cl. 29—200 P

4 Claims



Tubular sleeves are concentrically mounted about the cavities in the base plate of a two-part mold for sticks of viscid material. The sleeves extend a short distance above the surface of the base plate after the cover plate is removed from it to accurately and dependably guide the applicator tube casings concentrically into engagement about the sticks.

3,740,811

METHOD FOR MANUFACTURING PUMP SPINDLE

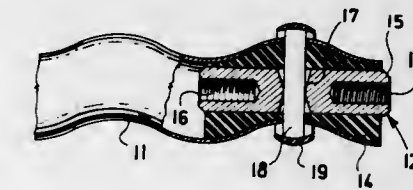
Karel Kozusnik, Olomouc, Czechoslovakia, assignor to Sigma Lutín Narodní podnik, Olomouc, Czechoslovakia

Division of Ser. No. 818,715, April 9, 1969, Pat. No. 3,606,789. This application Sept. 4, 1970, Ser. No. 69,963

Int. Cl. B23p 15/00

U.S. Cl. 29—156.4

1 Claim



A pump spindle has a screw-shaped configuration and is in the form of an elongated hollow tube of small wall thickness, carrying at one end a means through which a drive is transmitted to the pump spindle. The tube is given its required configuration by means of pressing jaws which press inwardly against the tube and which are suitably shaped so as to achieve the desired helical configuration for the hollow pump spindle. These jaws are supported not only for axial movement but also for radial movement toward and away from a given axis along which the tube is advanced and around which the tube is rotated, so that by advancing the tube in steps synchronized with the movement of the shaping jaws there will issue from an apparatus for manufacturing the pump spindle a tube of required configuration from which a section of predetermined length can be cut. Thereafter, a connecting means is fastened to one end of the thus cut tube to be able to transmit a drive to the tube through the connecting means.

3,740,812

METHOD OF MAKING EXPANDED METAL PRODUCTS

Trevor B. Ryan, Rose Park, Australia, assignor to Jury & Spiers Proprietary Limited, Norwood, Australia

Filed Aug. 18, 1971, Ser. No. 172,763

Claims priority, application Australia, Aug. 24, 1970, PA2297/70

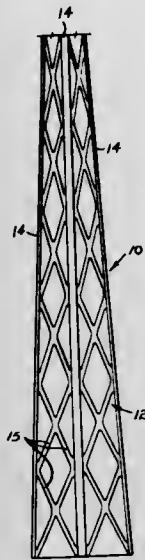
Int. Cl. B23p 17/00

U.S. Cl. 29—155 C

7 Claims

A post comprising a series of struts radiating outwardly from a central portion produced by a method of firstly extrud-

ing ductile metal to a constant cross-sectional shape which includes a central portion and at least three circumferentially spaced webs, punching a plurality of rows of slots in each web, arranging the lengths of the slots to be great compared with



the distance between them and arranging the slots to be staggered, then stretching the metal between the slots of the rows so as to form a series of struts, the unpierced metal of the product constituting the chords of the trusses so formed.

3,740,813

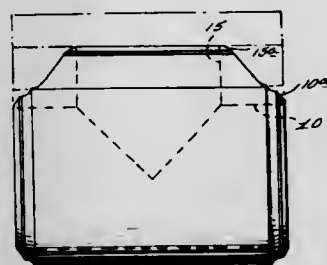
METHOD OF MAKING A CONNECTOR TEE FOR PRESSURE PIPE LINES

Charles H. Moore, 645 Matanzas Court, Fort Myers Beach, Continuation-in-part of Ser. No. 142,744, May 12, 1971, which is a continuation-in-part of Ser. No. 720,658, April 11, 1968, abandoned. This application Sept. 21, 1972, Ser. No. 291,040

Int. Cl. B21d 53/00; B21k 29/00; B23p 15/00

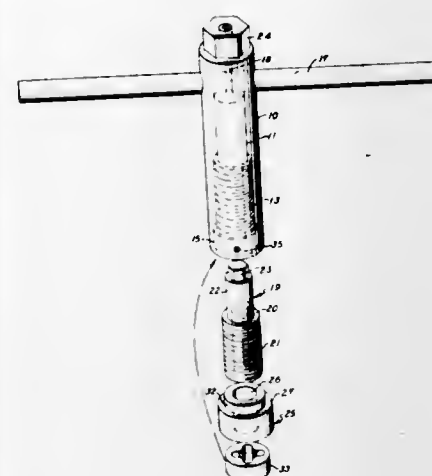
U.S. Cl. 29—157 T

2 Claims



Metallic connector Tees for pressure pipes of the larger sizes and wall-thicknesses, which cannot be efficiently and economically made from pipe, and which heretofore have been made by relatively expensive block forging methods, are made by heating a solid metal work-piece of round cross section and appropriate size to forging temperature; peripherally confining the heated solid metal work-piece; and hollow-punching it in axially offset relationship with respect thereto in such manner as to provide a selected wall portion which is sufficiently thick as to permit the formation of the branch pipe passages therein while still retaining sufficient metal to compensate by way of reinforcement for the weakening of the wall caused by the formation of said passages, and without reducing the thickness of the opposite portion of the wall of the work-piece below a predetermined point.

3,740,814
STUD EXTRACTOR
Calvert D. Marshall, 307 S. Broadway, Georgetown, Ky.
Continuation-in-part of Ser. No. 6,522, Jan. 28, 1970, abandoned. This application June 3, 1971, Ser. No. 149,578
Int. Cl. B25b 13/50; B23p 19/00
U.S. Cl. 29—200 D 10 Claims



A hand-operated device for extracting studs from engine blocks or the like embodies an internally screw-threaded body portion having a turning handle means. An intermediate adapter has external and internal threads which enable the adapter to be screwed into the body portion and over the screw threads of an anchored stud. An abutment collar or spacer is interposed between the face of the member in which the stud is anchored and the opposing end of the rotatable body portion. The device has the additional capability of extracting studs which have been broken off above or below the face of the member which holds the studs.

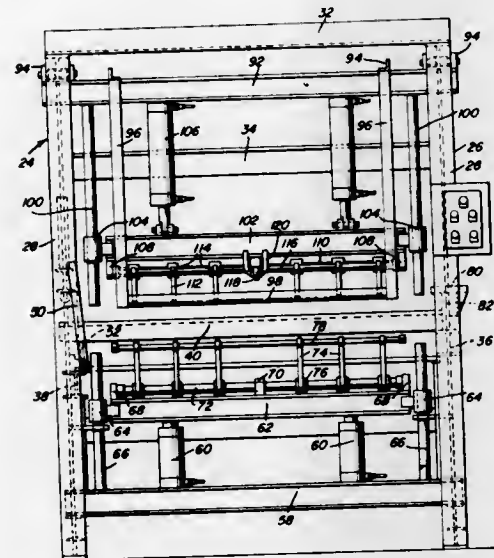
3,740,815

PALLET STRINGER PULLER

Thomas C. Campbell, 9253 Garland Drive, Savannah, Ga., and James A. Purvis, Savannah, Ga., assignors to said Campbell, by said Purvis, a part interest
Filed Sept. 13, 1971, Ser. No. 179,639
Int. Cl. B23p 19/00

U.S. Cl. 29—200 D

12 Claims



An assemblage for totally or partially dismantling the deck boards and/or runners of conventional wooden pallets whereby the deck board or runners, when damaged, may be replaced to renew the strength and life of a wooden pallet.

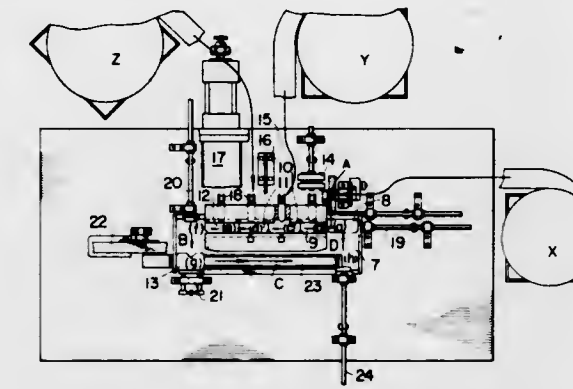
3,740,816 APPARATUS FOR AUTOMATICALLY STAKING TERMINALS

Kiyokazu Yamaoto, Minami-ku, Kyoto; Yoshihisa Uchida, Neyagawa-shi; Masato Tanino, Higashiumiyoshi-ku, Osaka, and Yunori Koga, Kadoma-shi, all of Japan, assignors to Matsushita Electric Industry Co., Ltd., Osaka, Japan
Filed Mar. 2, 1971, Ser. No. 120,299

Claims priority, application Japan, Mar. 6, 1970, 45/19558; Mar. 6, 1970, 45/19559; Mar. 6, 1970, 45/19560; Mar. 6, 1970, 45/2218; Mar. 6, 1970, 45/2219
Int. Cl. H01k 13/04

U.S. Cl. 29—203 B

6 Claims



Apparatus for automatically staking terminals to a base plate including a feed mechanism which feeds a plurality of jigs, in cyclic fashion, to several work stations. At the first work station apparatus is provided which removes a base plate from a supply and positions the plate within a jig. The jig is then moved to a second station where a mechanism removes terminals from a supply and inserts them in holes in the base plate. At the next station the jig is aligned with a pressing tool for staking the terminals to the base plate. At the last work station, apparatus removes the base plate having the staked terminals from the jig. The feed mechanism then moves the empty jig to the first work station in preparation for reception of another base plate.

3,740,817

COMPONENT INSERTION SYSTEM FOR CIRCUIT BOARDS

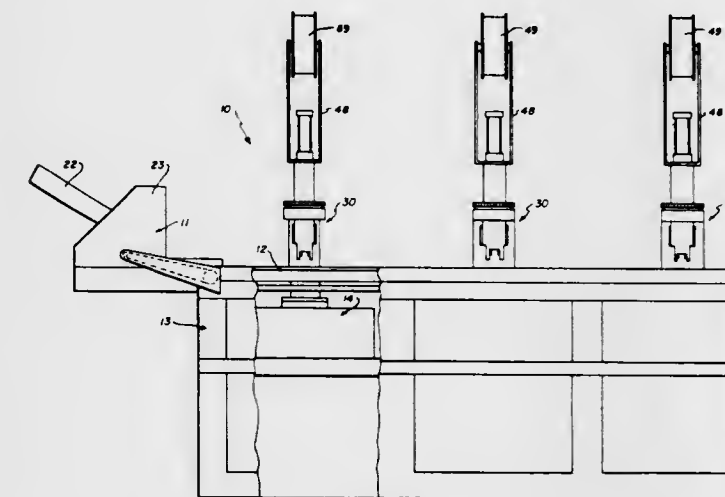
Gerhard H. Weiler, Des Plaines, and Patrick M. Donovan, Schaumburg, both of Ill., assignors to Weiler Engineering Inc., Elk Grove Village, Ill.

Filed Apr. 20, 1971, Ser. No. 135,550

Int. Cl. H05k 13/04

U.S. Cl. 29—203 B

24 Claims



A component insertion system which is a completely computerized, automatic system that can be programmed to automatically assemble a pre-determined number of printed circuit boards.

The system is generally an inline system in that the printed circuit boards are transported from one station to another by means of an inline conveyor, however, its component insertion heads and their associated clincher assemblies are movably mounted, rather than being fixedly positioned as in the past. In the present system, the component insertion heads and the clincher assemblies each are mounted on X-Y tables so as to be movable with respect to the printed circuit boards. In addition, the component insertion heads and their associated clincher assemblies are rotatably mounted and controlled so that they may be angularly oriented with respect to the printed circuit boards. With this arrangement, a component can be affixed to a printed circuit board in virtually any pre-determined location.

3,740,818

ADAPTER FOR PIERCE NUT APPLYING TOOL

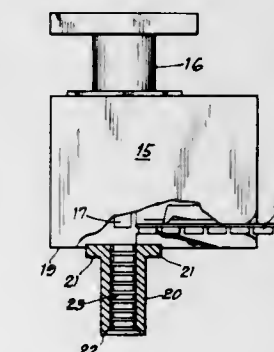
William L. Grube, Lake Bluff, Ill., assignor to MacLean-Fogg Lock Nut Co., Mundelein, Ill.

Filed Oct. 26, 1971, Ser. No. 192,270

Int. Cl. B23q 7/10

U.S. Cl. 29—211 D

10 Claims



An improvement upon a pierce-nut application tool which enables the tool to apply a pierce nut to a recessed, flanged or specially formed workpiece in which the point of application of the pierce nut is below the normal working plane of the tool. The improvement includes an extension on the tool which fits into the recess and feeds the nuts to the off-planar location. The nuts are accumulated in the extension and the accumulated nuts serve to transmit the nut-applying force from the punch in the tool to the nut to be applied.

3,740,819

METHOD OF REDUCING THE INCIDENCE OF SHORT CIRCUITS ON AIR-ISOLATED BEAM CROSSOVERS

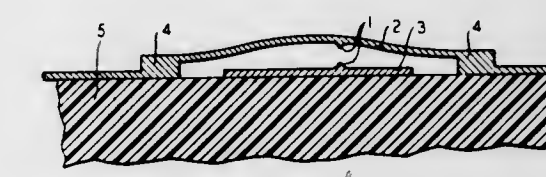
Daniel Babusci, Oceanport, and Burton Abram Unger, Berkeley Heights, both of N.J., assignors to Bell Telephone Laboratories, Inc., Murray Hill, N.J.

Filed Dec. 21, 1970, Ser. No. 99,998

Int. Cl. B22d 19/10; B23p 7/00

U.S. Cl. 29—401

6 Claims



Deposited thin film circuitry having a large number of air-isolated crossovers is treated to reduce potential rejects because of crossover short circuits by causing the evolution of gas within a liquid in the region under the crossovers at a rate sufficient to lift the crossover beams without fracture, as by the reaction of a dilute acid with a bicarbonate or by the vigorous boiling of a volatile liquid such as alcohol, acetone or xylene, or by expanding initially liquid materials under the beam. The effectiveness is enhanced by a preliminary heating of the crossovers to a temperature above about 250°C.

3,740,820

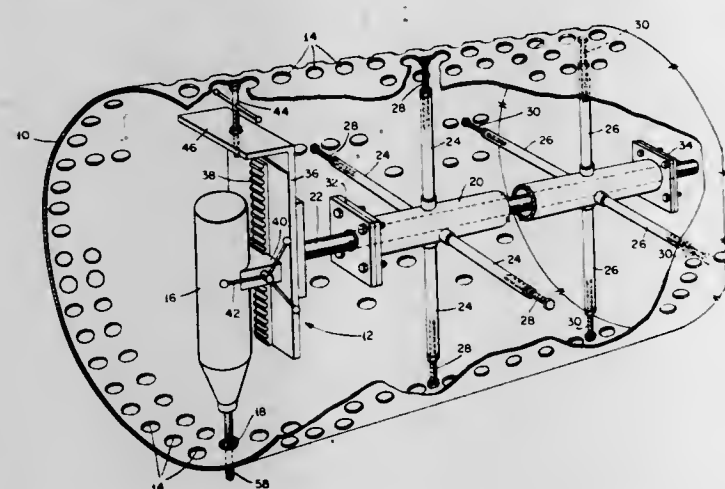
METHOD OF REPAIRING DAMAGED HOLES IN A BOILER DRUM

Robert J. Tarves, Jr., P.O. Box 282, 260 Erial Road, Blackwood, N.J.

Filed Jan. 28, 1971, Ser. No. 110,404
Int. Cl. B22d 19/10

U.S. Cl. 29—401

7 Claims



Apparatus and methods for repairing or producing openings in a boiler drum is provided. Weld material is applied to the drum in the area of the openings to reduce substantially the size of the openings. A precisely aligned drill within the drum is then radially and longitudinally moved in steps is inserted within the drum and to produce or redimension openings within the drum.

3,740,821

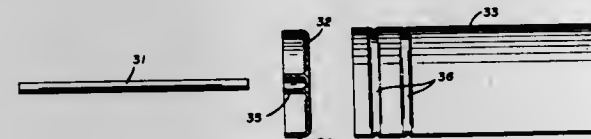
METHOD FOR ASSEMBLING CONFECTION-SERVING CONTAINERS OF THE PUSH-UP TYPE

Hans D. Von Bredow, Galena, Ohio, assignor to Big Drum, Inc., Columbus, Ohio

Filed Nov. 5, 1971, Ser. No. 196,156
Int. Cl. B23q 17/00; B23p 19/04, 11/02

U.S. Cl. 29—407

4 Claims



A method for assembling a push-up type serving container consisting of three parts, namely, a tubular container body or cylinder for a confection or other edible substance, a piston for pushing the confection upwardly to expose it at the upper open end of the cylinder, and a separate actuating rod which fits into a downwardly-opening socket at the lower side of the piston and extends downwardly through the lower end of the cylinder. The tubular container body also has axially spaced piston stop ribs on its inner surface. The assembly is made by successively mounting the piston on the stick, and then moving the piston into the tubular container body to angle it into position between the stop ribs.

3,740,822

METHOD OF MAKING PROTECTED METAL ARTICLE

Fred G. Singleton, Pittsburgh, Pa., assignor to H. H. Robertson Company, Pittsburgh, Pa.

Division of Ser. No. 795,845, Feb. 3, 1969, Pat. No. 3,615,276. This application Apr. 12, 1971, Ser. No. 133,148

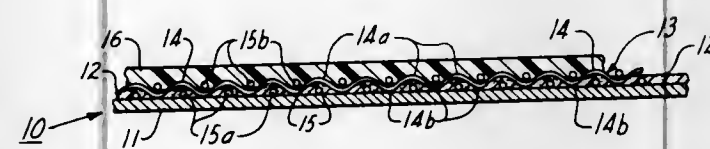
Int. Cl. B23k 31/02; B23p 17/00

U.S. Cl. 29—419

2 Claims

A protected metal article is produced by combining a core of sheet steel with a protective metal consisting essentially of zinc; thereafter impressing a fibrous glass cloth into the pro-

ductive metal and applying a weather-resistant outer coating applied to the fibrous glass cloth. The fibrous glass cloth may comprise either a glass fiber thread woven fabric or a bonded mat formed from randomly oriented continuous glass fiber filaments. The article is prepared by applying a molten protec-



tive metal coating consisting essentially of zinc to a steel sheet and, while the coating is in its molten condition, impressing a fibrous glass cloth into the protective metal and fusing the protective metal whereby the fibrous glass cloth is partially embedded within the protective metal.

3,740,823

METHOD FOR CLIPPING FOLDED ARTICLES OF CLOTHING AND THE LIKE

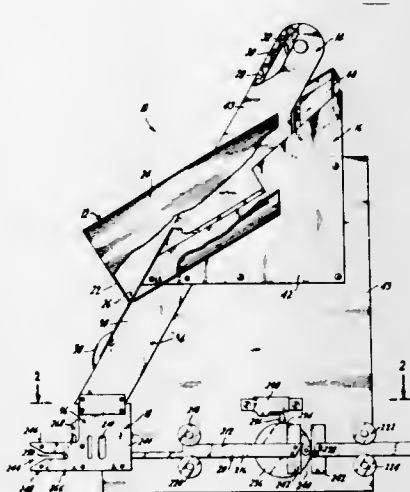
Theodore Watkin, Stamford, Conn., assignor to Theodore Watkin; Maurice W. Friedman and Alfred S. Friedman, Woodmere, Long Island, N.Y.

Continuation-in-part of Ser. No. 53,409, July 9, 1970, abandoned. This application July 1, 1971, Ser. No. 158,772

Int. Cl. B23p 19/00; B23q 7/10

U.S. Cl. 29—429

3 Claims



A method is provided for placing spring clips over the edges of folded articles and the like in an automated manner. The method operates through an apparatus which generally includes a slide for properly orienting the clips and loading them into a supply chute, a drive for taking the clips one at a time from the supply chute and transporting each clip toward and over the edge of the folded article and a ramp cooperating with the drive, for opening the mouth of each clip as the clip approaches the edge of the folded article and then releasing the clip mouth when the clip is properly positioned over said edge.

3,740,824

METHOD OF AND APPARATUS FOR OPENING CAP-EQUIPPED DRUMS AND THE LIKE

Llewellyn W. Evans, deceased, late of 1 Greenwood Court, Orinda, Calif. (by Agnes J. Evans, Executrix)

Division of Ser. No. 761,350, Sept. 20, 1968. This application Nov. 15, 1971, Ser. No. 198,888

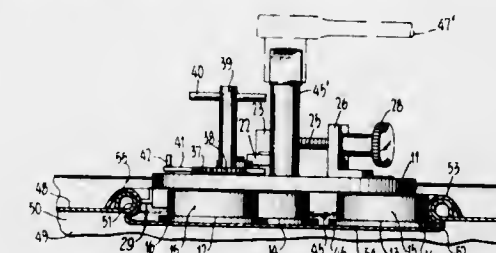
Int. Cl. B23p 19/00

U.S. Cl. 29—426

7 Claims

Method of and apparatus for opening drums and other containers by removing the closure caps from the filler openings thereof. Typically, such a filler opening is located in the top

wall or head of the drum, and it is an annular rim-equipped opening through which the closure cap extends and within



which it is confined by laterally extending annular flanges respectively disposed inside and outside of the drum on opposite sides of the rim.

3,740,825

METHOD OF INSTALLING FORM-TIES

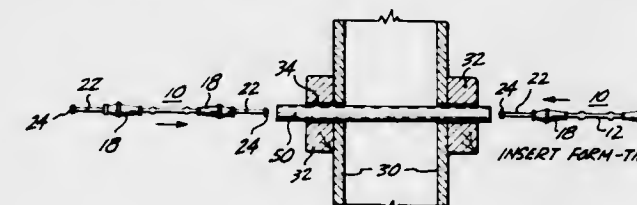
Frank E. Buyken, 8620 Island Drive, Seattle, Wash., and Robert C. Foster, 403 Laurel Street, Elk Grove Village, Ill.

Filed Mar. 18, 1971, Ser. No. 125,755

Int. Cl. B23p 19/04

U.S. Cl. 29—433

3 Claims



A method of installing form-tie rods in a pair of substantially aligned holes in an opposed pair of spaced-apart concrete forms is disclosed to comprise the steps of inserting and visually aligning a hollow or tubular member in said holes, then the step of withdrawing the tubular member from the holes in one direction or the other while the tubular member leads or guides a form-tie through the holes.

3,740,826

METHOD FOR PRODUCING COMPOSITE METALLIC PIPE BY EXPLOSION PRESSURE WELDING

Nobuyoshi Baba, Shiga, Japan, assignor to Asahi Kasei Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed June 17, 1971, Ser. No. 153,998

Claims priority, application Japan, July 2, 1970, 45/57256
Int. Cl. B23k 21/00

U.S. Cl. 29—470.1

5 Claims



A composite metallic pipe is produced by explosion pressure welding, that is, by filling a thermoplastic material capable of being converted into a fluid when heated, and solidified at the ambient temperature, for example, asphalt compound

or tar pitch, at the outside of an outer pipe when an explosive is charged at the inside of an inner pipe, or at the inside of an inner pipe when the explosive is charged at the outside of the outer pipe, thereby to integrate the pipe with the plastic material and increase the strength of the pipe such that the pipe acts as an incompressible steel rod or an outer pipe having a large wall thickness against detonation pressure and prevent deformation of the pipe. A pipe having a wall thickness of 1 mm or less as a substrate can be advantageously welded to a composite pipe by explosion pressure.

3,740,827

FRICTION WELDING

Anthony John Hunter, and Robert Graham Forbes, both of Inverness, Scotland, assignors to A. I. Welders Limited, Inverness, Scotland

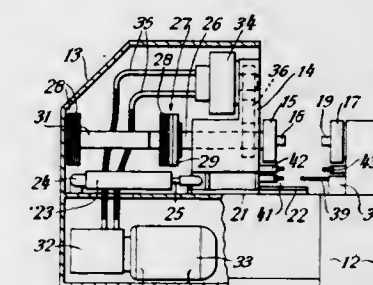
Filed Nov. 6, 1970, Ser. No. 87,373

Claims priority, application Great Britain, Nov. 14, 1969, 55,895/69

Int. Cl. B23k 27/00

U.S. Cl. 29—470.3

7 Claims



The disclosure provides an improved method of carrying out friction welding operations in which the workpieces are heated by friction produced by rotating one in rubbing contact with the other. The rotation of the one workpiece is effected by a drive from a power source until an equilibrium temperature condition has been reached, after which the power source is disconnected and continued rotation applied to the workpiece by energy stored in a rotating mass, the energy in said mass being dissipated in completing the weld.

3,740,828

METHOD FOR MAKING STAINLESS STEEL-ALUMINUM COMPOSITE MATERIAL

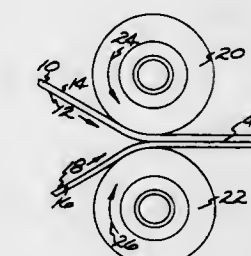
Joseph J. Buchinski, Wrentham, and Charles H. Zenuk, Acton, both of Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed May 28, 1971, Ser. No. 148,059

Int. Cl. B23k 21/00

U.S. Cl. 29—470.1

5 Claims



A process for metallurgically bonding stainless steel to aluminum at room temperature to provide a composite material having excellent formability properties and having a high quality stainless steel surface finish is shown to include the steps of squeezing strips of stainless steel and aluminum materials together between pressure bonding rolls while driving one roll in engagement with the stainless steel material at a

selected peripheral speed, preferably without use of a lubricant between the roll and stainless steel material, and while regulating rotation of the other roll in engagement with the aluminum material at a relatively slower peripheral speed for reducing the thickness of at least the aluminum material to an extent sufficient to form incipient solid-phase metallurgical bonds between the materials, the bonded materials then being sintered in the solid-phase for increasing the strength of the metallurgical bonds between the stainless steel and aluminum materials.

3,740,829

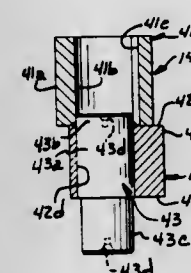
METHOD OF MAKING A CAM SHAFT WITH A SHAFT COUPLING AND ARTICLE PRODUCED THEREBY

Donald L. Yarger, 22511 W. Grant, Marengo, Ill.
Filed Oct. 15, 1971, Ser. No. 189,495

Int. Cl. B23k 31/02

U.S. Cl. 29—470.5

6 Claims



A method of making a cam shaft having a trunnion at one end of the cam and a blind end shaft coupling internally of the trunnion for connection to an external shaft wherein a coupling member is formed with a cylindrical outer bearing surface and an internally keyed bore extending therethrough dimensioned for connection to an external keyed shaft, a cam member is formed with a shaft stub extending from one end face eccentric to its peripheral cam surface, and the coupling is thereafter assembled on the shaft stub and brazed to the end face of the cam to form a trunnion at the end of the cam having a blind end shaft coupling internally of the trunnion.

3,740,830

BRAZING CERAMICS

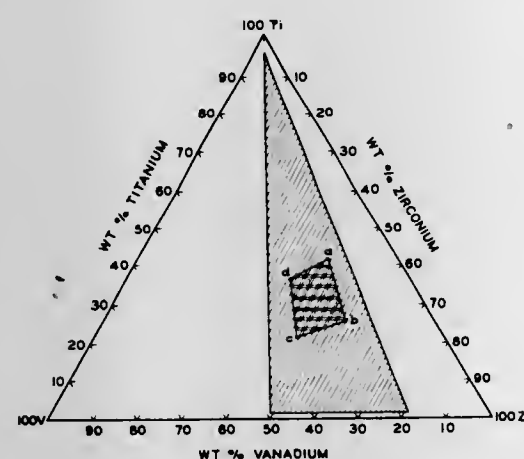
Albert Evan Campbell, Jr., and Andrew O. Jensen, both of Arcadia, Calif., assignors to Xerox Corporation, Rochester, N.Y.

Division of Ser. No. 861,976, Sept. 29, 1969, Pat. No. 3,666,429, which is a continuation-in-part of Ser. No. 646,186, June 15, 1967. This application Mar. 13, 1972, Ser. No. 234,435

Int. Cl. B23k 31/02

U.S. Cl. 29—472.7

12 Claims



A process for metallizing high purity ceramic parts and/or brazing a high purity ceramic part to a refractory metal part or another ceramic part using a ternary titanium, vanadium, and

zirconium alloy is described. A particularly efficacious alloy comprising 21–42 percent titanium, 15–33 percent vanadium and 36–54 percent zirconium yields hermetic seals when parts are bonded in accordance with the process described herein.

3,740,831

SOLDERING FLUXES

David Paul Jordan, Warwick, and George John Collini, Vails Gate, both of N.Y., assignors to The International Nickel Company, Inc., New York, N.Y.

Filed July 28, 1971, Ser. No. 167,025

Int. Cl. B23k 35/36; C23c 1/17; C07d 33/50

U.S. Cl. 29—495

20 Claims

Flux compositions include as flux activators hydrazinium salts of certain organic chelaters which have a nitrogen atom and a phenolic OH group in bidentate relation. The fluxes are suitable for use in soldering nickel and nickel alloys as well as copper and copper alloys.

3,740,832

METHOD OF FABRICATING A FLEXIBLE CONNECTOR

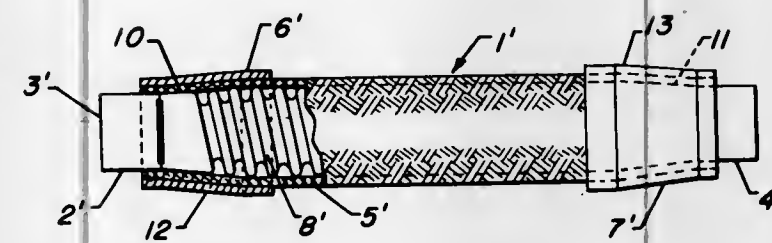
George G. Toepper, Elgin, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Continuation-in-part of Ser. No. 23,354, March 27, 1970, Pat. No. 3,627,354. This application Nov. 18, 1971, Ser. No. 199,973

Int. Cl. B21d 39/00; B23p 11/02

U.S. Cl. 29—508

10 Claims



Method of fabricating a flexible connector. A tubular member, is corrugated in a central portion thereof and a sleeve of braided strands is disposed around the tubular member to encompass the corrugated central portion and overlap at least a part of the uncorrugated end portions. A collar is disposed in a force fit manner around each end of the sleeve to overlap the part covering an uncorrugated end portion to thus secure the sleeve in place and provide reinforcement for the corrugated portion of the tubular member.

3,740,833

METHOD AND APPARATUS FOR PROVIDING A HARD METAL COATING ON CONFINED AREAS OF A METAL PART

Charles A. Hanson, and Leroy C. Cowles, both of Long Beach, Calif., assignors to Pacific Valves, Inc., Long Beach, Calif.

Filed Feb. 24, 1970, Ser. No. 13,674

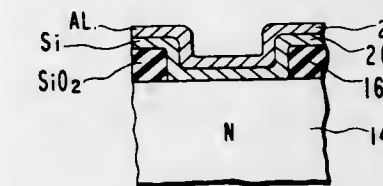
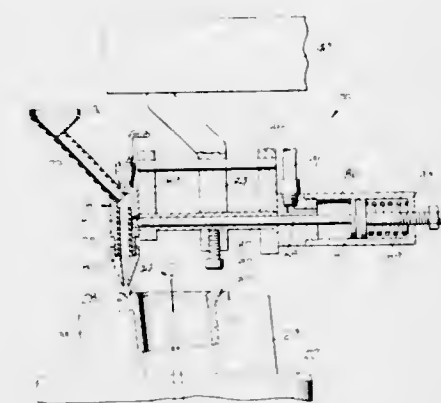
Int. Cl. B23p 25/00

U.S. Cl. 29—527.4

7 Claims

A metal part to be clad is conveyed past a plurality of treating stations arranged along a definite path. At the first station, the metal part has the surface on which the coating or cladding is to be applied machined to include a receiving

groove. The part is then transported to the next station where a suitable hard cladding material in particulate form is deposited onto the specially machined area of the metal part.



original device surface for permitting greater ease of contact with shallow junctions.

3,740,836

METHOD OF PRODUCING A CORELESS ARMATURE

Shoji Kumada, and Tadashi Tanaka, both of Iruma, Japan, assignors to Kabushiki Kaisha Yaskawa Denki Seisakusho, Fukuoka-ken, Japan

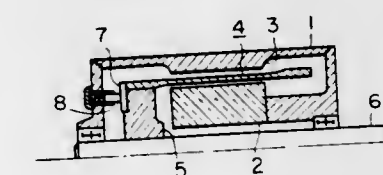
Filed Sept. 28, 1971, Ser. No. 184,473

Claims priority, application Japan, Sept. 28, 1970, 45/85678

Int. Cl. H02k 15/02, 15/10

U.S. Cl. 29—598

1 Claim



A coreless armature and a method for producing the same, characterized in that, on the outer surface of an annular body, a plurality of teeth-like projections are provided with equal spacing therebetween and in a manner extending along the generatrices of the annular body from a base part thereof, effective parts of armature coils are inserted evenly in the slots formed between the teeth-like projections, and the entire assembly is thereafter impregnated with a synthetic resin for solidifying the assembly into an integral body. The base part of the annular body from which the plurality of teeth-like projections project may be removed thereafter from the thus solidified armature assembly.

3,740,837

PROCESS FOR MAKING A TOROIDAL INDUCTANCE COIL

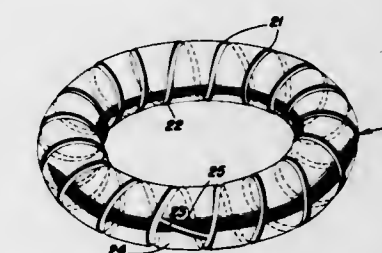
Ralph O. Robinson, Jr., Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Navy

Division of Ser. No. 266,948, Jan. 17, 1952, abandoned, and a continuation-in-part of Ser. No. 543,285, Oct. 27, 1955. This application Apr. 2, 1954, Ser. No. 429,995

Int. Cl. H01f 7/06; B33p 17/00

U.S. Cl. 29—602

6 Claims



1. The process of making a toroidal inductance coil, comprising producing a thin single layer conductive tube shaped as a toroid, converting said tube into a toroidally wound strip by severing it along a helical line, and severing said strip transversely to provide two electrical terminals for said inductance coil.

3,740,834

CAPACITOR WITH FIBERED VALVE METAL ANODE

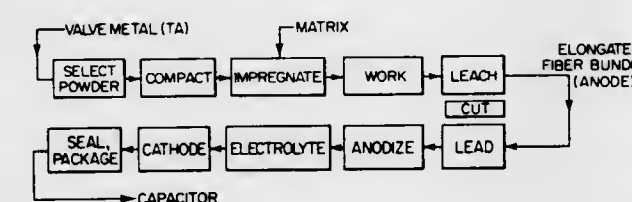
Richard W. Douglass, Needham, Mass., assignor to Norton Company, Worcester, Mass.

Continuation of Ser. No. 839,024, July 3, 1969. This application Nov. 15, 1971, Ser. No. 199,065

Int. Cl. H01g 13/00

U.S. Cl. 29—570

11 Claims



Capacitor anodes are produced in situ by sintering a powdered valve metal into a porous compact, impregnating the compact with another material in fluid or soft form which fills the pores of the compact, solidifying or hardening the second material and working the compact through the application of compressive forces to elongate it to thereby fiber the powders of the compact and to fiber the impregnant. The thus produced fiber compact is leached to remove the impregnant materials, to produce a bundle of interconnected fibers with an interconnected pore structure which can be filled with anodizing medium and later with electrolyte to comprise the capacitor. Alternatively, the impregnant can be the valve metal and the original compact can be removed after elongation and fibering.

3,740,835

METHOD OF FORMING SEMICONDUCTOR DEVICE CONTACTS

David M. Duncan, San Francisco, Calif., assignor to Fairchild Camera and Instrument Corporation, Syosset, Long Island, N.Y.

Continuation of Ser. No. 683,363, Nov. 15, 1967, abandoned.

This application Aug. 31, 1970, Ser. No. 68,466

Int. Cl. B01j 17/00

U.S. Cl. 29—578

5 Claims

A semiconductor device contact is made by depositing a layer of semiconductor material in the contact opening of an

3,740,838

HERMETIC PACKAGES AND METHODS OF FABRICATING SAME

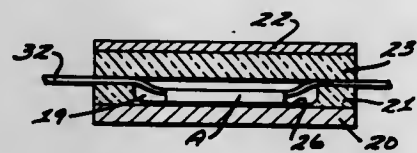
George B. Brookover; Carl J. Hudecek, both of Toledo, and John H. Oliver, Maumee, all of Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Division of Ser. No. 212,563, July 26, 1962. This application Mar. 11, 1968, Ser. No. 735,940

Int. Cl. H05k 5/06

U.S. Cl. 29—627

9 Claims



A method of making hermetically sealed packages for small electronic devices in which a pair of metal plates having low melt glass on the facing surfaces has the perimetrical edge of one of the plates conductively heated to effect fusion of the glass and a final hermetic seal. One of the metal plates is preferably thicker than the other and heat to fuse the glass is conductively applied to the thinner plate while heat is carried away from the thicker plate. Consult the specification and drawings for details and other features.

3,740,839

CRYOGENIC CONNECTION METHOD AND MEANS

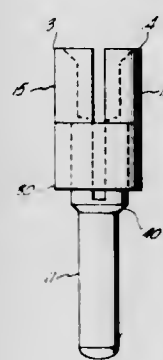
Richard F. Otte, Los Altos, and Christopher L. Fischer, Sunnyvale, both of Calif., assignors to Raychem Corporation, Menlo Park, Calif.

Filed June 29, 1971, Ser. No. 157,890

Int. Cl. H01r

U.S. Cl. 29—628

16 Claims



A reusable connecting device is disclosed which utilizes a heat recoverable metallic band disposed about a resilient member such as the tines of a forked member. Where the resilient member is a forked member, the forked member has at least two tines which are spaced from one another and which are elastically mounted so that they can be moved inwardly but, when so moved, exert an outward force. When it is desired to make a connection between this device and other objects, the object is placed between adjacent tines and the metallic band is caused to shrink thereby forcing the tines towards one another and causing them to contact and hold the object between them. The device is reusable in that when the temperature of the metallic band is lowered to cause the metal to transform to a martensitic state, it may be easily deformed due to a decrease in yield strength. The elastic nature of the tines or other resilient member causes them to push against the band resulting in a deformation of the band. This deformation permits the tines to move away from one another and releases the object held therebetween. However, once the metallic band is heated to a temperature at which the band reverts to its austenitic state, the band again contracts and moves the tines toward one another permitting a strong electrical or physical connection to be made.

3,740,840

ELECTRIC CAN OPENER WITH CAN SENSING MEANS

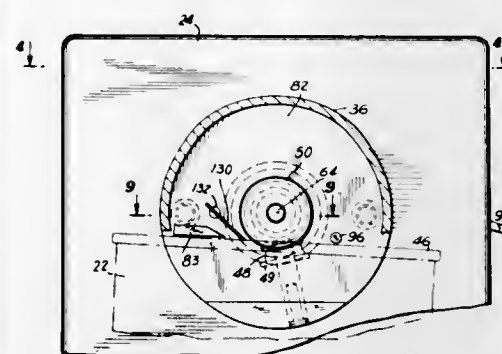
Vincent H. McLaren, Jr., Cumberland, and Navnit Panchal, Riverside, both of R.I., assignors to Imperial Knife Associated Companies, Inc., New York, N.Y.

Filed Oct. 26, 1971, Ser. No. 192,400

Int. Cl. B67b 7/38

U.S. Cl. 30—4 R

11 Claims



An electric can opener having a rotatable cutter which cuts through and around a seaming (outer) wall of a double seam (chime) by which a can end is secured to a can body. The rotatable cutter and a tractor wheel turn about axes which are substantially perpendicular to each other. The tractor wheel can be axially shifted by manual movement of an operating lever. The tractor wheel has a conical surface disposed to engage a chuck (inner) wall of a chime and a cylindrical surface disposed to engage the top of a chime. Associated with the cutter is a shoulder wheel that rides on the outside of a can below a chime so that the can opener will hold a can after a seaming wall is cut entirely around a can and until a can is deliberately released by axially shifting the tractor wheel out of engagement with a chime. A first abutment above a chime and ahead of the tractor wheel (the direction of rotation of a can being the reference) extends forwardly from a can opener housing. A second forwardly extending abutment above a chime is located behind the tractor wheel.

3,740,841

SAFETY RAZOR EMBODYING BLADE PRESSURE CONTROL

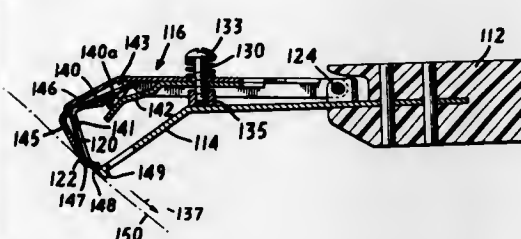
Frederick L. Risher, Laurel, Miss., assignor to Philip Morris Incorporated, New York, N.Y.

Continuation-in-part of Ser. No. 29,788, April 20, 1970, abandoned. This application Mar. 25, 1971, Ser. No. 128,077

Int. Cl. B26b 21/14, 21/52

U.S. Cl. 30—32

11 Claims



The disclosure introduces a new concept in safety razor construction; that of the floating head. A floating head is herein defined as a blade support assembly which is mounted for movement transverse to the path of movement undergone by the pressure guard. A safety razor utilizing a floating head construction of the type herein described is insensitive not only to variations in the application of handle pressure but also to the angle at which the razor is held relative to the skin. A biased blade support assembly, comprising the floating head, is mounted for controlled pivotal movement toward and away from a skin pressure guard integral with the razor handle whereby a constant blade pressure will be exerted on the skin irrespective of the pressure exerted on the handle and pressure guard.

3,740,842

RAZOR CARTRIDGE AND HOLDER THEREFOR

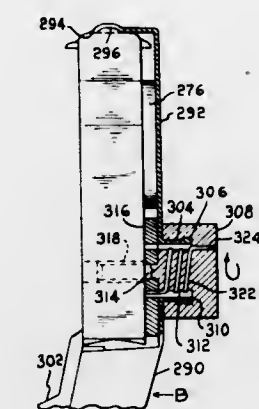
Keith T. Bleuer, 1663 Wiltshire Drive, N.E., Rochester, Minn.

Filed Mar. 8, 1971, Ser. No. 121,712

Int. Cl. B26b 21/26

U.S. Cl. 30—40.1

11 Claims



A cartridge which contains a razor band and which is reversible in its holder so that both edges of the band may be used for shaving purposes. The cartridge has ridges or bosses for protruding through openings provided in the band midway of the band edges for holding the band in proper shaving position in the cartridge and allowing the band to be moved over the ridges into successive shaving positions. The band is wound on and from a pair of rolls in the cartridge which are of different circumference than a shaving length of the blade so that the rolls can be used for counting the blade lengths used. The holder includes direct drive means for one of the rolls for causing this roll to be used for blade take-up and a gear meshable with a gear on the other roll so that the latter roll can be used for blade take-up.

3,740,843

SHAVING HEAD HAVING SEPARATELY SPRUNG BLADES

Eduard Willem Tietjens, Drachten, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

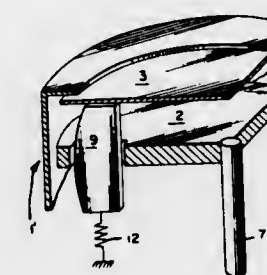
Filed Feb. 22, 1971, Ser. No. 117,502

Claims priority, application Netherlands, Mar. 25, 1970, 7004336

Int. Cl. B26b 19/14, 19/38

U.S. Cl. 30—43.6

9 Claims



The invention relates to a shaving head for a dry-shaving apparatus comprising a circular shear plate and a cutter member which co-operates with the shear plate and has at least one separately sprung blade the body of which is arranged so as to be movable in an opening in a rotatably drivable blade carrier; in operation the cutting edge of the blade, which edge extends substantially in a radial direction, resiliently engages the shear plate, which is spaced from the blade carrier.

3,740,844

WIRE CUTTING PLIERS

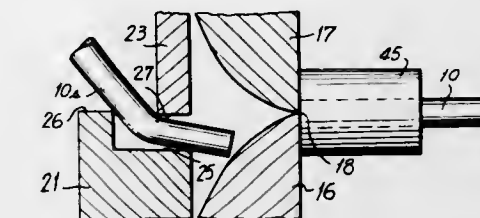
James M. Rubin, 141 W. 17th Street, New York, N.Y.

Filed Mar. 3, 1971, Ser. No. 120,568

Int. Cl. B26b 17/00

U.S. Cl. 30—124

1 Claim



Wire cutting pliers especially suitable for use in the art of orthodontics in which the orthodontist is often required to cut wires in the patient's mouth. The wire cutting pliers are provided with portions which grip the severed end of the wire and hold or retain it firmly so that it is removed with the plier.

3,740,845

MECHANICAL KNIFE WITH HOLDING MEANS

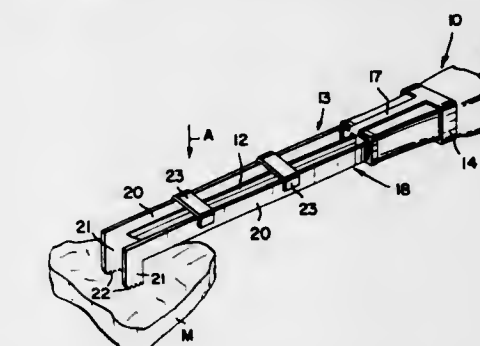
Larry Klein, 3856 Bronx Boulevard, Bronx, N.Y.

Filed July 26, 1971, Ser. No. 166,068

Int. Cl. B26b 7/00

U.S. Cl. 30—136

5 Claims



A stabilizing and guiding attachment for an electric knife has a pair of members extending longitudinally along and flanking the knife blade. A holding element, which clamps to the knife body, is attached to these members by means of a spring-biased hinge or a resiliently flexible ligature so that the two members can deflect jointly upwardly away from the cutting edge of the blade and thus in the direction opposite the direction in which the blade is passed through the article to be severed. The members are formed at their ends remote from the knife body with teeth engageable with an object to be cut so that, as the knife blade is brought into engagement with the object, the teeth first engage the object and then bear on it to immobilize this object and stabilize it during cutting. The members can constitute the sides of a U-section channel or they can be separate strips transversely joined at several locations so that both sides of the cutting kerf are engaged.

3,740,846

SHEARS HAVING CLEARANCE ADJUSTING MEANS BETWEEN PIVOTAL COOPERATING MEMBERS

William Duffy, Jamesburg, N.J., assignor to J. Wiss & Sons Co., Newark, N.J.

Continuation-in-part of Ser. No. 74,087, Sept. 21, 1970, Pat. No. 3,678,580. This application Jan. 17, 1972, Ser. No. 218,129

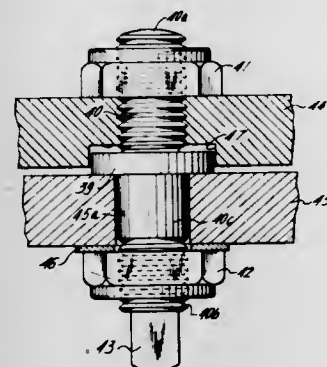
Int. Cl. B26b 13/28

U.S. Cl. 30—267

11 Claims

A tool, for example, shears, having clearance adjusting means between pivotal cooperating members or blades. An adjustable ride in the means is provided to facilitate adjust-

ments of cutting blade clearance. The ride is concentrically circumscribed around the pivot stud or bolt and interposed between the members or blades. Application is made to scroll



shears or snips with an offset cutting edge with relation to the flank of the shear, in order to obtain clearance to scroll slightly to the right, while retaining full maneuverability to the left.

3,740,847

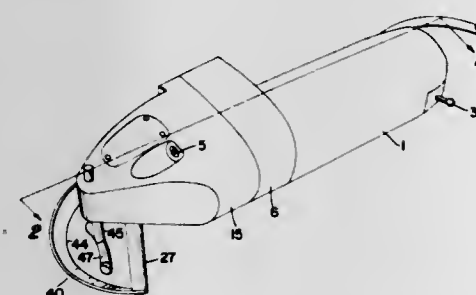
POWER DRIVEN MEAT TRIMMING AND CUTTING KNIFE

Waldo H. Kliever, Gates Mills, and Clyde Mart, Beachwood, both of Ohio, assignors to said Mart, by said Kliever
Filed Feb. 4, 1971, Ser. No. 112,609

Int. Cl. B26b 7/00

U.S. Cl. 30—272 A

6 Claims



A power driven knife is provided for trimming and cutting meat, in which a knife blade is employed which oscillates through an arc as the blade is drawn through the meat. The blade is preferably in the form or shape of a section of a cone, the axis of which is the axis about which the blade oscillates.

3,740,848

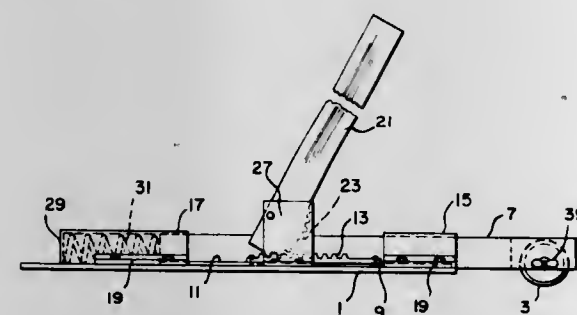
ROTARY CUTTER ASSEMBLY

John M. Lindley, P.O. Box 1464, Oakland, Calif.
Filed Aug. 16, 1971, Ser. No. 172,069

Int. Cl. B26b 3/00

U.S. Cl. 30—319

6 Claims



A cutter for sheet material such as sheet metal, linoleum, etc., wherein a rotary cutting blade is reciprocally actuated by means of a handle terminating in a gear sector or pinion which engages a slidably supported rack, which in turn controls the reciprocal movement of the rotary cutting blade.

3,740,849

ORTHODONTIC BRACKET

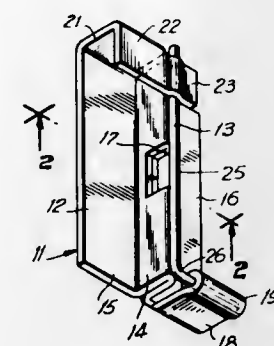
James M. Rubin, 141 W. 17th Street, New York, N.Y.

Filed Sept. 20, 1971, Ser. No. 181,917

Int. Cl. A61c 7/00

U.S. Cl. 32—14 A

8 Claims



An improved orthodontic bracket for mounting to a tooth band and for receiving an arch wire wherein the bracket is formed of sheet material and the arch wire may readily be clamped in and removed from the bracket.

3,740,850

TERTIARY AROMATIC AMINE ACCELERATORS IN DENTAL COMPOSITIONS

Rafael L. Bowen, Gaithersburg, and Harold Argentar, Rockville, both of Md., assignors to The United States of America as represented by the Secretary of the Department of Health, Education and Welfare, Washington, D.C.

Filed Feb. 2, 1971, Ser. No. 112,077

Int. Cl. C08f 3/66

U.S. Cl. 32—15

12 Claims

Direct dental filling materials and corresponding methods of treating human teeth utilizing known methacrylate dental polymer formers, peroxide catalysts, reinforcing fillers and unique tertiary aromatic amine accelerators with large substituents on the nitrogen atom and alkyl substituents on the aromatic ring at the 3 and 5 positions or the 4 position. Particularly preferred structures are N,N-disubstituted 3,5-xylidines, 4-methyl, and 4-tertiary butyl varieties.

When used in direct dental fillings, the compounds are uniformly non-volatile, at least three members of the group are crystallizable, and at least one member of the group serves dually as an accelerator and monomer.

3,740,851

JACKETED DENTAL ANCHOR

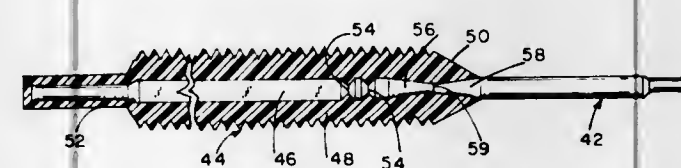
Bernard Weissman, 340 Ashland Place, Brooklyn, N.Y.

Filed Jan. 13, 1971, Ser. No. 106,152

Int. Cl. A61k 5/02

U.S. Cl. 32—15

12 Claims



A jacketed dental anchoring pin for insertion into a pre-drilled pin channel provided in the dentin of a tooth to partially project from the latter and anchor a superstructure to the tooth comprising an elastomeric or ceramic elongate hollow sleeve having opposite end portions and an intermediary threaded anchoring portion between the opposite end portions. An elongate metallic reinforcing core extends substantially throughout the entire hollow sleeve internally of the latter. One end portion of the sleeve carries a resilient element

for abutting against the endmost portion of the pre-drilled pin channel in the tooth. The reinforcing core is mounted internally of the hollow sleeve in a manner which prevents both axial and rotational displacement of the core relative to the sleeve.

3,740,852

HOLDER ASSEMBLY FOR DENTAL TOOLS

John Gustav Ulrik Holmqvist, Ystad, Sweden, assignor to Tomelilla Dental AB, Ystad, Sweden

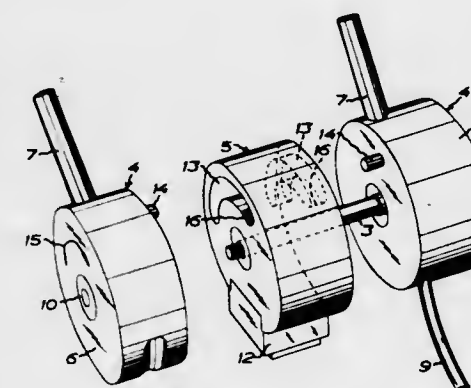
Filed Sept. 8, 1970, Ser. No. 70,039

Claims priority, application Sweden, Sept. 9, 1969, 12397/69

Int. Cl. A61c 19/02

U.S. Cl. 32—22

2 Claims



A holder assembly for a dental tool fed through an elongate flexible connection having a support member for the flexible connection rotatably mounted on a shaft, and biasing means connected to the support member through a lost motion coupling and counterbalancing the weight of the flexible connection and the support member in the working position of the tool.

3,740,853

DENTAL PROPHY ANGLE

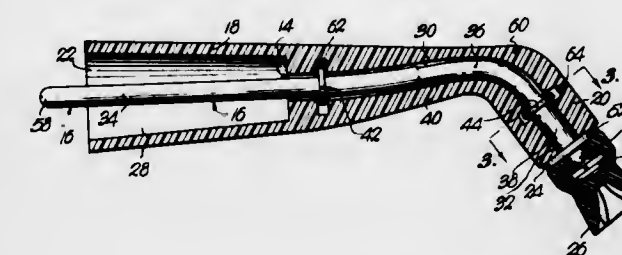
George R. Brahler, Lawrence, Kans., assignor to Exitex, Inc., Lawrence, Kans.

Continuation-in-part of Ser. No. 17,432, March 9, 1970, abandoned. This application June 3, 1971, Ser. No. 149,590

Int. Cl. A61c 3/00

U.S. Cl. 32—59

1 Claim



A dental prophylaxis angle adapted to be coupled with a conventional power source, the angle being used in dental prophylaxis and being of a disposable construction whereby there is no danger of a chain of sepsis from one patient's mouth to another. The dental prophylaxis angle is fabricated from suitable plastic materials and includes a housing having a passageway formed therein and extending from one end of the housing to the other, a flexible, rotatable drive shaft extending the length of the housing within the passageway, the shaft having a base stretch, a reduced stretch, and a head stretch, there being at least a pair of outwardly extending, annular ribs on the shaft, which ribs are received by recesses in communication with the passageway, the base stretch of the shaft being coupled with the power source, the head stretch being angularly offset with respect to the base stretch and having means thereon for receiving a workpiece.

3,740,854

DEMONSTRATION DEVICE FOR ILLUSTRATING TOOTH STRUCTURE AND DENTAL CARE

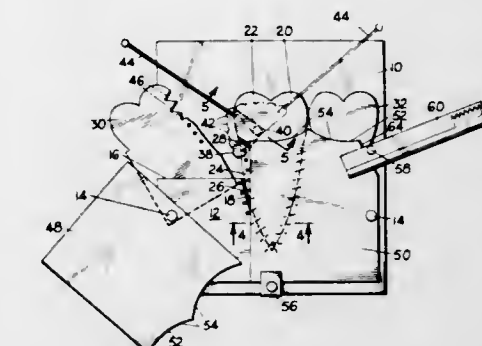
La Donna Jeanne Black, P.O. Box 3375, Portland, Oreg.

Filed June 19, 1972, Ser. No. 264,075

Int. Cl. A61c 19/00

U.S. Cl. 32—71

7 Claims



A demonstration device employing a backing sheet with a base member secured thereon representing a jawbone. The base member has a socket which receives the lower or root portion of a tooth representing member. Elastic tie members connect the root portion of the tooth representing member to the base to illustrate a periodontal fiber connection. A tab member is pivotally attached to the upper portion of the tooth representing member and is movable between an exposed position adjacent to an edge of the tooth representing member and a hidden position. A pull string is attached to the tab for operating the tab between its two positions, and such pull string in moving the tab to its hidden position demonstrates the removal of plaque from a tooth by the use of dental floss. Auxiliary tooth representing members are provided on each side of the first mentioned tooth representing member, one of such auxiliary tooth representing members being pivotal so as to be moved out of the way during a demonstration. A pair of transparent panels representing gum portions are pivotally connected to the base and have an upper edge which demonstrates a gum margin associated with the tooth representing member. An auxiliary panel is employed having a toothbrush representation thereon and is adapted to be positioned in the gum margin to illustrate how such margin area can be cleaned with a toothbrush.

3,740,855

LENS CIRCUMFERENCE MEASURING INSTRUMENT

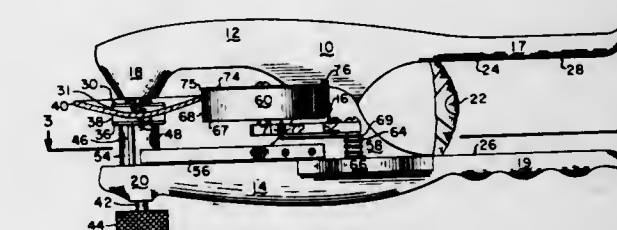
Frank J. Bean, 40 S. Franklin Street, and John F. Sheridan, 75 Poole Circle, both of Holbrook, Mass.

Filed Sept. 9, 1971, Ser. No. 178,937

Int. Cl. G01b 3/12

U.S. Cl. 33—141 E

10 Claims



There is disclosed a hand-held, manually operated instrument for measurement of the circumferences of lenses or the like. The instrument comprises a pincer means the jaws of which are resiliently urged to the closed position. Included in the jaw assembly are opposed rotatable platforms adapted to grip a lens workpiece therebetween. At least one of the platforms is manually rotatable through a drive shaft associated therewith and further comprises an indexing arrangement adapted to accurately index and signal the start and finish of 360° of rotation of the platform. Against the circumference of

a lens workpiece held between the platforms there is resiliently biased a freely rotatable, laterally translatable measuring wheel. Upon rotation of the lens through 360° the measured circumference is read directly from a scale provided in association with the measuring wheel.

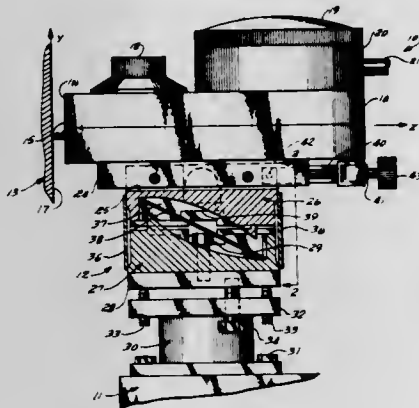
3,740,856 FLEXURE MOUNTING FOR FRICTION WHEEL MEASURING DEVICES

Irven H. Culver, Playa Del Rey, Calif., assignor to Primus Mfg., Inc., San Lorenzo, P.R. and Southwestern Industries, Inc., Los Angeles, Calif.

Continuation-in-part of Ser. No. 67,379, Aug. 27, 1970, which is a continuation-in-part of Ser. No. 9,872, Feb. 8, 1970. This application July 2, 1971, Ser. No. 159,201
Int. Cl. G01b 3/12

U.S. Cl. 33-141 R

10 Claims



A mounting and biasing mechanism for maintaining an essentially constant tracking force between a frictionally driven wheel and a measurement surface, along which the wheel rolls, is described. The mechanism includes a base member and a carrier member having resilient means operatively coupled between them for biasing the carrier member relative to the base member along a predetermined path of movement defined for the carrier member. The predetermined path of movement of the carrier member is defined by flexure means connected between the base and carrier members. The flexure means is arranged to define three spaced laterally deflectable columns, aligned normal to the path of movement between the base and carrier members, to provide three essentially frictionless, highly compliant points of connection between the base and carrier members.

3,740,857 LENS BLANK AND FRAME COORDINATOR AND METHOD OF USING SAME

Frank O. Nerad, Burbank, Calif., assignor to Armortite Lens Company, Inc., Burbank, Calif.

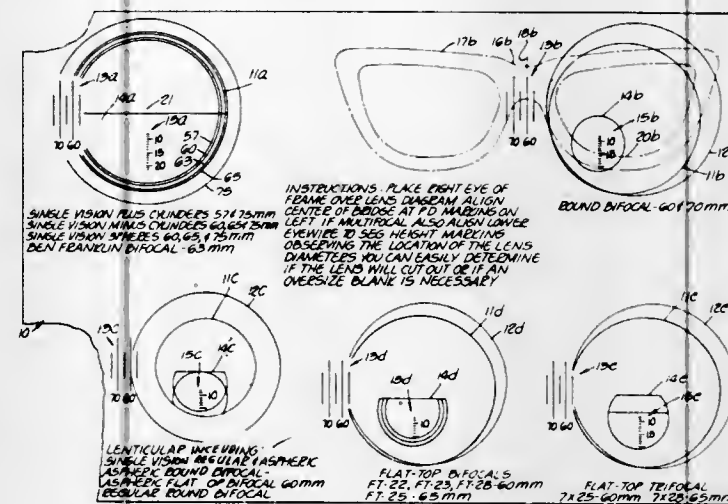
Filed Dec. 3, 1971, Ser. No. 204,474
Int. Cl. G01b 5/00

U.S. Cl. 33-174 A

14 Claims

A method and device useful in determining if an ophthalmic lens blank is usable in preparing a lens for a particular spectacle frame selected by a patient. A plaque of planar material is imprinted with sets of graphical representations of various

types of lens blank in full scale together with interpupillary and segment height scales for each. A selected frame is superimposed on the appropriate set of scales and properly adjusted to indicate the smallest blank usable in cutting out a lens for that particular frame.



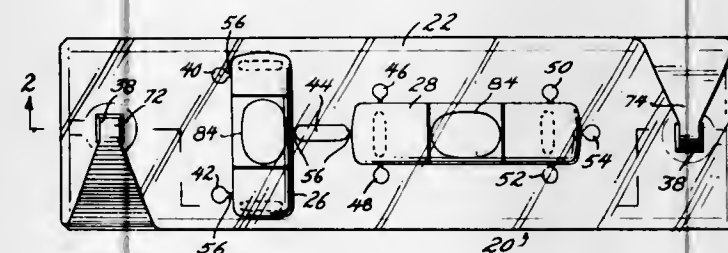
3,740,858 SPIRIT VIAL ASSEMBLY WITH SELF-ALIGNING VIAL MEANS

Seymour A. Ostrager, 1188 Grand Concourse, Bronx, N.Y.
Filed Oct. 12, 1970, Ser. No. 79,937

Int. Cl. G01c 9/24

U.S. Cl. 33-369

6 Claims



A spirit vial assembly which includes a frame comprising an elongated channel having parallel side walls and a connecting web extending transversely between the side walls. The side walls and the web form a recess. A transparent cover member is provided which includes a plurality of members projecting from the inner surface thereof. An arcuate vial is provided which is of substantially cylindrical cross-section having longitudinally convex and concave outer surfaces which are disposed on diametrically opposite sides of the vial. The vial is disposed between the members with the convex surface of the vial abutting the inner surface of the cover. The web has a pair of projections which abut the concave surface of said vial adjacent but inwardly of the end thereof so that the vial need not be further aligned with respect to the web to determine the horizontal orientation thereof.

3,740,859 DRYING SYSTEM

Richard S. Patton, Flossmoor; Naaman H. Keyser, Hinsdale; Vernon L. Langdon, Tinley Park; Victor D. Beaucaire, Homewood, and Louis A. Marlin, Crestwood, all of Ill., assignors to Interlake Steel Corporation, Chicago, Ill.

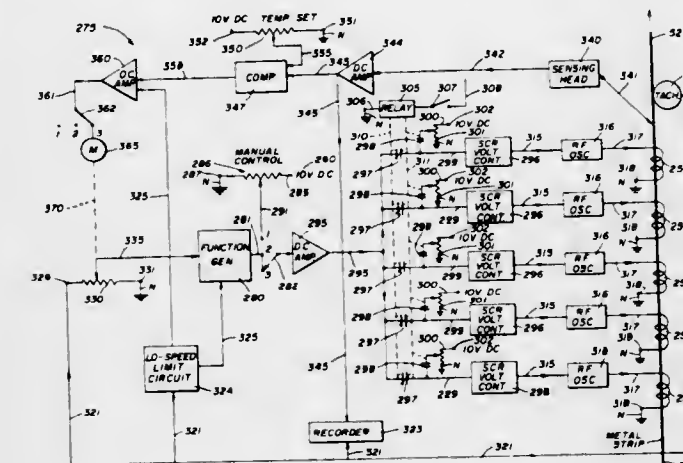
Division of Ser. No. 888,215, Dec. 29, 1969, Pat. No. 3,616,459. This application June 3, 1971, Ser. No. 149,627
Int. Cl. B01k 5/00

U.S. Cl. 34-1

5 Claims

A system for continuously applying paint to a continuously moving metal strap and thereafter continuously drying the paint on the metal strap. The system disclosed herein includes a drying station disposed above the paint pot includes a

number of induction coils through which the painted metal straps pass and have induced therein eddy currents which heat the metal strap to dry the paint thereon. Means are provided automatically to maintain the level of the paint and the con-



centration of solids in the paint contained in the paint pot, and means are provided automatically to vary the output from the induction coils in response to the speed and temperature of the metal strap to maintain constant the temperature of the metal strap exiting from the drying station.

3,740,860 FREEZE DRYING METHOD AND APPARATUS

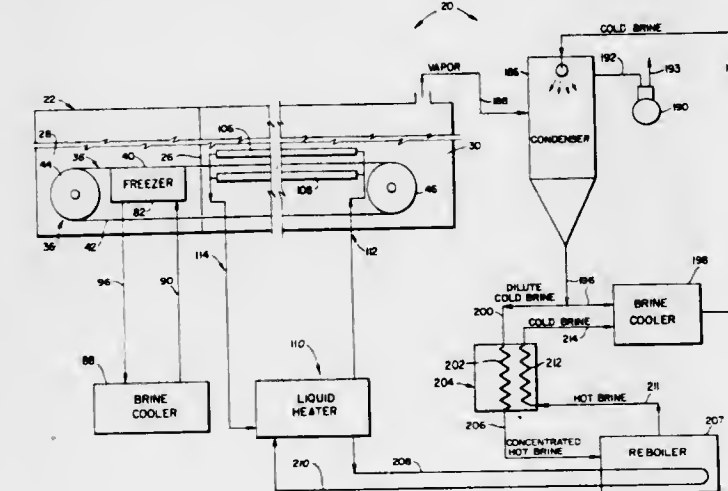
Horace L. Smith, Jr., Richmond, Va., assignor to Smitherm Industries, Inc., Richmond, Va.

Filed July 31, 1972, Ser. No. 276,556

Int. Cl. F26b 5/06

U.S. Cl. 34-5

9 Claims



Freeze drying methods and apparatus in which a product is frozen onto a conveyor in a vacuum vessel compartment in which the pressure is high enough to keep volatiles from evolving from the product. The product is then conveyed through a drying compartment maintained at a lower pressure where heat is applied to the product to evolve moisture from it. Thereafter, the dried product is removed from the conveyor and the vacuum vessel.

3,740,861 METHOD FOR DRYING CARBON BLACK PELLETS

Claude V. Myers, El Dorado, Ark., assignor to Cities Service Company, New York, N.Y.

Filed June 17, 1970, Ser. No. 47,085

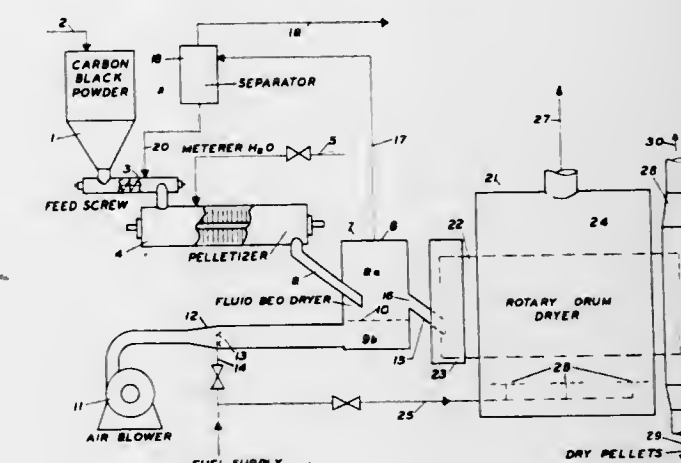
Int. Cl. F26b 3/08

U.S. Cl. 34-10

12 Claims

Wet pellets of carbon black are dried to produce dry pellets by means of a two-step process. In the first step a bed of wet

pellets is fluidized by means of a heated gas and the pellets are thus partially dried. In the second step the partially dried pellets from the first step are subjected to additional drying while



in a nonfluidized state, e.g. pellets from the fluidized bed are heated and subjected to a mild, mechanically produced tumbling action during the second step.

3,740,862 METHODS OF TREATING ELONGATED MATERIAL

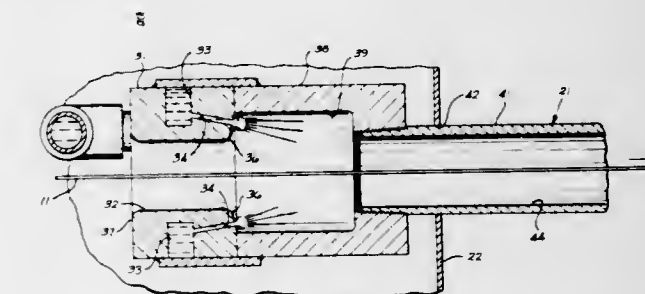
Horst L. Woellner, Colden, N.Y., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Dec. 28, 1970, Ser. No. 101,713

Int. Cl. F26b 7/00

U.S. Cl. 34-20

15 Claims



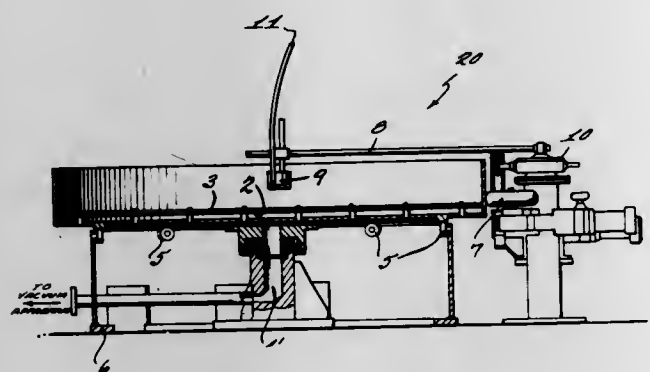
Successive sections of a strand material are advanced along a predetermined path into an entrance end of, through, and then out of a laterally closed chamber. The entrance end of the chamber is in communication with the air of the ambient atmosphere. High velocity jet streams of treating material are directed into the chamber toward oblique converging engagement with the successive sections of the strand material. Substantial components of the velocities of the jet streams are in the direction of travel of the strand material. The minimum cross-sectional area of the passages of the chamber through which the streams are directed and the strand material travels are substantially greater than that of the strand material. The velocity of the jet streams and the geometrical relationship of passages of the chamber through which the strand material and the jet streams pass and the pressure of the air are such as to create pressure differentials sufficient to cause air to be drawn into the entrance of the chamber at a volumetric flow which is substantially greater than that of the treating material. The air is mixed with the treating material to produce a vapor mixture which moves through the chamber along the path of the strand material to treat the strand material.

3,740,863 APPARATUS FOR OBTAINING WATER-FREE URANIUM COMPOUNDS

Hans Pirk, 7 Morickestrasse, Dornigheim; Fritz Ploger, 1 Königsbergerstrasse, Kleinostheim, and Horst Vietzke, 1 Grunastrasse, Grosseauheim, all of Germany
Filed May 9, 1969, Ser. No. 823,418
Int. Cl. F26b 17/00; B01d 37/00

U.S. Cl. 34—57 A

8 Claims



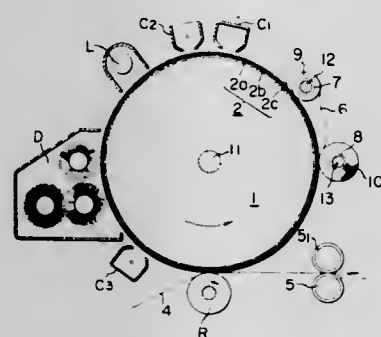
There is provided an apparatus for the recovery of powdered water-free uranium compounds from suspensions. The apparatus includes a filter, preferably a rotating horizontal suction filter connected to a fluidized bed.

3,740,864 CLEANING DEVICE IN AN ELECTROPHOTOGRAPHIC COPYING APPARATUS

Yoshio Ito, Tokyo, and Hajime Katayama, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 25, 1970, Ser. No. 66,818
Int. Cl. G03g 15/00

U.S. Cl. 355—15

10 Claims



An improved cleaning device for use with an electrophotographic copying apparatus especially of the image transfer type. The cleaning device provides a cleaning web turned into S-shaped rolls and movable into contact with and away from a photosensitive medium, whereby any residual toner present on the surface of the photosensitive member can be readily removed by both sides of the cleaning web to completely prevent the formation of ghost images during the repeated use of the photosensitive medium for the image reproduction. The cleaning web can be moved from one of the rolls to the other to remove used portions of the web from the cleaning position and supply fresh portions of the web in place thereof.

3,740,865 DRYING INSTALLATION

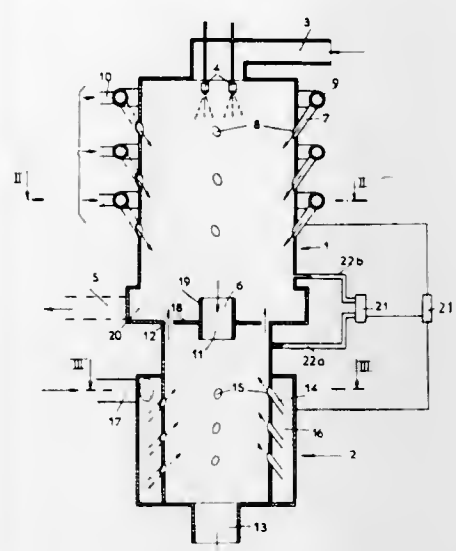
Pierre Robert Laguilharre, 6 rue Robin, Enghien-Les-Bains, France
Filed Feb. 1, 1971, Ser. No. 111,298
Claims priority, application France, Feb. 20, 1970, 7006095
Int. Cl. F26b 17/10

U.S. Cl. 34—57 E

22 Claims

An installation for the drying by atomization of products dissolved or suspended in a liquid, comprising a drying

chamber provided at one end with supply means for supplying drying air into the interior of the drying chamber, atomizing the liquid to be dried and directing the aforesaid liquid into the flow of drying air. The drying chamber is provided at the other end with discharge means for the discharge of the por-



tion of powder produced which deposits in the chamber, and at least one discharge aperture for the discharge of the drying air and of the portion of the powder entrained by the latter. The discharge aperture communicates with an air powder separator.

3,740,866 FILM DRYER

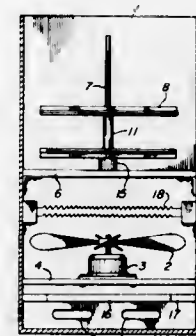
Harold R. Williams, 6730 E. Lafayette Street, Scottsdale, Ariz.

Filed May 14, 1971, Ser. No. 143,505

Int. Cl. F26b 17/24

U.S. Cl. 34—58

5 Claims



A photographic film drying apparatus which incorporates both air flow and centrifugal force to rapidly remove water from processed film. The film is placed in a rotatably mounted holder and subjected to circular air flow. The circular air flow evaporates the water and rotates the holder. Thereby, a centrifugal force is provided to aid in the water removal process. Filtered air may be used to minimize the deposition of foreign particles on the film, and the air may be heated to further increase the water evaporation rate.

3,740,867 DRIER IN COPIER

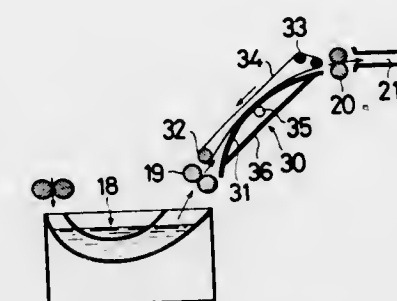
Hiroshi Hamaguchi, Tokyo, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed May 3, 1971, Ser. No. 139,495
Int. Cl. G03g 5/00

U.S. Cl. 34—95

3 Claims

A drier comprises a heater disposed behind a guide plate for drying, a heat reflecting plate for reflecting the heat from the heater toward the guide plate and means for transporting sensitive paper in sliding contact with the guide plate after the

paper has been passed through the developing station. The transport means serves to absorb moisture evaporating from



the sensitive paper while the paper is moved at a high speed so as to dry the paper rapidly and thoroughly.

3,740,868 PARISON OVEN

Lawrence A. Moore, King of Prussia, and Leroy Mauger, Douglassville, both of Pa., assignors to Beloit Corporation, Beloit, Wis.

Filed July 22, 1971, Ser. No. 165,136

Int. Cl. F27b 9/24

U.S. Cl. 34—105

11 Claims



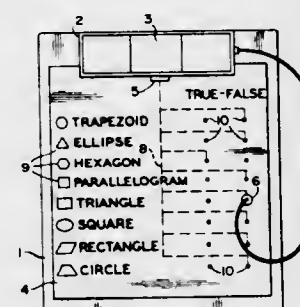
An oven in which parisons to be heated are carried back and forth along a plurality of generally parallel paths while in an upright position. The endless chain carrying the parison holders is protected by a dustcover. The parisons are turned about their axes periodically as they travel through the oven to assure that the parisons are heated uniformly.

3,740,869 SELF-ANSWERING PROGRAMMED INSTRUCTION DEVICE

Donald Adair Pleasants, 711 Marine Bank Bldg., Tampa, Fla.
Filed Nov. 23, 1971, Ser. No. 201,063
Int. Cl. G09b 7/02

U.S. Cl. 35—9 C

10 Claims



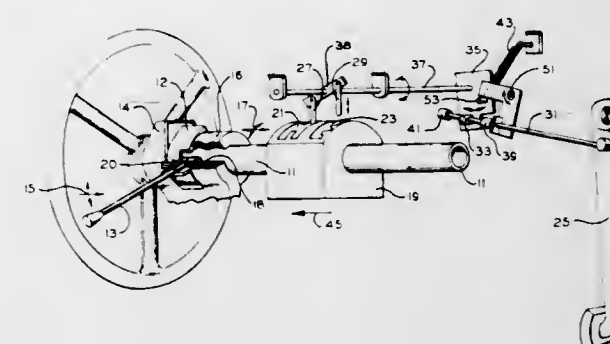
The present invention relates to a device for programmed instruction which permits a student to determine the correct answers to successive questions and answers by placing a stylus in contact with an electrical lead printed on the page of the text which activates an electrical circuit by which a visible or audible signal is transmitted to the student.

3,740,870 GEAR SHIFT MECHANISM

Noel T. Acker, and John G. Radice, both of Binghamton, N.Y., assignors to The Singer Company, Binghamton, N.Y.
Filed Oct. 6, 1971, Ser. No. 186,945
Int. Cl. G09b 9/04

U.S. Cl. 35—11

6 Claims



Gear shift and clutch simulation apparatus for use in a driver trainer in which manual and automatic shift patterns are contained in a block on the gear shift column and into one of which a pin is selectively inserted in accordance with clutch position, the clutch being in a down position for manual or an up position for automatic, by a linkage connected to the clutch pedal arm is shown. A further linkage causes the manual pin to be lifted a small amount from the block, which has deeper indentations at each shift position, in response to clutch operation to provide a realistic simulation.

3,740,871 CRASH DUMMY VISCOUS NECK

Roger J. Berton; Roger P. Daniel, both of Dearborn, and Conrad N. Reuter, St. Clair Shores, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.
Filed June 2, 1972, Ser. No. 259,093
Int. Cl. A63h 9/00

U.S. Cl. 35—17

16 Claims



A simulated neck construction and arrangement is provided for coupling the head structure to the torso structure of an anthropomorphic dummy of the type used in vehicular crash testing. The simulated neck comprises a hydraulic mechanism or control utilizing a hydraulic housing attached to one of the structures and a plate means attached to the other of the structures. A pivot means between the housing means and plate means couples the two for relative tilting movements. A damping means carried by the housing means and engaged with the plate means controls the tilt or wobble movement of the housing means relative to the plate means and thereby of the head structure relative to the torso structure.

3,740,872

APPARATUS FOR TEACHING WRITING

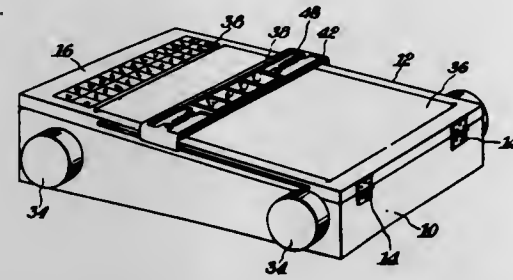
Victor S. Mayo, Brooklyn, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y.

Filed Oct. 13, 1971, Ser. No. 188,884

Int. Cl. G09b 11/04

U.S. Cl. 35-37

2 Claims



A hollow container has a flat top surface and supports removably individual blocks, each carrying an opening shaped into a different letter of the alphabet. A plurality of blocks can be inserted above the surface. When paper is disposed between surface and blocks, user can move a pencil point through the block openings to write the corresponding letters on the paper.

3,740,873

SKI BOOT WITH A SOLE WHICH RESISTS BENDING

Herbert Sturany, Vienna, Austria, assignor to Wiener Metallwaren-fabrik Smolka & Co., Vienna-Mauer, Austria

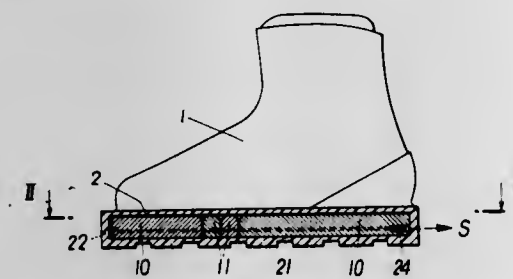
Filed June 9, 1972, Ser. No. 261,488

Claims priority, application Austria, June 18, 1971, A5311/71

Int. Cl. A43b 00/00

U.S. Cl. 36-2.5 AL

6 Claims



Ski boot with a rigid or flexible sole. In a ski boot provided normally with a relatively flexible sole, there is provided a stiff insert which is interrupted in the zone of the ball of the foot and is there provided with one or more cross members. Said cross members are contoured to having easy rolling movement with respect to each other or with respect to the adjacent surfaces of the insert. Tension wires are arranged in the sole in the tension zone thereof which wires are anchored at the forward end of the boot and attached to suitable tensioning means at the heel end. These tensioning means may be manually operated or may be operated automatically by the heel binding of the ski, whereby same when actuated will hold the boot sole rigid in condition for effective skiing but when released will permit the boot its normal flexibility.

3,740,874

SNOW CLEARERS

Marcel Boschung, Schmitten, Switzerland, assignor to Firma Marcel Boschung, Ried, Schmitten (Canton of Fribourg), Switzerland

Filed Dec. 6, 1971, Ser. No. 204,886

Claims priority, application Switzerland, Dec. 17, 1970, 18754/70

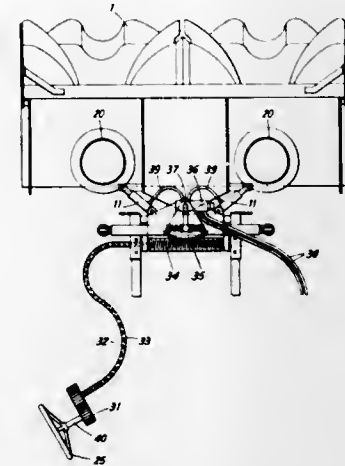
Int. Cl. E01h 5/00; F16k 31/44

U.S. Cl. 37-43

7 Claims

This invention concerns a snow clearer comprising an automotive vehicle; a snow clearing device, the snow clearing

device being mounted anteriorly of the automotive vehicle, a snow cutter means being mounted on the snow clearing device; swivel means linking the automotive vehicle and the



snow clearing device and permitting the snow clearing device to be swivelled about a vertical axis; and remote control urging means for causing the snow clearing device to swivel about said vertical axis.

3,740,875

DRAGLINE BUCKET WITH SKID LINK

Terence Edward Voyce, Billericay, England, assignor to Bofors (Great Britain) Company Limited, Billericay, Essex, England

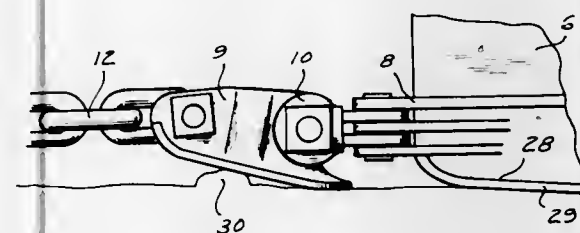
Filed May 10, 1971, Ser. No. 141,739

Claims priority, application Sweden, May 15, 1970, 23798/70

Int. Cl. E02f 3/46

U.S. Cl. 37-115

4 Claims



There is disclosed a dragline bucket for collecting and emptying various materials such as earth, gravel, etc., the bottom of which is provided at its mouth end with excavator teeth and which further has at its mouth end adjacent to each side walls a coupling member. Each of the coupling members is movable at substantially right angles to and substantially longitudinally of the bottom of the bucket. Moreover, each of the coupling members is connected at one end to a cable or chain for dragging the bucket along the ground. Each of the coupling members has at one end detachably coupled thereto a second coupling member, the other end of each of the second pair of coupling members being detachably connectible to a side wall of the bucket. The second coupling members are movable in a plane transverse to the mouth end of the bucket. Each coupling member of the first-mentioned pair of such members mounts at its bottom a skid or runner extending in the longitudinal direction of this coupling member.

3,740,876

TOOTH FOR THE BUCKET OF A DIGGING MACHINE

Boris Ivanovich Solokhin, prospekt Lenina 21, Kv. 40, and Galina Markovna Rubinchik, prospekt Lenina 21, Kv. 41, both of Kolpino Leningradskol Oblasti, U.S.S.R.

Filed Jan. 6, 1971, Ser. No. 104,304

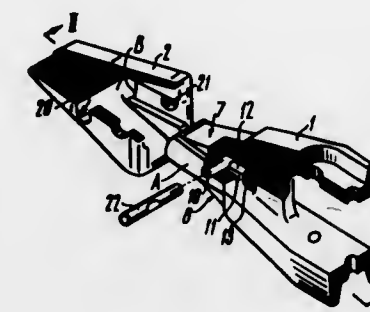
Int. Cl. E02f 9/28

U.S. Cl. 37-142 A

1 Claim

A tooth of the bucket of a digging machine characterized in that the support side edges of the lug of the tooth base have

one and the same thickness along their whole length which is such that in the course of operation the end face of the lug



thrusts against the bottom of the mortise of the changeable cap to resist the action of the force of cutting.

3,740,877

HOLDER FOR CREDIT CARD PURCHASE FORM

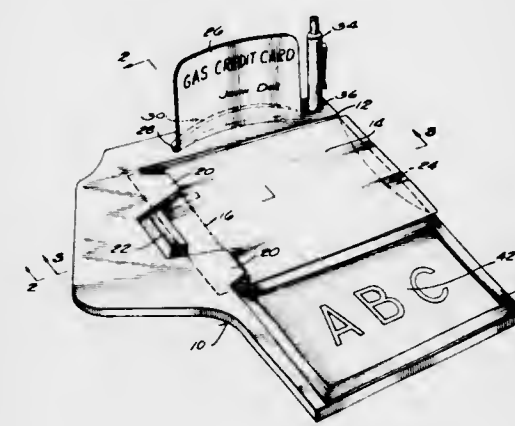
Vernon J. Hunt, Glendale, Wis., assignor to Display Corporation International, Milwaukee, Wis.

Filed July 23, 1971, Ser. No. 165,500

Int. Cl. G09f 3/16

U.S. Cl. 40-13

7 Claims



The holder has a generally planar base with a rectangular, flat-surfaced portion on which a credit card purchase form is held for signature by the customer. The form is held in place by the clamping action between a pair of fingers, spaced above the flat-surfaced portion to accommodate one end of the form, and a depressible tab positioned between the fingers and normally biased towards the fingers. The fingers and tab are formed as an integral part of the base. The customer's credit card is prominently held in the vertical position in an arcuate slot in the base for its return to him. The base also includes an integral, lateral extension on which point-of-purchase advertising or similar indicia, which is readily observable by the customer when signing the form, can be mounted.

3,740,878

DEVICE FOR DISPLAYING PRICE INFORMATION

Daniel J. Oelschlaeger, Oak Creek, Wis., assignor to Display Corporation International, Milwaukee, Wis.

Filed Aug. 13, 1971, Ser. No. 171,584

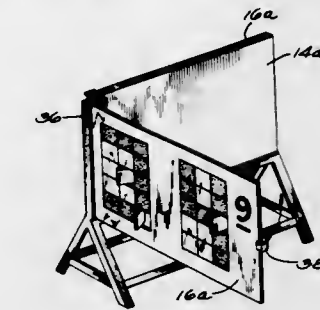
Int. Cl. G09f 11/00

U.S. Cl. 40-28 C

9 Claims

The device for displaying price information includes a fixture holding at least one numeral indicating section. Each numeral indicating section includes a plurality of segments which are arranged in a plurality of lateral and longitudinal rows and rotatably mounted to the holding fixture so that each can be selectively rotated from one side to another. One surface of each segment is of one color and another surface is of a contrasting color. By selective rotation of the segments, the outer

exposed surfaces of some provide a background of one color and the outer exposed surfaces of the remaining form an appropriate numeral of a contrasting color which indicates the price. A backing member juxtaposed the backside of the holding fixture prevents the segments from rotating when the hold-



ing fixture is in the display position. Numeral changes corresponding to the unit price of the merchandise advertised can be made by simply moving the holding fixture away from the backing member so the segments are free to rotate, selectively rotating the segments to form the appropriate numeral and returning the holding fixture to the display position.

3,740,879

RECORDATION OF PATIENT MEDICAL DATA

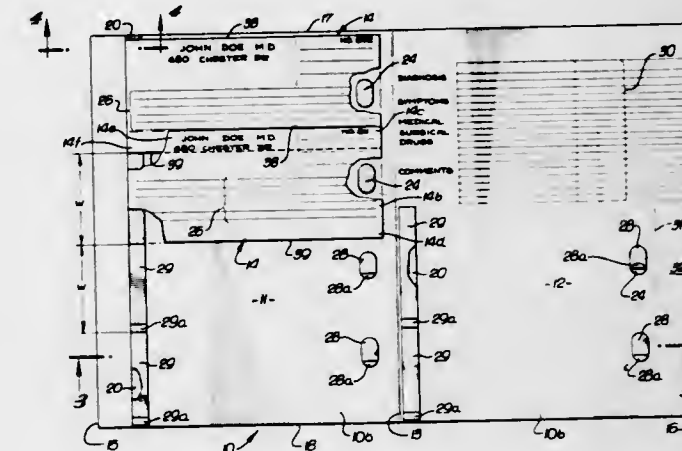
Richard J. Patterson, 2170 Century Park East, No. 1210, Los Angeles, Calif.

Filed Nov. 1, 1971, Ser. No. 194,755

Int. Cl. G09f 7/12

U.S. Cl. 40-102

1 Claim



For use in recording patient medical data including mounting of rectangular prescription forms, the combination comprising

- a relatively stiff, generally rectangular sheet sized to receive sequential application of the forms,
- adhesive sections on the sheet located to adhere to edge portions of the forms, and
- removable protective stripping protectively overlying the adhesive sections to be selectively removed for enabling application and adherence of the forms to the adhesive sections.

3,740,880

FOLDABLE BARRICADE AND SIGN

Bill M. Sweet; Gary T. Hundery, both of Spokane, Wash., and Charles R. Baldwin, deceased, late of Spokane, Wash. (Beatrice Baldwin, executrix), assignors to Minnesota Mining & Manufacturing Corporation, St. Paul, Minn.

Filed Nov. 12, 1970, Ser. No. 88,719

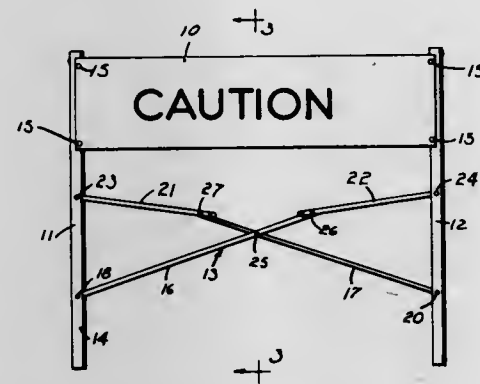
Int. Cl. G09f 1/00

U.S. Cl. 40-125

10 Claims

A barricade is formed by a pair of oppositely disposed rigid legs joined by a pivoted brace assembly that maintains the legs parallel to one another to form a foldable frame for support of

a flexible sign display. The frame is supported by similar spaced legs either pivotally connected thereto or joined by similar brace assemblies. Each leg is angle-bar shaped with the



free edges facing the opposite legs. The brace assembly lies between the parallel legs so that when the legs are brought together the braces are enclosed between the flanges of the angle-bars.

3,740,881

PLACARD HOLDING DISPLAY ASSEMBLY

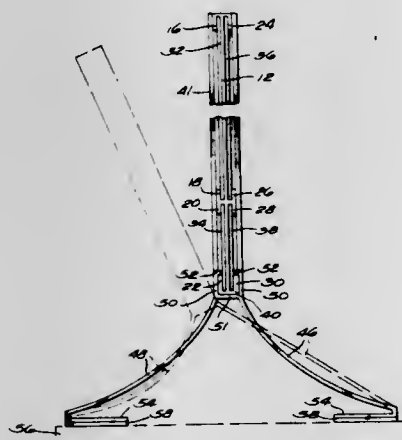
Otto R. Finger, Mequon, Wis., assignor to Display Corporation International, Milwaukee, Wis.

Filed June 16, 1971, Ser. No. 153,641

Int. Cl. G09f 07/00, 07/22

U.S. Cl. 40—125 H

12 Claims



so that the entire assembly can be handled as a unit, but the sign itself is affixed in a removable manner so that it can be changed. The entire assembly provides for a protected sign and it also provides for a structurally reinforced type of removable wall.

3,740,883

BARREL CLEANING DEVICE

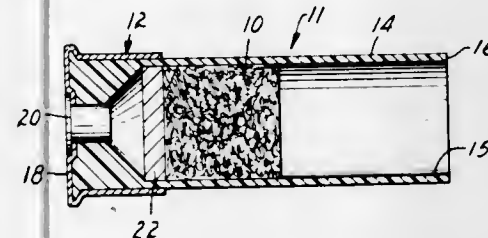
Robert C. Kyle, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 12, 1971, Ser. No. 115,007

Int. Cl. F41c 31/00; F42b 5/24, 9/22

U.S. Cl. 42—1 R

10 Claims



A device for removing material from the bore of a firearm including a primed shell case for mounting in the chamber of a firearm, a projectile mounted within the shell, and a wad mounted within the case between the primer and the projectile. The projectile comprises an axially compressed cylindrical portion of open, low density randomly woven resilient organic material capable of intimate contact with the bore of a firearm to remove foreign material, moisture, and powder residue upon propulsion through the bore by detonation of the primer.

3,740,884

FIREARM

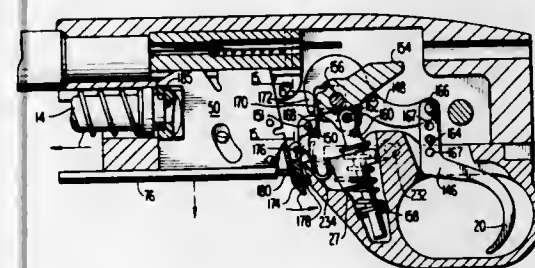
Gary Wilhelm, 55 Kelly Road, Hamden, Conn.

Filed Mar. 23, 1971, Ser. No. 127,324

Int. Cl. F41c 13/00

U.S. Cl. 42—17

6 Claims



A rifle has a cartridge-elevating mechanism located within a housing which is detachable from the rifle. The cartridge elevating mechanism may be a lifter mechanism for receiving cartridges from a tubular magazine and elevating them into the path of a sliding bolt for eventual movement into the firing chamber. Such a lifter mechanism and its housing may be in-

3,740,882

COMBINATION SIGN BOARD AND TRUCK REMOVABLE WALL

Ralph C. Lanphere, and Robert L. Elton, Racine, both of Wis., assignors to J. I. Case Company, Racine, Wis.

Filed May 10, 1971, Ser. No. 141,786

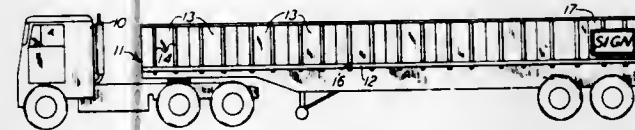
Int. Cl. G09f 7/00

U.S. Cl. 40—129 C

3 Claims

A combination sign board and truck removable wall for use on a truck bed where the walls have stakes and are insertable into holes around the periphery of the bed. The sign board is

mounted on the truck removable wall and has a frame extending around the board for protecting the board from damage due to the throwing of the combined board and wall off the truck and onto the ground. Also, the assembly has the truck bed insertable stakes affixed to the combined board and wall



terchangeable with a box magazine type of cartridge elevating mechanism. The housing of either type of cartridge elevating mechanism is biased rearwardly into firm engagement with a stationary abutment surface so as to position the cartridge elevating mechanism.

Flat action bars are connected to the bolt and have their forward ends pivotally connected to an axially slidable member. The lower edges of the action bars are provided with downwardly open cutaway portions which provide cam surfaces for operating the lifter mechanism. On the upper edge of the action bars, there is a forwardly facing inclined abutment surface which is engagable with a latch means having a corresponding rearwardly-facing surface to hold the action bars and the bolt in a rearward breech-open position.

3,740,885

TOY PISTOLS

Graham Leaman, Crosskeys, England, assignor to The Crescent Toy Company Limited, Cwmcar, Monmouthshire, England

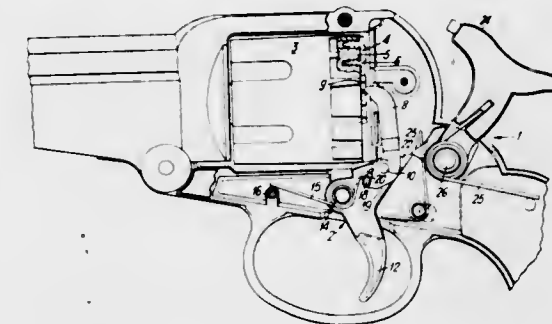
Filed Nov. 17, 1971, Ser. No. 199,443

Claims priority, application Great Britain, Dec. 15, 1970, 59,549/70

Int. Cl. F41c 3/06, 19/00

U.S. Cl. 42—58

1 Claim



A toy pistol has a hammer mechanism which includes a hammer lever controlled by a cam surface which cooperates with a nose portion on the trigger lever. The cam surface is formed on a separate member turning about the same fixed pivot as the hammer lever and is spring loaded by means of a light spring so that it normally rests against the front surface of the hammer lever adjacent the pivot, but is able to pivot freely away from the hammer lever against the effect of its spring, to permit the return movement of the trigger lever.

3,740,886

MEANS FOR SUPPORTING AND AIMING A HAND-HELD FIREARM

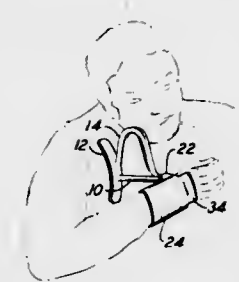
Jack Y. Canon, 2194 Delmas, Opelousas, La.

Continuation-in-part of Ser. No. 746,895, July 23, 1968, Pat. No. 3,553,878. This application Jan. 7, 1971, Ser. No. 104,600

Int. Cl. F41c 29/00, 23/00

U.S. Cl. 42—94

14 Claims



Device for supporting and aiming a hand-held device such as a gun in firmly fixed position with means for securing and bracing it about the wrist while aiming and firing, and a cheek-piece for adjusting or fixing the desired distance of the head of the aimer with respect to the extended arm bent into aiming position of the hand-held device.

3,740,887

NIBBLE DETECTING LIGHT FOR FISHING POLES

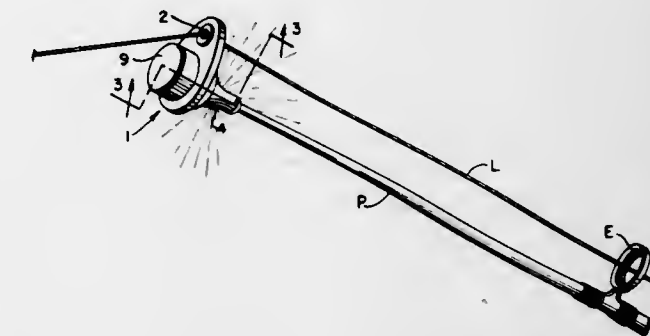
Marion Van Leeuwen, 531 High St. Apt. 5, New London, Wis.

Filed Nov. 29, 1971, Ser. No. 202,794

Int. Cl. A01k 97/12; F21v 33/00

U.S. Cl. 43—17.5

16 Claims



An economical, lightweight self-contained lighting unit attachable to the tip of a fishing pole to indicate a position or movement of the fishing pole under conditions of low visibility so that a person using the fishing pole is enabled to readily observe a nibble or strike by a fish or any other pull on the fishing line which affects the tip of the pole.

3,740,888

SIGNALLING MEANS FOR A FISHING ROD

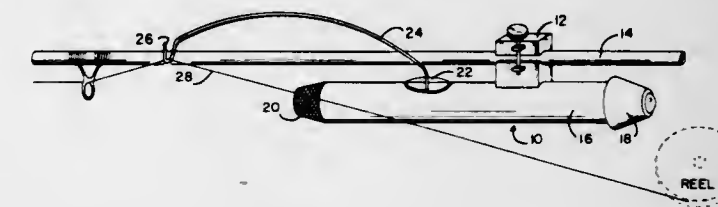
Russell L. Young, Jr., 424 Washington St., Boonton, N.J.

Filed Jan. 24, 1972, Ser. No. 220,004

Int. Cl. A01k 97/12

U.S. Cl. 43—17

10 Claims



A signalling means comprising a cylindrical carrier clamped to a fishing rod with spring-responsive elements which illuminate a lamp when an extending limb, which engages a fishing line, is strained by the line. The responsiveness of the signalling means is selectively and infinitely adjustable, and all the cooperative components are wholly enclosed within the carrier, except for the adjustment knob, the line-engaging limb and the lamp.

3,740,889

FISHING LURE

Blayne J. Scott, 306 Dallas Road, Victoria, British Columbia, Canada

Filed Apr. 2, 1971, Ser. No. 130,576

Claims priority, application Canada, June 4, 1970, 084627

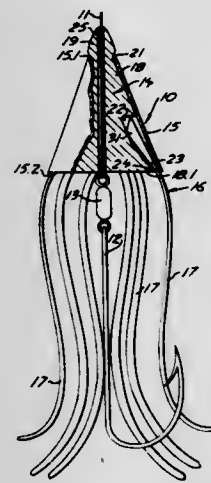
Int. Cl. A01k 85/00

U.S. Cl. 43—42.09

3 Claims

A fishing lure having a substantially frustoconical body member tapering to a bulbous head portion connectable to a fishing line and a resilient sleeve having a snap fit over the bulbous head portion.

bous head portion and a snug fit on the body member for releasably clamping a skirt member to the body member so



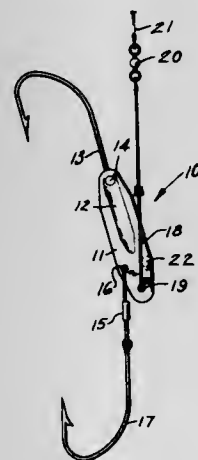
that the skirt member can be removed and replaced without disconnecting the body member from the fishing line.

3,740,890 FISH HOOK

Francis J. Aron, 186 Orchid Drive, Mastic Beach, N.Y.
Filed May 6, 1971, Ser. No. 140,800
Int. Cl. A01k 83/00

U.S. Cl. 43-37

1 Claim



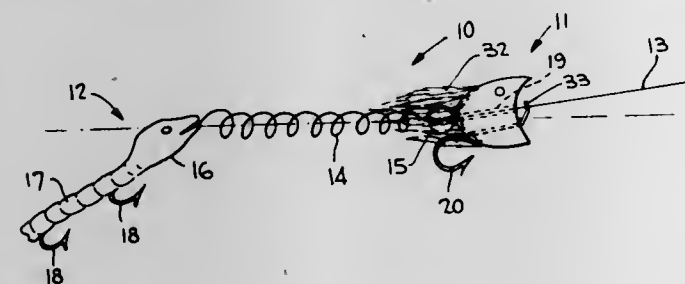
An elongated shank member has a first hook extending from one end and an aperture adjacent its other end for pivotally receiving an elongated spring. The spring has arms which embrace side portions of the shank and the arms are releasably held in this position by projections on the shank. A second hook is pivotally connected to the shank for swinging the shank and first hook about the spring pivot when the same is tensioned by fish.

3,740,891 COMBINED FISHING LURE

Morris B. Rubenstein, 349 Gunston Hall Court Hampton, Va.
Filed May 3, 1972, Ser. No. 250,011
Int. Cl. A01k 85/00

U.S. Cl. 43-42.02

10 Claims



A fishing lure utilizing the natural instinct of fish to strike a predator which is itself stalking prey including a leader lure, a

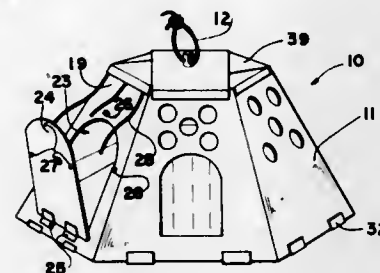
follower lure, a bead device positioning the leader lure, and a spring-like coil of plastic monofilament line connecting said leader and follower lures to give the combined lure "life-like" action. The leader lure has a lengthwise passage through which the line passes and the hook is slidably attached to said monofilament line; the lure and hook being supported in place by said bead device. The monofilament line is wrapped around and through the bead device to support the leader lure in position and to provide "catch up" action by controlled slipping. The bead device is pulled back and forth over the monofilament line to form the connecting coil. The follower lure may be a spinning rod type bait having a floatable head and a flexible body giving the appearance of the predator and allowing casting the lure using a spinning/spin-cast type rod.

3,740,892 LOBSTER TRAP

Norman D. Cox, Zionsville, and Alexander G. P. McInnes, Indianapolis, both of Ind., assignors to International Research and Development Corporation, Indianapolis, Ind.
Filed Feb. 16, 1972, Ser. No. 226,773
Int. Cl. A01k 69/00

U.S. Cl. 43-100

8 Claims

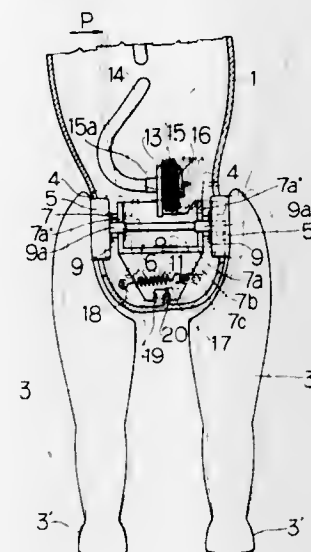


A trap for catching lobsters. A rigid enclosure has a plurality of side wall entrance openings. A plurality of inclined ramps extend from each side wall opening towards the center of the enclosure. The inner ends of each ramp are spaced apart forming a lobster fall through hole which is covered by a collapsible floor. The collapsible floor includes a plurality of spring elements arranged in a sheet configuration and mounted in cantilevered fashion. A lobster entering the enclosure via a ramp will fall through the collapsible floor and become trapped. A door is hingedly mounted to one of the side walls to facilitate removal of the trapped lobster.

3,740,893
PNEUMATICALLY OPERATED WALKING DOLL
Yoshie Shinoda, Tokyo, Japan, assignor to Tomy Kogyo Co., Ltd., Katsushika-ku, Tokyo, Japan
Filed Mar. 29, 1971, Ser. No. 128,676
Int. Cl. A63h 29/16

U.S. Cl. 46-44

3 Claims



A walking doll of the type in which its legs are operatively connected with its torso and are arranged to step forward al-

ternately as the weight is shifted from one leg to the other by swinging its torso right and left, including a pneumatic system operative for imparting the swinging motion to the torso. The pneumatic system comprises a hollow inflatable body disposed within the torso and a pneumatic remote-control device for supplying and removing air from the inflatable body. Pneumatic accessories such as a balloon, a sounder, or a toy dog may be attached to the doll. The body may be moved and caused to "bark" by pneumatic means.

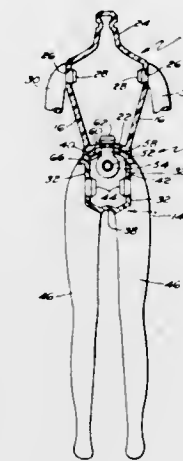
3,740,894

DOLL CONSTRUCTION

Richard E. Howland, Bellingham, Mass., and Carl E. Cederholm, Providence, R.I., assignors to Hasbro Industries, Inc., Pawtucket, R.I.
Filed May 28, 1971, Ser. No. 147,804
Int. Cl. A63h 3/20

U.S. Cl. 46-161

5 Claims



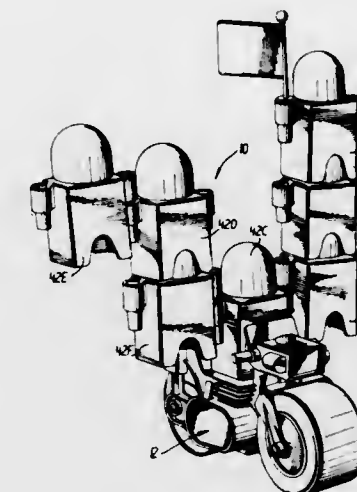
A doll construction comprising hollow torso and trunk members and means releasably connecting said members, said connecting means being so constructed as to permit relative rotation of said members about an upright axis while at the same time permitting lateral tilting of said torso with respect to said trunk.

3,740,895 AMUSEMENT DEVICE

Yoshizo Nagasaka, Tokyo, Japan, assignor to Tomy Kogyo Co., Ltd., Katsushika-ku, Tokyo, Japan
Filed July 20, 1972, Ser. No. 273,672
Int. Cl. A63h 11/10

U.S. Cl. 46-202

10 Claims



An amusement device featuring a moving vehicle provided with projections to which figurines may be attached in varying formations to amuse the child, each of the figurines including sidewalls spaced apart defining a cavity, the sidewalls ter-

minating downwardly in an opening and upwardly in a top member, the top member of each figurine and each of the vehicle projections being complementary in configuration with respect to the opening of each figurine permitting each of the projections to be inserted within each of the openings at the bottom of the figurines and the top portions of each of the figurines to be inserted within the openings within the bottoms of each of the figurines so as to extend within the cavities of the figurines, the figurines further being provided with arms extending outwardly from the sidewalls, each of the arms including a female portion and a male portion complementary in configuration thereto permitting the male portion of each of the figurines to be inserted within the female portion of an adjacent figurine in such manner that the figurines may be stacked sideways.

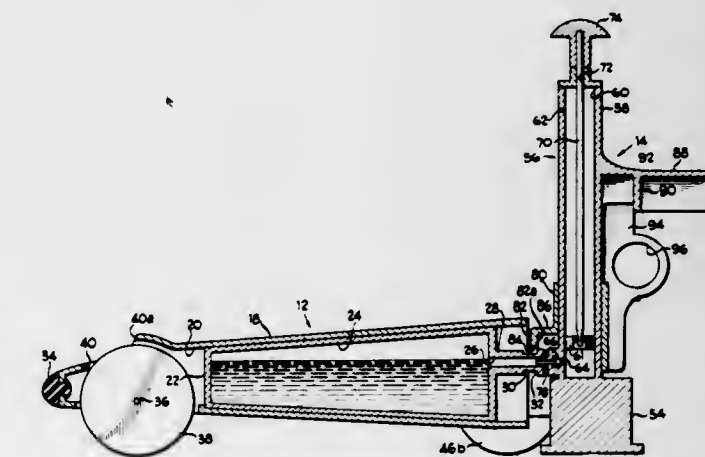
3,740,896

JET POWERED VEHICLE

Marvin I. Glass, Chicago; Leonid M. Kripak, Villa Park, and Burton C. Meyer, Downers Grove, all of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Dec. 13, 1971, Ser. No. 207,130
Int. Cl. A63h 17/00

U.S. Cl. 46-206

3 Claims



A combination jet toy vehicle and charging device wherein the vehicle includes an enclosed chamber with a rear outlet, through which a first medium, such as a liquid, may be introduced in to the chamber and the chamber charging device includes an air pump with a one-way valve for sealing engagement with the chamber outlet, and further includes a clamp means for pulling the vehicle in sealing engagement with the charging device, and trigger means for releasing the clamping device following the charging of the chamber to permit the vehicle to be propelled by means of reaction of the jet drive.

3,740,897

GATE FOR CHAIN-LINK FENCE

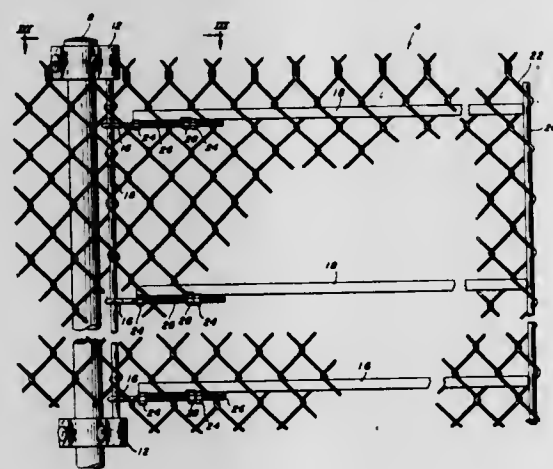
William H. Johns, Hudson, Ohio, assignor to United States Steel Corporation, Pittsburgh, Pa.
Filed Mar. 2, 1972, Ser. No. 231,279
Int. Cl. E06b 11/00

U.S. Cl. 49-381

3 Claims

Gate utilizes a continuation portion of the chain-link fabric of the fence for a gate by disposing a pivot shaft vertically interwoven through the interlocking pickets of the fence fabric adjacent one edge of the gateway and attaching the pivot shaft to the terminal post adjacent the gateway. The continuation portion of the fabric which is the gate extends beyond the pivot shaft and spans the gateway. Thus, the gateway may be

opened or closed by bending action of the continuation portion of the chain-link fabric of the fence about the pivot shaft.



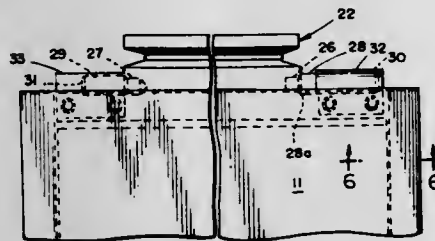
Adjustable means are provided for tensioning the continuation portion of the chain-link fabric.

3,740,898

CURVED SLIDING DOOR ASSEMBLY
Robert K. McKenzie, Lake Forest, Ill., assignor to Morton Manufacturing Company, Libertyville, Ill.
Filed June 30, 1972, Ser. No. 267,962
Int. Cl. E05d 13/02

U.S. Cl. 49—409

4 Claims



A curved sliding door assembly for a rail passenger car wherein upwardly projecting pivot blocks carry pivot pins for engagement with a ball bearing supported hanger bar, the assembly permitting free pivotal movement about a horizontal axis of the curved door so as to prevent binding during horizontal sliding movement.

3,740,899

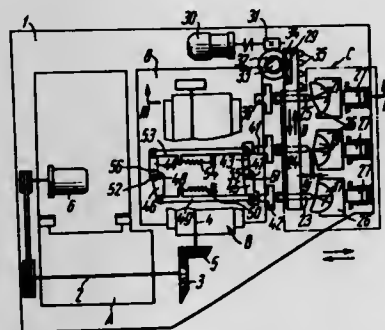
MACHINE FOR LAPPING SPIRAL BEVEL AND HYPOID GEARS

Vladislav Kazimirovich Sorokovsky, ulitsa Ogorodnaya 170/2 kv. 11; Anatoly Vasilievich Bogachev, ulitsa Ogorodnaya 170/2 kv. 2, and German Ivanovich Kuznetsov, Saratov Ilin-sky proezd 11 kv. 25, all of Saratov, U.S.S.R.

Filed Dec. 16, 1971, Ser. No. 208,594
Int. Cl. B24b 37/00

U.S. Cl. 51—26

4 Claims



A machine for lapping spiral bevel and hypoid gears, wherein the device to impart to one of the spindles thereof

oscillating motion in three mutually perpendicular directions comprises three cam followers arranged on the slide block in parallel to one another, and three pairs of cams, of which each is mounted with the possibility of being imparted an independent setting motion lengthwise the geometrical axis of the cam follower interacting therewith. Each of the cam followers, while reciprocating in a direction crosswise to the geometrical axis of its own, by one of its ends alternatively interacts with the cams of its respective pair, whereas the other end thereof is kinematically associated with said spindle. As a result of the resultant motion of all the cam followers said spindle performs oscillating motion in three mutually perpendicular directions with an initial point specific to each of the face surfaces of the tooth being lapped.

3,740,900

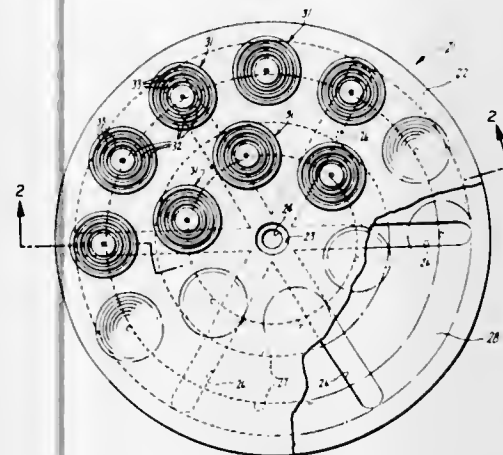
VACUUM CHUCK ASSEMBLY FOR SEMICONDUCTOR MANUFACTURE

Albert P. Youmans, Cupertino, and Lionel A. Kirton Saratoga, both of Calif., assignors to Signetics Corporation, Sunnyvale, Calif.

Filed July 1, 1970, Ser. No. 51,610
Int. Cl. B24b 41/00

U.S. Cl. 51—235

5 Claims



Apparatus for fabricating a dielectrically isolated semiconductor structure which includes a vacuum chuck assembly for use with a grinding machine with means for supplying a vacuum to the vacuum chuck. The vacuum chuck assembly consists of a body with a bore provided in the body and adapted to be connected to the source of vacuum. The body has a surface with a plurality of vacuum chucks carried thereby. The body and the vacuum chucks are formed with holes and passages which establish communication with the bore in the body so that a vacuum is supplied to the inserts whereby wafers from which the dielectrically isolated semiconductor structures are to be formed can be supported by and retained by the vacuum chucks.

The apparatus also includes a wafer mounting jig which consists of a body having an annular recess therein opening through one side of the body. A flexible diaphragm extends over the annular recess and a cover plate is provided for securing the diaphragm to the body. The cover plate is formed with a plurality of holes overlying the recess and the diaphragm. A relatively non-compressible liquid fills the recess. A plurality of wafer mounting blocks are inserted in the recesses. Means is provided for yieldably retaining the blocks in the body whereby when a force is applied to one of the bodies, equalizing forces will be supplied by the liquid to the other mounting blocks so that all the mounting blocks are forced outwardly by the liquid by substantially equal forces.

The apparatus also includes a mounting press which consists of a plate which is provided with means for cooling and heating the plate. A wafer guide member is provided which has a plurality of holes therein. Means is provided for mounting the guide member on the plate to permit vertical movement of the guide member relative to the plate. A plurality of mounting blocks are mounted in the holes. Each of the mounting blocks

is adapted to receive a wafer. A bonding material such as wax is provided on the mounting blocks and pressure plate means is provided for applying pressure to the wafers so that the bonding agent will be uniformly and thinly distributed between each wafer and the associated mounting block.

The method for fabricating a dielectrically isolated semiconductor structure consists of providing a semiconductor body with a first polished planar surface and then covering this polished surface with a protective material which has a substantially uniform thickness over the polished surface. The semiconductor body with the protected polished surface is then mounted on the vacuum chuck assembly with the polished surface facing the vacuum chuck assembly. The vacuum chuck assembly is then placed in a grinding machine and a second planar surface is provided which is parallel to the first polished surface to provide a semiconductor body of the desired thickness. Conventional steps are thereafter utilized to provide the dielectrically isolated semiconductor structure.

3,740,901

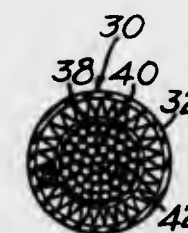
APPARATUS WITH SELECTIVELY RIGID AND FLEXIBLE SUPPORT CABLE

Loring Coes, Jr., Princeton, Mass., assignor to Norton Company, Worcester, Mass.

Division of Ser. No. 30,004, April 20, 1970, Pat. No. 3,629,978. This application June 17, 1971, Ser. No. 154,192
Int. Cl. B24b 41/00

U.S. Cl. 51—166 TS

3 Claims



An easily manually operated, positioned, and controlled apparatus having a fluid pressure system to drive and/or feed a tool into a workpiece. A tool head is pivotally supported, for movement in various directions, at an end of an unsupported portion of a normally rigid movable composite cable extending longitudinally above a floor from between guide rollers mounted on a support. The composite cable is rigidified by a radially compressed bundle of flexible strands of wires held in frictional engagement by the contracting force of a resilient flexible tube expanded thereover. Hence, the composite cable acts like a solid shaft providing greater resistance to bending by the fluid pressure feed means. Fluid under pressure is admitted to inflate the resilient tube and separate the wires whereby the composite cable is easily flexed to position the tool head adjacent the workpiece whereupon the fluid pressure is turned off to rigidify the flexed composite cable to retain the tool head in the desired position and feed the tool therefrom.

ERRATUM

For Class 51—287 see:
Patent No. 3,740,904

3,740,902

MEMBRANE ROOF STRUCTURE

Donald Alexander Sinoski, 127 Bishop Avenue, Willowdale, Ontario, Canada

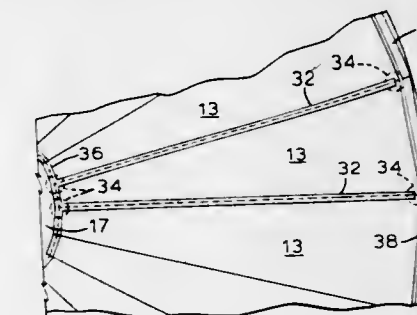
Filed Apr. 12, 1971, Ser. No. 133,275
Int. Cl. E04b 1/345

U.S. Cl. 52—2

14 Claims

A membrane roof is adapted to assume a curved shape. The roof comprises a plurality of segments of steel each attached

to the segment next adjacent it by a steel expansion joint member which is formed from a convoluted steel sheet. The



membrane roof may be air supported, or it may be suspended, and in either case it assumes a curved shape; or it may be a floating roof in a tank, in which case it is substantially flat but is adapted to be suspended when the tank is emptied. The membrane is attached entirely around its periphery to a supporting structure which may be a substantially circular ring formed of a plurality of sections of steel pipe or a ring formed of reinforced concrete. Very wide clear span roofs may be constructed using the membrane roof.

3,740,903

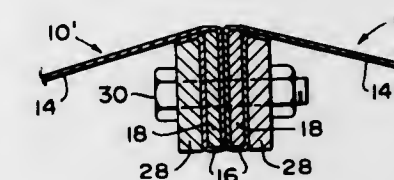
FLEXIBLE STRUCTURAL PANEL

William W. Ahern, Belmont, Mass., assignor to Geometrics, Inc., Cambridge, Mass.

Continuation-in-part of Ser. No. 44,423, June 8, 1970, abandoned. This application Mar. 27, 1972, Ser. No. 238,606
Int. Cl. E04b 7/10; E04c 1/24

U.S. Cl. 52—81

3 Claims



Means for supporting and joining flexible multi-sided structural panels in radomes and the like. The panels are each provided with flexible peripherally located flaps which are reinforced by stiffening members. The panels are applied to frames made up of interconnected rigid struts, with the flaps and their respective stiffening members overlapping the struts. The frames are interconnected by means extending laterally through joints including as sandwiched elements two peripheral flaps in face-to-face contact, the stiffening members reinforcing said flaps, and a strut on each of the frames being interconnected.

3,740,904

METHOD OF HONING GEAR TEETH WITH A RESILIENT WORM-SHAPED HONE

Masato Ainoura, Kitashigeyasu, Japan, assignor to Tsukihoshi Gomu Kabushiki Kaisha, Fukuoka-ken and Kabushiki Kaisha Koshifuji Tekkosho, Kyoto-shi, Japan

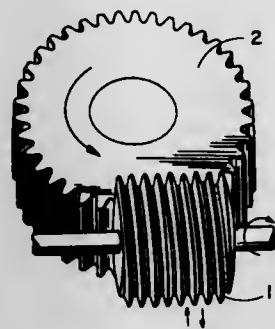
Division of Ser. No. 74,973, Sept. 24, 1970. This application Oct. 28, 1971, Ser. No. 193,267
Int. Cl. B24b 1/00

U.S. Cl. 51—287

3 Claims

A worm-shape or screw-shape hone, for honing gear teeth, has the tooth profile of the basic rack at its normal plane. The hone is formed by molding synthetic polymers in which there are dispersed abrasive particles, to provide a Shore hardness of 15°—75° and a Young's modulus 0.5—70×10³ kg/cm². The hone is engaged with the gear to be finished and is rotated by a

motor with the hone driving the gear. During honing of the gear, the hone is fed parallel to the axis or tooth trace of the gear over the whole face width of the gear. The polymer material may comprise a co-cured blend of polyurethane



rubber and epoxy resin having a suitable flexibility, good resiliency and high abrasion resistance, and the abrasive particles may comprise alundum or carborundum, the abrasive particles being exposed at the working surface of the hone.

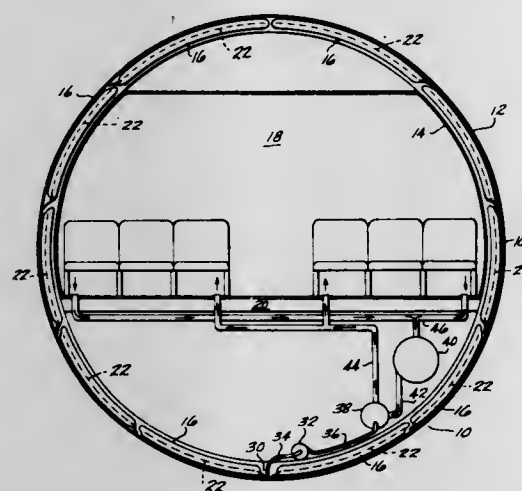
3,740,905

INSULATION AND CONDENSATION CONTROL SYSTEM
Clarence R. Adams, Kirkland, Wash., assignor to The Boegin Company, Seattle, Wash.

Filed Dec. 22, 1971, Ser. No. 210,882
Int. Cl. B64c 1/00; F24f 3/14

U.S. Cl. 52-173

7 Claims

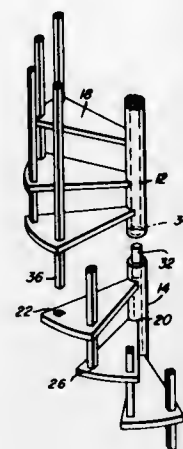


In a climate controlled chamber, an insulation system for controlling condensation of water vapor and for channeling the condensate to a central collection point. The preferred embodiment involves an aircraft fuselage having specially constructed insulation blankets arranged in overlapping fashion in close proximity to the exterior skin of the fuselage. Each blanket has a sandwich construction comprising a centrally located corrugated metallic foil member surrounded by layers of insulating material such as glass fiber mat. The insulating materials are of predetermined thicknesses to maintain the metallic foil member within a temperature range wherein it will act as a condenser plate for water vapor. The corrugations of the foil member are vertically aligned and spaced from the insulation material on the interior side such that vertical drain passageways are formed to allow draining of the condensed water. The drain passageways turn outwardly toward the fuselage exterior skin at the lower end of each of the blankets to thereby direct the water out of the blanket and downwardly along the interior of the skin to a central collection point at the bottom of the fuselage for optional recycling through a humidifier system, or removal from the aircraft.

3,740,906
PRECISION SPIRAL STEEL STAIRCASE
Otto Schneider, 9204 Hines Road, Baltimore, Md.
Filed Sept. 17, 1971, Ser. No. 181,534
Int. Cl. E04f 11/00

U.S. Cl. 52-187

8 Claims



A rigid, stackable spiral staircase unit comprised of a hollow center support column, a plurality of horizontal steps welded to the support column, a pair of balusters welded to each step and connecting the adjacent steps, and a handrail welded to the top portions of the balusters in the form of a spiral. The end of the support column is provided with a mounting pin for journaled engagement with the column of an adjacent staircase unit such that several units may be conveniently stacked or nested together at the point of installation to provide a staircase of desired height.

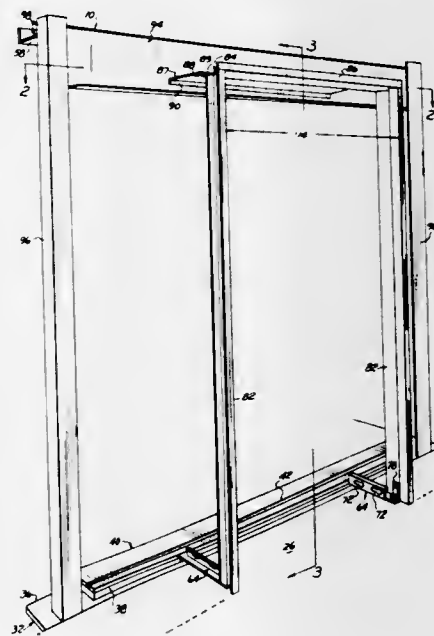
3,740,907

GAUGE FRAME FOR ELEVATOR SHAFT ENTRANCE OPENING

Charles M. Loomis, Box 453, Arkansas City, Kans.
Filed Aug. 27, 1971, Ser. No. 175,646
Int. Cl. E06b 1/04; B66b 13/08

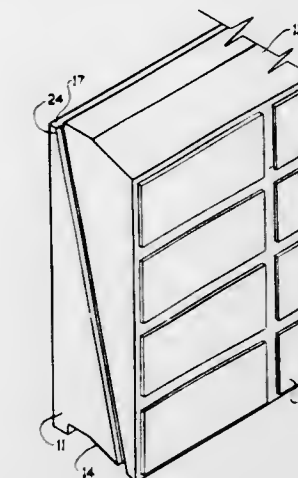
U.S. Cl. 52-205

6 Claims



A rectangular main frame has uprights resting upon and bolted to a shelf formed by a horizontal angle beam or corbel

installed in the elevator shaft or hatchway below the floor level and at the intended location for the corridor entrance wall opening into the elevator shaft. Extending between the upper ends of the uprights is a top hanger head which subsequently supports the trackway for the corridor entrance door or doors. Also secured to the angle member is a corridor entrance sill support having secured thereto spaced parallel channel brackets projecting outward therefrom and containing pairs of keyhole slots in their vertically extending webs. A rectangular gauge frame having an inner opening substantially equal to the external dimensions of the finished entrance opening structure has side plates which at their lower ends carry headed bolts and studs adapted to fit into the keyhole slots. The gauge frame also has a top plate bolted to the main frame and having a width substantially equal to the intended thickness of the corridor wall. After the wall masonry has been completed up to the gauge frame, the finished entrance opening structure is slid into place with the heads of its bolts and studs inserted through the enlarged ends of the keyhole slots and their shanks then moved into the narrowed portions of the keyhole slots, whereupon the tightening of the bolts secures the finished entrance opening structure permanently but removably in position within the gauge frame.



with a rigid foamed plastic core, an exterior face comprising staggered rows of brick veneer bonded to the core and an interior rigid backing is disclosed.

3,740,910

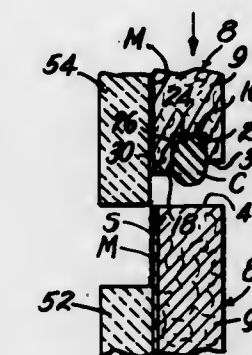
SIMULATED BRICK PANELS

L. James Taylor, and Charles E. Nichols, Jr., both of Augusta, Ga., assignors to Merry Companies Incorporated, Augusta, Ga.

Filed Nov. 1, 1971, Ser. No. 194,276
Int. Cl. B44f 7/00

U.S. Cl. 52-315

19 Claims



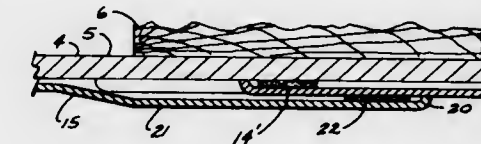
3,740,908
WALL PANELING

John W. Moore, Creve Coeur, Mo., assignor to Swan Corporation, St. Louis, Mo.

Filed Jan. 11, 1971, Ser. No. 105,248
Int. Cl. E04b 1/00

U.S. Cl. 52-261

9 Claims



An assembly of interfitting wall panels adapted for covering the surfaces of perpendicularly disposed walls; and being so constructed as to permit of relative adjustment for accommodating walls of varying extent while obscuring any imperfections in intervening joints. Said paneling may be easily and securely mounted upon any conventional support structure.

3,740,909

PREFORMED BUILDING PANEL WITH WEATHER-PROOF SEAL

Mathias Ludwig Stinnes, Toronto, Ontario, Canada, assignor to Du Pont of Canada, Limited, Montreal, Quebec, Canada
Filed Feb. 25, 1971, Ser. No. 118,852
Int. Cl. E04c 2/20; E04b 1/70

U.S. Cl. 52-302

6 Claims

A wall panel having front and rear surfaces and horizontal and vertical side surfaces which are adapted to mate with side surfaces of similar panels is provided. Each of the mating side surfaces contains an element of a groove and ridge joint extending throughout the side surface. The groove element of the joint is recessed beyond the extremity of the ridge element so that, when the panel is mated with a similar panel, the ridge and groove elements cooperate to form a cavity which acts as a capillary break and is connected to the front surface of the

A simulated brick panel that can be applied to any type building structure to give the appearance of full-size masonry construction. The panel includes a dense backing sheet coated with a uniform layer of water-impermeable epoxy resin adhesive and faced with several courses of thin facing slabs. The panel has longitudinal upper and lower edges and transverse side edges, one of the longitudinal edges and one of the side edges being plain and the other longitudinal edge and side edge each having a central caulking groove cut therein with the side wall of the groove adjacent the inner side of the panel of less height than the height of the groove side wall adjacent the outer side of the panel. The bottom course of slabs projects below the lower edge of the panel so that the slabs will partially overlie the upper part of a panel therebeneath. Caulking compound in excess of that required to fill the grooves is applied so that it can flow laterally toward the inner and outer faces of the panel as the upper panel is pressed downwardly against a lower panel and laterally against the end of an adjacent panel. All exposed portions of the joints between the panels are sealed with adhesive, and then sand is applied thereto before the adhesive sets. The blank spaces at the vertical joints between adjacent panels, when present, are filled by adhesively bonding a flat filler slab in place. Blank spaces in the panels at the corner of a building are filled by similarly applying L-shaped filler slabs.

3,740,911

BRICK VENEER WALL CONSTRUCTION

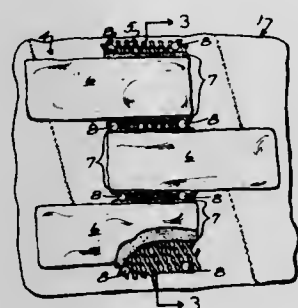
James D. O'Leary, 11345 N. Valley Road, Mequon, Wis.

Filed Apr. 5, 1971, Ser. No. 130,908

Int. Cl. E04f 13/14

U.S. Cl. 52—388

7 Claims



A brick wall construction formed of a series of panels secured to a wall surface. Each panel including a backing strip of open construction, such as expanded metal mesh, and a series of rows of thin bricks are bonded to the mesh by a resin adhesive. Ends of bricks in alternate rows project beyond the side edge of the backing strip while the corresponding ends of bricks in rows between the alternate rows are positioned generally flush with the side edge of the strip so that the area between the projecting alternate bricks provide a space to receive the projecting end of a brick of the next adjacent panel. The panels are secured to the wall surface by fasteners which extend through the backing strip between the bricks, and after installation, the joints between the bricks are filled in with grout.

3,740,912

FIRE RETARDANT SHAFT WALL

Gale E. Sauer, Williamsville, and Carl R. Mapes, Kenmore, both of N.Y., assignors to National Gypsum Company, Buffalo, N.Y.

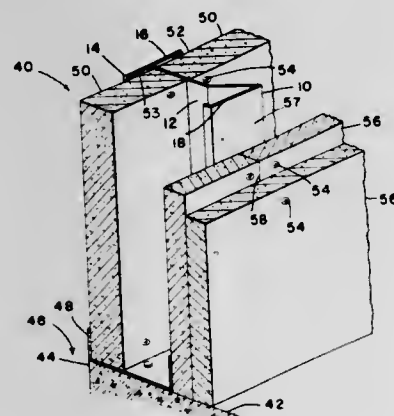
Continuation of Ser. No. 34,656, May 5, 1970, abandoned.

This application Nov. 12, 1971, Ser. No. 198,483

Int. Cl. E04b 2/30, 2/78

U.S. Cl. 52—479

9 Claims



A wall construction adapted for enclosing an elevator shaft particularly suited for erection solely from one side thereof and resistant to normal distortions resulting from the heat of fire within the shaft.

3,740,913

LOCK GROOVE TILE

Jennie E. Musser, 5988 Martinus St., Route 2, Haslett, Mich.

Filed July 27, 1971, Ser. No. 166,402

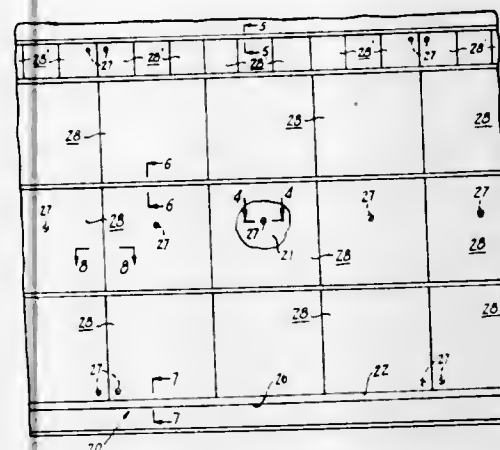
Int. Cl. E04f 13/08

U.S. Cl. 52—387

1 Claim

A lock groove tile of generally square outline having tongues on two adjacent sides and grooves on the other two adjacent sides for interlocking with adjacent tiles. A metal sheet is secured to the wall to be tiled and the sheet has edges adapted to cooperate with the respective tongues and grooves

of the tiles to support the edges of the groups of tiles. In a modified form of the invention a metal strip is formed to inter-



fit with a row of tiles and has a finished chrome strip covering the edges of the tiles.

3,740,914

TILE FOR COATING AND DECORATING SURFACES

Jose Arnaiz Diez, Clunia 17 10B, Burgos, Spain

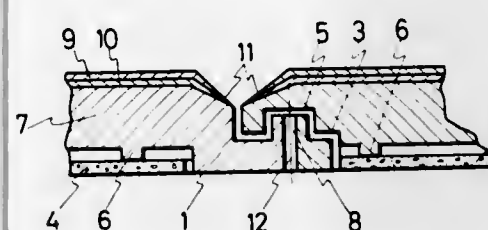
Filed Nov. 4, 1970, Ser. No. 86,673

Claims priority, application Spain, Nov. 6, 1969, 373,229

Int. Cl. E04b 1/82; E04f 13/08

U.S. Cl. 52—515

2 Claims



A tile for coating and decorating surfaces includes a slab which is of rigid material of light weight capable of adopting any polygonal shape having an even number preferably four sides. Ribs extend peripherally around the slab perpendicular to the rear surface thereof. Two adjacent sides of the slab each have a pair of identical projections extending therefrom. The projections are centrally perforated. The two other adjacent sides of the slab each have a pair of female recesses for coupling with the lugs of adjacent slabs to form the coating. The rear surface is provided with reinforcement ribs, which form an air insulating chamber. A plate of insulating material is located on the edges of the ribs. The top surface of the slab is bevelled and is coated with a colored sheet and a thin coating made of transparent and waterproof material which protects the top surface.

3,740,915

MOLDED SIDING

Robert E. Mollman, Moreland Hills, Ohio, assignor to Alsied Inc., Akron, Ohio

Continuation-in-part of Ser. No. 863,492, Oct. 3, 1969, abandoned. This application Oct. 7, 1971, Ser. No. 187,338

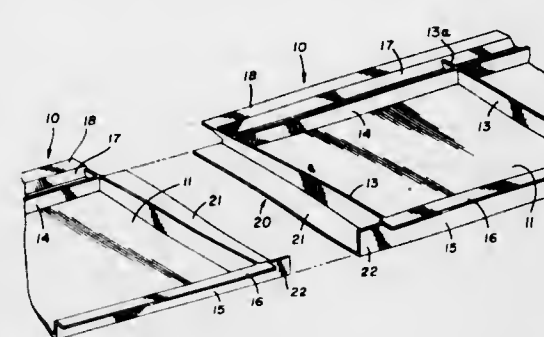
Int. Cl. E04d 3/362

U.S. Cl. 52—531

4 Claims

An elongated, one-piece laminated fiberglass molded siding component having a textured exterior surface and having a rearwardly projecting integral network of knife-like rib members that extend longitudinally and transversely thereof for

support and rigidification purposes. The siding is characterized by the fact that the thickness thereof varies throughout



for the dual purpose of adding strength in key areas and for the purpose of minimizing gaps in other areas of overlap, for example.

3,740,916

PANEL CONSTRUCTION

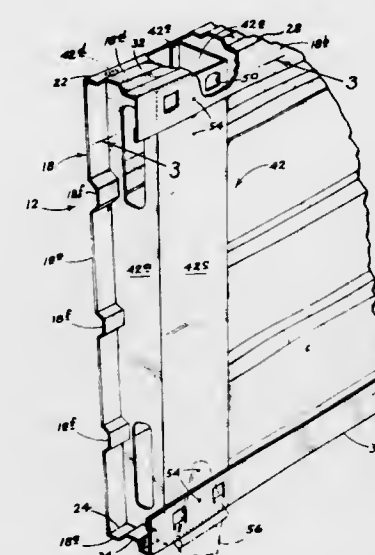
Paul E. Kenaga, 3429 S. E. Harold Court, Portland, Oreg.

Filed Mar. 24, 1971, Ser. No. 127,472

Int. Cl. E04c 2/08

U.S. Cl. 52—629

2 Claims



A tab-connected panel including a substantially rectangular sheet of metal which has had its opposite edges bent over toward each other to form spaced-apart edge margins spaced outwardly from and overlying the central expanse of the sheet. An elongated stiffener extends laterally of the sheet with its opposite ends wedged in the spaces between the edge margins and the central expanse. Tabs formed in the edge margins are bent over and into openings in the stiffener to secure the sheet to the stiffener. A raised ridge is formed along one edge of the panel and a groove is formed along its opposite edge so that similar panels placed in edge-to-edge relation will interlock.

3,740,917

STRUCTURAL ASSEMBLY AND METHOD OF MAKING SAME

Lip F. Wong, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.

Filed Oct. 20, 1971, Ser. No. 190,784

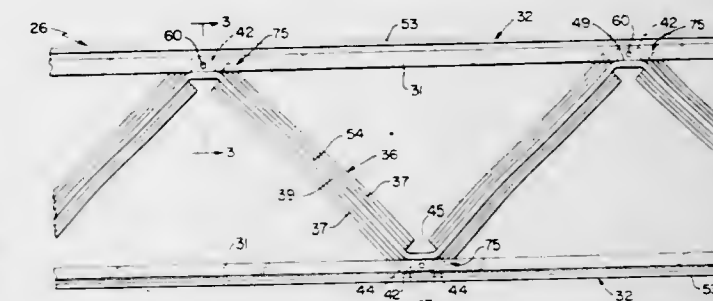
Int. Cl. E04c 3/07

U.S. Cl. 52—694

15 Claims

A structural assembly and method of making same is provided wherein each assembly is comprised of a plurality of interconnected members each having at least one pair of resilient arms separated by a groove, and the groove is comprised of a pair of opposed serrated surfaces each defined by a cooperating plurality of parallel V-shaped grooves in an associated arm. At least one interconnecting member is pro-

vided having a pair of opposed roughly wedge-shaped portions each comprised of a pair of cooperating inclined surfaces with each inclined surface having a plurality of parallel V-shaped projections extending therefrom defining serrations thereon. The projections correspond in configuration to the V-shaped grooves in an associated interconnected member with the one



interconnecting member having at least parts of each of its wedge-shaped portions held in interlocked snap-fitted relation by the resilient arms of an associated interconnected member with the interlocking being achieved solely by relative movement of the one interconnecting member and associated interconnected member toward each other in a direction perpendicular to the V-shaped grooves.

3,740,918

DECORATIVE TRIM STRIP, FASTENER, AND METHOD OF MAKING SAME

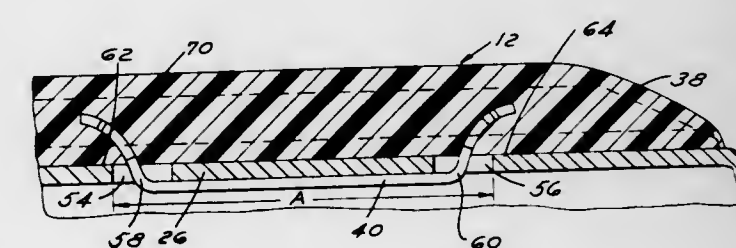
Engelbert A. Meyer, Union Lake, Mich., assignor to USM Corporation, Boston, Mass.

Filed June 23, 1971, Ser. No. 155,782

Int. Cl. B60r 13/04

U.S. Cl. 52—717

4 Claims



A decorative trim strip comprising an elongated channel-shaped base molding with a vinyl or other plastic decorative elongated trim piece adhesively secured to the base molding substantially throughout its length with fasteners projecting through the base molding at opposite ends of the trim piece with each fastener having a pair of tangs which are embedded in the trim piece and curled outwardly in situ therein without penetrating the decorative surface of the trim piece to retain the ends of the trim piece against the base molding preventing inadvertent end peeling of the trim piece from the molding. The method of constructing the trim strip and a fastener-applying gun are disclosed.

3,740,919

APPARATUS AND METHOD FOR ORIENTING AND CASE PACKING BAILED CONTAINERS

Raymond A. Heisler, 657 Dakota Trail, Franklin Lakes, N.J.

Filed Dec. 6, 1971, Ser. No. 204,892

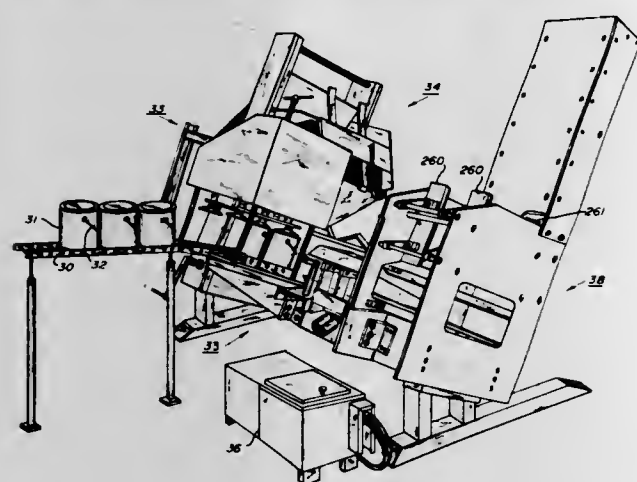
Int. Cl. B65b 5/08, 35/56, 43/28

U.S. Cl. 53—26

38 Claims

An apparatus and method is disclosed for receiving bailed containers in a single file array from a delivery conveyor and to orient said containers so that they are delivered by gravity in two groups of twos into an automatically erected carton. After filling the carton with four containers is advanced to a

closing, sealing and delivering mechanism. In this automatic mechanism the cartons for the case packing operation are placed in a delivery station from which they are advanced to an erecting station which is automatically actuated in response to the gravitational delivery of bailed containers to and



through the orienting apparatus. Alternate embodiments for elevating the glued and sealed cartons are shown from which the cartons may be delivered to a conveyor or pallet. The containers as they are arranged in the carton may have their bails facing into the corners of the carton or facing toward the center of the carton.

3,740,920

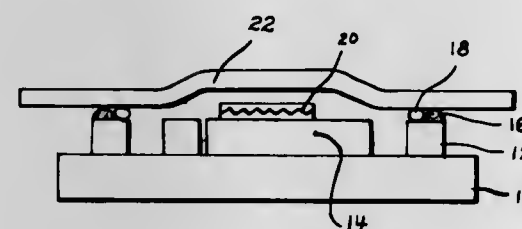
METHOD FOR PACKAGING HYBRID CIRCUITS

Clyde H. Lane, Rome, N.Y., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed May 26, 1971, Ser. No. 147,095
Int. Cl. B65b 7/28

U.S. Cl. 53-39

1 Claim



A method of packaging hybrid or semi-conductor circuit by using an aluminum O-ring which when placed under compression, at an elevated temperature, between a cap or lid and the mounting surface of a silicon oxide base, undergoes a dimensional change thereby preventing the flow of adhesive from contaminating the elements in the semi-conductor compartment.

3,740,921

DEVICE FOR CLOSING BAGS

Erich Meyer, Gailenkirchen, Germany, assignor to Optima-Maschinenfabrik Inhaber Dr. Max Buhler, Schwabisch-Hall, Germany

Filed July 28, 1971, Ser. No. 166,722
Claims priority, application Germany, July 29, 1970, P 20 37 689.0

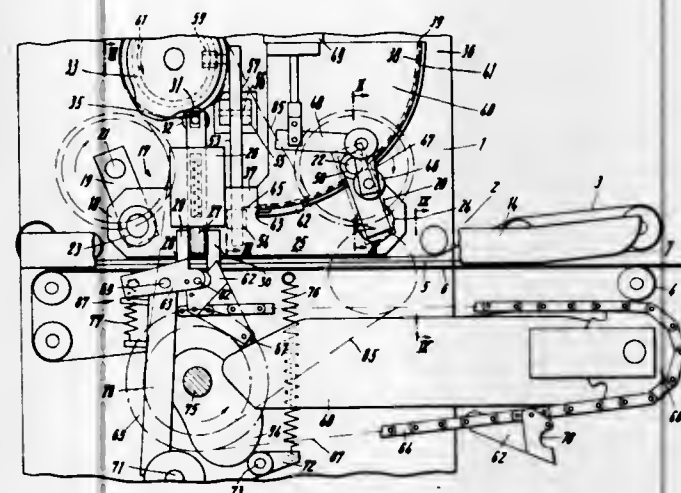
Int. Cl. B65b 31/04

U.S. Cl. 53-112 B

20 Claims

The specification discloses an apparatus for gathering the necks of bags, such as plastic bags, and for applying a bendable closure member to the gathered neck. The closure member is cut off from a strip of material and is received in a device that moves in a circulatory path so that during one part

of its travel it follows the bags during movement thereof. The device prebends the closure member and applies it to the



gathered neck of the bag and clenches the closure member about the neck, all during continued movement of the bag.

3,740,922

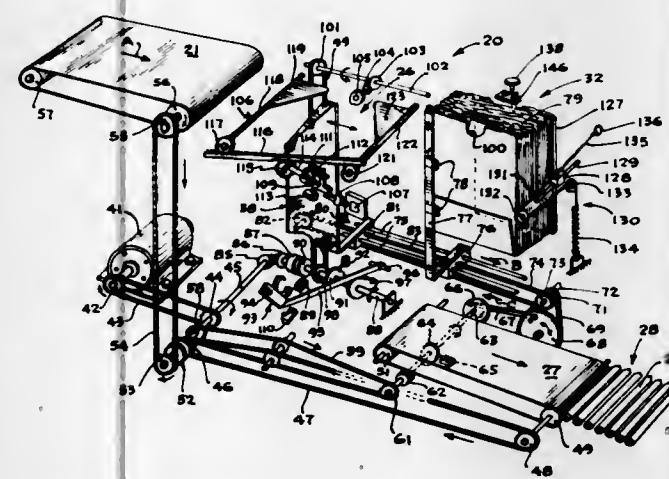
AUTOMATED SACK OPENING AND FEEDING APPARATUS

Weg-Yuan Liou, Chicago, Ill., assignor to Vacholas Plidplys, Chicago, Ill.

Filed July 6, 1971, Ser. No. 159,687
Int. Cl. B65b 43/30

U.S. Cl. 53-188

9 Claims



An automated sack opening and feeding apparatus for use in a retail checkout counter, comprising a counterheight intake conveyor for conveying goods to a checking station, a recessed loading station, a bag feeder for feeding paper sacks one-by-one to the loading station, and an opening mechanism for opening each sack in the loading station, first at the sack bottom and then at its top. A filled sack ejector, synchronized with the bag feeder, moves each loaded bag to a continuously running output conveyor that moves the bags to an off-load station.

3,740,923

WRAPPING ROLL DEVICE IN COIN-WRAPPING MACHINE

Masaru Itoda; Hirokuni Matono, and Masatoshi Ushio, all of Himeji, Japan, assignors to Kabushiki Kaisha Kokuei Kikai Seisakusho, Hyogo-ken, Japan

Filed June 28, 1971, Ser. No. 157,266

Claims priority, application Japan, July 1, 1970, 45/65952

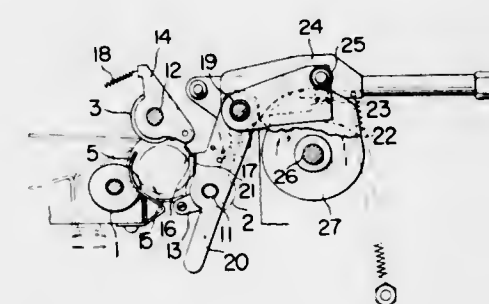
Int. Cl. B65b 11/02

U.S. Cl. 53-212

1 Claim

At least one of the wrapping rolls in a coin-wrapping machine has a reduced-diameter part intermediate between its

ends, two full-diameter parts thereby being left to project partially inward through respective cut-out openings in a corresponding wrapping-paper guide plate, a guide bridge being left uncut in the guide plate between the openings, and the



3,740,924

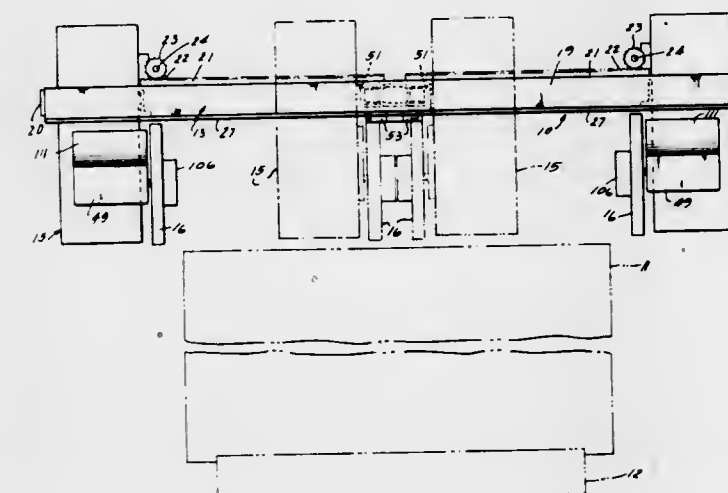
RETRACTABLE OVERHEAD CRIMPER

James F. Becker, Wilmington, Del., assignor to Beloit Corporation, Downingtown Division, Downingtown, Pa.

Filed June 14, 1971, Ser. No. 152,744
Int. Cl. B65b 7/14

U.S. Cl. 53-380

17 Claims



Apparatus for folding down and tucking in the ends of a wrapper extending beyond the ends of a roll of paper, by the use of rotatably driven crimper paddles. The roll is supported on two parallel spaced rolls rotatably driven to rotate the roll during crimping in a direction opposite to the direction of rotation of the crimping paddles. A cross beam is supported above the roll in a cross machine direction and has a separate crimper carriage for each end of the roll mounted to ride along the cross beam. The crimper carriages each have a telescopic arm carrying the crimper paddles at their lower ends, which can be retracted within the carriage to clear the maximum diameter of roll that can be wrapped, and to sit in the center of the machine when not in use. The crimper arms are lowered by power when at the center of the machine to within an inch of the roll. Lowering movement of the crimper carriages then stops. The crimper carriages are then moved outwardly beyond the ends of the roll and lowered with the crimper paddles positioned into crimping positions along the ends of the roll. The drive to the crimper paddles is then started and the roll is rotatably driven by its support rolls for little more than one revolution of the roll to completely tuck in the projecting end portions of the wrapper.

3,740,925

METHODS OF AND APPARATUS FOR SEPARATING SOLID AND LIQUID PARTICLES FROM AIR AND OTHER GASES

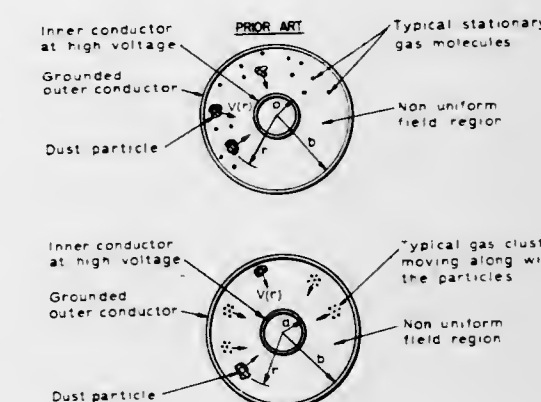
Nicholas Gothard, Dallas, Tex., assignor to Filteron International, Inc., Dallas, Tex.

Continuation-in-part of Ser. No. 793,224, Jan. 13, 1969, abandoned, which is a continuation of Ser. No. 629,465, April 10, 1967, abandoned. This application July 6, 1971, Ser. No. 159,690

Int. Cl. B03c 3/06, 3/40, 3/76

U.S. Cl. 55-5

13 Claims



Processes and systems for separating solid and/or liquid particles from air or other gases in which the gas is caused to move with the particles dispersed in it to the highest intensity region of a non-uniform electrical field where the particles are collected.

3,740,926

PORTABLE ELECTRONIC PRECIPITATOR

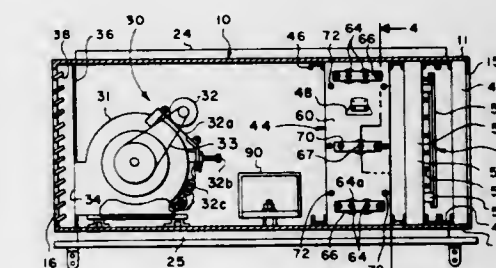
Teddy A. Duval, Garland, Tex., assignor to Texas Electronic Precipitator Co., Garland, Tex.

Filed Dec. 15, 1970, Ser. No. 98,429

Int. Cl. B03c 3/66

U.S. Cl. 55-104

5 Claims



A two-stage type electrostatic precipitator mechanism is carried within a rectangular cabinet having an air intake at one end and an air outlet at the other. A blower mechanism is carried within the cabinet for moving air through the cabinet and past the ionizing wires and collecting plates of the precipitator mechanism. A power supply circuit provides high voltages for the ionizing wires and collecting plates and an indicator lamp is connected in circuit with such power supply circuit for providing an alarm signal when the collecting plates become too dirty. The spacing between the collecting plates and the value of the high voltage supplied thereto are of an unconventional nature and provide improved operating performance. The precipitator unit as a whole is constructed so that it can be operated in either a normal or an upside-down position.

3,740,927

ELECTROSTATIC PRECIPITATOR

James Henry Vincent, Plainfield, N.Y., assignor to American Standard Inc., New York, N.Y.

Continuation-in-part of Ser. Nos. 804,050, Feb. 25, 1969, abandoned, and Ser. No. 869,195, Oct. 24, 1969, Pat. No.

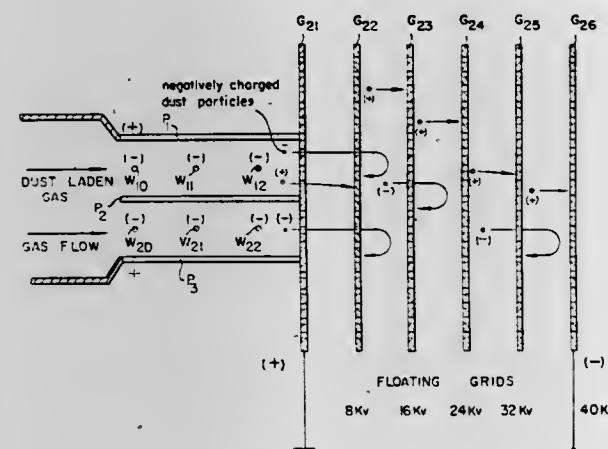
3,616,606, and Ser. No. 65,843, Aug. 21, 1970. This

application Nov. 2, 1971, Ser. No. 194,980

Int. Cl. B03c 3/09

U.S. Cl. 55-123

6 Claims



Covers an electrical precipitator composed of two tandem electrostatic sections arranged to eliminate dust or dirt or any form of particulate matter which may be conveyed with air or gas or any other fluid medium. The first section may, for example, include one or more pairs of positively charged vertical plates between each pair of which are positioned a plurality of negatively charged vertical wires, so that a Corona discharge may be developed between the vertical wires and the two parallel plates of each pair to electrically charge the particulate matter transmitted between the vertical plates. The second section, which is contiguous to the end of the first section and constitutes an add-on for the first section, includes a plurality of metallic grids which are parallel to each other, but perpendicular to the plates of the first section. The first and last grids of the second section may be connected to a source of voltage which does not create a corona field, and the remaining grids of the second section are "floated" between the first and last grids so as to become charged by voltage induced in such grids so that particles of matter entering the second section and traversing the opening of the various grids will respond to the electric field between adjacent grids and to the aerodynamic flow pattern developed between all of the grids, so that the particulate matter may be collected and removed from the fluid medium.

3,740,928

APPARATUS FOR ADSORBING CARBON DIOXIDE FROM AIR IN A STORAGE SYSTEM

Emmerich Schmid, Winterthur, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland

Filed Apr. 20, 1972, Ser. No. 245,817

Claims priority, application Switzerland, May 25, 1971, 7597/71

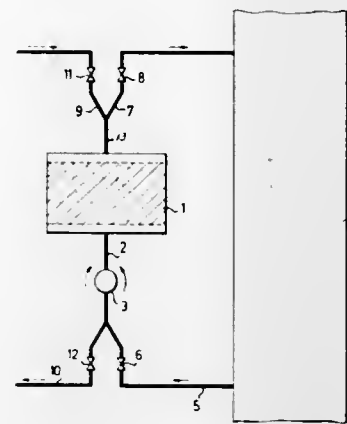
Int. Cl. B01d 53/04

U.S. Cl. 551-179

3 Claims

The system for circulating the air from the storage room and for regenerating the active solid adsorbent in the adsorption chamber, includes a reversible blower and a series of check valves. The check valves alternately close off the adsorption

chamber either from the storage room or from a source of desorbent while opening the chamber to the source of desor-



bent or the storage room, respectively. The check valves are controlled by the pressure of the air in the storage room and the pressure of the desorbent.

3,740,929

APPARATUS FOR COLLECTING FINELY DIVIDED STICKY MATERIAL

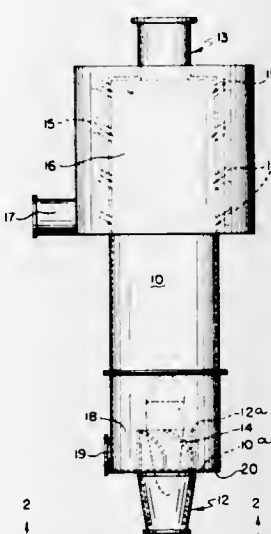
Mack Gordon, Medina, and John F. Philippi, Mentor, both of Ohio, assignors to Aerodyne Development Corporation, Cleveland, Ohio

Filed June 14, 1971, Ser. No. 152,858

Int. Cl. B01d 45/12

U.S. Cl. 55-261

1 Claim



A modification of apparatus for separating fine particles from a gaseous fluid to provide means for classifying the fine particles is presented. The apparatus for separating particles from fluid is related to that disclosed and claimed in U.S. Pat. No. 3,199,268, granted Aug. 10, 1965 to Karl-Heinz Oehrich et al. This prior invention involves a primary flow of particles entrained in a fluid medium generally axially of a cylindrical processing chamber from an inlet duct near one end to an outlet duct at the other end. A solid ground closes a portion of the chamber near the inlet duct save for an annular open space next to the wall of the chamber. A secondary circulatory flow is imparted to the fluid medium above the solid ground which causes the solid particles to be separated from the medium and to fall through the annular space into a collecting hopper. The modification of this invention does away with the collecting hopper and uses the bottom end wall of the processing chamber as a solid ground, and the inlet duct is extended above the bottom end wall to form a collecting chamber for the solid particles separated from the fluid medium in the processing chamber. A discharge duct for these solid particles leads tangentially out of the collecting chamber.

3,740,930

CORRUGATED BALLOON FLUE

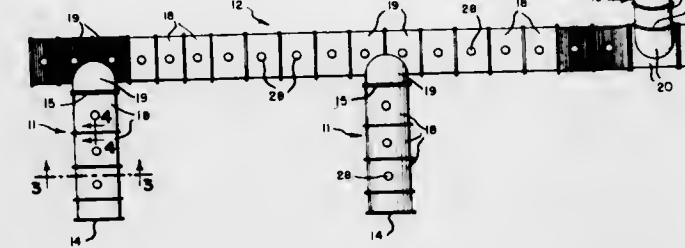
John T. Cullom, 628 6th Avenue, San Manuel, Ariz.

Filed Apr. 28, 1971, Ser. No. 138,252

Int. Cl. B01d 45/12

U.S. Cl. 55-269

8 Claims



A plurality of standardized flue sections or modules of double wall construction are assembled together to form a complete flue assembly for hot smelter gases. Each flue section comprises a pair of generally annular end flanges spaced a predetermined standard distance apart, an inner wall of corrugated corrosion resistant sheet metal extending between and secured to the facing surfaces of the two end flanges, an outer wall of corrugated sheet metal also secured to the end flanges and spaced a predetermined distance radially outwardly of the corrugated inner wall, and means for connecting the end flanges of one flue section to the abutting end flanges of adjoining flue sections.

3,740,931

AUTOMOBILE AND TRUCK CARBURATOR AIR INTAKE FILTERS

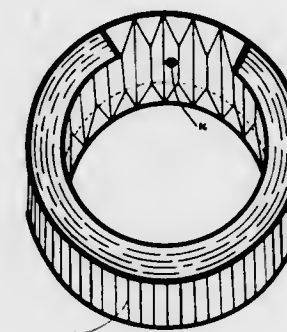
Raymond M. Nowicki, 30 Linn Road, Nutley, N.J.

Filed Dec. 15, 1971, Ser. No. 208,075

Int. Cl. B01d 35/14

U.S. Cl. 55-274

1 Claim



An annular pleated filter element with an anti-pollution warning air whistle cavity resonator compression flange device secured to the filtering paper through an aperture within a pleat.

3,740,932

AIR PRE-CLEANER

Lewis A. Borsheim, Fargo, N. Dak., assignor to Ross K. Petersen, Minneapolis, Minn.

Filed May 10, 1971, Ser. No. 141,758

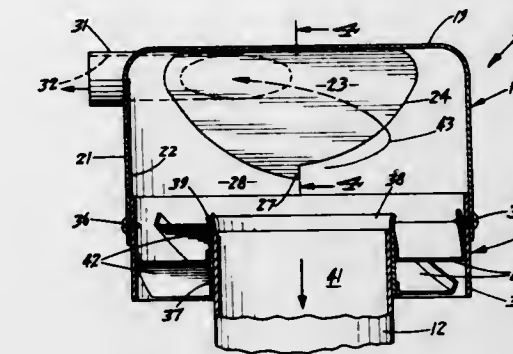
Int. Cl. B01d 45/12

U.S. Cl. 55-394

12 Claims

An air pre-cleaner mounted on the air intake pipe of an internal combustion engine and connected to an exhaust aspirator mounted on the engine exhaust pipe. The pre-cleaner has a cylindrical housing having an air inlet for circumferentially directing air and foreign materials to a separation chamber. A plate baffle having a peripheral edge portion spaced from the inside wall of the housing separates a low pressure chamber from the separation chamber. A clean air exit passage, cou-

pled with the air intake pipe of the engine, opens into the center of the separation chamber. The aspirator withdraws air from the low pressure chambers over the top of the baffle



whereby air is continuously moved through the housing in a circumferential direction separating foreign materials from the air moving into the air intake pipe of the internal combustion engine.

3,740,933

VACUUM TRASH COLLECTOR

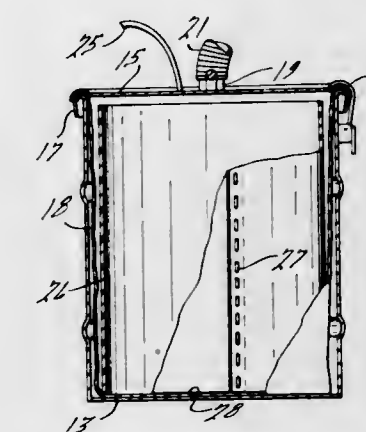
John R. Hollowell, 3567 Greenfield, Dearborn, Mich.

Filed June 7, 1971, Ser. No. 150,367

Int. Cl. B01d 45/18

U.S. Cl. 55-429

3 Claims



A vacuum trash collector having a device for restraining the movement of a plastic bag used therein. A rigid cylindrical liner is slipped inside the bag and this assembly then placed in the trash collecting bin. During operation, the liner will prevent the plastic bag from collapsing and blocking air flow. When the bin is filled, the liner may be slipped out of the bag and re-used. In one embodiment, the liner has an annular deflecting lip at one end.

3,740,934

AIR FILTERING UNIT INCLUDING A CLAMPING ASSEMBLY

Bernard R. Shuler, Louisville, Ky., assignor to American Air Filter Company, Inc., Louisville, Ky.

Filed July 30, 1971, Ser. No. 167,649

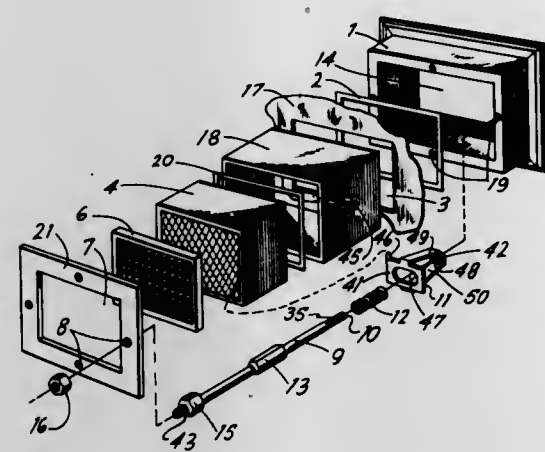
Int. Cl. B01d 31/00

U.S. Cl. 55-490

9 Claims

An air filtering unit including a first flow-through support member, a flow-through filter assembly, a sealing gasket disposed between the support member and the filter assembly, a second flow-through support member for a protective grid in spaced alignment with said filter assembly, and a clamping assembly for holding the filter assembly in fluid tight communi-

cation with the first support members, the clamping assembly set relative to each other. Control rollers cooperate with a further communicating with the second support member for plate pivoted to the frame driven by the cam discs for oscillat-



the protective grid for maintaining the protective grid in a preselected spaced alignment with the filter assembly.

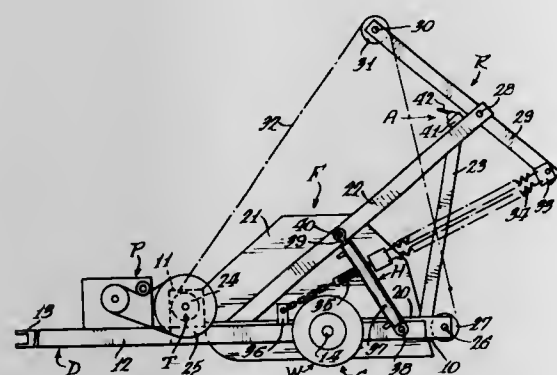
3,740,935 GROUND ENGAGING BALER

James E. Gay, Vinton, Iowa, assignor to Starline, Inc., Harvard, Ill.

Filed Aug. 7, 1972, Ser. No. 278,522
Int. Cl. A01d 75/00

U.S. Cl. 56-16.4

5 Claims



A hay bale rolling apparatus is adapted to be drawn along a windrow of hay behind a tractor to roll the windrow into a series of separate bales in contact with the ground. A wheeled chassis has parallel side beams with transverse pivot means forward of the wheels. A frame provided with bale forming means has its front end mounted on the pivot means. When a bale reaches a predetermined size, power means located behind the wheels tilts the frame upwardly about the pivot means to raise the rear of the unit and release the bale. The apparatus then returns to normal position to start a new bale.

3,740,936 LAWN CUTTING DEVICE IN PARTICULAR LAWN EDGE CUTTER

Julius Berger, Wuppertal-Cronenberg, Germany, assignor to Firma Julius Berger, Wuppertal-Cronenberg, Germany
Filed Nov. 30, 1971, Ser. No. 203,148

Claims priority, application Germany, Dec. 1, 1970, P 20 58 984.8

U.S. Cl. 56-246

Int. Cl. A01d 55/00

10 Claims

A lawn mower comprising an immovable lower cutter and a cooperating swingable upper cutter, and a rotatably driven cylinder. A cam disc disposed integrally in each side of the cylinder and forms undulating control cam pivot planes, off-

ing movement. The pivot plate operatively engages the upper cutter for swinging the latter for cutting cooperation with the lower cutter.

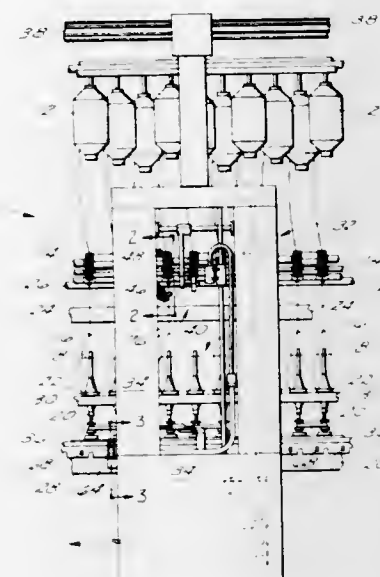
3,740,937 END-DOWN DETECTING MEANS FOR AUTOMATIC YARN PIECING APPARATUS

William H. Drake, Clemson, S.C., assignor to Maremont Corporation, Chicago, Ill.

Filed Oct. 26, 1971, Ser. No. 192,210
Int. Cl. D01h 15/00

U.S. Cl. 57-34 R

16 Claims



Firs and second photoelectric units mounted upon the carriage of an automatic yarn piecing apparatus movable along a textile spinning frame respectively detect whether the carriage is adjacent a yarn delivery zone of the spinning frame and whether yarn is present within each such zone. Variations from a pre-established norm in the photoelectric outputs of the units are converted into signals directed to a correlating circuit which includes a bistable memory device. The correlating circuit is effective to actuate a hand-gate type of control device that initiates a cycle of operation of the piecing apparatus when the carriage is in operative adjacent relationship to a yarn delivery zone wherein no yarn is detected. The correlating circuit may be temporarily disabled when desired, by inhibiting its memory device and as when the carriage of the piecing apparatus moves past an end of a spinning frame, to negate the possibility of a piecing operation being then inadvertently initiated. Inexpensive, durable and compact electrical components and circuits are employed to conserve space, to minimize manufacturing cost and maintenance, and to insure consistently reliable operation under adverse operating conditions. The successful use of a conventional phototransistor and light source in the photoelectric yarn-de-

tection unit is achieved by restrictively limiting the vision of the phototransistor to a particular area of the spinning frame and by subjecting its electrical output to high-gain amplification, preferably in the approximate order of 50,000 times, prior to signal-conversion thereof.

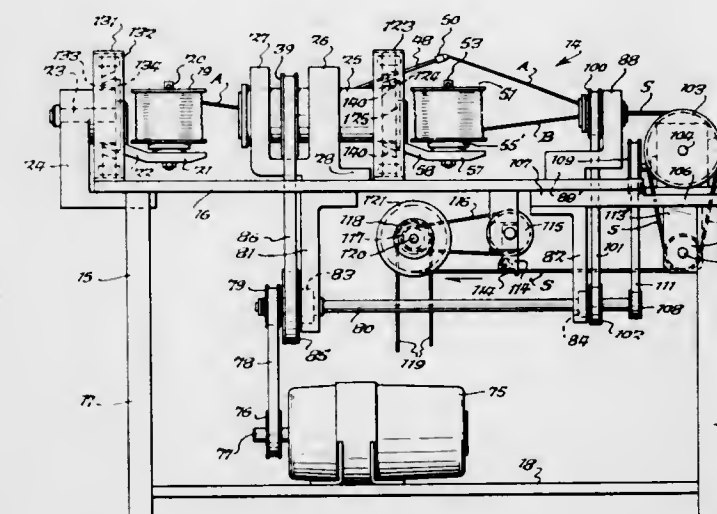
3,740,938 WIRE TWISTING MACHINE

John F. Kopczynski, 1671 Sweeney St., North Tonawanda, N.Y.

Filed Dec. 28, 1970, Ser. No. 101,754
Int. Cl. D07b 3/04

U.S. Cl. 57-58.36

15 Claims



A wire twisting machine including a base, a wire winding frame rotatably mounted on the base, a first wire containing spool mounted on the base, a guide arrangement on the frame for receiving wire as it is uncoiled from said first spool, a second wire containing spool, mounting means for mounting said second spool rotatably on said frame so that the second spool may be held stationary while said frame rotates and carries the wire from said first spool around the second spool so as to twist the two wires to form a strand at a location remote from the frame, and magnetic means for controlling the position of the second spool including a selsyn unit including a stator mounted on said base and a rotor mounted on the mounting means so as to cause said second spool to remain stationary or to selectively move so as to rotate the wire being uncoiled therefrom about its longitudinal axis to compensate for any twisting of the wire, with the wire guiding means comprising a tube which extends into the space between the rotor and stator so as to be able to rotate with the frame without engaging the stator. Alternatively, the magnetic means may comprise a magnet mounted in spaced relationship to the mounting means for attracting magnetic material on the mounting means to thereby maintain the mounting means stationary while the frame rotates. A sensing arrangement may be associated with the mounting means to detect whether it moves more than a predetermined amount. Instead of the magnetic means, the mounting means may be of such a configuration that it is acted on by gravity to keep it in a relatively stationary position as the frame rotates. If desired, the first spool can also have a magnetic arrangement such as a selsyn unit associated therewith to impart a predetermined rotation to the first spool to compensate for any twist which the wire emanating therefrom has around its longitudinal axis, or alternatively, a mechanical feed may be provided to the first spool to affect such rotation.

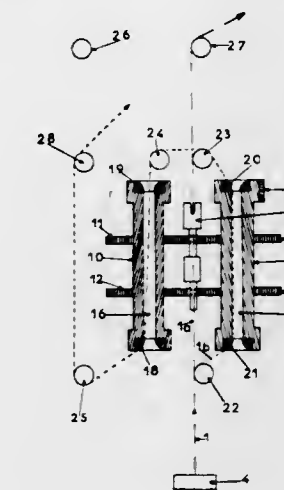
3,740,939 MULTI-PURPOSE DEVICE FOR THE TEXTURIZING OF TEXTILE THREADS BY FALSE TWIST

Jacques Neveux, Riorges, France, assignor to Moulinage Et Retorderie De Chavanoz, Chavanoz, France

Filed Oct. 8, 1971, Ser. No. 187,798
Claims priority, application France, Oct. 12, 1970, 7037046
Int. Cl. D02g 1/02, 1/04, 1/06

U.S. Cl. 57-77.45

9 Claims



A multi-purpose device for texturing textile threads by application of false twist comprising a false twist tube having a cross-pin for engagement with a thread passing therethrough, a pair of rotatable cylinders having frictional inner surfaces for engagement with a thread passing therethrough, means mounting the false twist tube for rotation in tangential contact with the pair of rotatable cylinders, and thread guide means positioned upstream and downstream of the cylinders and tube for directing the thread in selected paths to and from the false twist tube and cylinders.

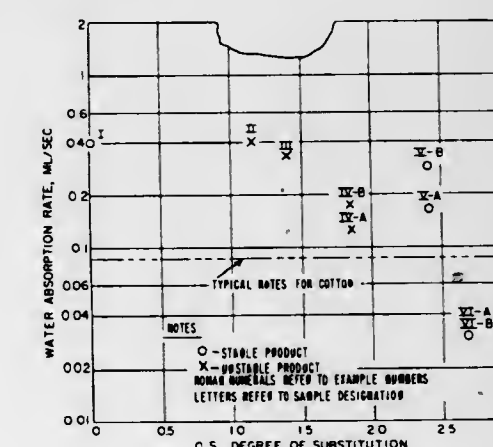
3,740,940 PLEXIFILAMENTARY CELLULOSE STRAND

John Emmanuel Berkowitch, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 26, 1971, Ser. No. 192,194
Int. Cl. D02g 3/02

U.S. Cl. 57-140 R

6 Claims



Textile products are disclosed comprising an assembly of fibrils in the form of a plexifilament, yarn, fabric or the like. The fibrils are of irregular cross-section and are composed of regenerated cellulose or cellulose acetate having a degree of substitution of between about 2.0 and 2.6. Most fibrils are interconnected to form a plexus. The products are stable to repeated water exposure and have a specific surface of at least about 0.4 square meter per gram and a fibril concentration of at least about 50×10^3 per square centimeter. The products have a water absorption rate of greater than about 0.1 milliliter per second and are useful in textile applications, particularly where good, stable water-absorption characteristics are desirable.

3,740,941

TIMEPIECE COMPRISING A NUCLEAR POWER SOURCE

Karl Adler, Grenchen, and Georges Ducommun, Feldbrunne, both of Switzerland, assignors to Bivator S.A., Grenchen, Switzerland

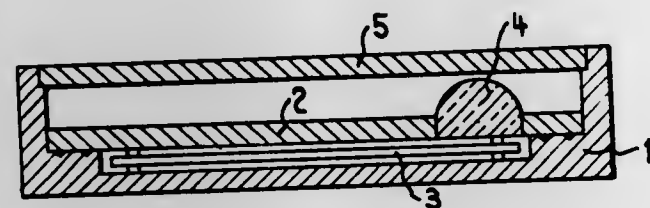
Filed Feb. 8, 1971, Ser. No. 113,250

Claims priority, application Switzerland, Feb. 23, 1970, 2552/70

Int. Cl. G04c 3/00; G04b 37/02

U.S. Cl. 58—23 BA

3 Claims



A timepiece comprising a nuclear isotopic power source enclosed in a calotte sealed by a cover. A protecting plate is disposed at a distance from said cover, and at least a part of the mechanism of the timepiece is accommodated in the space between said cover and said protecting plate.

3,740,942

LOW AMPLITUDE INDEXING MECHANISM FOR HOROLOGICAL INSTRUMENTS

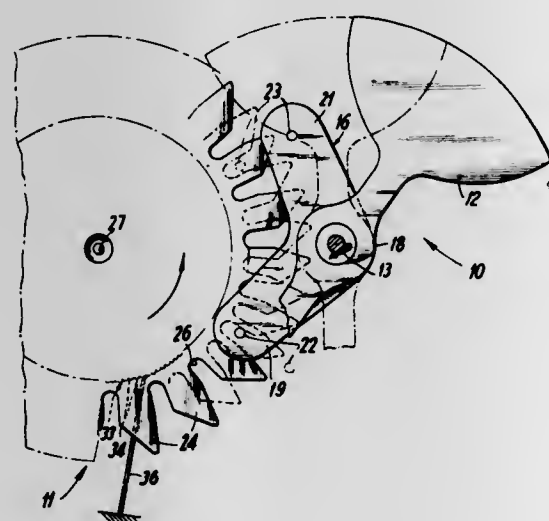
Paul Wuthrich, Watertown, Conn., assignor to Timex Corporation, Waterbury, Conn.

Filed Jan. 28, 1971, Ser. No. 110,500

Int. Cl. G04c 3/04; G04b 15/00

U.S. Cl. 58—28 R

3 Claims



A horological instrument such as an electric or electronic watch includes an indexing mechanism or dial train drive for transmitting power from an oscillating balance wheel to an index wheel. The index wheel drives the gear train of the watch and is in turn coupled to the watch hands. The indexing mechanism comprises a direct drive arrangement wherein the index wheel is driven by means of pins mounted on a plate which is fixed to the balance staff.

3,740,943

APPARATUS FOR DRIVING AN ELECTRIC WATCH

Kinji Fujita, Nagano, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

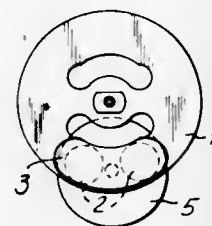
Filed June 30, 1971, Ser. No. 158,349

Claims priority, application Japan, July 7, 1970, 45/58952

Int. Cl. G04c 3/04; H02k 33/16; H03b 5/20

U.S. Cl. 58—28 A

3 Claims



An apparatus for driving an electric watch having a balance wheel which is driven electro-magnetically, wherein driving current is alternately applied in opposite directions to the driving coil.

3,740,944

PROTECTIVE CASING FOR A WRIST-WATCH

Pierre Chopard, Nidau, Switzerland, assignor to Omega Louis Brandt & Frere S.A., Bienne, Canton of Bern, Switzerland

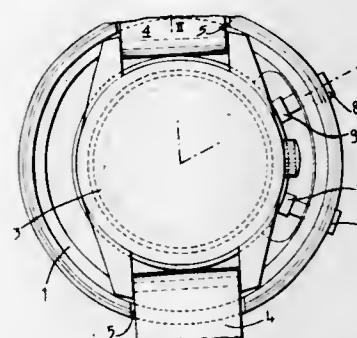
Filed June 13, 1972, Ser. No. 262,263

Claims priority, application Switzerland, June 21, 1971, 9078/71

Int. Cl. G04b 43/00

U.S. Cl. 58—105

6 Claims



Protective casing for a wrist-watch particularly for use under rare or nil atmosphere conditions, said casing comprising a bezel and a bottom removably secured one to the other, the bottom having diametrically opposed recesses to accommodate passage of the wrist band of the watch and the bezel part having an aperture defined therein opening on the glass of the watch face. The casing functions to insulate the enclosed watch by reducing calorific exchanges by radiation when the watch is exposed to rare or nil atmosphere conditions. The surfaces of the casing parts are treated to maintain the ratio between the absorption and the emission of heat by radiation so that the temperature inside the casing does not go beyond -40°C in a given interval of time, and does not grow beyond 40°C in an unlimited time. The aperture defining portion may include a bearing edge surface engaging the glass of the watch face to prevent bursting thereof under vacuo environmental conditions. The bezel can carry a pair of push buttons operable upon the control pushers of a chronograph, if desired. A portion of the outer face of the bottom of the protective casing is anodized and colored.

3,740,945

INJECTOR FOR ROCKET MOTORS USING HIGH VISCOSITY FUEL

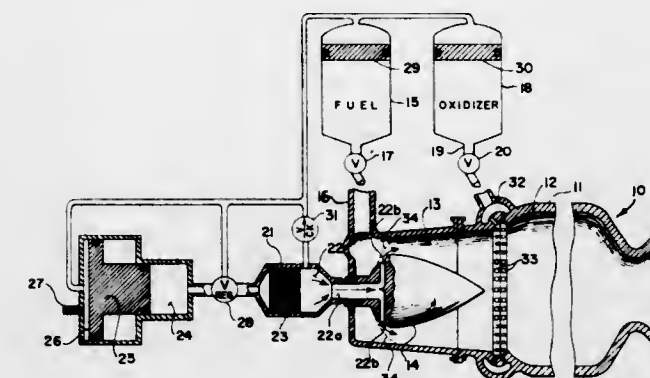
Joseph J. Lovingham, Madison, N.J., assignor to Thiokol Chemical Corporation, Bristol, Pa.

Filed Feb. 27, 1969, Ser. No. 802,833

Int. Cl. B63h 11/00

U.S. Cl. 60—204

6 Claims



An improved injector for a rocket motor using high viscosity fuel is presented which assures smooth flow of the fuel and very little pressure drop despite the extreme viscosity. A high velocity gas is made to flow over a Coanda shaped body located within the head end of the rocket motor and the fuel is thereby drawn into the combustion chamber.

3,740,946

MOMENTUM EXCHANGE THROTTLING INJECTOR

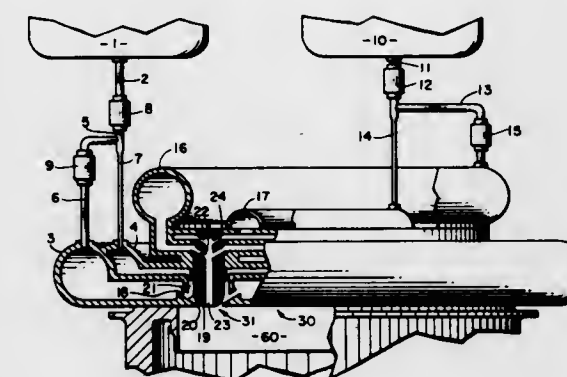
Donald E. Welton, Calabasas, and John R. Hiland, Canoga Park, both of Calif., assignors to North American Rockwell Corporation, Los Angeles, Calif.

Filed Feb. 7, 1963, Ser. No. 258,373

Int. Cl. F02k 9/02

U.S. Cl. 60—204

2 Claims



This invention relates to liquid rocket engines. More particularly, this invention relates to a throttling injector for varying propellant flow rates and consequently liquid rocket engine thrust levels over wide ranges.

3,740,947

HYPERGOLIC PROPELLANTS

Donald D. Denson, 130 B Cannonbury Court, Kettering, Ohio, and Francis M. VanMeter, 650 Montclair Drive, Lexington, Ky.

Filed Aug. 4, 1972, Ser. No. 277,955

Int. Cl. C06d 5/08

U.S. Cl. 60—215

5 Claims

A method for bringing about the auto-ignition of dicyanofurazan or dicyanofurazan by bringing these compounds in contact with hydrazine. Monomethylhydrazine, unsymmetrical dimethyl hydrazine, piperazine, piperidine or diethylamine. The resultant formulation provides an effective hypergolic bipropellant system for use in the propulsion of rockets.

3,740,948

HOT GAS GENERATOR EMPLOYING ROTARY TURBINE

Eric Kellett, London, England, assignor to C.A.V. Limited, Birmingham, England

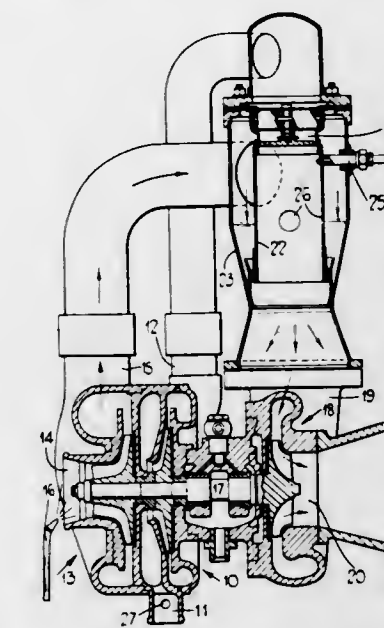
Filed Apr. 8, 1971, Ser. No. 132,429

Claims priority, application Great Britain, Apr. 14, 1970, 17,561/70

Int. Cl. F02k 3/10; F02c 7/18

U.S. Cl. 60—261

1 Claim



A hot gas generator includes a combustion chamber the heated gases from which drives a turbine the combustion chamber being provided with air/fuel mixture for burning therein by a compressor driven by the turbine. A second compressor is provided to supply dilution fluid in the form of an air/fuel mixture. The dilution fluid together with the heated gases leaving the combustion chamber are maintained at a speed which is higher than the flame speed and the combustion of the air/fuel mixture which constitutes the dilution fluid takes place in a second combustion chamber which includes a divergent portion whereby the velocity of the gases is reduced below the flame speed.

3,740,949

FUEL COOLED RAM AIR REACTION PROPULSION ENGINE

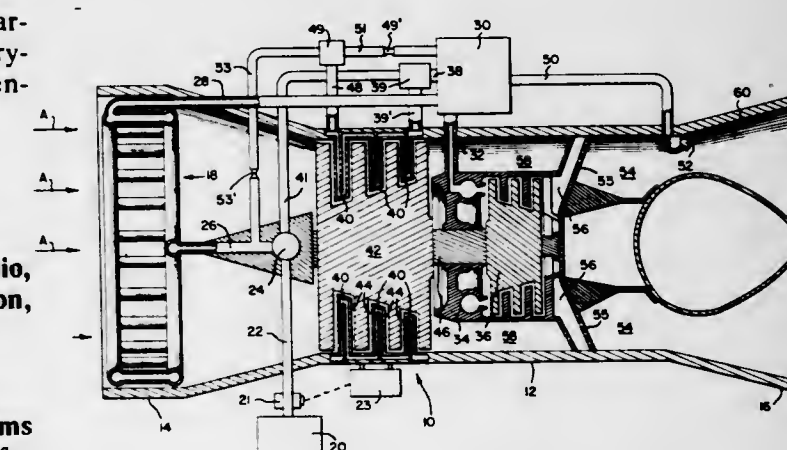
Robert L. Wolf, Chesterfield County, Va., and Rodney McGann, Northridge, Calif., assignors to Texaco Inc., New York, N.Y.

Filed Nov. 20, 1963, Ser. No. 324,958

Int. Cl. F02k 11/00

U.S. Cl. 60—267

4 Claims



1. A reaction propulsion system including means providing a combustion chamber having at its rearward end an impulse expansion outlet nozzle, means providing a ram air intake, means directing air from the ram air intake to the forward end

of the combustion chamber, a fuel storage chamber, indirect fuel heating heat exchange means in heat exchange contact with the ram air in said air directing means, means directing fuel through said heat exchange means, at least a single stage air compressor providing a portion of the air directing means between the heat exchange means and the forward end of the combustion chamber, a direct expansion turbine for driving said compressor, a further fuel heating heat exchange means, said further fuel heating heat exchange means following said at least a single stage of the air compressor and adapted to cool said air compressor compressed air prior to expansion of the compressed air, means for directing fuel through said further heat exchange means, means for directing at least a portion of the air heated fuel through the direct expansion turbine, and means for directing at least the portion of the fuel exhausting from the direct expansion turbine into the combustion chamber.

3,740,950

HYDROSTATIC TRANSMISSION WITH ACCELERATION CONTROL

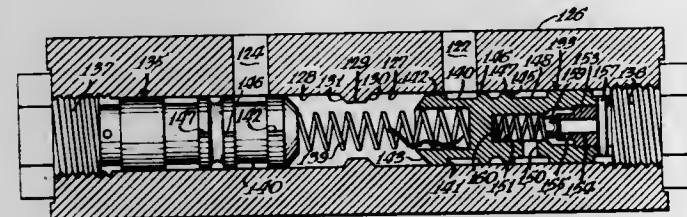
David N. Polaski, Peru, Ill., assignor to Sundstrand Corporation, Rockford, Ill.

Filed Sept. 14, 1971, Ser. No. 180,301

Int. Cl. F15b 15/18

U.S. Cl. 60—459

8 Claims



A reversible hydrostatic transmission including a pump, a motor, conduits connecting the pump and motor in closed circuit, means for varying the displacement of the pump in opposite directions from neutral, and an acceleration and deceleration control including a pair of valves communicating respectively with the pressure and return conduits and biased to open positions providing a bypass passage between the conduits for limiting the rate of pressure buildup in either conduit on acceleration or deceleration, together with means responsive to pressure buildup in one conduit on acceleration for moving the associated valve to a position closing the bypass and terminating the limit on pressure buildup.

3,740,951

HYDROSTATIC POWER TRANSMISSION SYSTEM

Yoichi Mori, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Dec. 7, 1971, Ser. No. 205,634

Claims priority, application Japan, Dec. 28, 1970, 45/119982; Dec. 28, 1970, 45/119983

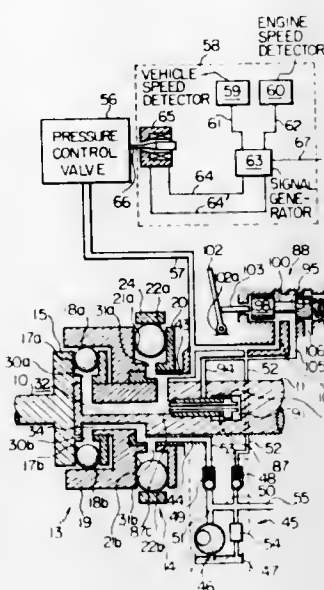
Int. Cl. F16h 39/16, 39/46

U.S. Cl. 60—465

10 Claims

Herein disclosed is a hydrostatic power transmission system of the split power path type having a constant fluid displacement unit as a pump unit driven by a driving member such as a transmission input shaft of a motor vehicle and a variable fluid displacement unit as a hydrostatic motor unit driven by the pump unit by means of fluid power and connected to a driven member such as a transmission output shaft of the motor vehicle. The two fluid displacement units are interconnected by a fluid circuit, which in the prior art transmission systems is opened to drain off the working fluid when the motor vehicle stops and closed to restore the fluid pressure in the fluid circuit when the motor vehicle is to start. A fluid pressure control

mechanism is thus connected to the fluid displacement units so that the fluid pressure in the fluid circuit is automatically reduced to zero level when the vehicle is brought to a full stop and gradually increased from the zero level as the motor vehicle is started and driven at a low speed whereby the shocks otherwise resulting from the abrupt variation in the driving



torque transmitted through the transmission system can be avoided. The transmission system is also provided with an arrangement adapted to interrupt the fluid path leading from the constant to the variable fluid displacement units during direct-drive condition in which fluid pulsation otherwise takes place in the latter unit to produce noises.

3,740,952

HYDRAULIC JACK FOR USE IN GARAGE

Yasuhiro Fujii, No. 140, Mitsu-Ikenami Unuma-cho, Kagamihara, Japan

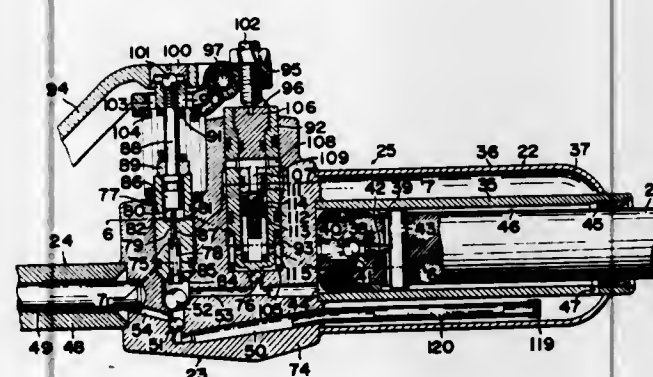
Filed Dec. 21, 1971, Ser. No. 210,326

Claims priority, application Japan, Dec. 24, 1970, 45/116682

Int. Cl. F15b 15/22

U.S. Cl. 60—477

8 Claims



A hydraulic jack is provided whose lift arm may be lowered at two different speeds, that is, high and low speeds. Release valves having low and high discharge capacities are interposed between a working oil supply and discharge passages of a hydraulic cylinder for lifting and lowering the lift arm, and in response to partial depressing of a foot pedal the low-discharge release valve is first opened, and when the foot pedal is fully depressed, both of the low and high discharge release valves are opened so that the working liquid under pressure may be discharged selectively in small and large quantities from the hydraulic cylinder.

3,740,953

HYDROSTATIC POWER TRANSMISSION SYSTEM

Yoichi Mori, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama City, Japan

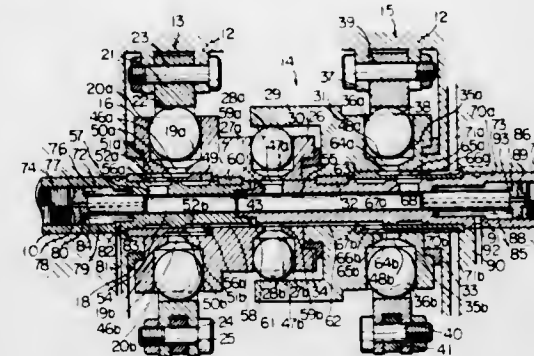
Filed Dec. 27, 1971, Ser. No. 211,893

Claims priority, application Japan, Dec. 28, 1970, 45/119985

Int. Cl. F16h 39/16, 39/46

U.S. Cl. 60—489

17 Claims



An improved hydrostatic power transmission is disclosed including first, second and third fluid displacement units, of which the first and second fluid displacement units are constructed as variable-displacement and constant-displacement units, respectively, while the third fluid displacement unit may be constructed either as a variable-displacement or as a constant-displacement unit as the case may be. The transmission system features split-power characteristics in which the second fluid displacement unit acts not only as a hydrostatic unit but as a mechanical reaction unit whereby the input power is split into two input and/or output components. The transmission efficiency is consequently increased to a significant extent in spite of the simple and small-sized construction of the transmission system. A typical practical application of the transmission system is motor vehicles including heavy-duty industrial vehicles in which powerful braking actions are required when they are to be stopped.

3,740,954

VARIABLE SPEED HYDRAULIC DRIVE MECHANISM

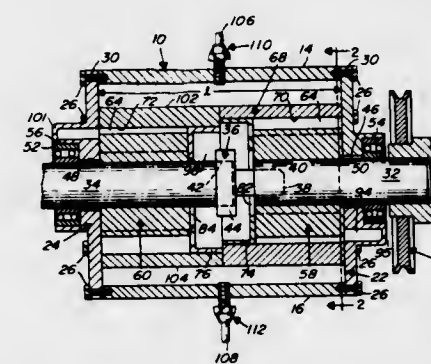
Thomas A. Young, Roselle, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Mar. 20, 1972, Ser. No. 236,001

Int. Cl. F16h 39/04, 39/46

U.S. Cl. 60—489

8 Claims



A variable speed hydraulic drive system includes an outer housing having a block member mounted for movement in a predetermined direction therein. The block member includes a pair of eccentric, communicating cylindrical chambers formed therein; the axes thereof being perpendicular to the movement of the block member. A positive displacement vane-type rotor is mounted in each chamber on an independently rotatable shaft. The rotor shafts are coaxial. Porting plates are provided at the inner ends of the chambers to permit passage of hydraulic fluid from one chamber to the other.

One of the rotor shafts is driven by a prime mover. Rotation of the shaft causes a corresponding rotor to carry quantities of hydraulic fluid introduced into a respective chamber to the other chamber to drive the second rotor at a predetermined speed of rotation. The shaft of the second rotor is connected to an alternator or the like device. Movement of the block member alters the fluid displacement in both chambers simultaneously to change the ratio of speeds of rotation of the rotors.

ERRATUM

For Class 60—542 see:
Patent No. 3,740,960

3,740,955

FLEXIBLE OIL BOOM FOR HIGH SEA

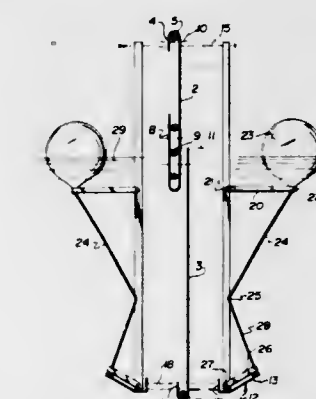
Robert A. Fossberg, Montreal, Quebec, Canada, assignor to Hurum Shipping & Trading Company, Ltd., Montreal, Quebec, Canada

Filed July 7, 1971, Ser. No. 160,488

Int. Cl. E02b 15/04

U.S. Cl. 61—1 F

9 Claims



A flexible oil boom is described which has unique capabilities of being compactly stored and also being extremely stable in heavy seas. The boom includes a curtain wall of sheet material for deploying in a substantially vertical position in the water such that the upper edge is above the water surface and the lower edge is below the water surface. A plurality of substantially vertical stiffening members are positioned in spaced relationship along the length of the curtain wall, these members being arranged in opposed pairs with the curtain wall sandwiched between. Outrigger members are connected on each side of the boom a short distance below the water line and each outrigger has an inner end pivotally connected to a stiffening member and an outer end having a connector for connecting a float thereto. A restraining member allows the outrigger to swing between a downward retracted position adjacent the stiffening member and an operating position substantially perpendicular to the stiffening member. Keel members are pivotally connected to the lower ends of the stiffening members at both sides of the curtain wall and these keels are held by restraining members which allow them to swing between an upper retracted position adjacent the curtain wall and an operating position in which they are upwardly and outwardly inclined.

3,740,956

PORTABLE RETAINING STRUCTURE

Arthur L. Guy, Houston, and David E. Galloway, Simonton, both of Tex., assignors to Esso Production Research Company, Houston, Tex.

Filed Nov. 12, 1970, Ser. No. 198,127

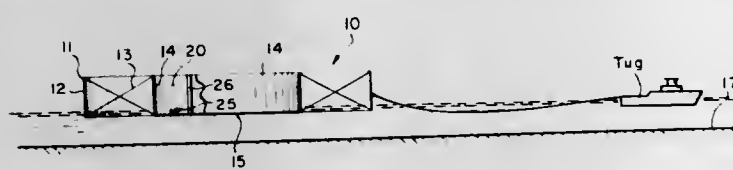
Int. Cl. E02d 21/00

U.S. Cl. 61—46.5

12 Claims

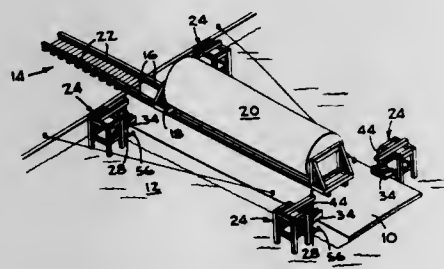
A portable marine structure for use as an artificial island and retaining support for fill material includes a tank member

having a base member and a wall member sealed to the base member and capable of being flooded with water and sunk in a body of water with flood water to be replaced by select fill material, that may or may not be frozen to resist ice forces against the retaining structure. The floatable structure also includes an outer shell having an outer wall member spaced from and surrounding the tank wall member and a truss



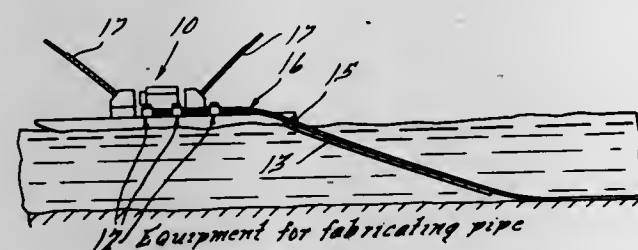
system connecting the tank wall member to the outer wall member. The outer shell is open at top and bottom. The artificial island structure is created by floating the marine structure to a desired water location, sinking the structure by flooding the tank with water and then anchoring the structure by filling the outer shell with fill material. When the structure is to be salvaged, it is floated by removing the fill material from the outer shell and removing water from the tank member.

3,740,957
APPARATUS FOR STABILIZING A BARGE
Robert J. McKenzie, Bank of Salesburg Bldg., Galesburg, Ill.
Filed Feb. 8, 1971, Ser. No. 113,423
Int. Cl. E02b 3/20; B63b 25/00
U.S. Cl. 61-48 7 Claims



An apparatus for stabilizing a barge at a loading and/or unloading site includes a plurality of pilings with portions adapted for connection to a barge. The barge is also provided with connection means and means are provided for attachment to said connection means whereby the level of the barge can be adjusted in the water to a selected level.

3,740,958
METHOD OF FABRICATING AND INSTALLING A SUBMERGIBLE PIPELINE
Sidney M. Cadwell, 436 Washington Road, Grosse Pointe, Mich.
Continuation-in-part of Ser. No. 782,966, Dec. 11, 1968. This application Jan. 19, 1971, Ser. No. 107,677
Int. Cl. F16l 1/00; B31c 13/00; B65h 37/00
U.S. Cl. 61-72.1 6 Claims

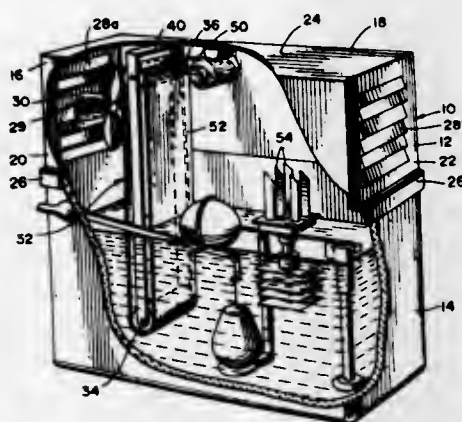


This disclosure pertains to an improved method of continuously fabricating pipe for use in the transmission of fluids, or other flowable materials, between locations separated by an aqueous body, such as a shore location and an off-shore well.

The method includes transporting the constituent materials for fabricating the pipeline on a pipe laying barge to the site wherefrom the pipeline is to be installed, and continuously fabricating the pipe on the barge while simultaneously installing the pipe on, or within, the bed of the body of water to the site where the pipeline is to connect. The pipe itself is comprised of a foundation tube of an oil and gas resistant polymer suitably strengthened by a selective number of additional layers of wire, cable, metallic strips or sheets, other polymeric layers, or a combination thereof, as is necessary to withstand both the internal stresses imposed by the transmitted fluid, and the external stresses imposed by the installation or laying technique and the under-water situs wherein the pipeline is to be located.

3,740,959
HUMIDIFIER-DEHUMIDIFIER DEVICE
Frank D. Foss, 830 North State St., Chicago, Ill.
Filed Sept. 16, 1971, Ser. No. 181,158
Int. Cl. F25b 21/02 8 Claims

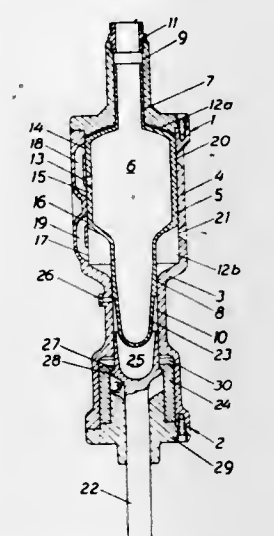
U.S. Cl. 62-3



A humidifier-dehumidifier device operates in combination with a water closet. The device includes a housing with a fan mounted therein. The fan blows air through water transfer means and cooling fins positioned within the housing. Control means alternatively energize the water transfer means to humidify the air, or the cooling fins to dehumidify the air. The water closet acts as a cycling water reservoir in the humidifying mode of operation and as a catch basin in the dehumidifying mode of operation.

3,740,960
ELASTIC PRESSURE FLUID DRIVEN MOTOR
Eero Antero Erma, 23, Outfallsvagen, Klinten, Sweden
Filed Nov. 3, 1970, Ser. No. 86,580
Claims priority, application Sweden, Nov. 7, 1969, 15298/69
Int. Cl. F01l 21/02 6 Claims

U.S. 60-542

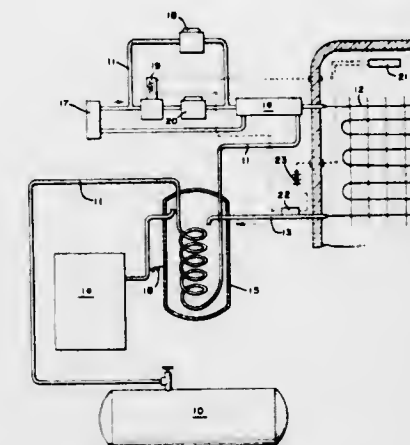


The invention concerns an elastic fluid driven motor consisting of a cylinder housing wherein a piston is reciprocally

guided. The piston is hollow enclosing a surge chamber and acts as its own distributing valve. For reducing the stresses occurring in the piston it is recoiled at both its end positions by means of elastic fluid cushions. At the forward end position the piston is recoiled by powertransmitting elastic fluid cushion and at its rear end position the piston is rebounded by an elastic cushion enclosed in a chamber formed in part by the piston during its return stroke.

3,740,961
OPEN CYCLE AMMONIA REFRIGERATION SYSTEM
Harry C. Fischer, Royal Oak, Md., assignor to Allied Chemical Corporation, New York, N.Y.
Filed May 22, 1972, Ser. No. 255,467
Int. Cl. F25b 19/00 10 Claims

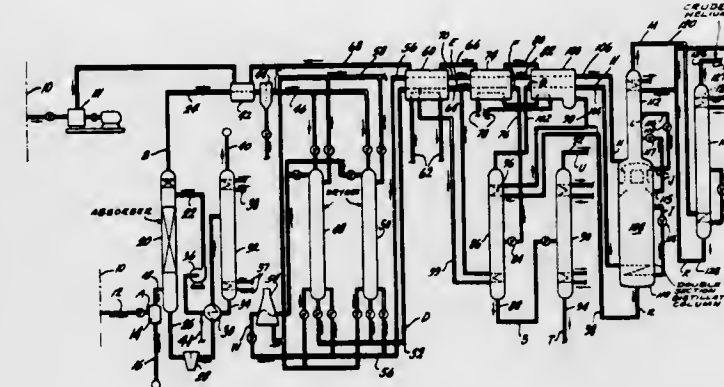
U.S. Cl. 62-7



This invention provides an improved open cycle ammonia refrigeration system of the type wherein ammonia, supplied from a refillable storage tank, is employed as a refrigerant, and after serving as the refrigerant, is disposed of by combustion in a burner. The improved system includes, in parallel flow arrangement, a constant pressure expansion valve and means for regulating the flow of ammonia through the system. The regulating means includes a solenoid valve actuated by a thermostat in the compartment being refrigerated. The expansion valve permits a flow of ammonia sufficient to sustain combustion when the solenoid valve is closed. The regulating means prevents overload of the burner due to too rapid flow of ammonia through the system and prevents liquid ammonia from entering the burner.

3,740,962
PROCESS OF AND APPARATUS FOR THE RECOVERY OF HELIUM FROM A NATURAL GAS STREAM
Sin Chou Fan, East Lansing, Mich., assignor to Commonwealth Associates Inc., Jackson, Mich.
Filed Sept. 18, 1970, Ser. No. 73,300
Int. Cl. F25j 1/00, 3/00, 3/02 3 Claims

U.S. Cl. 62-29



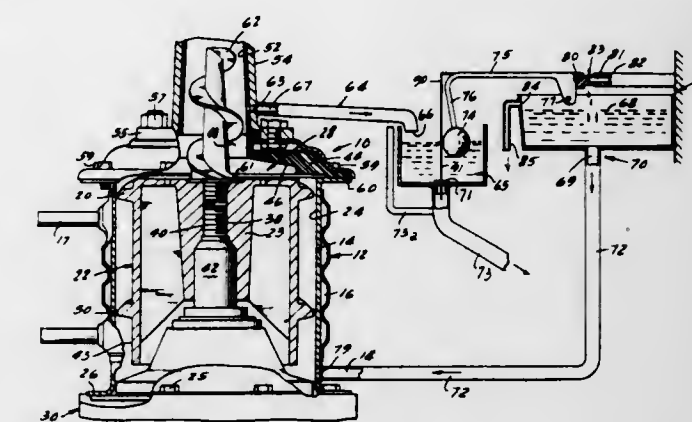
A process for recovery of helium from a natural gas stream containing components such as acid gases, moisture,

911 O.G.-45

hydrocarbons, nitrogen and helium. The process includes steps of feed gas preparation, refrigeration cooling and liquefaction, and separation of helium from the hydrocarbons and then nitrogen. Apparatus for carrying out the process is disclosed.

3,740,963
WATER CONTROL FOR ICE MAKER
John B. Lyman, Bloomington, and Phillip H. Turner, Inver Grove Heights, both of Minn., assignors to Whirlpool Corporation, Benton Harbor, Mich.
Filed Apr. 17, 1972, Ser. No. 244,536
Int. Cl. F25c 1/14 9 Claims

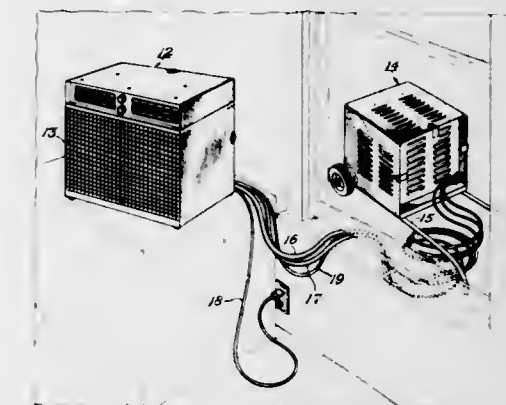
U.S. Cl. 62-66



A method and means for controlling the water flow of a water using device such as an ice making device in which water is fed in excess of the capacity of the ice making device. The excess water vented from the device is received in a drain reservoir having means for restricting the drainage of the excess water. The amount of water fed to the ice making device is proportional to the amount of excess water received in the reservoir, and thus varies directly with the amount of water used by the device.

3,740,964
PORTABLE AIR CONDITIONER
Jack E. Herweg, Fort Worth, Tex., assignor to Tomco, Inc., Fort Worth, Tex.
Filed June 14, 1971, Ser. No. 152,558
Int. Cl. F25d 19/02 9 Claims

U.S. Cl. 62-262



A portable air conditioner comprising a cooling unit to be placed in a zone to be cooled, for example, a room of a house, and a refrigerant condensing unit to be placed outside of the zone. Located in the cooling unit is a heat exchanger and an air moving device. Located in the condensing unit is a compressor, a heat exchanger, and an air moving device. Flexible fluid conduits are provided for coupling the cooling unit to the condensing unit.

The two units have two ends respectively adapted to be locked together for forming a single unit. Storage space located between the two ends is provided for storing and concealing the flexible conduits when the two units are locked together.

3,740,965

APPARATUS FOR DEFROSTING COOLING UNITS OF ABSORPTION REFRIGERATION SYSTEMS

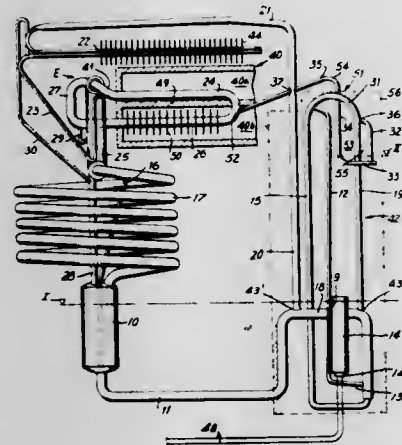
Wilhelm Georg Kogel, Lidings, and Bernt Henry Roland Dahlqvist, Motala, both of Sweden, assignors to Aktiebolaget Electrolux, Stockholm, Sweden

Claims priority, application Sweden, Oct. 8, 1970, 13626/70
Filed Oct. 6, 1971, Ser. No. 187,078

Int. Cl. F25b 15/10

U.S. Cl. 62-278

10 Claims



In an hermetically sealed absorption refrigeration system employing an inert gas, refrigerant vapor expelled from solution in a generator by heating normally is conducted through a main vapor line to a condenser in which the vapor is liquefied and from which liquid refrigerant is conducted to an evaporator to produce useful refrigeration. From accumulating on the evaporator is melted by such expelled vapor which is diverted from the main vapor line and flows directly to the evaporator through a by-pass connection. The main vapor line and by-pass connection have places for collecting and trapping liquid resulting from condensation of the vapor and in which trapped liquid offers resistance to flow of vapor therethrough.

When the liquid trapped in the main vapor line offers sufficient resistance to stop flow of vapor therethrough, vapor is diverted from the main vapor line through the by-pass connection, such diverted vapor being capable of passing through any liquid in the by-pass connection and flowing to the evaporator to melt frost formed thereon. When vapor is diverted into the by-pass connection the pressure of vapor acting on the liquid trapped in the main vapor line is reduced which causes removal of liquid therefrom, thereby reducing the resistance it offers to flow of vapor therethrough below that offered by liquid trapped in the by-pass connection. When this occurs normal flow of vapor to the condenser takes place through liquid trapped in the main vapor line.

3,740,966

ROTARY HEAT PUMP

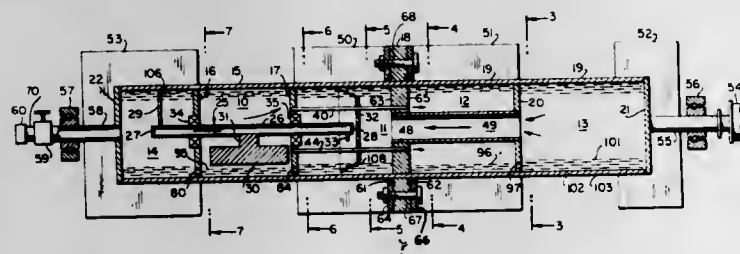
Milton F. Pravda, Baltimore, Md., assignor to Dynatherm Corporation, Cockeysville, Md.

Filed Dec. 17, 1971, Ser. No. 209,178

Int. Cl. F25b 15/02, 3/00

U.S. Cl. 62-476

21 Claims



A heat-operated rotary heat pump is provided for use in air conditioning, particularly for cooling the passenger compartment of an automobile or other vehicle. It includes a generator, absorber, condenser, and evaporator, all mounted for rotation as a group. The device is capable of being made portable.

3,740,967
FORCED-FLOW VAPORIZER FOR COMPRESSION-TYPE REFRIGERATING EQUIPMENT

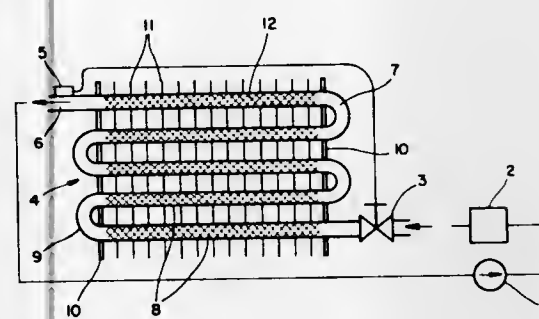
Zbigniew Ryszard Huelle, Sonderberg, Denmark, assignor to Danfoss A/S, Nordberg, Denmark

Filed Apr. 7, 1971, Ser. No. 131,913

Claims priority, application Germany, Mar. 23, 1970, P 20 12 808.3

Int. Cl. F25b 41/04

1 Claim



The invention relates to a forced flow vaporizer for compression type refrigeration equipment which vaporizer includes a pipe through which refrigerant flows. The effective outside radiating surface of the pipe is increased with fins and mesh inserts are disposed interiorly of the pipe, the fins and inserts only being provided for the straight portions of the pipe.

3,740,968

STABILIZED BELLOWS COUPLING FOR TRANSMITTING ROTARY MOVEMENT

Michel Orain, Conflans-Sainte-Honorine, France, assignor to Societe Anonyme: Glaenger Spicer, Poissy, France

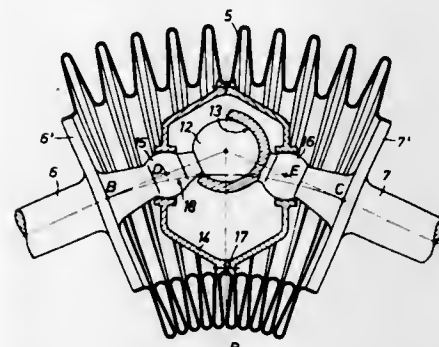
Filed Oct. 18, 1971, Ser. No. 190,107

Claims priority, application France, Nov. 10, 1970, 7040490

Int. Cl. F16d 3/52

U.S. Cl. 64-11 B

11 Claims



A coupling for transmitting rotary movement from one shaft to another with a bellows stabilizing device. Extensions are provided at the free ends of each shaft. A ball is mounted at the free end of one of the shafts and a socket at the free end of the other shaft for rolling engagement with the ball. The bellows is mounted at its ends on plates at the other ends of the extensions. A support case is mounted on enlarged spherical portion along the extension between the free ends and the plates. The support case maintains the middle pleat in radial translation and orientation such that the longitudinal axis of the bellows forms an arc of a circle tangent to the axes of the shafts at the plates securing the endmost pleats. In addition, lateral guides may be provided which bear against the support case and the extensions and support pleats intermediate the middle pleat the endmost pleats.

3,740,969

UNIVERSAL JOINTS

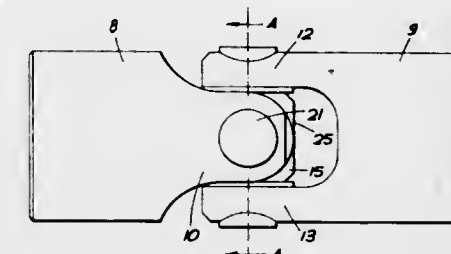
Brian Alfred Shotton, Romford, England, assignor to The Motor Gear & Engineering Company Limited, Romford, England

Filed May 7, 1971, Ser. No. 141,343

Int. Cl. F16d 3/33

U.S. Cl. 64-17 A

12 Claims



The drawing discloses a universal joint comprising two forks each providing two spaced arms, a center block having four locating members projecting therefrom in the form of a cross, the two arms of one fork having bores containing bearings in which one pair of the locating members are rotatably mounted and the two arms of the other fork having bores containing bearings in which the other locating members are rotatably mounted, each locating member having a recess on its outer end for holding a supply of lubricant and there being a cap fitted over and spaced from the outer end of each locating member to direct lubricant from the recess to the bearing in which the locating member is mounted.

3,740,970

MOTOR TO SHAFT COUPLING TO PERMIT SELF-ALIGNMENT THEREBETWEEN

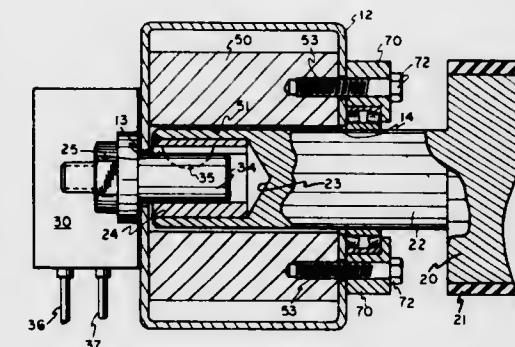
Donald K. Christian, and Ronnie L. Stafford, both of Spartanburg, S.C., assignors to Piedmont Engineering and Machine Company, Inc., Spartanburg, S.C.

Filed May 3, 1971, Ser. No. 139,594

Int. Cl. F16d 3/04

U.S. Cl. 64-31

10 Claims



An improved self aligning coupling between a motor and an elongated shaft for direct driving of the shaft is disclosed. The improved system continuously permits self alignment between the motor and the driven shaft to drive said shaft without danger of damage to the motor. The motor drive shaft is rigidly keyed to the driven shaft while the motor per se is loosely secured to a support frame. The loose relationship between the motor and the frame is sufficient to produce torque while at the same time permitting limited motor movement for alignment purposes. Shock absorbers are provided for the motor to prevent damage thereto and to abate noise when torque is applied.

3,740,971

CONSTRUCTION OF JACK SELECTORS IN CIRCULAR KNITTING MACHINES

Jaime Tratal Font, Carretera de Barcelona, s/no., Mataro (Barcelona), Spain

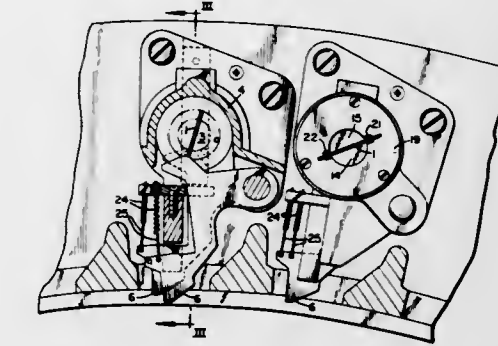
Filed Dec. 30, 1970, Ser. No. 102,711

Claims priority, application Spain, Dec. 30, 1969, 375635

Int. Cl. D04b 15/74

U.S. Cl. 66-50 B

11 Claims



A jack selector device in a circular knitting machine in which a pair of elongated elements define an elongated slit rotatable in a cylinder. A key for making the jack selections is inserted into the slit and has opposite edges extending outwardly of the opposite sides of the slit. The opposite edges of the key have irregularities or teeth that correspond to two patterns of jack selection. The key is rotated so that the edges alternatively engage surfaces on jack selectors to actuate them from a rest position to an operative position in which they are actuated to execute the jack selection. The jack selectors are biased to their rest position by respective biasing springs.

3,740,972

PATTERNING WHEELS FOR WEFT KNITTING MACHINES

Terence Francourt St. Clair Langham, Leicester, England, assignor to Kroy Knitting Developments Limited, Leicester, England

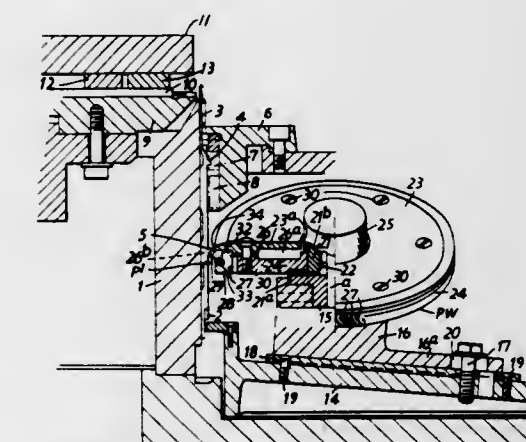
Filed Apr. 19, 1971, Ser. No. 135,017

Claims priority, application Great Britain, May 2, 1970, 21,180/70

Int. Cl. D04b 15/76

U.S. Cl. 66-50 A

6 Claims



A rotary pattern wheel which effects selection of knitting instruments having butts in a weft knitting machine. Axis of wheel is inclined to these instruments and provided with tricks so inclined to radial planes of the wheel as to be parallel to said instruments. Each trick accommodates a bit having at least one protuberant butt-engaging formation, the bits being so arranged that their formations either act or do not act upon butts. The bits are supported by a common pivot ring so that each bit is turnable about this ring to selectively move a butt-engaging formation thereon to an operative or an inoperative position.

3,740,973

STRAIGHT BAR KNITTING MACHINES

Raymond Blood, and Eric Walter Marriott, both of Loughborough, England, assignors to William Cotton Limited, Loughborough, England

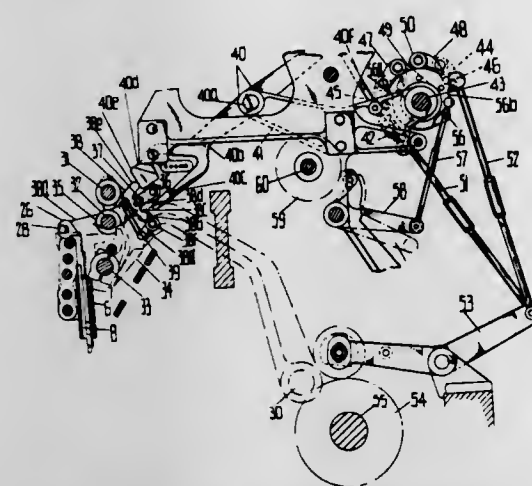
Filed Oct. 12, 1971, Ser. No. 188,257

Claims priority, application Great Britain, Nov. 19, 1970, 54,052/70

Int. Cl. D04b 11/04

U.S. Cl. 66—88

8 Claims



A straight bar knitting machine and method of forming thereon a rib border followed by loop transfers for changing to fashioned non-rib fabric, with loop doublings in the last knitted rib course, in which two groups of loop transfer points are used for the loop doublings and embody fashioning groups of points, with pattern controlled lever, trip and ratchet means for causing the fashioning groups of points and the remainder to be relatively displaced and held in and out of mutual alignment, and loop filling-up points associated with the groups of points to fill up holes during fashioning by widening.

3,740,974

ELASTIC RIBBON HAVING A BAND OF FANCY DESIGNS AND A METHOD OF MANUFACTURE OF THIS RIBBON

Alain Charles Bourgeois, Le Puy-Haute-Loire, France, assignor to Elastelle Paul Fontanille & Fils, Le Puy Haute-Loire, France

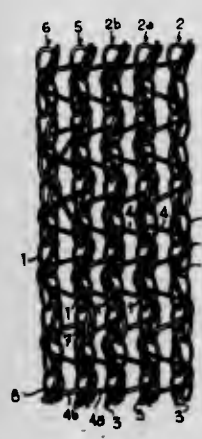
Filed Apr. 26, 1971, Ser. No. 137,544

Claims priority, application France, Apr. 30, 1970, 7016043

Int. Cl. D04b 23/06

U.S. Cl. 66—193

10 Claims



An elastic ribbon with fancy designs, especially intended for sewing on the edges of articles of underwear. The ribbon is produced on a straight drop-stitch loom and comprises two adjacent bands of elastic threads and non-elastic threads, one of said knitted bands being flat and uniform and having at least one elastic thread associated with a column of stitches, the other band being constituted by a succession of designs resulting from an association between at least two columns of

stitches of non-elastic thread respectively associated with an elastic thread, and is coupled to said flat band by at least one non-elastic thread, in which the elastic thread of the column of stitches in the band of designs adjacent to said flat band has a length practically equal to that of the elastic threads of said flat band and smaller than that of the elastic threads of the other columns of stitches of said band of designs, at least one of the elastic threads of the columns of stitches of said band of designs being transposed here and there from the column of stitches with which it is associated and becoming integrated with one of the other columns of stitches of said band of designs, the transfer of the elastic thread affecting in all cases the column of stitches located on the border of said ribbon.

3,740,975

ROTARY-RADIAL ACTION WASHING MACHINE

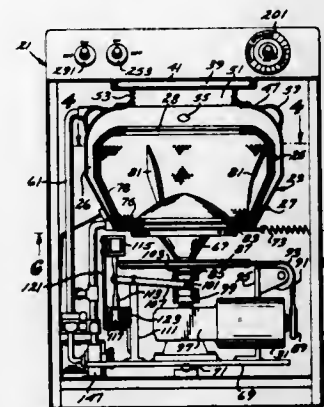
George W. Cornelius, 279 W. 7th St., San Pedro, Calif.

Filed Sept. 30, 1970, Ser. No. 76,880

Int. Cl. D06f 23/02, 23/04, 37/20

U.S. Cl. 68—18 F

14 Claims



The present invention relates to a rotary washing machine which produces a radial flow washing action and includes a frame having a stationary tank mounted therein. A rotary inner basket is mounted within the stationary tank and is formed with a plurality of radially projecting passages for passage of washing fluid. Fluid directing means is interposed between the stationary tub and rotary inner basket for intercepting fluid propelled outwardly through such passages by centrifugal force to direct it back to the interior of the rotary tub for circulation back outwardly through the clothes and out through the passages to again be recirculated.

3,740,976

COLLAPSIBLE YARN DYE TUBE

Frank Fyans, Greenville, S.C., assignor to Fyans' Associates, Inc., Greenville, S.C.

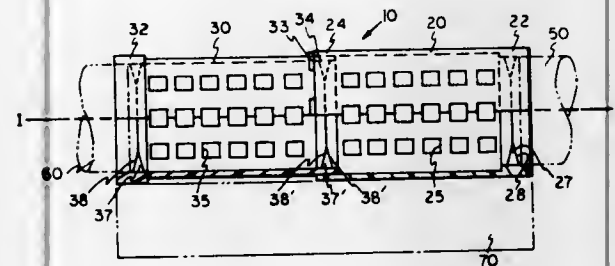
Continuation-in-part of Ser. No. 158,729, July 1, 1971. This

application Jan. 3, 1972, Ser. No. 214,673

Int. Cl. B65h 75/22; B05c 8/02

U.S. Cl. 68—198

15 Claims



An improved collapsible yarn dye tube assembly is disclosed comprising two tubular members, one of which telescopes an initial limited distance into the other. Both tubular members have an outer end and an inner end with the telescoping arrangement taking place at the inner ends thereof. A plurality of openings or perforations around the tubular members and

extending at least a major portion of the length thereof permit dye liquor to pass therethrough when yarn is wound around the dye tube and the package is placed in a dye kettle. The outer ends of the tubular members possess thickened wall portions so as to permit an abutting relationship between adjacent dye tubes whereby a solid relationship is established and whereby pressure transmitted from one dye tube to the next for collapsing thereof is evenly transmitted along the tube. Dye spindle alignment means are also provided on the inner periphery of the members to center the yarn package around the dye spindle. Alignment means may also be provided at the inner ends of the tubular members to prevent blockage of the perforations upon collapse of the dye tube. Further, the dimensions of the assembled dye tube establish driving contact between the tube and a winder drum at least at both outer ends and the middle of the assembly to improve winding the package produced.

3,740,977

HANDCUFF COVER ASSEMBLY

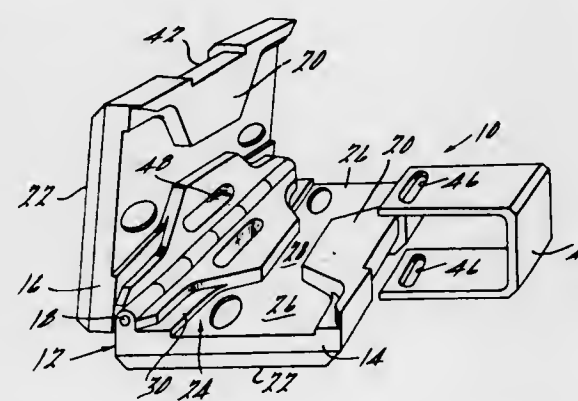
Kaj E. Stefansen, 207 St. Louis Avenue, and Jack D. Cullip, 405 Marvin Avenue, both of Milan, Mich.

Filed July 27, 1971, Ser. No. 166,398

Int. Cl. E05b 75/00

U.S. Cl. 70—16

9 Claims



A cover assembly which is applied to conventional handcuffs for the purpose of restraining prisoner hand movement for safety purposes. The cover assembly consists of a hinged body which is applied over the handcuff wristlets so as to form a rigid link therebetween which precludes relative rotational movement of the wristlets. The cover assembly also encloses the conventional wristlet locks on the handcuffs so as to positively prevent prisoner access to these locks.

3,740,978

LATCH AND LOCK STRUCTURE

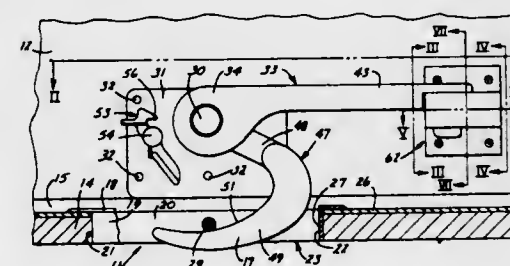
Vernon O. Smith, Ashley, and John W. Binns, Marion, both of Ohio, assignors to Overhead Door Corporation, Marion, Ohio

Continuation-in-part of Ser. No. 20,565, March 18, 1970, Pat. No. 3,642,314. This application Dec. 16, 1971, Ser. No. 208,861

Int. Cl. E05b 65/16; E05c 3/10

U.S. Cl. 70—100

7 Claims



A latch and lock structure for a door wherein the latch means includes a bolt and is pivotally mounted upon the door

for movement around an axis substantially perpendicular to the plane of the door when it is in the closed position. The latch means has an end portion with a recess opening radially of said axis. A bracket is secured to the door for engagement by the latch means when it is in the latched position. The shackle of a padlock is secured to the bracket and the body of the padlock is in a locked position relative to said shackle when said body is in said recess and when said latch means is in said latched position.

3,740,979

DOOR STILE LOCK AND LATCH BOLT ASSEMBLY

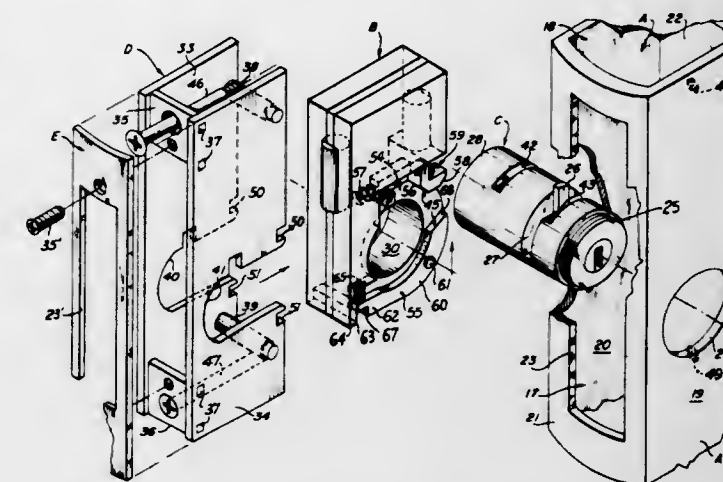
Alois Crepinsek, San Jose, Calif., assignor to Security Technology Corporation, San Jose, Calif.

Filed Dec. 22, 1971, Ser. No. 210,813

Int. Cl. E05b 65/06

U.S. Cl. 70—139

10 Claims



A door stile bolt pivotally mounted on a lock containing cylinder and having bolt latching mechanisms interrelated with the lock for direct action by the latter for release and rotary movement of the bolt about the lock and cylinder between two extreme positions of locked and unlocked condition. The assembly of such bolt and lock containing cylinder within a recess formed within the door stile with a minimal exposure of the lock within the cylinder at the outer side of the stile and means for protecting the bolt and interrelated mechanisms between the bolt and lock against tampering and for affixing the cylinder containing the lock relative to the door stile.

3,740,980

AUTOMOBILE TRUNK LOCK MECHANISM (ANTI-THEFT DEVICE)

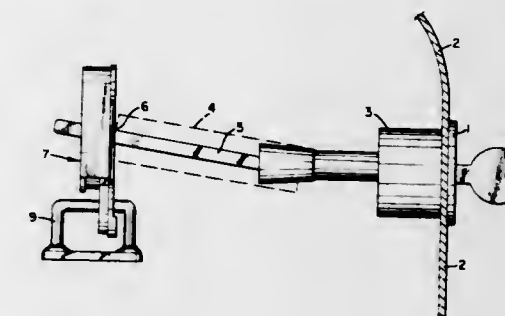
Gregory Frank Schimizzi, and Ernest Joseph Schimizzi, both of 1563 76th St., Brooklyn, N.Y.

Filed June 2, 1971, Ser. No. 149,218

Int. Cl. E05b 63/00, 65/12

U.S. Cl. 70—417

1 Claim



General consideration of the present invention is to provide a device which would prevent the unauthorized opening of an automobile trunk lock without the use of a key. The device is fashioned to conform to various automobile trunk lock

designs. The device offers protection by incasing the vulnerable areas of the lock, which if disturbed could result in the trunk's opening thus defeating the lock's purpose. The device is readily and economically fabricated from sturdy and durable material. The device requires no special care and no special knowledge for use by the user.

3,740,981

CLOSURE DEVICE FOR LOCKS

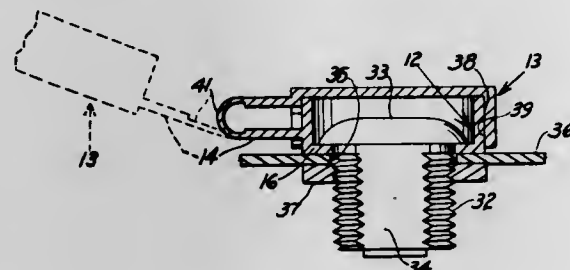
George P. Patriquin, Framingham, Mass., assignor to Hudson Lock, Inc., Hudson, Mass.

Filed Apr. 27, 1971, Ser. No. 137,755

Int. Cl. E05b 17/18; H01r 13/44

U.S. Cl. 70—455

15 Claims



An integrally formed closure unit including an annular base, a cap and a flexible connector as member portions. An annular seal surface on the base is dimensionally mated to a mating surface on the cap so as to be slidably engagable therewith. After mounting of the annular base around an opening to be protected, the cap can be manipulated into either open or closed positions.

3,740,982

TEMPERATURE AND SHAPE CONTROL SYSTEM FOR ROLLING MILL ROLLS

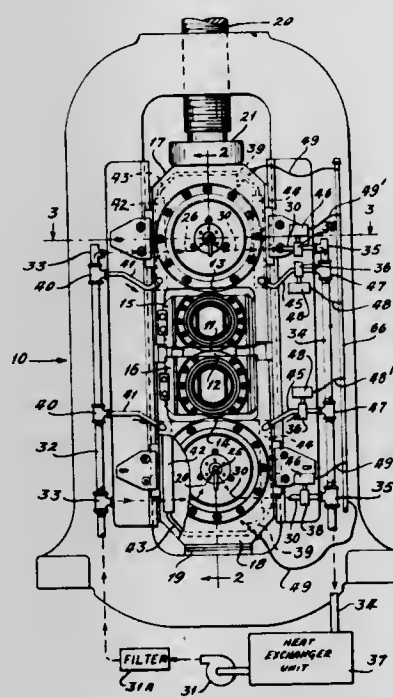
Robert W. Hacker, Massillon, and Wyn E. McCoy, Canton, both of Ohio, assignors to The Timken Company, Canton, Ohio

Filed Nov. 4, 1971, Ser. No. 195,684

Int. Cl. B21b 37/10, 27/06

U.S. Cl. 72—13

7 Claims



A temperature and shape control system for rolling mill rolls operable to extract heat or add heat to the roll ends of the back-up rolls to produce and maintain a heat balance and temperature gradient across the width of the roll bodies to maintain the desired roll shape for determining and improving the flatness of the product being produced in the rolling mill.

3,740,983
AUTOMATIC GAUGE CONTROL SYSTEM FOR TANDEM ROLLING MILLS

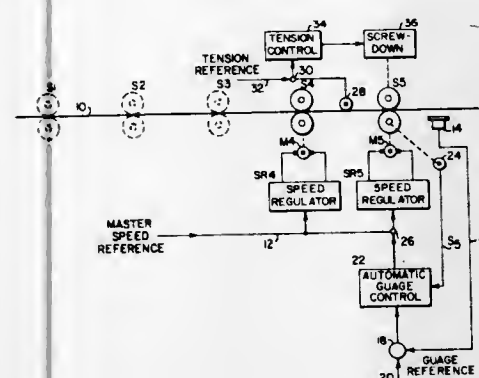
Robert S. Peterson, and John W. Cook, both of Williamsville, N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 29, 1972, Ser. No. 230,284

Int. Cl. B21b 37/02

U.S. Cl. 72—16

9 Claims



Method and apparatus for varying the gain of an automatic gauge control loop for tandem rolling mills wherein final output gauge is controlled by varying the speed of the last stand in the tandem mill, while tension is controlled between the last two stands by varying the screwdown setting of the last stand. The gain of the control loop is varied as a function of transport time between the bite of the rolls of the last stand and a thickness gauge positioned beyond the last stand. A gauge deviation signal measured in volts/percent error is multiplied by a last stand speed signal to produce a first error signal and by the square of the last stand speed signal to produce a second error signal. These two error signals are summed. At low speeds, the first error signal is effective to control last stand speed with reduced loop gain. However, at higher speeds, the second error signal becomes effective and increases the gain of the loop. Additionally, since the multipliers used to produce the first and second error signals may be inaccurate at very low speeds, the gauge deviation signal is also summed with the aforesaid two error signals and used to control the system at very low speeds.

3,740,984

SPRING-COILING MACHINE

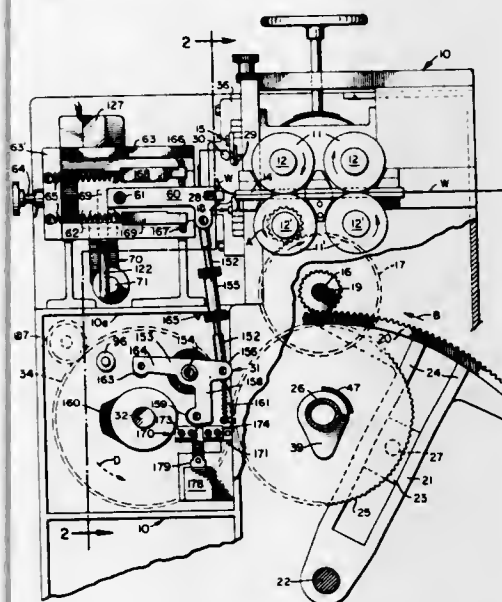
Charles R. Bergevin, R.F.D. No. 2, Winsted, Conn.

Filed Jan. 4, 1971, Ser. No. 103,648

Int. Cl. B30b 15/00; B21f 11/00

U.S. Cl. 72—30

18 Claims



An automatic, spring-coiling machine of the gear-segment type in which the wire is fed into engagement with the coiling

tools on each feed-stroke of the gear segment and having a cutter for severing the spring from the supply of wire at the end of the coiling cycle for each spring. The cutter may be deactivated in order to feed wire with more than one feed-stroke of the segment, and each of the coiling tools may be deactivated during any portion of the coiling cycle and then reactivated again at any point in order to make changes in the configuration of the spring anywhere along the length of the spring, as well as at its ends.

3,740,985

APPARATUS AND METHOD FOR CONTINUOUS EXTRUSION

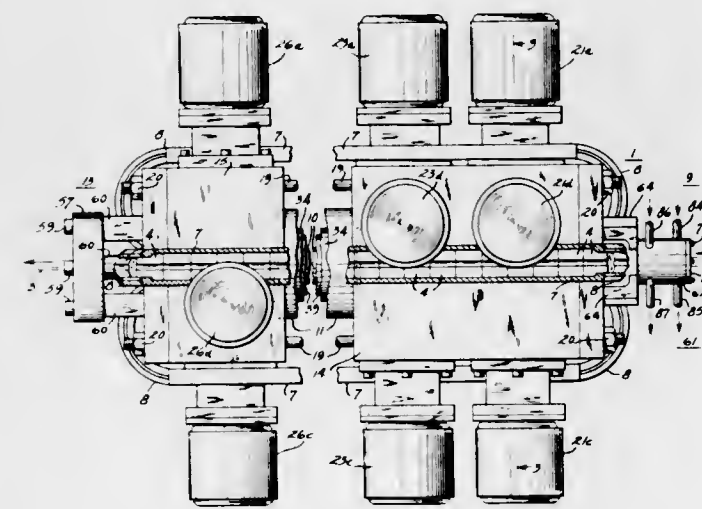
Francis Joseph Fuchs, Jr., Princeton Junction, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Nov. 17, 1971, Ser. No. 199,542

Int. Cl. B21c 33/00

U.S. Cl. 72—60

82 Claims



Four trains of gripping element quadrants are continuously propelled around four endless paths, meeting along one length of travel common to the four paths and cooperating along said common length of travel to form a continuously moving train of centrally apertured gripping elements moving toward an extrusion die adjacent the end of said common length of travel. Rod of indefinite length, coated with shear transmitting medium and extending into the central apertures of the gripping elements, is drawn along the common length of travel by means of shear forces generated in said coating by said gripping elements and transmitted to said rod as viscous drag force along the surface of the rod. Axial and normal stresses are built up in the rod to stress the rod far above its yield strength and increase its ductility, or capacity for deformation without fracture. In this state, the rod is moved through and deformed by the die. A pressure cylinder surrounds the gripping elements along the common length of travel and provides balanced increasing lateral support to the gripping elements as they move toward the die.

3,740,986

BALL JOINT, ESPECIALLY FOR STEERING DEVICES AND WHEEL SUSPENSIONS OF MOTOR VEHICLES

Leopold F. Schmid, Leharstrasse 8, 7000 Stuttgart, Germany

Division of Ser. No. 888, Jan. 16, 1970, Pat. No. 3,594,026.

This application Jan. 18, 1971, Ser. No. 107,263

Claims priority, application Germany, Jan. 8, 1969, P 19 00 642.9; Mar. 31, 1969, P 19 16 451.3; Apr. 2, 1969, P 19 16 832.2; Apr. 2, 1969, P 19 16 833.3

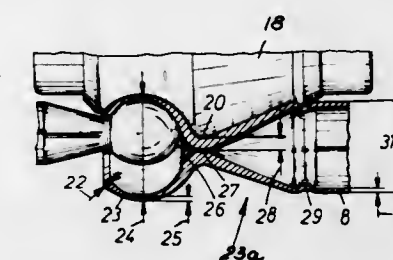
Int. Cl. B21h 11/4

U.S. Cl. 72—84

9 Claims

For use in a ball joint, especially for connecting rods, steering devices and wheel suspensions of motor vehicles, a joint unit and method of making same, according to which a section of deformable tubular material has one end portion formed

into a hollow ball head while by means of a constriction it is separated from a hollow shank portion forming an extension of said head and constriction and together with said head forming a single integral piece with different cross-sectional



diameters, the thickness of cross-sectional areas of said ball head and said extension including said constriction increasing proportionally with the decrease in the outer diameter of said cross-sectional areas and vice versa.

3,740,987

GEAR ROLLING MACHINE

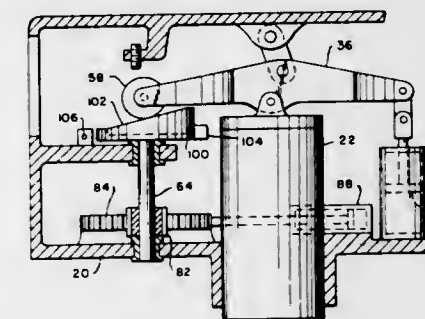
Benjamin F. Bregi, Grosse Pointe Shores; Carl H. Motz, Gaylord, and Arthur B. Bassoff, Oak Park, all of Mich., assignors to Lear Siegler, Inc., Santa Monica, Calif.

Continuation-in-part of Ser. No. 861,594, Sept. 29, 1969, Pat. No. 3,659,335. This application Oct. 7, 1971, Ser. No. 187,377

Int. Cl. B21h 5/02

U.S. Cl. 72—94

3 Claims



A machine which can be used selectively for crossed axes gear shaving employing a gear-like shaving cutter having cutting edges in the sides of its teeth, and as a gear rolling machine employing a die in the form of a hardened gear. Provision is made for relative traverse while shaving in a direction occupying a plane parallel to the axes of the gear and tool, and for incremental infeed during shaving and continuous infeed during gear rolling.

3,740,988

TUBE ROLLING MILL

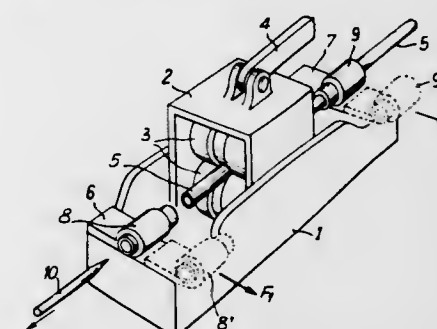
Pierre Peytavin, Neuilly-sur-Seine, France, assignor to Societe Anonyme dite: Vallourec (Usines A. Tubes de Lorraine-Escaut et Vallourec Reunies), Paris, France

Filed Sept. 10, 1971, Ser. No. 179,497

Int. Cl. B21b 21/04

U.S. Cl. 72—238

7 Claims



Intermittent tube rolling mill in which at least one of the vises for holding the work is mounted for sliding movement in a direction transverse to the path of travel of the work.

3,740,989

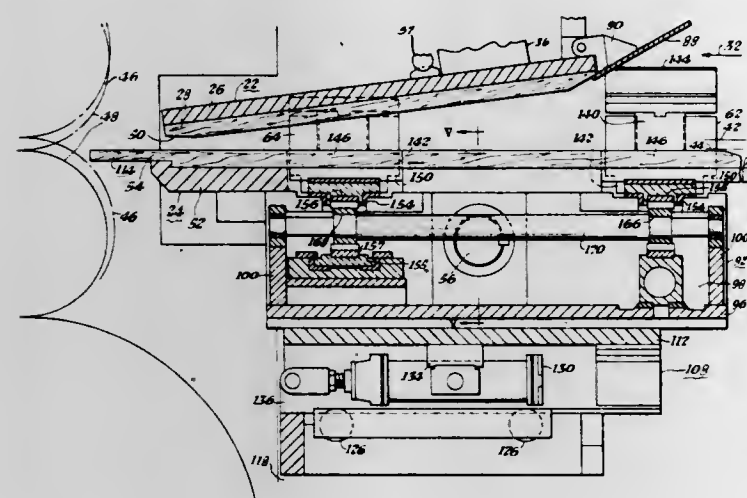
STRIP MILL ENTRY GUIDES

Andrew J. Petros, Oakdale, Pa., assignor to Mesta Machine Company, Pittsburgh, Pa.

Filed Mar. 31, 1971, Ser. No. 129,897
Int. Cl. B21b 39/20

U.S. Cl. 72-250

16 Claims



An entry guide mechanism comprises upper and lower platens positioned to receive an elongated workpiece therebetween. A pivotally mounted support is secured to the upper platen for pivotally supporting the upper platen, and a pivotally mounted support is secured to the lower platen for pivotally mounting the lower platen. An angularly displacing drive mechanism is secured to at least one of the pivoted supports to pivot portions of the platens toward one another to clamp the workpiece therebetween. The pivotal mountings for the platens conform the attitudes thereof with that of an adjacent segment of the workpiece.

3,740,990

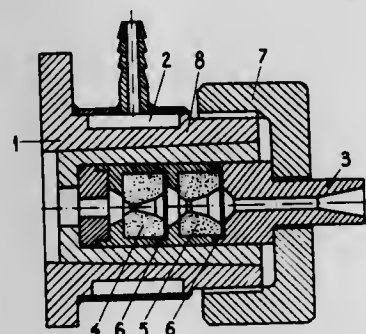
DRAWING DIE ASSEMBLY WITH INTEGRAL COOLING SYSTEM IN DIE HOUSING

Tadeusz Prajsnar; Jozef Rulinski, both of Gliwice; Edward Zglobicki, Zabrze; Ryszard Lyzwinski, Sosnowiec; Ireneusz Lacheta, Katowice; Aleksander Szczepanik, Katowice; Stanislaw Plaskowski, Katowice, and Adam Godyn, Gliwice, all of Poland, assignors to Instytut Metalurgii Zelaza, Gliwice, Poland

Filed Feb. 16, 1971, Ser. No. 115,396
Int. Cl. B21d 37/16; B21c 3/00

U.S. Cl. 72-342

7 Claims



A pressure drawing die designed for drawing wires, rods and tubes made of materials having varied mechanical properties, whereby use is made of the effect of hydrodynamic friction. The drawing die incorporates a system of dies with a pressure sleeve with hydrodynamic action. A cooling system is built into the drawing-die body or housing. The inlet portion of the pressure sleeve extends outside the body through the orifice in a pressure nut. Between dies a seal in a form of labyrinths and metal powders is provided. The working dies are provided with metal jackets which separate the die core from the pressure mounting.

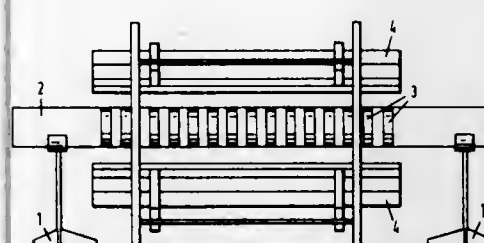
3,740,991

TUBE BENDING PROCESS

Laurentius Dominicus Johanna Margaretha Walraven, Buys Ballotstraat 11, and Hendericus Gerardus Hoogenboom, Oude Gracht 284, both of Utrecht, Netherlands
Filed Oct. 8, 1971, Ser. No. 187,646
Int. Cl. B21d 7/00

U.S. Cl. 72-342

6 Claims



A method of forming a bend in a normally rigid tube of a material which becomes plastic at an elevated temperature, in which the material of the tube portion to be bent is rendered plastic by heating means, supporting means being provided to ensure that the tube remains substantially dimensionally stable in cross-section during the bending, the supporting means consisting of intermediate zones kept under substantially normal temperature conditions, which conditions are realized by screening said zones by means of aluminium strips from heat supplied by said heating means.

3,740,992

FORMING HOLLOW BLANKS

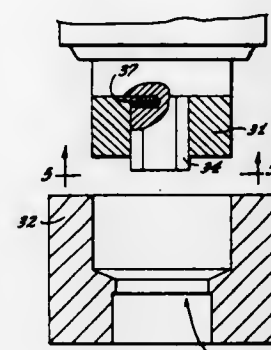
Wolfgang Klenzler, Nurnberg, and Marten Burgdorf, Schwaig, both of Germany, assignors to Kabel-und Metallwerke Gutehoffnungshutte Aktiengesellschaft, Hannover, Germany
Division of Ser. No. 67,088, Aug. 26, 1970. This application
Mar. 20, 1972, Ser. No. 235,953

Claims priority, application Germany, Aug. 29, 1969, P 19 43 884.7

Int. Cl. B21j 13/00

U.S. Cl. 72-361

2 Claims



A hollow blank is slipped on a punch to be formed in cooperation with a die. Prior to engagement with the die, the blank is held and retained on the punch in a manner which does not disturb the forming process.

3,740,993

PROCESS FOR PRODUCING HOLLOW FORGING WITH FRUSTO-CONICAL EXTERIOR AND INTERIOR SURFACES

Charles H. Moore, Sr., 645 Matanzas Court, Fort Myers Beach, Fla.

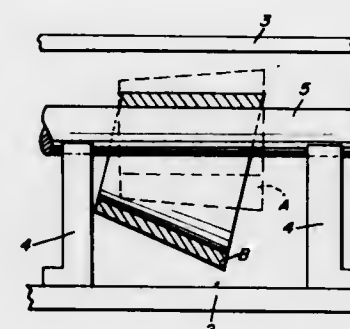
Filed Nov. 12, 1971, Ser. No. 198,239
Int. Cl. B21k 21/10

U.S. Cl. 72-370

3 Claims

A hollow open-ended frusto-conical forging having substantially uniform wall-thickness from end-to-end, for use as a reducer in pipe lines and the like, is made by first obtaining a

hollow work-piece having a frusto-conical exterior surface and substantially cylindrical interior surface. This work-piece is heated to forging temperature and placed around a horizontally disposed cylindrical mandrel which is supported on the bed of a power press and the platen of the power press is pressed against the major portion of the work-piece which is internally supported by the mandrel to obtain a tapering reduction in the major portion of the work-piece thereat. The platen is then raised and the work-piece is partially rotated to position an immediately adjacent segment of the work-piece



between the platen and mandrel. These steps are continued, with the intermediate raising of the platen and partial rotation of the work-piece until the inside and outside diameters of the work-piece are of acceptable dimensions throughout a 360° arc. The power press is then adjusted to increase the lowermost position of the platen with respect to the mandrel, and the steps described are repeated throughout a 360° arc as before. This is continued until the final hollow product with frusto-conical exterior and interior surfaces of the desired dimensions has been obtained.

3,740,994

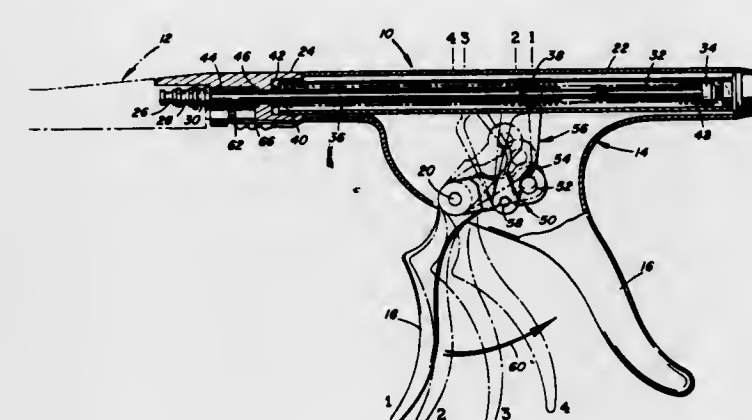
THREE-STAGE MEDICAL INSTRUMENT

Alfred DeCarlo, Jr., Stamford, Conn., assignor to United States Surgical Corporation, Baltimore, Md.

Filed Oct. 13, 1970, Ser. No. 80,450
Int. Cl. B21d 7/06

U.S. Cl. 72-407

14 Claims



A cartridge and an instrument which, together serve to mechanically suture and divide organic tubular structures, such as blood vessels. The cartridge houses a plurality of staples and operates in three stages. After the tubular structure is inserted between the jaws of the cartridge, the cartridge jaws close, a pair of pushers come forward and suture the organic structure in two spaced locations with a pair of surgical staples, and a blade comes forward and divides the tubular structure at a position intermediate the two staples. The staples are indexed and readied for discharge by means of a pair of leaf springs which act between a fixed rail assembly and a movable wrap assembly. The instrument is adapted to coact with the novel cartridge and depends upon the interaction of three springs to bring about the three-stage operation of the cartridge.

3,740,995

METHOD FOR BENDING A GUTTER OR EQUIVALENT INTO A CURVE

Helge Adolf Fredriksson, Sorsakoski, Finland

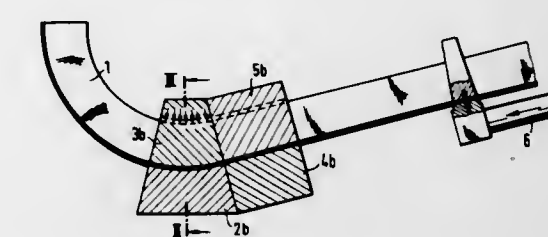
Filed June 30, 1971, Ser. No. 158,507

Claims priority, application Finland, June 30, 1970, 1839/70

Int. Cl. B21d 7/03

U.S. Cl. 72-414

2 Claims



The bending of a gutter or equivalent article of sheet metal by bending a small portion at a time between cooperating die elements which when placed in operative relationship, provide a space substantially equal to the thickness of the sheet metal, with the longitudinal and transverse cross section of the article to be bent. The edge surfaces of the article are subjected to pressure exerted by the die elements while the unbent portion of the article immediately before the die elements is supported from inside and outside by retaining means corresponding to the unbent article.

ERRATUM

For Class 72-419 see:
Patent No. 3,741,029

3,740,996

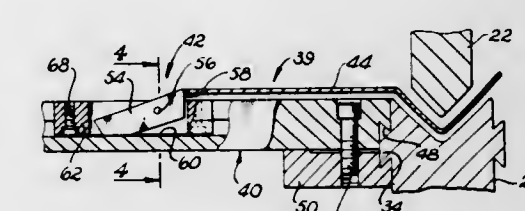
PRESS BRAKE DIE STRUCTURE INCORPORATING GATE MEANS

Alfred G. O. Hix, 3032 Rancho La Carlota, Covina, Calif.
Filed Mar. 17, 1971, Ser. No. 125,159

Int. Cl. B21d 11/22

U.S. Cl. 72-461

2 Claims



Die structures for press brakes are disclosed, in which the actual dies are elongated structures having a substantially uniform cross section, and further include a support structure, to which a gage means is affixed for supporting stops or guides to establish the position of a workpiece with reference to the dies.

3,740,997

BLANKHOLDING ASSEMBLY

George H. Blake, and Ernest J. Clowes, both of Lower Burrell, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

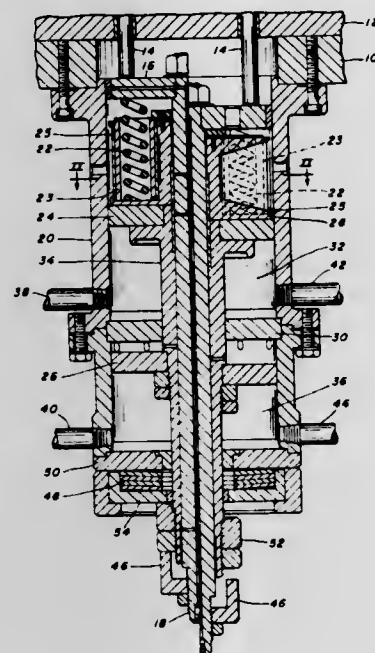
Filed Jan. 17, 1972, Ser. No. 218,431
Int. Cl. B21d 24/04

U.S. Cl. 72-465

3 Claims

A blankholding assembly is provided for a forming press including an air cushion for controlling the movement of die ele-

ments in the press during the working stroke, and further including springs on the blankholding assembly for progressively



loading the air cushion to minimize the impact load and strain on the press.

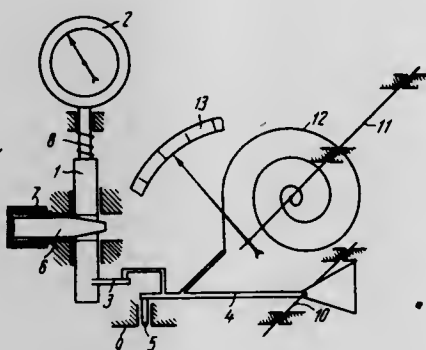
3,740,998
METHOD FOR CALIBRATING INSTRUMENTS
DESIGNED TO GAUGE THE THICKNESS OF NON-
MAGNETIC COATINGS ON METAL PRODUCTS AND
ATTACHMENT FOR THE REALIZATION OF THIS
METHOD

Nikolai Sergeevich Akulov, Leninsky prospekt 70, Minsk, U.S.S.R.

Filed Nov. 17, 1970, Ser. No. 90,269
Int. Cl. G01b 7/06

U.S. Cl. 73—1 A

2 Claims



The present invention relates to a method for calibrating instruments designed to gauge the thickness of non-magnetic coatings on ferromagnetic products and an attachment to realize this method.

The method and the attachment according to the invention are characterized by the fact that a gauge is calibrated by forming air gaps between an electro-magnet of the gauge being calibrated and an uncoated area of the ferromagnetic product being gauged, imitating the thickness of non-magnetic coatings, readings of the gauge are noted for each setting of the air gap, and the readings are then plotted as a calibration chart of the thickness gauge for a given type of substrate.

The method enables thickness gauges to be calibrated without the use of expensive standards.

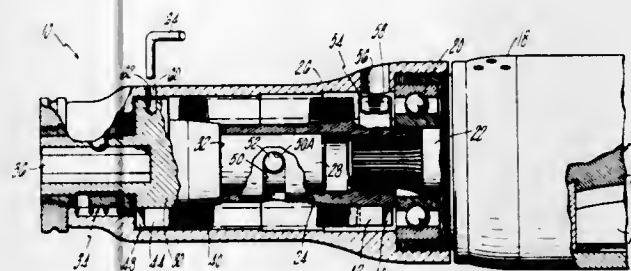
3,740,999
POWER TOOL HAVING STALL TORQUE CALIBRATING
UNIT

Hugh L. Whitehouse, Lyndhurst, Ohio, assignor to The Stanley Works, New Britain, Conn.

Filed Apr. 13, 1972, Ser. No. 243,706
Int. Cl. G011 25/00

U.S. Cl. 73—1 C

12 Claims



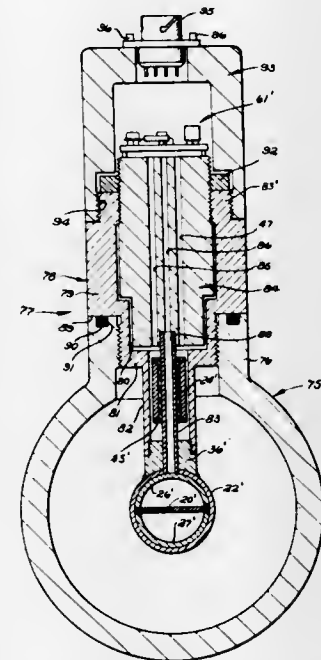
A rotary output locating and locking device operable for positively locking a rotary output of an air motor operated power tool in a predetermined angular relation to the tool housing and for positioning a torque indicator carried on a motor operated rotary drive, which is interconnected to the rotary output via a torsional spring drive, in a corresponding starting position to condition the tool to be energized for calibrating and setting stall torque under simulated running load conditions.

3,741,000
VIBRATION DENSITOMETER PROBE
Charles Evelyn Miller, Boulder, Colo., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Apr. 8, 1971, Ser. No. 132,312
Int. Cl. G01n 9/00

U.S. Cl. 73—32

12 Claims



A probe for a vibration densitometer which avoids the use of a complicated and expensive resilient mount by employing a magnetostrictive hammer supported by a member having a mass substantially larger than that of the hammer. Resonant frequency—density analog error due to pipeline vibration is thus eliminated while at the same time the structure is simplified.

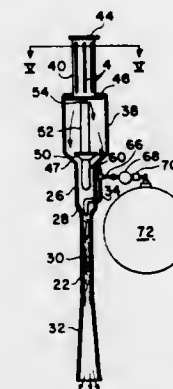
3,741,001
APPARATUS FOR SAMPLING PARTICULATES IN GASES
James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention, and Rex C. Wood, 1958 Cedar Drive, New Brighton, Minn.

Filed Mar. 20, 1972, Ser. No. 235,957

Int. Cl. G01n 15/06

U.S. Cl. 73—28

15 Claims



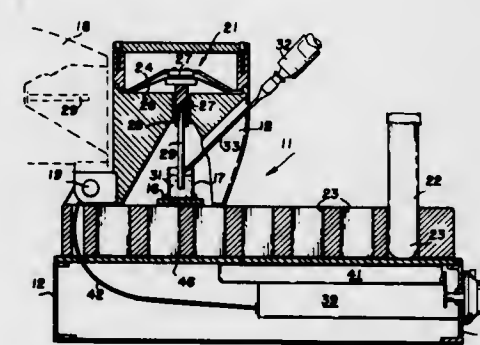
Improved apparatus for sampling particulate material in gases of the type comprising the combination of a slit impactor and air ejector pump. The apparatus disclosed comprises an air ejector pump, a primary nozzle in the air ejector pump, a source of compressed gas which compressed gas is supplied to the primary nozzle through a valved supply line, a collection cylinder having a plurality of slit impactors at the cylindrical surface thereof. The slit impactors are parallel to the longitudinal axis of the collection cylinder. The collection cylinder is normally stowed within a cylindrical storage casing, one end of which is in communication with the inlet of the air ejector pump. The second end of the casing has a circular opening with a diameter larger than the diameter of the collection cylinder. The apparatus has a pneumatic actuator which is operated by compressed gas fed to the actuator from the same valved supply line which supplies the ejector pump. The actuator is connected to the collection cylinder in such a manner that when the compressed gas is fed to the actuator the collection cylinder will be moved outside of the storage casing. The actuator has a spring to bias the collection cylinder to the stowed position when the actuator is not being supplied with pressurized gas. When the collection cylinder is stowed in the storage casing, sampling surfaces are isolated from outside atmosphere to prevent contamination of the sampled particulates.

3,741,002
FLUID TEST APPARATUS AND METHOD
Sanford L. Simons, Box 108 Star Route, Morrison, Colo.
Continuation-in-part of Ser. No. 807,011, March 13, 1969,
Pat. No. 3,587,295. This application June 28, 1971, Ser. No. 157,568

Int. Cl. G01n 11/16, 33/16

U.S. Cl. 73—64.1

14 Claims



Apparatus and method for determining the coagulation characteristics of fluids in which a sample of a biological or

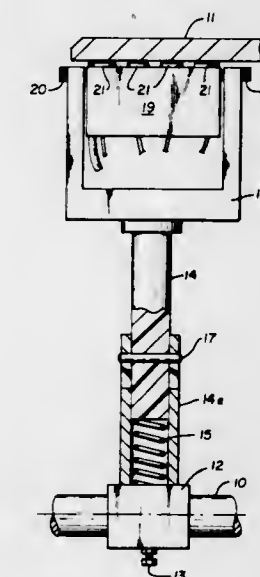
other fluid is subjected to mechanical agitation while a reading is taken by energy sensitive means to determine the instantaneous and/or sequential energy transmitted or absorbed by the fluid. A readout indicative of developing coagulation, shear modulus and/or rheology is obtained that may be coordinated with expired time. In a preferred embodiment a power source having an exciter rod exposed to the fluid sample is provided as a vibrational energy input source. The readout is coupled to the power source-exciter combination to provide an indication of the changes in energy transmitted or absorbed by the fluid sample. Meters or recorder apparatus are used to provide readings of changing energy levels for coordination with the sample exposure time to provide desired information.

3,741,003
ULTRASONIC INSPECTION APPARATUS
Walter A. Gunkel, 6515 Moss Oak, San Antonio, Tex.
Filed Feb. 22, 1971, Ser. No. 117,677

Int. Cl. G01n 29/04

U.S. Cl. 73—67.7

15 Claims



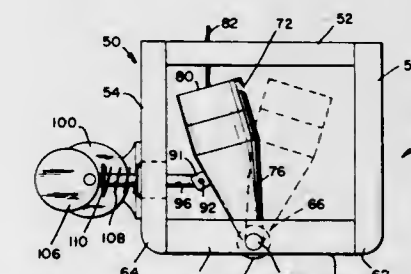
Ultrasonic inspection apparatus is disclosed in which a plurality of transducers may be employed in a transducer housing assembly to permit simultaneous inspection of a plurality of adjacent sections of the object being inspected, for example, adjacent contiguous circumferential bands of a tubular member. The transducers are preferably mounted in the housing assembly in a manner which permits limited canting of each of the transducers. Also, a transducer is disclosed which includes an acoustical coupling fluid injection means which assures good acoustical coupling and can provide a fluid bearing system for the transducer.

3,741,004
ULTRASONIC CONTACT SCANNER
Gerald J. Posakony, Boulder, Colo., assignor to Automation Industries, Inc., Century City, Calif.
Filed Feb. 16, 1971, Ser. No. 115,582

Int. Cl. G01n 29/04

U.S. Cl. 73—67.8 S

10 Claims



A contact scanner is described which is useful in an ultrasonic medical diagnostic system. The scanner includes a

pivotaly mounted search unit which includes a transducer mounted in a conical cylinder which is disposed to scan back and forth near the apex of the conical cylinder. The transducer is positioned at a spaced distance from the pivot point whereby the transducer is pivoted at the pivot point to provide a broad angle sweep of ultrasonic energy transmitted from the transducer through the cylinder.

3,741,005

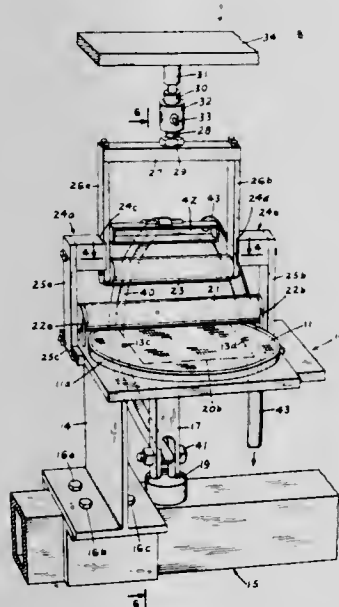
WET WEB TENSILE TESTER

Marcel J. Dauth, Hawkesbury, Ontario, and Uldis V. Valters, Brownsburg, Quebec, both of Canada, assignors to Canadian International Paper Company, Montreal, Quebec, Canada
Filed Sept. 28, 1971, Ser. No. 184,494

Int. Cl. G01n 3/08

U.S. Cl. 73-95

6 Claims



Apparatus for testing weak webs, such as wet webs of paper pulp, for tensile strength and elongation is provided having a relatively flat member for placement of a web specimen, two clamping members superimposed one above the other over the relatively flat member, the lower clamping member clamping one end of the specimen to the flat member and the other clamping member providing means to hold the other end of the specimen, a lifting arm means capable of lifting said other end of the specimen into position to be clamped over the upper clamping member. Means are provided to apply tension on the clamped specimen through the two clamping members and measure the tensile strength of the specimen web.

3,741,006

CARBURETOR FLOW STAND

Jean Bordeaux, 2840 N. Spring, St. Louis, Mo.
Filed Aug. 15, 1972, Ser. No. 280,788

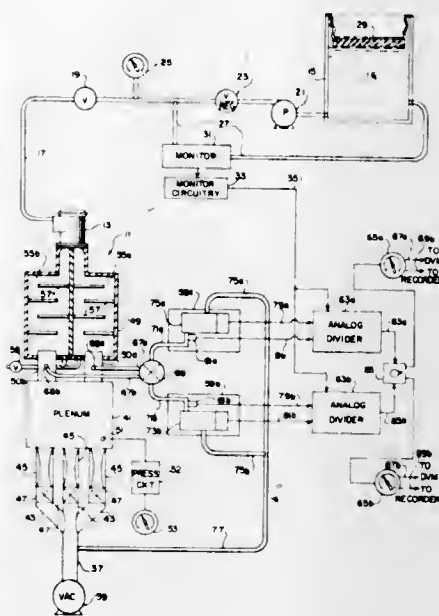
Int. Cl. G01m 19/00

U.S. Cl. 73-118

30 Claims

Flow-testing apparatus and methods for determining air-fuel ratios of a carburetor. An air flow is established through a carburetor and fuel containing a tracer material is supplied to the carburetor. Means, e.g., an infrared radiation analyzer, is provided for detecting tracer material in the air-fuel mixture flowing from the carburetor and oxygen detector means detects the concentration of oxygen. Analog divider circuitry serves as means for deriving from the detected tracer and oxygen concentrations the air-fuel ratio produced by the carburetor.

retor. Arrangements are disclosed for improving the response of the radiation analyzer by providing increased rate of flow of



sampled gas through the analyzer and also for cancelling infrared radiation absorption interference caused by vaporized fuel in the analyzer.

3,741,007

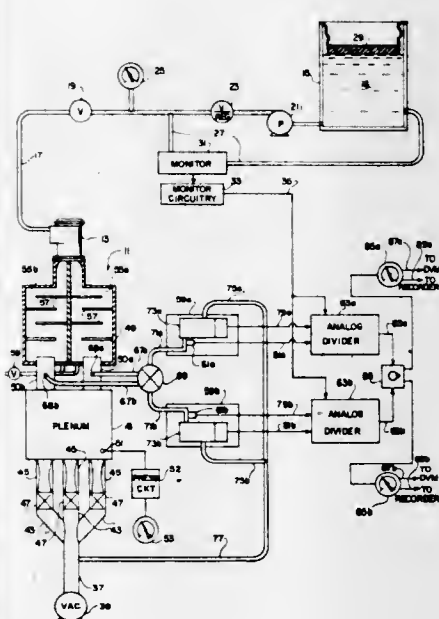
CARBURETOR FLOW STAND

Jean Bordeaux, 2840 N. Spring, St. Louis, Mo.
Filed Aug. 15, 1972, Ser. No. 280,783

Int. Cl. G01m 19/00

U.S. Cl. 73-118

30 Claims



Flow-testing apparatus and methods for determining air-fuel ratios of a multi-throat carburetor. An air flow is established through the throats of the carburetor and fuel containing a tracer material is supplied to the carburetor. The resultant air mixture flowing from the throats is divided into a plurality of streams corresponding to the throats. Detector means, constituted by a plurality of infrared analyzers, detects the tracer concentration in the respective streams. Further detector means detects the quantity of air flowing in the respective stream. Analog divider circuitry is interconnected with the tracer and air detectors and derives from the detected tracer concentration and air quantity air-fuel ratios of the stream mixtures.

3,741,008

CARBURETOR FLOW STAND

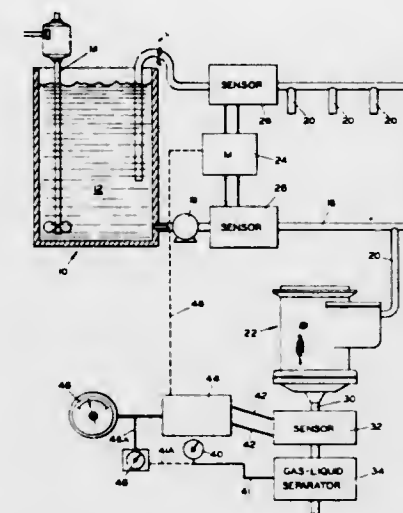
Edward H. Casey, Creve Coeur, Mo., assignor to ACF Industries, Incorporated, New York, N.Y.

Filed July 1, 1971, Ser. No. 158,801

Int. Cl. G01m 15/00

U.S. Cl. 73-118

20 Claims



A carburetor flow stand in which air is drawn through the carburetor by a vacuum pump. This causes fuel to flow and measurement of the fuel as well as measurement of the air/fuel ratio is accomplished by sensing and measuring at a point below the throttle valve, the respective quantities of air and fuel passing through the carburetor. In one embodiment the property of the fuel which is measured is a tracer contained in the fuel. In another embodiment the property measured is the absolute density of the vaporized air/fuel mixture.

3,741,009

CARBURETOR FLOW STAND

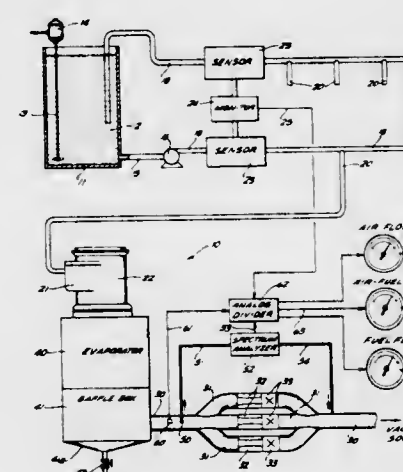
Jean Bordeaux, Fullerton, Calif., assignor to ACF Industries, New York, N.Y.

Filed July 1, 1971, Ser. No. 158,796

Int. Cl. G01m 19/00

U.S. Cl. 73-118

33 Claims



In a carburetor flow stand wherein means are provided for establishing a predetermined air flow through a carburetor under test and for generating a signal indicative of the air flow, wherein a fuel line is provided for conducting a fuel to the carburetor, the carburetor operating to mix the fuel with the air, and wherein an output line is connected to the downstream end of the carburetor for receiving the air-fuel mixture therefrom, an improved method and means for determining the fuel flow rate through or the air-fuel mixture ratio produced by the carburetor comprising adding a tracer material to the fuel, the tracer material having a high absorption characteristic at a predetermined location in the elec-

tromagnetic spectrum, vaporizing the tracer material, separating the mixture of air and vaporized tracer material from the fuel, and detecting with a spectrum analyzer which is sensitive to said predetermined location in the electromagnetic spectrum the quantity of tracer material in the output line. According to a preferred embodiment of the invention, the tracer material has a high absorption characteristic in the infrared spectrum and the spectrum analyzer is an infrared spectrophotometer.

According to another embodiment of the invention, the fuel itself is entirely vaporized, the fuel being selected to have a high absorption characteristic at a known location in the electromagnetic spectrum, and the spectrum analyzer determines directly the quantity of fuel in the output line.

3,741,010

TRACTOR PULLING DEVICE

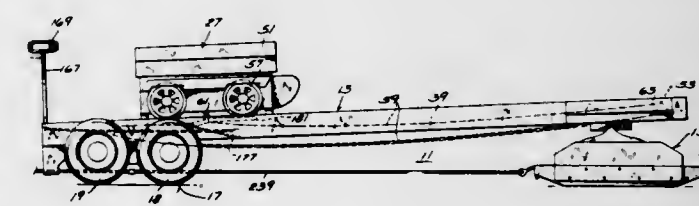
Lloyd A. Luedtke, P.O. Box 123, Allenton, Wis.

Filed Apr. 22, 1971, Ser. No. 136,407

Int. Cl. G01f 5/13

U.S. Cl. 73-141 R

12 Claims



Disclosed herein is a device which is adapted to be pulled by a tractor and which includes a frame supported, at the forward end, by a sled and, at the rearward end, by a set of ground engaging wheels, together with a cart movable along a track on the frame between the forward and rearward ends of the frame. Also disclosed herein is a drive means which is connectable between the cart and a ground engaging wheel for moving the cart along the track in response to travel of the wheel over the ground. In addition, the device disclosed herein includes provision for over-the-road transport and for automatically initiating driving movement of the cart from the rearward end to the forward end in response to the initial movement of the device at the beginning of a tractor pull.

3,741,011

METHOD AND APPARATUS FOR MEASURING THE INTERNAL VOLUME OF MOULDS AND SIMILAR CAVITY MEMBERS

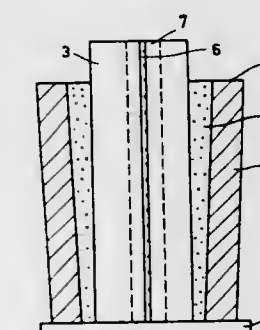
Rolf Seybold, Solingen, Germany, assignor to Egon Evertz, Solingen, Germany

Filed May 28, 1971, Ser. No. 147,733

Int. Cl. G01f 17/00

U.S. Cl. 73-149

13 Claims



A method for measuring the internal volume of moulds or similar cavity members in which there is provided a filling member of known external volume which is arranged so as to substantially fill the volume of the mould or cavity member, and a filling member is introduced into the mould or cavity

member so that a gap remains between the filling member and the internal wall and the gap being filled to a definable height with a flowable granular material of known bulk weight. The granular material disposed within the mould or cavity member is thereafter discharged and its weighable value measured so that the internal volume of the mould or similar cavity member can be determined.

3,741,012

METHOD FOR DETERMINING TACK

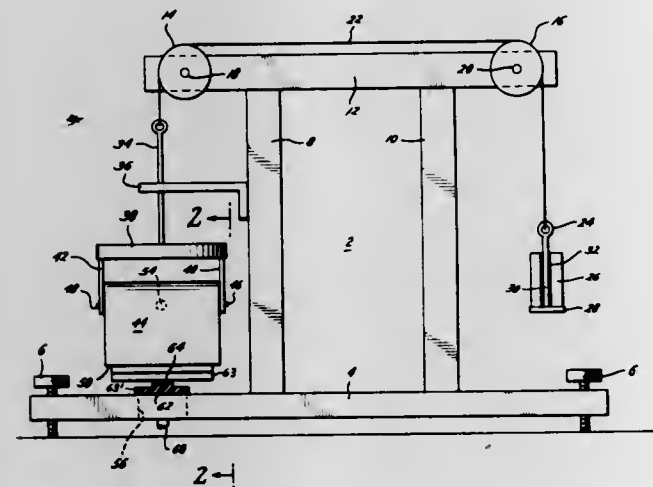
Donald T. Day, Matawan, N.J., assignor to Ashland Oil Inc., Houston, Tex.

Filed Apr. 30, 1971, Ser. No. 139,161

Int. Cl. G01n 19/04

U.S. Cl. 73-150 A

4 Claims



In a method and apparatus for testing and determining the tack properties of rubbery or polymeric compositions test specimens of polymer stock are each supported on a perforated plate or grid so that the specimen completely covers the perforated area. A differential air pressure is applied across the specimen plate contact area thereby forcing the specimen against the plate and maintaining the former in position. Two test specimens of polymer stock, each thus mounted, are then pressed together under a constant static force for a predetermined time interval. Immediately thereafter a second constant static force in a counter direction is released which tends to separate the specimens. The time required for separation is measured and is an indication of the tack of the specimens.

3,741,013

SIGNAL RESPONSIVE DISPLAY APPARATUS

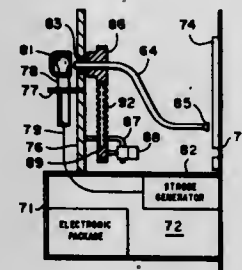
Donald R. Hering, and James M. Lindsey, both of Houston, Tex., assignors to Sperry-Sun Well Surveying Company, Sugar Land, Tex.

Filed Nov. 4, 1970, Ser. No. 86,879

Int. Cl. E21b 47/024

U.S. Cl. 73-151

14 Claims



A light transmitting rod for carrying a flash of light from a flash source to a point adjacent a translucent scale onto which the flash is projected. The rod is rotated relative to the scale.

One or more flashes may be generated during one revolution of the rod relative to the scale with such flashes representing the time relation between electrical signals which in turn may represent the boundaries or limits of a measured parameter.

3,741,014

ULTRASONIC CURRENT METER

Kohzoh Tamura, Chigasaki, Japan, assignor to Kabushiki Kaisha Tokyo Keiki, Ohta-ku, Tokyo, Japan

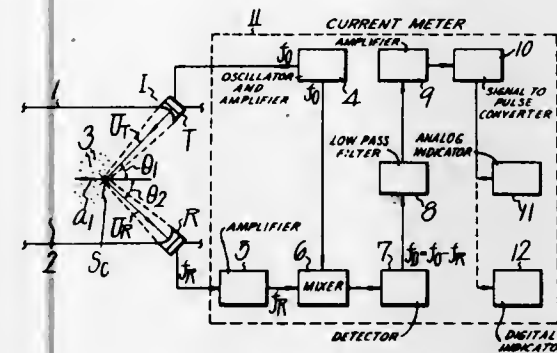
Filed June 16, 1971, Ser. No. 153,559

Claims priority, application Japan, June 25, 1970, 45/55416

Int. Cl. G01f 1/00; G01p 5/00

U.S. Cl. 73-194 A

2 Claims



An ultrasonic current meter having an ultrasonic transmitter, an ultrasonic receiver, an oscillator for supplying a signal of a predetermined frequency to the ultrasonic transmitter to emit ultrasonic waves therefrom, a circuit for generating a signal of a Doppler frequency by combining a signal corresponding to the ultrasonic waves reflected by objects contained in a fluid to be measured but different in acoustic impedance from the fluid with a signal derived from the oscillator and an indicator device for indicating the flow rate of the fluid in accordance with the signal of the Doppler frequency, in which the ultrasonic transmitter and receiver have devices for controlling the ultrasonic waves transmitted and received mounted adjacent the transmitter and receiver, respectively, thereby to ensure accurate measurement of the flow rate of the fluid.

3,741,015

PRECISION PRESSURE GAUGE

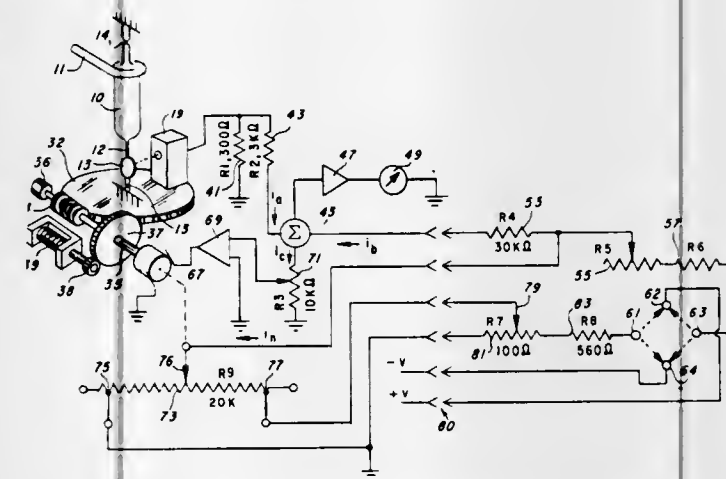
Kennard S. Moss, Jr., and Weldon R. Hicks, both of Houston, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Mar. 1, 1971, Ser. No. 119,972

Int. Cl. G011 19/04; G011 7/04

U.S. Cl. 73-393

1 Claim



A precision pressure gauge including Bourdon tube has a direct linear relation between applied pressure and Bourdon tube angle of deflection. An electrical circuit applies a continuously adjusted offset current to a transducer in order to apply the appropriate correction at any point on the Bourdon tube error curve.

ERRATUM

For Class 73-425 see:
Patent No. 3,741,732

3,741,016

MACHINE FOR BALANCING MOTOR VEHICLE WHEELS

Dionys Hofmann, Darmstadt-Marienhöhe, Germany, assignor to Gebr Hofmann KG, Darmstadt, Germany

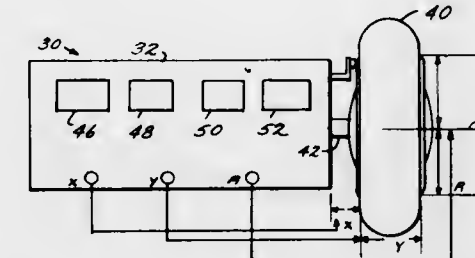
Filed Jan. 14, 1971, Ser. No. 106,394

Claims priority, application Germany, Jan. 1, 1970, P 20 01 972.1

Int. Cl. G01m 1/22

U.S. Cl. 73-462

7 Claims



A machine for balancing motor vehicle wheels including sensors for sensing the physical dimensions of the wheel to be balanced. The sensors comprise movable arms positioned along potentiometers as a function of rim diameter and depth.

3,741,017

UNBALANCE DETECTOR

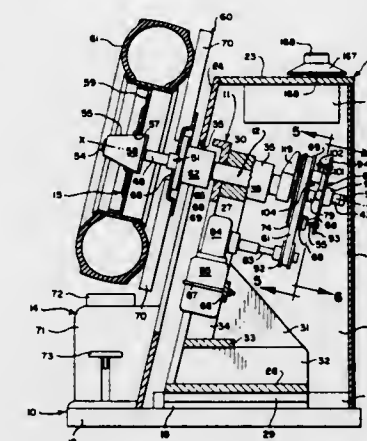
Alfred A. Reiser, 6976 Old Lake Shore Road, Lakeview, N.Y.

Filed Sept. 23, 1971, Ser. No. 183,143

Int. Cl. G01m 1/12, 1/16

U.S. Cl. 73-480

13 Claims



Apparatus for detecting the location of a point of unbalance and also preferably the amount of unbalance in a rotatable body such as a vehicle tire-wheel assembly, comprising means for detecting when the torque produced by the gravitational effect of the point of unbalance in the body when supported for rotation about a non-vertical axis produces its maximum effect thereby to determine the location of said point of unbalance and also preferably means for measuring the value of such maximum torque thereby to determine the amount of unbalance.

3,741,018

FLUIDIC ANGULAR RATE SENSOR

Silas Katz, Silver Spring, and Edgar G. Hastie, Rockville, both of Md., assignors to The United States of America as represented by the Secretary of the Army

Filed Nov. 23, 1971, Ser. No. 201,282

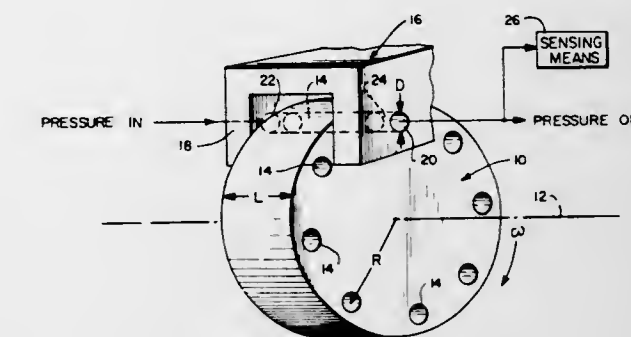
Int. Cl. G01p 3/26

U.S. Cl. 73-506

5 Claims

A fluidic angular rate sensor is disclosed comprising a rotatable disc which preferably has a plurality of elongated

apertures therethrough of a finite length, the rotatable disc being adapted to be rotated about its axis at a velocity which is proportional to an angular velocity to be measured. A fluid input means or hole having a given discharge area is associated with the rotating disc and serves to sequentially apply a fluid signal into each aperture whereat the signal is entrained while the disc rotates. A fluid collector means having a given collector area is disposed in substantial alignment with the fluid input means and is associated with the rotating disc, the



collector sequentially receiving from each aperture a portion of the applied fluid signal. This portion has a value which is proportional to the product of the instantaneous velocity of the fluid signal entrained in the aperture and the instantaneous exposed collector area of the collector means, which collector area varies as the disc rotates. Sensing means are provided to operate upon the received signal so as to derive an output signal which preferably comprises the average of the received signal, the output signal being indicative of the angular velocity of the disc.

3,741,019

SHAFT LOCKING DEVICE FOR A TIMER

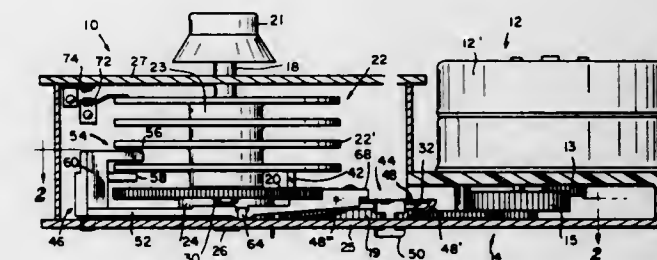
Richard H. Weber, Indianapolis, and Benjamin F. Chestnut, Greenwood, both of Ind., assignors to P. R. Mallory & Co., Indianapolis, Ind.

Filed Sept. 13, 1971, Ser. No. 179,652

Int. Cl. F16h 5/74

U.S. Cl. 74-3.5

5 Claims



When a cam carrying shaft of a timer is axially indexed, a lever is actuated to move a retaining means into engagement with a one-way clutch means to prevent manual rotation of the cam carrying shaft.

3,741,020

ELECTROMAGNETIC GYRO TORQUER

Charles E. Hurlburt, River Edge, N.J., assignor to The Bendix Corporation, Teterboro, N.J.

Filed Aug. 18, 1971, Ser. No. 172,692

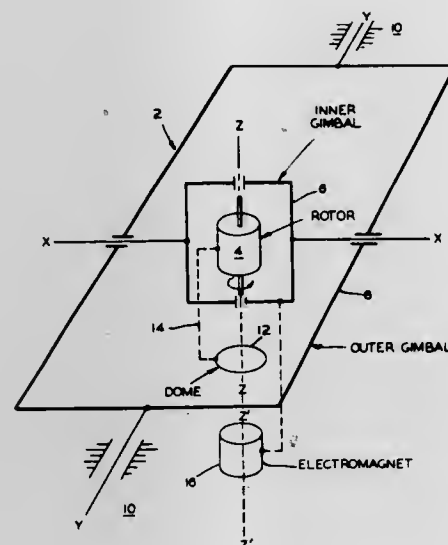
Int. Cl. G01c 19/30

U.S. Cl. 74-5.46

5 Claims

An electromagnet is arranged with a gyro so that eddy currents generated by movement of a conductor in the field of the

magnet provide a precessionary torque, a component of which decelerates or opposes gyro rotation when the spin axis of the



gyro is not coincident with the magnet axis. When said axes are coincident, no further precessionary and decelerating torques are provided.

3,741,021

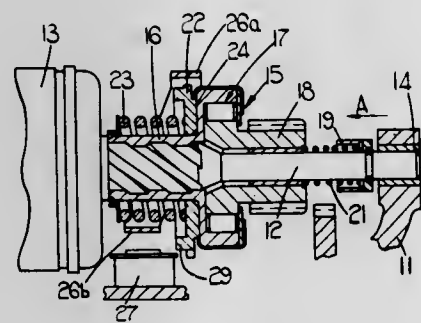
STARTER MOTORS

Nicholas Tyers Parsons, Exmouth, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Mar. 14, 1972, Ser. No. 234,613
Claims priority, application Great Britain, Apr. 3, 1971, 8,628/71

Int. Cl. F02n 11/00

U.S. Cl. 74-7 R

5 Claims



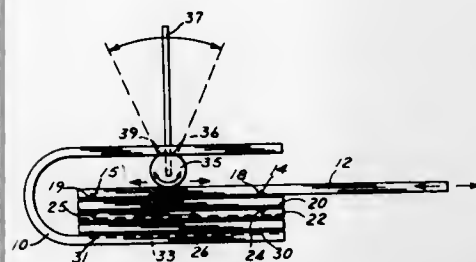
A starter motor for an internal combustion engine including a casing having journaled for rotation therein a rotor shaft. The rotor shaft carries an armature assembly and a pinion assembly is mounted on the rotor shaft by way of a helical screw thread for limited rotational and axial movement relative to the shaft. The pinion assembly can move relative to the shaft between an operative position and a retracted position, and frictionally engaged with the pinion assembly is a member which when engaged with the member, resists rotation of the member which in turn resists rotation of the pinion assembly. Thus when the rotor shaft rotates and the detent is operative then the pinion assembly is driven towards its operative position by the action of the helical screw thread. In the operative position of the pinion assembly the detent member engages behind the pinion assembly so as to resist movement of the pinion assembly towards its retracted position. The detent device is returned to a position clear of the pinion assembly when the starter motor is de-energized.

3,741,022
PROBING DEVICE FOR MICROCIRCUITS
Jack Edward Olson, 1633 South Yukon St., Lakewood, and
Guy G. Catalano, 3910 South Kalamath, Englewood, both of
Colo.

Filed Nov. 23, 1970, Ser. No. 91,652
Int. Cl. F16h 21/44

U.S. Cl. 74-102

14 Claims



A table supporting a three dimensional movement probe mounted on roller bearings for two dimensional horizontal movement, is contained in a spring loaded C-clamp frame which includes means for vertical movement.

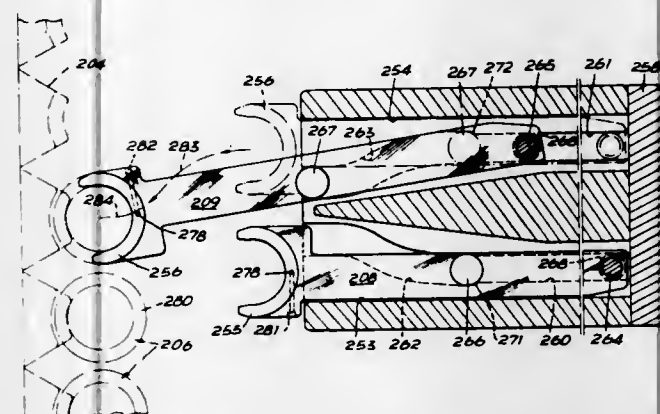
3,741,023
TOOL CHANGING MECHANISM FOR A MACHINE TOOL
Hellmut Goebel, Reutlingen, and Ernst Raiser, Rommelsbach, both of Germany, assignors to BW-Weber Verwaltungsgesellschaft m.b.H., Reutlingen, Germany
Filed May 24, 1971, Ser. No. 146,130

Claims priority, application Germany, June 6, 1970, P 20 27 876.6

Int. Cl. F16h 21/44

U.S. Cl. 74-110

6 Claims



An improvement in a tool changing mechanism of the type as disclosed in the U.S. Pat. No. 3,551,984 according to which two laterally adjacent gripping devices are alternately movable back and forth in a common guide element along separate guideways which are partly curved toward each other so that the gripping heads of both devices are alternately movable to the same point to pick up or deliver different tools at identical positions and the paths of the last part of the forward movements of both gripping devices extend nearly parallel and closely adjacent to each other and even the rear straight parts of the guideways may be spaced at a relatively small distance from each other, thus permitting the common guide element to be made of a narrow width.

3,741,024
ELECTRIC MOTOR AND REDUCTION GEARING UNIT
Pierre Bouthors, and Andre Lefevre, both of Billancourt, France, assignors to Regie Nationale Des Usines Renault, Billancourt, (Haute de Seine) and Automobiles Peugeot, Paris, both of France

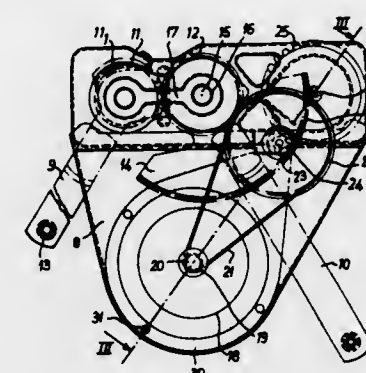
Filed Nov. 1, 1971, Ser. No. 194,731
Claims priority, application France, Nov. 5, 1970, 7039802
Int. Cl. F16h 9/04; E05f 15/16, 15/08

U.S. Cl. 74-220

6 Claims

This unit comprises an electric motor having a flat case suspended through elastic means from a plate and rigid with

an annular collar embedded in a corresponding annular bead of flexible material capable of absorbing vibration and fastened to said plate, a gear reduction mechanism driving the control mechanism and a flexible transmission between the motor and the reduction gearing, said transmission operating



in conjunction with said bead for eliminating any rigid connection likely to propagate or amplify noise from said motor. This unit is intended more particularly for the remote control of a movable member of a vehicle, for example a window regulator.

3,741,025
PULLEYS

Michael Frederick Russell, Uxbridge, England, assignor to C.A.V. Limited, Birmingham, England
Filed Dec. 1, 1970, Ser. No. 94,029

Claims priority, application Great Britain, Dec. 2, 1969, 58722

Int. Cl. F16h 7/22

U.S. Cl. 74-230.4

4 Claims



A pulley comprising a rim portion and a hub portion the two portions being connected together by means which permits relative axial movement between the portions. The means may comprise flexible spokes each spoke being formed in two parts disposed in side by side relationship and having a layer of damping material interposed therebetween.

3,741,026
BELT DRIVE APPARATUS HAVING IMPROVED TAKE-UP
Gustav Franzen, Neersen, Germany, assignor to Palitex Project Company GmbH, Krefeld, Germany
Filed May 1, 1972, Ser. No. 248,952

Claims priority, application Germany, May 3, 1971, P 21 21 685.3

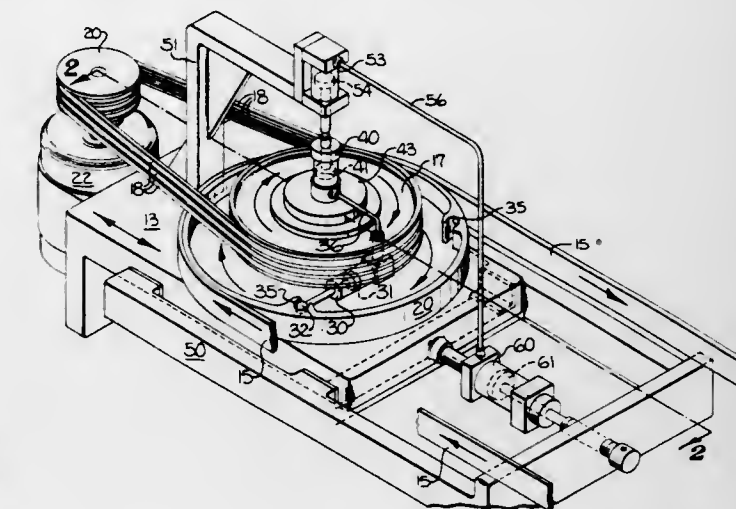
Int. Cl. F16h 7/08

U.S. Cl. 74-242.9

6 Claims

A belt drive apparatus having a take-up for varying the tension in the belt including a driven rotatable member, belt engaging means which includes a pulley for receiving and driving a belt and which is driven through a first cylinder-piston which is in fluid communication with a second cylinder-piston opera-

tively connected with displaceable belt engaging means for displacing the belt in conformity with the relative movement of the members of the first cylinder-piston relative to each other to vary the tension on the endless belt in accordance



with the amount of torque on the belt driving pulley. The second cylinder-piston is secured coaxially to the driven rotatable member for rotation therewith and with the first cylinder-piston to eliminate problems in fluid communication between the first and second cylinder-piston devices.

3,741,027
DRIVING TRANSMISSION FOR OPENING AND CLOSING SLIDING ROOF PARTS

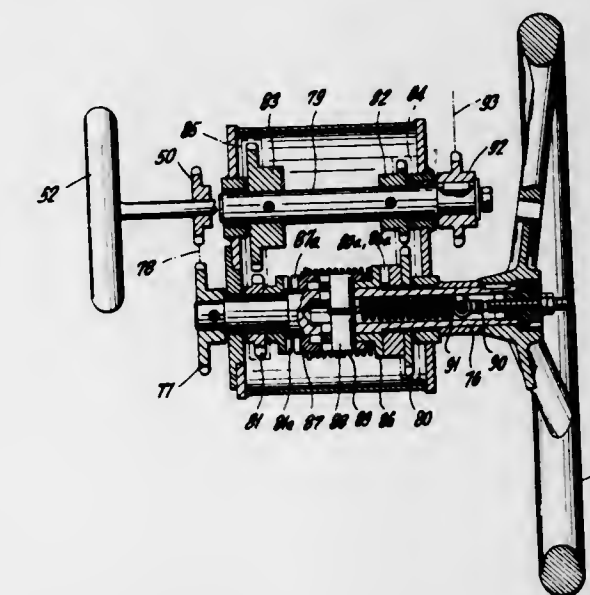
Felix Schneider; Manfred Oerter, both of Netphen Eckmannshausen, Germany, and Rudolf Walser, Jegenstorf, Switzerland, assignors to Rheinstahl Ag, Netphen-Dries-Tiefenbach, Germany

Filed Nov. 5, 1970, Ser. No. 87,154
Claims priority, application Germany, Nov. 7, 1969, P 19 56 136.5

Int. Cl. F16h 5/52

U.S. Cl. 74-337

8 Claims



A transmission or device for opening and closing sliding roof parts, particularly sliding roofs of freight cars, comprises a cable drum mounted for rotation about a horizontal axis and arranged for each sliding roof part on a cross connection transverse to the longitudinal direction of the freight car. A cable is secured to each roof part and the free ends of each cable are secured on the cable drum and are mounted such that one cable is wound when the other is unwound. The cables could also be connected together and the connected

cable arranged to surround the cable drum at least once. A hand crank is connected to each cable drum through transmission means which includes an engaging and a disengaging clutch and having at least a two ratio gearing which automatically adjusts itself to the force expended on the crank.

3,741,028

SELF-GROUNDING MECHANICAL SPAN ADJUSTMENT

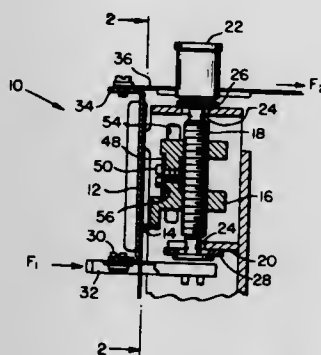
Jack Mort White, North Chili, N.Y., assignor to Sybron Corporation of Rochester, Rochester, N.Y.

Filed Jan. 31, 1972, Ser. No. 221,992

Int. Cl. F16h 55/18

U.S. Cl. 74-409

9 Claims



Disclosed is a mechanical span adjustment for a force balance variable condition transmitter, having an improved mechanical ground provided by a flat spring member which urges the fulcrum of the adjustable span against the body of the instrument, the spring being deformed beyond its yield point, so that it urges the fulcrum against the body of the instrument with a relatively constant force.

3,741,029

DEVICE FOR STRAIGHTENING BULGED ENDS OF RAILROAD CARS

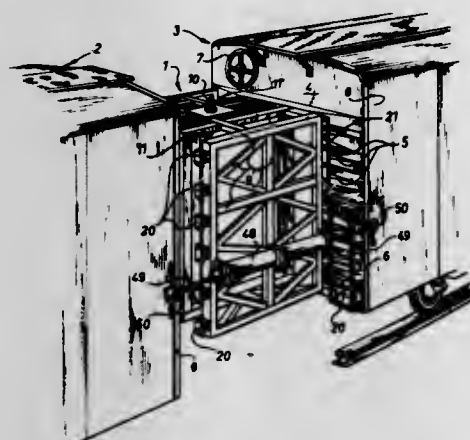
Gregoire Bellemare, 397 Guilbeault St., Longueuil, Quebec, Canada

Filed Apr. 22, 1971, Ser. No. 136,439

Int. Cl. B21d 1/14

U.S. Cl. 72-419

7 Claims



A device to be positioned between the bulged end of a railroad car and an abutment structure or between facing ends of two uncoupled railroad cars to straighten the bulged ends thereof. Bumper members are supported by a frame and extend horizontally from opposite sides thereof to push the bulged ends inwardly, two counter-rotating winch drums and cables provide pulling of the two railroad cars toward each other to produce straightening by the bumper members. A differential gear drive assembly couples together the two counterrotating winch drums to continue the pull of one in response to a greater resistance against the other. A hydraulic adjustment system supports the bumper members and is arranged to adjust the height and horizontal projections thereof independently of each other. Hydraulic rams are fixed to the frame to push the railroad cars away upon completion of a straightening operation and hydraulic pistons are adapted to maintain constant tension on the lateral corner edges of the cars to prevent deformation thereof.

range to adjust the height and horizontal projections thereof independently of each other. Hydraulic rams are fixed to the frame to push the railroad cars away upon completion of a straightening operation and hydraulic pistons are adapted to maintain constant tension on the lateral corner edges of the cars to prevent deformation thereof.

3,741,030

DRIVING GEAR ASSEMBLY FOR A MOTOR VEHICLE

Sture Asberg, Savedalen, Sweden, assignor to SKF Industrial Trading and Development Company, N.V., Amsterdam, Netherlands

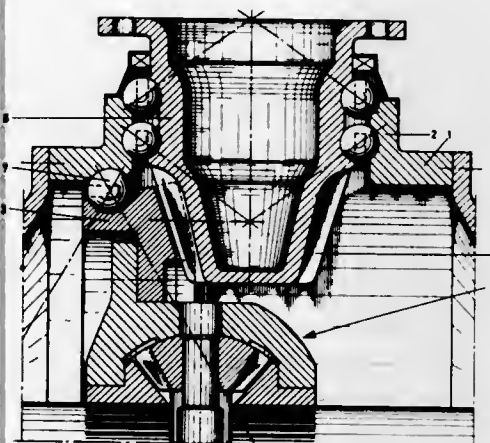
Filed June 30, 1971, Ser. No. 158,500

Claims priority, application Denmark, June 30, 1970, 09652; June 30, 1970, 09654

Int. Cl. F16h 1/18; F16c 33/00

U.S. Cl. 74-424

5 Claims



Driving gear assembly for a motor vehicle of the type having a crown wheel, a pinion wheel engaging the crown wheel and a differential mechanism secured to the crown wheel, said crown wheel having an axial bearing adjacent its periphery and adjacent at least one of the bearings of the pinion, characterized in that the pinion has a design with axial length and diameter such that the cross point of the load line of the mating crown wheel and pinion upon the axis of the pinion shaft coincides or almost coincides with the point of intersection of the load lines of said adjacent pinion shaft bearing, both crown wheel and pinion being located in the housing in proper position with respect to said housing and to each other without the use of adjusting means.

3,741,031

SINGLE LEVER CONTROL

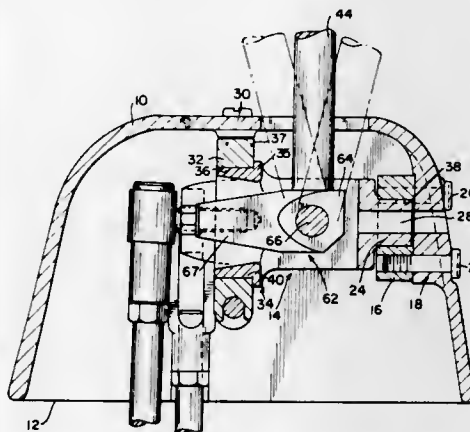
Wilbur E. Schwerdtfeger, Western Springs, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Nov. 24, 1971, Ser. No. 201,869

Int. Cl. G05g 9/04

U.S. Cl. 74-471 XY

2 Claims



A two-cycle control lever with a first bell-crank lever pivotally carried on a second bellcrank lever which is, in turn,

pivotaly mounted in a frame. A single control handle serves as a common input means for both levers, and since the axes of the levers are perpendicular, upon actuation the bellcrank levers simultaneously function as both a bearing and a lever.

3,741,032

COLLAPSIBLE STEERING COLUMN ASSEMBLY

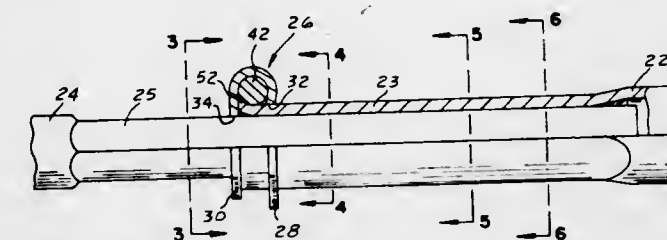
Donald J. Baker, South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind.

Filed Sept. 27, 1971, Ser. No. 184,149

Int. Cl. B62d 1/18

U.S. Cl. 74-492

12 Claims



A collapsible steering column of the type used on motor vehicles is arranged to telescope upon impact. The steering column is provided with inner and outer telescoping polygonally shaped shafts axially slidable one within the other. The inner and outer shafts are held in rotational and axial driving engagement by clamping means which preloads the respective shafts to withstand normal axial impact but which permits the shafts to collapse axially when the force of impact of a collision exceeds a predetermined safe value.

3,741,033

VEHICLE EMERGENCY BRAKE ACTUATING MECHANISM

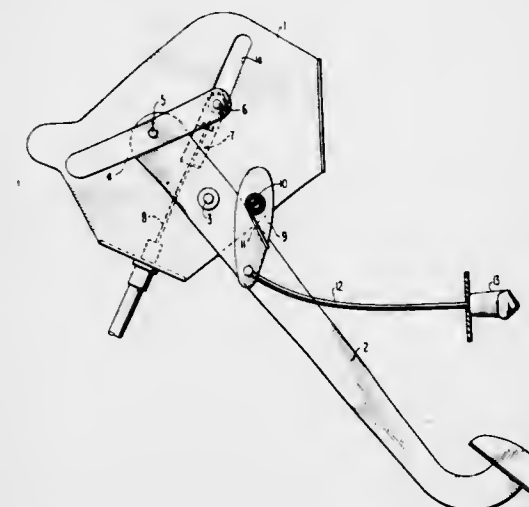
David J. Wilke, Williamsport, Pa., and James R. Kraus, Hagerstown, Md., assignors to Pennsylvania Wire Rope Corporation, Williamsport, Pa.

Filed Dec. 29, 1971, Ser. No. 213,494

Int. Cl. G05g 1/14

U.S. Cl. 74-512

10 Claims



A vehicle emergency brake actuating mechanism wherein an over-center toggle linkage is operatively connected between the foot pedal lever and the brake actuating cable, whereby pressure can be applied to the emergency brake pedal to selectively brake the vehicle in a manner similar to the conventional hydraulic brake system, or to fully actuate the emergency brake by forcing the toggle linkage to the over-center locked position. A brake release lever is provided for moving the toggle linkage to the release position, and a resilient connection is provided between the toggle linkage and the end of the brake actuating cable to insure a constant tension on the emergency brake system.

3,741,034

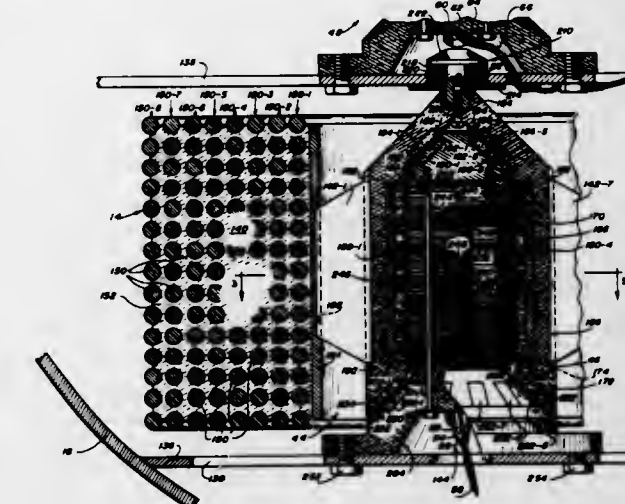
INERTIAL ENERGY STORAGE APPARATUS

Stephen F. Post, Walnut Creek, Calif., assignor to Darrell E. Williams and Kenneth Fowler, both of Walnut Creek, Calif., part interest to each

Filed Sept. 2, 1970, Ser. No. 68,959

Int. Cl. F16c 15/00

40 Claims



Inertial energy storage apparatus having two contrarotating rotors the fellicies of which include a number of thin rings of high tensile strength material, such as glasses or embedded fiber composites, arranged in concentric shells, the ratio of the Young's Modulus to the density of the material of each ring being proportional to the n^{th} power of its mean radius, where n is not equal to zero, so that the radial separations between successive shells of rings produced by centrifugal force are reduced as compared with those produced when n is zero (e.g., all rings of the same material). The rotors have alternator-motors on their hubs, by means of which they can be brought to speed, and by means of which the inertial energy stored in them can be extracted in the form of variable-frequency alternating output voltage. This output voltage may be converted by a solid-state cycloconverter to alternating current of selectively variable frequency by means of which to power, for instance, the three-phase, squirrel-cage wheel motors of a non-pollution-producing vehicle.

3,741,035

METHOD OF AND DEVICE FOR CONTROLLING MULTI-STAGE CHANGE GEAR TRANSMISSIONS

Oswald May, Bonn, Germany, assignor to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne-Deutz, Germany

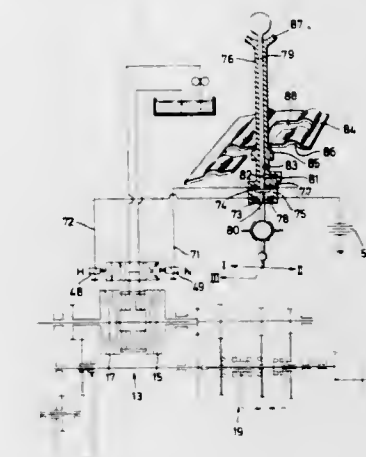
Filed Oct. 8, 1970, Ser. No. 79,011

Claims priority, application Germany, Oct. 9, 1969, P 19 50 914.9

Int. Cl. F16h 3/08; F16d 67/00

U.S. Cl. 74-745

4 Claims



An arrangement for controlling a multi-stage change gear transmission with a main control group and a control group

shiftable under load and either preceding or following the main control group, in which the group shiftable under load has at least two forward stages the step of progression of which is considerably less than, for instance half, the step of progression of the main control group and in which during the shifting operation from one control stage to an adjacent control stage of the main control group first the step of progression of the main control group is subdivided and during the subsequent engagement of the next control stage of the main control group the interposed control stage of the group shiftable under load is automatically made ineffective.

3,741,036

VEHICLE TRANSMISSION CONTROL SYSTEMS

Robert Hulme Brown, Surrey, England, assignor to C.A.V. Limited, Birmingham, England

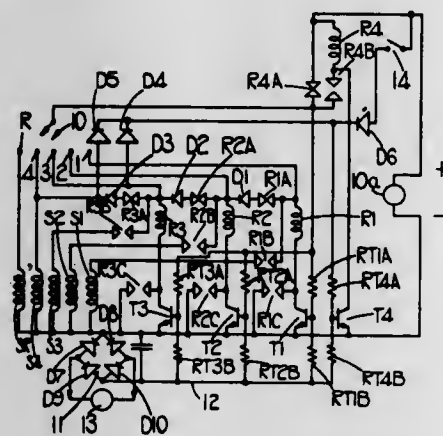
Filed Jan. 27, 1971, Ser. No. 110,238

Claims priority, application Great Britain, Feb. 10, 1970, 6,244/70

Int. Cl. F16h 3/74; B60k 21/00

U.S. Cl. 74-752 D

7 Claims



A vehicle transmission control system including a plurality of solenoids each of which when energized causes engagement of a particular forward gear ratio of a vehicle gear box, a manually operable selector switch whereby a particular solenoid can be energized and a plurality of switches in series with one or more of the solenoids respectively. Means in the form of transistor and a generator is provided to control the operation of the switches respectively whereby energization of each solenoid can only occur if the road speed of the vehicle is below a predetermined value.

3,741,037

HYDRAULICALLY CONTROLLED PLANETARY GEAR

Jean Piret, Bougival, France, assignor to Automobiles Peugeot, Paris, and Regie Nationale Des Usines Renault, Billancourt, both of France

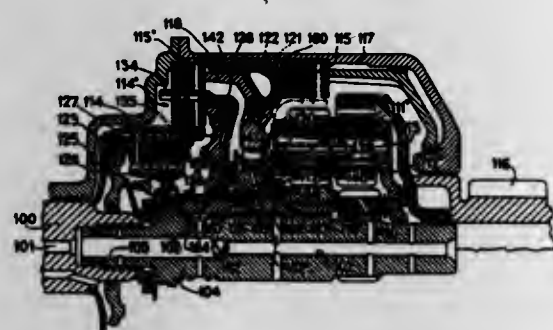
Filed June 21, 1971, Ser. No. 154,765

Claims priority, application France, June 24, 1970, 7023348

Int. Cl. F16h 57/10

U.S. Cl. 74-763

11 Claims



Automatic hydraulically controlled planetary gear transmission in which two clutch devices and one of the holding devices are disposed concentrically at one end of the transmis-

sion. The planetary gear mechanism is disposed at the opposite end of the transmission. The transmission has a middle part in which are arranged in a common radial plane in this order: a centre shaft, a hollow layshaft rotatable on the centre shaft, a freewheel hub rotatable on the layshaft and connected to rotate with the planet gear carrier, means for locking the freewheel, a freewheel outer ring and an annular member. The latter is integral with the transmission case and with the freewheel outer ring and at least partly defines a cylinder receiving the piston actuating the adjacent holding device.

3,741,038

TRANSMISSION MECHANISM HAVING AN AUTOMATIC GEAR CHANGE SYSTEM

Jean Piret, Bougival, France, assignor to Automobiles Peugeot, Paris, and Regie Nationale Des Usines Renault, Billancourt, both of France

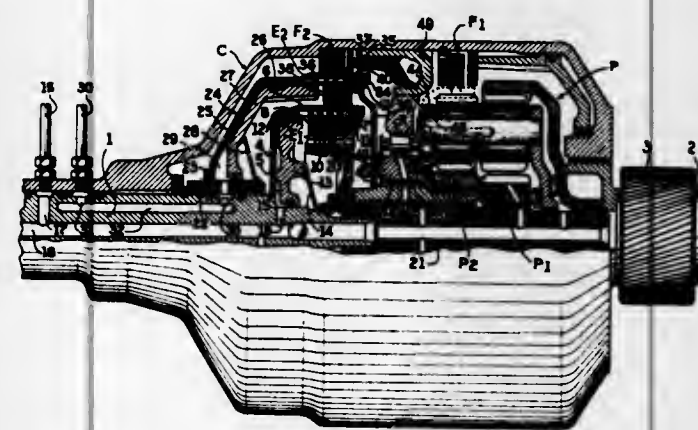
Filed July 1, 1971, Ser. No. 158,732

Claims priority, application France, July 30, 1970, 7028140

Int. Cl. F16h 57/10

U.S. Cl. 74-763

7 Claims



Transmission mechanism having an automatic gear change system comprising an assembly of hydraulically controlled clutch and brake devices which include friction discs and hydraulic control cylinders supported by coaxial partly overlapping bell-shaped members whose concave sides face in the same axial direction. An end wall member has an outer periphery connected to rotate with the open end portion of the larger bell-shaped member and an inner periphery fixed to an element of a planetary gear train of the mechanism.

3,741,039

VARIABLE SPEED TRANSMISSION WITH PROPORTIONAL INVERSE TORQUE REDUCTION

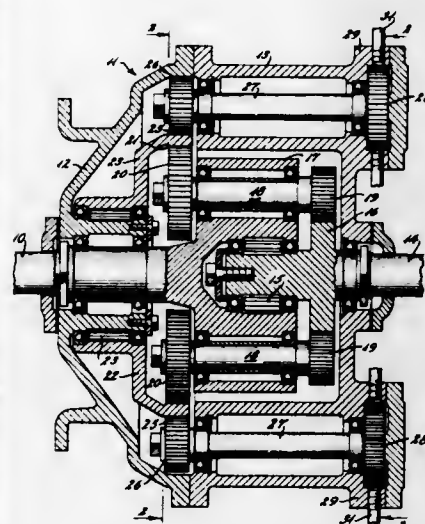
Milton W. Garland, 208 W. Second St., Waynesboro, Pa.

Filed June 29, 1971, Ser. No. 158,004

Int. Cl. F16h 3/44

U.S. Cl. 74-786

5 Claims



Transmission apparatus in which the input shaft may drive the output shaft at the same rotational speed or may drive the

output shaft at an increased speed with proportional inverse torque reduction. The apparatus includes input and output shafts connected together by a unidirectional stop device and a gearing arrangement so that the speed of the output shaft may be increased with proportional inverse torque reduction when the input shaft is driving in one direction and having apparatus for preventing free wheeling when the output shaft becomes the driver.

3,741,040

HYDROSTATIC-MECHANICAL TRANSMISSION

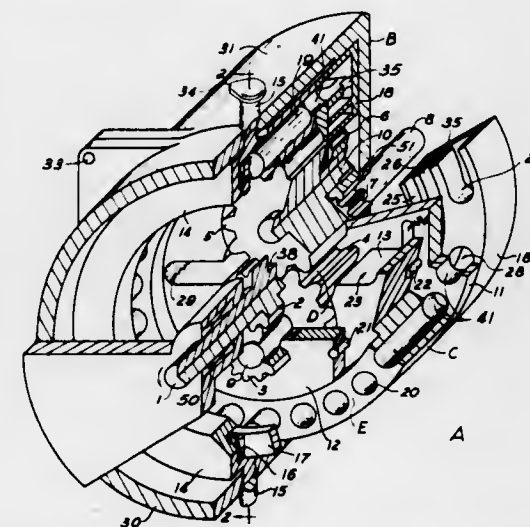
Noel S. Shaw, 7158 S. Vernon Avenue, Chicago, Ill.

Filed Apr. 10, 1972, Ser. No. 242,578

Int. Cl. F16h 5/18; F16d 31/04

U.S. Cl. 74-794

10 Claims



A hydrostatic-mechanical transmission arrangement comprising a casing rotatably mounting a gear carrier and sun gears journaled on either side of same for rotation about the axis of rotation of the carrier, with the carrier carrying a gear pump of which one of the meshing gears thereof is coupled to one of the sun gears, and the other pump gear is coupled to the other sun gear, and with the carrier equipped with a hydraulic motor of the axial piston type including an annular reaction plate against which the motor pistons react that is non-rotating in nature, but adjustable about a pivot axis normal to the axis of rotation of the carrier. A hydraulic conduit arrangement including a flow orienting valve plate fixed to the casing but in liquid tight relation with the carrier confines hydraulic liquid flow to between the pump and motor. Either of the sun gears may serve as the input, but by reversing the functions of the motor and pump, the carrier may be driven to serve as the input.

3,741,041

SPEED REDUCTION GEAR ASSEMBLY

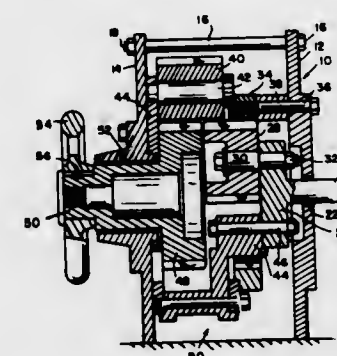
Francis H. Boor, Lafayette, Ind., assignor to Fairfield Manufacturing Co., Lafayette, Ind.

Filed Aug. 19, 1971, Ser. No. 172,998

Int. Cl. F16h 1/28

U.S. Cl. 74-801

5 Claims



A speed reduction gear assembly wherein a large speed reduction is realized from input to output using a minimum of

four gears. The input is coaxial with the output. The large gear reduction is a result of the effective rolling center of one of the gears being located at a predeterminable radial point other than on the pitch diameter of the gear it is driving. Alternative embodiments are provided which allow, through the use of additional gears, the transfer of a large amount of torque and permit the rotational output to be taken on the input side of the gear assembly.

3,741,042

ELECTRONIC CONTROL DEVICES FOR MULTISTAGE GEAR BOXES

Raymond Ravenel, Sceaux, France, assignor to Societe Amonyme Automobiles Citroen, Paris, France

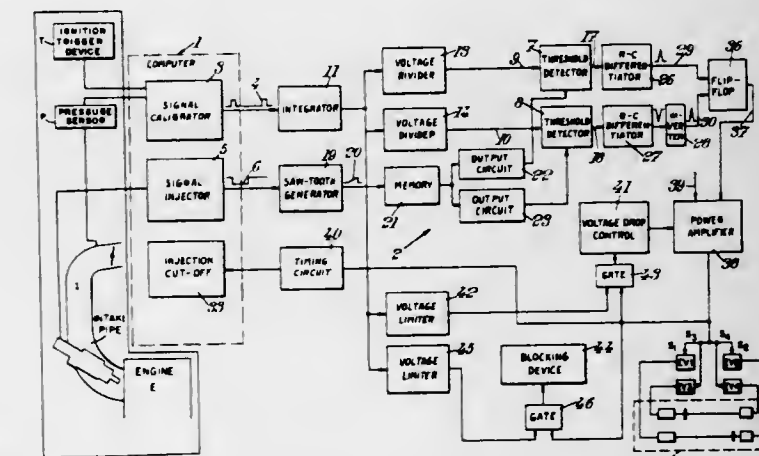
Filed Mar. 5, 1971, Ser. No. 121,253

Claims priority, application France, Mar. 10, 1970, 7008571

Int. Cl. B60k 21/00; F16h 3/74

U.S. Cl. 74-863

25 Claims



The vehicle is provided with an electronic computer for producing an injection control signal whose duration determines the time of opening of the injectors. The device is arranged so that the injection control signal acts, as a function of its duration, on a one or more thresholds of at least one threshold detector sensitive to the rotary speed of the engine and adapted to control the gear changes. Other parameters of the operation of the engine and the state of the load may be fed to the computer, for example the pressure in the intake pipe of the engine.

3,741,043

WHEEL SPIN CONTROL SYSTEM FOR AUTOMATIC TRANSMISSIONS

Minoru Oya; Shin Ito, and Seitoku Kubo, all of Toyota-shi, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

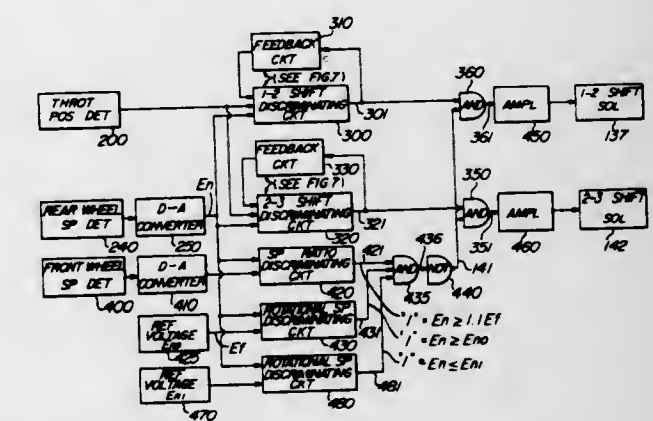
Filed Apr. 5, 1972, Ser. No. 241,197

Claims priority, application Japan, Apr. 10, 1971, 46/22624

Int. Cl. B60k 21/00; F16h 3/74

U.S. Cl. 74-866

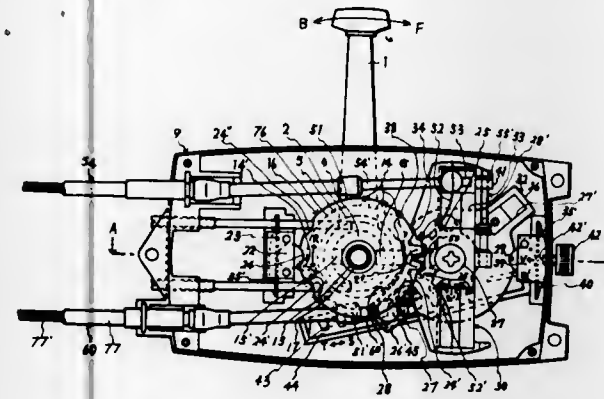
11 Claims



In a vehicle transmission of the type in which the torque is transmitted between the drive shaft and the driven shaft, a

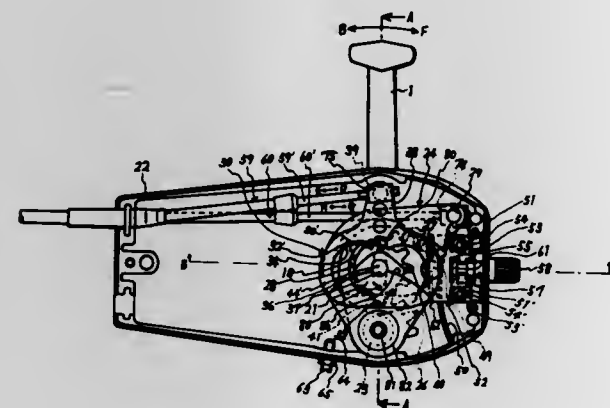
control system for an automatic transmission comprising a gear shift engagement unit including engaging means with hydraulic servos, a source of fluid pressure for generating fluid pressure for said hydraulic servos, shift valves adapted to distribute the fluid pressure to said hydraulic servos, driven-wheel speed-responsive signal generating means, engine torque-responsive signal generating means, vehicle speed-responsive signal generating means, shift discriminating circuits each for receiving and performing computational operations on the signals from said signal generating means, and a speed ratio discriminating circuit for receiving said driven-wheel speed-responsive signal and said vehicle speed-responsive signal to compute the slip factor of the driven wheel, whereby said shift valves are selectively controlled according to the output signals from said shift discriminating circuits and said speed ratio discriminating circuit to thereby reduce the transmission of the torque between the transmission input or drive shaft connected to the engine and the transmission output or driven shaft which connects to the driven wheels when they begin to spin at low speeds due to slippery conditions.

operating the clutch and the throttle. The throttle operating member and the clutch operating member are operated inde-



pendently of each other and when out of operation they are locked to preclude an inadvertent operation.

3,741,044
SINGLE LEVER CONTROL APPARATUS FOR MARINE ENGINE
Masanao Baba, Takarazuka, Japan, assignor to Nippon Cable System Inc., Hyogo-ken, Japan
Filed Dec. 1, 1971, Ser. No. 203,766
Claims priority, application Japan, Aug. 31, 1971, 46/67313
Int. Cl. B60k 21/00; F16d 47/00
U.S. Cl. 74—876 9 Claims

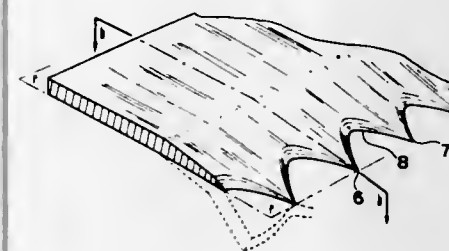


A single lever control apparatus for marine engine for operating the clutch and the throttle. The throttle operating member and the clutch operating member are operated independently of each other and when out of operation they are locked to preclude an inadvertent operation.

3,741,045
SINGLE LEVER CONTROL APPARATUS FOR MARINE ENGINE
Tetsuo Kobayashi, Nishinomiya, Japan, assignor to Nippon Cable System Inc., Hyogo-ken, Japan
Filed Dec. 1, 1971, Ser. No. 203,767
Claims priority, application Japan, Aug. 14, 1971, 46/61720
Int. Cl. G05g 13/00; F16d 23/00
U.S. Cl. 74—876 15 Claims

A single lever control apparatus for marine engine for

3,741,046
METHOD OF PRODUCING CUTTING TEETH ON CUTTING TOOLS
Rene Chambon, Tarbes-Hautes-Pyrenees, France, assignor to Societe Francaise d'Equiptment Menager, Lourdes, Pyrenees, France
Filed Nov. 4, 1971, Ser. No. 195,679
Int. Cl. B21k 11/02
U.S. Cl. 76—104 R 3 Claims

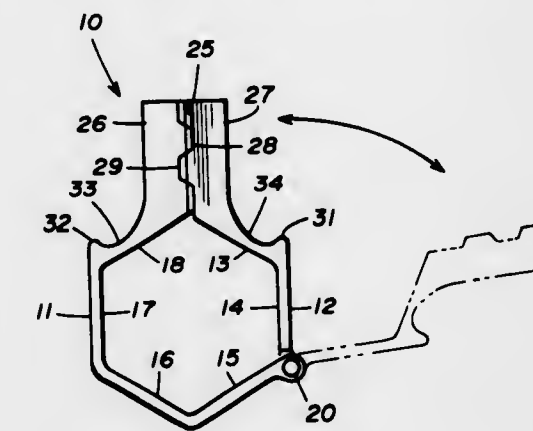


The disclosure herein describes a method of producing cutting teeth on the blade of a cutting tool; the method consists first in folding longitudinally, by stamping, one part of the blade to an angle of less than about 15°; secondly, in producing, by stamping a portion of the folded part, a series of substantially identical indentations side by side along the edge of the blade, the line separating the stamped and unstamped zones having the appearance of a plurality of juxtaposed arcs subtended by the edge of the blade, the concavity of the indentations extending towards the salient angle side of the fold line; and, thirdly, in carrying out a planing operation on the face of the folded part of the blade located on the reentering angle side of the fold line. The planing operation provides a chamfer in the edge of the blade and, by the removal of the projections formed by the convex part of the indentations, the planing step produces sharp-edged scallops which form the teeth of the cutting tool.

3,741,047
HINGED BOX WRENCH
Benjamin L. Kanowsky, P.O. Box 35184, Dallas, Tex.
Filed Dec. 20, 1971, Ser. No. 210,056
Int. Cl. B25b 13/06
U.S. Cl. 81—121 R 13 Claims

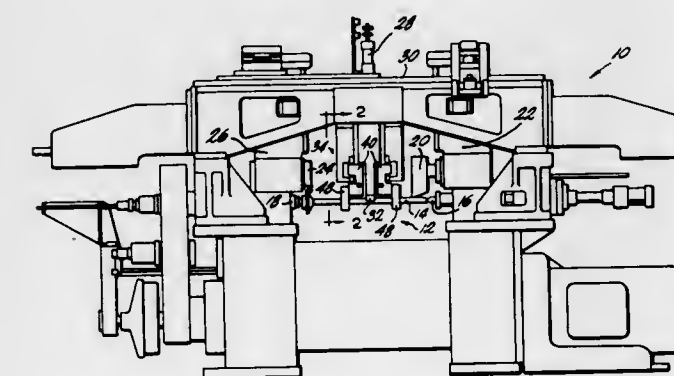
A sectional box wrench having jaws pivotally hinged to swing apart to permit engagement and disengagement with a fastener is disclosed. Each jaw is provided with a lug half extending in the plane of the jaws which, when the jaws are closed, interlock to form a lug. The interlocking lug construc-

tion prevents relative movement between wrench jaws and serves to efficiently transmit torque to the jaws allowing the jaws to be relatively thin. A special socket drive for use with the wrench fits over the lug and has arms that project laterally beyond the lug to engage shoulders formed on the outer side



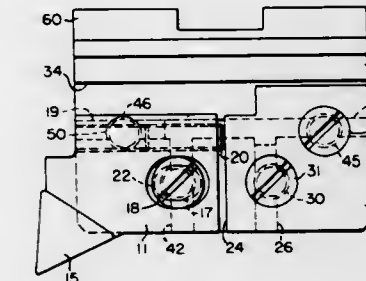
of both jaw halves to transmit torque to the jaws. Adapters to permit the use of conventional ratchet and torque wrenches are shown. Also a special ratchet adapted for use with the hinged wrench and socket combination is also disclosed which permits the drive to be ratcheted while the handle remains substantially in the same position.

3,741,048
MACHINE TOOL SYSTEM
Bruce G. Peuterbaugh, Mount Clemens, Mich., assignor to La Salle Machine Tool, Inc., Warren, Mich.
Filed Aug. 27, 1970, Ser. No. 67,371
Int. Cl. B23b 15/00
U.S. Cl. 82—2.5 2 Claims



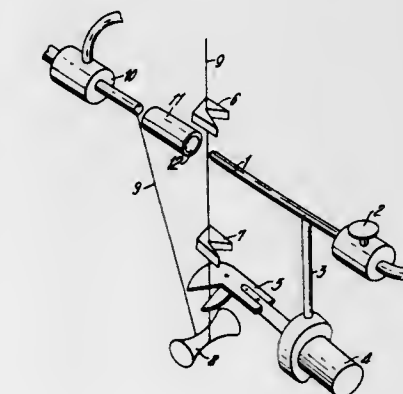
A machine tool system which includes a plurality of work stations at which workpieces are progressively shaped to a final form and a stationary track assembly extending longitudinally past the work stations. A plurality of workpiece holding units are mounted on the track assembly and are movable longitudinally of the track assembly for advancing workpieces carried thereby to successive work stations. Each of the units includes a downwardly extending body member and a pair of jaws, the jaws being mounted for movement between a workpiece release position located above the workpieces at the work stations and a workpiece gripping position extending downwardly and disposed in gripping engagement with horizontally opposite sides of a workpiece. Thus, the workpiece advancing mechanism is located entirely above the workpieces so that the chips and other metal pieces resulting from work operations carried on at the work stations cannot accumulate on and thus adversely affect the operation of the workpiece advancing mechanism.

3,741,049
CUTTING TOOL
George B. Anderson, Rochester, N.Y., assignor to USM Corporation, Boston, Mass.
Filed June 7, 1971, Ser. No. 150,280
Int. Cl. B23b 29/00; B26b 1/00
U.S. Cl. 82—37 R 7 Claims



A tool holder with a carbide tool bit may be secured on a tool block selectively in either of two positions at right angles to one another to perform different cutting operations. Filler cartridges are used in conjunction with the tool holder. In one position a filler cartridge helps locate the tool holder on the tool block. The tool holder is located by the tool block in its other position. The filler cartridges may be ported to conduct coolant to the points of cut.

3,741,050
METHOD OF STRINGING A THREAD THROUGH A HOLE
Robert Reid Coats, and John Michael Greenway, both of Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England
Filed May 10, 1971, Ser. No. 141,705
Claims priority, application Great Britain, May 27, 1970, 25,530/70; June 9, 1970, 27,840/70
Int. Cl. B20d 7/08; G03b 1/56
U.S. Cl. 83—22 1 Claim

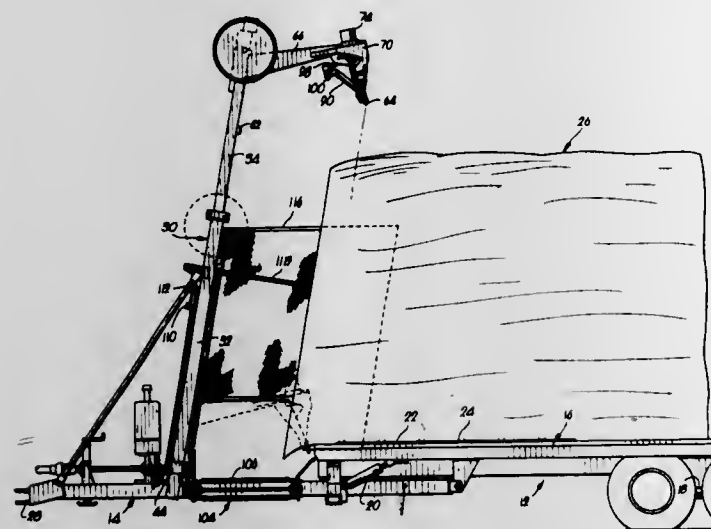


A method whereby a continuously advancing strand issuing from a supply is threaded through an aperture with a closed circumference comprising the steps of blowing the strand to divert it into an open looped path directed towards the aperture, blowing at least a part of the strand in the loop through the aperture, entraining part of the strand beyond the aperture in a suction gun, and severing the strand between the gun and a collecting means after the strand has been diverted.

3,741,051
STACK FEEDING METHOD AND APPARATUS
Dean P. Brooks, Hesston; Ferol S. Fell; Harold Keith Garrison, both of Newton, all of Kans., and Richard W. Job, Racine, Wis., assignors to Hesston Corporation, Hesston, Kans.
Filed May 26, 1971, Ser. No. 146,882
Int. Cl. A01f 29/00; B26d 7/06
U.S. Cl. 83—23 29 Claims

Livestock feed such as hay is fed from a stack by loading the stack on a bed and transporting it to a feeding point. The stack

is then advanced intermittently along the bed to a position partially underlying a raised cutter bar slicer. As the slicer is

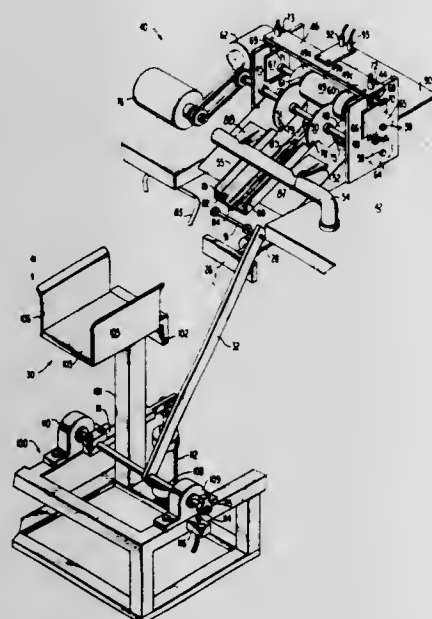


lowered, the slices are pushed away from the stack and caused to gravitate to a lateral conveyor which transfers the hay thus sliced from the stack to a point of discharge.

3,741,052
BUTTON LINE STRIP CUTTER AND STACKER
Wade W. Frost, and Lamar G. Shy, both of Vidalia, Ga., assignors to Oxford Industries Inc., Atlanta, Ga.
Filed Apr. 22, 1971, Ser. No. 136,338
Int. Cl. B26d 7/06

U.S. Cl. 83-24

6 Claims

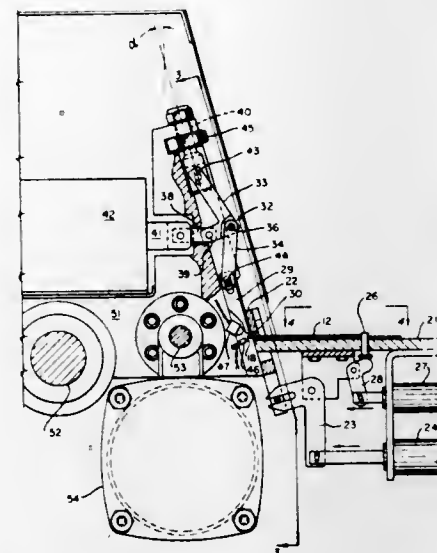


A button line strip cutter and stacker for manufacturing center plaits of shirt fronts having stripe designs. Strips of cloth from which the center plait pattern parts are to be formed are moved through a cutting zone with the stripe design of the strips of cloth passing through the middle of the cutting zone and the side edges of the strips of cloth are simultaneously and progressively cut away from the center portion. The edge portions move into a flow of air and are carried to a remote waste area while the center portions move with another air flow and are stacked away from the cutting zone.

3,741,053
CODE NOTCHER FOR DATA CARRIER
Joseph E. Byrne, Gilbert F. Clifford, both of Los Altos; Donald F. Smith, Palo Alto, and Arthur W. Odell, Atherton, all of Calif., assignors to Varian Adco, Palo Alto, Calif.
Filed Nov. 15, 1971, Ser. No. 198,896
Int. Cl. B26f 1/12

U.S. Cl. 83-71

11 Claims

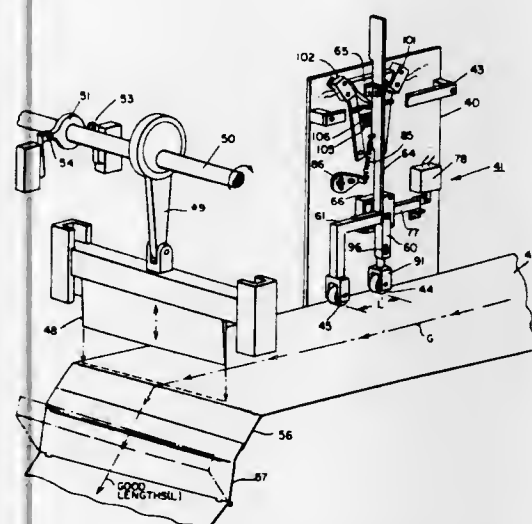


A code notcher for microfiche carriers which includes a mechanical toggle apparatus for punching the notches in the carrier and a clamp and backstop for positioning the carrier in a position to be notched.

3,741,054
MATERIAL THICKNESS DETECTOR
Joel M. Alperin, Scranton, and James P. Murphy, Pittston, both of Pa., assignors to Philadelphia College of Textiles and Science, Philadelphia, Pa.
Filed Oct. 26, 1971, Ser. No. 192,441
Int. Cl. B65h 7/06, 29/62, 35/06

U.S. Cl. 83-80

24 Claims

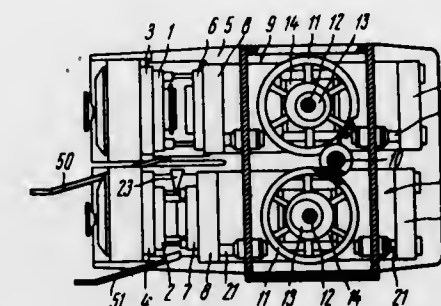


Detector apparatus for detecting thickness variations of a continuous strip of material, adapted to detect relative variations in excess of a given percentage of the desired reference thickness, and further adapted to be self-adjusting to detect, with a substantially constant sensitivity, thickness variations with respect to any reference thickness of the passing material which is substantially uniform for more than a predetermined length. A cam with a symmetrical surface is positioned between a pair of switches, and carried by a rotatable arm which is responsive to thickness variations. The pivot position of the rotatable arm is normally held fixed, and is changeable in position only when the passing material changes to and maintains a different thickness for more than a given length.

3,741,055
AUTOMATIC TRANSFER PRESS WITH VERTICAL STAMPING SURFACES FOR STAMPING CONCENTRIC PARTS OF SHEET MATERIAL
Rafael Tevosovich Sarkisov, ulitsa Aga-Neimatully, 20, kv. 29; Ernst Arakelovich Stepanian, ulitsa Druzhby molodezhi, 2, kv. 33; Jury Vagarshevich Ovanesov, ulitsa Mayakovskogo, 17, kv. 8, and Vladimir Vasilievich Maltsev, ulitsa Chapayeva, 61, kv. 6, all of Baku, U.S.S.R.
Filed Jan. 13, 1972, Ser. No. 217,521
Claims priority, application U.S.S.R., Mar. 22, 1971, 1628702
Int. Cl. B26f 1/02; B26d 11/00

U.S. Cl. 83-132

5 Claims

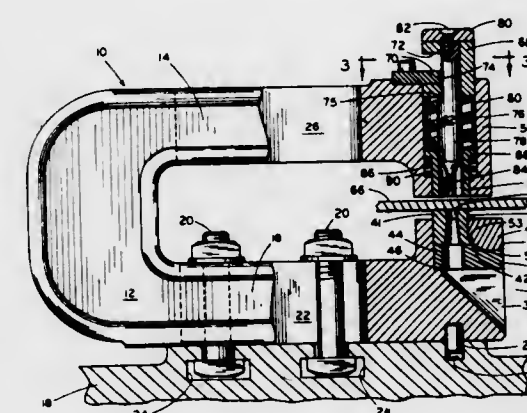


An automatic transfer press with vertical stamping surfaces for stamping two concentric parts of sheet material. The press comprises two compound die sets arranged one above the other, with vertical stamping surfaces. The punches of the die sets are secured to slides moving horizontally in the opposite directions. Each slide is made in the form of a link mechanism consisting of a slide block and a link on which the cross-heads with punches are mounted. The link is made in the form of a vertical plate with a port accommodating the slide block secured on the eccentric of the press driven shaft.

3,741,056
PUNCH DEVICE
Lawrence J. Saladin, Evergreen Park, Ill., assignor to Accurate Manufacturing Co., Chicago, Ill.
Filed Aug. 23, 1971, Ser. No. 173,926
Int. Cl. B26f 1/14

U.S. Cl. 83-140

11 Claims

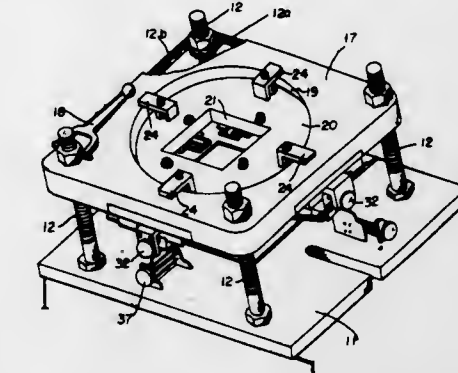


A hand positionable portable perforating device having a punch member retained in the upper arm of a C-shaped frame by a tangentially slotted bushing which functions both as a punch guide by surrounding the periphery of the upper portion of the punch and as a punch retaining member by having a lower portion engaging a shoulder on the punch. A die which is supported in the lower arm by a stepped mounting pad and a mating restraining member is thereby positively locked, aligned and easily disassembled.

3,741,057
HYDRAULIC LABEL DIE CUTTING MACHINE
Howard R. Maschinot, Erlanger, Ky., assignor to The Printing Machinery Company, Cincinnati, Ohio
Filed June 17, 1970, Ser. No. 47,019
Int. Cl. B26d 5/20

U.S. Cl. 83-222

7 Claims

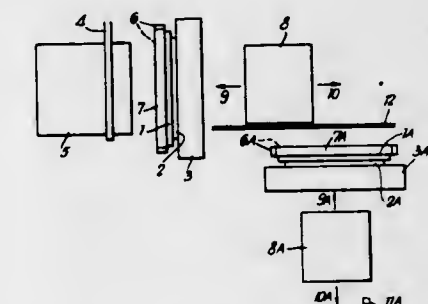


A simple hydraulically operated label die cutting machine wherein the ram which forces a stack of labels through the cutting die, and a shuttle which moves a stack of labels into position over the ram, are both hydraulically operated. The shuttle and ram operate in timed relation to each other automatically. Provision is made for jogging either the ram or the shuttle independently of each other. A safety switch is provided to stop the machine if the operator's hand is still on a stack of labels being moved into position by the shuttle when the stack of labels is about to enter into position over the ram. Additional safety for the operator is provided by relatively low pressure operation of the piston which actuates the shuttle, so that the shuttle can be held manually without great exertion. The cutting die is held by two pairs of mutually opposed chuck jaws whereby the die may be adjusted linearly in two directions at right angles to each other, and the chuck jaws are mounted on a plate which may be rotated and clamped in the desired position for the rotational alignment with the stack. The die holding portion of the machine is anchored to the main machine frame which carries the ram cylinder by means of corner posts, which thus take the strain of the die cutting operation.

3,741,058
APPARATUS FOR CUTTING SHEET MATERIAL
Ian Anthony Fish, 8, Handel Close, Canons Drive, Edgware, England
Filed June 8, 1970, Ser. No. 44,146
Int. Cl. B26d 5/20

U.S. Cl. 83-277

17 Claims



Pieces of sheet material are picked up one at a time off a stack by suction means and each one is pulled to a mechanism which clamps it and cuts a straight edge on it and is then pulled further before the same mechanism clamps it and cuts another straight edge on it parallel to the first. As an alternative, an end of a continuous web of sheet material is pulled to a mechanism which clamps it and cuts pieces off it. In both cases, if desired each piece may proceed directly to apparatus which cuts two more straight edges on it so that the sheet is then a true rectangle.

3,741,059

FLYING SHEARS FOR TRIMMING METAL PLATES AND SHEETS

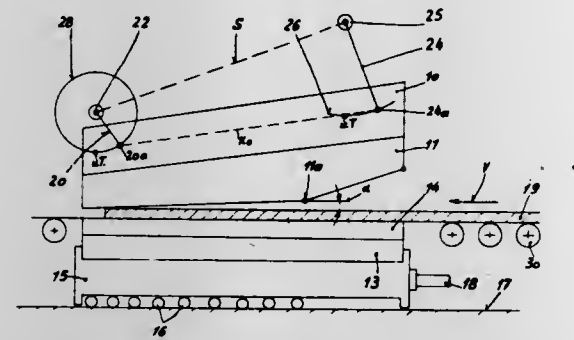
Gunther K. Fries, Neunkirchen/Saar; Ernst-Gunther Oberhauser, Rohrbach/Saar, and Friedel Betz, St. Ingbert/Saar, all of Germany, assignors to Moeller & Neuman, St. Ingbert/Saar, Germany

Filed Sept. 15, 1971, Ser. No. 180,690

Int. Cl. B23d 25/10

U.S. Cl. 83—315

6 Claims



A flying shears for trimming plates or sheets has an upper cutter carrier which is connected at its plate exit end to a continuously rotating crank, and at its plate inlet end to a rocker member. The upper cutter has a straight cutting edge which may have an extension directed away from the plate feed plane. The lower cutter may have a straight cutting edge and may be displaceable in and against the plate feed direction by a drive which permits the cutting forces to modify the plate speed. Alternatively the lower cutter may have a curved cutting edge and may be displaceable in a similar manner to the upper cutter. Means are provided for so modifying the displacement speed of the cutters that plates or sheets can be fed through the shears at a uniform speed.

3,741,060

TRIMMING FOAM LAMINATES

Ian Thornton Owen, Stockton-on-Tees, England, assignor to Imperial Chemical Industries, Limited, London, England

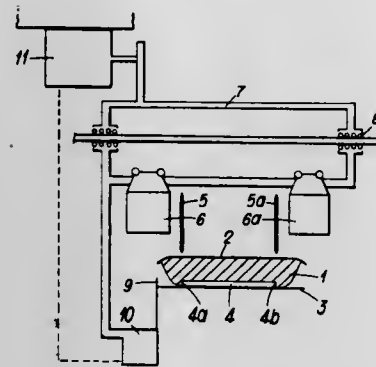
Filed May 18, 1971, Ser. No. 144,535

Claims priority, application Great Britain, June 4, 1970, 26,994/70

Int. Cl. B26d 5/00

U.S. Cl. 83—368

2 Claims



Apparatus for trimming a rigid polyurethane foam laminate comprising a frame freely movable laterally, a pair of carriages clamped to the frame a preselected distance apart and movable with the frame, cutting means mounted upon each carriage and movable therewith, each cutting means being mounted upon its respective carriage a preselected distance from the other and from the adjacent longitudinal edge of the laminate, means for continuously sensing lateral movement of the laminate and means responsive to lateral movement of the laminate for causing corresponding lateral movement of the frame, the carriages and their respective cutting means.

3,741,061

PORTABLE HOLDER AND SAW BLADE GUIDE SLOT FOR RIDGEDLY CLAMPING AND CUTTING FLEXIBLE ARMORED ELECTRICAL CABLE AT RIGHT ANGLES TO THE CABLE AXIS

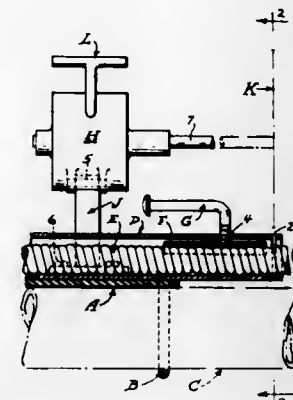
Peter V. Bevacqua, 15881 Via Del Sol, San Lorenzo, Calif.

Filed Dec. 31, 1970, Ser. No. 103,059

Int. Cl. B27b 5/20; B23d 45/04

U.S. Cl. 83—454

4 Claims



A portable cylindrical holder open at both ends and adapted to receive a portion of a flexible armored electrical cable that is to be cut, the cylindrical holder having a transversely extending hack saw blade receiving slot that extends at right angles to the longitudinal axis of the holder. An adjustable clamping member is disposed within the cylindrical holder and has one end disposed adjacent to the slot. Any desired length of electrical cable is fed through the cylindrical holder and then the portion of cable that is to be cut transversely is rigidly held against twisting by tightening the clamp onto the cable. The operator can now use the slot as a guide for a hack saw blade that will cut the cable at right angles to the cable axis. The device can be manually held while being used or it may be secured to a scaffolding or any other support. A motor driven disc saw for cutting the cable can be mounted on a base plate that is welded to the cylindrical holder.

3,741,062

CUTTING DEVICE

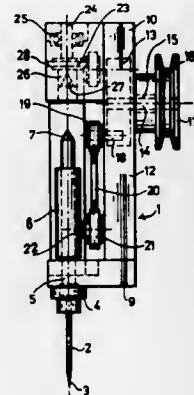
Hendrik Glastra, Enschede, Netherlands, assignor to N.V. Maatschappij Voor Industriële Research en Ontwikkeling, Enschede, Netherlands

Filed Apr. 8, 1971, Ser. No. 132,291

Int. Cl. B26d 5/14

U.S. Cl. 83—556

4 Claims



A cutting device provided with a needle-shaped cutting member which is at its free end provided with at least one cutting edge at an angle with the longitudinal axis and coupled to a driving mechanism which is constructed in such a way that during operation the cutting edge is periodically raised to above the material and can be rotated at the same time through an angle.

3,741,063

ADJUSTABLE JIG FOR PORTABLE ELECTRIC SAWS

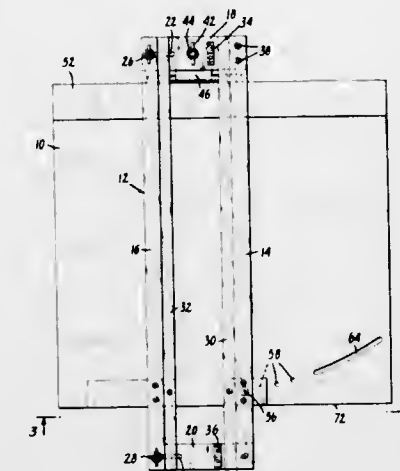
Frank N. Bretthauer, Route 3, Putnam Valley, N.Y.

Filed Apr. 6, 1972, Ser. No. 241,983

Int. Cl. B27b 9/04, 5/20

U.S. Cl. 83—745

7 Claims



A jig for portable electric saws is disclosed. With the jig, wood and other materials can be cut with electric hand saws to the same degree of precision as is now available only with bench and radial arm saws.

3,741,064

MITRE-BOX

Andre Quenot, Besancon, France, assignor to Manufacture Quenot Mabo, Besancon, France

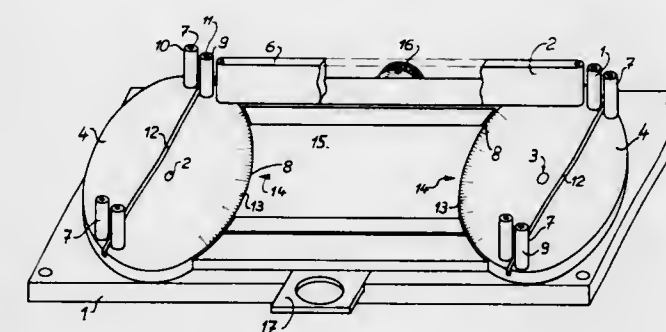
Filed June 29, 1971, Ser. No. 157,879

Claims priority, application France, Oct. 7, 1970, 7025902; Jan. 14, 1971, 7101873

Int. Cl. B27g 5/02

U.S. Cl. 83—767

10 Claims



This mitre-box comprises a base plate on which a pair of spaced platforms are pivotally mounted and provided each with pairs of free-rotating rollers disposed for guiding a cutting tool. A longitudinal guide member is pivotally mounted to said platforms for guiding a workpiece. A protractor is provided for adjusting the angular position of the platforms in relation to a fixed reference mark carried by said base plate, and means are provided for locking the platforms in a selected angular position.

3,741,065

GUITAR SLIDE BAR APPARATUS

William E. Harris, 3017 East Calhoun Boulevard, Minneapolis, Minn.

Filed July 22, 1971, Ser. No. 165,199

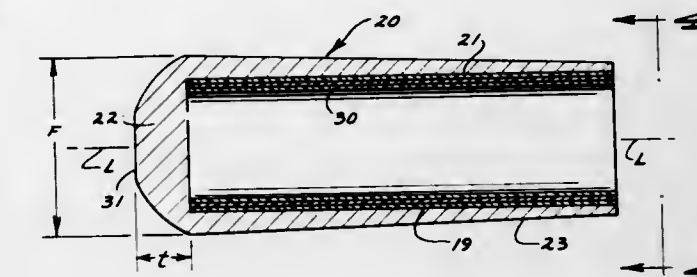
Int. Cl. G10d 3/00

U.S. Cl. 84—319

9 Claims

A fretted neck of a guitar having a plurality of strings spaced above the fretboard and slide bar apparatus that includes a tu-

bular portion having a first end, a second end axially opposite the first end, a finger receiving chamber opening through the first end and a frusto conical outer surface having a major base remote from the first end, a cap portion integrally joined to



the second end and having a curved outer surface, and a rolled length of plastic film in the finger receiving chamber that may be cut off to provide for selectively sizing the effective opening of the finger receiving chamber to a given user's finger.

3,741,066

MUSICAL NOTATION AND ACTUATOR SYSTEM

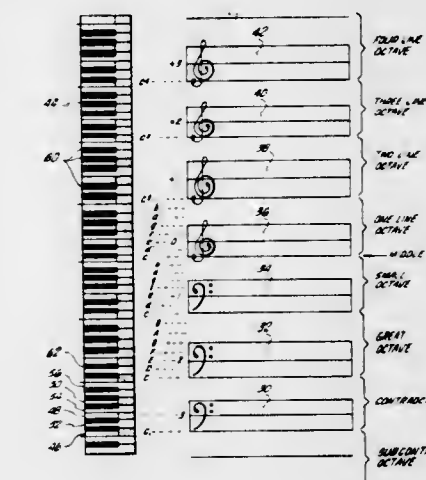
Ralph G. Cromleigh, 4511 Lasheart Drive, La Canada, Calif.

Filed Mar. 5, 1971, Ser. No. 121,343

Int. Cl. G09b 15/08

U.S. Cl. 84—478

8 Claims



A musical notation and actuator system is disclosed. The notation system includes the use of identical staves which uniquely correspond to octaves. Each of the staves includes three uniformly spaced lines which correspond to particular musical tones. Alphanumeric designators may be used to particularly identify a staff with an octave. Notes superposed on the staves designate tones to be sounded by a musical instrument. Notes are provided with particular shapes to indicate when semi-tones, either higher or lower than the tone defined by the line or space of a staff, are to be sounded. The actuator system is typified by being physically marked to correspond to the lines and spaces of a staff.

3,741,067

FASTENING ASSEMBLY

Thomas M. Moran, Cleveland, Ohio, assignor to Eaton Corporation, Cleveland, Ohio

Filed May 27, 1971, Ser. No. 147,571

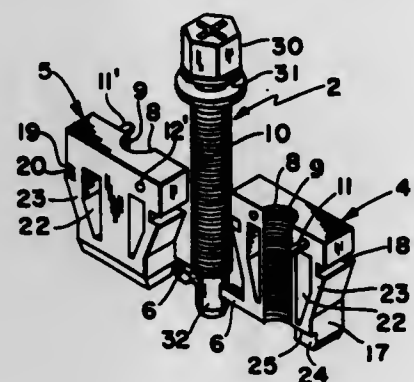
Int. Cl. F16b 37/10

U.S. Cl. 85—72

7 Claims

A fastener assembly for mounting with an apertured support panel comprising a pair of complementary nut sections attached to an end portion of an adjustment screw. The nut sections being folded about said screw in a confronting face-to-face relationship with each nut section having an arcuately

concave threaded section for engagement with the threads of the screw when said members are in face-to-face relationship.



The nut includes deflectable shank elements adapted for locking the fastener assembly in the support panel.

3,741,068

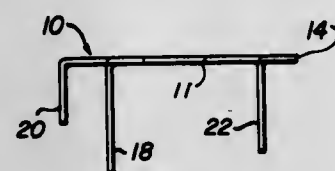
WALLBOARD STAPLE

Julian Andruskiewicz, 280 Willow Road, Elmhurst, Ill.
Continuation-in-part of Ser. No. 43,413, June 4, 1970. This application Jan. 3, 1972, Ser. No. 215,203

Int. Cl. F16b 15/00

U.S. Cl. 85-13

4 Claims



A staple for anchoring wallboard to a jamb, wherein the staple spans the gap between the wallboard and the jamb, such staple having down bent portions, including an intermediate spacer to move into the gap and against the jamb, forward piercing points to be embedded in the jamb at a distance no greater than about one-half its thickness, and a rearward point to pierce the drywall and be embedded in the underlying structure, said spacer being the longest and the rearward part being the next longest that the rearward part may be first driven through drywall after the staple is positioned.

3,741,069

FEED SYSTEM FOR A NON-ROTATING MULTI-BARREL GUN

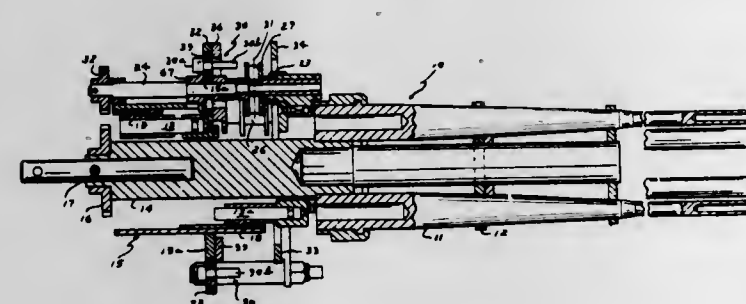
Paul E. Stewart, Deerfield, Ill., and Dale M. Davis, Freeport, Fla., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Mar. 10, 1972, Ser. No. 233,595

Int. Cl. F41d 7/02

U.S. Cl. 89-11

10 Claims



A test model machine gun having an endless ammunition belt continuously moving during operation, a stationary multi-

barrel cluster arranged about the gun axis and a combined feed and gun-operating mechanism including a squirrel cage automatically rotatable in orbit about the barrel cluster in synchronism with the moving belt and equipped with a series of ammunition feed spaces, a four-tooth feed sprocket geared to, and thus automatically operable therewith, for removing rounds from the moving belt for their placement in successive squirrel cage-feed spaces, and a bolt-operating drive cam rotatable within, and in simultaneous orbit with, the squirrel cage and incorporating transfer, feed and ejection sprockets automatically rotatable during orbit of the drive cam to respectively engage and transfer rounds from the squirrel cage, feed the transferred rounds to a captive position in the bolt heads and eject the rounds extracted by the bolts for subsequent positioning in alternate squirrel cage-feed spaces. A four-tooth ejection sprocket, geared to the four-tooth feed sprocket and to the drive cam, is simultaneously operative in sequence with rotation of the squirrel cage to engage the extracted rounds returned thereto and replace them in the moving belt.

3,741,070

PRODUCTION OF BODIES OF REVOLUTION

Charles William Berthiez, 5 Avenue Eglantine (Suisse), Lausanne, Switzerland

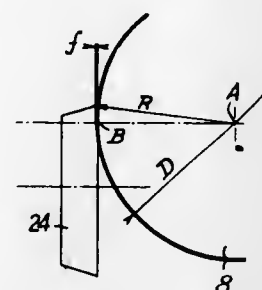
Filed June 29, 1970, Ser. No. 50,422

Claims priority, application France, June 30, 1969, 69622059

Int. Cl. B23c 3/04

U.S. Cl. 90-11 C

1 Claim



A method and machine for machining bodies of revolution in which the part to be machined is rotated about its axis and is machined by means of a milling tool mounted on the end of a rotating spindle, whose axis is essentially perpendicular to the axis of the part to be machined, the milling tool being displaceable along a path parallel to the axis of the part, and the milling tool being adjustable in height by displacement of its axis of rotation along a plane perpendicular to the axis of the part to be machined.

3,741,071

SENSING APPARATUS FOR CENTERING A CUTTING HEAD AND TOOL WITH RESPECT TO A WORK PIECE

Nils Hoglund, Short Hills, N.J., assignor to Hoglund Engineering and Manufacturing Company, Inc., Berkeley Heights, N.J.

Filed Nov. 12, 1970, Ser. No. 88,798

Int. Cl. B23b 3/00

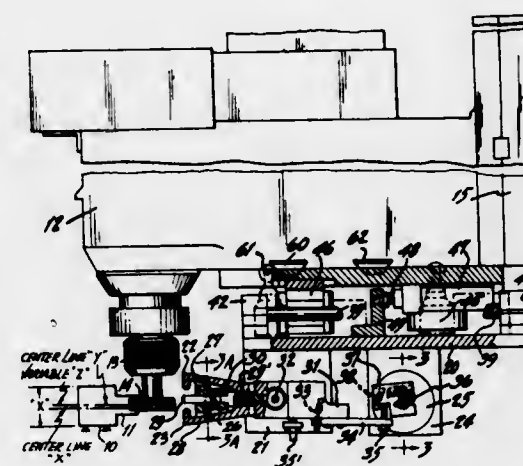
U.S. Cl. 90-11 R

5 Claims

The apparatus for positioning a cutter or milling head assembly centrally of work pieces having variable dimensions, includes a cutting or milling head assembly mounted for movement in three dimensions. The milling head and tool, during cutting operations, are movable laterally to make a cut centrally of two parallel surfaces, the thickness of the work pieces in most instances varying from work piece to work piece.

Attached to the milling head assembly by means of a carriage or slide is a sensing assembly. This assembly is movable toward and from the work piece while the milling head is dis-

placed laterally from the work piece. The sensing assembly has cooperating sensing fingers which in their forward position engage the opposite surfaces of the work piece to determine the center line of the work piece.



This information is transmitted through a sensing valve associated with the fingers to a cooperating hydraulic motor and cam which control the vertical position of the milling head and cutter to center them with respect to the work piece, the milling head and cutter assembly being mounted on a slide controlled by the cam.

3,741,072

HYDRAULIC FLUID ACTUATED PERCUSSION TOOL

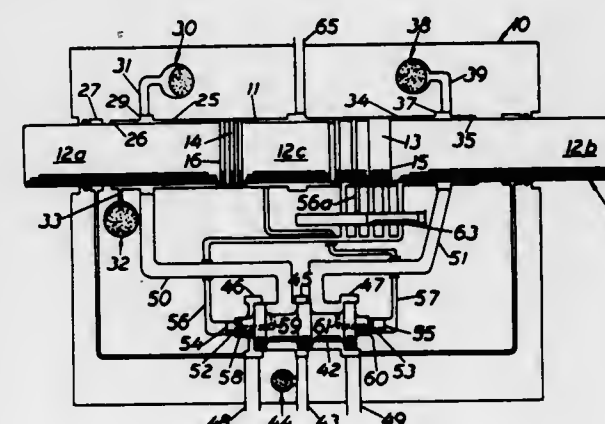
Gunnar Vigg Riss Romell, 182 62 Djursholm, Smedjevagen, and Ake Torsten Eklof, 127 36 Skarholmen, Satragardsvagen, both of Sweden

Filed Feb. 17, 1971, Ser. No. 116,014

Int. Cl. F011 25/04, 31/00

U.S. Cl. 91-290

4 Claims



A hydraulic percussion tool such as a drill, a crusher or a ram, having a hammer piston reciprocating in a cylinder. A hammer piston controlled valve is arranged to pressurize and drain alternately two pressure chambers formed between the cylinder and the hammer piston so as to cause reciprocation of the hammer piston. Energy accumulators are connected directly to the pressure chambers.

3,741,073

HYSTERETIC EQUALIZATION IN REDUNDANT ELECTRICALLY OPERATED FLUID POWERED SERVOPOSITIONING APPARATUS

Kenneth D. Garnjost, East Aurora, N.Y., assignor to Moog Inc., East Aurora, N.Y.

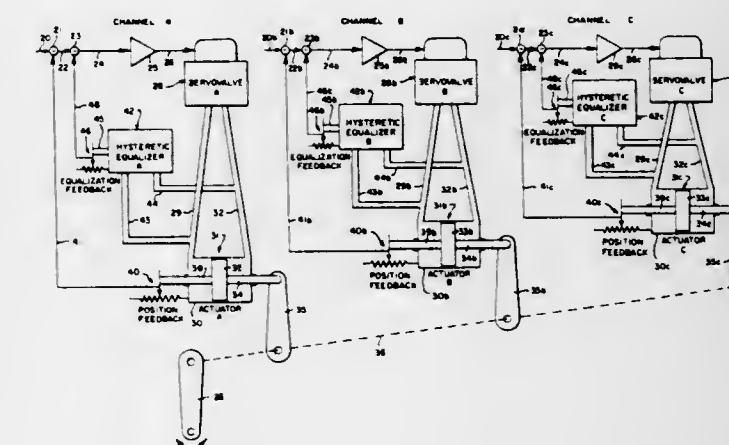
Filed Jan. 29, 1971, Ser. No. 110,927

Int. Cl. F15b 9/03, 9/09

U.S. Cl. 91-363 A

12 Claims

Hysteretic equalization means are disclosed for equalizing or matching the outputs of two or more servovalves operating



simultaneously in a multi-channel or redundant servopositioning apparatus. Such equalization avoids system deadzone and reduces the transient that may occur upon shut-off of one servovalve. The equalization is accomplished by feeding back the interchannel mismatch through means having a hysteresis characteristic.

3,741,074

VARIABLE RATIO INTEGRAL POWER STEERING GEAR

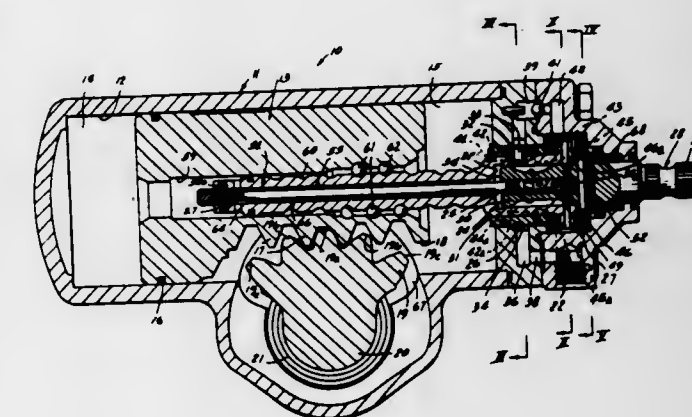
Gerald K. Oxley, and Frederick D. Venable, both of Lafayette, Ind., assignors to TRW Inc., Cleveland, Ohio

Filed Dec. 8, 1970, Ser. No. 96,029

Int. Cl. F15b 9/10, 11/08; F16b 13/04

U.S. Cl. 91-375 A

6 Claims



A variable ratio power steering gear assembly including a rack-piston and a cross-shaft mounted sector gear meshing with the teeth of the rack piston. The teeth of the sector gear are generated on a pitch radius which increases from the center to the ends of the gear to provide a steering ratio which increases from the center to the end steering positions of the assembly.

3,741,075

SAFETY APPARATUS FOR HYDRAULIC ELEVATOR JACKS

Wallace Frederick Moseley, and Robert F. Schnetzer, both of Columbus, Ohio, assignors to Plunger Lift Elevator, Inc., Columbus, Ohio

Filed Mar. 30, 1971, Ser. No. 129,450

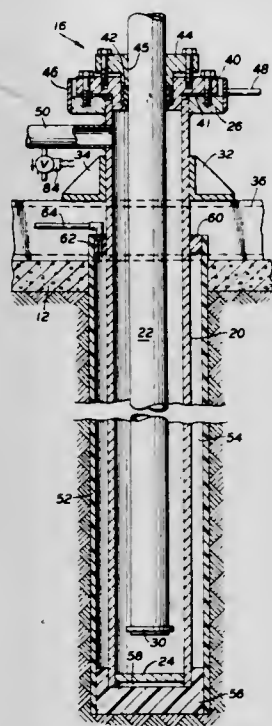
Int. Cl. F01b 29/00; F15b 13/042, 13/044

U.S. Cl. 91-451

3 Claims

The soil-embedded, subterranean portion of a hydraulic elevator jack or cylinder is sealingly encased in a fiber glass reinforced plastic housing to protect the jack from electrolysis and corrosion. A pressure responsive safety circuit commu-

nicates with the interior of the plastic housing and is operable to detect a leak in the jack and automatically interrupt the



conventional controls for the elevator and cause a gradual, safe descent of the elevator to ground level.

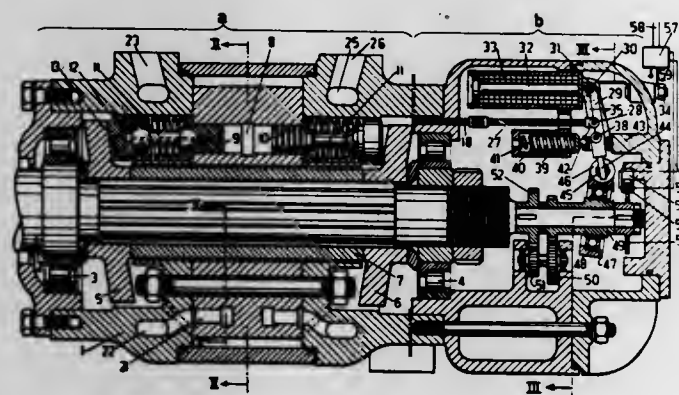
3,741,076
APPARATUS OPERATING ON THE DISPLACEMENT PRINCIPLE AND USABLE BOTH AS A PUMP AND AS A MOTOR

Wijbrand Jan Tulp, Utrecht, Netherlands, assignor to N.V. Machinefabriek Stork-Jaffa, Utrecht, Netherlands

Filed Oct. 29, 1970, Ser. No. 85,114
Claims priority, application Netherlands, Oct. 30, 1969, 6916344

Int. Cl. F01b 1/00, 3/00, 13/04
U.S. Cl. 91-480

14 Claims



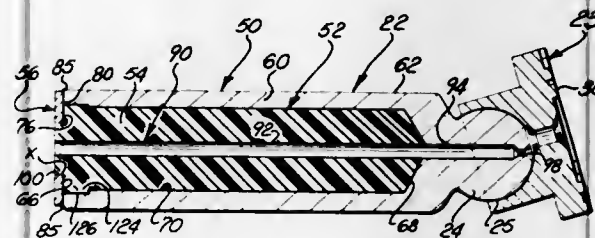
Apparatus operating on the displacement principle and usable both as a pump and as a motor, comprising a housing containing a number of displacement chambers having one or more plungers movable therein and coupled to a rotating shaft, said housing being provided with a first connection and with a second connection for a working medium, wherein the displacement chambers are each provided with a distribution system being coupled to control means which, at the beginning of each ingoing plunger stroke during which the displacement chamber decreases in volume and at the beginning of each outgoing plunger stroke during which the displacement chamber increases in volume, so adjust the distribution system under the influence of an impulse from the exterior that the distribution system connects the displacement chamber to one of the two connections selectively.

3,741,077
PISTON ASSEMBLY
Alan D. Hulsebus, Tekonsha, and Roger J. Benkovic, Marshall, both of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Apr. 24, 1972, Ser. No. 246,967
Int. Cl. F01b 13/04

U.S. Cl. 92-57
An improved hydraulic device includes a piston assembly having a metallic body with an internal cavity. The cavity is filled with a molded polymeric filler material. The molded polymeric filler material has a mass per unit volume which is less than the mass per unit volume of the metallic body and has a higher bulk modulus than hydraulic fluid utilized in association with the piston assembly. The filler material is

9 Claims



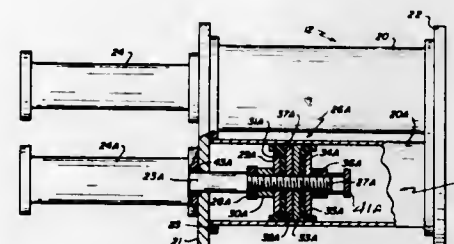
retained in the cavity during reciprocation of the piston assembly by an end plate or cap which is welded to one end of the body at an entrance to the internal cavity. The filler material may extend through an opening in the end plate to prevent opposite sides of the end plate from being exposed to fluid pressure.

3,741,078
PISTON CONSTRUCTION FOR CONCRETE PUMPS
Frederick Stanley Johnson, Calgary, Alberta, Canada, assignor to Consolidated Concrete Limited, Calgary, Alberta, Canada

Division of Ser. No. 721,343, April 15, 1968, Pat. No. 3,647,325. This application Feb. 1, 1971, Ser. No. 111,211
Int. Cl. F16j 9/20

U.S. Cl. 92-244

2 Claims



A concrete pump having a pair of cylinders fed from a common hopper and pumping into a common outlet. An inlet valve in the hopper and an outlet valve in the outlet are actuated by piston and cylinder assemblies which in turn control the movement of the concrete pumping pistons in the cylinders. The piston construction includes cup shaped resilient discs backed by shaped rigid discs which enable the outer perimeter of the discs to flex or roll inwardly to eliminate grit when moving in the non-pumping direction.

3,741,079
WEB SPLICING METHODS
Walter Howard Bossons, and Horst Lindstaedt, both of Summerstown, London, England, assignors to Masson Scott Thrissell Engineering Limited, London, England

Filed Oct. 13, 1970, Ser. No. 80,336
Claims priority, application Great Britain, Oct. 16, 1969, 50,904/69

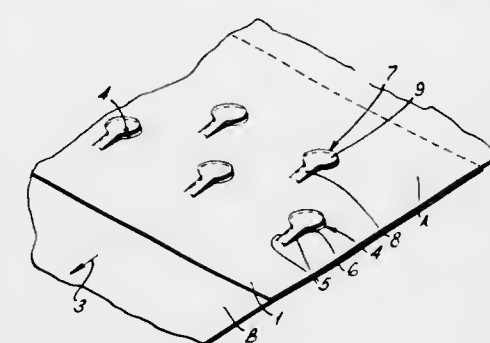
Int. Cl. B31f 5/02

U.S. Cl. 93-1.1

4 Claims

A method of splicing two webs of paper being fed in over-

lapping relationship in which slits are cut in both webs simultaneously to form identical superimposed tabs which are then



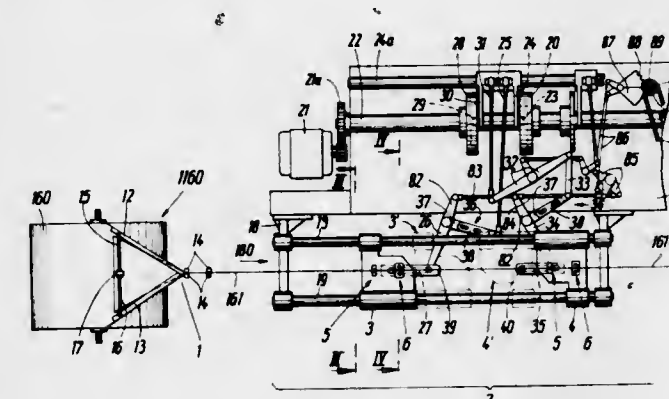
bent in the same direction out of the plane of the webs, to interlock the webs.

3,741,080
BAG FORMING AND MANIPULATING MACHINE
Paul Kuhnle, Winnenden, Wurttemberg; Fritz Gaukler, Stuttgart-Feuerbach, and Willy Gassmann, Winnenden, Wurttemberg, all of Germany, assignors to Fr. Hesser Maschinenfabrik AG, Stuttgart-Bad Cannstatt, Germany

Filed Dec. 8, 1970, Ser. No. 96,066
Int. Cl. B31b 1/64; B26d 5/16

U.S. Cl. 93-8 R

18 Claims



A bag making and manipulating machine wherein the web is drawn from a supply roll by advancing devices provided on two reciprocable carriages one of which performs a return stroke while the other performs a forward stroke and vice versa. The advancing devices engage and draw the web during forward movements of the respective carriages simultaneously with closing of welding devices which are carried by the carriages. The web is folded prior to reaching the welding devices which provide the thus folded web with transverse seams which are severed by knives downstream of the carriages so that the folded and welded web yields a series of discrete bags. Pairs of such bags are moved sideways to a conveyor which transports two rows of bags lengthwise past several operating stations.

3,741,081
CARTON SLICER
Virgil L. Lutz, Springdale, Ohio, assignor to International Paper Company, New York, N.Y.

Continuation of Ser. No. 793,346, Jan. 23, 1969, abandoned.

This application Jan. 19, 1971, Ser. No. 107,842

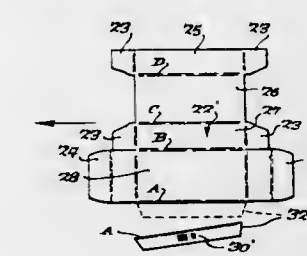
Int. Cl. B31b 1/00

U.S. Cl. 93-36 R

7 Claims

Apparatus for selectively destroying improperly coded cartons in a series of cartons moving through a folding and gluing machine, comprising a code reader mounted on the machine to sense coded indicia on cartons and a cutter activated by the code reader when it senses an improper code, and

synchronized to intercept and sever an element of the improperly coded carton, thus rendering the carton unusable while permitting the remainder of the severed carton to proceed without disturbing the properly coded cartons as they



pass together through the machine, the miscoded carton being severed in a manner to insure that a portion of the severed carton will extend from the stack of completed cartons as the stack leaves the machine to provide for flagging of improperly coded cartons.

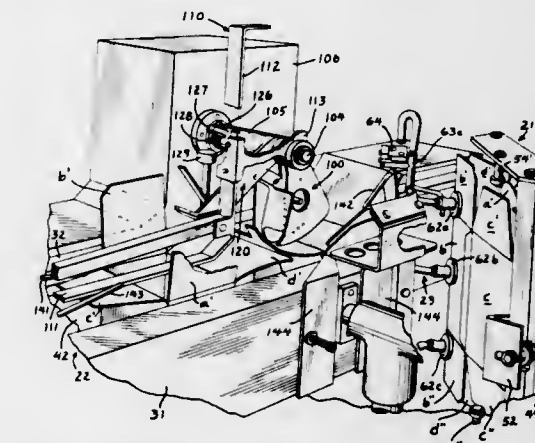
3,741,082
CARTON INFEED AND ERECTING APPARATUS
Robert P. Sorensen, and Leo Strombeck, both of Rockford, Ill., assignors to Anderson Bros. Mfg. Co., Rockford, Ill.

Filed Oct. 22, 1971, Ser. No. 191,724

Int. Cl. B31b 1/78, 5/02

U.S. Cl. 93-53 R

31 Claims



The apparatus feeds flattened carton blanks from a magazine, opens and erects the cartons, and advances the erected cartons along a conveyor for subsequent filling. Vacuum operated grippers withdraw the end carton from the magazine. An upper flap depressor depresses the forwardmost upper flap forwardly and a retractable hold-down thereafter holds the flap on its depressed position. The upper flap depressor includes first and second members which have a lost-motion connection. Means is provided for operating the grippers, the conveyor, and the upper flap depressor in timed relation.

3,741,083
COMPACTION DEVICE FOR LOOSE MATERIALS OR CONCRETE

Anatoly Samuilovich Freidenberg, ulitsa Malysheva, 111, kv. 57; Igor Pavlovich Basias, ulitsa Gagarina, 12, kv. 80, both of Sverdlovsk; Vladimir Ilich Shakhlin, ulitsa Lenina, 60/1, kv. 51, Magnitogorsk; Alexei Grigorovich Trifonov, ulitsa Pushkina, 30, kv. 14, Magnitogorsk; Timofei Grigorovich Shunin, poselok Dzerzhinskogo, ulitsa Dzhambula, 10, Magnitogorsk; Andrei Dmitrievich Filatov, ulitsa Oktyabrskaya, 15, kv. 7, Magnitogorsk; Mikhail Molisevich Privalov, Bolshaya Dekabrskaya, 3, korpus 14, kv. 49, Moscow, and Gennady Elizarovich Ovchinnikov, ulitsa Kalinina, 3, kv. 85, Magnitogorsk, all of U.S.S.R.

Filed Aug. 26, 1970, Ser. No. 66,998

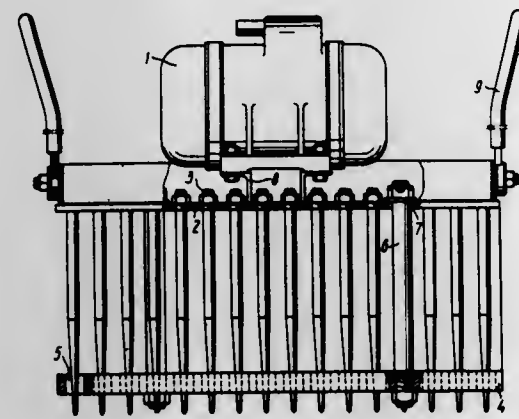
Int. Cl. E01c 19/30

U.S. Cl. 404-116

3 Claims

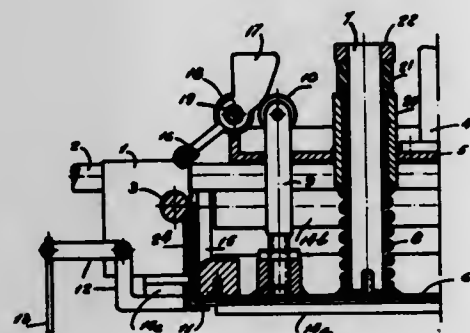
A compaction device for loose materials or concrete comprising a vibrator whose table is movably connected with a

plate; said plate has holes through which vibrating bars are passed, said bars being rigidly fastened to the table. The use of features include collating the envelopes on a previously perforated carrier web; and, applying reinforcing strips to the



said plate imposes a static load on the compacted layer of material, thereby preventing said layer from being loosened particularly when said bars are leaving said layer.

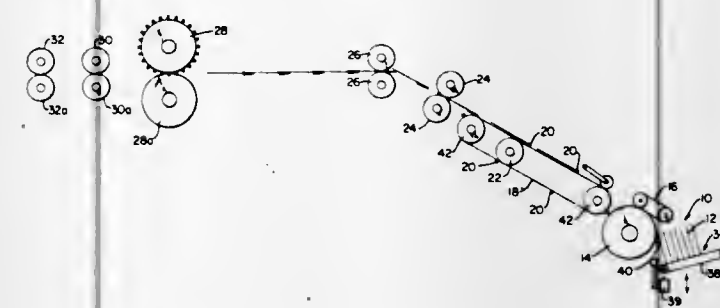
3,741,084
CARTON ERECTING APPARATUS
Victor Carl Olof Lindstrom, Gravdarsvagen 4 L, Lund, Sweden
Filed Mar. 22, 1971, Ser. No. 126,496
Claims priority, application Denmark, Mar. 23, 1970, 148070
Int. Cl. B31b 1/44
U.S. Cl. 93—51 R 2 Claims



Carton erecting apparatus in which the upper die is in two parts the box-shaped lower part of which constitutes the plunger while the upper part includes a folding mechanism, and guides are provided which on continued lowering of the plunger make the folding means operative.

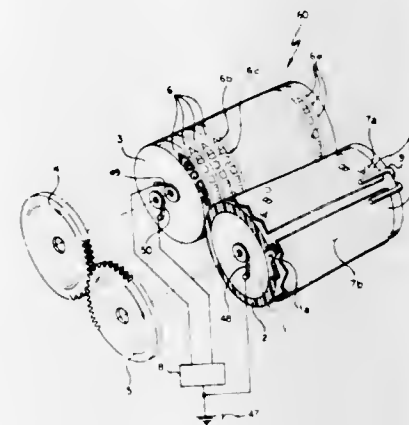
3,741,085
APPARATUS FOR FORMING A CONTINUOUS ASSEMBLY OF ENVELOPES OR THE LIKE
Charles O. Sutton, Phoenix, Ariz., assignor to Pak-Well Corporation, Denver, Colo.
Filed Dec. 21, 1970, Ser. No. 99,954
Int. Cl. B31b 1/06, 1/96
U.S. Cl. 93—61 R 9 Claims

Apparatus for assembling envelopes into a continuous web having removable perforate margins characterized by improvements in: apparatus for feeding envelopes from a supply stack; preventing application of adhesive to undesired zones in the event of absence of an envelope in a spaced series of same; varying the length of adhesive strips applied adjacent edges of the envelopes; changing the angular direction of feed of the envelopes where they are collated or secured together in overlapping relationship; varying the position of the collating station to accommodate envelopes of varying height; optional



edges of the web when the overlap is relatively small and strengthening of the web at such zones is desired.

3,741,086
CYCLIC DRUM PRINTER
Michael J. Markakis, Palo Alto, Calif., assignor to SCM Corporation, New York, N.Y.
Filed Sept. 18, 1972, Ser. No. 290,050
Int. Cl. B41b 17/12
U.S. Cl. 95—4.5 18 Claims

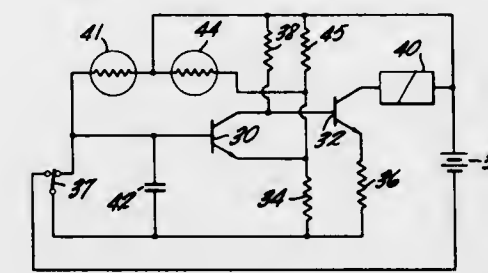


High quality non-impact printing based on transfer of images from a revolving font drum to a page blank carried by a receptor drum rotating with the same surface velocity as the font drum, but precessing with respect to the former, the images being developed upon transfer of a full page of information to the blank. Alternatively, the receptor drum can have an image-receiving surface for intermediate storage of images and subsequent transfer of these images to a page blank for visual development or subsequent visual development and transfer of the visible images to a page blank.

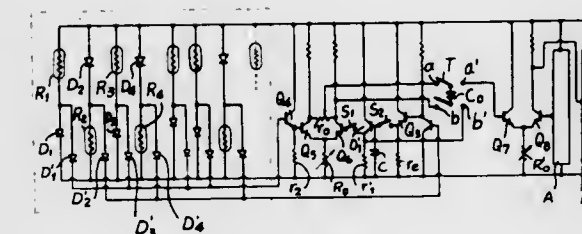
3,741,087
ELECTRIC SHUTTER EXPOSURE-TIME CONTROL CIRCUIT HAVING COUNTER LIGHT COMPENSATION
Kiyoshi Kitai, Tokyo, Japan, assignor to Kabushiki Kaisha Hattori Tokiten, Tokyo, Japan
Filed Feb. 9, 1971, Ser. No. 113,840
Claims priority, application Japan, Feb. 12, 1970, 45/11470
Int. Cl. G03b 7/08
U.S. Cl. 95—10 CT 3 Claims

An exposure-time control circuit having a photoelectric cell and a capacitor coactive in a delay circuit to control exposure time controlled by a switching circuit triggered by a delayed signal in dependence upon the brightness of a subject in a scene or field being photographed and sensed by the photoelectric element. A compensation photoelectric cell determines the level at which the switching circuit is triggered

in dependence upon the scene brightness and counter light it while the amount of exposure is being controlled. Upon senses. The circuit provides for a method of taking a photo-completion of exposure control, the detecting member opens



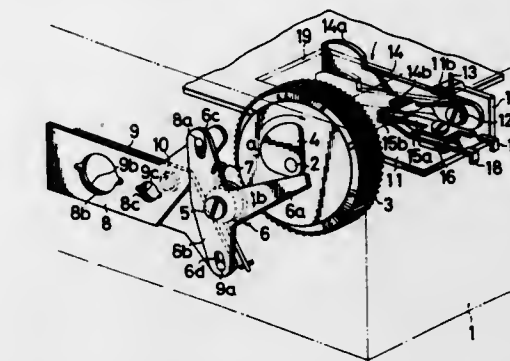
3,741,088
PHOTOSENSITIVE SYSTEM FOR RESPONDING TO DIFFERENT LUMINOSITIES OF AN OBJECT
Tsukumo Nobusawa, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan
Filed Sept. 23, 1971, Ser. No. 183,040
Claims priority, application Japan, Oct. 2, 1970, 45/85914
Int. Cl. G03b 7/08
U.S. Cl. 95—10 CT 9 Claims



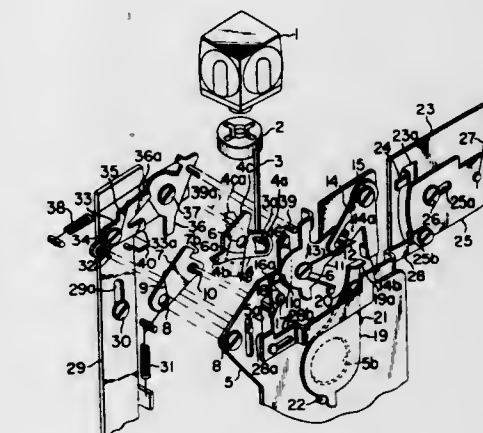
A photosensitive system to be used in connection with photography for responding to regions of different luminosity of an object which is to be photographed. The system includes a detector circuit for detecting the regions of an object where the latter has maximum and minimum luminosity and for providing a signal corresponding to the average luminosity at an object. A control circuit is electrically connected with the detector circuit for receiving the latter signal therefrom, and an electrically-responsive structure is electrically connected with and actuated by the control circuit to produce, in connection with photographing the object, an operation according to an input received from the control circuit and determined by the signal corresponding to the average luminosity.

3,741,089
DEVICE FOR OPERATING MAIN SWITCH OF EXPOSURE INDICATING CIRCUIT IN CAMERA
Yoshiro Takada, Otokuni, and Maki Yamashita, Osaka, both of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Dec. 9, 1971, Ser. No. 206,297
Int. Cl. G03b 7/02, 7/12; G01j 1/42
U.S. Cl. 95—10 C 7 Claims

A detecting member for detecting that an exposure control member is in operation keeps the main switch of an exposure indicating circuit closed to energize the indicating circuit



3,741,090
FLASHBULB TRIGGERING DEVICE FOR EE CAMERAS
Tadayuki Imai, Shinagawa-ku, Tokyo, and Hirokazu Kaneko, Ota-ku, Tokyo, both of Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed Oct. 6, 1971, Ser. No. 186,912
Claims priority, application Japan, Oct. 12, 1970, 45/101183
Int. Cl. G03b 15/04
U.S. Cl. 95—11.5 R 3 Claims

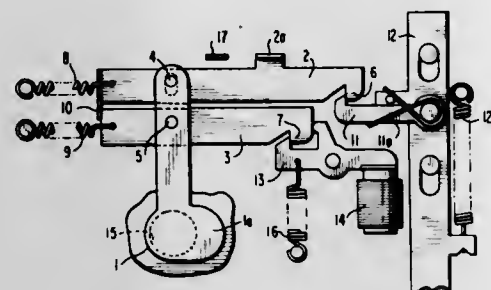


An exposure-meter-pointer pressure plate is displaced a small distance when the brightness of scene is sufficient to use an EE mechanism while the pressure plate is displaced a long distance when the brightness is not enough to use the EE mechanism. Control means at the leading end of a control lever which is displaced together with the pressure plate is adapted to control indirectly a member which triggers or releases a trigger pin of a flashbulb. The pressure plate and the control lever are displaced in response to the downward movement of a shutter release plate in such a manner that when the displacement of the control lever is small the trigger member will not be actuated while when the displacement is large, it is actuated.

3,741,091
SINGLE BLADE ELECTRIC SHUTTER
Hiroshi Ohmura, Minato-ku, Tokyo, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Dec. 17, 1971, Ser. No. 209,045
Claims priority, application Japan, Dec. 17, 1970, 45/126324
Int. Cl. G03b 9/10
U.S. Cl. 95—59 6 Claims

A single blade electric shutter for opening and closing a camera aperture, comprising a first movable release lever, a

second movable release lever in parallel relation to the first lever, and springs for urging the release levers in a first direction. A shutter blade is pivotally connected to the first and second levers and is movable to an open position when the first lever is moved in the first direction relative to the second lever. A locking member is mounted on a movable release rod

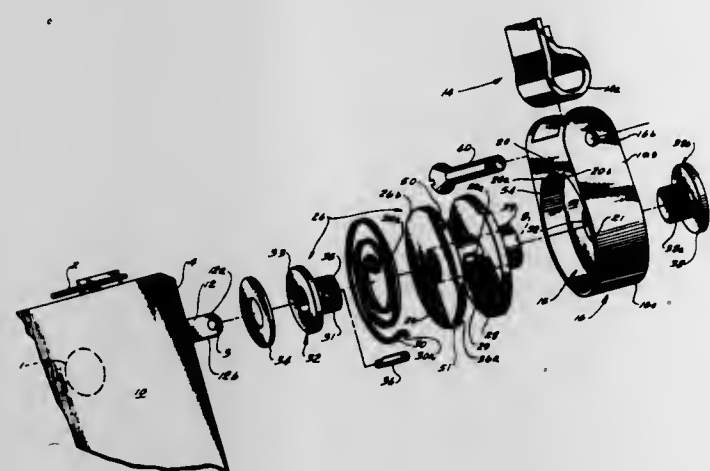


and is adapted to engage the first lever to maintain it in a first position against the urging force of the spring. When the release rod is moved in a predetermined direction, the locking member is released from the first lever. A locking assembly is adapted to engage and disengage the second lever to control the shutter speed, and a time constant electric circuit is connected to the locking assembly to control its actuation.

3,741,092
CAMERA STRAP RETRACTOR
August Bohanec, 44 N. Mentor Avenue, Pasadena, Calif.
Filed Aug. 12, 1971, Ser. No. 171,265
Int. Cl. G03b 17/56

U.S. Cl. 95-86

11 Claims



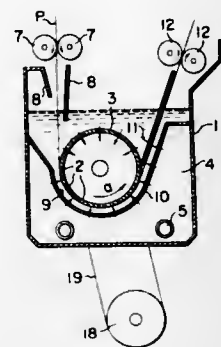
A carrying strap accessory for a camera provides for automatic retraction of a flexible carrying strap. The accessory includes a pair of adapters each having a connector which mates with one of the conventional eye connectors provided as a standard feature on most existing camera housings. A pair of rigid strap connectors are attached to opposite ends of the flexible strap. Each strap connector is rotatable relative to an associated adapter about an axis defined by a boss projecting outwardly from the adapter and disposed in a receptacle in the strap connector. A spring bias mechanism connected between the adapter and the strap connector provides the driving force to retract the flexible strap. Stop means are provided to prevent rotation beyond a prefixed angle so that the strap does not spin around the camera case.

3,741,093
WET TYPE DEVELOPING APPARATUS
Shigehiro Komori, Kawasaki-shi; Akira Kurahashi, and Hiroyuki Hattori, both of Meguro-ku, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 4, 1970, Ser. No. 16,400

Claims priority, application Japan, Mar. 8, 1969, 44/21169; Mar. 8, 1969, 44/21170; Mar. 8, 1969, 44/21171
Int. Cl. G03d 3/12

U.S. Cl. 95-89 R

6 Claims

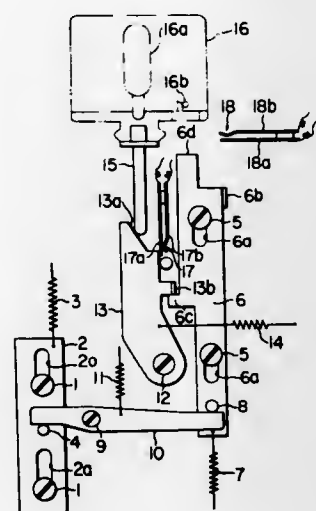


An improved wet type developing apparatus which can accurately and positively develop a sheet or roll of copying paper at a high speed. The apparatus is provided with means for guiding the copying paper disposed within a reservoir for developer and adapted to attract and hold the copying paper thereto to thereby guide the same so that the copying paper may have the latent image thereon developed by a stream of sufficiently stirred developer providing a high developing effect. Subsequently, the copying paper held by the guide means can be readily released by the loss of attraction in the guide means or forcedly taken off the guide means by the developer flowing out of the guide means, whereby the discharge of the developed paper can be effected simply and positively without any undesirable deformation formed in the copying paper.

3,741,094
FLASH PHOTOGRAPHY WARNING DEVICE
Hirokazu Kaneko, Ota-ku, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Ricoh, Japan
Filed Oct. 8, 1971, Ser. No. 187,611
Claims priority, application Japan, Oct. 14, 1970, 45/90201
Int. Cl. G03b 15/04, 17/20

U.S. Cl. 95-11 L

8 Claims



A main underexposure warning switch is connected in series between one pole of a power source and a warning lamp while a parallel-connected circuit of an auxiliary underexposure warning switch and a switch for indication of a mounted fired flashbulb is interconnected between the other pole of the power source and the warning lamp in such a manner that the

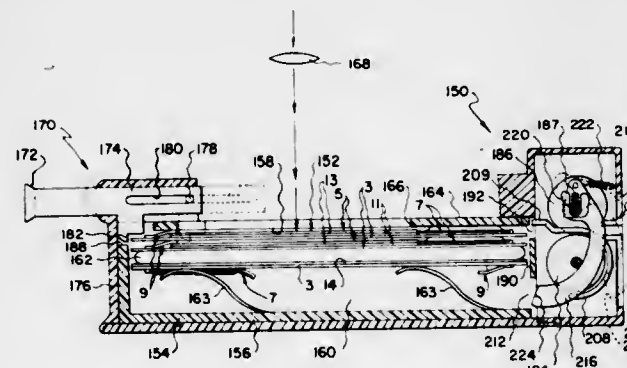
auxiliary underexposure warning switch may be normally closed when no flashbulb is mounted on a camera and opened when the flashbulb is mounted. Upon downward movement of a shutter release plate, the underexposure warning switch is not closed when the brightness of scene is sufficient to actuate and permit the use of an automatic exposure control device. When the brightness of scene is so dark that flash photography is required, and when a flashbulb is not mounted on the camera, the underexposure warning switch is closed to turn on the warning lamp. When a flashbulb which has been already fired is still mounted, the auxiliary underexposure warning switch is opened but the switch for indication of a fired flashbulb is closed to turn on the warning lamp.

3,741,095
PHOTOGRAPHIC APPARATUS FOR HANDLING FILM UNITS OF THE SELF-PROCESSING TYPE
Donald M. Harvey, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 205,993, Dec. 10, 1971, abandoned, which is a continuation-in-part of Ser. No. 111,467, Feb. 1, 1971, abandoned. This application Mar. 17, 1972, Ser. No. 235,699
Int. Cl. G03b 17/50

U.S. Cl. 95-13

26 Claims



Photographic apparatus for exposing and handling film units of the self-processing type, and especially such film units that each include a resiliently flexible card for facilitating handling that includes the separation of waste materials from an image-recording portion of the unit after its processing has been initiated. The apparatus includes a pair of juxtaposed pressure-applying members, and various transporting mechanisms, for sequentially engaging and moving each film unit from an exposure position, through the pressure-applying members and to a deflecting element that separates the waste materials from the image-recording portion. The deflecting element effects movement of the waste materials in an arcuate path to a storage chamber, while the image-recording portion moves along a generally rectilinear path to a position accessible from the exterior of the apparatus.

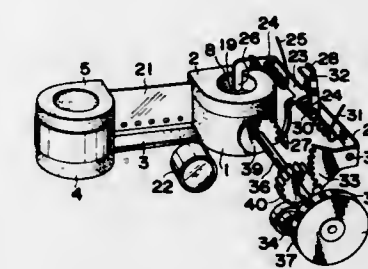
3,741,096
FILM MAGAZINE
Harumi Tanaka, Ikuta-ku, Kobe-shi, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka-shi, Japan
Filed Mar. 16, 1971, Ser. No. 124,873
Claims priority, application Japan, Mar. 16, 1970, 45/22535
Int. Cl. G03b 17/26

U.S. Cl. 95-31 CA

7 Claims

The main body of a film magazine for a camera is of uniform shape, the shape of a connecting member which is mounted detachably on the film magazine is variable in accordance with the sensitivity of the film charged in the film magazine. The film magazine is composed of a container body and a cover body and are retained together by the connecting member. An automatic exposure mechanism provided in a camera adapted

to receive the film magazine is adjusted in accordance with the sensitivity of the film used by detecting the shape of the connecting member by a detecting member provided in the

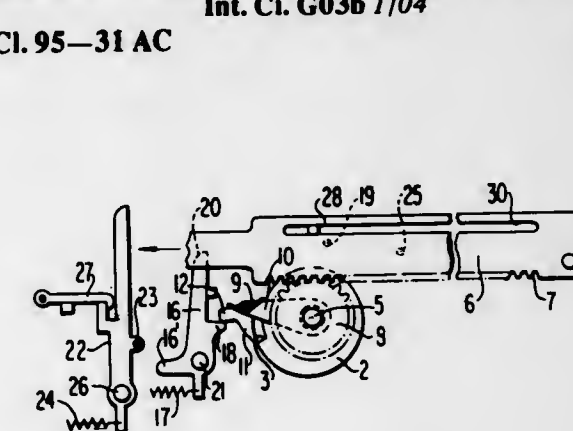


camera. Mass-production of magazines is facilitated by fixing the shape of the main body of the film magazine regardless of the sensitivity of the film charged.

3,741,097
SLIDE-TYPE FILM TAKE-UP MECHANISM
Susumu Fukuda, and Sho Takahama, both of Nishimomiya, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Apr. 17, 1972, Ser. No. 244,689
Claims priority, application Japan, Apr. 15, 1971, 45/24074
Int. Cl. G03b 1/04

U.S. Cl. 95-31 AC

2 Claims

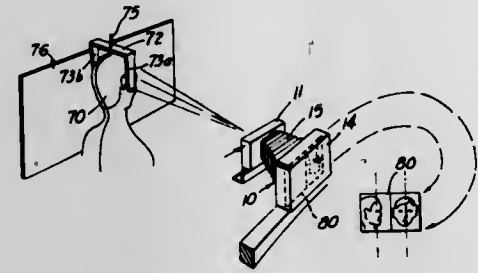


A pinion is geared to an operating bar for film take-up and a locking pawl having a projection is fixed to the pinion for engagement with a step cam which is fixed to a film take-up shaft whereby sliding the operating bar in one direction will drive the film take-up shaft. A control lever having a projection is positioned to be rotated by engagement with the operating bar so that the projection thereof is positioned for engagement with the projection of the locking pawl to prevent a film take-up operation. A shutter lever is positioned to be rotated by engagement with the operating bar and then locked by a shutter release lever. The control lever may be reversely rotated to prevent engagement between the projection thereof and the projection of the locking pawl only by the rotation of the shutter lever by unlocking the shutter lever and the shutter release lever in a shutter release operation, so that the film will not be taken up even if the operating bar is slid into the camera body without a shutter release operation.

3,741,098 CAMERA SYSTEM

James L. Cannon, 578 South Enota N.E., Gainesville, Ga.
Filed May 11, 1971, Ser. No. 142,180
Int. Cl. G03b 19/02

U.S. Cl. 95—37



A camera system in which two distinct photographs are produced in juxtaposition with respect to each other on a single frame from two successive images projected thereon. The camera structure includes a camera with a lens which is shiftable laterally between two positions. A nonactinic background is provided for the subject and means are provided for positioning the object in two distinct positions for successive exposures.

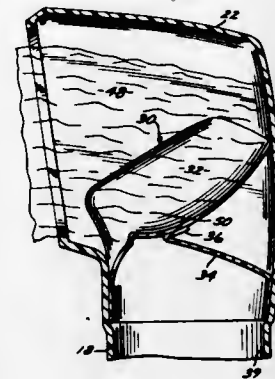
The second embodiment includes a camera in which the film carrier is shiftable laterally and a background for the object is provided, the background having outer panels of a nonactinic nature and a central panel which is actinic in nature. The subject is disposed before the actinic panel for successive photographs along the identical center line.

5 Claims U.S. Cl. 98—37

3,741,100 BOAT VENTILATOR

David Walter Beck, 2257 Gaylord, Long Beach, Calif.
Filed Apr. 14, 1972, Ser. No. 243,988
Int. Cl. B63j 2/00

1 Claim



A boat ventilator having a forward-facing head member at its upper end for receiving air, and mounting means at its lower end for attachment to a boat deck. Baffles in the ventilator permit free flow of air into the boat but trap water for drainage to the exterior via drain holes. A combined baffle and waterstop of a readily deformable but form-retaining material is disposed in the ventilator for automatically blocking water flow through the ventilator when a heavy charge of water enters the ventilator.

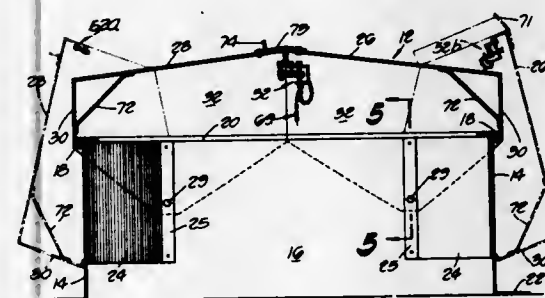
3,741,101 GRAVITY OPERATED VENTILATOR UNIT

Albert S. Sheppard, Granada Hills, Calif., assignor to The Ex-laire Co., Pacolma, Calif.

Filed Feb. 14, 1972, Ser. No. 226,143
Int. Cl. E05f 15/20; F23i 17/02

U.S. Cl. 98—86

3 Claims



A gravity operated automatically opening ventilator unit which is easily installed in the roof of a building and which, at a predetermined temperature, will automatically open to vent smoke, gases and heat from the interior of the building to atmosphere.

3,741,102 VENTILATOR

Steven A. Kaiser, Milford, Ind., assignor to Chore-Time Equipment, Inc., Milford, Ind.

Filed Sept. 28, 1970, Ser. No. 76,158
Int. Cl. F24f 13/08

U.S. Cl. 98—110

3 Claims

A unit for ventilating an enclosure such as a poultry or livestock house is disclosed and claimed herein and includes a rectangular frame mountable within a framed opening in a wall of the enclosure for defining an air inlet opening. Negative pressure is created within the enclosure by suitable exhaust fans mounted therein and causes the flow of fresh air to

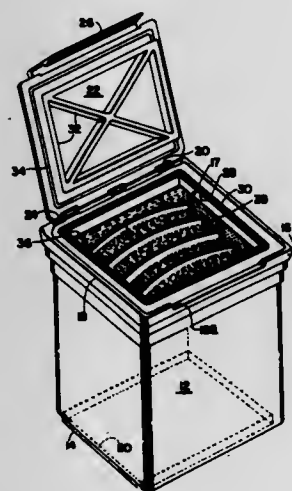
3,741,099 CONTAINER DEVICE FOR TREATING PHOTOGRAPHIC FILM WITH A LIQUID

William R. Buckley, Pembroke, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Oct. 22, 1971, Ser. No. 191,630
Int. Cl. G03d 3/00

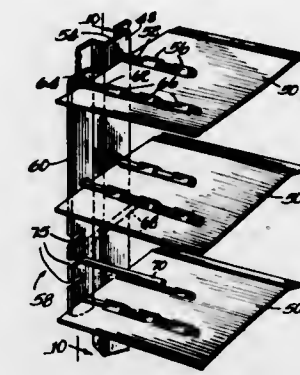
U.S. Cl. 95—98

12 Claims



A liquid-tight container device for treating therein a plurality of photographic films with a liquid. The device includes a removable rack of novel structure in which the films can be so mounted that they will be held securely in spaced relation while the emulsion of each is protected against abrasion and subjected to a liquid treatment. The device is particularly adapted to process the already-developed-and-fixed negative component of so-called positive-negative film (e.g., Type 55 P/N film sold by Polaroid Corporation, Cambridge, Massachusetts, U.S.A.) after its separation from the positive component to clear residual developer from the emulsion.

pass through the inlet opening. The direction of this fresh air is controlled by a plurality of elongated adjustable louvers and moves the pulp upwardly along said inner surface so as to be engaged by the next higher stripper segment until finally



mounted to the frame, while a sliding door assembly independently controls the amount of air which passes through the inlet opening.

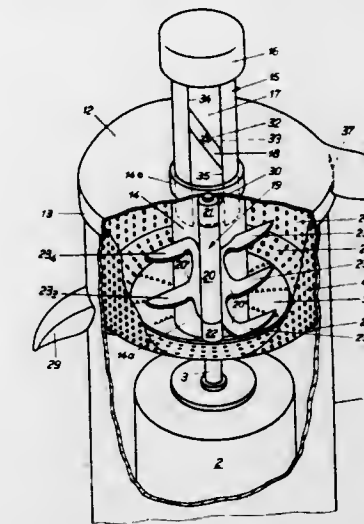
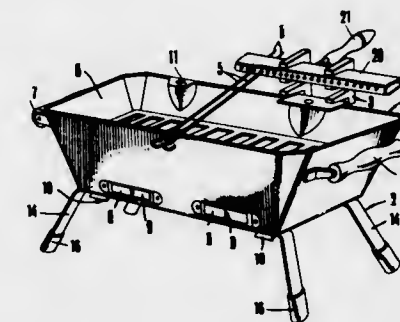
3,741,103 SIMPLE AND CONVENIENT ROASTER

Cheng-Hsuan Hwang, No. 469, Chung Hwa Road, Hsinchu, Taiwan, China

Filed Dec. 15, 1971, Ser. No. 208,079
Int. Cl. A47j 37/04

U.S. Cl. 99—421 A

7 Claims



the highest stripper segment pushes the pulp over the upper edge of the screen basket and into a discharge spout.

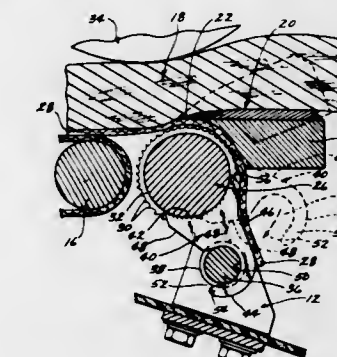
3,741,105 STRIPPER MEANS FOR MEAT SKINNING MACHINES

Donald L. Beasley, Des Moines, Iowa, assignor to Townsend Engineering Company, Des Moines, Iowa

Filed Sept. 3, 1971, Ser. No. 177,798
Int. Cl. A22c 17/12

U.S. Cl. 99—589

8 Claims



A device for cooking or roasting comprises an open topped fire box which is supported at its bottom on legs which are engaged into fastening plates at each end thereof. The opened top of the fire box is provided with a formation on at least one side defining a mounting base for a comb-shaped skewer holder. A skewer is held between fingers of the comb and it includes an end overlying and facing the fire box top with a plurality of openings for receiving skewer rods.

3,741,104 JUICE EXTRACTOR WITH AUTOMATIC PULP DISCHARGE

Hermann Kannegiesser, Tuttlingen, Germany, assignor to F. K. Wanger Ltd., Zurich, Switzerland

Filed Oct. 28, 1971, Ser. No. 193,248

Claims priority, application Switzerland, Nov. 10, 1970, 16648/70

Int. Cl. A23n 1/02; A47j 19/02; B30b 9/26

U.S. Cl. 99—495

5 Claims

A juice extractor comprising a motor driven screen basket rotating about a vertical axis and having at its bottom a grating disc against which the material to be extracted is urged is provided with a pulp stripping mechanism provided with two sets of vertically disposed stripper segments which alternately engage the inner surface of the screen basket to strip the pulp therefrom in such a manner that the lowest stripper segment strips the pulp from the lower position of the screen basket

A stripper means for meat skinning machines is disclosed herein. The machine includes a driven toothed roll which is rotatably mounted on a frame means adjacent one end of a feed table. A pressure shoe means extends around a portion of the driven roll and has a skinning blade extending therefrom for severing the skin from the meat product as the product is moved thereby. The driven roll is provided with a plurality of spaced apart annular grooves formed in the peripheral surface thereof. A stripping shaft is mounted on the frame means below the driven roll and has a plurality of plastic stripping blades detachably mounted thereon in a spaced apart relationship. Each of the stripper blades has a concave upper end portion which is received in the grooves of the driven roll. The stripping blades strip the severed skin from the driven roll and will break if an extremely strong piece of skin becomes entangled in the driven roll. The ability of the stripping blades to fracture insures that the expensive driven roll will not be damaged by the stripping blades.

3,741,106 SYSTEM FOR HYDRATING DATES

David Reznik, Berkeley, Calif., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Division of Ser. No. 778,165, Nov. 22, 1968, Pat. No. 3,625,707. This application Feb. 12, 1970, Ser. No. 14,878

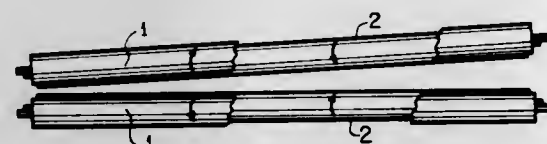
Int. Cl. A23n 15/00

U.S. Cl. 99—485

1 Claim

Apparatus and process are disclosed for hydrating dates in

order to render them plump and tender. The system of the invention involves first a fissuring of the skin of the fruit, fol-



lowed by a vacuum hydration operation by which the moisture content of the fruit is rapidly increased without alteration of its natural flavor.

3,741,107

PORTABLE REFUSE HANDLING APPARATUS

John A. Boyd, Falls Church, Va.; Scott R. Bond, Westmont, N.J.; Ralph K. Elliott, Clark Summit, Pa.; John J. Gisolfi, Scranton, Pa., and Eugene Merkin, Huntingdon Valley, Pa., assignors to Union Environmental Corporation, Philadelphia, Pa., by said Bond, Elliott, Gisolfi and Merkin
Filed Mar. 2, 1971, Ser. No. 120,296
Int. Cl. B30b 15/30

U.S. Cl. 100—215

53 Claims



A portable refuse handling apparatus adapted for use with a refuse compaction machine of the type using a reciprocating ram to compress the refuse into packages. A dolly assembly is mounted in the compaction machine to define in combination with the machine a substantially enclosed compaction chamber. The dolly assembly comprises a base plate forming the bottom of the compaction chamber and a front panel secured to the base plate which forms at least a part of one of the side walls. A plurality of wheels are connected to the assembly and a handle frame is adapted to be removably mounted to the front panel.

3,741,108

TRASH COMPACTOR

Jerome F. Stratman, Cypress, and John Novak, Anaheim, both of Calif., assignors to The Tappan Company, Mansfield, Ohio

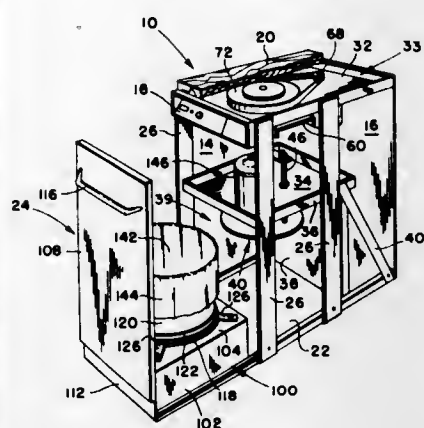
Filed Feb. 3, 1971, Ser. No. 112,138
Int. Cl. B30b 15/06

U.S. Cl. 100—229 A

11 Claims

A resiliently mounted refuse receptacle adapted to be selectively moved between a closed and an open position with respect to a trash compactor unit housing, the receptacle in its

closed position receiving a ram therein to compact the contained refuse to a fraction of its initial volume, such ram urg-



ing the receptacle into supportive engagement with a portion of the housing during its compaction stroke.

3,741,109

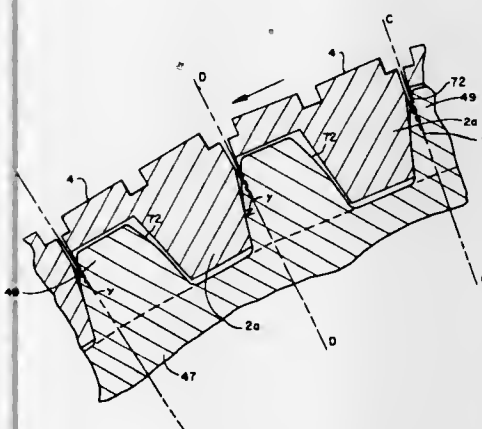
TYPE CARRIER ASSEMBLY

Wilfred Y. Benson, Natick, and James T. Andrews, West Peabody, both of Mass., assignors to Mohawk Data Sciences Corporation, Herkimer, N.Y.

Filed Dec. 30, 1970, Ser. No. 102,731
Int. Cl. B41j 1/02, 1/20

U.S. Cl. 101—93 C

4 Claims



An assembly for moving a train of print slugs having type characters thereon in a continuous path and along the print line of a high speed, on-the-fly, impact printer. Each print slug has a single tooth and the slugs are driven by a gear whose teeth mesh with the teeth of the slugs. The slugs are guided along their path in a track which slidably engages top and bottom portions of the slugs. The tooth of each slug is located between its top and bottom portions and the gear engages the slugs' teeth at locations equidistant from where the track engages the slugs so that a vertical overturning moment is not imparted to the slugs by the gear. Additionally, the type characters are centrally located between the slugs' top and bottom portions so that impact of the printer's hammers at the print line does not produce vertical overturning moments on the slugs. Further, the slugs abut as they travel around the gear and remain in abutment throughout their entire path so that adjacent slugs always move at the same velocity and a stable train is provided.

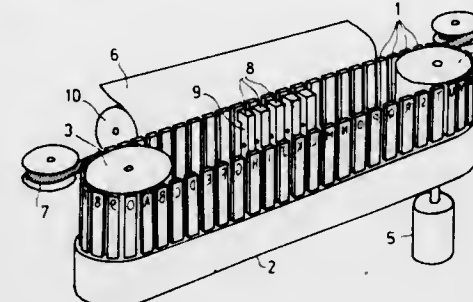
3,741,110
HIGH SPEED ON-THY-FLY PRINTER PROVIDING ARRESTING OF THE TYPE CHARACTERS IN THE PRINTING POSITIONS

Oscar Bossi, Milan, Italy, assignor to Honeywell Information Systems Italia, Caluso, Italy

Filed Apr. 7, 1971, Ser. No. 132,011
Claims priority, application Italy, Apr. 7, 1970, 22973 A/70
Int. Cl. B41j 1/20

U.S. Cl. 101—93 C

7 Claims



A high-speed on-the-fly impact printer effecting printing by impelling moving type characters to strike against a print-receiving member, wherein print smearing is suppressed by momentarily reducing the speed of the type character transverse to the print receiving member at the moment of impact with said member.

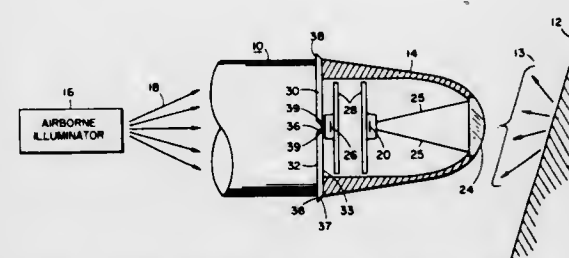
3,741,111

OPTICAL TARGET SENSOR

Charles Herbert Brenner, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Mar. 19, 1971, Ser. No. 126,232
Int. Cl. F42c 13/02, 11/06, 15/40
U.S. Cl. 102—70.2 P

8 Claims



An optical target sensor mounted on a projectile, produces a fuzing signal when two light sensitive devices which are mounted on the projectile sense light pulses which are separated by a fixed time interval. One of the light sensors is mounted to be exposed to light pulses which are projected towards and beyond the projectile by an illuminator. The other light sensor is mounted to be exposed to the illuminator light which is reflected from the general target area. The range at which a fuzing signal occurs is controlled by setting the time difference required between the two pulses. No radiation occurs from the target sensor because it receives its signals as a result of radiation from the illuminator. The light projector or illuminator may comprise a pulsed laser.

3,741,112

UNIT FOR TRANSLATING AND PRINTING OF DATA SUPPLIED IN A FORM OF COMBINATIONS OF BINARY SIGNALS

Yves Cayla, Pontchartrain, France, assignor to Societe d'Etudes et de Documentation Electronique, (SEDELEC), Hauts de Seine, France

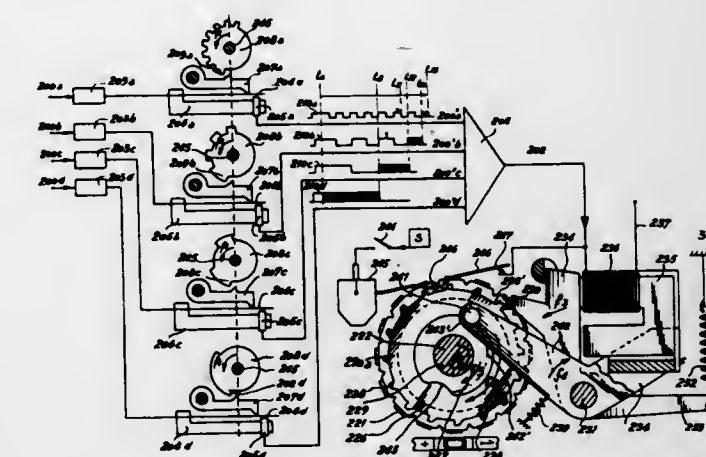
Continuation-in-part of Ser. No. 849,044, Aug. 11, 1969, abandoned. This application May 11, 1972, Ser. No. 252,304
Int. Cl. B41j 1/60

U.S. Cl. 101—93 C

13 Claims

This disclosure relates to a unit for translating and printing data supplied as combinations of binary signals delivered respectively on different lines of a group of conductors. The

signals are split up on each line into trains of pulses whose durations double from one line to another in geometric progression. Printing means are provided with a plurality of printing characters. Collector means (having the group of conductors



3,741,113

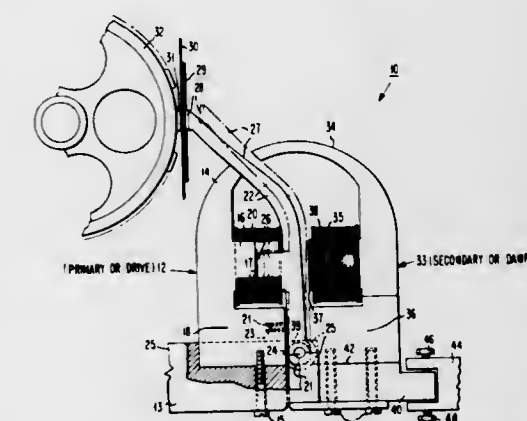
HIGH ENERGY PRINT HAMMER UNIT WITH FAST SETTLE-OUT

John Mako, Vestal, and Joseph E. Wallace, Endicott, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 25, 1971, Ser. No. 156,779
Int. Cl. B41j 9/10

U.S. Cl. 101—93

8 Claims



A print hammer actuator comprises a main three-legged magnetic core having an operating winding on a middle or center leg, and an armature pivotally supported adjacent the lower leg with an extension at the other end providing a hammer face, and a projection opposite the middle leg which moves within the operating winding. A secondary magnetic core on the opposite side of the armature with a restore and damping winding operates to damp oscillations and improve settle-out.

3,741,114

DETENT MEANS FOR SETTLEABLE PRINT WHEELS

John A. Maul, Lyndhurst, and David D. Anderson, Richmond Heights, both of Ohio, assignors to Addressograph-Multi-graph Corporation, Cleveland, Ohio

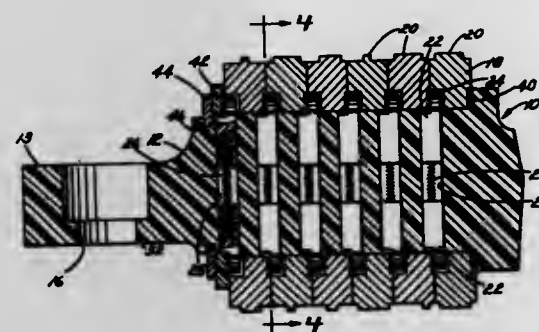
Continuation-in-part of Ser. No. 777,616, Dec. 21, 1968, abandoned. This application Feb. 26, 1971, Ser. No. 119,283
Int. Cl. B41j 1/54

U.S. Cl. 101—110

4 Claims

A print wheel assembly is disclosed having a print wheel rotatably disposed on a shaft for rotational movement to a

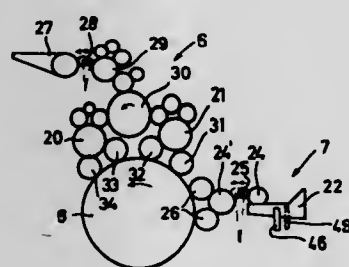
print position. The print wheel includes an annular serrated portion having a plurality of clockwise faces and a plurality of counterclockwise faces, and detent means are provided for engaging the serrated portions to provide a locating action. The parts are so arranged that when a wheel settles in a detented position, a first detent means is spaced away from each of the counterclockwise faces and acts against one of the clockwise faces for exerting a first positive torque on the print wheel to urge the same in a clockwise direction, and a second



detent means is spaced away from each of the clockwise faces and engages one of the counterclockwise faces for exerting a second positive torque on the print wheel substantially equal in magnitude but opposite in direction to the first torque. In a first embodiment, the serrated portion is an internally serrated portion of the print wheel. In a second embodiment, the serrated portion is an externally serrated portion of the print wheel. A T-shaped mounting bracket is formed to a crosspiece integral with the shaft and includes three mounting portions for attaching the assembly to a machine frame.

3,741,115 METHOD OF AND APPARATUS FOR CONTROLLING LITHOGRAPHIC PRINTING

Leo Keller, Sandackerstrasse 38, Stuttgart, Germany
Continuation-in-part of Ser. No. 753,504, Aug. 19, 1968, abandoned. This application Oct. 26, 1970, Ser. No. 84,098
Claims priority, application Germany, Oct. 24, 1969, P 19 53 590.1; Aug. 21, 1967, K 63149
Int. Cl. B41n 25/00; B41f 31/00
U.S. Cl. 101-148 17 Claims



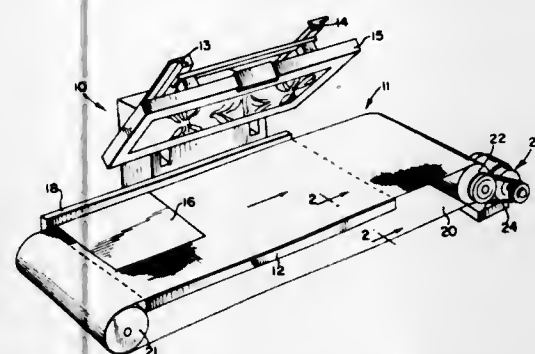
In a printing machine, means are provided to independently control the temperature of the wetting agent and also the temperature of the printing ink at least at two spaced locations in the inking unit.

3,741,116 VACUUM BELT

Melvin E. Green, Claude H. Oltra, both of Chicago, and Henry J. Bubley, Deerfield, all of Ill., assignors to American Screen Process Equipment Company, Chicago, Ill.
Filed June 25, 1970, Ser. No. 49,828
Int. Cl. B41f 1/00; B65r 29/24
U.S. Cl. 101-287 9 Claims

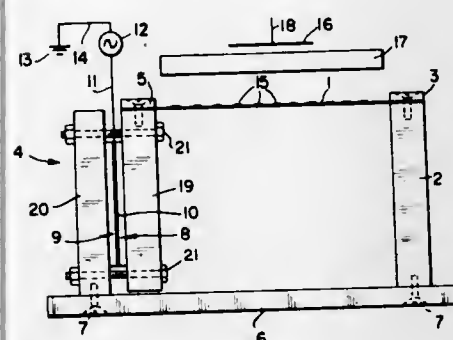
An improved conveying means for feeding and removing sheet stock to and from a selected area for printing or the like. The conveying means is inexpensively formed from an endless belt of monofilament polyester mesh which moves across a vacuum base disposed beneath a printing head. The mesh

functions as a conveying means and is supported by the vacuum base during printing. The mesh size is fine enough to permit the printing of high quality thin paper stock without discernible mesh marks appearing after printing is complete. Vacuum is applied to the underside of the stock to be printed through the mesh from a known type of vacuum base with sufficient force generated to hold the sheet stock properly positioned during printing and feeding. The mesh is of the order to from about 140 to 300 threads per inch. In another embodiment of the invention, the vacuum belt principle is shown in another form wherein it functions as a take-off conveyor which functions to assist in holding the stock during printing. A small manifold function as a belt guide and is all that is required to pull the stock onto the conveyor.



3,741,117 PRESSURELESS NON-CONTACT ELECTROSTATIC PRINTING

Walter B. Bienert, and Donald S. Trimmer, both of Baltimore, Md., assignors to Sinclair & Valentine Company, Inc., New York, N.Y.
Filed July 10, 1970, Ser. No. 53,944
Int. Cl. B41m 5/00
U.S. Cl. 101-426 13 Claims

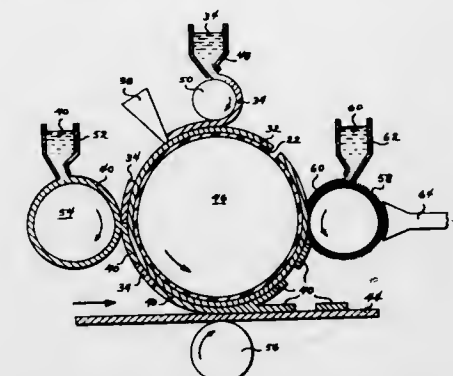


A pre-determined, non-random electrostatic image is formed and developed on a thin, flexible plate about 0.0005 inch to about 0.050 inch thick. A substrate to be printed is positioned facing but spaced apart from this pre-formed image of particles, and an electrostatic field is established therebetween. The field is of insufficient strength to dislodge the image of particles from the thin plate, but of sufficient strength to transfer the image to the substrate once it is dislodged from said thin plate. The additional force required to dislodge the particles is supplied by imparting ultrasonic flexural shock waves to the thin plate. The dislodging effect of the shock waves is enhanced by exciting the vibratory system at a resonance frequency of said system. The electrostatic attraction between the image of particles and the thin plate serves to minimize any tendency for relative lateral movement of the particles upon application of the ultrasonic shock waves, thereby causing the particles to be propelled directly outward from the thin plate in their desired image configuration and permitting the reproduction of the image with superior clarity and sharpness on the spaced-apart substrate. By sweeping the driving frequency through a range including a resonance frequency of the vibratory system, several distinct resonances of the thin plate will be effected, thereby superim-

posing several nodal patterns on said thin plate so as to minimize variations in the particle intensity of the reproduced image and further enhancing the quality of said image. For continuous operations, the thin plate is conveniently employed in the form of a rotatably mounted continuous belt, with a cleaning station, a charging station, a development station, and an image-transfer station positioned along the path of rotation. A metallic belt may be employed with a non-conductive image formed thereon by coating the plate with a light sensitive photo-resist material, exposing the coating to light through a negative of the desired image and developing the thus exposed image by dissolving the unexposed, non-image areas with an organic solvent. The flexural waves may be generated in the thin plate by a piezoelectric crystal system. When the thin plate is used in the form of a continuous belt, the piezoelectric crystal system may conveniently be affixed or otherwise connected to one of the belt-supporting rollers. The piezoelectric crystals may also be incorporated as an integral part of such a roller for greater convenience and control in continuous printing operations. Excitation of the crystal system can occur nearly instantaneously when the printing gap is less than about one-eighth inch. At about three-sixteenth inch or more, the amplitude of the excitation signal may be increased slowly, and the driving frequency may be swept slowly to limit the instantaneous toner current in the gap and avoid mutual repulsion of particles and some distortion of the reproduced image.

3,741,118 METHOD FOR ELECTRONIC LITHOGRAPHY

Adam L. Carley, 45 Linnaean Street, Cambridge, Mass.
Filed June 17, 1970, Ser. No. 46,935
Int. Cl. B41n 3/08; B05c 9/00; B41l 25/00
U.S. Cl. 101-451 25 Claims



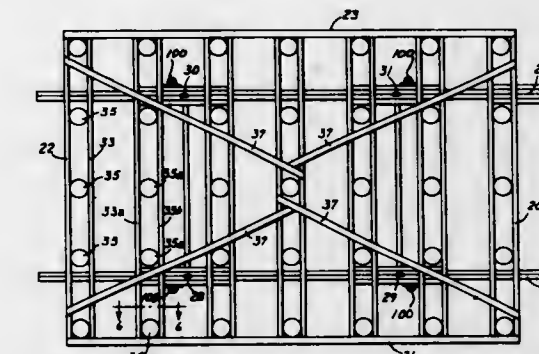
A method and apparatus for printing an image in scanned electronic form on an ink receiving surface using ordinary printer's ink. The method and apparatus employ quasolithographic techniques and equipment, but unlike conventional lithography, the method does not require the preparation, prior to the printing process, of a lithographic plate containing in permanent form the image to be printed. The scanned electronic image is used to form a fountain solution image on a lithographically blank plate by the selective deposition and/or removal of the fountain solution from the plate. Lithographic ink is applied to the fountain solution imaged plate and then transferred to an ink receiving surface, such as paper or an offset blanket. Thereafter, the lithographically blank plate is cleaned and ready for the formation of the same or a different fountain solution image.

3,741,119 REMOTE ROCK BREAKING METHOD APPARATUS THEREFOR

Robert E. Eckels, 2101 Youngfield, Golden, Colo.
Filed Feb. 22, 1971, Ser. No. 117,537
Int. Cl. F42d 1/02, 3/00
U.S. Cl. 102-23 12 Claims

A method of remotely breaking rock, or the making of predetermined size holes in the earth, in a precise position,

suspends an assembly of prepositioned shaped charges in a pendulum array between a distance line of sight signal generator and receiver for such signal for accurately positioning the charges in a predetermined location. The pendulum array may be precisely laterally aligned along the predetermined line, and longitudinally along the line in accordance with predetermined mappings. The method provides a means of explosively



forming trenches along the bottom of bodies of deep water, the precision breaking of underwater rocky barriers, etc., using an optimum spacial arrangement of a plurality of charges. The spacial arrangement being determined by testing on similar rock. The apparatus for such method includes articulated sinking rafts supporting such spacially arranged charges which are arranged for lateral and longitudinal leveling.

3,741,120 IGNITER

Jack G. McAllister, Phoenix, Ariz., assignor to Centuri Engineering Company, Inc., Phoenix, Ariz.
Filed Mar. 23, 1970, Ser. No. 21,599
Int. Cl. F42b 15/00; C06d 1/04
U.S. Cl. 102-34 4 Claims



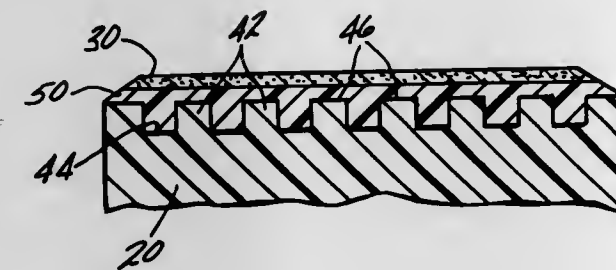
A device specially adapted for igniting model rocket engines which includes a thin wedge-shaped paper or deformable plastic substrate, a thin electrically conductive metal foil on one side of the substrate and a pyrotechnic igniting bead carried on the tip end of the wedge-shaped device. A slit extends from the base of the wedge to a point spaced from the tip end, dividing the foil into two conductor portions which join at the tip end to form a resistance heating portion in thermal contact with the pyrotechnic igniting bead.

3,741,121 FUSEE COVER

John A. Miller, Herrin, Ill., assignor to Olin Corporation, New Haven, Conn.
Filed Sept. 3, 1971, Ser. No. 177,610
Int. Cl. C06d 1/10 6 Claims

A fusee cover having a scratch mix adhered thereto. The

cover is provided with a plurality of spaced parallel rows of



spaced upstanding projections upon which is placed a plastic coating. The scratch mix is adhered to the plastic coating.

3,741,122

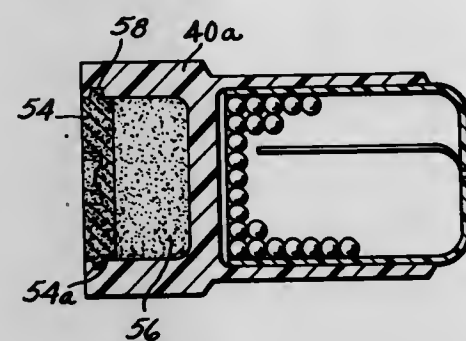
EXPENDABLE SHOTSHELL

Martin W. Kordas, Jr., Cos Cob, Conn., assignor to Remington Arms Company, Inc., Bridgeport, Conn.

Filed Aug. 27, 1968, Ser. No. 755,649
Int. Cl. F42b 7/06

U.S. Cl. 102-43 P

1 Claim



An expendable cartridge made of thermoplastic material which is adapted to contain the necessary propellant, projectile charge, etc., and which is explosively expelled from the gun along with the projectile charge. There are several modifications of the invention, each of which requires some means to slit, fracture, or rupture the outermost cartridge structure, which then permits the inner structure to be released thus facilitating the ultimate final release of the projectile charge from the expendable cartridge, which then falls to the ground much like conventional shot containers.

3,741,123

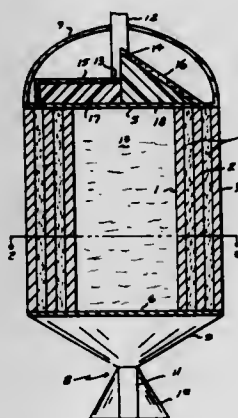
MULTI-CYLINDER SHELL OF FRAGMENTIZED METAL

Walter H. Dittich, Ft. Walton Beach, Fla., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed July 29, 1968, Ser. No. 749,522
Int. Cl. F42b 13/48

U.S. Cl. 102-67

3 Claims



The improved shell employs two or more cylinders of metal which had been grooved in criss-cross directions and are

spaced apart, and having a sheet of explosive material in between the cylinders. The innermost cylinder is filled with a high explosive which constitutes the main charge. The latter may have a "square" end or may be recessed to constitute a shaped charge having a metal liner. An impact detonator initiates an explosion in the sheet material which causes shock waves, some of which pass directly through the inner fragmentized cylinder and others are reflected by the outer cylinder. But all the shock waves meet at the axis of the main charge to provide a tremendous stimulus to initiate the main explosion. Thus the energy of the main explosive is increased and this energy increment causes the cylinders to break up into small fragments which spread outwardly with accelerated speed to enhance the damage potential.

3,741,124

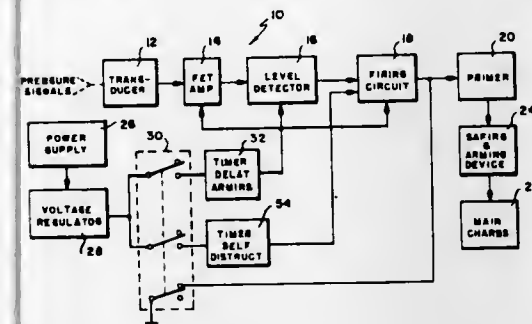
DEMOLITION FIRING DEVICE

Francis A. Visk, Beltsville, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 11, 1971, Ser. No. 143,679
Int. Cl. F42c 11/02, 9/16

U.S. Cl. 102-70.2 R

8 Claims



A firing device is sympathetically activated by the pressure wave generated by a nearby air or underwater explosion. When activated, the firing device detonates a main charge to which it is attached and the resultant shock wave initiates a similar firing device in chain reaction fashion. An incoming pressure wave is converted into an electrical signal by a hydrophone, amplified by an FET amplifier, and level detected by a programmable unijunction transistor. If the pressure wave is above a predetermined amplitude, the programmable unijunction transistor conducts, causing an SCR to become conductive. This allows a firing capacitor to discharge through an explosive primer, which in turn detonates a main charge. The firing device also includes delay arming circuitry and self-destruct circuitry.

3,741,125

STABILIZED ROCKET HEAD

Andre' E. La Pointe, Rockville, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

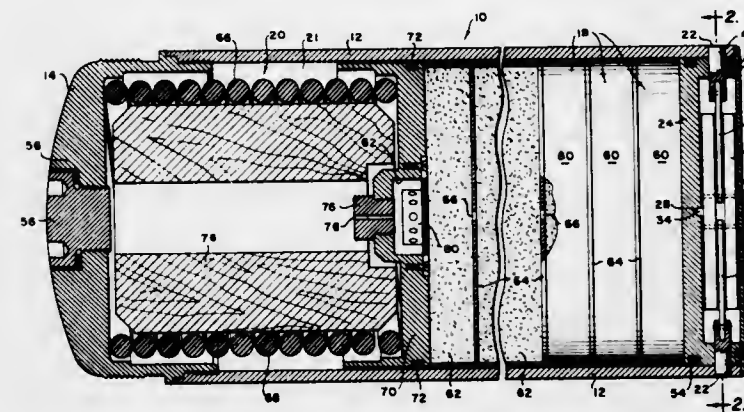
Filed Nov. 22, 1960, Ser. No. 71,107
Int. Cl. F42b 13/28, 13/42

U.S. Cl. 102-49.4

15 Claims

1. A rocket head for attachment to a spin stabilized rocket motor, said rocket head comprising, a body tube, means at the rearward end of said tube for closing said body tube and adapted for attachment to a rocket motor, a removable tube closure assembly attached to the forward end of said body tube means actuated by rotation of the rocket head for releasing said removable tube closure, a plurality of packages of loosely packed radar reflective material removably contained within said body tube; and ejection means within the tube

body for ejecting said packages one at a time with a time delay therebetween upon removal from said body tube of said



removable tube closure assembly from the forward end of the body tube.

3,741,126

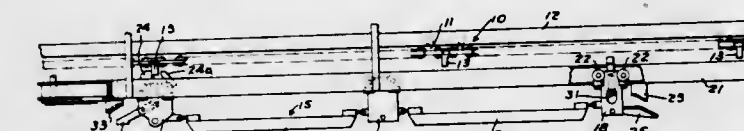
SUSPENDED CONVEYOR SYSTEM

Ivan L. Ross, Birmingham, Mich., assignor to American Chain & Cable Company, Inc., New York, N.Y.

Filed Mar. 18, 1971, Ser. No. 125,501
Int. Cl. B61b 3/00; B61j 1/12; B61g 17/42

U.S. Cl. 104-96

18 Claims



A suspended conveyor system including a first load supporting track and a second load supporting track with an intermediate transfer portion. A powered conveyor is provided in association with each of the first and second tracks. A plurality of carriers are provided. Each of the carriers has a first pusher dog that is in position for normal engagement with the pusher member of the conveyor and a second pusher dog mounted for movement between an operative carrier pushing position and an inoperative position. At a transfer point, a first cam engages the second dog to move the second dog to operative carrier transferring position. Means are provided for releasably holding the second dog in operative carrier transferring position. Beyond the transfer point, a second cam engages the second dog to move the dog downwardly out of operative position.

3,741,127

TROLLEY SYSTEM FOR FREIGHT BRACING BULKHEAD ASSEMBLIES

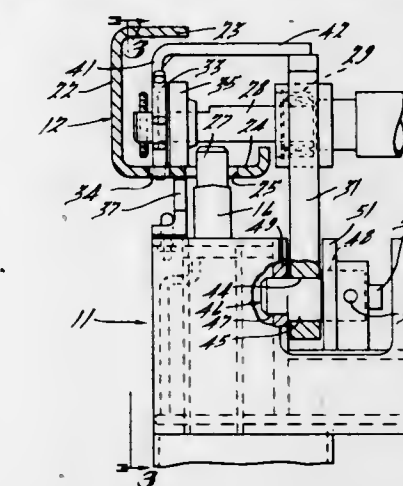
Gerald H. Williams, Detroit, Mich., assignor to Evans Products Company, Plymouth, Mich.

Filed Sept. 1, 1971, Ser. No. 176,973
Int. Cl. B60p 7/14

U.S. Cl. 105-376

5 Claims

Two embodiments of freight bracing bulkhead assemblies incorporating improved trolley structures for supporting the bulkhead assemblies for movement along a cargo area and for precluding disengagement of the trolley assembly from the supporting crane rails and for precluding falling of the bulkhead assemblies from these crane rails. In each embodiment the trolley structure includes roller means that supportingly engage a pair of spaced overhead tracks and which are disposed outwardly of the locking pins at the corresponding sides of the bulkhead. The overhead tracks have a generally C-shape and the roller supporting means includes a member that



preclude inadvertent displacement of the trolley structure relative to the track.

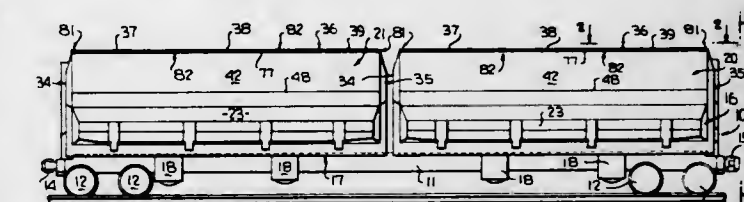
3,741,128

DUMP CAR AND COVER COMBINATION

Fred Fort Flowers, P. O. Box 238, Findlay, Ohio
Filed Jan. 6, 1971, Ser. No. 104,318
Int. Cl. B61d 39/00

U.S. Cl. 105-377

22 Claims



This disclosure relates to a railroad dump car cover having opposite side and end walls and a top wall in the form of at least one pair of cover doors mounted adjacent upper edges of the side walls for pivotal movement about a longitudinal axis, and a pair of longitudinally extending plates secured to each other and to each of the side wall lower edges exteriorly thereof for performing the dual functions of imparting rigidity to the side walls and providing a walkway for workmen. Novel means are provided for aligning the cover with a dump car body and removably securing the same thereto for readily converting the dump car as necessary depending upon the particular material being hauled. The cover is particularly adapted for use with side-dumping railroad cars, and novel seal means are provided between the side dump doors of the railroad car body and the side walls of the cover, along with appropriate seals about the periphery of the top cover doors to prevent debris from being scattered while the car is in transit.

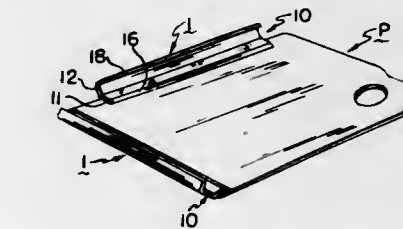
3,741,129

ATTACHMENT DEVICE

Paul Suvada, 2820 East 122nd St., Cleveland, Ohio
Filed Apr. 14, 1972, Ser. No. 244,135
Int. Cl. A47b 23/00

U.S. Cl. 108-43

10 Claims



The disclosure describes a removable attachment device for storing the artist's unmixed pigments on his palette. The device comprises a tray for holding the pigments and a resilient, removable clip which removably retains the tray on

the palette and is mounted in a forwardly open, depending channel on the underside of the tray. The clip and tray are mutually configured to permit attachment of the device to palettes of varying thickness.

3,741,130

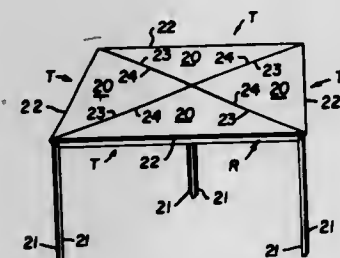
CONNECTOR FOR TABLES

David E. Workman, Orange, Calif., assignor to Samsonite Corporation, Denver, Colo.

Filed Sept. 8, 1970, Ser. No. 70,382
Int. Cl. A47b 7/00

U.S. Cl. 108-64

6 Claims



A connector for use with segment tables and formed of tough, resilient plastic, such as polypropylene, includes a tab pivoted, as by a rivet, to the lower flange of a channel-shaped rail of the table, so that the connector may be stored upon the rail flange. By a transverse plastic hinge adjacent the pivot tab, the remainder of the connector may be swung underneath the adjacent rails of two abutting tables, with a hook at the opposite end releasably engaged the flange of the opposite rail. A hollow spacing block extends between the rails, while an opposite tab is used for placement and removal of the hook.

3,741,131

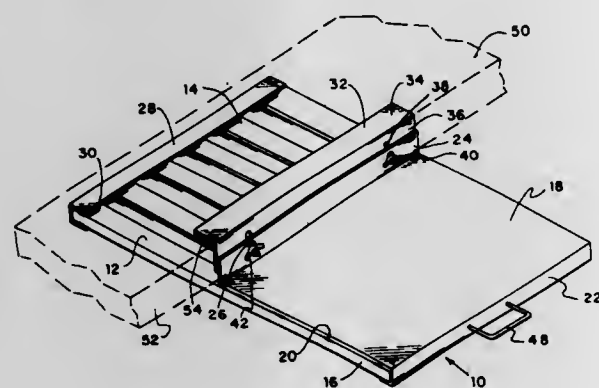
SHELF EXTENDER

Orren R. Leadbetter, 6620 Ludwig Circle, Fort Wayne, Ind.

Filed Feb. 18, 1971, Ser. No. 116,406
Int. Cl. A47b 96/02

U.S. Cl. 108-97

1 Claim



A detachable, adjustable shelf extension comprising a generally flat, rigid member having opposite ends and an upwardly facing planar surface portion adjacent one of the ends. Secured to the rigid member are hanger means for suspending the member from a shelf in a position wherein the other end of the member engages the undersurface of the shelf. The hanger means includes a bracket which is vertically movable with respect to the rigid member and has a flange portion which overlies an edge portion of the shelf, and clamp means for locking the bracket in a position wherein the flange portion is in predetermined spaced-apart relationship to the rigid member.

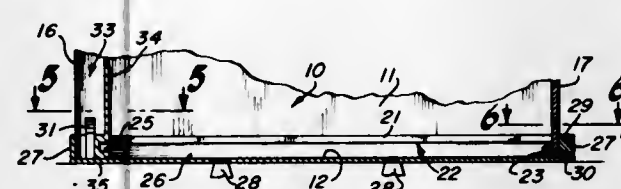
3,741,132 STRONG BOX AND FIXED ANCHORAGE AND MEANS FOR INTERCONNECTING AND LOCKING THEM TOGETHER

Bernard F. Blower, 1384 Heckman Way, San Jose, Calif.
Filed Dec. 20, 1971, Ser. No. 209,641

Int. Cl. E05g 1/04

U.S. Cl. 109-52

4 Claims



A unitary bodied open bottomed, lidded carrying case nestable in a fixed base pan for confining the lid and open bottom of such case within such pan in combination with a means on one end of the case for engaging one end of the pan thereto opposite the other end of the case having a lock operated latching means spring urged into latched engagement with a keeper bolt projecting upwardly from and integrally of the pan. A lock confining chamber provided in such other end of the case including a latching lever spring urged toward a lock chassis confined in the chamber and movable by a key operated slide bolt out of latched engagement with the keeper bolt of the fixed base pan.

3,741,133

TRANSPORTABLE INCINERATION SYSTEM

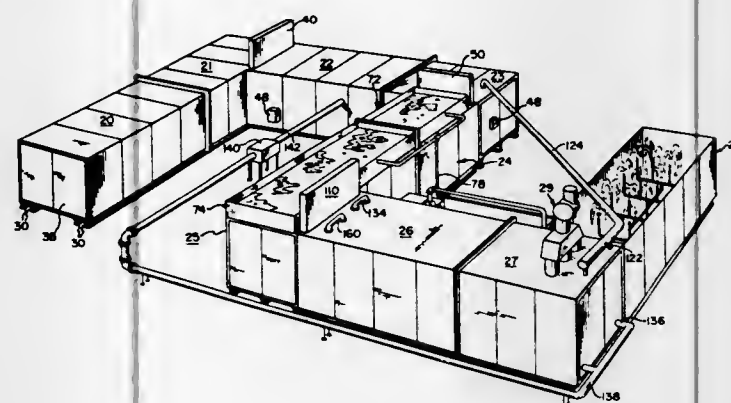
Clarence R. Kleinfelter, 394 South McHenry Avenue, Crystal Lake, Ill.

Continuation-in-part of Ser. No. 873,966, Nov. 4, 1969,
abandoned. This application Sept. 10, 1971, Ser. No. 179,488

Int. Cl. F23g 7/00

U.S. Cl. 110-8 A

16 Claims



A portable incineration system is provided in which transportable modular units are interconnected to provide a large scale incineration system. The fly ash and other undesired particles are removed from the hot gases without developing a steam plume by reheating and drying these gases prior to exhaust.

The hot water produced during fly ash removal is circulated through a suitable cooler, or used as a constant heat source, and the cooled water is recirculated. Cleaning action is improved by injecting chemical sprays into the final drying chamber which solidify certain vapors in the exhaust stream.

In the primary burning chamber the formation of large clinkers between the sides of the stoker and the refractory walls is avoided by providing a relatively wide, deep ledge of refractory material adjacent the moving edges of the stoker.

In another embodiment a series of hollow perforated cylinders, arranged in a gradually sloping or vertically stepped array, may also be used as a stoker grate in the primary burning chamber to transport the material being burned through this chamber. The exhaust hot gases may be mixed with oxygen

and supplied to the interior of these cylinders to prevent clogging and to assist in combustion of the material on the primary chamber.

3,741,134

WASTE INCINERATION SYSTEM

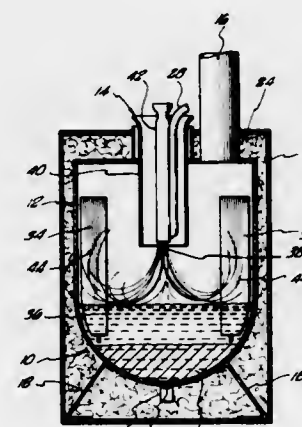
George C. Roberts, Venice, and Donald A. Dotson, Redondo Beach, both of Calif., assignors to Monogram Industries, Inc., Los Angeles, Calif.

Filed Nov. 26, 1971, Ser. No. 202,234

Int. Cl. F23g 5/12

U.S. Cl. 110-8 R

20 Claims



A waste incineration system is disclosed which employs a relatively large flame volume in the burner which substantially occupies the combustion chamber. All vapors and entrained gaseous products spend a relatively long time in contact with the flame. A thermally controlled fuel valve remains open so long as a minimum temperature differential exists between the exhaust flue temperature and the temperature of the container near the base. Initially, the liquid portion of the waste material is vaporized from the surface and the remaining solid waste is burned to ash.

3,741,135

CUTTING TORCH

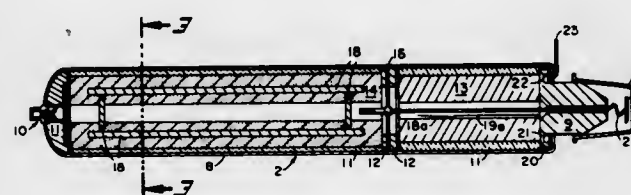
James C. Thompson, Santa Clara, Calif., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Sept. 15, 1971, Ser. No. 180,601

Int. Cl. F23c 1/00

U.S. Cl. 110-22 R

6 Claims



A method for cutting metal is disclosed in which a fuel and an oxidizer are burned within a combustion chamber at higher than ambient pressures to produce a gas stream comprising an oxidizer-rich core surrounded by a fuel-rich sheath. This gas stream is caused to impinge upon a body of metal to be cut at approximately sonic velocities by passing the gas stream through a choked nozzle arranged with respect to the combustion chamber so that the oxidizer-fuel orientation in the gas stream is maintained. Portable hand-held apparatus for generating the cutting gas stream are disclosed which employ a solid fuel material and a solid oxygen generating material to produce a portable self-contained unit.

3,741,136

TAP SYSTEM FOR MOLTEN MATERIALS

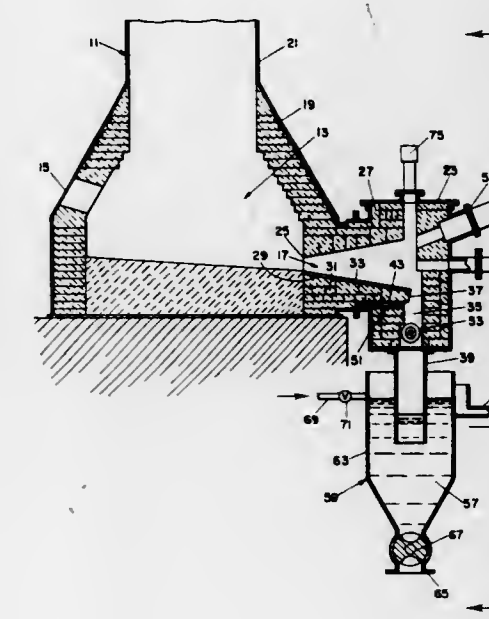
Kenneth W. Stookey, Markle, Ind., assignor to Torrax Systems, Inc., North Tonawanda, N.Y.

Filed Sept. 17, 1971, Ser. No. 181,457

Int. Cl. F23j 1/00

U.S. Cl. 110-165 R

4 Claims



A continuous tap system for molten materials issuing from the well of a vertical shaft incinerator operating under positive pressure includes a conduit which is formed from refractory material and further includes a means for cooling the refractory material to control the corrosion of the refractory material caused by flowing molten material.

3,741,137

INCORPORATOR

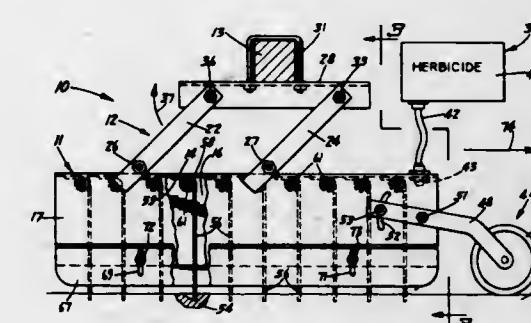
Fred W. Eisenhardt, Fargo, N. Dak., assignor to Alloway Manufacturing Inc., Fargo, N. Dak.

Filed Nov. 19, 1971, Ser. No. 200,431

Int. Cl. A01c 23/02

U.S. Cl. 111-6

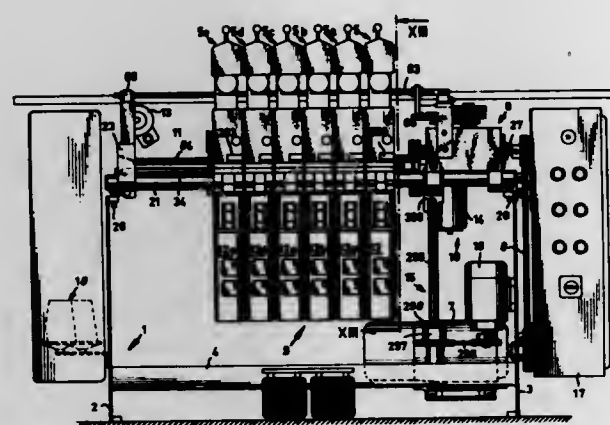
21 Claims



A ground working implement operable to mix liquid or granular materials, as fertilizers, herbicides and like agricultural chemicals, into the surface of the soil. The implement has an inverted, generally U-shaped housing carrying a plurality of spring biased earth working members, as spring teeth. In one form, parallel linkage means pivotally mounts the housing on a support. Wheel structure connected with arms to the housing is used to adjust the earth working depth of the teeth. In another form, an upright standard and clamp adjustably mounts the housing on a tool bar to adjust the earth working depth of the teeth. The material is discharged through a nozzle mounted on the front of the housing whereby the implement, as it moves in a forward direction, discharges the material onto the soil. The material is worked into the soil with the teeth.

3,741,138
SEWING EQUIPMENT FOR SIMULTANEOUSLY SEWING A PLURALITY OF BUTTONHOLES
 Alfred Heimann, Sennel, and Wolfgang Sugland, Herford, both of Germany, assignors to Kock Adler AG, Bielefeld, Germany

Filed Mar. 26, 1971, Ser. No. 128,249
 Int. Cl. D05b 3/06, 69/36
 U.S. Cl. 112-67 42 Claims

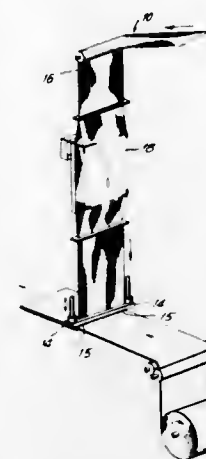


A sewing device provided with a plurality of spaced zig-zag sewing machine units, wherein each of the units includes a reciprocating needle, controlling devices for the lateral movements of the needle bar carrying the needle, for the stitch field position, workpiece clamping and moving elements for displacement of the workpiece during the sewing process for the purpose of simultaneously sewing a number of stitch forms, especially buttonholes in a workpiece, and with a separately arranged gearing which is driven by a stop electromotor and having a main driven shaft for driving the sewing machine units, two additional driving shafts for controlling the lateral movements of the needle bars and the movements of the workpiece clamping elements for each of the sewing machine units. The sewing device is further provided with thread break detection devices for supervising the threads of each of the sewing machine units whereby, after ascertaining a thread failure in one or more sewing machine units after termination of the sewing cycle, those sewing machine units will be uncoupled from their driving and will remain together with the workpiece clamping means in a lowered position upon the workpieces, while the driving connection of the sewing machine units showing a thread failure remains coupled till the buttonholes are produced correctly during a renewed sewing cycle. In the preferred embodiment, the device is provided with sewing machine units in which the needle penetrates the workpiece from the bottom to the top. The sewing machine units are slidably mounted upon two supporting rods which are secured in the gearing.

3,741,139
CONTROL ARRANGEMENT FOR CONSTANT-RATE-YARN-DELIVERY CARPET TUFTING MACHINES
 Zane Frentress, Greenville, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.
 Filed Oct. 1, 1971, Ser. No. 185,689
 Int. Cl. D05c 15/00

U.S. Cl. 112-79 A 16 Claims
 A control system designed for use in a carpet-tufting machine in which a row of tufts is formed in each cyclical operation of the machine. Each tuft in each row receives yarn from an individual yarn-delivery device, and the control system regulates these devices so that (1) the height of the tufts may be varied both within a row, and from row to row, and (2) the yarns that form the tufts are delivered at a substantially constant rate. The control system starts, advances, and turns off the yarn-delivery devices in accordance with a pre-

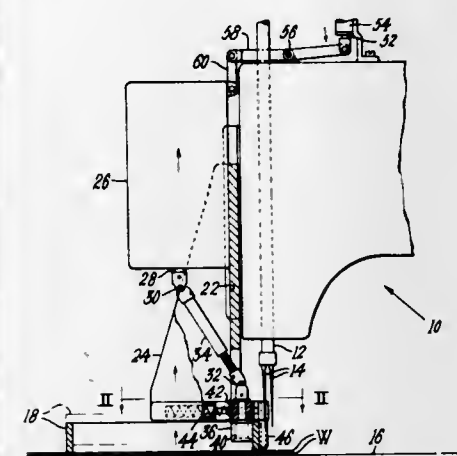
programmed instruction which identifies the devices to be so



operated by group, and number within each group, and thus effects a very rapid operation of the machine.

3,741,140
PATTERN CONTROLLED FEED MECHANISM
 William B. Mercaldi, Beverly, Mass., assignor to USM Corporation, Boston, Mass.
 Filed Mar. 27, 1972, Ser. No. 238,034
 Int. Cl. D05c 3/02

U.S. Cl. 112-102 9 Claims



For stitching along a curve and/or rectilinearly a sewing machine (or the like) includes in its bed, in lieu of conventional feed dog mechanism or the like, a cam of desired interchangeable pattern serving also as a work hold-down, and feed mechanism for progressing the work and cam relative to the operating zone of a conventionally reciprocable needle. The feed mechanism desirably comprises a pair of idler rolls engageable with one side, for example the exterior of the cam, and a drive roll engageable with the opposite or interior side of the cam and biased toward the idler rolls substantially between them.

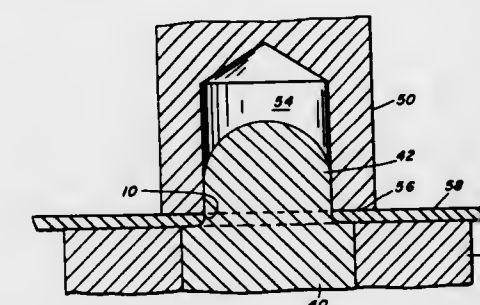
3,741,141
TAB ELEMENT
 Hans H. Diekhoff, Greensburg, and Howard D. Schrecker, Hyde Park, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.
 Division of Ser. No. 20,705, March 18, 1970, Pat. No. 3,659,740. This application Sept. 20, 1971, Ser. No. 181,807
 Int. Cl. B21d 51/26

U.S. Cl. 113-1 F 5 Claims
 Apparatus for fabricating a tab element having an opening for joinder to a container wall including a female die having an elongated recess and an outwardly disposed annular tab engaging surface. A male die having an upwardly directed boss and a surrounding annular tab supporting surface. The male die having a concave transverse wall connecting the die boss with the annular tab supporting surface. Aligning the tab

opening with the die elements and establishing relative closing movement between the dies produces compressive reforming of the opening defining portion of the tab element to provide a convexly curved portion corresponding in curvature to the male die concave transverse wall.

A method of reforming an opening defining wall in a tab element to provide a continuous wall which diverges from the upper tab surface to the lower tab surface by compressively reforming the continuous wall.

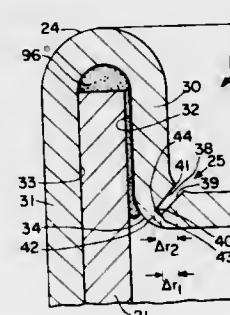
A container wall having a removable sector with a tab ele-



ment secured thereto by means of an integral rivet including a wall panel having a hollow integral rivet provided with a transverse end wall and a peripheral wall. A tab element having an attachment opening defined by a continuous wall and the rivet extending through the tab element with the continuous opening defining wall in contact with the peripheral rivet wall. The opening defining wall having a lower inwardly convexly curved portion in surface to surface contact with a portion of the peripheral rivet wall having an outwardly concave configuration.

3,741,142
METHOD OF MAKING A TEAR-OPEN CLOSURE
 Charles D. Stuard, Cincinnati, Ohio, assignor to The Proctor & Gamble Company, Cincinnati, Ohio
 Filed Mar. 27, 1972, Ser. No. 238,074
 Int. Cl. B21d 51/00

U.S. Cl. 113-121 C 4 Claims

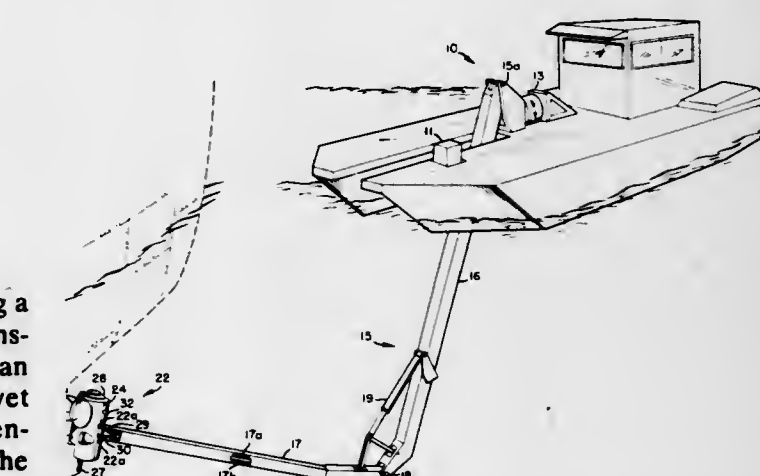


A method of making a substantially full opening tear-open sheet metal closure of the type having a removable panel and a circumferentially extending U-shape rim. The resulting closure has a continuous, circumferentially extending thin wall portion formed by a radially outwardly canted score line intermediate the removable panel and the rim which, being an endless predetermined line-of-weakening, facilitates removal of the removable panel. The thin wall portion is recessed from the outside surface of the rim. The raw edge formed on the rim upon removal of the removable panel by tearing along the predetermined line-of-weakening is wholly under the rim and is nearer the container-body wall than the circumferentially extending smooth residual edge of the rim at the intersection between the wall of the score line and the outside surface of the contiguous portion of the rim. The method of forming the closure comprises sequentially die-folding the peripheral area of a pre-scored blank to first form the inner chime wall and then to form the outer chime wall. While folding the inner chime wall, displacement of the edge of the blank from the plane of the removable panel portion of the blank is limited so

that the outer chime wall portion of the blank is flared outwardly at the completion of forming the inner chime wall.

3,741,143
HULL INSPECTION PLATFORM
 Larry E. McKinley, Escondido; Clarence S. Johnson, San Diego, and Justin E. Langille, III, Coronado, all of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
 Filed Dec. 30, 1971, Ser. No. 214,325
 Int. Cl. B63g 8/00

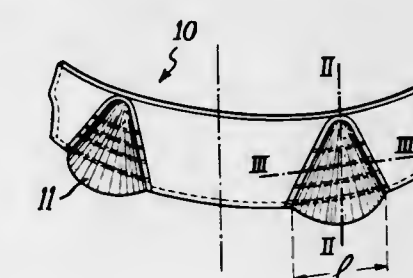
U.S. Cl. 114-0.5 5 Claims



An articulated boom suspended from a catamaran-like vessel carries an observation compartment. Controls articulate the boom to place the compartment at a desired location, for example, to allow a close inspection of the bottom of a ship's hull. Life support conduits connect the compartment to the surface and safety equipment is included to permit an emergency exit should there be system failure.

3,741,144
SKIRTS FOR HOVERCRAFT
 Raymond Henri Raux, Maisons Laffitte, France, assignor to Pneumatiques, Caoutchouc Manufacture et Plastiques Kleber-Colombes, Colombes, France
 Filed Feb. 7, 1972, Ser. No. 223,939
 Claims priority, application France, Feb. 12, 1971, 7104934
 Int. Cl. B60v 3/06

U.S. Cl. 114-67 A 11 Claims



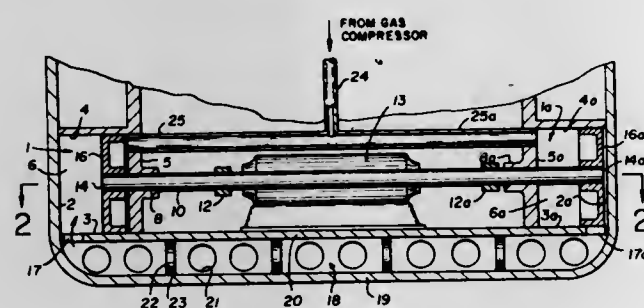
This invention relates to skirts for hovercraft, and the object thereof is the avoidance of the bailing effect or accumulation of water in the space defined by the skirt when the craft is moving. Most hovercraft skirts have a truncated conical shape in section, the walls thereof converging inwardly in the downwards direction. The invention proposes to cut away certain areas of the skirt and these areas are bridges by wall members or pockets which extend outwardly from the skirt and are of part-conical shape with the apex uppermost in the operating condition of the craft. The wall member or pocket may be reinforced by a metal strip which may be folded concertina-wise so as to expand on the application of internal pressure and it may furthermore be cut away at the apex to provide an escape route for water, also to assist in the relief of built up pressure. The wall members or pockets may be made from a material less mechanically resistant than that of the skirt or

may be attached to the skirt by connection means that give way upon the application of excess pressure. Only one such wall member or pocket may be provided but, where a plurality of them is present, they are arranged symmetrically about the longitudinal axis of the skirt, i.e. the hovercraft, in the operating condition.

3,741,145
ACTIVE STABILIZER FOR MARINE VESSELS
Frederick D. Braddon, Babylon, N.Y., assignor to Sperry Rand Corporation, New York, N.Y.
Filed Nov. 23, 1970, Ser. No. 91,774
Int. Cl. B63b 43/06

U.S. Cl. 114-125

1 Claim

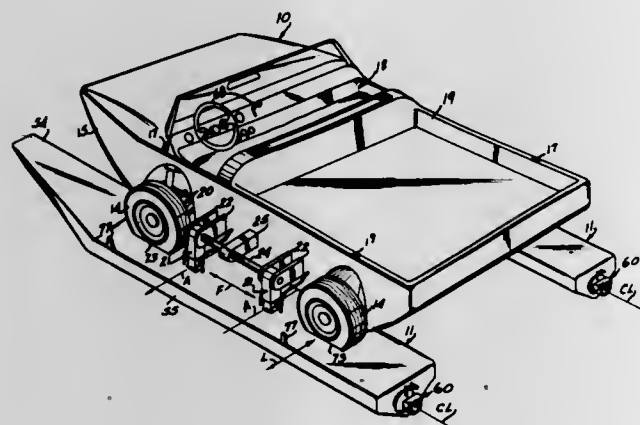


Active tank ship's stabilizer devices are disclosed having symmetrically positioned variable active tanks operated in cooperation by a hydraulic actuator. The variable volume tanks are arranged to permit injection or ejection of ballast liquid in a system avoiding the unstabilizing effects of free liquid surfaces and the power consuming effects of high pressure-heads.

3,741,146
AMPHIBIAN VEHICLE
Charles W. Durrell, Jr., Atlanta, Ga., assignor to B. J. Powell, Decatur and D. W. Griffith, Doraville, Ga., part interest to each
Filed Feb. 3, 1971, Ser. No. 112,116
Int. Cl. B60f 3/00

U.S. Cl. 115-1 R

9 Claims

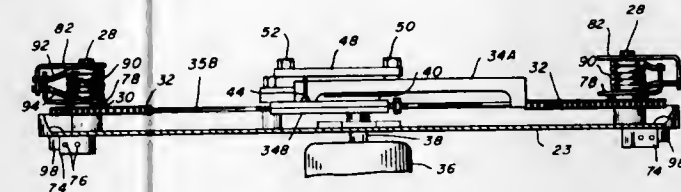


An amphibian vehicle comprising a wheeled vehicle with a floatable body shell, a pair of pontoons disposed on opposited sides of the wheeled vehicle and linkage means connecting the pontoons to the vehicle. The linkage means is capable of selectively positioning the pontoons directly below the wheels or above the wheels and for connecting the pontoons to the vehicle through its normal suspension system. Each pontoon carries a propulsion means for driving the vehicle through the water.

3,741,147
TRAFFIC CONTROL SIGN
Donald M. Downing, 3737 West 44th Street, Tulsa, Okla.
Filed Aug. 3, 1972, Ser. No. 277,668
Int. Cl. E01f 9/10

U.S. Cl. 116-63 R

6 Claims

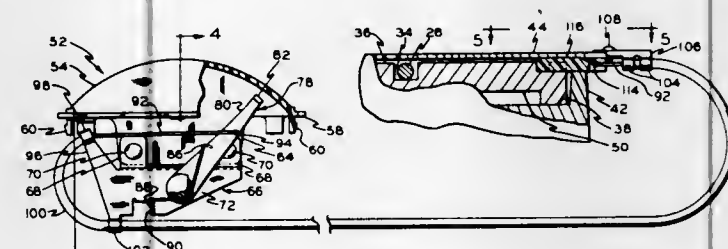


This invention relates to an improved traffic control sign. More particularly, it relates to a sign similar to that of my U.S. Pat. No. 3,394,674, issued July 30, 1968, with an improvement to prevent damage to the movable wing portions of the sign by vandals forcing the rotation of the wings.

3,741,148
VEHICLE WITH TRANSMISSION AND POSITION INDICATOR
Hans Hauser, Fredericktown, Ohio, assignor to The J. B. Foote Foundry Co., Fredericktown, Ohio
Filed Sept. 9, 1971, Ser. No. 178,949
Int. Cl. G09f 9/00

U.S. Cl. 116-124 R

5 Claims



This invention relates to a lawn tractor with a multi-speed transmission mounted under an operator's seat, with a visual position indicator showing the operator the shift position of a shift member of the transmission. The position indicator is mounted in view of the operator, preferably near the steering wheel so as to be readily seen. The indicator has indicia corresponding to the shift positions of the transmission and has a pointer connected by a flexible wire to the shift member and movable therewith to indicate on the indicia the position of the shift member.

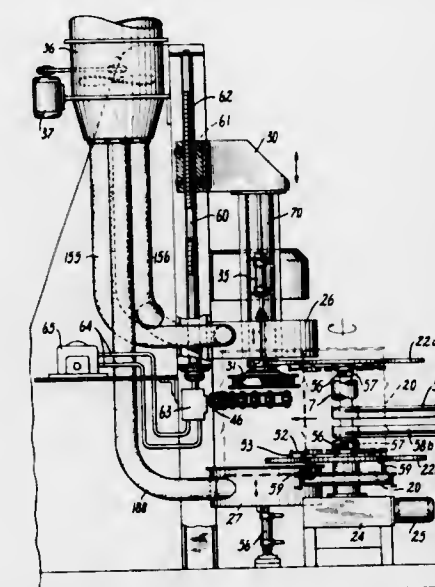
3,741,149
AUTOMATIC MACHINE FOR SPRAYING THE INTERIOR OF CONTAINER SHELLS
Albert F. Gerlovich, Fanwood, N.J., assignor to Rheem Manufacturing Company, New York, N.Y.
Filed Mar. 19, 1971, Ser. No. 126,201
Int. Cl. B05c 7/02, 11/16

U.S. Cl. 118-2

4 Claims

A machine for automatically spraying the interior of hollow bodies such as drum shells or pails or other hollow container shells embodying an indexing turret type machine in which the articles are fed thereto in upright position with the axis vertical at one station and are indexed to a spraying station where shrouds advance over the end or ends of the article and a rotary centrifugal spray head makes a down and up cycle in the interior, the article then being indexed to a release station. The machine includes special features concerning a suction means in connection with the shrouds for drawing off vapors from the spraying area at each end of the shell in a uniform suction pressure condition throughout the peripheral extent and in a manner to prevent spray material being deposited on the outer surface of the body; magnetic means for holding the article within the turret in its rapid indexing steps; and a paint

supply means for the rotary and reciprocating spray head including a stationary paint supply tube and valve seat with a coaxial non-rotary elongated valve member within the tube;

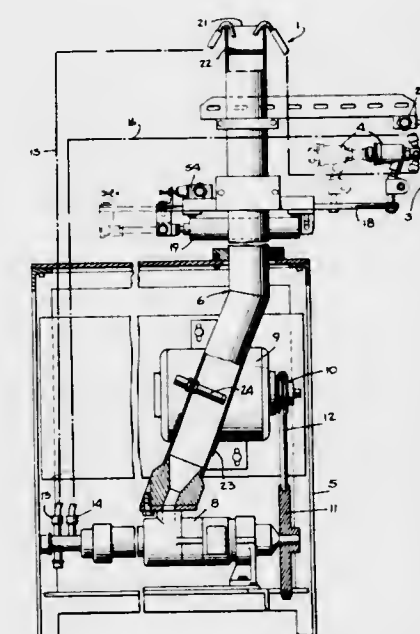


the entire operation being automatically controlled by an electrical circuitry embodying limit switches, solenoids and related elements.

3,741,150
AUTOMATIC FLUX SPRAY DISPENSER
Carl A. Napor, Glen Ridge, and Charles G. Krumm, Wyckoff, both of N.J., assignors to Kahle Engineering Co., Union City, N.J.
Filed June 9, 1971, Ser. No. 151,360
Int. Cl. B05c 5/00, 11/10

U.S. Cl. 118-2

3 Claims



An improved automatic fluxing system is disclosed for applying flux to articles on a production line basis. The system includes an automatic spray gun with a movable mounting for directing the flux onto articles being presented to the spray gun by a conveyor. The system includes automatic nozzle controls and a flux supply system for the nozzle, particularly adapted for handling corrosive, abrasive and highly viscous fluxes. The flux supply system includes a special pump for continuously circulating flux in the reservoir in addition to continuously supplying flux to the nozzle. The circulating reservoir eliminates the need for flux agitators and also permits the flux to be heated and maintained at a uniform pre-set temperature making the flux supply independent of pump induced temperature variations and of temperature related viscosity changes.

3,741,151
APPARATUS FOR IMMERSING STEEL WIRES IN MOLTEN LEAD BATH INCLUDING FLOATING PARTICULATE-STRIPPER MEANS

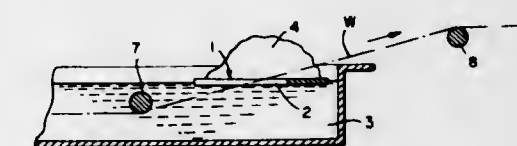
Kurt-Jurgen Schulze, and Joachim Jung, both of Oberbruch, Germany, assignors to Glanzstoff AG, Wuppertal, Germany
Division of Ser. No. 53,115, July 8, 1970, Pat. No. 3,669,761.

This application Mar. 1, 1972, Ser. No. 231,050
Claims priority, application Germany, July 8, 1970, P 19 36 909.6

U.S. Cl. 118-123

Int. Cl. B05c 11/02

6 Claims



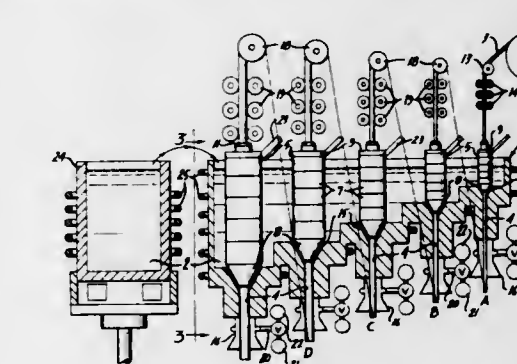
A slotted plate floats on a bath of molten lead through which hot steel wires are passed for cooling. A particulate material in the form of a layer of granulated amorphous carbon is supported on the plate and is adapted to strip entrained lead from the wires passing through the molten lead, slots in the plate and particulate material while forming a non-oxidizing atmosphere around the emerging wires.

3,741,152
APPARATUS FOR CONTINUOUSLY TEEMING AND SOLIDIFYING VIRGIN FLUID METALS
Sylvester V. Williams, Omaha, Nebr., assignor to Elwin A. Andrus, Milwaukee, Wis., a part interest
Continuation of Ser. No. 820,846, May 1, 1969, abandoned, which is a continuation-in-part of Ser. No. 497,177, Oct. 18, 1965, abandoned. This application Oct. 6, 1971, Ser. No. 187,192

U.S. Cl. 118-405

Int. Cl. B05c 3/02

4 Claims



A tundish of virgin fluid metal has a vertical tubular stopper controlling the flow of fluid downwardly through a corresponding port in the bottom of the tundish and a rod of solid state metal is moved downwardly flowing fluid metal in accretion thereon as the stopper is raised from its seat. Where more than one stopper is employed, the bottom of the tundish is stepped to provide different depths of fluid metal head for each successive stopper and means are provided for moving the rod downwardly through successive stoppers for successive accretion of metal thereon in producing a continuous billet.

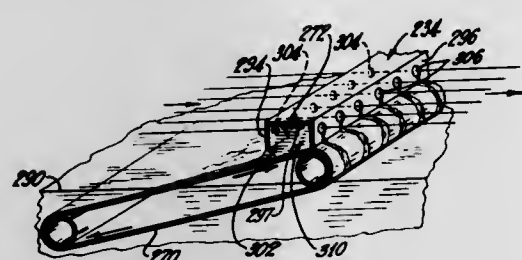
3,741,153
APPARATUS FOR TREATMENT OF LINEAR ELEMENTS
James H. Sears, Anderson, and Bernard H. Jones, Pendleton, both of S.C., assignors to Owens-Corning Fiberglass Corporation, Toledo, Ohio
Filed Dec. 9, 1971, Ser. No. 206,447
Int. Cl. B05c 3/12

U.S. Cl. 118-405

12 Claims

Coating receptacle means is defined by vertically extending walls and an open bottom. Scraper means operatively associated with the open bottom and a moving surface carrying coating liquid effects transfer of the liquid from said moving

surface and upwardly through the receptacle. Means pass

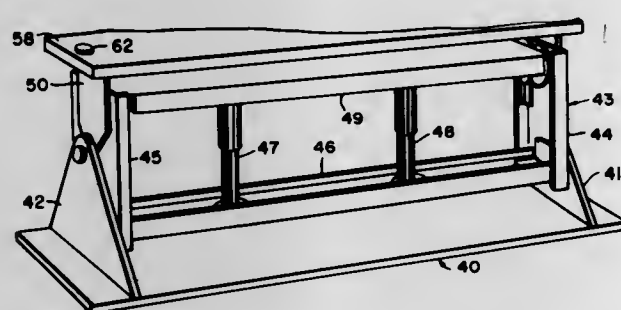


linear elements through an upper portion of said receptacle and thereby through the coating liquid.

3,741,154
MASKING FIXTURE FOR SPRAY PAINTING
Harry Szczepanski, 900 Clancy, N.E., Grand Rapids, Mich.
Filed Dec. 27, 1971, Ser. No. 212,179
Int. Cl. B05c 11/14

U.S. Cl. 118-503

10 Claims

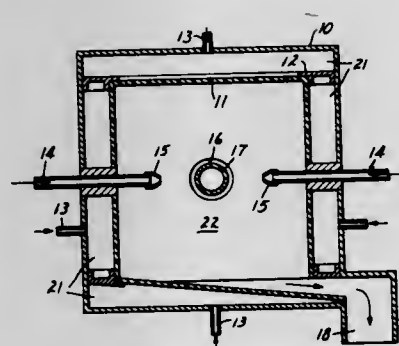


A fixture for providing accurate placement of a mask unit with respect to parts to be spray painted. The parts are supported on a structure mounted for relative movement toward and away from the mask to provide access for insertion and removal of work pieces. Masks are detachably interengaged with the fixture with accurate placement to minimize the delay in replacing masks.

3,741,155
APPARATUS FOR PARTICULATE COATING OF AN ELONGATE ARTICLE
David N. Hunder, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.
Filed Aug. 21, 1970, Ser. No. 65,976
Int. Cl. B05c 11/16; B05b 5/02; B44d 1/0911

U.S. Cl. 118-634

4 Claims

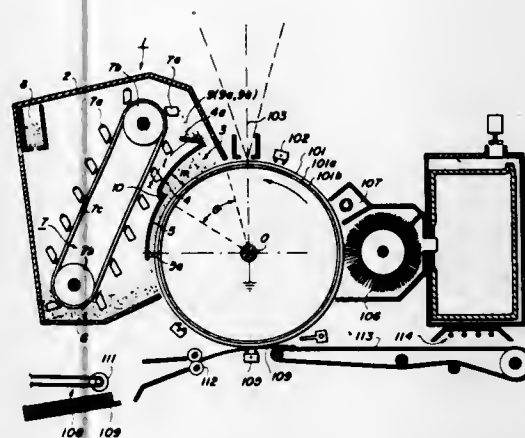


A substantially closed shell contains an air pervious liner defining an inner chamber for coating an article with thermoadhesive particles. Air flowing continuously through the liner toward the article in the chamber prevents buildup of the thermoadhesive particles on either the top or sides of the chamber. The chamber may be formed with a pair of openings to permit the entry and exit of pipe to be coated.

3,741,156
XEROGRAPHIC DEVELOPMENT APPARATUS
Selji Jo, Tokyo, and Katsuo Makino, Odawara, both of Japan, assignors to Xerox Corporation, Stamford, Conn.
Filed Apr. 13, 1971, Ser. No. 133,656
Claims priority, application Japan, Apr. 17, 1970, 45/32292
Int. Cl. G03g 13/00

U.S. Cl. 118-636

3 Claims

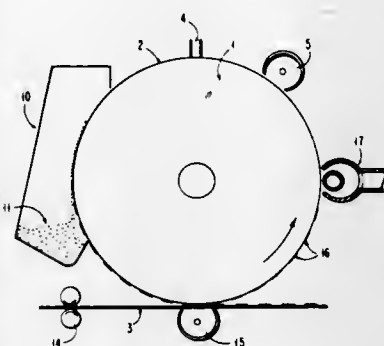


A cascading development apparatus which is equipped with a developer pool at the upper portion of the development zone and a development electrode at the lower portion that provides high development efficiency, good solid area coverage and reduced background density.

3,741,157
ELECTROPHOTOGRAPHIC PLATE CLEANING APPARATUS
Konrad A. Krause, Mount View, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 29, 1969, Ser. No. 888,627
Int. Cl. B05b 5/02; A47J 5/14

U.S. Cl. 118-637

10 Claims



An electrophotographic plate cleaning apparatus utilizing air under pressure being directed through nozzles and onto the plate surface with vacuum means for drawing the removed material from the surface.

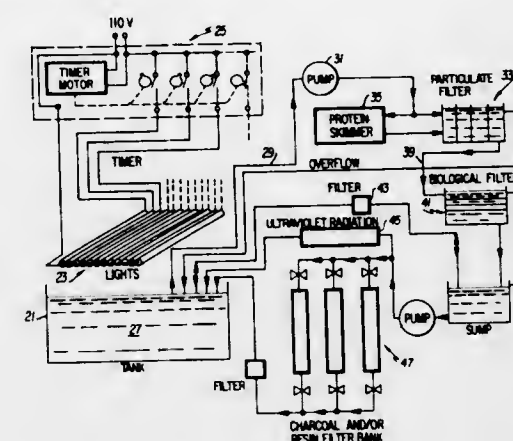
3,741,158
PRE-CONDITIONING PROCESS FOR INDUCED SPAWNING
Martin A. Moe, Jr., Juno Isles, and Jay P. Dunathan, Tequesta, both of Fla., assignors to Oceanography Mariculture Industries, Inc., Riviera Beach, Fla.
Filed Nov. 29, 1971, Ser. No. 202,809
Int. Cl. A01k 61/00

U.S. Cl. 119-3

6 Claims

A process for pre-conditioning of fish in preparation for induced spawning which comprises isolating a brood stock of sexually immature or inactive fish from the natural environment by placing the stock into a water media suitable for sustaining life in a healthy condition, whereby water quality, temperature and degree of light exposure and light intensity can each be selectively controlled, adjusting the temperature

and degree of light exposure and intensity so that sexual development of the blood stock is suppressed until spawning is

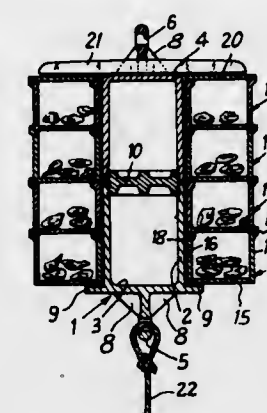


desired and thereafter readjusting the temperature and degree of light exposure and intensity so that sexual maturity of the brood stock is rapidly attained.

3,741,159
CAGE FOR BREEDING SHELLFISH
Lazare Nathan Halaunbrenner, 17 bd. Edgar Quinet, Colombes, France
Filed July 30, 1971, Ser. No. 167,710
Claims priority, application France, Aug. 12, 1970, 7029710
Int. Cl. A01k 61/00

U.S. Cl. 119-4

34 Claims

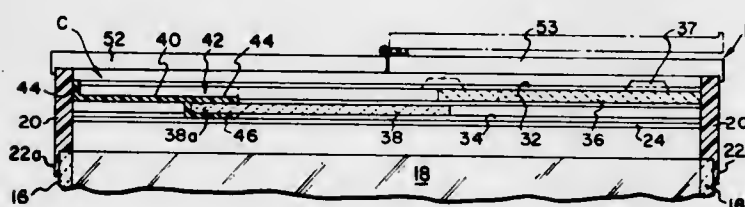


Float-equipped cage for shell-fish comprises a basket-like receptacle incorporating a float and means for attaching a line at the bottom thereof.

3,741,160
COVER FOR AN AQUARIUM
Clark L. O'Dell, Saginaw, Mich., assignor to O'Dell Manufacturing, Inc., Saginaw, Mich.
Filed Sept. 27, 1971, Ser. No. 184,046
Int. Cl. A01k 64/00

U.S. Cl. 119-5

11 Claims

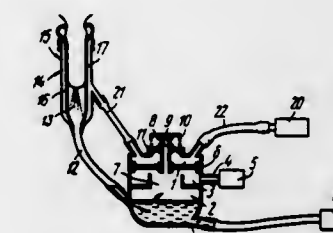


An open top aquarium having a pair of upper end support members with double tracks slidably receiving a pair of relatively movable cover sections, and an additional, easily cuttable cover section removably clamped to one of the relatively movable cover sections.

3,741,161
MILKING APPARATUS FOR MILKING LACTIFEROUS ANIMALS
Zinovy Yakovlevich Zhuk, Parkovaya ulitsa, korpus 1, kv. 50, and Genrikh Vladimirovich Baskakov, Angarskaja ulitsa, 49, korpus 3, kv. 88, both of Moscow, U.S.S.R.
Continuation-in-part of Ser. No. 805,657, March 10, 1969, abandoned. This application June 3, 1971, Ser. No. 149,586
Int. Cl. A01j 5/10

U.S. Cl. 119-14.36

4 Claims

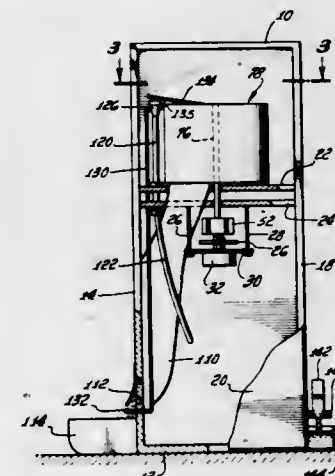


A milker for lactiferous animals particularly in situations where the milk is to be transported a considerable distance or against a considerably hydraulic head in which a variable vacuum chamber is connected to a pulsator for causing pressure variations, a constant vacuum chamber is connected to means for producing a vacuum, a flexible diaphragm separates the variable vacuum chamber from the constant vacuum chamber, and an annular partition provides a passage between the constant vacuum chamber and a milk receiving space. The partition is so constructed that the flexible diaphragm functions as a valve against an upstanding flange or lip of the partition when the vacuum in the variable vacuum chamber is reduced, and the diaphragm also carries a passage means for admitting of air defining a movable valve element for connecting the milk receiving space to exterior ambient atmospheric pressure when the diaphragm functions as a valve against the partition.

3,741,162
AUTOMATIC ANIMAL FEEDING MACHINE
Antonio R. Lopez, 6050 Garden Dale Street, South Gate, Calif.
Filed Sept. 25, 1970, Ser. No. 75,376
Int. Cl. A01k 5/02

U.S. Cl. 119-51.13

8 Claims



A feeding machine for animals comprising a rotatable bin for feed having separated compartments which can be selectively rotated by an automatic timing mechanism to release feed and, optionally, water into a feeding chute.

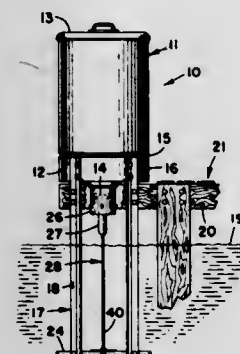
3,741,163
DEMAND-RESPONSIVE FISH FEEDER
Dale A. Bush, 1024 West Lovers Lane, Arlington, Tex.
Filed Nov. 13, 1970, Ser. No. 89,410
Int. Cl. A01k 5/02, 64/00

U.S. Cl. 119-54

17 Claims

A fish feeder is operable to dispense quantities of particulate feed into a fish-containing body of water in response to

normal feeding activities of the fish. A hopper contains a supply of feed above the water surface and an actuating means, disposed externally of the hopper, includes a lower



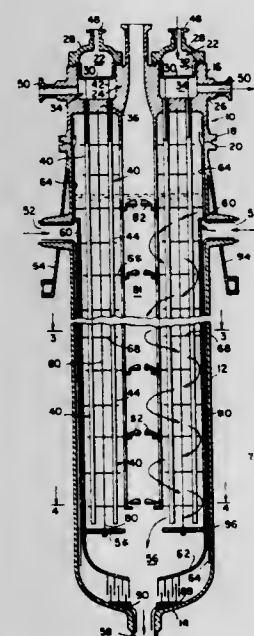
portion extending below the water surface and is operable to release desired quantities of feed in response to movement of the lower portion by fish adjacent the lower portion.

3,741,164

SODIUM-HEATED STEAM GENERATOR

Robert O. Barratt, Parsippany, N.J., assignor to Foster Wheeler Corporation, Livingston, N.J.
Filed Mar. 3, 1971, Ser. No. 120,434
Int. Cl. F22b 1/16

U.S. Cl. 122-32



A sodium heated steam generator in which the likelihood of tube failure from such factors as thermal growth is reduced and in which in the event of a tube failure the products of a sodium water reaction are quickly exhausted out of the steam generator. Water is generated to steam in bayonet tube assemblies extending downward into a vessel down through which liquid sodium flows and into which a central relief channel extends to provide means for the escape of the products of an accidental sodium water reaction.

3,741,165

WATER-COOLED BURNER AND FEEDSTOCK INJECTION ASSEMBLY FOR CARBON BLACK REACTOR

Roy S. Matthews, Sunray, and Billy E. Willis, Houston, both of Tex., assignors to Continental Carbon Company, Houston, Tex.

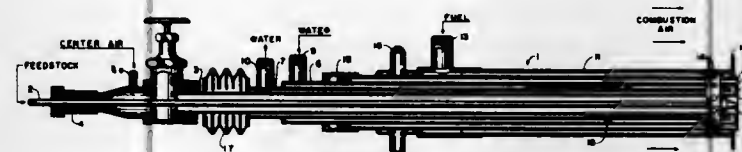
Continuation-in-part of Ser. No. 59,962, July 31, 1970. This application Sept. 29, 1971, Ser. No. 184,934
Int. Cl. F22b 37/00

U.S. Cl. 122-6.5

4 Claims

A burner and feedstock injection assembly for a carbon black reactor having a cooling-water jacket surrounding the

center air pipe (which surrounds the center feedstock pipe). Means are included within the jacket for imparting a whirling motion to the water as it circulates through the portion of the



jacket which is subjected to maximum heat of fuel combustion. Preferably, the jacket includes an expansion joint mounted outside the reactor toward the upstream end of the assembly.

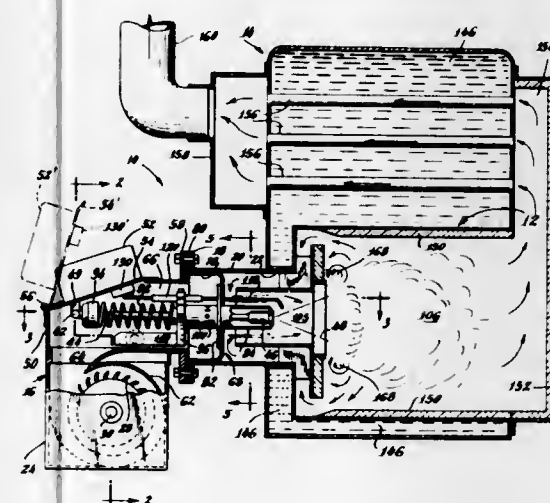
3,741,166

BLUE FLAME RETENTION GUN BURNERS AND HEAT EXCHANGER SYSTEMS

Frank W. Bailey, 60 Parkway Drive, East, East Orange, N.J.
Filed Feb. 10, 1972, Ser. No. 225,259
Int. Cl. F22b 31/00

U.S. Cl. 122-23

41 Claims



Blue flame retention gun burners and heat exchanger process and apparatus for burning liquid hydrocarbon fuel to produce a stable blue flame with low nitric oxide and low particulate (Bachrach) emissions. A major portion of the combustion air is passed in a vigorous jet action directed through a vitiation zone positioned upstream from a fuel injection region leading into a combustion chamber. The vigorous jet action creates a reduced pressure in entering the vitiation zone causing a portion of the gaseous products of combustion from the combustion chamber to be recirculated into this zone in which the combustion air is vitiated and chemically altered before encountering the fuel spray. During recirculation the combustion products therein undergo useful heat exchange so that they are cooled below 800°F. before entering the vitiation zone. A minor portion of the combustion air is utilized to cool the fuel nozzle and then enters the fuel injection region as a plurality of diverging jets aimed toward the combustion chamber. An efficient stable blue flame is produced with relatively low excess oxygen and involving diffuse combustion without allowing localized hot zones which would cause augmented NO formation and without ignition or stating transient instabilities. Many conventional air and oil handling components may be directly utilized in the practice of this invention, such as fuel pumps, blowers, motors, and fuel atomizing nozzles.

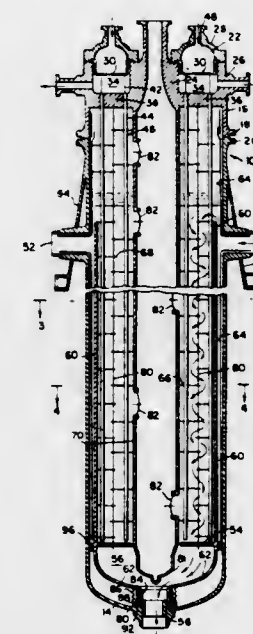
3,741,167

SODIUM-HEATED STEAM GENERATOR

John Polcer, Florham Park; Robert O. Barratt, Parsippany, both of N.J., and Allan E. Musterer, La Jolla, Calif., assignors to Foster Wheeler Corporation, Livingston, N.J.
Filed Mar. 2, 1971, Ser. No. 120,154
Int. Cl. F22b 1/06

U.S. Cl. 122-32

9 Claims



A sodium heated steam generator in which the likelihood of tube failure from such factors as thermal growth is reduced and in which in the event of a tube failure the products of a sodium water reaction are quickly exhausted out of the steam generator. Water is generated to steam in bayonet tube assemblies extending downward into a vessel down through which liquid sodium flows and into which a central relief pipe extends to provide means for the escape of the products of an accidental sodium water reaction.

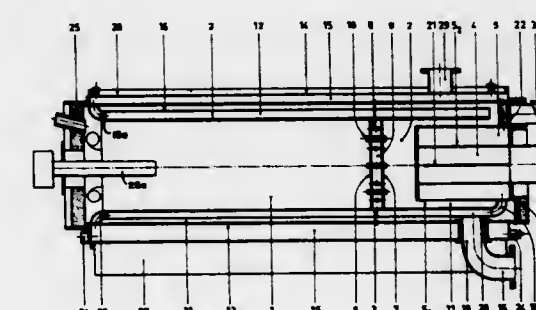
3,741,168

BOILER FOR THE PRODUCTION OF HOT WATER

Raymond Paul Pierre Guillou-Keredan, Paris, France, assignor to Societe D'Etude Et De Construction De Chaudières En Acier-Secacier, Hauts de Seine, France
Filed May 3, 1971, Ser. No. 139,342
Claims priority, application France, Mar. 5, 1971, 7107815
Int. Cl. F22b 7/00

U.S. Cl. 122-136 R

4 Claims



The object of the present invention is to produce a single combustion chamber boiler with an annular section for the evacuation of the gases with no obstruction in it, thus avoiding the incidence of turbulence and enabling the boiler body to have a small diameter.

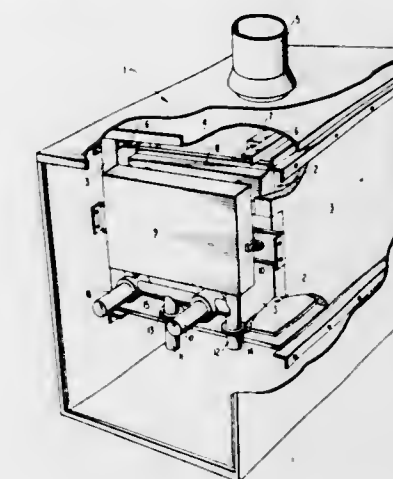
3,741,169

WATER HEATER

Clarence S. Johnson, P.O. Box 940, Pomona, Calif.
Filed Oct. 14, 1971, Ser. No. 189,205
Int. Cl. F22b 37/10

U.S. Cl. 122-367 C

4 Claims



A water heater including a furnace having a plurality of horizontally disposed tubes forming a water tube boiler disposed therein; a vertically disposed preheater is connected to the boiler, and flow control valves are connected to the preheater; the boiler, preheater and flow control valves being constructed and arranged as a unit, slidably mounted on a track secured within the furnace housing, whereby the unit may be removed from the furnace through the furnace access door to facilitate the maintenance of the unit.

ERRATUM

For Class 122-510 see:
Patent No. 3,741,174

3,741,170

START-UP MECHANISM FOR ROTARY COMBUSTION ENGINE

John N. Hinckley, Beloit, Wis., assignor to Beloit College, Beloit, Wis.
Division of Ser. No. 820,331, Sept. 24, 1969, Pat. No. 3,660,978. This application May 8, 1972, Ser. No. 251,496
Int. Cl. F02c 5/12, 5/00

U.S. Cl. 123-8.27

2 Claims



There is disclosed a start-up system for a rotary internal combustion engine induces a type having a plurality of swinging arms pivotally supported about the periphery of a rotor housing with a rotor supported by a power shaft controlling the cycle of movement of the arms to define compression and combustion chambers in appropriately timed relation. A cam track and cam follower mechanism includes lift segments for driving the connected arms inwardly to expand the compression

sion chamber and draw a charge of air-fuel mixture therein and release segments for releasing the cam followers to permit the rotor to drive the arm inwardly and compress the charge and transfer it to a combustion chamber. A cranking means induces rotation of the flywheel to initiate the start cycle. Other features are disclosed.

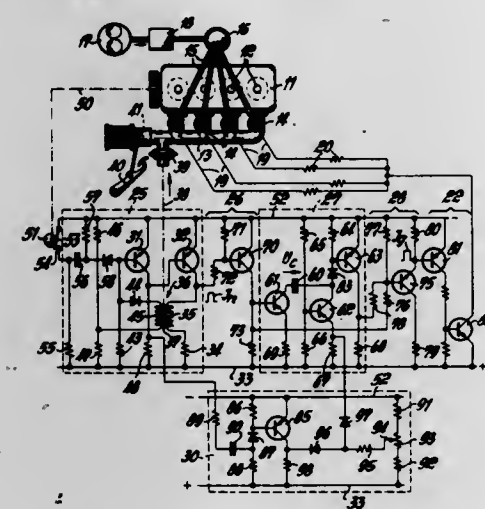
3,741,171

TIMING CIRCUIT FOR OPENING FUEL-INJECTION VALVES

Wolfgang Dautel, Esslingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Aug. 2, 1971, Ser. No. 168,137
Claims priority, application Germany, Aug. 8, 1970, P 20 39 486.9

Int. Cl. F02d 5/00

U.S. Cl. 123—32 EA



A fuel-injection arrangement for internal combustion engines with electromagnetically actuated fuel-injection valves and intake manifold. A monostable multivibrator provides output pulses having a duration dependent on at least one operating parameter of the engine, such as the suction pressure within the manifold behind the throttle valve. A pulse-extending stage connected to the monostable multivibrator emits an extending pulse adjoining each pulse from the multivibrator and having a duration which depends on the duration of the preceding pulse from the multivibrator. A second monostable multivibrator has an unstable state duration beginning with the extending pulse and lasting for a fraction of the duration of the extending pulse. A compensating network connected to the pulse-extending stage influences the duration of the extending pulse by either increasing or decreasing the duration of the extending pulse.

3,741,172

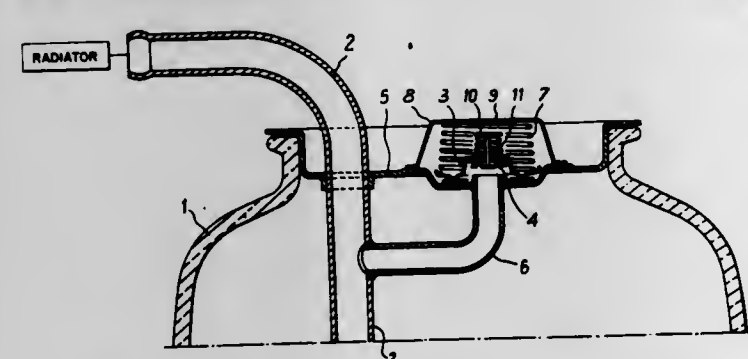
COOLING SYSTEM EXPANSION CHAMBERS

Bernard Andreux, Billancourt, France, assignor to Regie Nationale Des Usines Renault, Billancourt (Hauts de Seine), France
Filed June 28, 1971, Ser. No. 157,168
Claims priority, application France, Aug. 5, 1970, 7028846; Nov. 27, 1970, 7042698

Int. Cl. F01f 9/00

U.S. Cl. 123—41.27

5 Claims



Glass expansion chamber connected to cooling system by a tube going down to bottom of chamber, characterized by a

pressure relief valve fitted between the aforementioned system and the expansion chamber, with a valve allowing air to enter from the outside if pressure drops in system fitted to expansion chamber stopper.

3,741,173

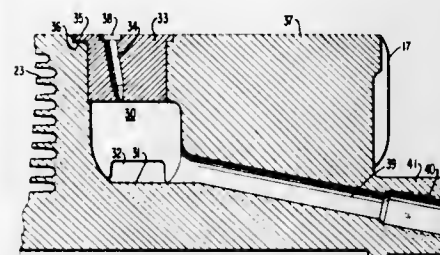
CYLINDER HEAD OF AN AIR-COOLED INTERNAL COMBUSTION ENGINE

Manfred Christian, Berlin-Dahlem, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed May 9, 1968, Ser. No. 727,951
Claims priority, application Germany, May 12, 1967, D 53059

Int. Cl. F01p 9/04

U.S. Cl. 123—41.57

14 Claims



A cylinder head of an air-cooled internal combustion engine with additional oil cooling for those places subjected to maximum thermal loads, in which cooling surfaces are arranged on the inside of the cylinder head within a hollow space and an injection nozzle extends into the hollow space to inject cooling oil against the cooling surfaces while a discharge channel is connected with the hollow space.

3,741,174

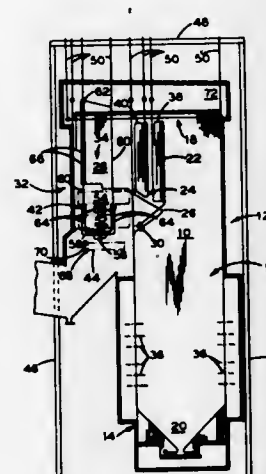
TUBE SUPPORTS

Alexander H. Rudd, Walter A. Hansen, both of Akron, Ohio, and James E. Ingersoll, Paris, Tex., assignors to The Babcock & Wilcox Company, New York, N.Y.
Filed May 27, 1971, Ser. No. 147,551

Int. Cl. F22b 37/24

U.S. Cl. 122—510

3 Claims



A vapor generator having a heat exchanger suspended within an upright gas passage wherein the heat exchanger comprises a first and second group of tubes and an arrangement for the support thereof including weldably connecting portions of said first and second group of tubes.

3,741,175

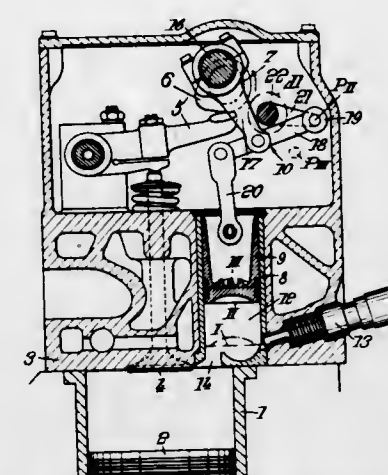
VARIABLE COMPRESSION RATIO INTERNAL COMBUSTION ENGINES

Henri Andre Rouger, Courbevoie, France, assignor to Societe Nationale D'Etude Et De Construction De Moteurs D'Aviation, Paris, France
Filed July 29, 1971, Ser. No. 167,300
Claims priority, application France, Aug. 3, 1970, 7028621

Int. Cl. F02b 75/04

U.S. Cl. 123—48 A

11 Claims



The internal combustion engine comprises at least one main cylinder in which a main piston driving a drive shaft moves, and a cylinder head over the main cylinder. An auxiliary piston slides in an auxiliary cylinder contrived in the cylinder head and communicating with the main cylinder. An actuating mechanism reciprocates the auxiliary piston at half the rate of the main piston reciprocation (four-stroke engine) or at the rate of main piston reciprocation (two-stroke engine). Control or adjusting means act on said actuating mechanism so as to vary auxiliary piston travel. The actuating mechanism is so devised that the offset between main piston and auxiliary piston reciprocations is such that the auxiliary piston reaches its inner dead centre position during the exhaust stroke (four-stroke engine) or during the scavenging stroke (two-stroke engine).

3,741,176

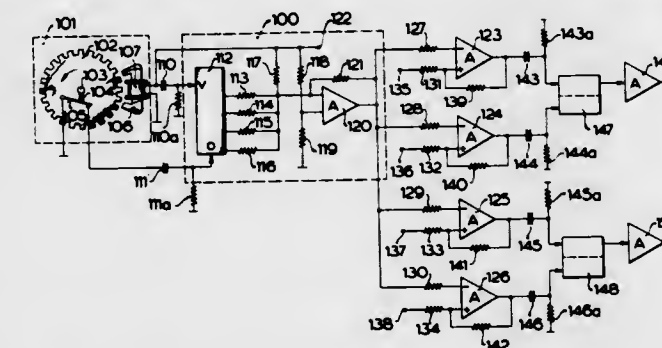
PULSE GENERATOR FOR CONTROLLING THE VALVES OF AN INTERNAL COMBUSTION ENGINE

Peter Schmidt, Schwieberdingen, and Lothar Raff, Hochberg, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
Filed Aug. 19, 1971, Ser. No. 173,008
Claims priority, application Germany, Jan. 15, 1971, P 21 01 761.8

Int. Cl. F01f 9/02, 9/04, 1/34

U.S. Cl. 123—90.12

25 Claims



A pulse generator rotating synchronously with the crank shaft of the engine feeds pulses through a differentiator to a staircase generator of which the output is connected to the inverting inputs of four operational amplifiers acting as threshold switches, the outputs of which are connected to respective inputs of two bistable triggers of which the outputs are connected each to a switching amplifier that controls the inlet or outlet valve of one cylinder of the internal combustion

engine. In one modification, the invention is adapted to a four cylinder engine.

3,741,177

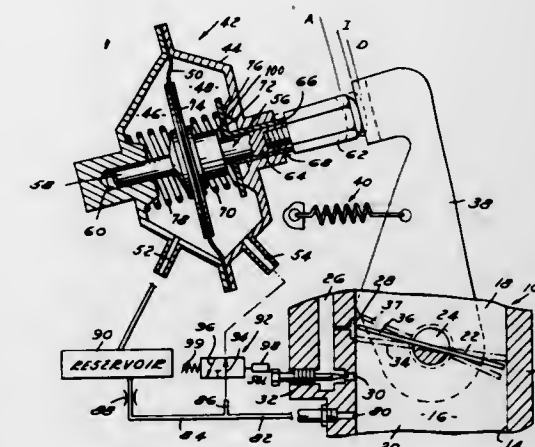
CARBURETOR THROTTLE VALVE POSITIONER

Thomas C. Schultz, Southfield, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Nov. 1, 1971, Ser. No. 194,258

Int. Cl. F02d 11/08, 9/00; F02m 19/12

U.S. Cl. 123—97 B

6 Claims



The throttle valve of a downdraft type carburetor is controlled in its movement by a servo in turn controlled by manifold vacuum changes; servo springs initially move the throttle valve to a high idle speed setting for engine starting as well as engine idling; engine deceleration vacuum moves the servo diaphragm to open the throttle valve for better emission control; and, engine shutoff permits vacuum in a reservoir to temporarily move the throttle towards a closed position to prevent dieseling.

3,741,178

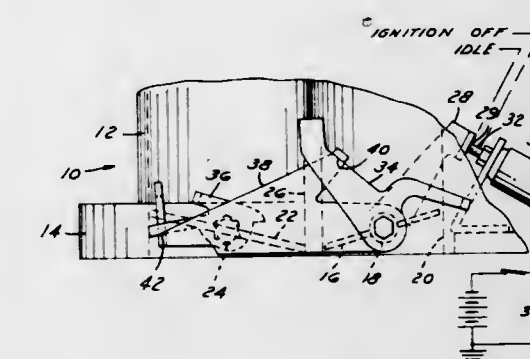
ANTI-DIESELING CARBURETOR STRUCTURES

Raymond J. Cedar, Birmingham, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Oct. 4, 1971, Ser. No. 186,370

Int. Cl. F02d 33/00

U.S. Cl. 123—97 B

5 Claims



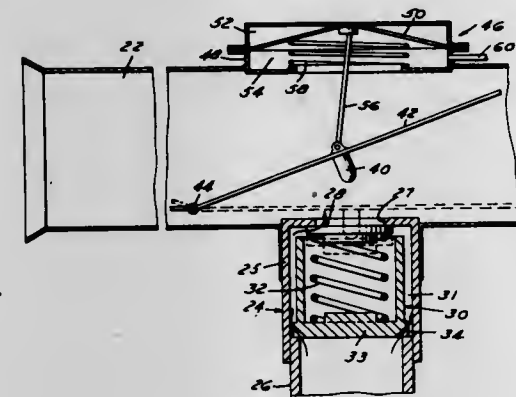
An anti-dieseling two-stage carburetor structure for a gasoline internal combustion engine. The carburetor includes a solenoid which determines distinct primary throttle blade positions at idle and at ignition-off. A lever system interconnects the solenoid and the secondary throttle plates. Upon opening the ignition circuit of the engine, the de-energized solenoid simultaneously causes the primary throttle plates to close completely and the secondary throttle plates to partially open. The closing of the primary throttle plates stops any fuel flow resulting from airflow through the primary venturis, while the partial opening of secondary throttle plates bleeds air to the intake manifold and eliminates any fuel flow responsive to intake manifold vacuum.

3,741,179

EXHAUST GAS RECIRCULATING SYSTEM CONTROL
Richard D. Vartanian, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed July 1, 1971, Ser. No. 158,755
Int. Cl. F02m 25/06

U.S. Cl. 123—119 A



A portion of the engine exhaust gases are connected to the engine air cleaner through valving that is opened to permit recirculation in response to normal accelerating levels of engine spark port intake manifold vacuum, and is closed to terminate recirculation upon a buildup in exhaust gas back pressure acting on the valving.

3,741,180

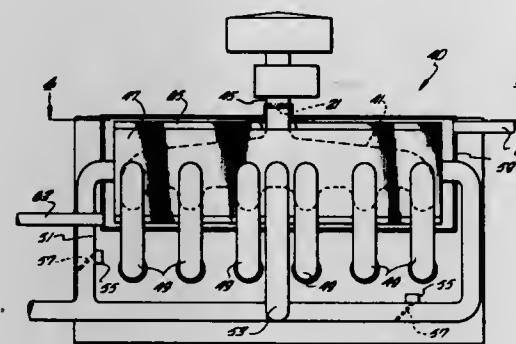
APPARATUS FOR VAPORIZING A FUEL-AIR MIXTURE IN THE INDUCTION SYSTEM OF AN COMBUSTION ENGINE

Barlane R. Eichbaum, 12065 Stoney Brook Drive, Reno, Nev.

Filed Apr. 9, 1971, Ser. No. 132,706
Int. Cl. F02m 29/04, 21/06

U.S. Cl. 123—122 A

4 Claims



A combustion engine is disclosed in which the entire fuel-air mixture is vaporized within the intake manifold to combust more efficiently and completely in the combustion chamber, thereby significantly reducing exhaust emissions. The vaporization of the entire fuel-air mixture is effected by utilizing a portion or all of the available heat energy passing through the exhaust manifold in order to heat the intake manifold. In the various embodiments disclosed, the exhaust manifold either extends through, completely envelops, or is positioned adjacent the intake manifold for heat transfer purposes. In all cases, suitable bypass conduits and valve means are provided to relieve a portion or all of the heat energy from heating the intake manifold. A screen is also provided in the intake conduit between the carburetor and the intake manifold to disperse the fuel-air mixture and prevent any droplets formed in the carburetor from passing therethrough.

3,741,181

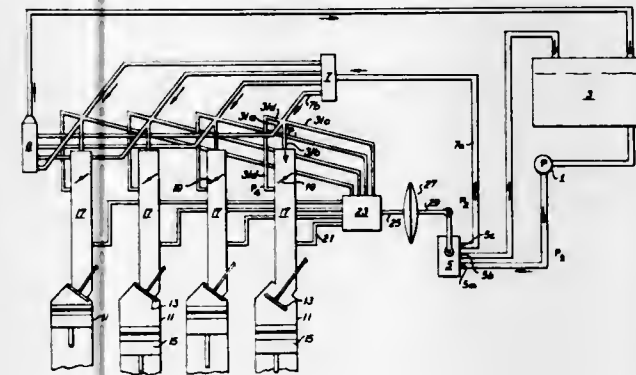
TIMED FUEL INJECTION SYSTEM

Norman W. Martin, 6008 B Maine Road, Plattsburgh Air Force Base, N.Y.

Filed Nov. 17, 1971, Ser. No. 199,609
Int. Cl. F02m 39/00

U.S. Cl. 123—139 AW

6 Claims



A timed fuel injection system for an internal combustion engine has a fluidic amplifier for each cylinder. The amplifier acts to divert fuel back to a reservoir when the cylinder's intake valve or equivalent is closed and to switch fuel to the injector when the intake valve is open. The amplifier diverts fuel when the vacuum within one cylinder's intake manifold is exceeded by the average vacuum of all cylinders and switches fuel when the intake vacuum of the one cylinder exceeds the average vacuum of all cylinders.

3,741,182

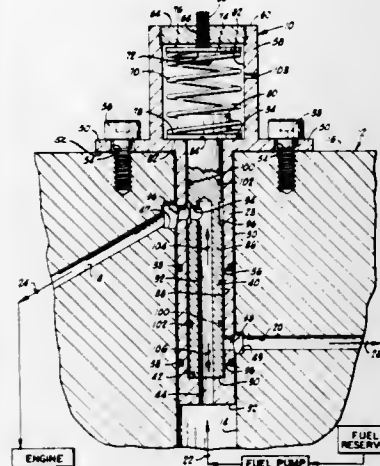
CONTROL VALVE

Kenneth C. Wade, Midwest City, and D. L. Adcock, Oklahoma City, both of Okla., assignor to said Kenneth C. Wade by said D. L. Adcock

Filed Feb. 8, 1971, Ser. No. 113,490
Int. Cl. F02d 1/04; G05d 11/00

U.S. Cl. 123—140 FG

15 Claims



An improved control valve interposed in a fuel system, generally between a fuel pump and an engine, to bufferingly pass fuel therethrough from the fuel pump to the engine, in an operating position thereof, and to bypass fuel from the fuel pump to a fuel reservoir at a predetermined fuel pressure, in a bypass position thereof, thereby governing the maximum pressure of fuel being supplied to the engine injectors. The control valve basically comprises a valve body having a valve member slidingly disposed in a valve chamber formed in a portion of the valve body. The valve member is biased to an operating position and constructed such that the fuel pressure biases the valve member to a bypass position at a predetermined fuel pressure.

3,741,183

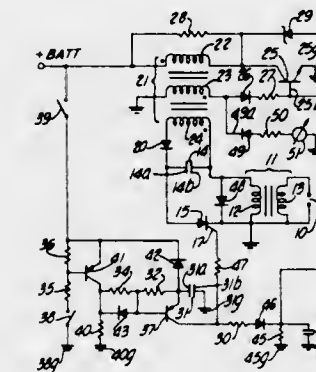
CAPACITOR DISCHARGE IGNITION SYSTEM

Theodore F. Sturm, 44900 Viejo Drive, Hemet, Calif.

Filed Dec. 22, 1969, Ser. No. 886,972
Int. Cl. F02p 1/00

U.S. Cl. 123—148 E

1 Claim



An improved capacitor discharge ignition system for internal combustion engines, wherein the ignition system utilizes a discharge capacitor power source placed in shunt with the primary winding of a transformer which automatically turns off upon saturation thereof so that the magnetic field collapses and the secondary winding of the transformer produces a pulse current to charge the capacitor. The capacitor is subsequently placed in shunt with the primary winding of a pulse transformer so that the secondary winding thereof delivers a high voltage spark to the distributor and ultimately the spark plugs of an engine. In the ignition system of this invention the capacitor discharge sequence and the transformer charging sequence are commenced simultaneously so that a maximum number of sparks are capable of being produced in the minimum amount of time.

3,741,184

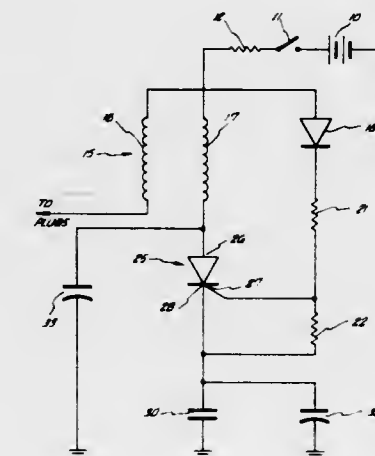
ELECTRO-MECHANICAL SWITCHING SYSTEM

James L. Tanner, Reseda, and Bruno A. Rist, Northridge, both of Calif., assignors to Tanner Electronic Systems Technology Inc., Northridge, Calif.

Filed Nov. 8, 1971, Ser. No. 196,438
Int. Cl. F02p 1/00

U.S. Cl. 123—148 E

5 Claims



An electronic switching system having particular utility in ignition systems for internal combustion engines is disclosed. A silicon controlled rectifier in series with the inductor coil and breaker points is utilized to isolate the breaker points from the ignition coil and to carry out the make and break functions. Should the SCR fail as by shorting, the ignition system will continue to operate as a conventional ignition system.

3,741,185

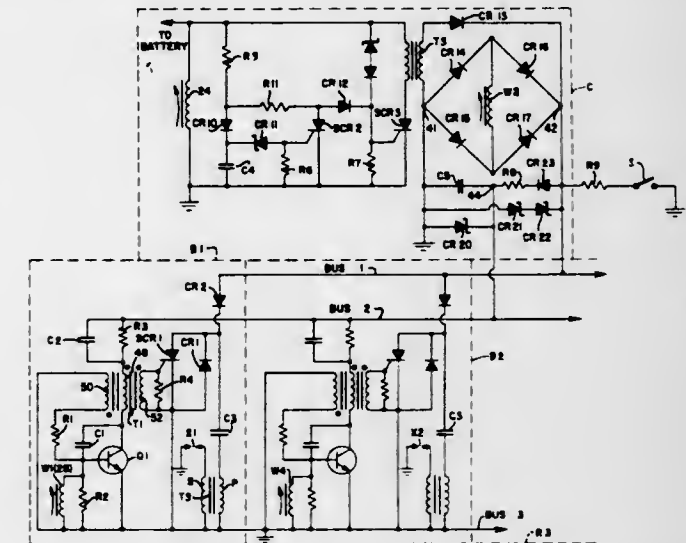
CAPACITOR DISCHARGE IGNITION SYSTEM

Thomas E. Swift, West Springfield, and Elwin J. Brayley, East Longmeadow, both of Mass., assignors to Eltra Corporation, Toledo, Ohio

Filed July 6, 1971, Ser. No. 159,610
Int. Cl. F02p 3/06

U.S. Cl. 123—148 E

9 Claims



A flywheel alternator with permanent magnet energization is disclosed for general power purposes which has combined with it charging means for a capacitor or capacitors for a capacitor-discharge distributor-less ignition circuit or circuits suitable for use with single or multiple cylinder engines, wherein separate trigger coils are energized by a separate permanent magnet rotated with the flywheel to control the timing in the ignition circuit or circuits. The separate permanent magnet energizing the trigger coil or coils is provided with an automatic ignition advance device, which changes the ignition timing in accordance with variations in speed.

3,741,186

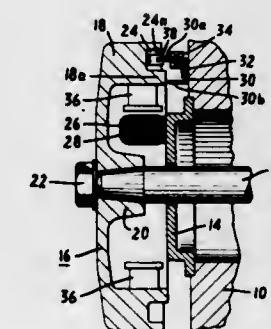
ELECTRIC GENERATOR FOR SPARK IGNITED ENGINE

Hitoshi Doi, Ukyo-ku, Kyoto, Kyoto Prefecture; Yoshihisa Honsyo, and Masanori Uetani, both of Himeji, Hyogo Prefecture, all of Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha and Mitsubishi Denki Kabushiki Kaisha, both of Tokyo, Japan

Filed Dec. 18, 1970, Ser. No. 99,633
Int. Cl. F02p 1/00

U.S. Cl. 123—149 R

8 Claims



A cup-shaped rotor is provided on the inner wall with plural permanent magnets and on the annular end with an annular groove. With the rotor rotated in synchronism with the operation of an engine the magnets successively pass past a stationary coil forming a part of a capacitor discharge system for generating the electrical power to produce the spark while a permanent magnet disposed within the groove periodically passes past another stationary coil to generate a voltage permitting the spark to be produced to ignite the engine.

3,741,187

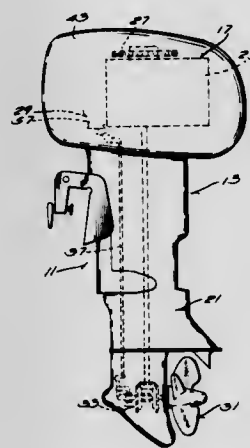
ENGINE STARTER MECHANISM

Bernard R. Niebur, Waukegan, Ill., and Thomas W. Peters, Kenosha, Wis., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed May 3, 1972, Ser. No. 250,041
Int. Cl. F02n 15/06, 11/10

U.S. Cl. 123—179 K

17 Claims



Disclosed herein is a marine propulsion device comprising an engine starter including a rotatably mounted shaft and a pinion carried by the shaft for movement relative to the shaft and relative to an engaged position in mesh with an engine starting gear, and cooperating, selectively operable means on the shaft and pinion for displacing the starter pinion to the engaged position in response to shaft rotation and for preventing movement of the starter pinion to the engaged position, notwithstanding shaft rotation. In one embodiment, there is included a linkage connecting the selectively operable means to a transmission shiftable between a neutral condition and a drive condition and operable to selectively operate the cooperating means on the shaft and the pinion for displacing the starter pinion to the engaged position and for preventing movement of the starter pinion to the engaged position.

3,741,188

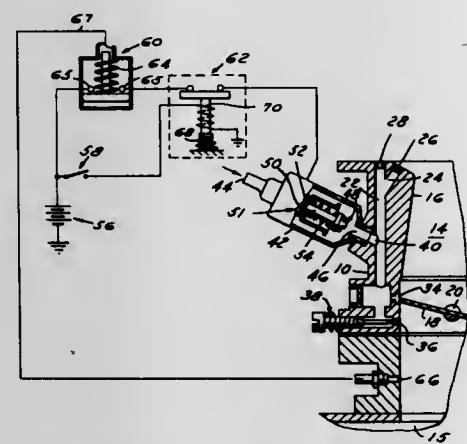
CARBURETOR IDLE SYSTEM AIR BLEED

Roger E. Rickey, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Dec. 3, 1971, Ser. No. 204,616
Int. Cl. F02m 19/12, 1/14; F02d 33/00

U.S. Cl. 123—198 DB

3 Claims



The carburetor idle system air/fuel channel has an additional air bleed that is opened and closed by an electrically controlled valve that is initially opened upon engine shutdown to bleed the idle channel fuel signal, to terminate fuel flow, and subsequently closed in response to engine vacuum decay, to recondition the idle channel for normal operation.

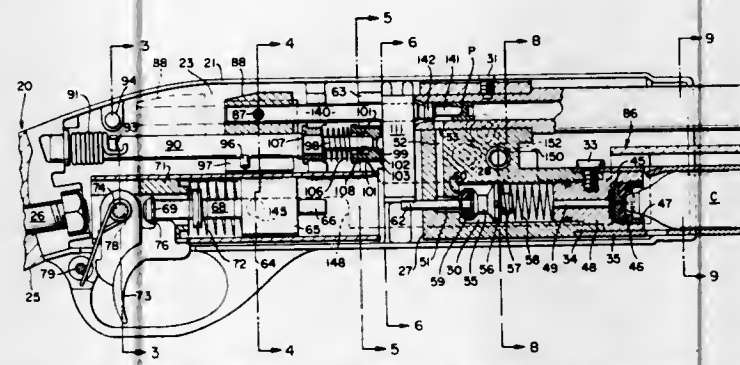
**3,741,189
GAS-OPERATED PELLET GUN WITH REMOVABLE CLIP LOADER**

Charles E. Kester, Fairport, and Thomas E. Hughes, Palmyra, both of N.Y., assignors to Crosman Arms Company, Inc., Fairport, N.Y.

Filed Mar. 29, 1971, Ser. No. 128,910
Int. Cl. F41b 11/06

U.S. Cl. 124—11 R

6 Claims



This gun is adapted to fire pellets from a cartridge clip, which carries several pellets. Each clip has a rotary cylinder, that has a plurality of chambers, and each chamber holds a pellet. In addition, each clip may be removed from the gun through an opening in the gun housing. When a clip is put in the gun a face coupling member on its cylinder engages with face coupling teeth on a counterpart coupling member that is connected to the manually operable bolt of the gun. The bolt on each retracting movement indexes the clip cylinder to bring a new pellet into registry with the gun barrel, and on each advancing movement pushes the new pellet into the barrel. On each retracting movement the bolt also cocks a trigger-releasable hammer. When the trigger is pressed to release the hammer, the hammer opens a valve to permit a supply of compressed gas to flow in behind the pellet in the gun barrel to drive (fire) the pellet from the gun.

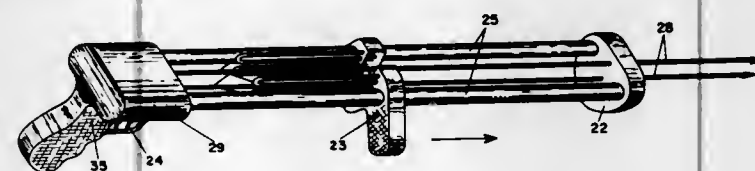
3,741,190

DOUBLE LOADED SPEAR GUN

Walfrido R. Lopez, 24-46 44th St., Astoria, N.Y.
Continuation-in-part of Ser. No. 879,766, Nov. 25, 1969, abandoned. This application Apr. 7, 1971, Ser. No. 132,006
Int. Cl. F41b 7/04

U.S. Cl. 124—22

8 Claims



A spear gun for supporting and firing two spears. The spear gun has a rear most portion supporting the nocked ends of the spears. The above mentioned rear most portion houses a trigger mechanism which selectively releases each of the two spears. The spears are propelled by resilient members which have ends anchored to a movable guided foot member that is moved forwardly along guides to a forward most position, during tensioning of the resilient members, where it is releasably attached to the spears' forward support member.

3,741,191

GLYCIDAMIDES FOR INDUCING A HYPNOTIC RESPONSE

Carolyn M. Quick, Manteca, Calif., assignor to Shell Oil Company, New York, N.Y.
Division of Ser. No. 5,109, Jan. 22, 1970, Pat. No. 3,646,211.
This application Oct. 8, 1971, Ser. No. 187,882
Int. Cl. A61k 27/00

U.S. Cl. 424—278

4 Claims

2-Phenylglycidamides such as 3-chloro-2-(2,4-dichlorophenyl) glycidamide, are described. The compounds

have utility in the polymer field and also possess useful biological activity.

3,741,192

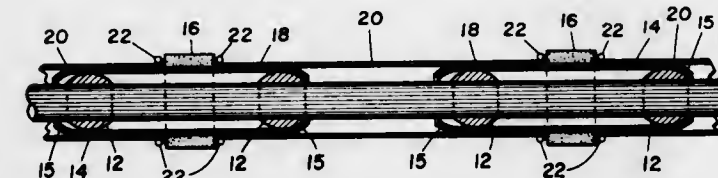
ABRASIVE CABLE SAW CUTTING MEMBER

Ralph L. Avery, Cheektowaga, N.Y., assignor to The Carborundum Company, Niagara Falls, N.Y.

Filed Jan. 21, 1972, Ser. No. 219,815
Int. Cl. B28d 1/08

U.S. Cl. 125—21

8 Claims



A cable saw in which the cutting members are abrasive bodies bonded to short sections of tubes. The ends of the tubes are swaged over spherical bodies attached to the cable so that the cable may float within the tubular cutting members during operation. The spaces between cutting members are bridged by flexible sleeves which protect the cable from loose abrasive particles.

3,741,193

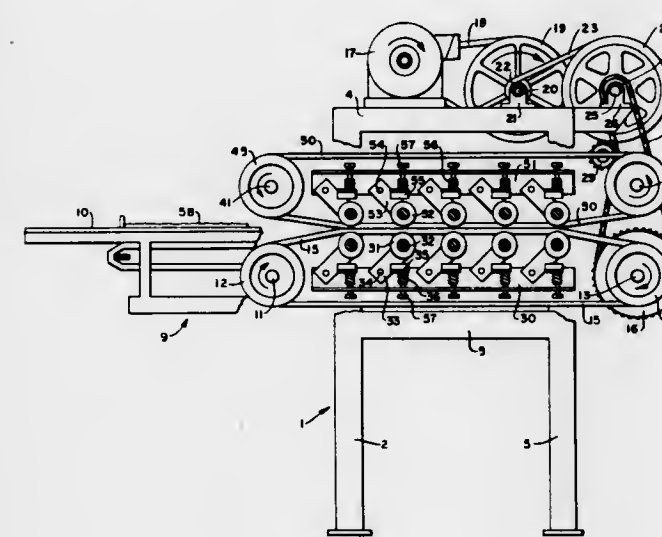
SLATE TRIMMING MACHINE

Joel M. Le Sueur, Arvon, and Everet M. Blauvelt, Bremond, both of Va.

Filed Apr. 8, 1968, Ser. No. 719,571
Int. Cl. B28d 1/32

U.S. Cl. 125—23 T

8 Claims



Method and machine for trimming slate chips to predetermined size for use as shingles, etc. The generally planar chips are fed to and between contacting, yieldingly mounted runs of upper and lower pairs of power-driven conveyor belts and, while under translation by and between the belt runs, move between two opposite, axially spaced pairs of circular trimming blades. Each pair consists of parallel, contiguous upper and lower blades, respectively, having beveled peripheral edges and which are slightly axially offset and have their contiguous peripheral portions slightly overlapping. The chips are thus simultaneously trimmed along two opposite parallel edges, to have the same desirable appearance as hand-trimmed shingles.

3,741,194

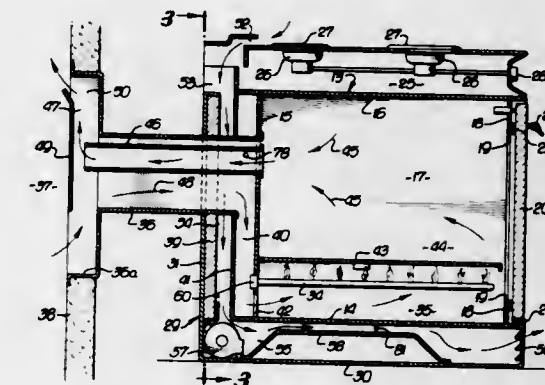
OVEN AND SPACE HEATER APPLIANCE

W. S. Herron, Rowland Heights, Calif., assignor to Ward & Son, Inc., City of Industry, Calif.

Filed June 2, 1971, Ser. No. 149,225
Int. Cl. F24c 3/00

U.S. Cl. 126—85 B

10 Claims



Combination oven and space heater apparatus usable on a trailer or like vehicle comprises: an oven chamber containing a gas burner; multiple passage means providing a first passage for air supply from the trailer exterior to the burner, a second passage for conducting combustion products flowing to the trailer exterior, and a third passage for conducting trailer interior air in heat receiving relation to the oven chamber and then back to the trailer interior; and means to control combustible gas delivery to the oven burner in response to temperature conditions in the oven, thereby to maintain the oven chamber temperature within a predetermined range to control heating of trailer interior air to desired level.

3,741,195

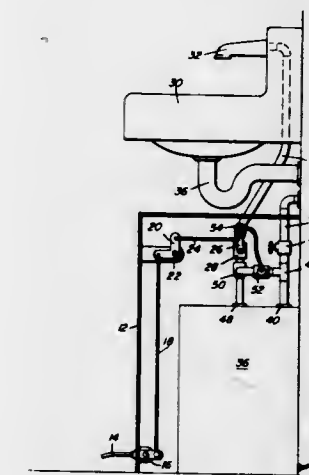
THERMOSTATICALLY CONTROLLED WATER SUPPLY SYSTEM

Sloan E. Ellis, San Saba, Tex., assignor to San Saba Development Association, San Saba, Tex.

Filed Oct. 13, 1971, Ser. No. 188,868
Int. Cl. G05d 23/13

U.S. Cl. 126—362

5 Claims



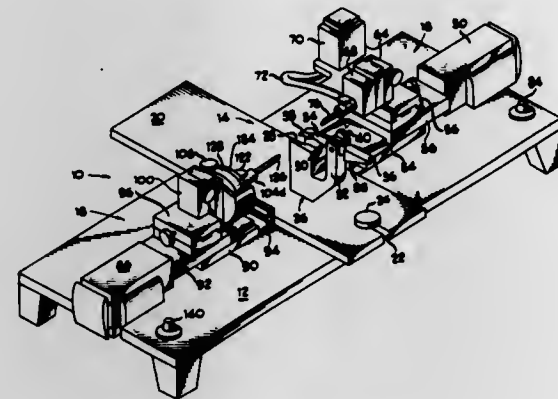
A compact, thermostatically controlled water supply system comprising a water heater for supplying hot water through an outlet to a junction with an incoming cold water supply line and a delivery pipe, a flow valve located in one of the lines responsive to the temperature of water flowing through the delivery pipe to control the ratio of cold and hot water mixed at the junction, and pedal-actuated valve in the delivery pipe to permit the flow of mixed water to the lavatory.

3,741,196

ANIMAL ORGAN EXTRACTION DEVICE
 Edwards H. Veech, 105 Poquito Road, Shalimar, Fla.
 Filed Feb. 22, 1972, Ser. No. 227,893
 Int. Cl. A61b 10/00

U.S. Cl. 128-1 R

13 Claims



An animal organ extraction device including an animal retaining clamp, a discharge probe movably mounted on one side of the clamp and connected to a source of gas under pressure, and a receiving probe movably mounted on the other side of the animal for receiving an organ discharged responsive to application of gas pressure through the discharge probe.

3,741,197

PERCUSSION APPARATUS FOR BLOOD SAMPLING
 Manuel C. Sanz, Grand Lancy, Geneva, and Georges Revillet, Onex, Geneva, both of Switzerland, assignors to Micromedia Systems, Inc., Philadelphia, Pa.

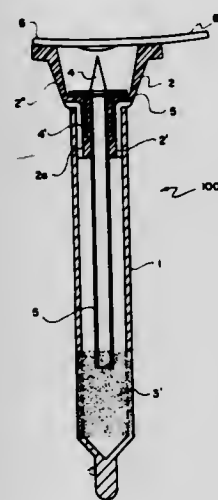
Filed Sept. 3, 1971, Ser. No. 181,423

Claims priority, application Switzerland, Sept. 4, 1970, 13352/70

Int. Cl. A61b 5/14

U.S. Cl. 128-2 F

8 Claims



An apparatus for taking blood samples which involves strapping a blood collector tube to the part of the body from which the sample is to be taken. The blood collector tube has a resilient collapsible funnel which, when compressed, allows a lancet to puncture the dermis and epidermis. A striker member is placed on the end of the tube and a piston, normally held in a spring compressing position by a latch is released thus allowing the spring to impact on the base of the tube, compressing the funnel member and allowing the lancet to puncture the skin.

3,741,198

RADIOLOGICAL DIAGNOSTIC METHOD
 Charles Burton, Gladwyne, Pa., assignor to Temple University, Philadelphia, Pa.
 Filed Oct. 12, 1971, Ser. No. 188,337
 Int. Cl. A61b 5/00

U.S. Cl. 128-2 A

11 Claims



A radiological diagnostic method is provided in which a radiopaque ferrofluid is injected into a body system which is to be studied, such as the subarachnoid space surrounding the spinal cord. The ferrofluid is then transferred through the body system by applying a magnetic force to the ferrofluid. The portions of the body system of particular interest are radiographically or fluoroscopically examined while the ferrofluid is present in these areas. The ferrofluid is thereafter removed by drawing it back to the point of introduction and removing it from the body system. The diagnostic method of this invention is especially useful in myelographic studies.

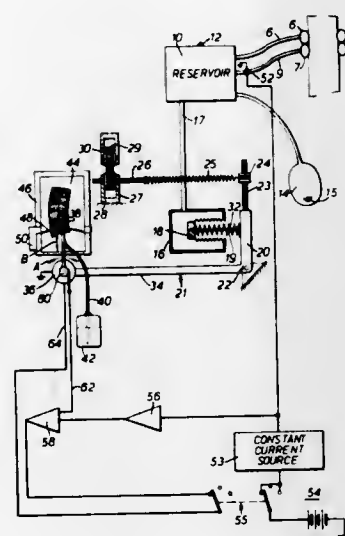
3,741,199

CLINICAL BLOOD PRESSURE MEASURING APPARATUS
 John E. Sharpe, London, England, assignor to Wilkinson Sword Limited, London, England
 Filed Sept. 29, 1971, Ser. No. 184,666
 Claims priority, application Great Britain, Oct. 7, 1970, 47,740/70

Int. Cl. A61b 5/02

U.S. Cl. 128-2.05 M

10 Claims



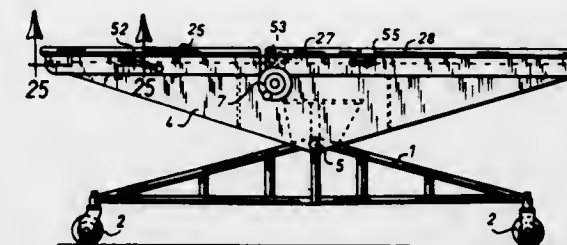
A pair of inflatable cuffs, for encircling a patient's limb, are connected to a reservoir and pumped up above the systolic pressure. The reservoir and cuff pressure is allowed to leak controllably and, via a bellows arrangement, the falling pressure turns a pivotal arm whose distal end carries an electric motor. A recording pen extends radially from the motor shaft and moves along a pressure axis on a chart as the arm pivots. When the falling pressure reaches the systolic level, blood pulsations generate pneumatic pulses in the cuffs which are electrically detected by an anemometer and cause the motor shaft to oscillate, providing transverse pen movement. Such oscillations diminish when the falling pressure reaches the diastolic level.

3,741,200

ORTHOPEDIC TREATMENT TABLE
 Henri Morin, 7582 Liseux Street, Montreal, Quebec, Canada
 Filed Oct. 20, 1971, Ser. No. 190,714
 Int. Cl. A61f 5/00

U.S. Cl. 128-71

25 Claims



An orthopedic treatment table conceived to be operated by the patient himself and arranged to effect spinal traction by the action of gravity on the body of the patient supported in recumbent position on a plurality of table top sections, all slidably mounted onto an angularly elevatable frame relative to a supporting base. Crank-operated latches are provided to lock any table top section to an adjacent table top section relative to the frame, such that the table top sections can be variably connected relative to each other.

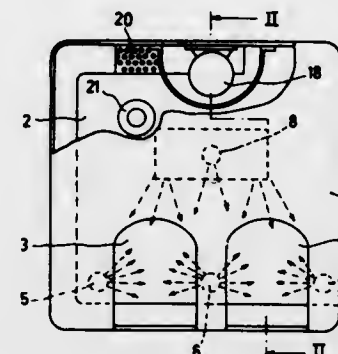
3,741,201

FOOT CARE APPARATUS
 Benjamin Hijman Oudkerk, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
 Filed Nov. 17, 1971, Ser. No. 199,434
 Claims priority, application Netherlands, Nov. 19, 1970, 7016930

Int. Cl. A61h 9/00

U.S. Cl. 128-66

5 Claims



Foot care apparatus having a foot treatment chamber in which liquid spray nozzles are arranged. Pressurized liquid is supplied to the nozzles by a liquid pump. The liquid is directed by the nozzles against the feet in the foot treatment chamber, resulting in a foot massage effect. The liquid is collected in a collecting chamber and re-supplied to the pump for recirculation.

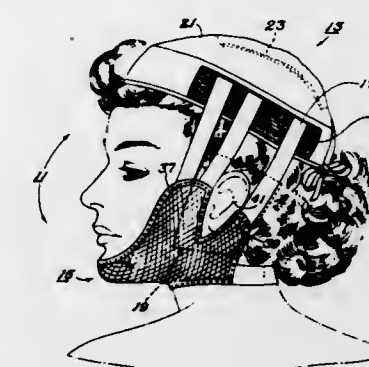
3,741,202

NON-SLIP RETENTION MEANS FOR USE ON A WEARER'S HEAD
 Willis Ema Morgan, 4225 Birchman Avenue, Fort Worth, Tex.
 Continuation-in-part of Ser. No. 58,435, July 27, 1970, abandoned. This application Nov. 8, 1971, Ser. No. 196,385
 Int. Cl. A61f 5/08

U.S. Cl. 128-76 B

14 Claims

A non-slip head gear and a retainer employing the same, the head gear being characterized by a cap means having a hook strip on its interior surface with its tiny hooks protruding interiorly for engagement with the hair of the wearer and having an exterior strip of pile strap with its loops protruding exteriorly for receiving mating hook strips that are connected with other elements such as a retainer body. The retainer body is characterized by net material that is elastic along the fiber of the net and is even more elastic along the bias of the fiber for conforming to irregular contours. Also disclosed are preferred embodiments in which the exterior strips of pile strap are exten-



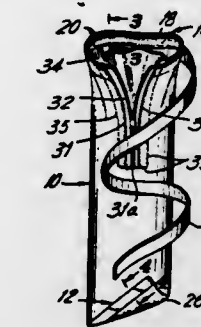
tensive enough to allow attachment of a wide variety of hook strip configurations; wherein a plurality of hook strips are fixedly disposed at predetermined locations for a predetermined hook strip configuration; and wherein neck straps are attached to the retainer body for tensioning it rearwardly toward the rear of the neck, the neck straps having mating hook strips and pile straps on their respective free ends.

3,741,203

PROTECTIVE COVERING
 Peter C. Liman, Scarsdale, N.Y., assignor to Dryspell Industries Inc., New York, N.Y.
 Filed Dec. 22, 1971, Ser. No. 210,984
 Int. Cl. A61f 13/00

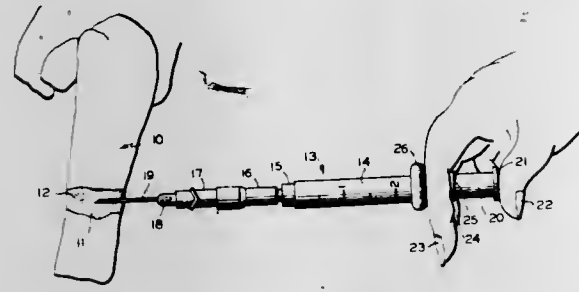
U.S. Cl. 128-82

7 Claims



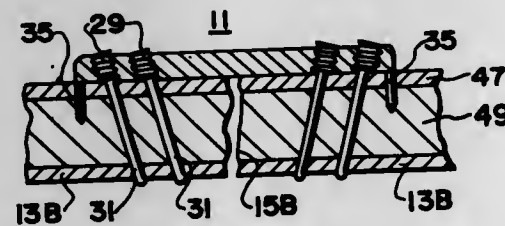
A protective covering is provided for encasing an injured body limb and preventing water or other harmful contaminants from contacting a wound, its bandaging, or a cast. The covering includes a sheet of synthetic limp flexible plastic forming a bag having an open mouth. The mouth is sealed to the skin of the injured limb at a point spaced from the wound and remote from the free end of the limb by a spongelike elastomeric foam layer which is attached to the interior of the bag near the mouth. Attached adjacent the mouth of the bag is a flexible tape which is wrapped about the exterior of the bag to insure a substantially water-tight and air-tight seal between the bag mouth and the skin. Optionally provided is a valve between the interior and exterior surfaces of the bag enabling the bag to be inflated, thus minimizing contact with the wound. The bag may be inflated with oxygen or any gas prescribed to facilitate healing. To adjustably accommodate for various lengths of a limb with either a bandage and/or a cast, an adhesive strip is affixed to the bag adjacent the closed end. The closed end may be folded back, shortening the overall length of the bag, until the desired length is attained whereupon the adhesive strip is secured to a side of the bag to maintain the closed end in its folded over position.

3,741,204
METHOD OF TREATING BONE FRACTURES AND NON-UNIONS
 Geraldine H. Thiele, Glen-Haven Farm, Route 1, Box 12, Windber, Pa.
 Filed Feb. 8, 1971, Ser. No. 113,362
 Int. Cl. A61f 5/00; A61b 17/04
 U.S. Cl. 128—92 R 14 Claims



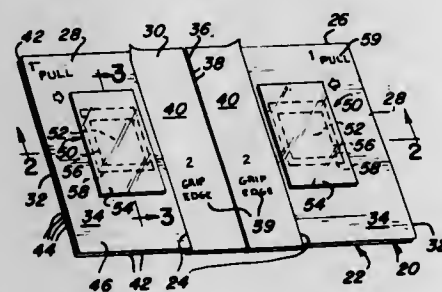
Fractures and nonunions of bones are more readily healed without muscle atrophy, etc., by injecting a liquefied composition containing a non-necrotic vascular sclerosing agent into the site of the fracture or nonunion. No cast is used. The preferred non-necrotic vascular sclerosing agent is sodium morrhuate.

3,741,205
BONE FIXATION PLATE
 Keith L. Markolf, 2701 Ridge Road, No. 202, Berkeley, Calif., and Norman M. Harris, 39 Crest Road, Piedmont, Calif.
 Filed June 14, 1971, Ser. No. 152,604
 Int. Cl. A61f 5/04
 U.S. Cl. 128—92 B 1 Claim



A device for immobilizing adjacent bones or bone fragments or affixing prostheses or orthopaedic structures to a bone, comprising a rigid plate having pin means removably secured therein so as to extend from the plate at an angle with respect to each other and the plate, whereby, upon insertion of the pins into a bone, the plate and pin assembly will hold the bones, bone fragments, orthopaedic structures, or prostheses in a fixed position.

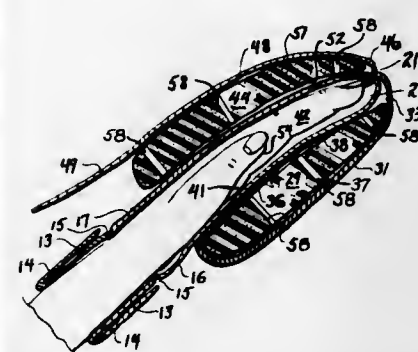
3,741,206
FENESTRATED DRAPE
 William J. Binard, and John F. Dye, both of Barrington, Ill., assignors to The Kendall Company, Walpole, Mass.
 Filed July 29, 1971, Ser. No. 167,196
 Int. Cl. A61f 13/00
 U.S. Cl. 128—132 D 24 Claims



A fenestrated drape comprising a sheet of flexible material. The sheet has a pair of longitudinally extending side edges, a

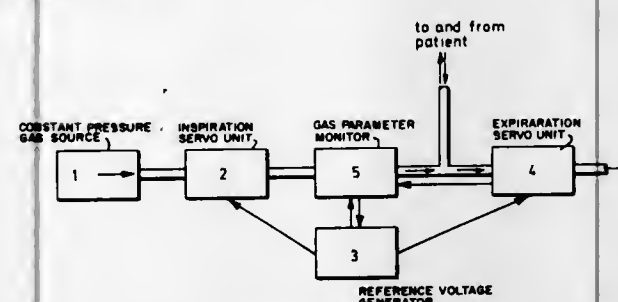
pair of laterally extending end edges connecting the side edges, a first surface for contacting a patient's body after placement of the drape, and a second surface which faces away from the patient after placement. A pair of longitudinally extending fold lines in the sheet define a pair of side panels which are folded against a central panel, extending between the longitudinal fold lines, with the second surface of the side panels facing the second surface of the central panel. A plurality of fold sections are defined by at least one laterally extending fold line in the longitudinally folded sheet, and at least one fold section, which extends from an end edge, has side panels facing outwardly from the laterally folded sheet. The drape also includes adhering means on the side panels of the one fold section to secure the sheet to the patient, with the adhering means having adhesive facing outwardly from the laterally folded sheet.

3,741,207
HAND RESTRAINING MITT
 Edith Gale Fuson, 2520 Carmichael Way, Carmichael, Calif.
 Filed Apr. 14, 1971, Ser. No. 133,783
 Int. Cl. A61f 5/37
 U.S. Cl. 128—133 7 Claims



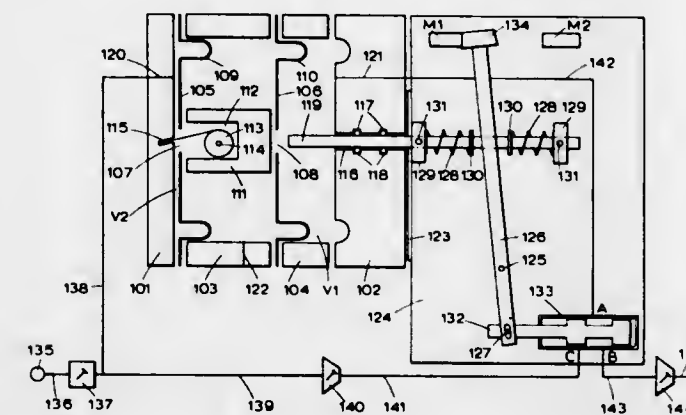
For use by arthritics or patients whose thumb and fingers on both hands need to be restrained to prevent harm a mitt has a snugly fitting cuff with a security strap. At least the palm side of the mitt includes a chamber either inflated with air or filled with a resilient block of foam-like material with the palm side shaped to conform to the natural curvature of the wearer's hand. For maximum comfort and restraint, a comparable pocket structure is formed on the back side of the mitt to receive a pad serving to support the back of the wearer's hand.

3,741,208
LUNG VENTILATOR
 Bjorn Jonsson, Stavgatan 19, Lomma; Sven Ingelstedt, Nehrmanstagen 24, Lund, and Sven Gunnar Olsson, Lillherbyvägen 10A, Sollentuna, all of Sweden
 Continuation-in-part of Ser. No. 749,205, July 31, 1968, abandoned. This application Feb. 23, 1971, Ser. No. 117,889
 Int. Cl. A61m 16/00
 U.S. Cl. 128—145.6 14 Claims



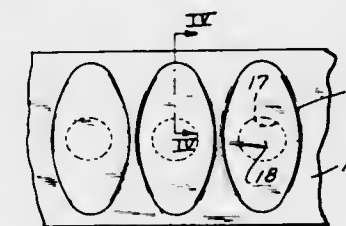
A lung ventilator is provided with means for controlling the magnitude of a variable of the flow of respiratory gas in the inspiration line or in the expiration line or in both of them and means for automatically modulating said control means in response to the instantaneous magnitude of said variable of said flow thereby maintaining a desired pattern of said magnitude of the flow.

3,741,209
MEDICAL RESPIRATORS
 Barry John Kipling, Cambridge, England, assignor to Pye Limited, Cambridge, England
 Filed Dec. 30, 1970, Ser. No. 102,852
 Claims priority, application Great Britain, Apr. 7, 1970, 16,339/70
 Int. Cl. A61m 16/00
 U.S. Cl. 128—145.8 1 Claim



A medical respirator having switching means to control flow of patient gas from a pressure source through a control means into a variable volume during an expiration period of the respirator and from the variable volume to the patient through restrictive means during an inspiration period. The gas container is divided into two volumes by a movable member, the first volume being variable and the ratio of volumes varying with the position of the movable member. Gas for the patient is expelled from the first volume during part of the inspiration period by decrease of the capacity of the first volume as a result of the movement of the movable member caused by the pressure of the patient gas in the second volume.

3,741,210
SURGICAL PADS
 John Johnston, Michigan City, Ind., assignor to Scholl, Inc., Chicago, Ill.
 Division of Ser. No. 865,604, Oct. 3, 1969, abandoned: This application Sept. 22, 1971, Ser. No. 182,746
 Int. Cl. A61f 5/30
 U.S. Cl. 128—153 4 Claims



Surgical pads for relieving the pain of corns, callouses, bunions, abrasions, etc., which pads are made of thermoplastic chemical foam and each having an affliction-receiving cavity pressed into the body of the pad from the underface of the pad.

3,741,211
FINGER MOUNTED NEEDLE ASSEMBLY WITH MANIFOLD
 Walling D. Vreeland, Jr., 3910 Country Club Road, Winston-Salem, N.C.
 Filed Sept. 22, 1971, Ser. No. 182,650
 Int. Cl. A61m 5/32; A61b 17/20
 U.S. Cl. 128—221 6 Claims

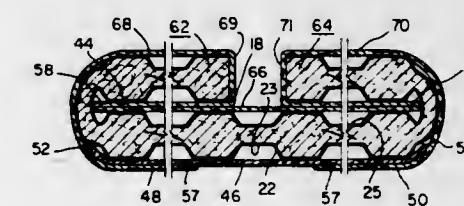
A needle designed for medical injections which can be inserted prior to actuation into one or more body orifices. The first embodiment includes an arcuately shaped guide and

slidably contained needle conforming generally to but not beyond the injection operator's extended finger wherein the needle may be retracted into the guide to avoid piercing flesh while being positioned for injection and extended from the guide when injection is desired. A second embodiment includes a U-shaped manifold conforming to the injection operator's extended finger having a spring-biased protective rib covering one or more downwardly extending needles com-



municating with the manifold so that the needles can be isolated from body tissue until the needle is in position for injection at which time the operator's finger may be flexed to extend the needles through apertures in the rib for penetration into the adjacent tissue. Both embodiments require attachment to one or more syringes for operation by the free hand of the injection operator once the needle has been positioned at the location where injection is desired.

3,741,212
DIAPER SYSTEM AND ABSORBENT PAD THEREFOR
 Richard W. Schutte, Newton Square, Pa., assignor to Scott Paper Company, Delaware County, Pa.
 Filed Aug. 2, 1971, Ser. No. 168,133
 Int. Cl. A61f 13/16
 U.S. Cl. 128—287 15 Claims



A diaper system having an elongate, fluid impervious pad-retaining garment and an elongate, disposable absorbent pad removably retained in the garment. The elongate, disposable absorbent pad includes an absorbent layer disposed within a covering envelope having a porous, elongate, adhesively bonded, fibrous facing cover web, and a backing cover web of a wet-strength paper stock. The absorbent layer includes a fluff batt of cellulosic fibers, and a lower layer of creped paper wadding disposed adjacent the bottom face of the fluff batt and having a transverse dimension at least substantially equal to the transverse dimension of the fluff batt. The facing cover web overlies a facing surface of the absorbent layer and has elongate side margins extending around elongate sides of the absorbent layer and overturned upon, and secured to the backing cover web. The backing cover web has a lower wet-cross-direction energy absorption level than the facing cover web, a higher wet-cross-direction energy absorption level than the lower layer of creped paper wadding, and is less permeable to the passage of urine than the facing cover web and the lower layer of creped paper wadding. Side regions of the absorbent pad include the absorbent layer and are infolded to define side panels having upper exposed surfaces defined by portions of the facing cover web. The backing cover web has elongate side margins terminating short of the infolded side regions so that the backing cover web is not disposed to underlie the portions of the facing cover web defining the upper exposed surfaces of the side panels.

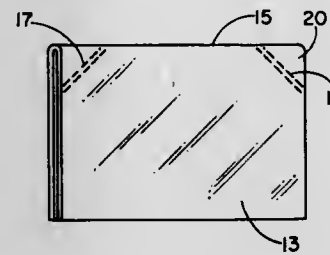
3,741,213 PREFOLDED DISPOSABLE DIAPER

Dan D. Eadres, Memphis, Tenn., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Jan. 3, 1972, Ser. No. 214,824

Int. Cl. A61f 13/16

U.S. Cl. 128—287



A disposable diaper of rectangular configuration is transversely folded on itself. Portions of the surfaces which contact each other, when the diaper is in folded condition, are joined together near each edge in an area spaced a predetermined distance away from the transverse foldline.

3,741,214 VARICER BOUGIE

Hans Tillander, Goteborg, Sweden, assignor to Astra-Medtec AB, Goteborg, Sweden

Filed Jan. 15, 1971, Ser. No. 106,728

Claims priority, application Sweden, Jan. 28, 1970, 1032/70
Int. Cl. A61m 29/00; A61b 17/00

U.S. Cl. 128—303 R



A disposable varicer bougie comprising a flexible and tensile strength wire-like device having vein stripping means affixed to its rear end. The wire-like device has a front end which is helically shaped, preferably with a specified pitch, and preferably terminating in a tapered portion.

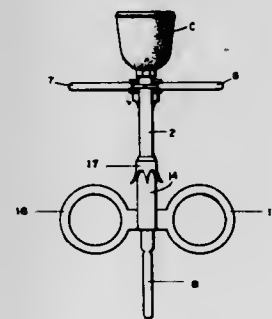
3,741,215 INSTRUMENT USED FOR CIRCUMCISION AYAD'S PREPUTOME

Fouad Mohamed Ayad, 166 Union Avenue, Warwick, R.I.

Filed May 12, 1971, Ser. No. 90,712

Int. Cl. A61b 17/32

U.S. Cl. 128—305



A surgical instrument for clamping the prepuce during the operation of circumcision has a finger operated sliding

prepuce engaging and stretching hooks on leg of a U-shaped frame and a scissor-like clamp on the outer leg for securing the prepuce during the operation.

3,741,216 CERVICAL CUFF

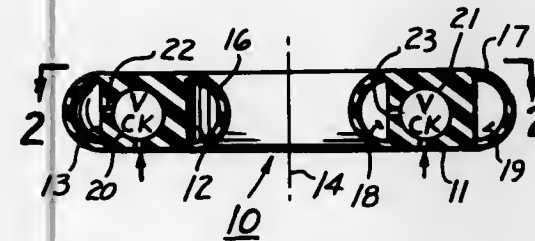
Edward E. Yosowitz, Wichita Falls, Tex., and Donald K. McGhan, Santa Barbara, Calif., assignors to Heyer-Schulte Corporation, Santa Barbara, Calif., by said McGhan

Filed Jan. 3, 1972, Ser. No. 214,541

Int. Cl. A61b 17/42

U.S. Cl. 128—346

9 Claims



A cervical cuff for holding closed an incontinent cervix, comprising a stiffly flexible substantially inelastic support ring having a central axis and an inner and an outer peripheral wall. The inner wall forms an opening to receive the neck of the cervix. A first and second elastic impermeable membrane extends around and is mounted to the inner and outer walls respectively so as to form a first and second laterally expandible chamber. Inflation of the chambers extends the membranes so that the inner membrane engages the cervical neck inside the opening, and the outer membrane engages body tissue surrounding and spaced from the cervical neck. The ring is thereby retained in the body and the neck is held closed inside the ring.

3,741,217 RETRACTABLE CLOSURE CAP

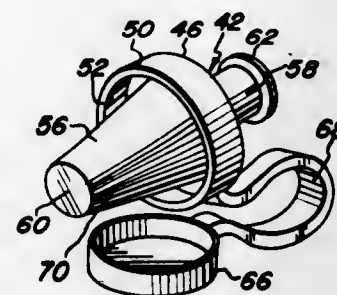
Anthony J. Clarico, Waukegan, Ill., assignor to The Kendall Company, Walpole, Mass.

Filed Aug. 17, 1971, Ser. No. 172,537

Int. Cl. A61m 25/00, 35/00

U.S. Cl. 128—349

9 Claims



A closure cap for an irrigation side arm in a liquid drainage system including a drainage lumen and a channel extending through the side arm and communicating with the drainage lumen. The closure cap includes an annular rim removably secured to the outer end of the side arm, a stem having a bottom end and a top end, and a flexible wall extending between the rim and the stem adjacent the bottom end of the stem. The stem is movable between an inner position with the bottom stem end and wall received in the side arm channel, and an outer position with the bottom stem end removed from the channel and the wall folded through the rim substantially out of the channel, with the stem having a sufficient length to extend beyond the rim in the inner position.

3,741,218 HEAT THERAPY APPARATUS

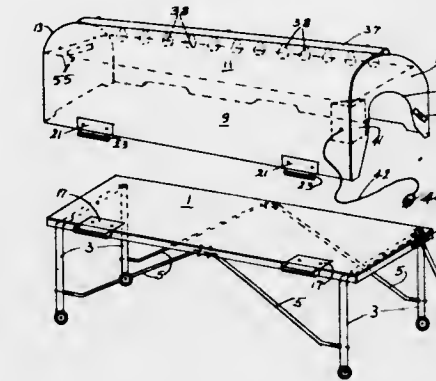
Kurt Novak, 3307 California Avenue, St. Louis, Mo.

Filed June 9, 1971, Ser. No. 151,176

Int. Cl. A61h 33/06

U.S. Cl. 128—373

8 Claims



Heat therapy apparatus includes a lightweight table and a downwardly open rigid hood demountably hinged to a side of the table to form, with the table, an enclosed treating chamber. The hood has a row of downwardly directed incandescent lamps mounted in sockets secured to its inner surface along its longitudinal center line. A reflector shield, preferably of generally parabolic transverse section is mounted on the inner surface of the hood behind the incandescent lamps so as to direct the light and heat from the lamps in substantially parallel rays downwardly to the table and its occupant. Preferably the hood is constructed of fireproof material, and a heat insulating shield of asbestos or equivalent material is interposed between the reflector and the hood wall. The incandescent bulbs are preferably of the three-way type, and are controlled by a suitable switch accessible to the occupant of the chamber for selectively varying their intensity. To protect the incandescent lamps from damage and to protect the occupant of the apparatus from direct contact with the lamps, a screen extends across the hood below the lamps.

3,741,219 GROUNDING PLACE OR ELECTRODE FOR ELECTROMEDICAL EQUIPMENT

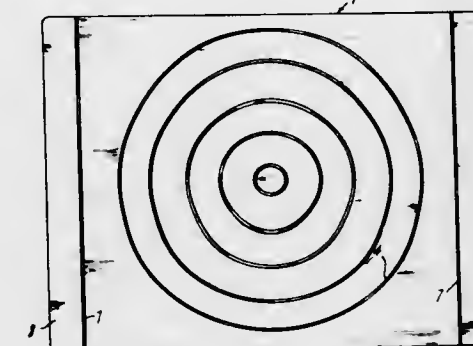
Robert W. Sessions, German Church Road, Hinsdale, Ill.

Filed Nov. 24, 1971, Ser. No. 201,910

Int. Cl. A61n 3/06

U.S. Cl. 128—417

4 Claims



A disposable ground plate electrode for effecting a connection of electromechanical equipment to the body of a patient by surface contact, particularly with the aid of a conductive gel, in which the conductive surface of the ground plate is provided with a series of ridges preferably concentric, which are adapted to engage such a body surface and are of a size and shape insufficient to cause discomfort but sufficient to form retaining means for a conductive gel disposed therein to localize spreading such a gel, resulting from relative movement between such a body surface and the ground plate.

3,741,220 CIGARETTE-MAKING APPLIANCE

Helmut Meinunger, Radevormwald, Germany, assignor to Gizeh-Werk G.m.b.H., Bergneustadt/Rhineland, Germany

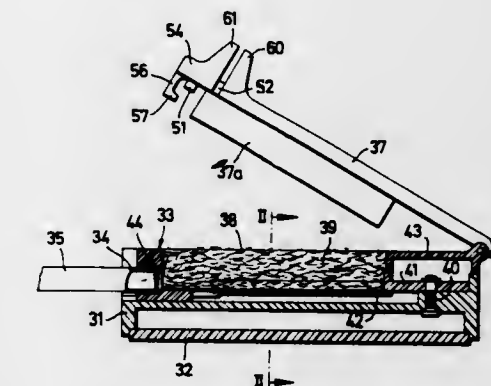
Filed Mar. 2, 1971, Ser. No. 120,196

Claims priority, application Germany, Mar. 2, 1970, P 20 09 678.0

Int. Cl. A24c 05/42

U.S. Cl. 131—70

3 Claims



A device for filling a tube of cigarette paper with tobacco to make a cigarette including a casing, a slide, a chamber for tobacco formed in the slide, a nozzle mounted on the slide and communicating with the chamber, a clamp for holding the tube of paper on the nozzle, compression means mounted on the slide wherein tobacco in the chamber can be compressed into a plug by the compression means, and by manually pushing on the slide portion to reduce the chamber capacity, the plug is forced through the nozzle into the tube of cigarette paper thus forming a cigarette. The compression means is provided with a locking component cooperable with the slide to hold the compression means in a compressing position.

3,741,221 TOBACCO SMOKING AND SMOKE PROCESSING DEVICE

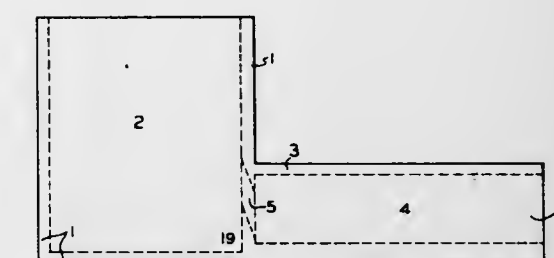
William W. Shisler, 778 Morning Street, Worthington, Ohio

Filed June 18, 1970, Ser. No. 47,204

Int. Cl. A24f 01/16

U.S. Cl. 131—210

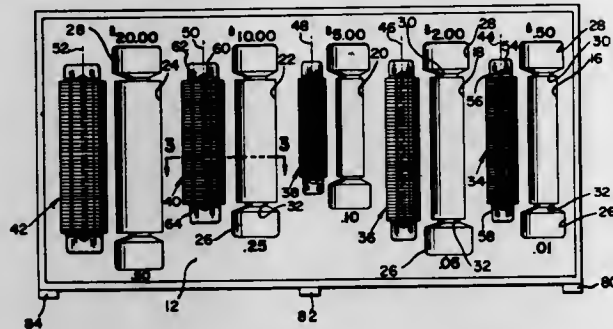
5 Claims



A tobacco pipe for smokers that is characterized by a housing consisting of an integral bowl and shank. The bowl has a liner having an apertured bottom spaced above the bottom of the bowl housing. A system of nesting cup-shaped apertured baffles is attached to the lower end of the bowl liner. The system also includes an apertured horizontal disc. The parts of the system are relatively rotatable so that alignment of the apertures can be varied to control the smoke flow rate and direction at the exit of the system. The shank housing includes a series of plural baffles, each series being arranged to provide overlapping direction changing concentric smoke ducts. The housing has an apertured wall between the bowl and the shank and the shank baffles are arranged to deliver smoke to and through a mouthpiece.

3,741,222
COIN HOLDER AND COUNTING DEVICE
 Elias Honesto, 128 Park Avenue, Apt. 3, San Francisco, Calif.
 Filed June 21, 1971, Ser. No. 154,728
 Int. Cl. G07d 9/00
 U.S. Cl. 133—8 C

2 Claims



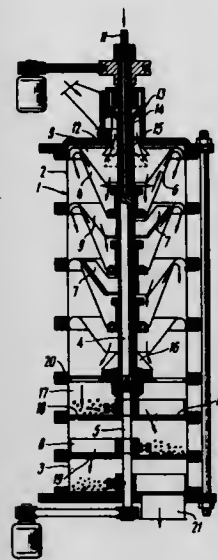
A coin receiving and holding board including an array of indicator segments pivotably mounted adjacent the coin-holding groove, such segments being maneuverable to contact the coins as may be stacked in such groove and thus provide positive, immediate, and error-free designation of the total value of the coins in the stack.

ERRATA

For Classes 134—171 and 134—58 see:
 Patents Nos. 3,741,806 and 3,741,808

3,741,223
DEVICE FOR LIQUID TREATMENT OF GRANULATED PRODUCTS
 Alexandr Alexandrovich Kavera, ulitsa Bryanskaya, 2a, kv. 35; Anatoly Anatolevich Nitkovskikh, pereulok Krupskoi, II, both of Krasnodar; Vladimir Andreevich Grigoriev, ulitsa Gerov-panfilovtsev, 13, kv. 40, Moscow; Arkady Borisovich Pashkov, Khoroshevskoe shosse, 74, korpus 3, kv. 56, Moscow, and Yakov Vulfovich Epshtein, ulitsa Per-vomaiskaya 85, kv. 10, Moscow, all of U.S.S.R.
 Filed Feb. 12, 1971, Ser. No. 114,866
 Int. Cl. B01f 7/16; B08b 3/08
 U.S. Cl. 134—191

7 Claims

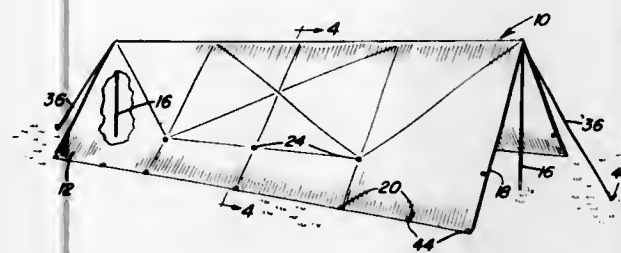


A device for liquid treatment of granulated products comprises a cylindrical housing accommodating a coaxially mounted shaft with stirrers, which shaft carries at least one cup, above which there is fixedly secured a guide with a central aperture, while the shaft is hollow within at least the section of one cup and is provided with radial holes for supplying the liquid.

3,741,224
SKELETON FRAME AND COVER SUPPORTED THEREFROM
 John J. Clelland, Rochester, N.Y., assignor to Carrie J. Degus, Rochester, N.Y., a part interest
 Filed Aug. 27, 1971, Ser. No. 175,611
 Int. Cl. A45f 1/00

U.S. Cl. 135—1 R

10 Claims

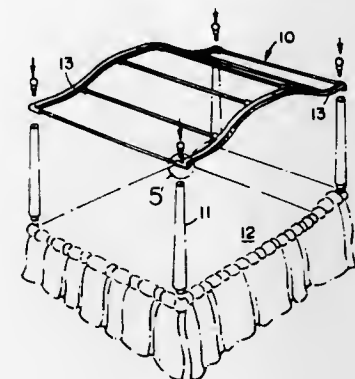


A flexible cover panel assembly generally rectangular in plan shape and including a center longitudinal fold zone along which the panel may be folded over an elongated horizontal ridge support member. The cover includes opposite end tension anchor points at least closely adjacent the opposite ends of the fold zone and at least two longitudinally spaced side tension anchor points spaced along the opposite side longitudinal marginal portions of the cover and appreciably inwardly from the side edges and end edges thereof, with a first reinforcing center tension member secured to the cover and extending between the end tension anchor points, a second transverse reinforcing tension member secured to the cover and extending between each pair of corresponding side anchor points and at least one pair of third crossed diagonal reinforcing tension members on each side of said fold zone secured to the cover and extending between the intersections of the two crossed tension members with the center tension member and the corresponding side anchor points. Further, opposite end support standards and a tension member extending and tensioned between the upper ends of the standards is provided for support of the panel therefrom with the latter folded over the support tension member and the end tension anchor points anchored relative to the support standards and the side tension anchor points anchored to the ground or other suitable anchor areas.

3,741,225
CANOPY FRAME FOR BED
 Kenneth H. Gunter, 3285 Dato, Highland Park, Ill.
 Filed June 14, 1971, Ser. No. 152,902
 Int. Cl. A47c 29/00

U.S. Cl. 135—5.2

1 Claim

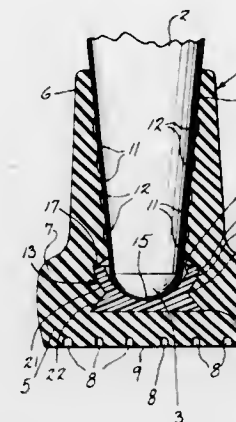


A canopy frame for a bed constructed of resilient plastic material in the longitudinally extending portions, and cross tie rods adapted to be dismembered for compact shipping and which are equipped with telescoping elements permitting adjustment for different lengths and widths of beds.

3,741,226
CRUTCH TIP WITH INSERT
 Ted F. Urban, Oshkosh, Wis., assignor to Lamico Inc., Appleton, Wis.
 Filed Sept. 30, 1971, Ser. No. 185,192
 Int. Cl. A45b 9/04

U.S. Cl. 135—62

1 Claim



A resilient rubber-like crutch tip is provided with a crutch socket having therewith a generally cup-shaped insert of rigid material. The insert provides a recess for receiving the end of a crutch or the like, with the recess having a non-convex central portion and an outwardly tapering upwardly extending rim portion. As the crutch is tilted during normal use, the crutch end will apply pressure to the insert rim portion which in turn spreads the downward and sideways force components through a large area of the flexible tip socket side walls. In addition, in the embodiment shown, a generally V-shaped annular channel or groove is disposed in the outer wall of the insert to reduce the tendency of the insert to tilt. The neck portion of the tip socket is provided with undulations forming lands and grooves, with the lowermost undulation being a land.

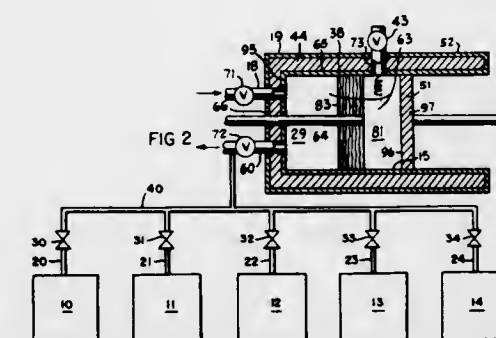
3,741,227
FLUID PRESSURE REGENERATOR AND PROCESS
 Raghunath Mokadam, Chicago, and Andrew A. Fejer, Oak Park, both of Ill., assignors to American Gas Association, Arlington, Va.

Filed Jan. 5, 1971, Ser. No. 104,009

Int. Cl. F02g 3/02

U.S. Cl. 137—1

2 Claims

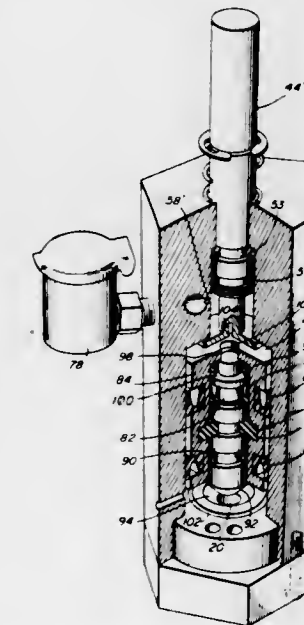


A fluid pressure regeneration process and apparatus useful in alternating high and low pressure cycle fluid systems comprising one or more valve means each of which in succession sequentially transfers into a series of storage vessels, each being isolated from the other and from the alternating fluid system by said valve means, successive fractional portions of the fluid exhausted from the alternating fluid system, during transition from the high pressure cycle to the low pressure cycle. Each such storage vessel has a different final pressure sequentially becoming lower with reduction of pressure in the alternating fluid system. Each isolated storage vessel contains and stores a fractional portion of the fluid. Recovery of the same fluid portions may be achieved by providing communication of each storage vessel with the alternating fluid system through each valve means in reverse sequence, thus transfer-

ring the fluid from the corresponding storage vessel into the alternating fluid system during transition from the low to the high pressure cycle. In this manner, fluid pressure may be stored and regenerated for use in alternating high and low pressure cycle fluid systems.

3,741,228
VALVE
 Moses Beden, 466 Union Street, Lynn, Mass.
 Filed Dec. 8, 1971, Ser. No. 205,949
 Int. Cl. F16k 25/00, 39/00
 U.S. Cl. 137—614.2

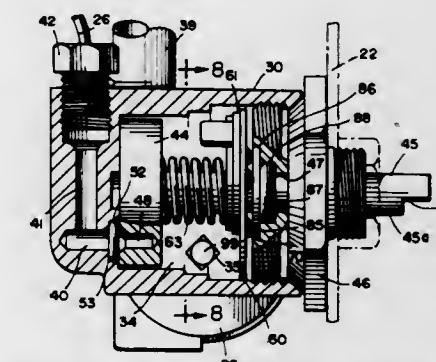
14 Claims



An improved valve includes a hollow valve body which contains slidably a floating piston. One end of the valve body includes inlet and outlet ports and the other end on the opposite side of the piston defines a fluid filled chamber. An axially slidable plunger extends through the valve body into the liquid filled chamber. As the plunger advances the pressure of the fluid in the chamber increases which urges the floating piston toward the inlet port to close it. A fail-safe feature is employed in that if the fluid leaks from the chamber, the continued advancement of the plunger will mechanically force the floating piston against the valve seat. In a modification of the valve a double concentric piston is employed to effect a multiple concentric seal. The valve also includes an improved check valve at the inlet port.

3,741,229
SAFETY CONTROL VALVE FOR PROPANE CATALYTIC HEATER
 Floyd O. Gruver, Jr., Wichita, Kans., assignor to The Coleman Company, Inc., Wichita, Kans.
 Filed July 6, 1971, Ser. No. 159,870
 Int. Cl. F23d 5/16; F16k 5/10
 U.S. Cl. 137—66

9 Claims



A safety control valve for propane catalytic heaters is provided which meters a desired amount of fuel to the catalytic heater head when the heater is operating but which prevents fuel flow when the heater is not operating. The valve includes

a casing in which a control shaft is rotatably mounted, the casing having a fuel inlet port and a fuel outlet port. An orifice plate is mounted on the shaft for rotation adjacent the outlet port and is provided with a plurality of different sized openings which are registrable with the fuel outlet port to regulate the amount of fuel being supplied to the heater. The shaft extends rotatably through a plate provided with position-indicating pockets which successively receive a ball bearing positioned within an opening in another plate which rotates with the shaft. The bearing is resiliently biased toward the position-indicating pockets by a presser plate which also includes an axially extending tang. The fuel inlet port is provided by a bore extending generally perpendicularly to the shaft, and a rod is slidably mounted within the bore and resiliently biased toward the shaft. A valve closure member is resiliently biased against a valve seat surrounding the inlet bore to close the bore, and when the shaft is rotated to the start position the tang engages the rod and pushes it against the valve closure member to open the inlet port. An electromagnetic power head is operatively connected to the valve closure member for holding the closure member in an open position when the catalytic heater is operating.

3,741,230

SELF-POWERED FEEDBACK-CONTROLLED VOLATILE LIQUID DISPENSING APPARATUS

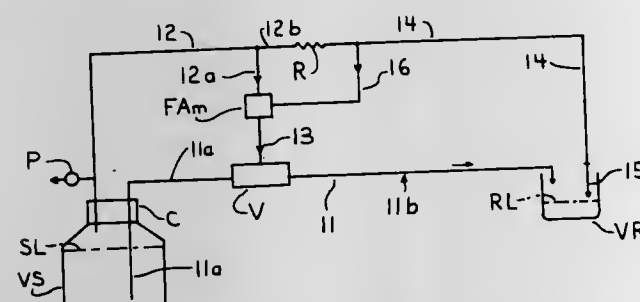
W. Edward Samuels, 3119 Essex Road, Cleveland Heights, Ohio

Filed Apr. 22, 1971, Ser. No. 136,512

Int. Cl. F15c 1/12

U.S. Cl. 137—81.5

7 Claims



Apparatus for dispensing a volatile, especially cryogenic, liquid utilizing the liquid's vapor pressure from a free gas space in a closed liquid storage vessel top region as a power source both for transferring the liquid to a receiver and for a fluidic control system sensing the liquid level in the receiver and controlling liquid transfer from the source.

3,741,231

FLUID FLOW REGULATOR FOR HYDROSTATIC BEARING PADS

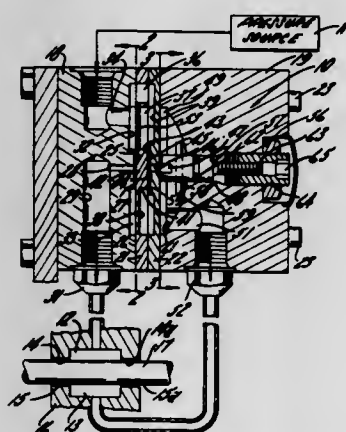
Jan Van Roojen, Rockford, Ill., assignor to The Ingersoll Milling Machine Company, Rockford, Ill.

Filed Jan. 12, 1972, Ser. No. 217,355

Int. Cl. G05d 11/00

U.S. Cl. 137—101

8 Claims



Equalization of the narrow widths of the fluid flow regulating gaps in a hydrostatic bearing system as shown in U.S. Pat.

No. 3,442,560 is facilitated by making the outer wall of one of the gaps flexible and providing for axial adjustment of such wall from the exterior of the assembly.

3,741,232

VALVE FOR EVAPORATIVE LOSS CONTROL

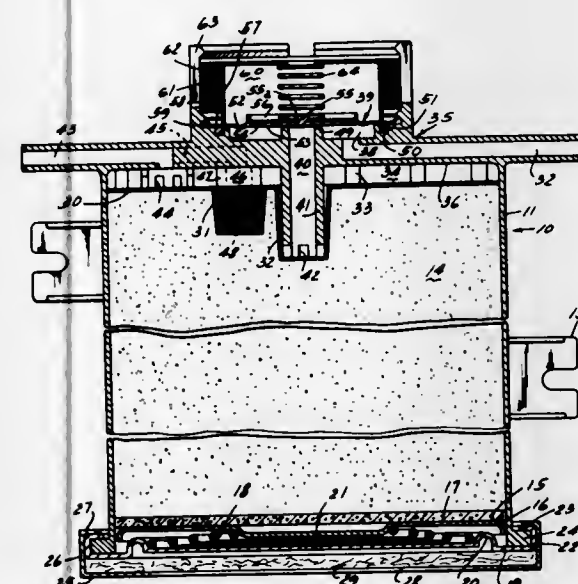
George A. Soberski, Des Plaines, assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

Division of Ser. No. 783,821, Dec. 16, 1968, Pat. No. 3,628,517. This application Oct. 12, 1970, Ser. No. 79,946

Int. Cl. G05d 7/00

U.S. Cl. 137—102

3 Claims



Diaphragm valve spring biased into a closed position and responsive to fuel tank vapor pressure to effect opening of valve, and to fuel tank vacuum as the valve is closed, to vent the tank to atmosphere.

3,741,233

LEAK PREVENTION SYSTEM FOR AN OIL PIPELINE

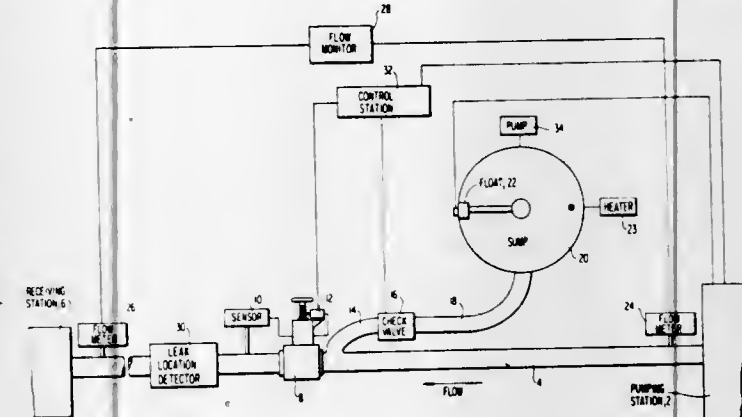
Raymond P. Smith, Jr., Williamsport, Pa., assignor to Craftmaster, Inc., Williamsport, Pa.

Filed Mar. 3, 1972, Ser. No. 231,480

Int. Cl. F04b 49/00

U.S. Cl. 137—117

14 Claims



A system for preventing leaks in an oil pipeline indicating the automatic valve which is closed in response to the detection of a leak in the pipeline. An oil sump is connected to the pipeline upstream from the automatic valve. When the automatic valve is closed due to a leak, a check valve is open due to the pressure of the oil in the pipeline and the oil flows into the sump. When the sump becomes filled, the pumping station stops pumping oil and the oil remains in the sump until the pipeline is repaired. After the line has been repaired, the automatic valve and check valve are opened and oil flows from the sump to a receiving station downstream.

3,741,234

VALVE

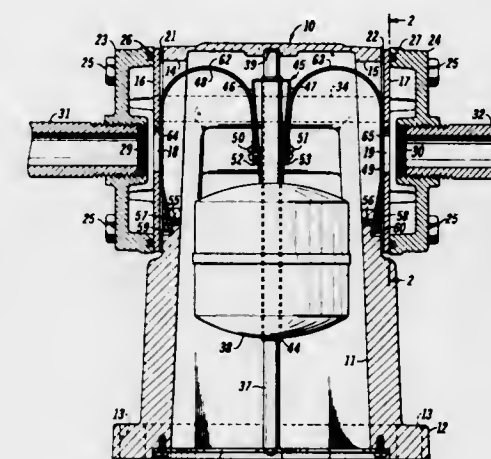
Howard E. Siebold, Libertyville, Ill., assignor to Liquid Controls Corporation, North Chicago, Ill.

Filed Apr. 26, 1971, Ser. No. 137,509

Int. Cl. F16r 31/20; F16k 45/02

U.S. Cl. 137—202

4 Claims



A valve member for an air eliminator is a flexible band or reed secured at one end to a movable float and at the other end to the housing adjacent a valve seat surrounding a port therein. A flexible sealing band formed of a resilient material overlies and is coextensive with the flexible band to provide a hermetic seal around the valve port when the float moves into a valve closing position. The sealing band is apertured where it overlies the port to equalize the pressure across the sealing band when it is positioned over the port.

3,741,235

WASHING AND PURGING APPARATUS FOR LIQUID SEALS

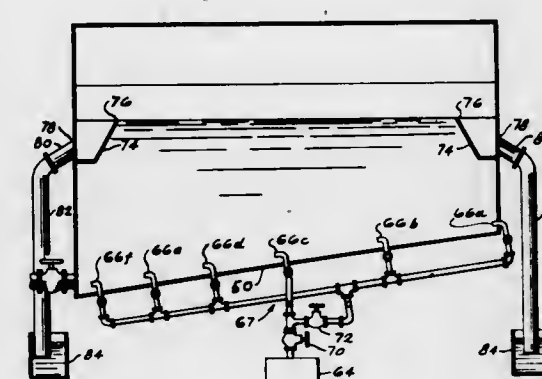
Alwin W. Ambrose, Enfield, and Joseph W. Parker, III, West Simsbury, both of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 30, 1971, Ser. No. 214,009

Int. Cl. F16k 11/02

U.S. Cl. 137—238

5 Claims



A washing and purging system for a liquid seal in the flue gas bypass duct of a steam generating facility having an air pollution control system. A series of nozzles positioned within the seal provide a continuous turnover of liquid and are also periodically used to flush accumulated particulate matter from the seal. Disposal of excess liquid from the seal is accomplished through the use of an overflow weir which also serves to skim off surface contaminant particles before they can settle to the bottom of the seal.

3,741,236

FLUID CONTROL AND CONDITIONING UNITS FOR INSERTION IN FLUID LINES

Peter John Pass; Douglas Wesley Carr, both of Shipston-on-Stour; Rogers Knight, London; Ronald Gelder, Moreton Morrell; Leslie William Smith, Shipston-on-Stour; Leonard Frederick Harris, Shipston-on-Stour, and Karel Leon August Van Bastelaere, Shipston-on-Stour, all of England, assignors to C. A. Norgren Limited, Shipston-on-Stour, Warwickshire, England

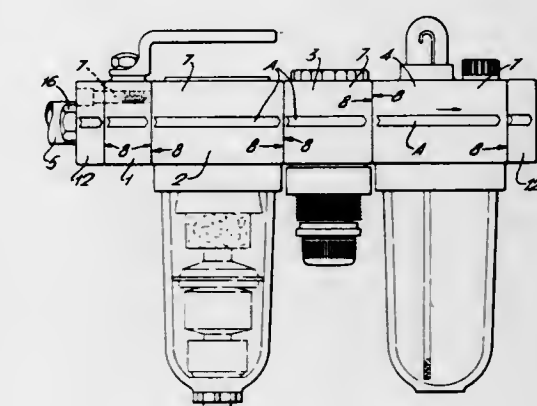
Filed Sept. 13, 1971, Ser. No. 180,037

Claims priority, application Great Britain, Sept. 21, 1970, 44,876/70

Int. Cl. F16k 11/10

U.S. Cl. 137—269

18 Claims



A fluid control or conditioning unit with inlet and outlet ports, and more particularly a filter, pressure regulator and/or mist lubricator incorporated in a compressed air line, adapted to be positioned between supply and delivery pipes; and means having ports which register with those in the unit and are adapted to receive the ends of the pipes and act as coupling means therefor so that the ends of the pipes have no direct connection with the unit. The unit has plane external faces into which its inlet and outlet ports open and the ports in the said means also open into plane faces which oppose those of the unit, provision being included for sealing the ports of the unit with those of the coupling means and for securing the unit in sealed relation to the coupling means. Thus one and the same unit may be used with pipe ends of different size of type, and more particularly in the case of screw-threaded pipe ends and screw-threaded ports in the coupling means, one and the same unit may be used with threaded pipe ends of different size or type of thread by selection of the coupling means from a range. The combination is preferably such that the unit or one of a plurality of units in series may be withdrawn substantially by movement perpendicular to the axis of the ports without moving or removing the coupling members and preferably while a valve unit, likewise having plane faces into which its ports open, remains fixed to the coupling means for shut-off of flow during removal of a unit.

3,741,237

FLUID CONTROL VALVES

John Patrick Browne, Bletchley, Buckinghamshire, England, assignor to Sandall Precision Company Limited, Bletchley, Buckinghamshire, England

Filed Apr. 12, 1971, Ser. No. 133,152

Claims priority, application Great Britain, Apr. 27, 1970, 20,083/70

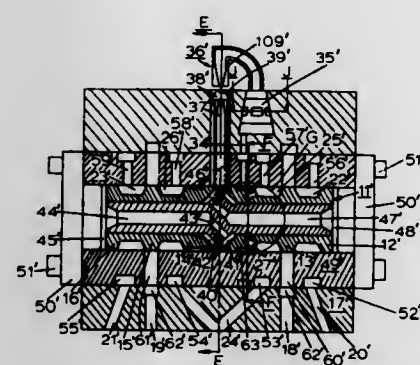
Int. Cl. F15b 5/00; F16k 29/02

U.S. Cl. 137—332

8 Claims

A fluid control valve has a spool located in a bore for controlling the flow of fluid from an inlet pressure port to outlet

ports depending on the position of the spool. In the embodiment described and illustrated a proportion of inlet fluid by the movement of a permanent magnet outside of the conduit, the movement of such magnet being controlled by the in-



pressure is used to rotate the spool and to move the spool in the bore.

3,741,238

IRRIGATION HOSE COUPLING AND PULL END

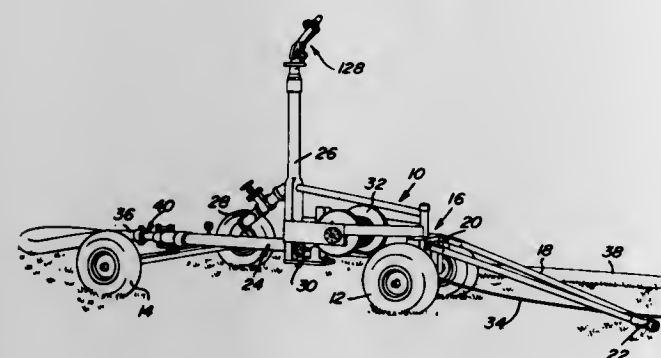
Edward H. Lacey, P. O. Box 796, Trent, S. Dak.

Filed Dec. 2, 1970, Ser. No. 94,252

Int. Cl. B05b 9/02; E01h 3/02

U.S. Cl. 137-344

5 Claims



A high tension withstanding pull hose coupling including a first tubular water inlet pipe assembly mounted on a travelling support and including a rear inlet end opening outwardly in the direction opposite to the direction of movement of the support. The inlet end of the water inlet pipe assembly defines downstream tapering outer frusto-conical wedge surfaces and a wedge sleeve is loosely telescoped over the inlet end and includes downstream tapering inner frusto-conical wedge surfaces. An elongated tubular hose includes an outlet end telescoped over the outer wedge surfaces of the water inlet pipe assembly and the sleeve is telescoped over the hose outlet end with the wall portions of the hose outlet end clamped between the inner and outer conical surfaces of the sleeve and water inlet pipe assembly.

3,741,239

DEVICES FOR AUTOMATICALLY CONTROLLING THE WATERING OF PLANTS

Frank Oliver George Riddiford, Nr. Bampton, Devon, Woodside, Shillingford, England

Filed Nov. 23, 1971, Ser. No. 201,294

Int. Cl. F16k 31/08

U.S. Cl. 137-408

16 Claims

An automatic watering device for seeds or plants comprises a magnetic valve arranged in a waterflow conduit controlled

by the movement of a permanent magnet outside of the conduit, the movement of such magnet being controlled by the in-

crease and decrease in weight of a water retentive means arranged to receive water from the supply via the device.

3,741,240

FLUID COMPENSATOR VALVE

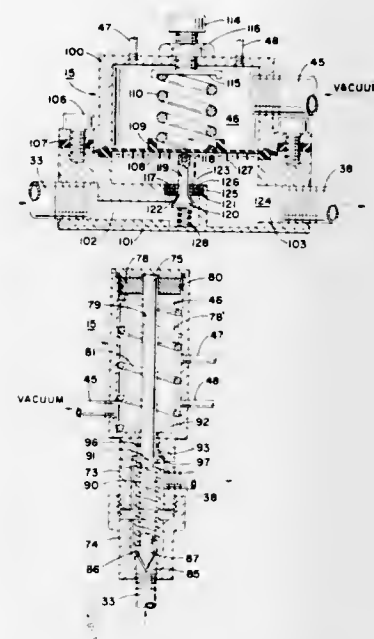
Lester P. Berriman, Irvine, Calif., assignor to Dresser Industries, Inc., Dallas, Tex.

Continuation-in-part of Ser. No. 151,373, June 9, 1971, which is a continuation-in-part of Ser. No. 17,076, March 6, 1970, abandoned. This application Aug. 2, 1971, Ser. No. 168,233

Int. Cl. F16k 31/14

U.S. Cl. 137-483

11 Claims



A compensator valve for dispensing a metered fluid supply to utilization apparatus in response to integrated demands imposed by different operational variables of the apparatus. Pressurized fluid received at an inlet is throttled by a spring biased valve as the fluid flows toward a discharge outlet. A sealed chamber juxtaposed to the valve includes an inlet for a connection of vacuum which acts to alter the effective valve bias in accordance with the magnitude of vacuum applied.

3,741,241

HYDRAULIC FUSE

Harry Yale Jackson, Cherry Hill, N.J., assignor to Eaton Corporation, Cleveland, Ohio

Filed July 29, 1971, Ser. No. 167,311

Int. Cl. F16k 1/44

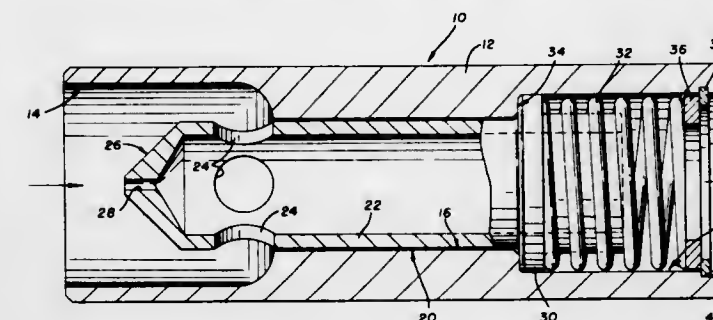
U.S. Cl. 137-504

5 Claims

A hydraulic fuse includes a body defining a cylindrical bore therethrough. A tubular piston including a radially extending opening therein is located in the cylindrical bore of the body

and is resiliently biased to a normally open position. The tubular piston member is of low mass and is movable against the force of a resilient biasing means in response to fluid flow quantities above a predetermined maximum. During movement of the tubular piston against the force of the resilient biasing means the internal wall of the cylindrical bore partially

ball contained within the chamber and movable between a position intermediate the inlet and outlet ports and a valve seat at the inner end of the inlet port. The chamber includes a bypass of large cross-sectional area to permit liquid flow around the ball when the valve is in its open position.



closes the radial opening in the tubular piston member thereby increasing the pressure drop across the piston member and further urging the piston member to move to a no-flow or closed position. The tubular piston member may be provided with a pilot flow opening therethrough so that a predetermined quantity of flow may exist across the piston member when the radial opening therein has been completely closed.

3,741,242

REFRIGERANT FEED CONTROL AND SYSTEM

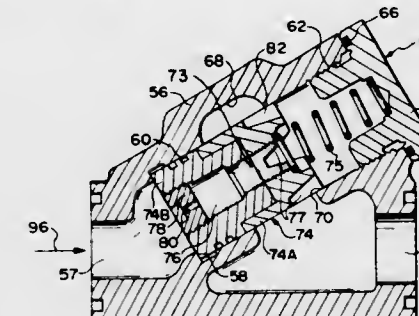
Charles C. Hansen, Hinsdale, and John D. Nilles, Roselle, both of Ill., assignors to Refrigerating Specialties Co., Broadview, Ill.

Filed Dec. 10, 1971, Ser. No. 206,671

Int. Cl. F16k 31/363; F25b 43/00

U.S. Cl. 137-504

15 Claims



An automatic flow regulator for refrigeration systems in which a fixed flow control orifice in series with a spring-opened flow regulating valve are carried on the same member for access laterally from the refrigerant line for servicing and making changes in orifice sizes.

3,741,243

BALL CHECK VALVE ASSEMBLY

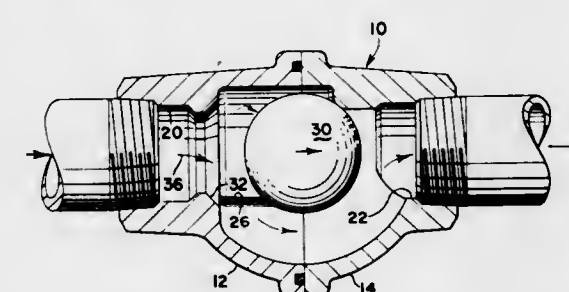
Robert R. Deibler, Loudonville, and Tom W. Patterson, Hayesville, both of Ohio, assignors to Hydr-O-Matic Pump Company, Hayesville, Ohio

Filed Apr. 26, 1971, Ser. No. 137,331

Int. Cl. F16k 15/04

U.S. Cl. 137-528

3 Claims



A check valve assembly which consists of a housing having inlet and outlet ports connected by an internal chamber and a

valve assembly is described of the so-called block and vent type wherein the valve is normally closed with the

3,741,244

VALVE SYSTEM

Yoji Ise, 6-18 Shimomaruko 2 chome, Ota-ku, Tokyo, Japan

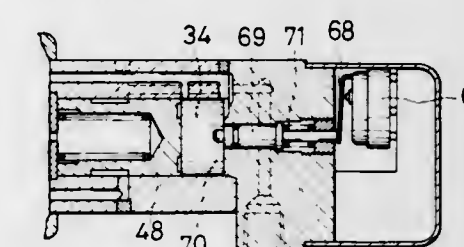
Filed Mar. 30, 1972, Ser. No. 239,451

Claims priority, application Japan, July 2, 1971, 46/48640

Int. Cl. F16k 37/00

U.S. Cl. 137-554

11 Claims



This valve system provides with a pilot valve having a valve action caused by a spool which moves within a casing providing with a pair of ports. In said pilot valve, the spool is forced to be pressed in a given direction by a compressed fluid introduced into the casing, the said compressed fluid, which is supposed to flow towards load from the feed source through the pilot valve, being changed-over by means of a change-over valve. In the case the change-over valve has been changed-over on the side of the pilot valve, therefore, said spool is not forced to be pressed but in turn forced to be pressed in the opposite direction by means of an operating means. In such a case just mentioned, a control means functions to discharge the fluid being present in the casing, said control means controls a moving speed of the spool by adjusting the amount of the discharge thereof. The pilot valve is effected to be opened or closed with said movement of spool, the operative time being controllable in proportion to the moving speed of the spool. The time to start operation of the pilot valve after receiving a control command by way of an operating signal given to the change-over valve can be controlled by the positioning relation between ports and grooves in speed, and the moving speed of spool.

3,741,245

BLOCK AND VENT VALVE

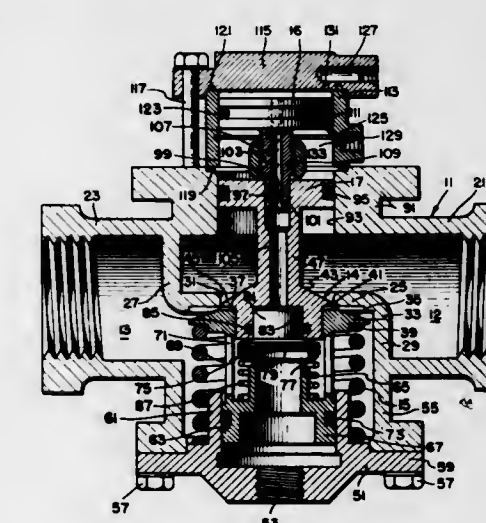
Benjamin W. West, 237 La Espiral, Orinda, Calif.

Filed June 9, 1971, Ser. No. 151,466

Int. Cl. F16k 11/00

U.S. Cl. 137-596.18

2 Claims



downstream side vented. When a pilot pressure is applied, it first closes the vent and then opens the valve partially. On application of a second pilot signal from another source or from a suitable time delay network, the valve opens fully. On release of the pilot pressures, the valve closes first and then opens the downstream vent.

3,741,246

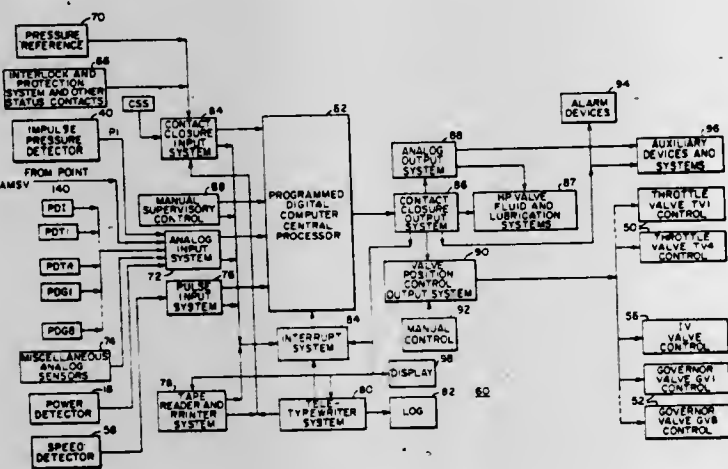
STEAM TURBINE SYSTEM WITH DIGITAL COMPUTER POSITION CONTROL HAVING IMPROVED AUTOMATIC-MANUAL INTERACTION

Andrew S. Braytenbah, Pennsauken, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Oct. 14, 1970, Ser. No. 80,710

Int. Cl. G05b 15/00

U.S. Cl. 137-624.11

12 Claims



An improvement in the operation of an electric power plant utilizing a steam turbine controlled, in an automatic mode, by means of a digital computer, is accomplished by simplifying the interaction between the programmed automatic process control and the manual backup control. The position setpoint for each of a plurality of valves in the system to be controlled is established as a direct digital holding function in a respective bistable relay register. In addition, a single valve control holding register is provided which is coupled to all of the valve position controls in parallel. Automatic operation is then possible in either single valve or programmed sequential valve modes, and the programmed interaction to accomplish switching from manual to automatic control is simplified by updating the automatic control status until the single valve holding register has a setting equal to the manual control representation before consummating the manual to automatic switching. The direct digital holding registers also improve total system operation in eliminating drift with respect to the valve positions represented so as to extend the period of reliable operation in the manual mode, and also make it possible to retain the last valid position setpoints held in the respective registers prior to a computer power failure.

3,741,247

FLUIDIC PRESSURE AMPLIFIER

Herbert H. Kaemmer, Whippany, N.J., assignor to Automatic Switch Company, Florham Park, N.J.

Filed Dec. 10, 1971, Ser. No. 206,844

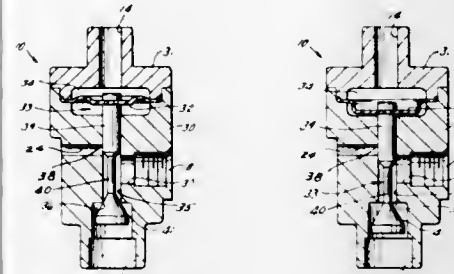
Int. Cl. F16k 11/02

U.S. Cl. 137-625.66

9 Claims

A fluidic pressure amplifier comprising a body having a logic port for receiving a fluidic signal from a fluidic logic control circuit, an inlet port for connection to a source of fluid pressure higher than the pressure of the logic signal, an outlet port for connection to an interface device which controls fluid at a still higher working pressure, and an exhaust port. The body also includes a bore with which the inlet, outlet, and exhaust ports communicate, a valve seat between the inlet port

and one end of the bore, and an opening in the bore wall communicating with the exhaust port. A unitary valve element includes a spool snugly but slidably arranged within the bore, a valve disk axially spaced from the spool, and a reduced diameter rod interconnecting the spool and disk. A diaphragm is connected to the end of the spool opposite the disk and is ex-



posed to pressure at the logic port. This latter pressure urges the spool into a position wherein it covers the opening in the bore wall and separates the disk from the valve seat, whereby the inlet and outlet at the inlet port urges the spool into a position wherein it uncovers the opening and the disk engages the valve seat, whereby the outlet and exhaust ports communicate, but not the inlet and outlet ports.

3,741,248

ROTARY SELECTOR VALVE MECHANISM

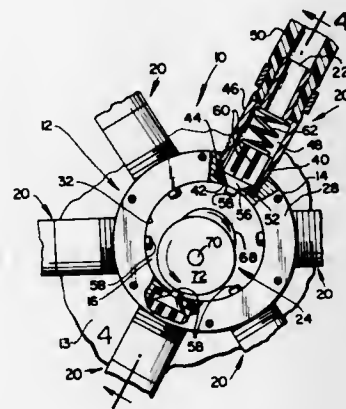
Frederick F. Stevens, Jr., Fairfield, Conn., assignor to Hoff-Stevens, Inc., Ansonia, Calif.

Filed June 25, 1971, Ser. No. 156,881

Int. Cl. F16k 19/00

U.S. Cl. 137-627

4 Claims



A rotary selector valve mechanism having a housing defining a generally cylindrical fluid chamber and including a fluid outlet port communicating with the chamber. A circumaxial series of inlet valves mounted on the housing each include an inlet port and a valve element movable between opened and closed positions and biased to closed position to prevent passage of fluid from the inlet port to the chamber. A rotary crank mechanism journaled for coaxial rotation relative to the fluid chamber is adapted for selective angular positioning relative to the valve elements to retain a selected one of the valve elements in its open position whereby a fluid flow path is provided from the inlet port associated with the one inlet valve to and through the chamber to the outlet port. Positioning of the crank mechanism is remotely controlled by a servo mechanism which includes a rotary selector switch.

3,741,249

BALL VALVE WITH RESILIENT SEAL

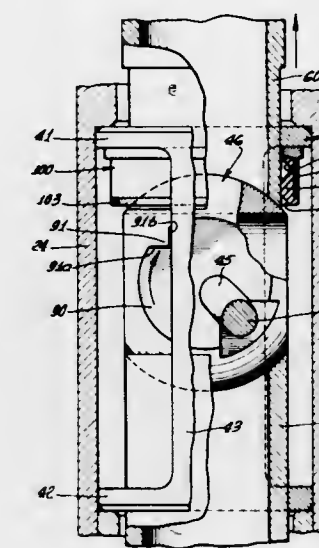
Kurt Leutwyler, Houston, Tex., assignor to Baker Oil Tools, Inc., Los Angeles, Calif.

Filed Mar. 22, 1971, Ser. No. 236,929

Int. Cl. F16k 11/20

U.S. Cl. 137-629

10 Claims



A ball valve is incorporated in a subsurface shutoff valve for wells. The ball valve is actuated rotatively and longitudinally within its support and effects sealing engagement with a stationary resilient seal by longitudinal movement.

3,741,250

PRESSURE VESSEL

Jacques H. Mercier, 49 rue de Naples, Paris, France

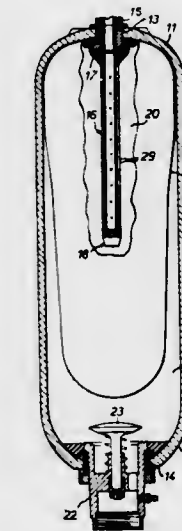
Filed Oct. 5, 1971, Ser. No. 186,704

Claims priority, application France, Oct. 28, 1970, 7038833

Int. Cl. F16l 55/04

U.S. Cl. 138-30

5 Claims



This invention relates to a pressure vessel comprising a rigid container having two ports, a flexible separator in the form of a bladder being disposed in the interior of said container and dividing it into two fluid chambers which are respectively in communication with said ports, and a guide or flow member in the general shape of a hollow column is fixed at one of its ends to the container at one of the ports thereof and extends axially inward into the container, the flow member being adapted to permit an appropriate flow of fluid in two directions and having a perforated tubular central member and an encompassing permeable sleeve formed from a stack of juxtaposed grooved washers which at least partially enclose the tubular member and which is retained between two terminal abutments.

3,741,251

COUPLING FOR MOULDED TUBULAR COMPONENTS

Clive Rees, Tyseley, Birmingham 11, England, assignor to Girling Limited, Birmingham, England

Filed Feb. 25, 1971, Ser. No. 118,922

Claims priority, application Great Britain, Mar. 3, 1970, 10,104/70

U.S. Cl. 138-96

Int. Cl. B65d 59/04

4 Claims



An internal undercut groove or recess in a moulded tubular component is formed by two axially spaced rows of integral projections, the projection of each row registering with the space between adjacent projections in the opposite row. The component can thus be made without the use of a collapsible core tool. The invention also relates to a novel injection moulding core tool in two axially separable parts having interengaging axial projections of generally castellated form.

3,741,252

PIPE PROTECTOR

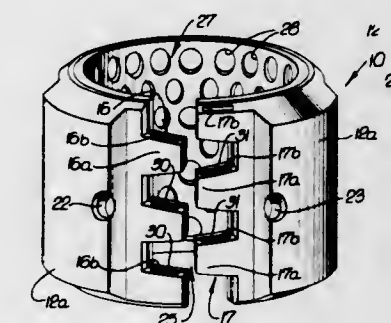
Fred D. Williams, Long Beach, Calif., assignor to Hydrill Company, Los Angeles, Calif.

Filed Sept. 14, 1971, Ser. No. 180,380

Int. Cl. F16l 11/00

U.S. Cl. 138-110

9 Claims



A well pipe protector comprises:

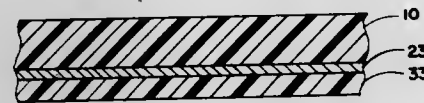
- a C-shaped body including a metallic core and a rigid plastic sheath attached to the core and extending outwardly therefrom,
- non-metallic terminals in the body to be drawn together in interfitting relation for retention after lateral application of the body about the pipe, and
- elastomer insert means carried at the inner side of the body to be compressed between the body and pipe in response to said drawing together of the terminals.

3,741,253
LAMINATES OF ETHYLENE VINYL ACETATE
POLYMERS AND POLYMERS OF VINYLIDENE
CHLORIDE

Harri J. Brax; Joseph F. Porinchak, both of Spartanburg, and Alan S. Weinberg, Greenville, all of S.C., assignors to W. R. Grace & Co., Duncan, S.C.

Filed Mar. 30, 1971, Ser. No. 129,501
 Int. Cl. B32b 27/30, 27/38; B65b 25/06
 U.S. Cl. 138—137

4 Claims



A multiply laminate useful as a packaging film having a first layer of a cross linked ethylene vinyl acetate polymer, a directly joined middle layer of a polymer of vinylidene chloride and a third layer directly joined to the middle layer of an ethylene/vinyl acetate polymer. Especially preferred for the middle layer are blends of emulsion polymerized and suspension polymerized vinylidene chloride and an epoxy resin.

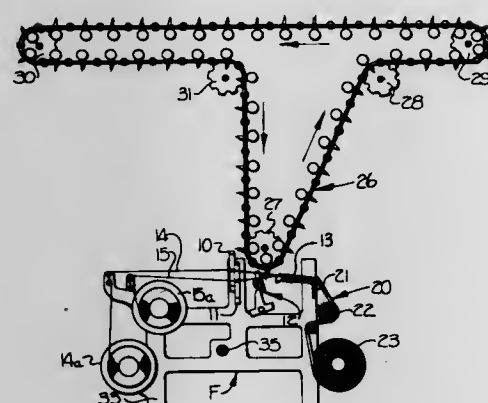
3,741,254
METHOD AND APPARATUS FOR WEAVING PILE
FABRICS

Eugene F. Clark, deceased, late of Eden, N.C. (by Ursa W. Clark, administratrix), assignor to Fieldcrest Mills, Inc., Eden, N.C.

Filed Nov. 3, 1971, Ser. No. 195,171
 Int. Cl. D03d 39/02

U.S. Cl. 139—2

19 Claims



In the weaving of pile fabrics on an Axminster loom equipped with an endless conveyor means on which spool carrying tube frames are mounted with pile yarns extending through a row of tubes on each frame, the tube frames cooperate with the loom reed and weft inserting means in an improved manner according to this invention to position each successive row of tubes between the warps incident to the forming of tufts from the respective pile yarns without displacing the conveyor means from its normal path of travel or removing the successive tube frames from the conveyor means, and without displacing the tubes relative to the tube frames.

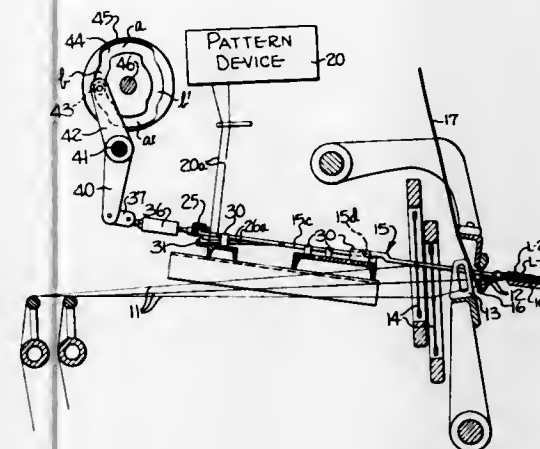
3,741,255
POSITIVE PILE WIRE MOTION FOR PILE FABRIC
TEXTILE MACHINES

Carl Edward Ostler, Eden, N.C., assignor to Fieldcrest Mills, Inc., Eden, N.C.

Filed Feb. 9, 1972, Ser. No. 224,823
 Int. Cl. D03d 39/20

U.S. Cl. 139—46

14 Claims



Positive means shifts selected pile wires forwardly and rearwardly to present loop forming stages of different heights thereon to means for looping pile yarns over the pile wires on a machine for forming pile fabrics.

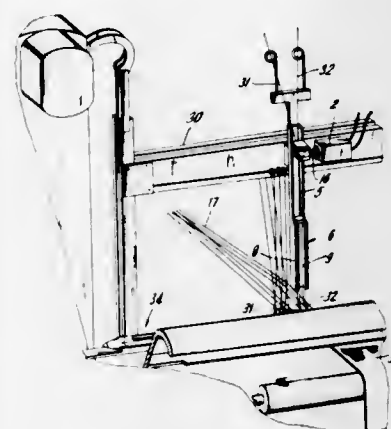
3,741,256
DEVICE FOR THE PRODUCTION OF INTERMEDIATE
SERVAGES IN FABRIC WEBS

Bernhard Wesseler, Vreden, Domern, Germany
 Continuation-in-part of Ser. No. 883,455, Dec. 9, 1969, abandoned. This application Dec. 28, 1971, Ser. No. 212,938

Int. Cl. D03d 47/40

U.S. Cl. 139—54

6 Claims



The device includes a tubular shaft cut open in its central portion to form a guide for the warp thread or threads passing through the open portion of the tubular shaft. The tubular shaft forms a support for a pair of oscillatable shafts extending toward each other, and each carrying a pair of needles so that the two pairs of needles face in opposite directions. The needles of a pair are arranged on respective opposite sides of a plane passing through a warp thread of a loom and perpendicular to the fabric web, and the device moves up and down in synchronism with the shed movement of the loom. The shafts oscillate the needles in the plane, relative to the warp thread, to form the selvage.

3,741,257
ADJUSTER IN THE CONNECTION PATH BETWEEN A
SHED-FORMING DEVICE AND A HEDDLE FRAME

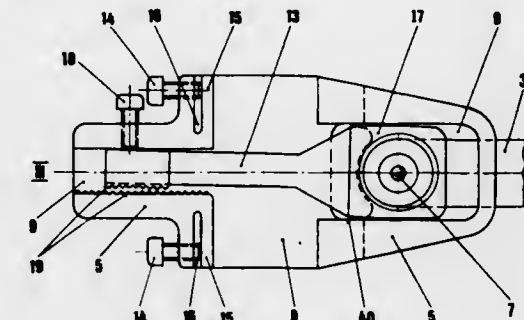
Walter Gustav Kleiner, Wadenswil, and Ernst Josef Hoenig, Horgen-Zurich, both of Switzerland, assignors to Staubli AG, Horgen-Zurich, Switzerland

Filed Sept. 22, 1971, Ser. No. 182,633
 Claims priority, application Switzerland, Sept. 25, 1970, 14257/70

Int. Cl. D03c 1/00, 13/00

U.S. Cl. 139—66 R

14 Claims



A connecting and adjusting device for insertion into the linkage between a control device, as a dobby, and the heddles or heddle frame of the weaving machine. The connecting and adjusting device is insertable between an oscillating lever constituting the output of a dobby and a reciprocable rod connecting same to the input of the lift mechanism for heddle frames of a loom. Said device comprises a body structure having slots therein at substantially right angles to each other. One slot is for the reception of one arm of said lever. In the other slot there is located in same embodiments a loosely positioned slideable bearing block. Said bearing block carries a bearing therein to which is connected the driving end of said connecting rod. An arm projects rigidly from said bearing block and means are provided cooperable with said arm for displacing it from a position in center alignment with said slot. Such displacement affects a jamming of the bearing block within said slot and thereby removing any play which might otherwise exist between said bearing block and the walls of said other slot. Supplemental means may be provided if desired, such as interengaging teeth, for further rigidifying the relationship between said arm or said bearing block and the body portion of said device. Alternatively threaded means may be provided for precisely adjusting the position of a snugly but slidably mounted bearing block within said second slot, which can thus accomplish the desired adjusting without the offsetting and jamming relationship above mentioned.

The connection which transfers the movements of a shed-forming device, for example a dobby, onto the associated heddle or the heddle frame of a weaving machine must operate without play, namely on one hand so that the controlled movements are carried out immediately and accurately and on the other hand so that a deflection of the joints does not occur which would lead to cumulative inaccuracies in the sequence of motions. To build the connection of any desired thickness is, however, not possible since the available room is limited by the thickness of the heddle frames which lie side-by-side. In addition, this connection must permit a limited adjustment of the reciprocal position since the shed-forming device is an attachment for a weaving machine and the heddle frames must be adjusted with respect thereto.

3,741,258
GRIPPER SHUTTLE

Vladimir Svaty, Liberec, Czechoslovakia, assignor to Elitex Zavody Textilního Strojirenství Generalní ředitelství, Liberec, Czechoslovakia

Filed Sept. 2, 1971, Ser. No. 177,352
 Claims priority, application Czechoslovakia, Sept. 4, 1970, 6076/70

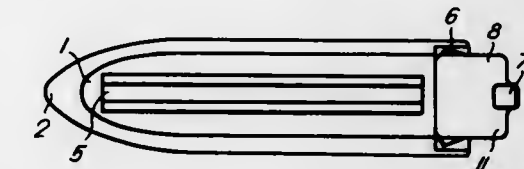
Int. Cl. D03d 47/24

U.S. Cl. 139—125

6 Claims

A gripper or gripper shuttle for the insertion of weft threads which includes an assembly of elements comprising a flat

beam having a spur and a flat spring which is disposed in the hollow of a plastic gripper body, the flat beam being provided



with barbs to prevent the elements from coming out of the hollow.

3,741,259
CURTAIN HEADING TAPE

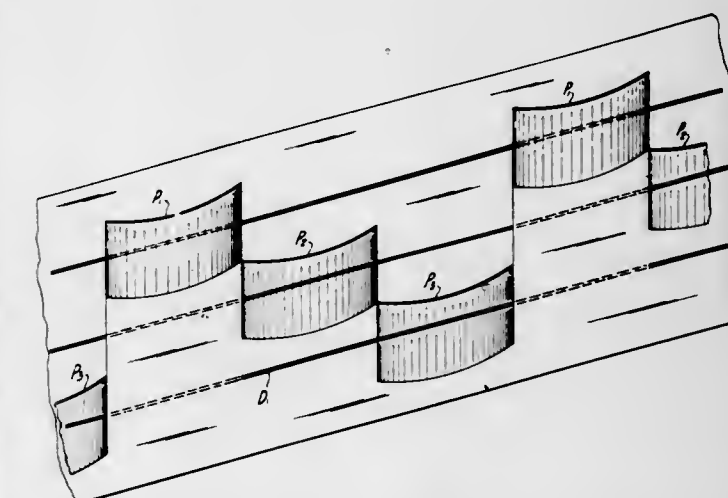
William Wood, Gatley; Mary Griffiths, Heywood, and John Sellers, Chorley, all of England, assignors to Thomas French & Sons Limited, Manchester, England

Filed Jan. 18, 1971, Ser. No. 107,228
 Claims priority, application Great Britain, Jan. 28, 1970, 4,066/70

Int. Cl. D03d 1/06

U.S. Cl. 139—387 A

5 Claims



A curtain heading tape for use with draw curtains or the like, the tape having pockets on one face and at least three draw cords in the tape. The pockets are spaced in rows at different transverse distances from the edges of the tape, whereby the tape can be attached to a curtain at different specific heights of the curtain above the level of the suspension hooks.

3,741,260
POLYESTER MEAT SHROUD

Witold R. Kocay, Creve Coeur, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed June 23, 1971, Ser. No. 156,061
 Int. Cl. D03d 15/00

U.S. Cl. 139—420 R

5 Claims

Nonswelling nonwicking meat shrouds of high tenacity polyethylene terephthalate staple fibers with inherently low moisture regain provide superior conductivity while conditioning meat carcasses in the chilling stages without excessive dehydration.

3,741,261
WIRE TERMINATING APPARATUS

Meredith M. Windsor, Elk Rapids, and Ronald D. Heller, Traverse City, both of Mich., assignors to D-D-D Engineering & Service Corp., Elk Rapids, Mich.

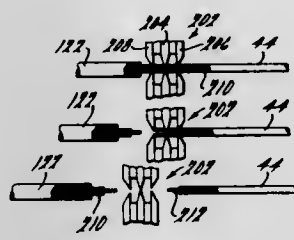
Filed Oct. 8, 1971, Ser. No. 187,651
 Int. Cl. B21f 21/00

U.S. Cl. 140—1

9 Claims

An apparatus for delivering an insulated wire to a clamping station, measuring a predetermined length, and then cutting

and stripping the wire. The apparatus facilitates the manufacture of wire harnesses and the like by providing for automatic measurement of a wire, cutting the wire and then stripping the wire on both sides of the resultant cut, and delivery of the cut pieces to clamps on a conveyor for further processing.



measurement of a wire, cutting the wire and then stripping the wire on both sides of the resultant cut, and delivery of the cut pieces to clamps on a conveyor for further processing.

3,741,262

MANUFACTURE OF BEAD WIRES FOR TYRES

Robert Graham Bell, Hartlebury, England; James Edward Collins, and Gwylfa George Griffiths, both of Swansea, Wales, assignors to National Standard Company Limited, Kidderminster, Worcestershire, England

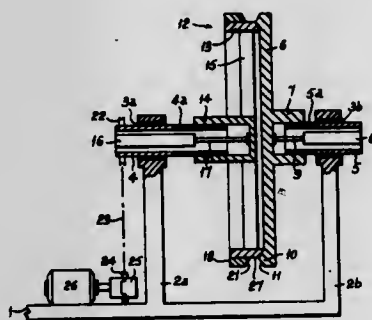
Filed Mar. 10, 1971, Ser. No. 122,905

Claims priority, application Great Britain, Mar. 12, 1970, 11,894/70

Int. Cl. B21f 3/04; B29h 17/32

U.S. Cl. 140-92.2

4 Claims



In a machine for manufacturing a tire bead wire or bead strip comprising a rotatable, circular former provided with a peripheral recess, the former is divided into two parts capable of being moved relative to one another in the direction of the axis of rotation of the former, each of these parts comprising a part of the wall of said peripheral recess. Preferably, when the two parts are separated a clear axial gap exists between the parts so that a completed bead wire or strip can drop from the former between the two separated parts.

3,741,263

CONTAINER FILLING MACHINE NOZZLE

Chester E. Waxlax, Moon Township, Pa., assignor to Horix Manufacturing Company, Pittsburgh, Pa.

Filed Aug. 27, 1971, Ser. No. 175,515

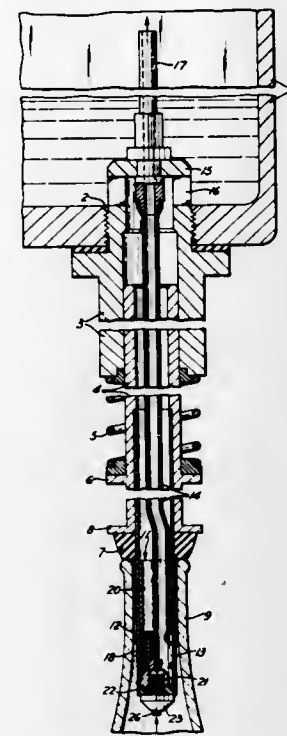
Int. Cl. B65b 31/00

U.S. Cl. 141-59

3 Claims

Subatmospheric pressure is maintained above the liquid product in the tank of a container filling machine. A vent tube extends up through an outlet in the bottom of the tank and above the liquid level. At the lower end of the tube there is a hollow valve plug that is open at its upper end and has a liquid outlet port and an air inlet port in its side. The lower end of the vent tube communicates with the air inlet port. Surrounding the vent tube and valve plug and normally closing the two ports is a filling tube, the upper end portion of which is slidably mounted in the tank outlet for receiving liquid from it. This tube is slidable upwardly on the valve plug to uncover the two ports. The valve plug also has a passage extending

downwardly from its inlet port so that air can enter the vent tube while the ports are closed. Disposed in this passage is a



check valve for closing it against downward liquid flow whenever the upper end of the vent tube is exposed to atmospheric pressure.

3,741,264

FLOATING STRUCTURE FOR UNLOADING LIQUID CARGO

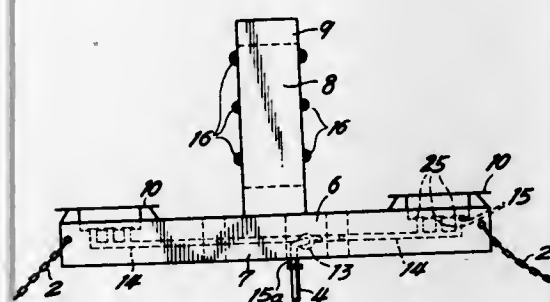
Yoshiaki Kinoshita, Yachiyaishi, Chiba, Japan, assignor to Mitsui Shipbuilding and Engineering Co. Ltd., Tokyo, Japan

Filed Mar. 8, 1972, Ser. No. 232,844

Int. Cl. B65b 1/04; B63b 35/44

U.S. Cl. 141-383

3 Claims



A floating structure for unloading liquid cargo submergible by ballast water and by winding a rope secured to the sea bottom and providing with unloading pump means, connection ports to be engaged with the ship bottom opening for sucking liquid cargo from the cargo ship, and a connecting end to be connected to the equipment on the land. The floating structure has an upright portion having a maneuvering house.

3,741,265

PENCIL SHARPENER

Viola-Nereida Gutierrez Nochea, New York, N.Y., assignor to Jose Materno Gutierrez Y. Zerquera, New York, N.Y.

Filed June 15, 1971, Ser. No. 153,193

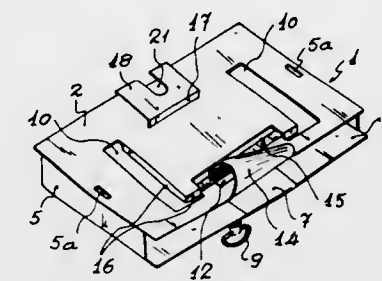
Int. Cl. B26b 3/00

U.S. Cl. 145-3.61

5 Claims

The present invention relates to an improved pencil sharpener which is constructed from sheet metal material suitable for punching and forming in high speed machine press, such as a punch press. In this manner an economical holder is manu-

factured for the used razor blades, since the holder has pressure means suitable for holding a blade in such a position that the edge assumes the correct angle with respect to the hollow cone in which the end of the pencil is turned. The blade holding means may be varied insofar as the dimensions and shapes



3,741,266

PREVAILING TORQUE LOCKNUT

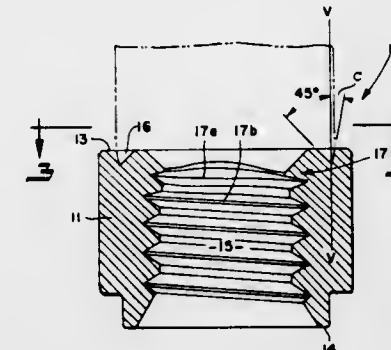
Robert Adam Frailly, Massillon, Ohio, assignor to Eaton Corporation, Cleveland, Ohio

Filed Nov. 22, 1971, Ser. No. 200,959

Int. Cl. F16b 39/30

U.S. Cl. 151-21 B

2 Claims



An all-metal prevailing-torque locknut having two substantially equally spaced, arcuate indentations in its top endface. The endface indentations displace the two adjacent circumferentially aligned internal threads both radially inwardly and axially downwardly and also give the adjacent threaded bore an oval configuration.

3,741,267

VALVES FOR TUBELESS TIRES

Stephen Ernest William Thacker, Erdington, Birmingham, England, assignor to Scovill Manufacturing Company, Waterbury, Conn.

Filed Sept. 22, 1971, Ser. No. 182,691

Claims priority, application Great Britain, Sept. 25, 1970, 45,783/70; Apr. 20, 1971, 10,270/71; July 29, 1971, 35,775/71

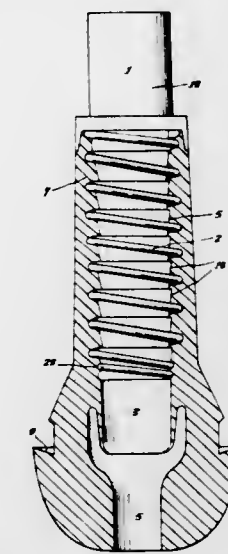
Int. Cl. B60c 29/00

U.S. Cl. 152-427

13 Claims

A valve for a tubeless tire including a tubular insert adapted to accommodate a valve core, a resilient stem having an axial

bore for receiving a portion of the tubular insert and a hard radially expandable member integral with the stem which con-



stricts the axial bore of the resilient stem to grip projections on the surface of the insert.

3,741,268

QUICK CHANGE PNEUMATIC TIRE

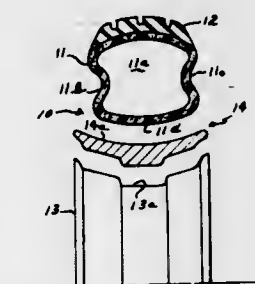
Howell K. Brewer, 1921 N. Longview St., Dayton, Ohio

Filed Dec. 14, 1971, Ser. No. 207,849

Int. Cl. B60c 7/12

U.S. Cl. 152-175

8 Claims



A vehicular tire having integral tread and carcass portions molded into a closed, toroidal configuration and further formed into a convoluted shape, when uninflated, both for providing and facilitating its stretching over the outside diameter of a mounted wheel, and for positively controlling and urging movement of the carcass-inside diameter in an inward contracting direction only to a gripping position with either the specially contoured wheel rim or adapter ring element mounted thereto.

3,741,269

TRACTION INCREASING SYSTEM

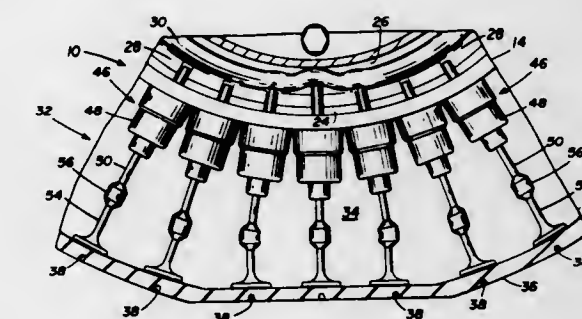
John F. Bryan, Jr., 3212 Mapleleaf Circle, Dallas, Tex.

Filed Oct. 4, 1971, Ser. No. 186,080

Int. Cl. B60c 1/00

U.S. Cl. 152-208

14 Claims



A vehicular wheel assembly includes a tire comprising circumferentially spaced segments each including a vacuum

port. A plurality of valving assemblies are mounted within the tire for actuation upon inward deflection of the tire to connect a vacuum source to each vacuum port when the segment of the tire incorporating the vacuum port is in engagement with a surface. By this means a partial vacuum is maintained between the contact area of the tire and the surface whereby traction between the tire and the surface is markedly increased.

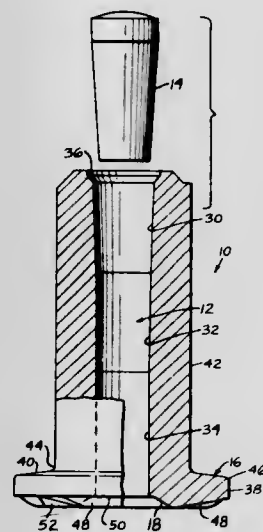
3,741,270 TIRE STUD

Rolf J. Cantz, Grove City, Pa., assignor to Kennametal Inc., Latrobe, Pa.

Filed Mar. 2, 1971, Ser. No. 120,210
Int. Cl. B60c 11/16

U.S. Cl. 152-210

8 Claims



The specification discloses a tire stud having a body with a hard wear resistant pin mounted an axial bore in the body thereof and protruding from one end of the body. The body has a head on the other end and is mounted in the tread of a tire head end foremost with the end of the stud from which the pin protrudes about at the level of the surface of the tire tread or projecting slightly therefrom. The stud according to the present invention is particularly characterized in that the pin moves axially into the stud body as the stud wears thereby controlling the amount of the pin of the stud which protrudes from the end of the stud body. The bore in the stud body in which the pin is seated has a portion at the pin end with a first taper, an intermediate portion with a second and smaller taper and a final portion with substantially no taper.

3,741,271

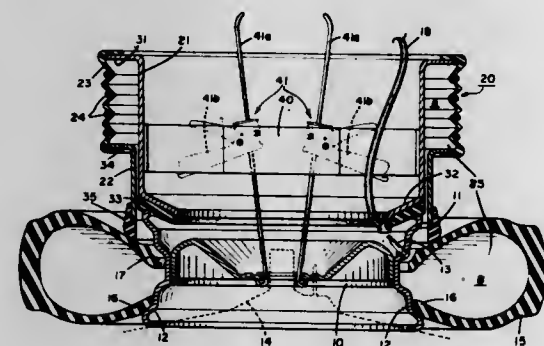
TIRE BEAD SEALING AND SEATING DEVICE

Joseph H. Ross, Shaker Heights; William A. Weinkamer, Mentor; Laddie J. Pesek, Garfield Heights, and John F. Havel, Beechwood, all of Ohio, assignors to Gould Inc., Chicago, Ill.

Filed May 24, 1971, Ser. No. 146,226
Int. Cl. B60c 25/06

U.S. Cl. 157-1.1

9 Claims



There is presented a sealing device for seating the beads of a tubeless tire against the rims of a wheel in order that the tire

may be inflated. The device comprises a double-walled cylindrical chamber which rests on and seals against a rim of the wheel and the side wall of the tire, forming with the rim and tire a sealed compartment into which air under pressure is admitted to force the tire beads against the rims of the wheel.

3,741,272

PROCESS FOR THE PRODUCTION OF SPONTANEOUSLY CROSS-LINKING HIGHLY REACTIVE POWER LACQUER BINDERS

Martin Ullrich, Leverkusen; Rudolf Erdmenger, Bergisch-Gladbach; Heinrich Kunze, Koeln; Karl Nothen, Leverkusen; Hansgunter Appel, Bergisch-Gladbach, and Frank Wiegler, all of Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

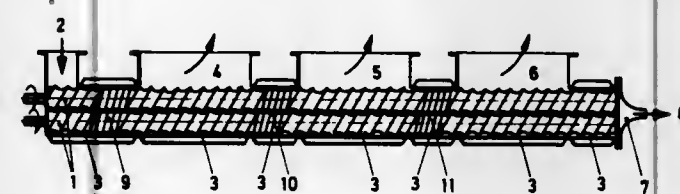
Filed Jan. 28, 1971, Ser. No. 110,696

Claims priority, application Germany, Mar. 7, 1970, P 20 05 691.1

Int. Cl. B01d 1/28, 1/22; C08c 11/36, 11/24; C08f 15/40; C08g 51/36

U.S. Cl. 159-2 E

7 Claims



Solvent-free spontaneously cross-linking highly reactive acrylic resins being crosslinkable through N-methylether groups for powder coatings with a softening point of from 75° - 110° C are obtained from their solutions by continuous concentration through evaporation in a self-cleaning screw evaporator in which the residence times are from 2 to 6 minutes, the resin being heated both through external heating and through internal friction to a temperature not exceeding 120° C.

3,741,273

SPRAY DRYING APPARATUS

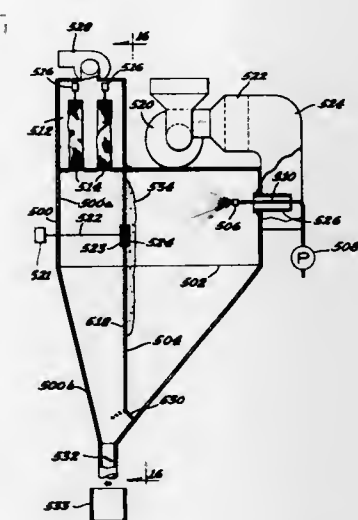
Reginald E. Meade, Stillwater, Minn., assignor to The Pillsbury Company, Minneapolis, Minn.

Continuation-in-part of Ser. No. 13,501, Feb. 24, 1970, abandoned, which is a continuation-in-part of Ser. No. 553,101, May 26, 1966, Pat. No. 3,520,066. This application Aug. 10, 1971, Ser. No. 170,535

Int. Cl. B01d 1/16

U.S. Cl. 159-4 R

12 Claims



Apparatus for drying fluids containing dissolved or suspended material composed of a spray chamber, a spray nozzle, a forminous element such as a screen positioned to

receive the spray while the droplets are in a tacky condition to form a mat on the screen and a blower for drawing air from the enclosure through the mat and thence through the screen to dry the mat.

3,741,274

AWNING MOUNTING STRUCTURE

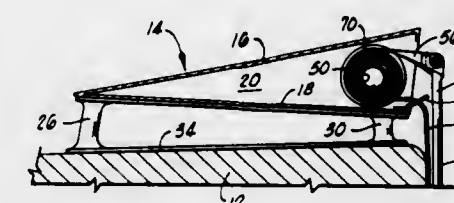
Hugh A. Youngblood, Jr., 3225 N. Virginia, Oklahoma City, Okla.

Filed Jan. 28, 1971, Ser. No. 110,393

Int. Cl. E04f 10/06

U.S. Cl. 160-23 R

2 Claims



A V-shaped housing which includes convergent top and bottom plates, and substantially parallel end plates, which end plates receive and journal opposite ends of a shaft upon which an awning is rolled. Keyed to the shaft inside the housing is a pulley having a rope wound thereabout for reeling the awning upon the shaft. The housing is supported on legs so that the bottom wall of the housing inclines downwardly when the housing is mounted on the roof of a camper vehicle or the like to cause air flowing beneath the bottom wall of the housing to be directed downwardly adjacent the rear of the vehicle. This partially alleviates the partial vacuum adjacent the rear of the camper vehicle during over-the-road operation at relatively high speed.

3,741,275

AWNING

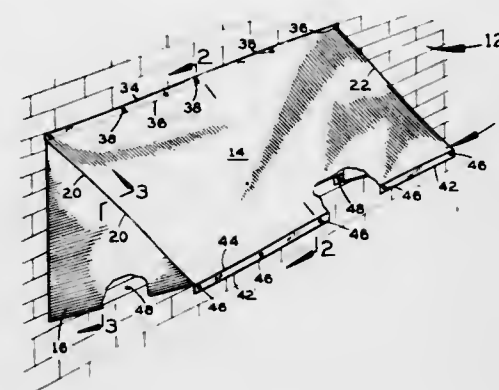
Nathan Greenspan, 2647 Polk, Hollywood, Fla.

Filed July 31, 1972, Ser. No. 276,664

Int. Cl. E04f 10/10; E06b 7/28

U.S. Cl. 160-58

12 Claims



A self-supporting awning in which thermal insulation in panel means of the awning serve both to keep heat from building up underneath the awning and to make the awning self-supporting. The awning includes a rectangular panel and two triangular side panels hinged to opposite sides of the rectangular panel so that the side panels will hold the rectangular panel in a raised awning position. The side panels are foldable against the rectangular panel so that it can be placed against and directly over a window in a wall surface.

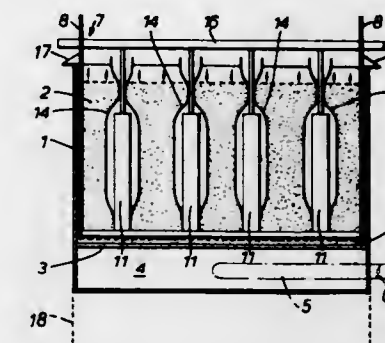
3,741,276 METHOD OF MAKING SHELL-MOULDED ARTICLES THEREFOR

John Fallows, Turbridge Wells, Kent, and John Edward Worthington, Tonbridge, Kent, both of England, assignors to Polygram Casting Co., Limited, Kent, England

Filed Nov. 30, 1970, Ser. No. 93,699

Int. Cl. B22c 3/00, 9/00

12 Claims



Method of making shell-moulded articles comprising passing a fluidizing gas through a bed of refractory granular material to fluidize the latter, effecting a reduction, relative to the permeability of the fluidized bed, of the permeability of the shell mould to the fluidizing gas to a value sufficiently less than the permeability of the fluidized bed to substantially ensure that the gas does not pass through the mould in preference to the bed, immersing the mould in the bed to a depth such that, on collapse of the fluidized bed, the mould is supported by the refractory material with the downgate of the mould clear of the surface of the material, collapsing the bed by ceasing to pass fluidizing gas through it, pouring the mould, restoring the passage of fluidizing gas through the refractory material to fluidize the latter, and removing the poured mould from the bed.

3,741,277

PROCESS FOR CONTINUOUSLY OPERATING A CONTINUOUS CASTING PLANT

Ernst Bachner, and Walter Fortner, both of Linz, Austria, assignors to Vereinigte Österreichische Eisen- und Stahlwerke Aktiengesellschaft, Linz, Austria

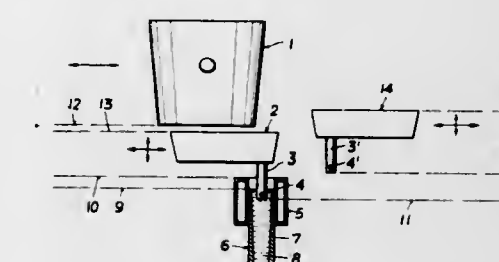
Filed Dec. 13, 1971, Ser. No. 207,481

Claims priority, application Austria, Dec. 14, 1970, A 11,205/70

Int. Cl. B22d 11/10

U.S. Cl. 164-82

4 Claims



The invention relates to a process for continuous continuous casting of liquid metals wherein a series of melts are cast from ladles into an exchangeable tundish wherefrom the metal runs into a water-cooled mould via a casting tube extending into said mould. The tundish exchange is carried out by removing the worn tundish from casting position, moving a new, empty tundish above the mould in a manner that its casting tube extends in to the mould, driving a ladle containing hot liquid metal above the tundish and filling the new tundish when it is in casting position. While the tundish is being exchanged the casting level in the mould is lowered to a posi-

tion below the outflow opening of the casting tube and is kept there until metal runs from the new tundish into the mould. This is preferably achieved by reducing the drawing out speed of the cast bar. By using an empty tundish it becomes possible to exchange the tundishes immediately. Furthermore, the yields and operational safety are greatly increased by the invention.

3,741,278

AUTOMATED METHOD OF MANUFACTURING FINNED MACHINE FRAMES

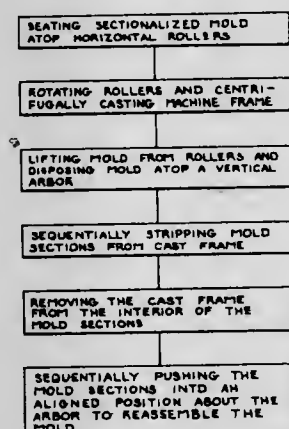
Frederick W. Baumann, Scotia; William R. Smith, Ballston Lake; Robert G. MacNary, Elnora; Albert R. Miller, Albany; William W. Pangburn, Delanson; George M. Rosenberry, Jr., Elnora, and Bernard C. Kaczowski, Schenectady, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jan. 24, 1972, Ser. No. 220,279

Int. Cl. B22d 13/02

U.S. Cl. 164-114

5 Claims



A highly automated method of centrifugally casting large diameter finned dynamoelectric machine frames is described utilizing a sectionalized mold which is automatically dismembered and reassembled subsequent to casting. The sectionalized mold is provided with large circular wheels at opposite ends of the mold and the wheels are placed atop substantially horizontal rollers which transmit rotary torque to the mold during centrifugal casting. Subsequent to casting, the mold is lifted vertically from the rollers and placed in a vertical disposition atop the arbor of a mold stripping machine whereafter sections of the mold are sequentially stripped from the cast (with the cast and stripped sections being rotated subsequent to the stripping of each section). The cast frame then is lifted from the arbor and the mold is reassembled by advancement of the stripping machine jaw to sequentially push the mold sections toward the arbor.

3,741,279

METHOD OF CASTING

Gerald S. Cole, 4839 Middlesex, Dearborn, Mich., and Gustaf F. Bolling, 24646 Winona Drive, Dearborn, Mich.
Continuation-in-part of Ser. No. 760,126, Sept. 13, 1968, Pat. No. 3,614,976. This application Oct. 4, 1971, Ser. No. 186,336

Int. Cl. B22d 13/00

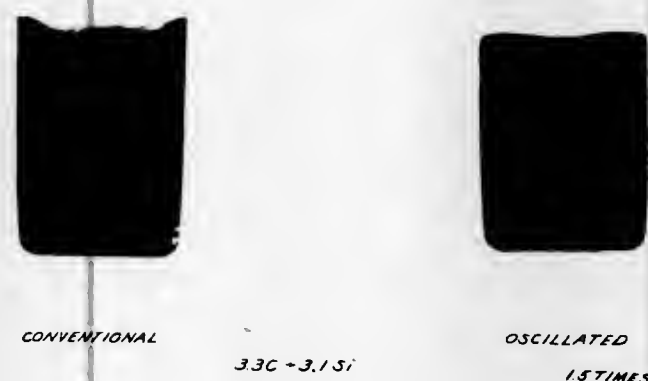
U.S. Cl. 164-114

4 Claims

This invention relates to a founding process involving metal alloy compositions which upon solidification precipitate at least two distinct phases simultaneously. The metallurgical structure of castings resulting from this founding process is al-

tered by subjecting the solidifying metal to a mild angular or rotative acceleration. The direction of this angular accelera-

AS CAST STRUCTURE IN A GREY IRON



tion is periodically reversed to avoid high rotational speeds. This results in an angular or rotative oscillation.

3,741,280

MOULD FOR THE PRODUCTION OF METAL INGOTS

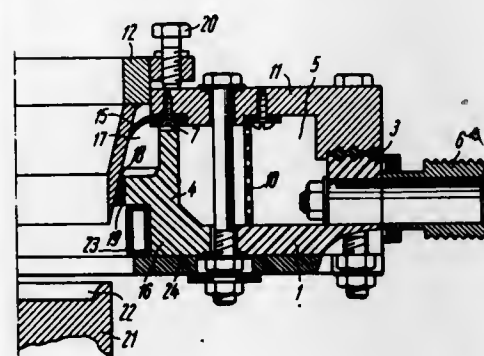
Vsevolod Rodionovich Kozheurov, O. Koshevogo, 13 kv. 8; Leonid Georgievich Berezin, ulitsa Sverdlova, 44, kv. 9; Georgy Samulovich Safarov, ulitsa Dzerzhinskogo, 5/8, kv. 12, and Petr Lavrentievich Bulgakov, ulitsa Zhukovskogo 3, kv. 2, all of Belaya Kalitva Rostovskoi oblasti, U.S.S.R.

Filed Nov. 3, 1971, Ser. No. 195,215

Int. Cl. B22d 27/02

U.S. Cl. 164-250

5 Claims



A mould for the production of metal ingots, having a casing, a shield and an inductor congruent in shape with an elongated loop, with the inductor made up of electrically insulated other parts with each part connected to two power supply sources producing in the opposite parts thereof electric currents which are in opposite phase.

3,741,281

APPARATUS FOR CARRYING OUT FULL-FORM CASTING PROCESS

Hans-Ulrich Hauser-Lienhard, Watt, Switzerland, assignor to Grunzweig & Hartmann Aktiengesellschaft, Ludwigshafen am Rhine, Germany

Filed Apr. 13, 1971, Ser. No. 133,538

Claims priority, application Switzerland, Apr. 20, 1970, 5869/70

Int. Cl. B22d 27/16

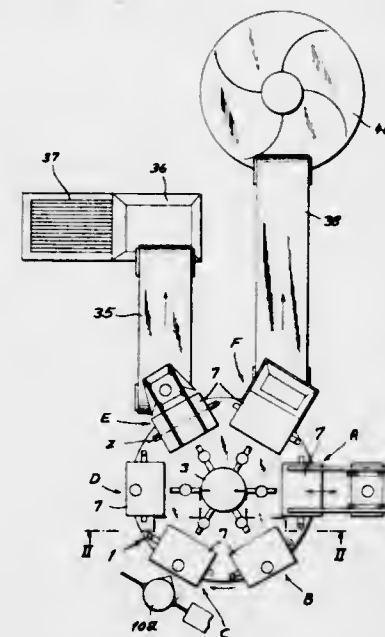
U.S. Cl. 164-253

9 Claims

A system for casting objects in molds with patterns which are destroyed in situ, i.e. one-piece casting, in which the mold flask, box, chest or casing is formed with a perforated support

for the mold-forming material (e.g. sand) and is mounted on a turntable with other similar molds for stepping through a

the interior of the centrifuge so that casting material introduced into the mold may be fed into the respective cavities; the cross-sectional area of the conduits is chosen to meter the



number of stations. The mold is provided with means for alternately pressurizing the mold and subjecting same to suction.

3,741,282

REMOVABLE BENDING ROLL HOUSING

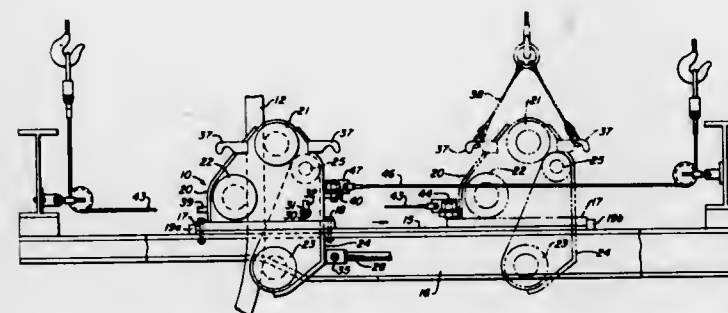
Francis Gallucci, North Huntingdon Township, Westmoreland, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Nov. 27, 1970, Ser. No. 93,302

Int. Cl. B22d 11/12

U.S. Cl. 164-282

7 Claims



A method and apparatus for positioning a bending roll assembly to receive a casting from the mold of a continuous-casting machine, and removing said assembly therefrom. The assembly is slidably mounted on rails, whereby it can be pulled into or out of its casting-receiving position.

3,741,283

APPARATUS FOR CENTRIFUGAL CASTING

Josef Schroll, and Werner Sroke, both of Rostock, Germany, assignors to VEB Ingenieurburo Schiffbau, Rostock-Osthafen, Germany

Claims priority, application Germany, Oct. 16, 1970, WP 31 b/ 150 721; Jan. 29, 1971, P 21 04 147.4

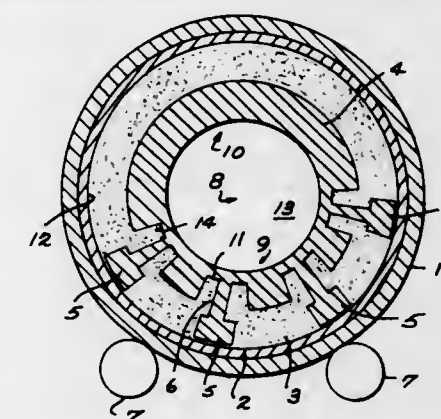
Filed Oct. 1, 1971, Ser. No. 185,654

Int. Cl. B22d 13/00

U.S. Cl. 164-287

5 Claims

A method and apparatus for the centrifugal casting of articles having non-uniform mass distributions with respect to an axis of rotation; the method comprises the steps of forming a sand mold in a cylindrical centrifuge, providing cavities in the sand mold adjacent the portions of the mold surface corresponding to that portion of the article to be formed which will have a reduced mass content with respect to the portion of the article formed on the opposite side of the axis of rotation of the centrifuge; conduits connect the respective cavities to



feeding of casting material into the cavities so that when the centrifuge is rotated the article being formed will be maintained in rotational equilibrium with respect to its axis of rotation.

3,741,284

DIE CASTING APPARATUS

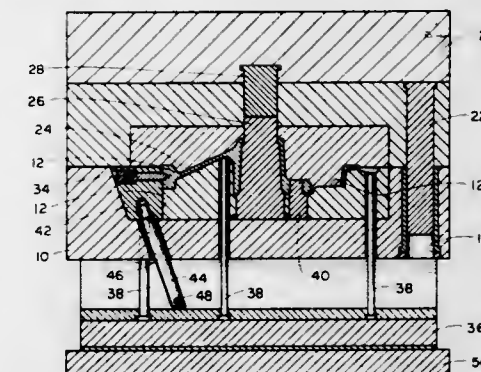
Dalton M. Davis, Palos Verdes Estates, Calif., assignor to Pyramid Enterprises, Inc., Torrance, Calif.

Filed Oct. 22, 1971, Ser. No. 191,756

Int. Cl. B22d 29/04

U.S. Cl. 164-347

4 Claims



A die casting apparatus wherein the object to be formed includes laterally located depressions within its peripheral surface. The depressions are formed by inwardly protruding elements located within the mold cavity. To effect ejecting of the molded object from the mold cavity, the protruding elements are moved laterally outward from the molded object while accomplishing the longitudinal ejecting movement of the molded object.

3,741,285

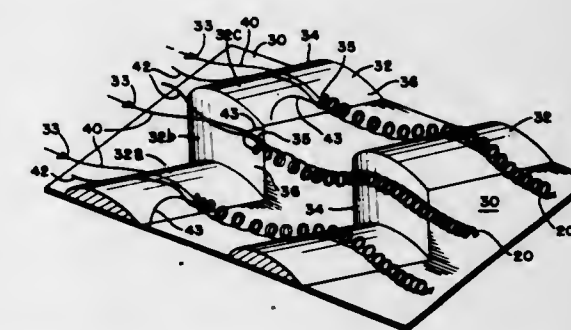
BOUNDARY LAYER CONTROL OF FLOW SEPARATION AND HEAT EXCHANGE

Arnold M. Kuethe, 490 Barton N. Drive, Ann Arbor, Mich.
Division of Ser. No. 743,350, July 9, 1968, Pat. No. 3,578,264.
This application Oct. 12, 1970, Ser. No. 79,948

Int. Cl. F28f 1/20

U.S. Cl. 165-1

7 Claims



Boundary layer control for delay or prevention of flow separation and/or increase in rate of heat exchange between a

surface and a fluid by an arrangement of surface elements which may take the form of either crests or discreet concave depressions in the surface, having effective depths or dimensions of less than that of the adjacent boundary layer thickness, to cause the formation of vortices with succeeded surface elements being positioned to cause vortex amplification, for effective boundary layer mixing with less drag, weight penalty, noise, and energy loss than that of conventional vane-type generators.

3,741,286

REGENERATIVE HEAT EXCHANGER AND METHOD FOR PURGING ITS FLOW PASSAGES

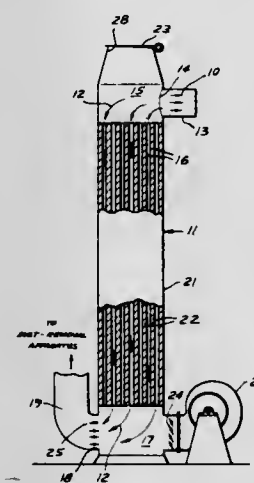
Wolf Muhlrud, Chatou, France, assignor to Prat Daniel Poelman, Courbevoie, France

Filed Apr. 21, 1971, Ser. No. 135,848

Claims priority, application Germany, July 7, 1970, P 20 35 512.8

Int. Cl. F231 15/02

U.S. Cl. 165-4



This disclosure teaches a regenerative heat exchanger for recovering heat from a hot dust-laden gas exhausted by a steel converter or the like. In a preferred arrangement this heat exchanger is followed by a dust-removal apparatus of known design. After passage of the hot dust-laden gas through refractory-lined flow passages of the heat exchanger for cooling the dust-laden gas and before countercurrent flow of cooling air through the flow passages for heat extraction from the refractory, the flow passages are purged by circulating purge air up one portion of the flow passages and down another portion exiting to the dust-removal apparatus. Then the circulation through the flow passages is reversed with exit still to the dust-removal apparatus. The purging is achieved by a particularly facile partition and damper arrangement.

3,741,287

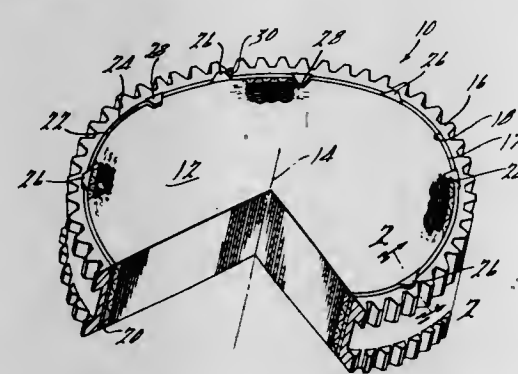
GAS TURBINE REGENERATOR ASSEMBLY AND ASSEMBLY METHOD

Jerome J. Mittman, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Sept. 20, 1971, Ser. No. 181,925

Int. Cl. F28d 19/04

U.S. Cl. 165-8



A gas turbine regenerator assembly and assembly method are described. The regenerator assembly comprises a cylindrical

cal regenerator core, an annular drive member surrounding the cylindrical surface of the regenerator core and separated from it to define an annular space, and a resilient material positioned in the annular space between the drive member and regenerator core. A mounting ring is also located in the annular space. The mounting ring has a discontinuity in it which permits its diameter to be varied to compress the resilient material during assembly. The assembly method of the invention includes the steps of surrounding the cylindrical surface of the regenerator core with the resilient material, placing the annular mounting ring around the resilient material and regenerator core, applying forces to the mounting ring to reduce its diameter, positioning the drive member around the mounting ring, and reducing the previously applied forces to permit the mounting ring diameter to increase.

3,741,288

PREFORMED SEAL ASSEMBLY FOR A GAS TURBINE REGENERATOR

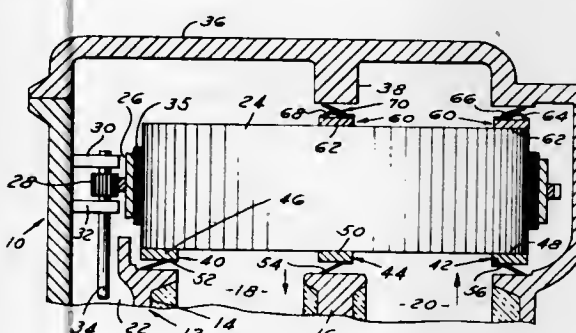
James K. Vallance, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed June 25, 1971, Ser. No. 156,673

Int. Cl. F231 15/02

U.S. Cl. 165-9

11 Claims



A crossarm member extending across the regenerator has one surface in sliding contact therewith and the other surface spaced a short distance away from an inwardly projecting ridge of the regenerator cover. A foil has one edge attached to the crossarm member and the other edge projects outward to contact the ridge. The central portion of the foil has a preformed step adjacent the welded edge and is wider than the end portions to accommodate pressure and temperature induced movement of the cover away from the regenerator during engine operation.

3,741,289

HEAT TRANSFER APPARATUS WITH IMMISCIBLE FLUIDS

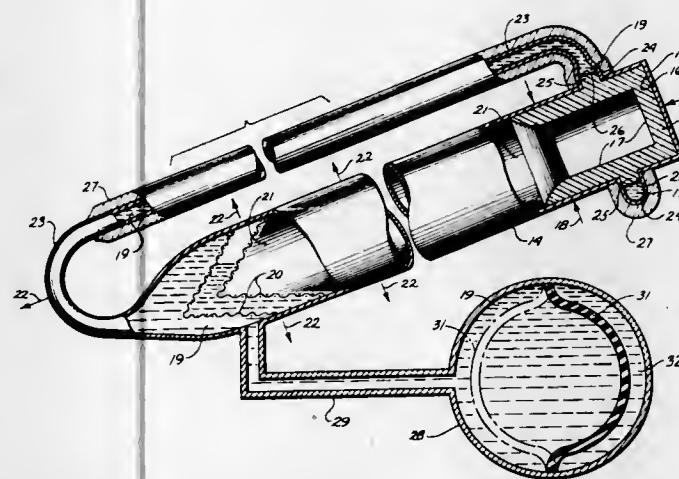
Robert David Moore, Jr., 817 W. Camino Real, Arcadia, Calif. Division of Ser. No. 52,642, July 6, 1970, Pat. No. 3,677,336.

This application May 14, 1971, Ser. No. 143,410

Int. Cl. F28d 15/00

U.S. Cl. 165-32

12 Claims



A heat transfer device, defined here as a heat link, having a capillary vaporizer adjacent a heat source, transfers heat to a

heat sink by vaporization and condensation of a heat transfer fluid within the device. A first passage is provided for conveying vapor from the capillary vaporizer to the heat sink. Another passage which is essentially a continuation of the first passage, conveys condensed liquid from the heat sink to the vaporizer, thus allowing the distance that the liquid must flow through capillary material to be quite short. Contact of the returning liquid with the surface of the vaporizer is assured by providing means for maintaining the temperature of the liquid in the return line at a sufficiently low temperature that any vapor will condense; or, alternatively, by having means for extracting any vapor formed in the returning liquid. In this manner, the heat link operates with high heat flux without any substantial resistance to liquid flow through a long capillary flow path. By thus replacing almost all of the liquid return wick, with its high resistance to fluid flow, of heat pipes with a low flow resistance liquid passage or conduit, the heat flux capacity of the heat link is greatly increased over that of the heat pipe while the quantity of porous material used and the heat link weight are considerably reduced so that a heat link typically has 10 to 1000 times the heat flux capacity of a heat pipe having the same weight. "Boosted" embodiments of the heat link employing additional means for circulating the fluid, such as vapor jet pumps, powered at least in part by vapor from the capillary vaporizer, are also described. Some "boosted" heat links are capable of handling heat fluxes in the multi-megawatt range while having no moving parts except for check valves and the fluid itself.

3,741,290

ENCLOSURE FOR AIR-CONDITIONERS AND THE LIKE

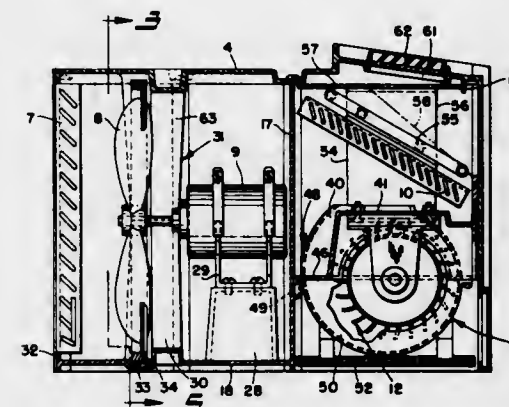
Clarence G. Nenadal, North Kingsville, Ohio, assignor to Premix, Inc., North Kingsville, Ohio

Filed Aug. 9, 1971, Ser. No. 170,011

Int. Cl. F25d 23/08

U.S. Cl. 165-48

16 Claims



An enclosure for through-the-wall or window type air-conditioners which may include additional heating and/or humidifying means. The enclosure consists of a one-piece, molded housing or chassis for supporting the various functional elements of the unit and a top and front cover. Centrally of the chassis is a firewall which extends between a pair of laterally spaced side walls intermediate the ends thereof. Suitable mounts are provided on opposite sides of the firewall for the condenser, compressor, evaporator, and other components. Portions of the blower housings may be molded integral with or separate from the chassis and provided with suitable mounts for the evaporator fan motor. Evaporator drain pan areas molded as part of the blower housings provide fast runoff of the condensate from the evaporator. A fan motor support, channelled water pan and lower portion of the fan shroud may be molded integral with the floor member of the chassis. The upper portion of the fan shroud is molded integral with the top cover. Such an enclosure greatly reduces the number of elements heretofore required for window or through-the-wall air-conditioning housing, thus simplifying the manufacturing procedures and reducing the overall size of units of this type, and eliminating the need for decorative covers previously required.

3,741,291 SELF-ADJUSTING SUPPORT CLIP FOR FINNED TUBE BASEBOARD RADIATORS

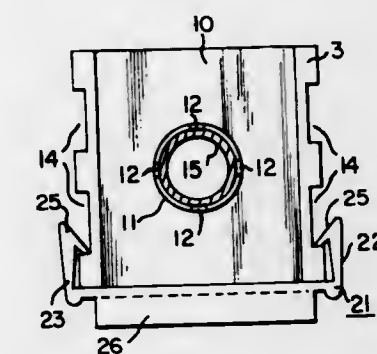
Uri Limoni, Hauppauge, N.Y., assignor to The Slant/Fin Corporation, Greenvale, N.Y.

Filed July 21, 1971, Ser. No. 164,662

Int. Cl. F24h 9/04

U.S. Cl. 165-55

9 Claims



There is disclosed a support clip for a fin tube baseboard radiator assembly. The clip comprises a U-shaped member having inclined sidewalls which have inwardly extending protrusions on the top inner surface of the sidewalls for coacting with a channel or ridge formed by a plurality of fins located about a heating pipe.

3,741,292

LIQUID ENCAPSULATED AIR COOLED MODULE

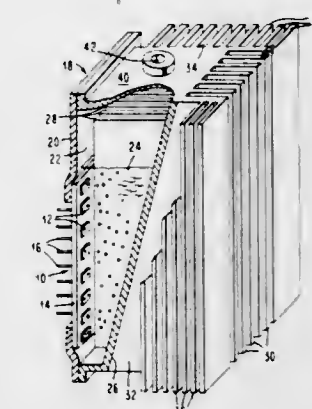
Nanda Kumar G. Aakalu; Richard C. Chu, and Robert E. Simons, all of Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1971, Ser. No. 158,318

Int. Cl. F28d 15/00; H01 1/12

U.S. Cl. 165-105

3 Claims



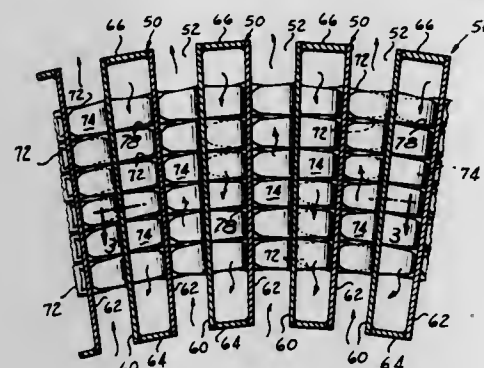
A plurality of heat generating components are mounted on a substrate which has a container attached thereto in sealed relationship such that the heat generating components are exposed to the inside of the container. A low boiling point dielectric liquid partially fills the container and completely covers the heat generating components. A vapor space is located above the liquid level which is filled with internal fins extending inward into the container serving as a condenser for the dielectric liquid vapors. External fins extend outward from the container to serve as an air cooled sink for the internal fins condenser.

3,741,293 PLATE TYPE HEAT EXCHANGER

Richard Joseph Haberski, Emerson, N.J., assignor to Curtiss-Wright Corporation, Wood-Ridge, N.J.
Filed Nov. 1, 1971, Ser. No. 194,136
Int. Cl. F28t 3/14

U.S. Cl. 165-166

9 Claims



The heat exchanger of the plate-fin type comprises at least three plates, the adjacent surfaces of which have spaced rows of extended surface elements. Each of the extended surface elements are curved in a direction away from its associated plate surface. The rows of extended surface elements of the adjacent surfaces are alternately arranged and with the extended surface elements of one plate surface positioned with its curvature in juxtaposed and opposite position relative to the curvature of extended surface elements of the next adjacent row of extended surface elements. The length, spacing and curvature of the extended surface elements are correlated so that when the heat exchanger is in use, the distal end of a first extended surface element abuts the next adjacent second surface element of the opposite plate surface in the area of the point of attachment of the latter to the opposite plate and the first surface element abuts at a point spaced from its distal end the next adjacent third surface element projecting from the opposite plate at a substantially corresponding point spaced from the distal end of the said third surface element. This interlocking and abutting relationship of the extended surface elements of opposite plates provides an assembly of high structural strength for resisting the flexure of the plates toward each other under a high differential pressure across the plates.

3,741,294 UNDERWATER WELL COMPLETION METHOD AND APPARATUS

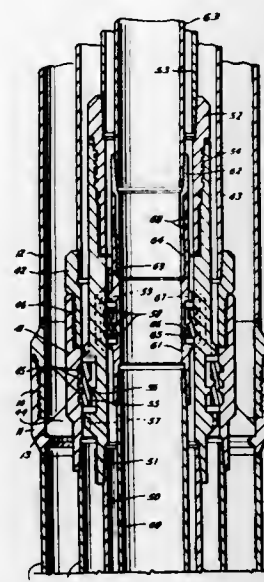
Charles Donovan Morrill, Bellaire, Tex., assignor to Courtaulds Limited, London, England
Continuation of Ser. No. 76,664, Sept. 30, 1970, abandoned.
This application Feb. 14, 1972, Ser. No. 226,348
Int. Cl. E21b 33/035

U.S. Cl. 166-0.5

45 Claims

Extended casing method and apparatus for completing an underwater well whereby complete and continuous pressure control is maintained at the surface drilling platform. A conductor casing is installed in the floor of a body of water with a casing head and riser attached near the floor. Other casing is installed and supported at the water floor by hanger heads and having other risers extending upwardly therefrom. Pressure control equipment is installed at the upper end of one of the risers. A tubing head designed to pass through the pressure control equipment and riser to which it is attached may be lowered to the innermost hanger-head and remotely latched

thereto. Orientation apparatus may be lowered into the tubing head and attached thereto. A tubing hanger and tubing may be lowered through the pressure control equipment and latched to the tubing head in an annular position determined by the



3,741,295 REPLACEMENT OF SUB-SEA BLOW-OUT PREVENTER PACKING UNITS

Fernando Murman, Palos Verdes Peninsula; George E. Lewis, Arcadia; Allen I. Dunn, Los Angeles; and Charles E. O'Brien, Whittier, all of Calif., assignors to Hydril Company, Los Angeles, Calif.

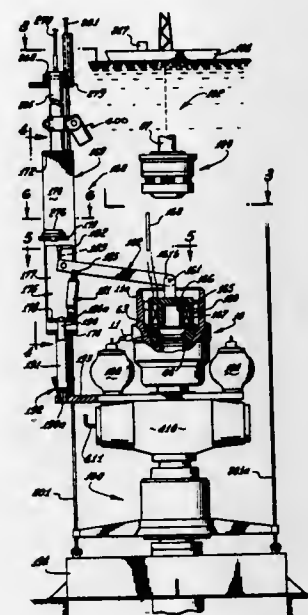
Division of Ser. No. 60,066, July 31, 1970, Pat. No. 3,662,823.

This application June 14, 1971, Ser. No. 153,093

Int. Cl. E21b 33/035

U.S. Cl. 166-.6

19 Claims



Apparatus and method to enable well blow-out preventer packer replacement at a sub-sea well head location.

3,741,296 REPLACEMENT OF SUB-SEA BLOW-OUT PREVENTER PACKING UNITS

Fernando Murman, Palos Verdes Peninsula; George E. Lewis, Arcadia; Allen I. Dunn, Los Angeles; and Charles E. O'Brien, Whittier, all of Calif., assignors to Hydril Company, Los Angeles, Calif.

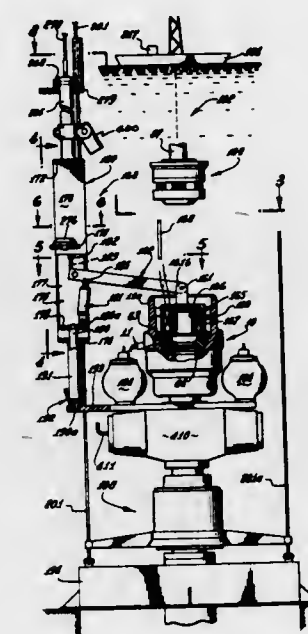
Division of Ser. No. 60,066, July 31, 1970. This application

June 14, 1971, Ser. No. 153,091

Int. Cl. E21b 33/035

U.S. Cl. 166-.6

14 Claims



Apparatus and method to enable well blow-out preventer packer replacement at a sub-sea well head location.

3,741,297 SUBSIDENCE WELLHEAD ASSEMBLY AND METHOD

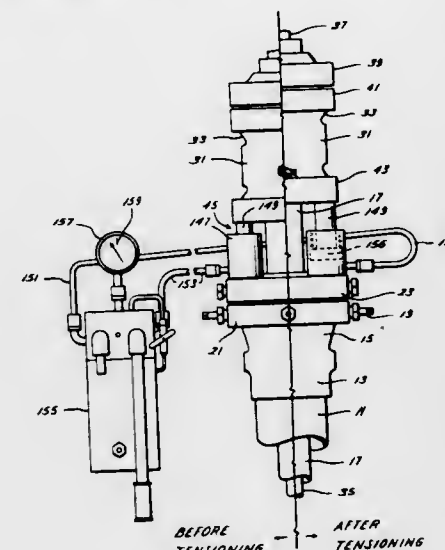
Andre H. Drouin, Houston, Tex., assignor to Rockwell Manufacturing Company, Houston, Tex.

Filed Feb. 17, 1971, Ser. No. 115,961

Int. Cl. E21b 33/03

U.S. Cl. 166-89

2 Claims



Production casing is retensioned with hydraulic jacks placed between tubing head flange and packoff flange connected to casing head flange, the production casing being screwed into tubing head and also supported in casing head by slip type casing hanger whose slips are spring biased downwardly. The packoff flange has a packing gland accessible from the top for seal replacement. The jacks are of the spring retract and fluid expand type adapted for actuation by a manual pump. A fluid pressure gage is calibrated to read in pounds of casing tension and is marked to show maximum permissible load on jacks.

3,741,298 MULTIPLE WELL PUMP ASSEMBLY

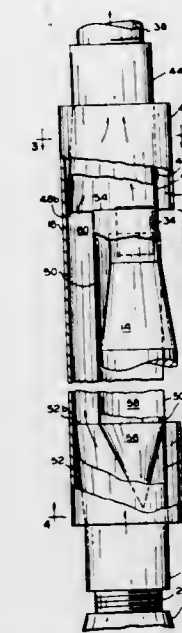
Lawrence J. Canton, 1713 N.E. 94th Street, Vancouver, Wash.

Filed May 17, 1971, Ser. No. 143,787

Int. Cl. E21b 43/00

U.S. Cl. 166-105

14 Claims



An adapter housing for mounting an auxiliary well pump in a bore hole to supplement the production of, and act as a standby for, the main well pump. The adapter housing is mounted above the main pump in the bore hole and comprises an elongate tubular member having a diameter preferably no greater than that of the main pump. Inside the housing are a longitudinal chamber for mounting an auxiliary pump smaller than the main pump and a longitudinal bypass portion for conducting fluid under pressure upward from the main pump. The lower end of the housing is coupled with the discharge port at the top of the main pump, and the upper end of the housing is coupled with the well discharge pipe which extends to the ground surface. The two ends of the housing communicate through the bypass portion to form a continuous conduit from the main pump to the surface. The auxiliary pump chamber runs almost the entire length of the housing and has a cross section smaller than that of the housing to allow room for the bypass portion. The chamber is completely sealed from the bypass portion but is exposed to the surrounding well fluid by means of a window in the side of the housing. The small auxiliary pump mounted within the chamber draws fluid through the window and discharges it under pressure through a discharge port into the bypass portion of the housing. There the fluid mixes with and supplements the fluid discharged by the main pump, and the combined discharge of the two pumps is conducted by pump pressure to the ground surface, through the well discharge pipe. The interior of the bypass portion of the housing is provided with streamlined surfaces to minimize turbulence and is coated with a suitable material to reduce flow friction and resist corrosion. Power means are provided for running both pumps simultaneously to augment production for peak flow requirements, or alternatively for running each pump separately when lower volume is required or when one of the pumps breaks down.

3,741,299 SIDEPOCKET MANDREL

Ben D. Terral, Houston, Tex., assignor to Camco, Incorporated, Houston, Tex.

Continuation-in-part of Ser. No. 180,315, Sept. 14, 1971, and

a continuation-in-part of Ser. No. 154,943, June 21, 1971. This

application Dec. 15, 1971, Ser. No. 208,294

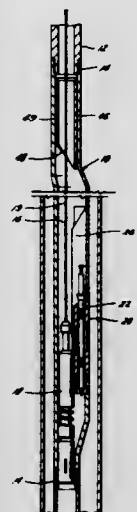
Int. Cl. E21b 7/06

U.S. Cl. 166-117.5

8 Claims

A mandrel for use in a well tubing in which the mandrel body has an open bore for alignment with the well tubing and

a sidepocket offset from the open bore for receiving flow control devices, having a housing for protecting tools in the pocket, having a deflecting guide surface for preventing tools moving in the bore from catching in the mandrel, and being of an extent for receiving and guiding flow control devices into the sidepocket, being of a size to admit and guide only devices



seatable in the pocket, and preventing the entrance of open bore tools into the pocket housing. A plurality of identical mandrels with orienting means in the open bore for aligning a flow control device into the housing anpocket with the guide receiving and guiding the flow control device toward and into the pocket.

3,741,300

SELECTIVE COMPLETION USING TRIPLE WRAP SCREEN

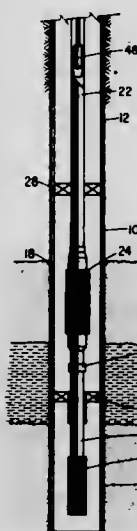
Charles S. Wolff, and Michael J. Jeansonne, Lake Charles, La., assignors to Amoco Production Company, Tulsa, Okla.

Filed Nov. 10, 1971, Ser. No. 197,241

Int. Cl. E21b 33/124

U.S. Cl. 166—184

3 Claims



This invention relates to a completion system for a well drilled in the earth and especially for a well drilled to an oil and gas producing formation. It relates to a system for selectively producing fluid from either an upper or lower zone and for providing sand control facilities for each zone. A tubing string is suspended in a well bore and has an upper sand screen and a lower sand screen which are adjacent the upper and lower producing zones respectively. A packer is set in the annulus about the tubing between the two sand screens. An

upper sleeve valve is mounted in the tubing string and is surrounded by the upper sand screen. Plug valve means are provided in the tubing string between the two sand screens. By selectively opening or closing the sleeve valve and the plug valve, production can be selectively opened from either the top or lower zones or both.

3,741,301

TOOL FOR GRAVEL PACKING WELLS

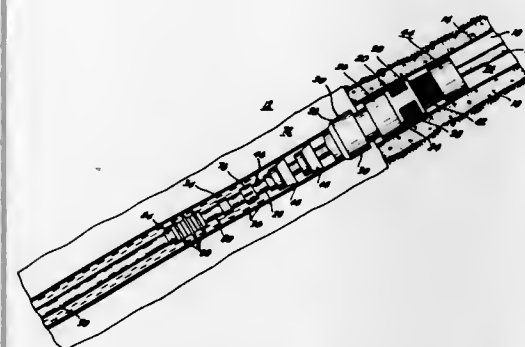
George P. Maly, Newport Beach, and Joel P. Robinson, Fullerton, both of Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Continuation-in-part of Ser. No. 16,502, March 4, 1970, Pat. No. 3,637,010. This application July 9, 1971, Ser. No. 161,023

Int. Cl. E21b 33/124

U.S. Cl. 166—191

9 Claims



Apparatus is disclosed for hydraulically placing a uniform gravel pack in a well around the exterior of a perforate liner, and especially for forming uniform gravel packs in wells inclined from the vertical. The apparatus is comprised of a number of tubular members that can be axially assembled to form a stinger pipe that is attached to a conventional gravel packing tool and placed in the interior of the perforate liner during the gravel packing operation. A plurality of flexible, radial flow control baffles are slidably mounted on the tubular members so that the assembled tool is axially movable within the liner, within a limited travel, and rotatable independent of the baffles.

3,741,302

LINER HANGING APPARATUS

Henry C. Brown, Odessa, Tex., assignor to Brown Well Service & Supply Company, Odessa, Tex.

Filed Sept. 8, 1971, Ser. No. 178,596

Int. Cl. E21b 43/10

U.S. Cl. 166—208

15 Claims



Apparatus for setting a liner pipe in a well casing including a hydraulically actuated liner hanger having a piston-cylinder

mechanism with seal means comprising two steel piston rings and a tetrafluoroethylene ring therebetween and having longitudinal protective ribs between toothed anchoring slips and extending radially at least as far as the slip teeth and including a float shoe having primary and secondary surge-type check valves to facilitate the creation of a pressure surge or pulse and actuation of the liner hanger.

3,741,303

POSITIONING TOOL

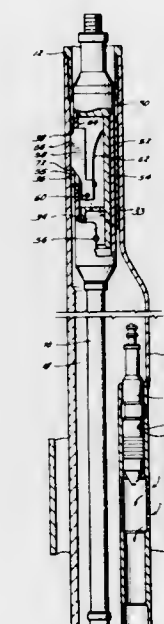
Ben D. Terral, Houston, Tex., assignor to Camco Incorporated, Houston, Tex.

Filed Nov. 17, 1971, Ser. No. 199,439

Int. Cl. E21b 23/02

U.S. Cl. 166—214

1 Claim



A positioning tool equipped with a pivoting locating finger which is actuated by engagement with an extended linear slot whose upper end is closed in a well tubing for placing well equipment in the precise position for setting in a well tubing thereby avoiding prematurely setting the well equipment at an undesired location in the tubing. The finger having a radial extending edge the longitudinal length of which is greater than the normal recesses in the well tubing whereby the finger may avoid the recesses and shoulders used to actuate the well equipment, and a spacer support supporting the well equipment desired to be actuated for positioning the well equipment when the locator finger engages the extended linear slot.

3,741,304

RETRIEVABLE WELL PACKER APPARATUS

Howard L. McGill, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Aug. 25, 1971, Ser. No. 174,598

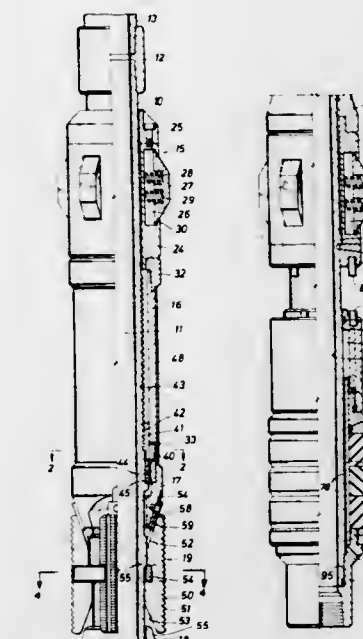
Int. Cl. E21b 23/06

U.S. Cl. 166—216

7 Claims

In accordance with an illustrative embodiment of the present invention, a retrievable well packer apparatus includes a mandrel adapted for connection to a pipe string and carrying normally retracted slips that can be expanded into anchoring engagement with a well casing; a slip expander assembly on the mandrel below the slips and movable upwardly

to expand the slips, and instrumentalities responsive to rotation of the mandrel by the pipe string for mechanically retract-



ing the slips so that the slips cannot be accidentally set as the packer is being withdrawn from a well.

3,741,305

METHODS FOR OFFSHORE DRILL STEM TESTING

David E. Young, James W. Kisling, III, both of Houston, and Benjamin P. Nutter, Bellville, all of Tex., assignors to Schlumberger Technology Corporation, New York, N.Y.

Division of Ser. No. 42,374, June 1, 1970, Pat. No. 3,662,826.

This application Aug. 25, 1971, Ser. No. 174,599

Int. Cl. E21b 47/06

U.S. Cl. 166—250

3 Claims



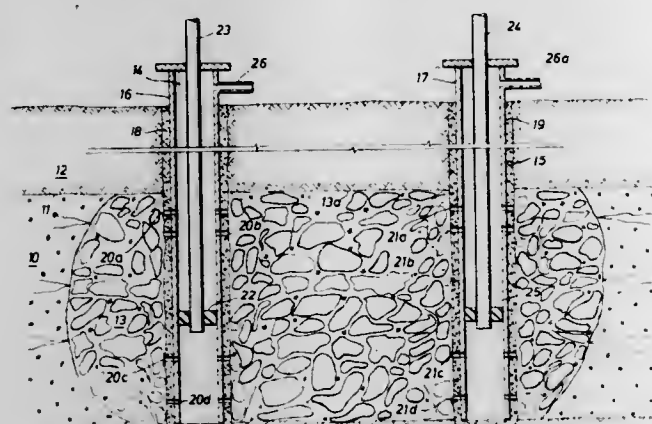
Methods for offshore drill stem testing from a floating vessel using a tester operated by upward and downward motion and coupled to a packer by a slip joint, the equipment being suspended in the well bore on upper and lower pipe string sections connected together by a slip joint. The tester and slip joints are balanced with respect to fluid pressure so that a sequence of free points observed on the rig weight indicator at the surface provides positive indications of operation of the tools.

3,741,306 METHOD OF PRODUCING HYDROCARBONS FROM OIL SHALE FORMATIONS

Michael N. Papadopoulos, Lafayette, Calif., and Russel C. Ueber, Houston, Tex., assignors to Shell Oil Company, New York, N.Y.

Continuation-in-part of Ser. No. 835,323, June 23, 1969, abandoned. This application Apr. 28, 1971, Ser. No. 138,021
Int. Cl. E21b 43/24, 43/26, 43/28
U.S. Cl. 166—252

27 Claims



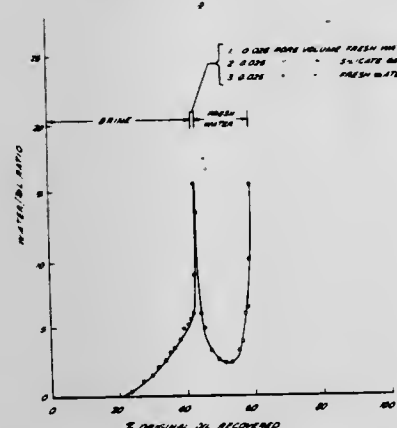
A new and improved method of producing hydrocarbons from a subterranean oil shale formation containing heat-sensitive carbonates comprising penetrating said formation with at least one well and forming a cavern therein so that communication is established between the surface and the cavern; circulating a hot fluid preferably in the upper region of the cavern to effect decomposition of the carbonates to carbon dioxide thereby causing pressure build-up resulting in fracturing and/or rubbleing and enlarging the cavern upward to a desired dimension; terminating this process by injecting, preferably simultaneously, into the upper region of the cavern a cooling fluid and into the rubbleized zone of the oil shale a kerogenpyrolyzing fluid to effect hydrocarbon recovery.

3,741,307 OIL RECOVERY METHOD

Burton B. Sandiford, Placentia, and Robert K. Knight, Fullerton, both of Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Filed Mar. 9, 1971, Ser. No. 122,336
Int. Cl. E21b 43/16

U.S. Cl. 166—273



A method for treating heterogeneous petroleum reservoirs to reduce channeling of subsequently injected flooding media is disclosed wherein an aqueous polymer solution is injected into the reservoir through an injection well in an amount sufficient to penetrate into the more permeable strata of the reservoir a substantial distance from the injection well, then a liquid agent that reacts in the reservoir to form or deposit a plugging material that reduces the permeability of the formation is injected through the injection well and into the forma-

tion immediately surrounding the well so as to selectively plug the more permeable strata adjacent to the injection well. Channeling of subsequently injected flooding media is reduced, resulting in more uniform flood patterns and higher sweep efficiencies and an attendant increase in oil recovery.

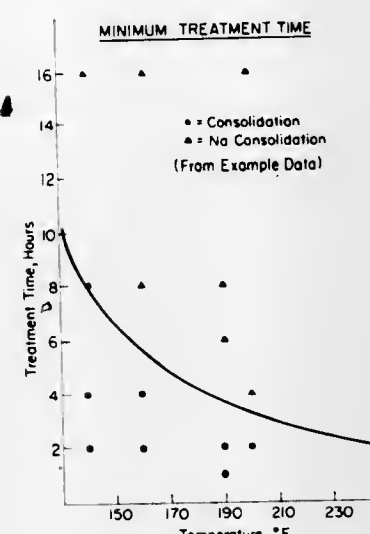
3,741,308 METHOD OF CONSOLIDATING SAND FORMATIONS

Carl Veley, Dallas, Tex., assignor to Permeator Corporation, Dallas, Tex.

Filed Nov. 5, 1971, Ser. No. 195,915
Int. Cl. E21b 33/138; E02d 3/14

U.S. Cl. 166—292

12 Claims



Loose sand is consolidated by passing an aqueous solution of calcium hydroxide through the sand. The solution is prepared and passed in such a fashion that the sand being consolidated reacts with at least about 4.0 grams Ca(OH)_2 per liter of pore volume in the sand body. Following this period, an additional time of up to 350 hours may be required, during which the solution remains in contact with the sand but does not necessarily flow.

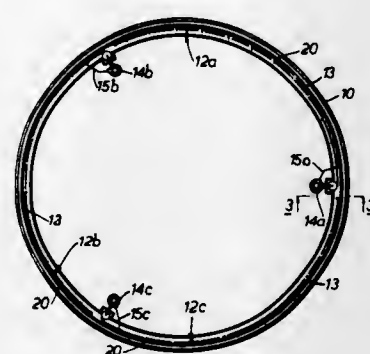
3,741,309 AUTOMATIC FIRE EXTINGUISHER SYSTEMS

Allister McCulloch, Moorabbin, Victoria, Australia, assignor to Graviner (Colnbrook) Limited, London, England
Filed Dec. 27, 1971, Ser. No. 212,289

Claims priority, application Australia, Jan. 4, 1971, 3632
Int. Cl. A62c 3/00

U.S. Cl. 169—2 R

5 Claims



An automatic fire extinguishing system for floating roof fuel tanks comprises several extinguishant containers mounted on the floating roof, a spray pipe system mounted around the periphery of the floating roof adjacent the roof/wall seal, and

several linear fire detector elements each protecting a respective part of the roof periphery. Each element controls a respective one of the extinguishant containers and, when it detects fire conditions, causes that container to discharge extinguishant into the whole of the spray pipe system.

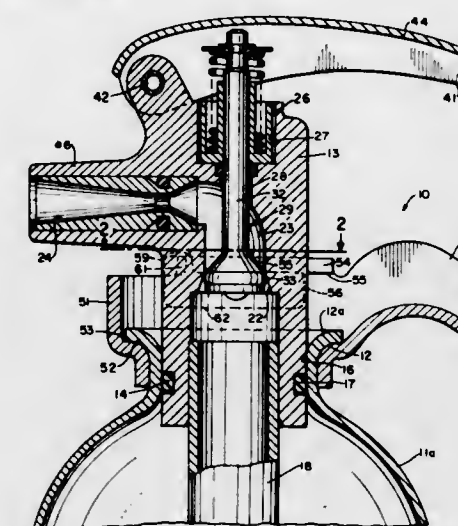
3,741,310 SAFETY HEAD ARRANGEMENT FOR FIRE EXTINGUISHER

Arne Hansen, New City, N.Y., assignor to Walter Kidde & Company, Inc., Belleville, N.J.

Filed Nov. 10, 1971, Ser. No. 197,286
Int. Cl. A62c 13/00

U.S. Cl. 169—31 R

12 Claims



Apparatus for dispensing a fluid medium under pressure is disclosed, including a container for storing the fluid medium and having a substantially tubular neck defining an opening. A control head is mountable within the opening and is movable relative to the longitudinal axis of the container to an outer position to seal the opening and to an inner position to vent the container. The control head is interlocked with the container by means of a bayonet type connection including a pair of inwardly extending flanges on the container and a pair of outwardly extending flanges on the control head. Inwardly and outwardly extending flanges are provided with mutually engageable abutment surfaces to constrain the control head against movement relative to the container when the control head is in its outer position.

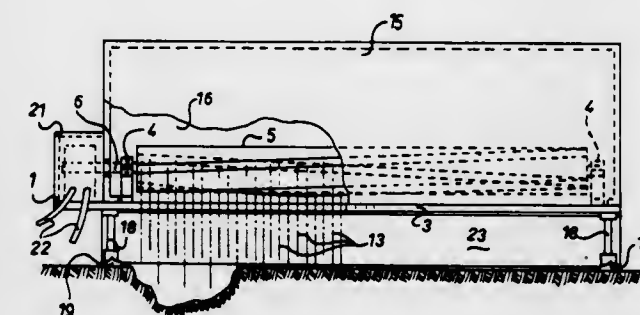
3,741,311 TOWABLE THRASHER

Roland Fleurant, St. Jovite, Quebec, Canada
Filed Nov. 16, 1971, Ser. No. 199,296

Int. Cl. A01b 33/00

U.S. Cl. 172—45

2 Claims



A towable thrasher adapted for comminuting ice, hardened snow and other substances spread on the ground and adapted for operation on rough terrains, such as ski slopes and fields having bushes and for operation on roads and airfields as well. A towable thrasher having a single pair of ground-engaging wheels or skis, an elongated rotary member or drum arranged

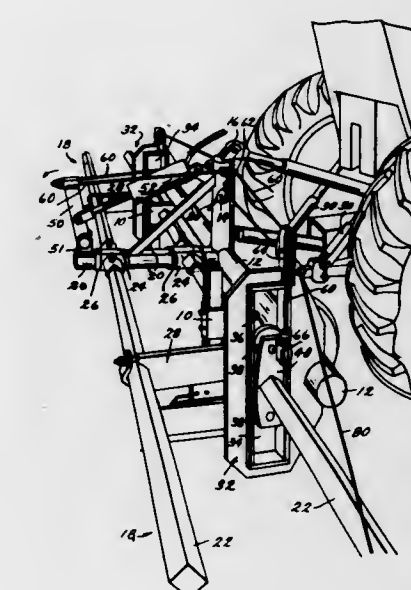
for rotation about a longitudinal axis thereof overlying the ground-engaging points of the ground-engaging wheels or skis, a motor to rotate the drum, and flexible beater elements secured in spirally arranged series onto the drum to successively hit the substance on the ground upon rotation of the drum. The ground-engaging wheels or skis are adjustable in height relative to the rotary member or drum to adjust the thrashing action.

3,741,312 AGRICULTURAL APPARATUS HAVING BRACING MEANS FOR LATERALLY EXTENDING PIVOTAL FRAME SECTIONS

Rex G. Hayter, 430 Sunbeam Road, American Falls, Idaho
Filed Aug. 6, 1970, Ser. No. 61,710
Int. Cl. A01b 59/06

U.S. Cl. 172—448

13 Claims



A planting, earth-working or earth-treating apparatus is provided with a plurality of frame sections which are mounted relative to a rigid support bar for limited pivotal movement about axes which extend along lines which are generally parallel to or coincident with the intended line of travel of the apparatus. The rigid support bar is of a form and configuration to be attached to standard three-point or other coupling arrangements of tractors and other prime movers. Guiding means are carried by the rigid support bar for bracing each of the frame sections to prevent unwanted rearward movement or distortion of the frame sections during forward travel of the apparatus. At the same time, the guiding means provide for limited vertical movements of the frame sections about their respective axes so that the apparatus can conform to the shape of uneven ground over which it is traveling. Power operated means are provided for individually adjusting the frame sections, as desired.

3,741,313 POWER-OPERATED IMPACT WRENCH OR SCREWDRIVER

Ronald Frederick States, London, England, assignor to Desoutter Brothers Limited, Hendon, London, England
Filed July 8, 1971, Ser. No. 160,606

Claims priority, application Great Britain, Apr. 30, 1971, 12,319/71

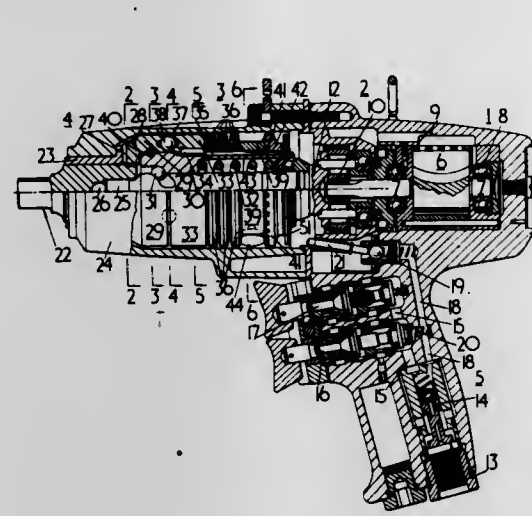
Int. Cl. B25b 19/00

U.S. Cl. 173—12

6 Claims

A portable power-operated impact wrench, screwdriver or the like rotary tool, provided with inertia means which causes increased disengagement movement of the hammers from the anvils to interrupt the power to the tool at a predetermined

maximum torque by movement of the inertia means in a longitudinal direction of the tool away from the hammers against bit is subjected to an oscillatory action. It may also be subjected to a percussive, vibratory or axial thrust action.



the action of a compression spring which is adjustable to vary the maximum torque developed by the tool.

3,741,314

PNEUMATIC SCREWDRIVER

Primo Leoni, and Isabella Cattini, both of Cavriago, Italy, assignors to Nuova L.A.P.I., Cavriago (Reggio Emilia), Italy

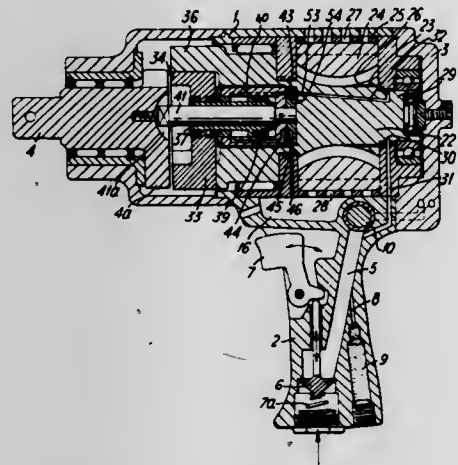
Filed May 24, 1971, Ser. No. 146,030

Claims priority, application Italy, May 25, 1970, 46873 A/70

Int. Cl. E21b 33/03

U.S. Cl. 173-93.6

2 Claims



Pneumatic screwdriver comprises a rotor driven by compressed air, a weight reciprocated by compressed air and turned by said rotor, and a drive member connected to be rotated by said weight only when said weight is near one end of its reciprocating path of travel.

3,741,315

DRILLING OR CUTTING OR EARTH STRATA

Allan Richard Hilton, Westhoughton, England, assignor to Mining Development A.G., Zug, Switzerland

Filed Dec. 23, 1970, Ser. No. 101,083

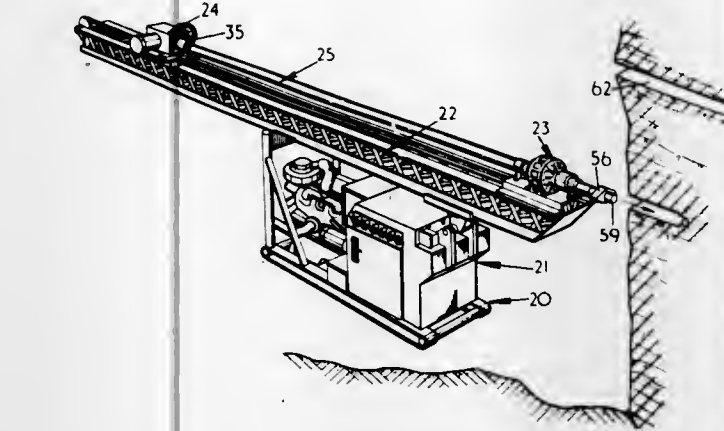
Claims priority, application Great Britain, Jan. 8, 1970, 913/70; May 2, 1970, 21,221/70

Int. Cl. E21c 3/30, 13/08

U.S. Cl. 173-105

13 Claims

A method and device for drilling in which a tool or cutting



jected to a percussive, vibratory or axial thrust action.

3,741,316

FLUID-OPERATED PERCUSSION TOOL

Remi F. Alajouanine, Clamart, France, assignor to Forges et Ateliers de Meudon, Societe Anonyme, Meudon (Hauts de Seine), France

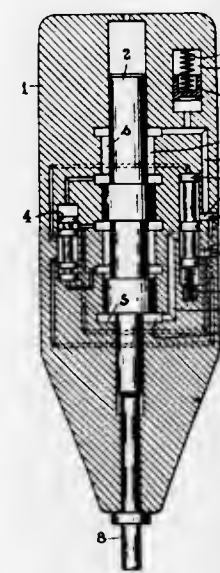
Filed Jan. 16, 1968, Ser. No. 698,326. The portion of the term

of this patent subsequent to Oct. 26, 1988 has been disclaimed.

Int. Cl. B25d 9/00

U.S. Cl. 173-107

2 Claims



Percussion tool actuated by an incompressible fluid, characterized in that the upper chamber of the cylinder is constantly responsive to the fluid pressure while the pressure is alternately applied to and removed from the lower chamber.

3,741,317

SEAL ARRANGEMENT FOR AN ELECTRO-PNEUMATIC ROCK DRILL

Josef Unterschweiger, Feldkirch-Nofels, Austria, and Peter Schmuck, Mauren Fuerstentum, Liechtenstein, assignors to Hilti-Aktiengesellschaft, Fuerstentum, Liechtenstein

Filed May 15, 1971, Ser. No. 142,924

Claims priority, application Germany, May 15, 1970, P 20 23 913.8

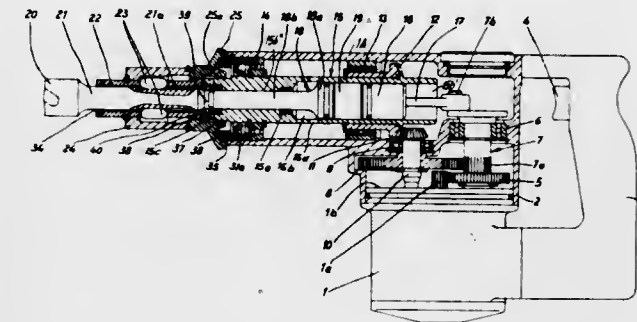
Int. Cl. B25d 11/00

U.S. Cl. 173-109

6 Claims

In an electro-pneumatic rock drill an axially extending bore is formed within a cylinder contained within a housing and the

bore has a forward part which has a smaller diameter than its rearward part. A piston is reciprocally mounted in the rearward part and is spaced from the forward end of a percussion piston which extends into the forward part of the bore. In operation, the piston transmits its reciprocating movement through the medium of an air cushion to the percussion piston which in turn drives a tool held in a holder adjacent the for-



ward end of the bore. A seal is provided in the forward part of the bore to prevent any passage of air rearwardly through the bore along the percussion piston. Further, a space is provided at the forward end of the percussion piston when it is in its rearward position, into which filtered air is drawn and expelled forwardly through the tool holder when the percussion piston transmits its energy to the tool so that dust-laden air cannot enter into the bore within the rock drill.

3,741,318

BORING MACHINE HAVING INTERNAL ACCESS FEATURE AND DISASSEMBLY METHOD

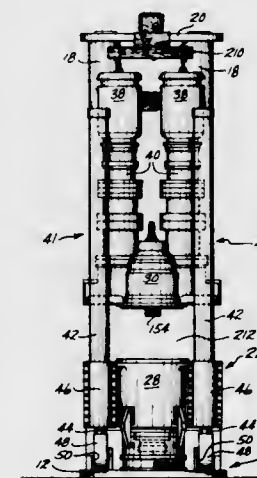
Harold T. Klein, Bellevue, and Wilson B. Porter, Seattle, both of Wash., assignors to The Robbins Company, Seattle, Wash. Continuation-in-part of Ser. No. 75,020, Sept. 24, 1970, Pat. No. 3,695,364. This application Oct. 20, 1971, Ser. No.

190,909

Int. Cl. E21b 3/02

U.S. Cl. 173-152

11 Claims



A traveling support frame is mounted for up and down travel along upstanding guide columns. Drilling equipment is carried by the traveling frame. The drilling equipment comprises a plurality of axially joined parts. The parts are constructed so that a portion of the drilling equipment can be anchored, removable connectors between two parts removed, and the traveling frame used to move the portion of the drilling equipment still attached to it away from the anchored portion. The internal components of the drilling equipment are easily removable from their housings within the access space provided when the two parts are moved apart.

3,741,319

IMPACT WRENCH HAVING TIME LAPSE CONTROL VALVE

Eimatsu Kotone, Osaka, Japan, assignor to Nippon Pneumatic Manufacturing Co., Ltd., Osaka-fu, Japan

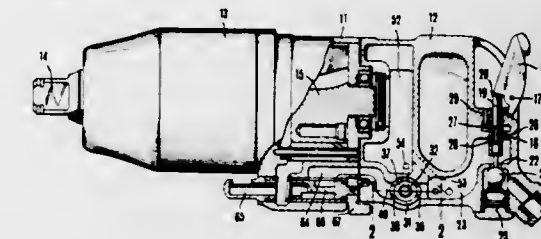
Filed June 30, 1971, Ser. No. 158,226

Claims priority, application Japan, July 20, 1970, 45/72580

Int. Cl. B25b 21/00

U.S. Cl. 173-163

6 Claims



An impact wrench includes a compressed air inlet port having a valve operable with a control piece. An air passage has an exhaust port which is closed when the valve is open. A time lag valve is slidably arranged in a chamber between the air passage and an air passage communicating with the inlet port. A throttle valve regulating flow rate is positioned at an inlet port communicating with an air receiver.

3,741,320

SUBSEA DRILLING ASSEMBLY

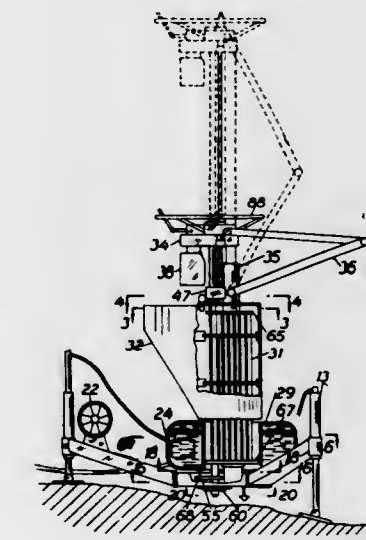
Karl Erik Hilting, Stockholm, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden

Filed July 12, 1971, Ser. No. 161,851

Int. Cl. E21b 19/14, 47/02

U.S. Cl. 175-6

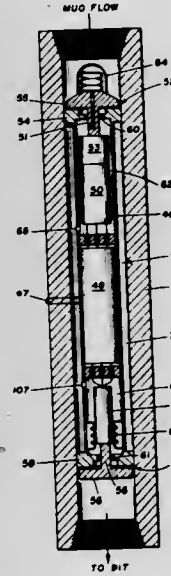
19 Claims



An off-shore drilling assembly comprises a main body which has sheaves or pulleys so that it can be lowered from a vessel like a block.

The main body performs a core drilling operation resting on the seabed. A traveller body can be pulled up and down between the vessel and the main body, fetching a core-containing core barrel inner tube from the bore-hole and delivering it to the vessel and returning it the emptied core barrel inner tube to the core barrel outer tube at the bottom of the bore-hole. The traveller body is firmly attached to the main body when it lands thereon.

3,741,321
MEANS TO PREVENT INWARD LEAKAGE ACROSS SEALS IN A WELL TOOL
 Vasek R. Slover, Jr., 210 W. Northgate, Irving, Tex.; Daniel E. Hawk, 1115 Lady Lane, Duncanville, Tex., and Jack C. Brady, 100 W. Lilly Lane, Arlington, Tex.
 Filed May 20, 1971, Ser. No. 145,373
 Int. Cl. E21b 47/00
 U.S. Cl. 175-40 5 Claims

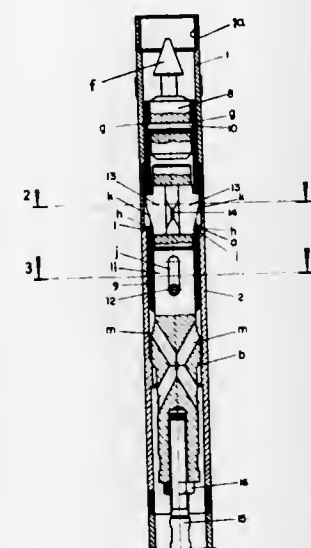


vided with receptacles for the rod parts and movable relative to the holder, the power rotating head being adapted to be



moved out of a position above the center of a bore hole into a position above the storage device of the magazine and vice versa.

3,741,323
DOUBLE TUBE CORE BARREL WHICH IS LOWERED THROUGH DRILL PIPE
 Dorin Constantinescu, Pacil; Sever Cruceanu, Grivitei; Eugen Spataru, Straduintei, and Nicolae Mereanu, Frumosa, all of Romania, assignors to Institutul de Proiectari si Cercetari Pentru Utiliz Petrolier-IPCUP, Bucharest, Romania
 Filed Mar. 19, 1971, Ser. No. 126,029
 Int. Cl. E21b 9/20, 25/00
 U.S. Cl. 175-246 1 Claim



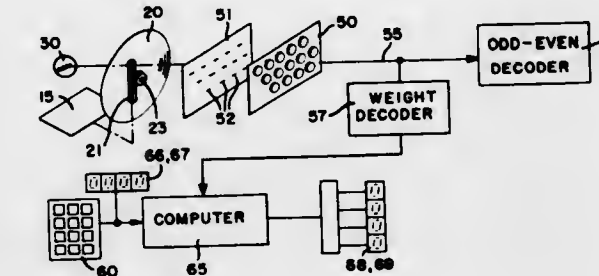
A means is provided for preventing leakage of drilling fluid into a housing of a logging-while-drilling tool around seals in said housing. As illustrated, the tool has at least one oil-filled compartment in which a shaft is journaled. The shaft extends outward from the housing and has a rotor of a turbinelike means attached to the end thereof. A seal surrounds the shaft where it exits the housing. A pressure-sensitive means is provided on the tool upstream of the rotor and is positioned so that the pressure of the mud at that point is applied to the external surface of the pressure-sensitive means. Since the interior surfaces of both the pressure-sensitive means and the seal are in fluid communication with each other through the oil-filled compartment, the pressure on the interior surface of the seal will be effectively the same as the upstream pressure of the drilling fluid. By construction, the drilling fluid has to pass through either the rotor or the stator of the turbinelike means before the fluid acts on the exterior of the seal. Since an inherent drop in pressure occurs in the drilling fluid across the rotor or stator, the pressure of the oil acting inside the seal will be greater than the pressure of the drilling fluid acting on the outside of the seal. Accordingly, any leakage around the seal will be that of oil leaking out and not drilling fluid leaking in.

3,741,322
DRILLING RIG WITH DRILL ROD MAGAZINE
 Jakob Wolters, Beeck, Germany, assignor to Maschinen-und Bohrerfabrik Alfred Wirth & Co. KG, Erkelenz, Germany
 Filed July 29, 1971, Ser. No. 167,159
 Int. Cl. E21b 19/14
 U.S. Cl. 175-52 13 Claims

A drilling rig comprising a mast on which a drilling carriage with a power rotating head is adapted to slide, a drilling rod magazine which is disposed on the mast or on the frame of the drilling rig and which has a holder for a storage device pro-

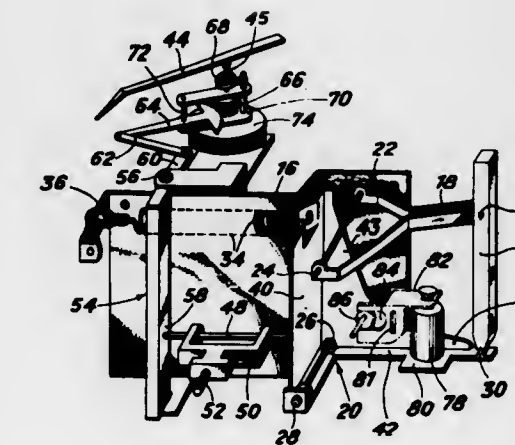
The double tube core barrel of the invention, which is to be lowered through a drill pipe, has a locking system between inner and outer tubular parts thereof which is particularly characterized by its sturdy and simple construction. Such locking system has two free, unlinked oscillating locking plates, the closing of the plates for releasing the locking system being accomplished by means of a sliding sleeve of special construction. This system eliminates every kind of failure of the locking system due to accidental deflection of the locking parts of classical systems provided with links. The core barrel of the invention also preferably has a novel system for breaking the core. Such core breaking system is provided with two core retainers. The supplementary core retainer is mounted on the outside tube; this allows the avoidance of traction overloading of the inner tube by reason of the taking over of these stresses by the outside tube. The system of the invention can be applied to core barrels with large sizes. When coring in soft rocks, the supplementary core retainer can be omitted.

3,741,324
WEIGHING SCALE WITH DIGITAL DISPLAY
 Edwin E. Boshinski, Englewood; Walter W. Clark, Xenia; Roger W. Riehl, and William M. Watson, both of Troy, all of Ohio, assignors to The Hobart Manufacturing Company, Troy, Ohio
 Filed May 3, 1971, Ser. No. 139,372
 Int. Cl. G01g 23/38
 U.S. Cl. 177-3 5 Claims



A weighing scale having a vertical housing with front and back walls includes electronic means for displaying visually the price per unit weight and the total price of goods placed on the scale platform. The housing also includes an optical chart, having human recognizable and machine recognizable indicia representing the weight of the goods placed on the scale platform, which moves through a distance proportional to the weight of the goods. Optical paths are provided to display visually the weight of the goods on ground glass plates mounted to be visible through the front and back walls, and a third optical path directs the machine recognizable indicia onto photodetectors to provide an electrical representation of the weight of the goods. An electronic computer within the scale computes the total value of the goods and displays this information visually, along with price per unit weight information provided by a manually operated keyboard, on electronic readout tubes.

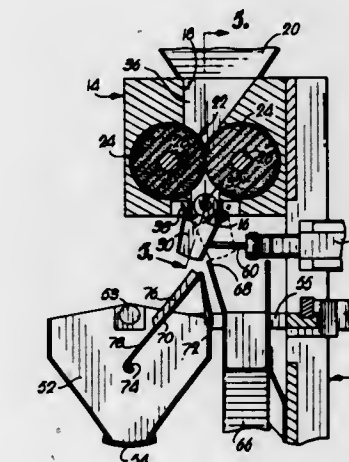
3,741,325
WEIGHING MECHANISMS
 Richard Stube, Gevelsberg, and Gunther Rimanek, Neider-Roden, both of Germany, assignors to said Stube, by said Rimanek, Gevelsberg, Germany
 Filed Oct. 13, 1971, Ser. No. 188,973
 Claims priority, application Germany, Jan. 20, 1971, P 21 02 519.4
 Int. Cl. G01g 23/14, 23/26
 U.S. Cl. 177-32 7 Claims



A weighing mechanism is capable of giving a direct reading of the quantity by weight of a substance contained in a quantity of mixture where the proportion of the substance in the mixture is known. The weighing mechanism includes a load member deflectable by the weight of objects to be weighed. A spring resists deflection of the load member and an indicator is provided which is adapted to be moved in response to deflection of the load member. An adjustable linkage is provided

between the load member and the indicator, and adjustment of the linkage changes the relationship between deflection of the load member and movement of the indicator.

3,741,326
APPARATUS FOR WEIGHING SAMPLES
 Robert D. Scraper, Hiawatha, Kans., assignor to Mid-America Testing Service, Inc., Hiawatha, Kans.
 Filed June 21, 1971, Ser. No. 155,126
 Int. Cl. G01g 11/00, 13/00
 U.S. Cl. 177-59 7 Claims



A material weighing apparatus for collecting a predetermined amount, by weight, of material. A feeding structure in the nature of rollers is provided for metering the material in a uniform and steady flow to a collector. A shiftable spout is positioned below the feeding structure for diverting the flowing material away from the collector when a weight-sensing mechanism has determined that the proper amount of material has been received by the collector.

3,741,327
WEIGHING DEVICE
 Kjell Helge Nordstrom, Avsnyrgat 15, and Rune Nils Allan Flinth, Rottargat 2, both of Vesteros, Sweden
 Filed Oct. 13, 1971, Ser. No. 188,957
 Int. Cl. G01g 21/22
 U.S. Cl. 177-163 17 Claims



A device for static or dynamic weighing of railway guided vehicles comprising a weigh rail adapted to replace a section of the normal rails with the weigh rail being supported at its ends independent of the adjacent rails and with shear sensing strain gages along the side surfaces of the rail and arranged on the neutral axis of the rail for sensing the load applied to the rail. The device may further include start and stop measuring gages on the weigh rail, an arrangement for providing side guiding of the weigh rail, a structural beam foundation for the weigh rail and spacer means for maintaining the spacing of the adjacent rail ends.

3,741,328

WEIGHING DEVICE WITH CANTILEVER WEIGHING CELLS

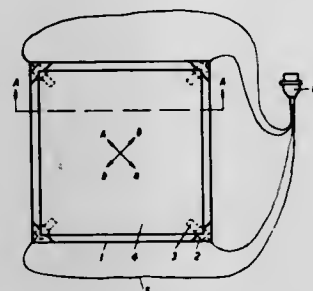
John-Erik Andersson; Jan Kenneth Gustafsson; Rolf Paul Haggstrom, and Bengt-Ake Karlsson, all of Karlskoga, Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden
Filed Apr. 7, 1971, Ser. No. 131,867

Claims priority, application Sweden, Apr. 13, 1970, 4986/70

Int. Cl. G01g 3/14

U.S. Cl. 177-210

7 Claims



A scale for weighing heavy loads comprising a horizontally disposed frame structure in which a load platform is horizontally supported by load cells at least at three points. The peripheral outline of the platform is such that it can be laterally and vertically displaced within the frame structure. The load cells include strain gauges each of which comprises a first and a second elongate member. The first member is fixedly secured to one end of the second member in a parallel aligned relationship therewith. One member of each strain gauge is secured to the frame structure and the other supports the platform. The members in the strain gauges are free to bend in response to a load placed upon the platform and such bending sets up corresponding potentials which are indicative of the load and are measured by suitable measuring means. Moreover, between some of the strain gauges and the platform are abutting bearing means so constructed that lateral movements of the platform cause vertical movements of the platform.

3,741,329

CHASSIS SUSPENSION ON VEHICLE FRAME

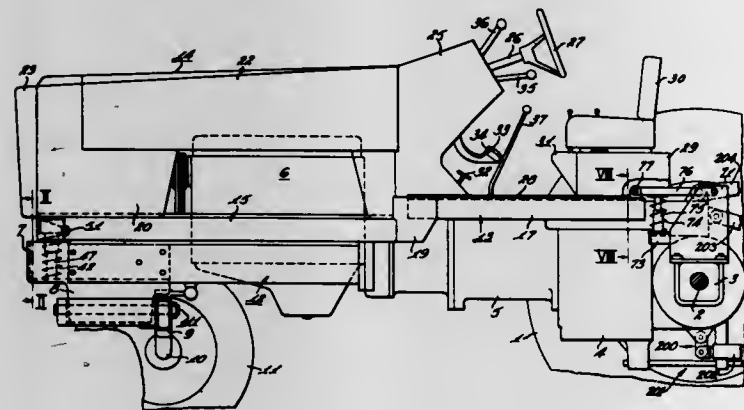
Owen K. Davis, Waukegan; Robert C. Haupt, Milwaukee; Kenneth N. Hansen, Waukegan, and Michael L. Slosiarek, Milwaukee, all of Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed May 18, 1971, Ser. No. 144,420

Int. Cl. B62d 33/06

U.S. Cl. 180-89 R

10 Claims



A suspension system including a vehicle main frame mounted unsprung on a plurality of wheels carrying a spring suspended chassis defining an operator station and engine hood for dampening vibration and shock transmitted from the frame to the chassis.

3,741,330

VEHICLE SAFETY DEVICE

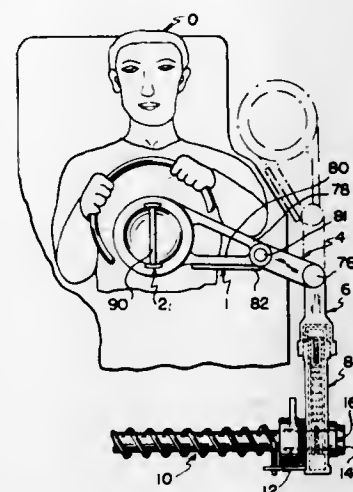
James Monaghan, 11849 Clifton Boulevard, Apt. 204 A, Lakewood, Ohio

Filed July 16, 1971, Ser. No. 163,379

Int. Cl. B60r 21/06

U.S. Cl. 180-103

56 Claims



The disclosure relates to a vehicle occupant restraint device. The device comprises a resilient pad for restraining the occupant, a transversely extending rigid support crossmember for disposing the pad in spaced proximity to the occupant's torso and a horizontal adjustment mechanism which permits adjustment of the horizontal spacing between the occupant's torso and the pad while preserving the disposition of the pad in an attitude parallel to the transverse general plane of the occupant's torso.

The device also may include an automatic operation system for positively restraining an occupant on accident impact.

3,741,331

CLOSE COUPLED FRAME STEERED ALL CRAWLER TRACTOR

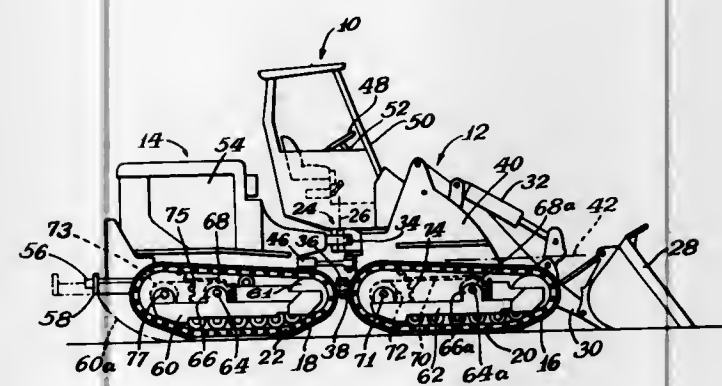
John J. Kowalik, Glenview, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Aug. 21, 1970, Ser. No. 65,826

Int. Cl. B62d 11/20, 55/30

U.S. Cl. 180-9.44

2 Claims



Frame-steered, all crawler tractor having articulated frame sections end-to-end, and crawler tracks provided on one section which can be retracted from those confronting crawler tracks in tandem therewith which are provided on the other section. In driving the tractor into a turn I thus afford a retractive endless track, say a rear track which, as I make the turn, takes the inside of the turn, but at all times keeps its distance from the front track at the inside of the turn.

There is no interference because the retractive track, in the case of the rear track for instance, does not try to climb up on the front track, and the resulting close-coupled articulated vehicle is not train-like in length.

3,741,332

SAFETY DEVICE FOR MOTOR-VEHICLE ENGINE-SPEED GOVERNOR

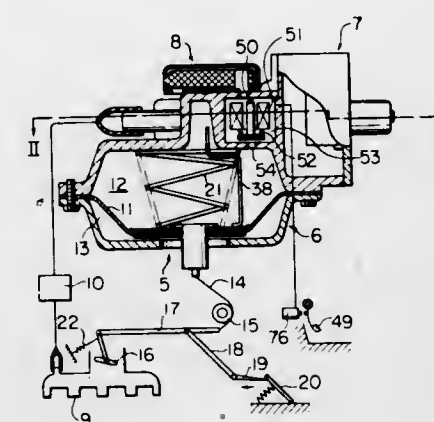
Naoji Sakakibara; Yasuhiro Kawabata, and Korehiko Tsukuba, all of Kariya, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan

Filed Dec. 22, 1970, Ser. No. 100,626

Int. Cl. B60k 31/00

U.S. Cl. 180-108

4 Claims



A safety device for a motor-vehicle engine-speed governor in which a safety-valve means is built additionally in the control valve means of the engine-speed governor. This safety valve means is opened when the motor-vehicle speed increases beyond the range of normal cruising speed defined by the engine speed governor by admitting atmospheric air into a vacuum chamber operatively connected to an engine throttle member and hence closing the same to reduce the vehicle speed. Alternatively, the safety valve means may be replaced by normally open switch means which, when closed in the event of excessive speed, opens the electromagnetic valve means of the engine speed governor adapted to provide communication between the vacuum chamber and the atmosphere upon depression of a brake pedal.

3,741,333

GENERATORS OF FLUID WAVE TRAINS

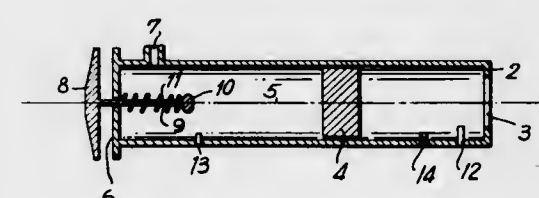
Raymond Muniz, Versailles, and Robert Argirakis, Legue de Longroi, both of France, assignors to Compagnie Generale De Geophysique, Paris, France

Filed Jan. 23, 1969, Ser. No. 793,415

Int. Cl. G01v 1/02

U.S. Cl. 181-5 H

7 Claims



A generator produces vacuum or pressure surges in a sea or a lake so as to form seismic wave trains passing through the bottom of the water bed and back into the water for subsequent investigation. The generator includes a movable system, mainly a disc or a cylinder cover adapted to move between predetermined limits under the impact of a hammering means constituted as a piston urged forwardly in a cylinder so as to violently strike the rear end of the movable system and to produce thereby the desired surges to the rear and/or front of the movable system. The hammering means is subjected when released to the hydrostatic pressure which urges it forwardly into engagement with the rear end of the movable system constituted advantageously by a rod rigid with the disc or the like and extending coaxially in the cylinder for cooperation with the piston.

3,741,334

METHOD AND APPARATUS FOR MEASURING THICKNESS BY EXCITING AND MEASURING FREE RESONANCE FREQUENCY

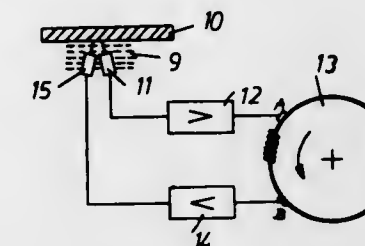
Walter Kaule, Cologne-Dellbrück, Germany, assignor to Dr. J. M. H. Krautkramer, Gesellschaft für Elektrophysik, Cologne-Klettenberg, Germany

Filed May 21, 1971, Ser. No. 145,618

Int. Cl. G01n 29/00

U.S. Cl. 181-0.5 NP

20 Claims



The ultrasonic frequency of the thickness mode free resonance of plates or sheets is measured to precisely determine their thickness. The thickness free resonance is the natural frequency of vibration of the plate or sheet in the thickness mode when the same is not influenced by contact probes or the like and is not subject to the application of external energy. The free resonance is induced by first subjecting the portion of the article to be measured to a noise source for a first time interval; thereafter picking up the free resonance ultra sound produced by the article; storing the decaying sound; and, after the article has ceased resonating, feeding back the decaying sound to the sheet to induce high amplitude resonant vibrations therein; stopping the feed-back after a short interval; allowing the resonance to decay in its natural mode; again picking up and storing the decaying resonant frequency sound produced by the article; after resonance has ceased, again feeding back the decaying resonant frequency sound to the sheet; and so forth repetitively. Sound frequency meters are employed for measuring the frequency of the sound produced by the article when it is not being excited, i.e., when the resonance is decaying in its natural mode.

Apparatus provided by the invention comprises a liquid coupling medium in which the sheet or plate is immersed; an ultrasonic transducer for radiating ultrasound to the article; a second ultrasound transducer for picking up the resonant sound produced by the article; appropriate amplifiers; and a delay line in the form of a rotating magnetic recording apparatus for recording the decaying resonant frequency and, after the resonance has died out, feeding the same back through the irradiating transducer. Alternative apparatus locates the transducer ten centimeters away from an article to provide inherent delay in the transmission path to and from the article and comprises an electronic switch connecting the two ultrasonic transducers, and amplifiers in a feed-back loop with the article, the excitation being applied only at intervals greater than the decay period of the article's resonance. Also disclosed is an auxiliary ultrasonic pulse echo system for measuring transmission distance from the transmitting transducer to the article plate and for controlling the electronic switch accordingly.

3,741,335

SOUND REDUCING UNIT FOR MACHINERY

Rene D. Lebeau, Hartselle, Ala., assignor to Woodworking Engineering & Machinery Co. Inc., Hartselle, Ala.

Filed May 30, 1972, Ser. No. 257,512

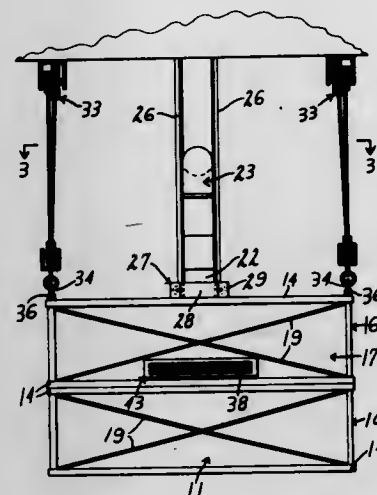
Int. Cl. G10k 11/00

U.S. Cl. 181-33 K

11 Claims

An open top housing formed of sound deadening material surrounds the lower portion of machinery with the upper por-

tion of machinery encased by a movable housing formed of sound deadening material. A depending conduit extends through top of the movable housing with cooperating guide means between said top and the depending conduit limiting



lateral movement between said top and the conduit. Movable housing is moved selectively along the conduit to an upper position spaced from the stationary housing to a lower position in cooperation with the stationary housing.

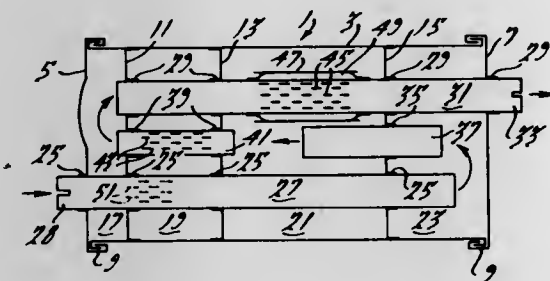
3,741,336 EXPANSION TYPE SILENCER

James B. Malosh, Calumet, Mich., assignor to Tenneco Inc., Racine, Wis.

Filed June 10, 1971, Ser. No. 151,867
Int. Cl. F01m 1/08

U.S. Cl. 181-54

13 Claims



A retroverted or tri-flow type muffler for use in internal combustion engine exhaust systems has inlet and outlet tubes and a pair of expansion chambers interposed in the gas path between the tubes, the chambers being interconnected by an intermediate imperforate tube which together with the two chambers is tuned to attenuate a broad band of frequencies.

3,741,337 AERIAL PLATFORM-SAFETY CONTROL

Walter L. Visinsky, 302 Sidney, Houston, Tex.

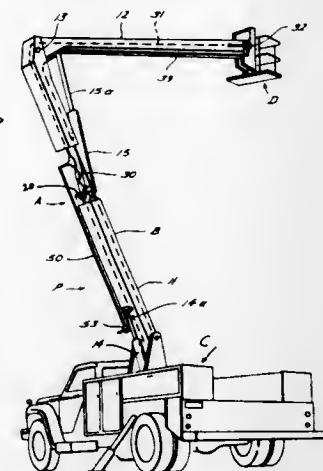
Filed Aug. 16, 1971, Ser. No. 171,811
Int. Cl. B66f 11/04

U.S. Cl. 182-148

2 Claims

A hydraulic flow control circuit for use with the hydraulic lifting piston in an aerial platform for controlling the rate of the descent of the aerial platform when the power supply for furnishing fluid pressure to the lifting piston is inoperative including a flow conduit for flowing hydraulic fluid from the high pressure side of the lift piston with orifice means in such flow line for restricting the rate of fluid flow to limit the rate of

descent of the aerial platform with flow control means adjacent the aerial platform to enable the occupant of the aerial



platform to lower the platform safely when the power source for hydraulic fluid is inoperative.

3,741,338 VERTICALLY COLLAPSIBLE UPRIGHT FOR LIFTING GANTRIES AND THE LIKE

Pierre E. Durand, 39 rue des Noirets, 21 Gevrey-Chambertin, and Jean Ch. Durand, 56 rue du Transvaal, 21 Dijon, both of France

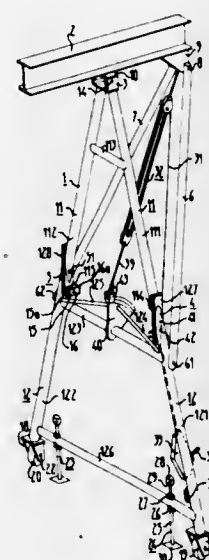
Filed June 6, 1972, Ser. No. 260,218
priority, application France, June 11, 1971,

7122126

U.S. Cl. 182-155

Int. Cl. F16m 11/00

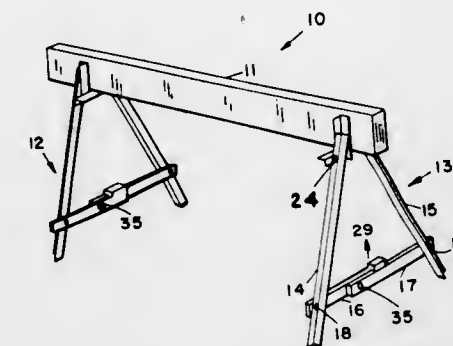
6 Claims



For a vertically collapsible apparatus including an upper beam, such as lifting gantries, scaffolding, . . . , a vertical upright or leg, normally used in pair, said leg comprising three elements pivoting on one another and on the beam by four axes of articulation (as known per se), wherein the four axes are parallel and perpendicular to the axis of the beam. The three elements are: a triangular element articulated by its apex on the beam at a distance of the end thereof, a trapezoidal element pivoting at the base of the first triangular element, and another triangular element having its apex articulated on the end of the beam and its base articulated on the trapezoidal element between the large and the small base thereof, whereby said apparatus can assume an operating and a transport position by a simple and practical manual operation.

3,741,339
COLLAPSIBLE SAW HORSE STAND
Douglas C. Eubank, Monument Circle, Indianapolis, Ind.
Filed Dec. 13, 1971, Ser. No. 207,472
Int. Cl. E04g 1/32; F16m 11/00
U.S. Cl. 182-186

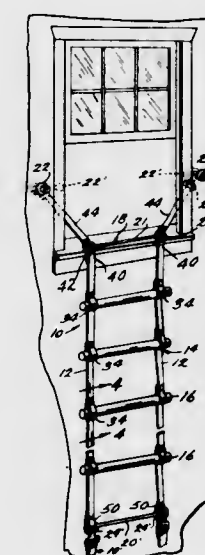
2 Claims U.S. Cl. 182-228



A collapsible stand for supporting one end of a saw horse beam. The stand has two legs pivotally mounted near their top ends to a horizontally extending bar. A pair of upwardly extending members are pivotally mounted to the bar inwardly of the legs. Means are mounted to the lower portion of the legs to spread the lower portions apart thereby forcing the top leg ends against the members to clamp the saw horse beam therebetween. The members and legs each have an L-shaped cross section.

3,741,340
FLEXIBLE LADDER
William L. Andrews, 1 S. Ridge Road, Richmond, Va.
Filed Nov. 18, 1971, Ser. No. 199,919
Int. Cl. E06c 1/56
U.S. Cl. 182-196

14 Claims

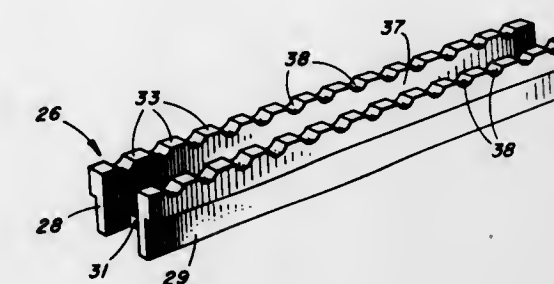


Loops are formed at correspondingly spaced levels in two flexible fabric tapes. The two loops at each level receive the opposite ends of a ladder rung. The ladder is provided with a top rung that prevents lateral separation of the tapes to prevent disconnection of the rungs from the tape during use of the ladder. The tapes are provided with means at the upper ends for securing the ladder to the inner side of a building exterior wall on opposite sides of a window. Means may be provided on the lower end of the ladder for securing another ladder section thereto, with ladder side separation preventing means.

911 O.G.-48

3,741,341
SELF CLEANING SAFETY STEP BAR
Leopold Bustin, P. O. Box 589, Dover, N.J.
Filed July 1, 1971, Ser. No. 158,929
Int. Cl. E06c 7/08

1 Claim

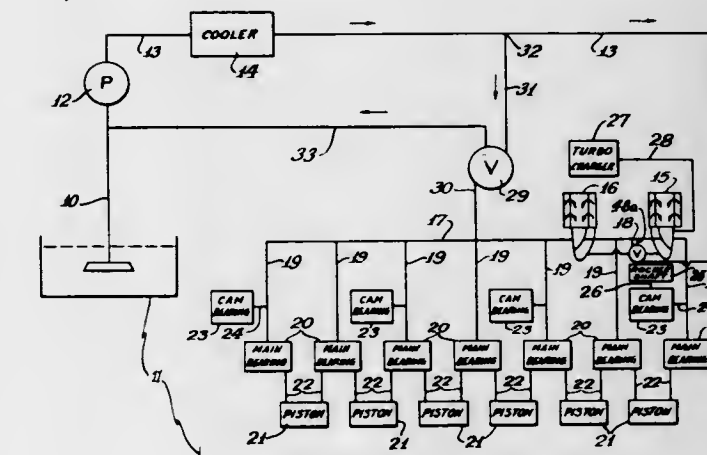


A safety step bar, e.g. for use in the manufacture of ladders, includes a first longitudinally extending strip and a second longitudinally extending strip which are disposed in parallel relationship and spaced by a plurality of transversely extending bars between the inner surfaces of the first and second strips. The upper edges of the longitudinally extending strips are formed to define prongs for providing a non-skid surface for the step bar.

The bar of the invention is disclosed as being manufactured by extrusion or like processes to define a monolithic structure to improve the manufacturing economies.

3,741,342
ENGINE OIL COOLING AND FILTERING METHOD AND APPARATUS
Raymond J. Maddalozzo, Chicago, Ill., assignor to International Harvester Company, Chicago, Ill.
Filed Nov. 8, 1971, Ser. No. 196,710
Int. Cl. F16n 39/06; F01m 5/00
U.S. Cl. 184-6.4

3 Claims



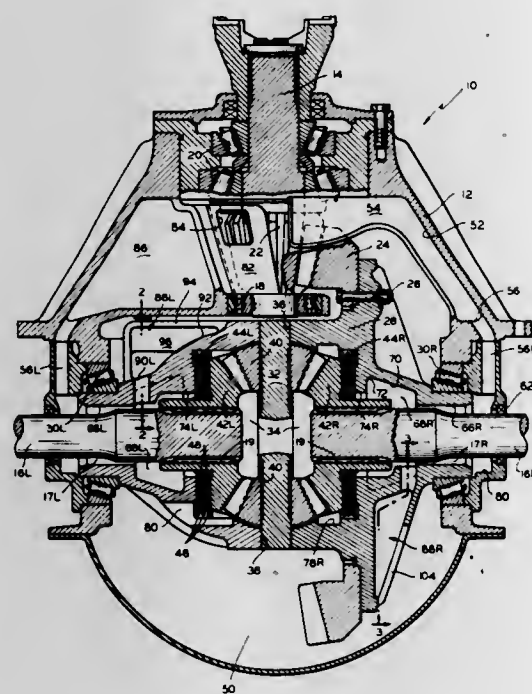
Forced engine lubrication system with cooler, filter, pressure regulated shunt around the filter, and a bypass back to the inlet side of or to the fluid source to, an oil pump supplying the system, the system novelly operated by a bypass valve responsive to pressure in the oil gallery of an engine. The bypass is connected to a region of the system between the cooler and the filter so that all the lubricant is cooled, and the bypassed portion of the lubricant does not go through the filter.

3,741,343

LUBRICATION SYSTEM FOR A DIFFERENTIAL
John A. Lindenfeld, St. Joseph, Mich.; Cleith L. Hartz, South Bend, Ind., and Noah A. Shealy, Niles, Mich., assignors to Clark Equipment Company, Buchanan, Mich.
Filed Apr. 29, 1971, Ser. No. 138,514
Int. Cl. F16n 7/16

U.S. Cl. 184—11 A

13 Claims



A differential having a lubrication system for supplying lubricant to the interior of the rotating differential carrier both at high and low rotative speeds. An axleway is provided in the carrier along its axis of rotation and a first bore forms that portion of the axleway adjacent the carrier's inner cavity. Cups are provided around the carrier's exterior and fluid passages extend radially through the carrier from these cups into the axleway to a radius less than the radius of the first bore.

3,741,344

APPARATUS FOR AUTOMATIC LUBRICATION OF VIBRATION GENERATORS

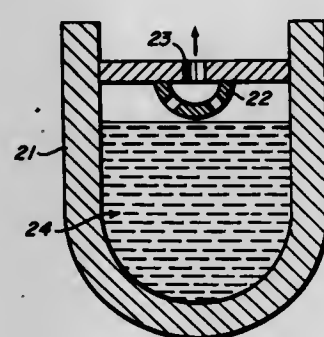
Alois Kohl, and Rudolf Hartmannsgruber, both of Munich, Germany, assignors to Wacher-Werke KG, Munich, Germany

Filed Mar. 15, 1971, Ser. No. 123,955
Claims priority, application Germany, Mar. 14, 1970, P 20 12 292.3

Int. Cl. F16n 7/32

U.S. Cl. 184—69

1 Claim



A method of and arrangement for automatically lubricating a vibration generator according to which the vibration of the vibration generator to be lubricated is conveyed to means in a lubricant-containing storage vessel, which means release lubricant to the area to be lubricated in conformity with the vibrations of the vibration generator.

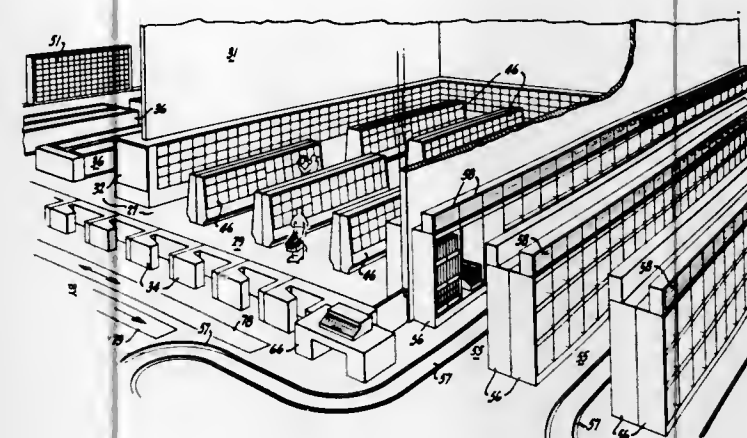
3,741,345

SEMI AUTOMATED RETAIL STORE

Harry Saridis, 1741 Delaware Street, Berkeley, Calif.
Filed Mar. 3, 1971, Ser. No. 120,465
Int. Cl. E04h 3/04

U.S. Cl. 186—1 R

4 Claims



Retail store equipped for both self-service and order service wherein the order service portion displays coded samples of goods, supplies of which are stored in coded areas of a storeroom with signal lights for each area of the storeroom which is traversed by a truck for order filling. A store control station includes a computer for comparing with its memory a customer filled-out order for activating in the storeroom goods-signal lights, a lit set of which relate to a customer's order for goods. The truck is equipped with a computing device to read a plurality of order cards. Goods are delivered from the truck terminis by conveyor to final check out and the customer is notified by a call board when her order is ready. A storage conveyor is provided for holding goods at their final check out adjacent an auto pick-up zone.

3,741,346

SHOCK-PROOF FORK SUPPORT FOR FORK LIFT TRUCKS

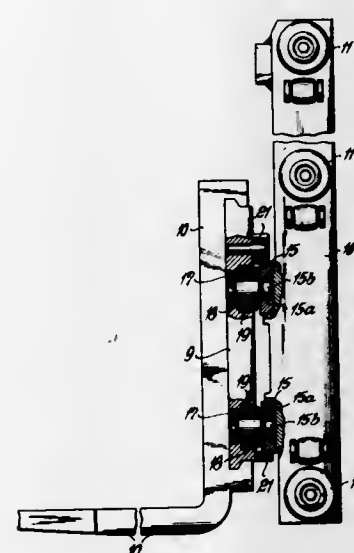
Bernhard Herdemann, Dortmund-Hombruch, Germany, assignor to Orenstein & Koppel Aktiengesellschaft, Berlin, Germany

Filed Oct. 7, 1971, Ser. No. 187,426
Claims priority, application Germany, Oct. 8, 1970, P 20 49 414.8

Int. Cl. B66b 9/20

U.S. Cl. 187—9

4 Claims



A telescopic mast with stand mast and drive mast for fork lift trucks, which includes a fork support vertically movable in the drive mast and also includes load pick-up and supporting

elements connected to said fork support by means of a supporting plate, which latter is in horizontal direction elastically supported by the base frame of the lift carriage.

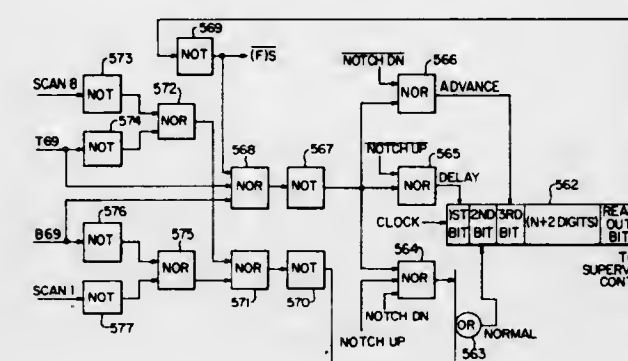
3,741,347

STATIC ELEVATOR SUPERVISORY SYSTEM

Andrew F. Kirsch, Edison, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 13, 1971, Ser. No. 179,644
Int. Cl. B66b 1/18

U.S. Cl. 187—29 R

21 Claims



In a scanning type elevator control system, various control signals associated with the individual landings are serially stored in shift registers in the order of the landings. Circulation of the signals through the shift registers is synchronized with the scanner so that the signals associated with a particular landing are presented to the supervisory control each time the scanner is scanning the particular landing. When a shift register is utilized as a floor selector a signal representing the position of the car is advanced or retarded in the scanning sequence as the car moves from one floor to the next.

3,741,348

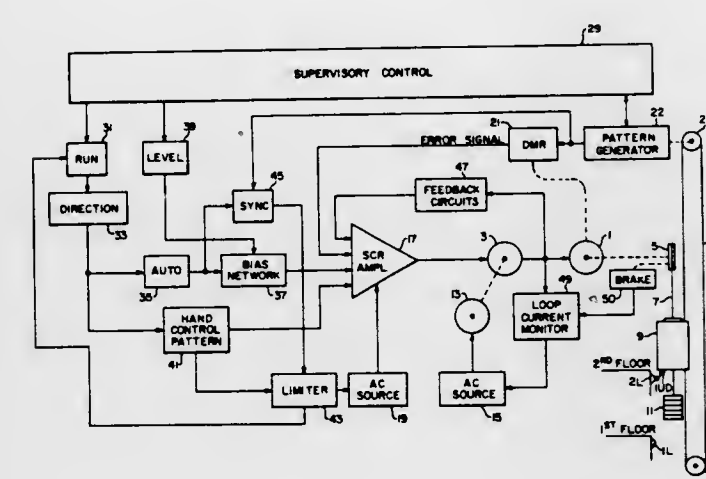
MOTOR CONTROL SYSTEM

William R. Caputo, Wyckoff, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Continuation of Ser. No. 837,442, June 30, 1969, abandoned.
This application Nov. 12, 1971, Ser. No. 198,199

Int. Cl. B66b 1/30

U.S. Cl. 187—29 R

25 Claims



A variable-voltage elevator drive system uses a silicon controlled rectifier amplifier to excite the field of the direct current generator directly from an alternating current source. A speed reference signal generated as a continuous function of the position of the car relative to the landings is compared with the actual speed of the motor in a drag magnet regulator.

The error signal thus produced is combined with a bias signal which compensates for the lag in the response of the elevator car, and the resultant signal controls the SCR amplifier. Leveling is accomplished utilizing the error signal without the bias. If the car starts outside of the leveling zone, a positive limitation is imposed on the speed attainable by limiting the potential of the alternating current supplied to the SCR amplifier until resynchronization is accomplished at the next stop. A negative feedback loop further reduces the response of the system under these conditions. High loop current flowing two seconds after the brake is set shuts down the system. On hand control a fixed reference signal dampened by a signal proportional to the back electromotive force of the motor controls the SCR amplifier.

ERRATUM

For Class 187—95 see:
Patent No. 3,741,351

3,741,349

NUCLEAR REACTORS

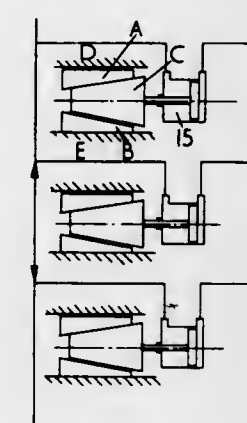
Robert Banks, Vicars Cross, England, assignor to The Nuclear Power Group Limited, Knutsford, Cheshire, England
Filed Dec. 3, 1970, Ser. No. 94,748

Claims priority, application Great Britain, Jan. 14, 1970, 1,785/70

Int. Cl. B61h 7/12

U.S. Cl. 188—42

2 Claims



In a nuclear reactor, clamping means for clamping together a moving member and a fixed member against the effects of seismic shock comprise wedge devices mounted between fixed and moving members, the wedge devices comprising wedges adapted to be moved into contact with opposed surfaces of moving and fixed members by an actuating member operated by external means manually or automatically. The clamping means may be associated with a fuel charging machine.

3,741,350

ACTUATING AND RETURNING DEVICES FOR DISC BRAKES

Wilhelm Knapp, Bad Hamburg, Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Nov. 1, 1971, Ser. No. 194,199
Claims priority, application Germany, Nov. 21, 1970, P 20 57 322.2

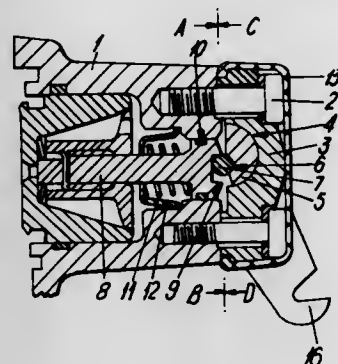
Int. Cl. F16d 65/46

U.S. Cl. 188—72.6

1 Claim

There is disclosed an actuating and returning device for spot-type disc brakes. The device disclosed can be positioned at any desired position around the disc, it is cheap and simple to manufacture. The semi-circular shaft of the actuating lever is held and guided in a semi-circular guideway of a support cover detachably connected to the housing. The shift is secured against axial shafting by means of a power transmitting roller disposed in a semi-circular recess in the shaft with the recess being disposed eccentrically with respect to the axis of the shaft. The roller is guided in a groove formed in

the end of the returning spindle adjacent the shaft and is held in its axial position by a guide bore in the housing and by movement by means of a disc, the disc being fixedly secured to a housing, the brake shaft being continuously biased to move



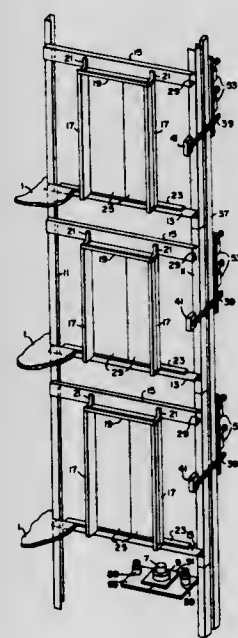
means of a helical spring engaging the spindle adjacent the guide bore.

3,741,351 INTEGRATED ELEVATOR CONSTRUCTION

John Suozzo, Hackensack, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 5, 1971, Ser. No. 121,318
Int. Cl. B66b 7/02

U.S. Cl. 187-95

11 Claims



Elevator guide rails are combined with the hatch door assemblies and fronts to form a complete front assembly which can be installed as a unit and secured to the building through floor angles. Auxiliary equipment such as corridor buttons, ducts and limit switches may be mounted on the front assembly as required. The car assembly employs a sling that integrates the door operator support and the front beam of the platform with the stiles.

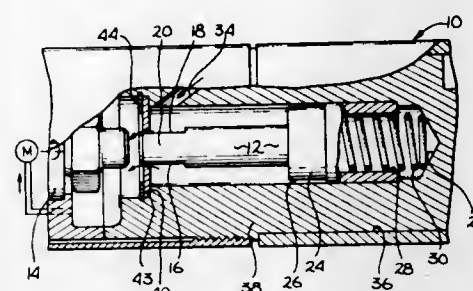
3,741,352 SHAFT BRAKE ASSEMBLY

John R. Hedrick, La Crescenta, Calif., assignor to Hall International Inc., Santa Barbara, Calif.
Filed Mar. 31, 1971, Ser. No. 129,766
Int. Cl. F16d 65/24

U.S. Cl. 188-70

8 Claims

A shaft brake assembly for stopping inertial rotation of a drive shaft wherein a brake shaft is secured against rotational



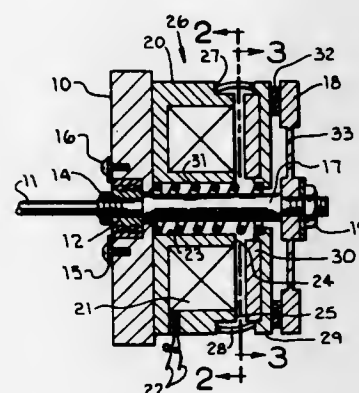
into contact with the drive shaft, a piston being movable by fluid pressure to remove the brake shaft out of contact with the drive shaft.

3,741,353 BI-STABLE BRAKE

David W. McKinley, and James K. Parmelee, both of Indianapolis, Ind., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Oct. 4, 1971, Ser. No. 186,000
Int. Cl. B60t 13/04

U.S. Cl. 188-171

4 Claims



A bi-stable brake having an annular spring biased cap armature member with permanent magnets affixed thereto slidable along its axis between an annular disk or plate fixed to a rotatable shaft and a fixed annular electromagnet with a small air gap therebetween to provide engagement of the cap member and the plate initiated by a pulse of current in one polarity through the electromagnet to brake the shaft against rotation maintained by the spring bias and to provide disengagement of the cap member and plate by a pulse of current of opposite polarity to engage and hold the permanent magnets and electromagnet together thereby braking and freeing the shaft in either of two states without continuous electromagnet energization.

3,741,354 FRICTION PAD PRESSING APPARATUS FOR USE IN DISC BRAKES

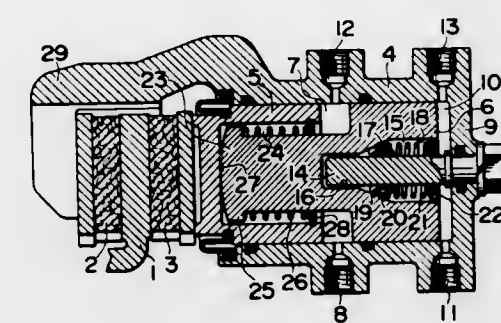
Toshiwo Ooka, Amagasaki, and Koji Takata, Nishinomiya, both of Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan
Filed Jan. 29, 1971, Ser. No. 111,073
Claims priority, application Japan, Feb. 4, 1970, 45/10289
Int. Cl. B60l 11/20

U.S. Cl. 188-345

4 Claims

A friction pad pressing apparatus for use in a disc brake adapted by a dual hydraulic braking system having first and

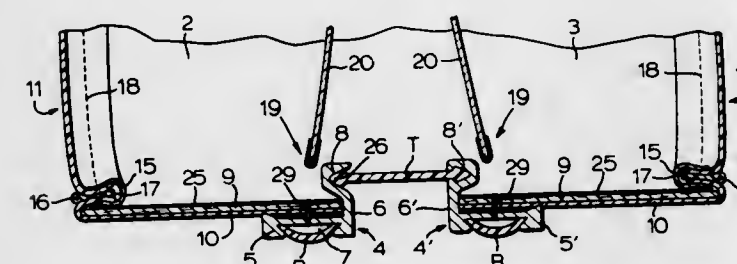
second hydraulic pressure circuits. The apparatus comprises a first piston and a second piston which are slidably received in a cylinder and are each actuated by the hydraulic pressure



supplied by said first and second hydraulic pressure circuits respectively, detent means for the second piston and resilient means for urging the second piston to abut with the first piston.

3,741,355
SOFT SIDED LUGGAGE CASE
Jack Slan, Toronto, Ontario, Canada, assignor to Dominion Luggage Co. Limited, Toronto, Ontario, Canada
Filed June 29, 1970, Ser. No. 50,839
Int. Cl. A45c 3/00, 13/00
U.S. Cl. 190-49

2 Claims



A soft sided center opening luggage case comprising two hinged sections and having a strong, rigid central frame structure running around the case, resilient frame structures anchored from the central frame structure and extending laterally outwardly as resilient cantilevers, and a soft or flexible material closing the side of the case and supported from the free edges of the resilient cantilevers. The inside face of each section of the case is also closed by a releasable partition so that the case provides two sections which can be packed independently and each of which has in effect an expandable packing capacity.

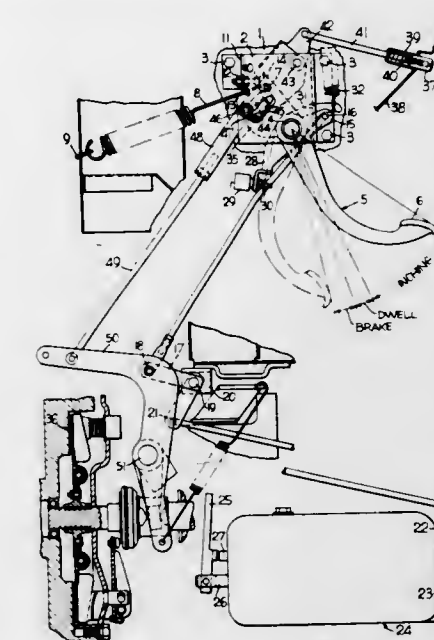
3,741,356 CONTROL LINKAGE FOR MASTER AND TRANSMISSION CLUTCHES

Gerald E. Sieren, Greendale, and Kenneth N. Hansen, Waukesha, both of Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.
Filed Dec. 13, 1971, Ser. No. 207,434
Int. Cl. B60k 29/00

U.S. Cl. 192-3.61

10 Claims

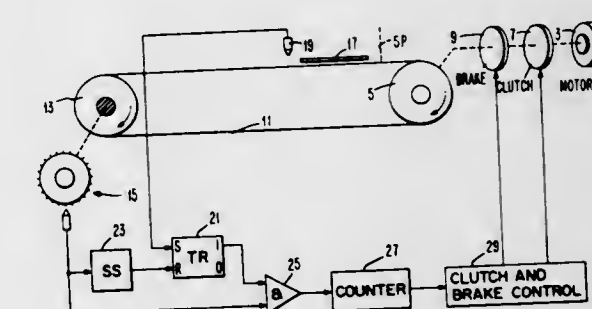
A vehicle brake and transmission control having a hand



ing the brake with a foot control lever.

3,741,357
POSITION CONTROLLING SYSTEM
Genadij Krysiuk, and Johann H. Meier, both of Vestal, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 11, 1971, Ser. No. 197,716
Int. Cl. F16d 67/02, 71/00; B65h 7/14
U.S. Cl. 192-12 D

7 Claims



A serial-loop memory, such as a ring counter, for example, of capacity equal to the units of distance between a sensing station and a desired stopping station is operated in synchronism with a transport mechanism whenever an article in the transport system has been sensed and has not yet stopped. The complement in the loop memory is used as a feed-forward correction to modify the application of braking means to the transport system so that the brake application will take place at an appropriate time during the next document cycle.

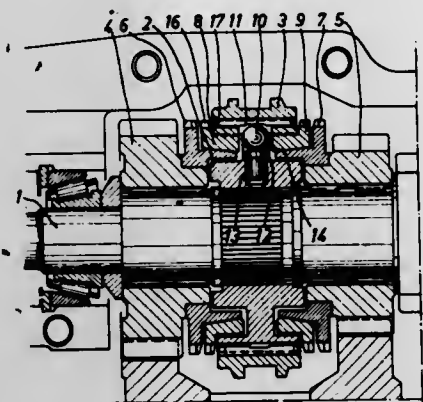
3,741,358
SYNCHRONIZERS
Roger Magnier, Billancourt, France, assignor to Regie Nationale Des Ursines Renault, Billancourt and Automobiles Peugeot, Paris, both of France
Filed Sept. 20, 1971, Ser. No. 182,086
Claims priority, application France, Sept. 24, 1970, 7034617
Int. Cl. F16d 23/06

U.S. Cl. 192-53 F

5 Claims

A device for synchronizing the driving and driven elements of a change-speed transmission mechanism comprising a hub rigid with the driving shaft, an axially movable sliding member forming an outer ring, a synchromesh ring formed with a

tapered friction surface which is rotatably rigid with said hub and adapted to be shifted angularly between two abutment surfaces of said hub and to move axially towards the conjugate tapered surface of a driven loose pinion as a consequence of the axial thrust exerted by said sliding member and of intermediate connecting members engaging on the one hand



notches formed in said hub and on the other hand a common groove formed in said sliding member, said elements being radially retractable during the synchronization and consisting of balls adapted to be moved in a manner known per se by the sliding member towards an abutment surface formed on said synchomesh ring in a plane perpendicular to the axis of rotation of said ring.

3,741,359 FLUID COUPLING

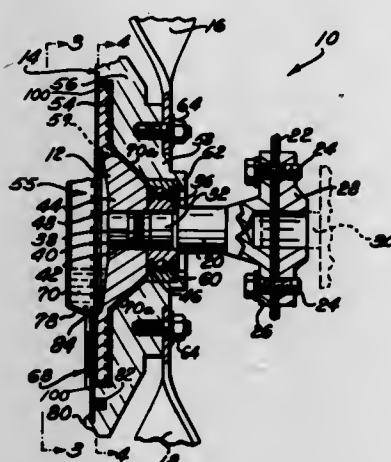
Wayne K. Leichliter, Marshall, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Nov. 26, 1971, Ser. No. 202,187

Int. Cl. F16d 35/00

U.S. Cl. 192—58 B

8 Claims



A fluid coupling comprises first and second rotatable coupling members. The first coupling member defines a chamber in which the second coupling member is located. The first and second coupling members include spaced opposed surface portions defining a shear space therebetween. The spaced opposed surface portions are cooperable with a fluid shear medium within the shear space to provide a shear type fluid drive therebetween. One of the coupling members defines a reservoir chamber for the fluid shear medium. Means are provided for varying the volume of the fluid shear medium in the shear space dependent on the temperature of the fluid shear medium. The volume varying means includes a vane means on one of the coupling members which vane means defines a passage communicating the shear space with the reservoir chamber to change the volume of the fluid in the shear space dependent on the temperature of the fluid medium.

3,741,360 PUMP CONTROLLED PRESSURE MODULATOR FOR REVERSING CLUTCHES

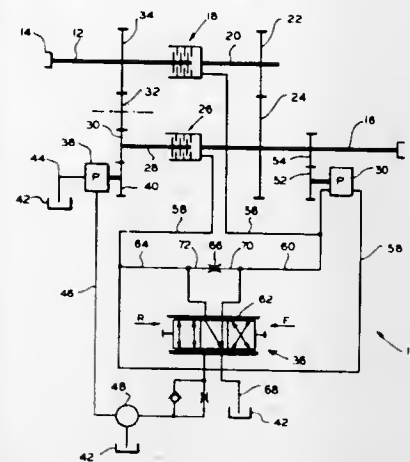
Jon R. Patton, Jackson, Mich., assignor to Clark Equipment Company, Buchanan, Mich.

Filed Dec. 29, 1971, Ser. No. 213,676

Int. Cl. F16d 25/10

U.S. Cl. 192—87.19

6 Claims



A clutch shift modulation system is disclosed in operative relationship with a transmission having a torque input shaft and a torque receiving shaft. The transmission includes fluid pressure engaged forward and reverse clutches that may be engaged to drivingly rotate the receiving shaft in the respective forward or reverse direction when acted upon by fluid at a selected pressure, and a pump driven by the input shaft is adapted to supply fluid at this pressure to a shift valve which may be moved to a forward or reverse position to selectively connect the pump with the respective clutch through suitable conduits. A reversible pump driven by the receiving shaft pumps fluid in a direction and at a pressure which is a function of the rotative direction and speed of the receiving shaft and this reversible pump is connected between the two conduits leading from the valve to the two clutches so that during shifting it detracts from the efforts of the input driven pump to engage a particular clutch until the rotation of the receiving shaft in the respective opposite direction has slowed to below a selected speed and thereafter aids in the efforts of the input driven pump to engage this clutch.

3,741,361 CLUTCH RELEASE BEARING

Manfred Brandenstein, Aschfeld, Germany, assignor to SKF Kugellagerfabriken GmbH, Schweinfurt, Germany

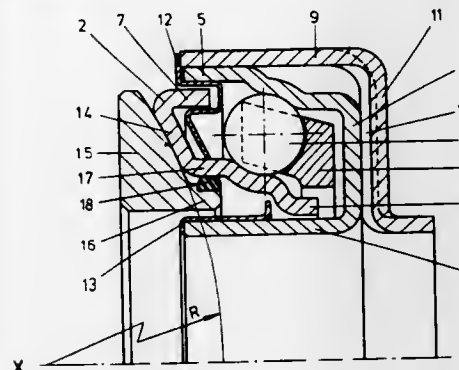
Filed Sept. 28, 1971, Ser. No. 184,467

Claims priority, application Germany, Oct. 2, 1970, P 70 36 423.7

Int. Cl. F16d 13/60

U.S. Cl. 192—110 B

12 Claims



A clutch release bearing comprising an outer race ring adapted to be connected to the clutch operating mechanism, an inner race ring and a plurality of bearing elements located therebetween. The bearing includes engagement means abutting the inner race ring and adapted to contact the clutch elements. The abutting surfaces of the race ring and the engagement means are correspondingly curved to permit relative movement therebetween.

3,741,362 ALTERNATING FEED FOR COINS OR THE LIKE

Rajendra P. Shah, Kansas City, Mo., assignor to The Vendo Company, Kansas City, Mo.

Filed June 14, 1971, Ser. No. 152,754

Int. Cl. G07f 1/00

U.S. Cl. 194—1 H

5 Claims

3,741,364 RIBBON SHIFT ASSEMBLY

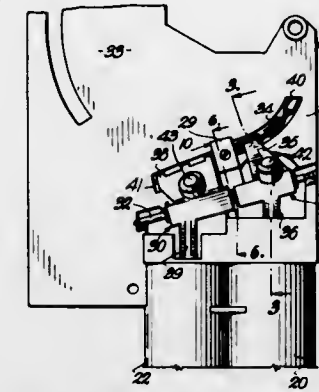
Harold D. Becker, Riverton, Wyo., assignor to Datel Corporation, McLean, Va.

Filed Jan. 8, 1971, Ser. No. 105,053

Int. Cl. B41j 33/14

U.S. Cl. 197—151

3 Claims



Mechanism for successively feeding coins or the like from a single passage alternately into each of a pair of receiving channels or storage tubes is provided, which employs a rockable coin deflector assembly that is movable into blocking relationship to one channel by entry of a coin into that channel, releasable latching means for holding such deflector assembly in blocking relationship to that one channel, and a second rockable assembly associated with the other channel and adapted to release the latching means for movement of the first mentioned deflector assembly away from its blocking position whenever a coin enters the other channel. The mechanism also includes a deflector forming a part of the second assembly for blocking the other channel to divert coins to a third channel when said one and said other channels are both filled with stored coins.

3,741,363 ELECTRONIC COIN TESTING APPARATUS

Adolf Hinterstocker, 28 Hirschbergstrasse, Roggersdorf near Holz Kirchen, Germany

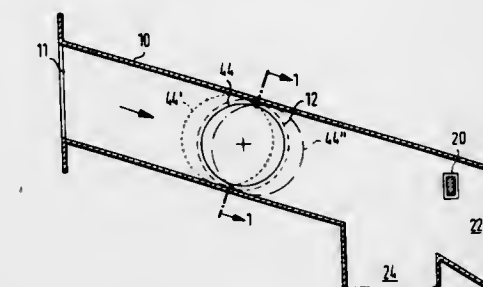
Filed June 15, 1971, Ser. No. 153,228

Claims priority, application Germany, June 16, 1970, P 20 29 751.2

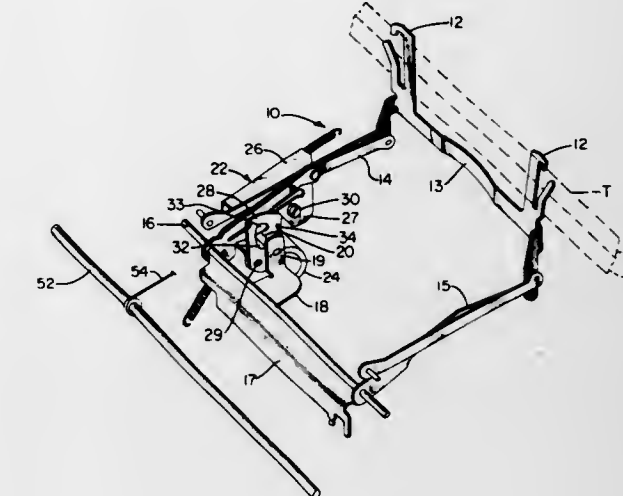
Int. Cl. G07f 3/02

U.S. Cl. 194—100 A

7 Claims



An electronic coin testing apparatus for comparing a coin travelling down a chute with a standard coin, of the type including means for producing a difference signal depending on the difference between the effect produced by the coin to be tested and that produced by the standard coin, the said difference signal decreasing from a predetermined value to zero and rising again as a coin identical with the standard coin passes a given position in the chute comprises a threshold device producing or not producing a predetermined threshold output signal depending on whether or not the difference signal exceeds a given value, a gate for separating accepted coins from rejected coins, and discriminating means for actuating the gate arranged to accept a coin only if there is a threshold output signal and it is not followed by a second such signal within a predetermined period of time.



A solenoid-operated actuating bail affords a positive, direct means to control shifting of the lift arms in a ribbon-guide or carrier assembly for a keyboard printer or typewriter in selecting a desired ribbon color or level for printing.

3,741,365 TRANSFER MECHANISM FOR BATTERY GRIDS

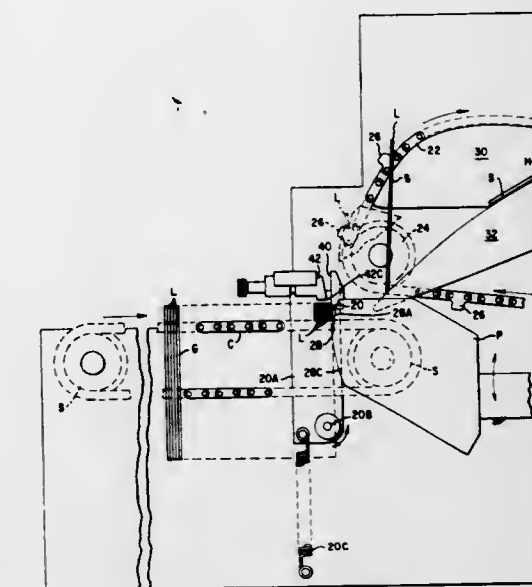
Charles H. McAlpine, Coloma, and Kenneth G. McGowan, Lawrence, both of Mich., assignors to Mac Engineering & Equipment Co., Benton Harbor, Mich.

Filed Apr. 10, 1972, Ser. No. 242,616

Int. Cl. B65g 47/00

U.S. Cl. 198—27

3 Claims



A device is disclosed for handling grids or plates for storage batteries on a production line which transfers and spaces double grids connected together at their bottom edges hung by outwardly-extended connector lugs on an advancing chain conveyor for feeding the grids to a second chain conveyor or other device to another machine such as a pasting machine. The transfer device compensates for bent or deformed connector lugs which could jam the device to maintain steady and uniform feeding and transfer of the double grids at spaced intervals.

3,741,366
DEVICE FOR ORIENTING AND STACKING SHALLOW CUPS AND LIDS

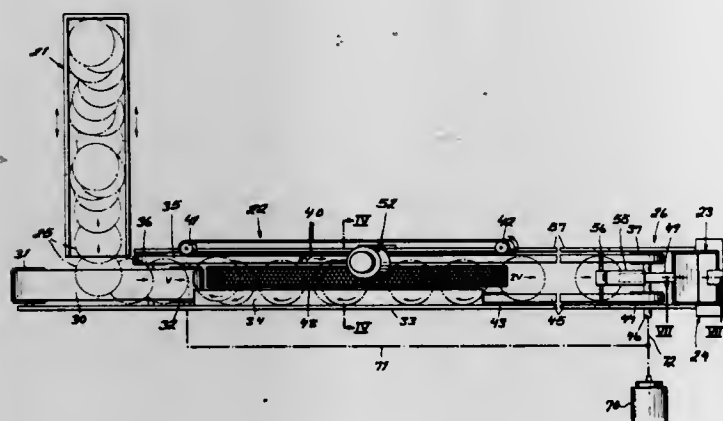
Hugh Van Melle, and Herbert Rees, both of Ontario, Canada, assignors to Husky Manufacturing & Tool Works Ltd., Balton, Ontario, Canada

Filed Mar. 26, 1971, Ser. No. 128,392

Int. Cl. B65g 47/24

U.S. Cl. 198—33 AB

18 Claims



Disk-shaped articles with a flat and a recessed side, coming from an injection-molding machine, are entrained by an upwardly sloping conveyor to an orienting head comprising a centrally positioned roller, of a width substantially less than the disk diameter, around which the articles must pass to reach a vertical chute feeding them to a stacking tube. A stationary flipper confronting the roll, just above the chute entrance, engages the undersides of articles riding around the roller with their concavities outwardly to reorient them; other articles, facing the roller with their concave sides, hug the roller more closely and therefore escape the flipper. For articles liable to overlap and nest on their way to the orienting head, the conveyor includes a stationary ledge defining one longitudinal edge of the transport path and a pair of moving belts defining the opposite longitudinal edge of that path, the two belts moving at the same speed and including an obtuse angle for unilaterally elevating and gripping a disk to advance it with a rolling motion tending to dislodge another disk resting on it. An eccentric impactor along the conveyor path, located above the level of a single disk, strikes the upper one of two nested disks to separate them.

3,741,367
LOADING DEVICE PARTICULARLY FOR FEEDING SCREW BLANKS AND THE LIKE TO A PROCESSING MACHINE

Albino Castiglioni, Cornaredo, Italy, assignor to SIMA Società Italiana Macchine Automatiche S.R.L., Cornaredo (Prov. Milan) Italy

Filed June 1, 1971, Ser. No. 148,591

Claims priority, application Italy, Sept. 5, 1970, 29416 A/70

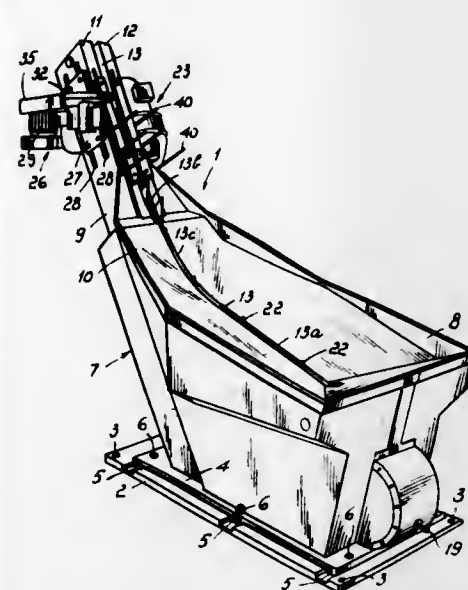
Int. Cl. B65g 15/14, 47/24

U.S. Cl. 198—33 AA

4 Claims

A loading device particularly for feeding screw blanks and the like rough-shaped pieces to a processing machine comprising a hopper, a base, an upright supported on said base defining part of a wall of said hopper, a slot defining a path comprising a substantially horizontal section on the bottom of said hopper and an ascending section in said upright, an endless

driven chain with spaced pushing means movable below said slot, and auxiliary means provided at the upper extremity of

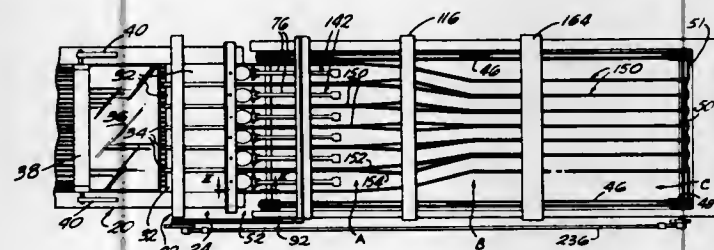


said path for advancing said blanks at a greater linear translation velocity than that of said chain.

3,741,368
EGG PACKING MACHINE
 Harvey Z. Burkholder, Ephrata, Pa., assignor to U.S. Industries, Inc., New York, N.Y.
 Division of Ser. No. 863,893, Oct. 6, 1969. This application
 Mar. 11, 1971, Ser. No. 123,430
 Int. Cl. B65g 43/08

U.S. Cl. 198—37

8 Claims



An improved egg packing apparatus orienting eggs into columns and rows so that a carton can be packed by vacuum lifting the eggs positioned with the pointed end downward. To insure that each row is filled as it advances into the machine, a vacuum switch is actuated when vacuum builds up due to the closing of openings to the atmosphere by the presence of an egg on a spring-biased hinged platform positioned in each column adjacent to an accumulating table which is delivering the eggs to the apparatus. Also, a gate otherwise blocking the egg on the platform is cam-actuated out of the way when the filled row is advanced by engaging rollers.

3,741,369
CONVEYOR ADDRESS SYSTEM

Erich Schneider, Wiesensteig, Germany, assignor to Organisation Ralfs KG, Wiesensteig (Wurt), Germany
 Filed Aug. 17, 1971, Ser. No. 172,527

Claims priority, application Germany, Sept. 1, 1970, P 20 43 254.6

Int. Cl. B65g 43/08

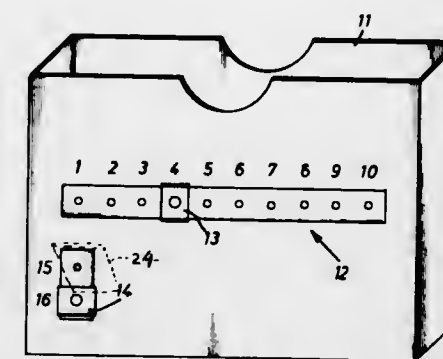
U.S. Cl. 198—38

9 Claims

A belt conveyor wherein containers are transported between successive stations. The containers and the stations are provided with a primary address system comprising a predetermined destination selected for the discharge of the containers. Empty containers are distributed by a method comprising providing the containers with a second address, continuously circulating the empty container on the conveyor

and providing at least some of the stations with selectively operable means for sensing the second address. The sensing means being operated in response to the selected need of cer-

cally agricultural commodities and specifically husked ears of corn, where it is desirable to examine all of the surface of in-



tain stations. Apparatus is also provided to effect the actuation of the secondary address system cooperatively with the primary address system.

3,741,370
APPARATUS FOR CONVEYING AND FILLING CAPSULES

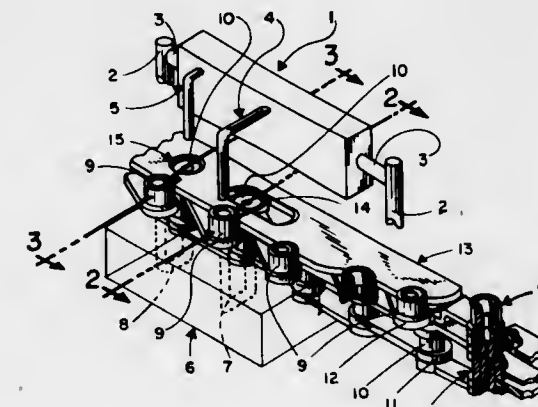
Van B. Hostetler, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Mar. 1, 1972, Ser. No. 230,683

Int. Cl. B65g 17/16

U.S. Cl. 198—131

6 Claims



Improvement to an apparatus for conveying and filling capsules comprising a means for ejecting unmated cap and body sections from capsule receiving means after the cap and body portions of said receiving means have been forced into a misalignment to expose the body section to a liquid or particulate matter filling operation.

3,741,371
APPARATUS FOR INSPECTING AND SELECTING PRODUCTS

C. G. Peter Oldershaw, Avon, and Don deKramer, Lima, both of N.Y., assignors to General Foods Corporation, White Plains, N.Y.

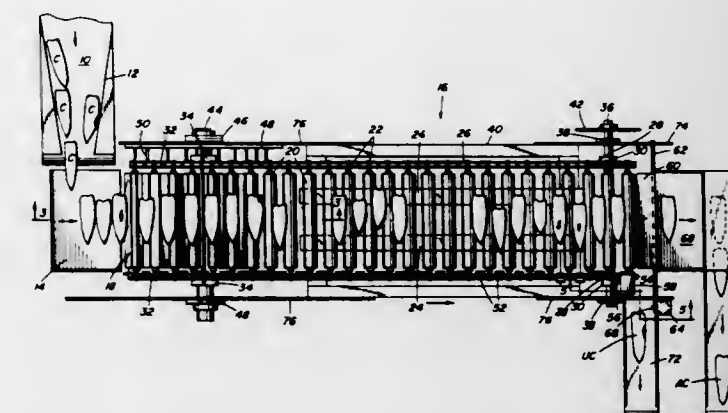
Filed Feb. 4, 1971, Ser. No. 112,531

Int. Cl. B65g 43/00

U.S. Cl. 198—38

6 Claims

Apparatus for inspecting and selecting generally cylindrical products such as husked ears of corn. The apparatus comprises conveyor means, in-feed regulating means, product rotating and translating means, mechanical memory means and product separating means. The apparatus is especially useful in the inspection of generally cylindrical products, typi-

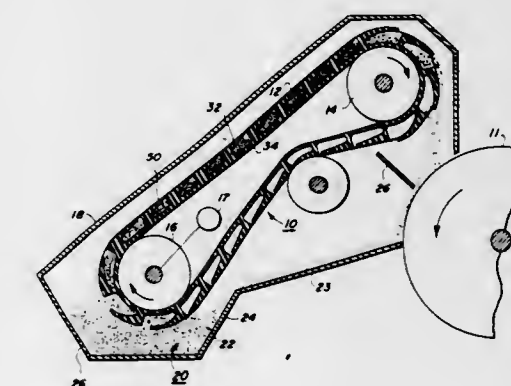


dividual units of such products and to divert selected products to a different path from that of the others.

3,741,372
CONVEYOR FOR DEVELOPER APPARATUS
 Robert E. Hewitt, Ontario, N.Y., assignor to Xerox Corporation, Stamford, Conn.
 Filed June 28, 1971, Ser. No. 157,249
 Int. Cl. B65g 17/12, 17/16

U.S. Cl. 198—140

1 Claim



Apparatus for conveying two-component developer material from a developer sump to an elevated location for cascade development in a xerographic reproducing machine. The apparatus includes an endless flexible belt having a series of cavities transverse to the direction of its movement. The belt passes over a drive pulley located in the sump area and a second pulley located at a higher elevation. The belt cavities which normally are in a closed position when in a relaxed state will open as they move around the pulley. As the belt passes the curvature of a lower drive pulley, the cavities will open and then close entrapping the developer material scooped up in the sump area. When the cavities are again forced open to release the entrapped material at the higher elevation onto an input chute for being cascaded across the xerographic surface to be developed.

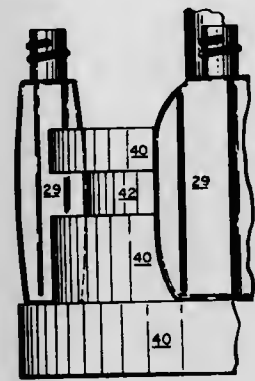
3,741,373
TURRET FOR CARRYING CONTAINERS
 Friedrich H. Geurtsen, and Fred J. Wochner, both of Holliston, Mass., assignors to Dennison Manufacturing Company, Farmington, Mass.
 Division of Ser. No. 856,946, Sept. 11, 1969. This application
 Dec. 3, 1971, Ser. No. 204,758
 Int. Cl. B65g 29/00

U.S. Cl. 198—209

11 Claims

A plastic turret for transporting bottles, the turret having two tiers, one being a bottom cylindrical tier and the other being a top cylindrical tier, the top tier being of a smaller diameter less than the base tier, and the top tier having a plu-

ality of spaced apart recesses for positioning bottles, the recesses extending the entire height of the top tier and open at



the top with the top surface of the bottom tier forming the support for the bottom of bottles positioned within the recesses.

3,741,374

MATERIAL HANDLING DEVICE

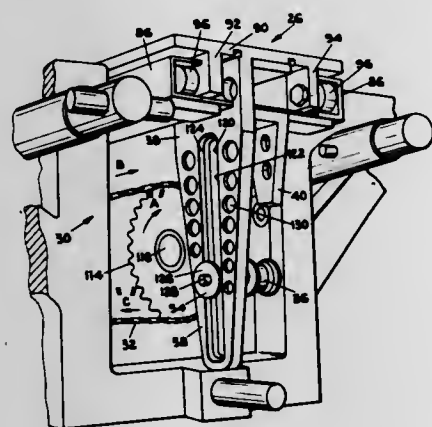
Donald L. Hufford, Charlevoix, Mich., assignor to Hufford Industries, Inc., Charlevoix, Mich.

Filed Sept. 30, 1971, Ser. No. 185,052

Int. Cl. B65q 25/08

U.S. Cl. 198—221

18 Claims



The drive mechanism for a sheet metal loader having a reciprocating carriage adapted to receive blanks and parts and feed them into a press includes a pusher mechanism mounted on a continuous sprocket driven chain moving forward and backward along an upper and lower path in a vertical plane. First and second rollers project from each side of the chain for engagement in a pair of spaced yokes having elongated vertical slots for receipt of the roller. One of the yokes and slots extends the full vertical spacing of the chain for continuous confinement of the first roller to move the carrier continuously and reciprocally. The other yoke and slot terminate above the sprocket axle with the lower end open to accommodate insertion and removal of the second roller for driving engagement during the forward drive movement of the carriage. The carriage and guide are adjustable to accommodate various size parts or material.

3,741,375

MAGAZINE FOR STORAGE OF CASSETTES CONTAINING CONVOLUTED MOTION PICTURE FILM

Friedrich Winkler, and Johann Zanner, both of Unterhaching, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Jan. 19, 1971, Ser. No. 107,751

Claims priority, application Germany, Jan. 24, 1970, P 70 02 456.5

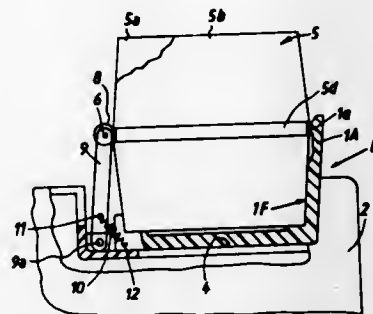
Int. Cl. B65d 5/50, 85/67

U.S. Cl. 206—1 R

10 Claims

A magazine in the form of an elongated tray has a compartment for reception of a stack of cassettes for storage of con-

volut motion picture film. Each cassette has a casing consisting of two mirror symmetrical shells and a circumferential groove in its external surface. One side wall of the magazine constitutes a carrier for a series of elastic positioning elements each of which engages a separate shell in the compartment to prevent stray movements of cassettes while the magazine is



moved with reference to a motion picture projector to place a selected cassette into a projection position. The positioning elements resemble disks, rollers, tongues and/or solid or hollow cushions, and the carrier is normally biased to an operative position in which its positioning elements bear against the adjoining shells.

3,741,376

POCKET HOLDER WITH MAGNETIC CLASP

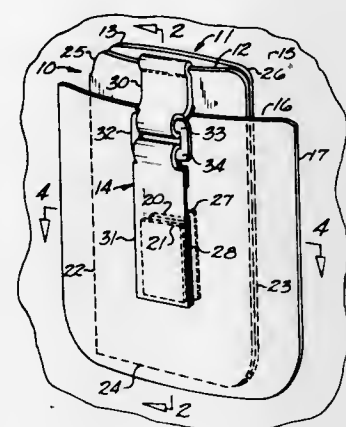
Robert G. Brown, deceased, late of East Alton, Ill.; by Gertrude T. Brown; Robert C. Brown, both of Ridgewood, N.J., and Gene Louise Grant, Cheyenne, Wyo. (heirs), assignors to Magni-Case, Inc., Overland, Mo.

Filed Oct. 8, 1970, Ser. No. 79,116

Int. Cl. A45c 11/04

U.S. Cl. 206—5 R

4 Claims



This holder includes a case receivable within a pocket. A flexible clasp having interconnected upper and lower portions is attached to the case, the connection providing for compound hinge action between the upper and lower clasp portions. The underside of the clasp and the front face of the case each carry mutually attractive magnetic elements. The pocket material is held between the flexible clasp and the case by magnetic force, and the clasp provides a means of withdrawing the holder from the pocket.

3,741,377

CONTACT LENS CASE

Norman L. Krellen, 316 Jones Road, Vestal, N.Y.

Filed June 4, 1971, Ser. No. 150,069

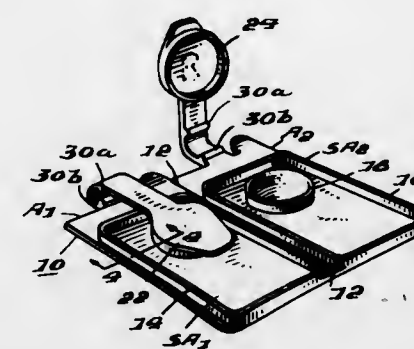
Int. Cl. A45c 11/04

U.S. Cl. 206—5 A

2 Claims

A plastic contact lens case of a size and thickness suited to the storing of large stocks and/or inventories of contact lenses,

in pairs or single lens, in orderly array and in readily identifiable manner in the drawer of a commercial photo-slide file case, and being adapted for sending contact lenses, either as



3,741,378

PROTECTOR FOR A TOOTHBRUSH OR THE LIKE

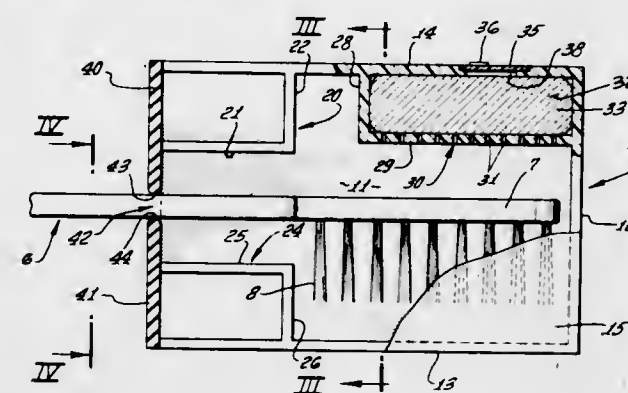
Milton Parker, 3100 S. Western Avenue, Los Angeles, Calif.

Filed Feb. 8, 1971, Ser. No. 113,539

Int. Cl. A45d 44/18

U.S. Cl. 206—15.1 E

2 Claims



The protector for a toothbrush has a rear wall, having integrally formed transverse walls, has a front wall adhesively secured to the transverse walls to complete an open ended enclosure, and has resilient end flaps across the open end thereof to form a sanitizing agent compartment containing a sanitizing agent, a bristle receiving space below the sanitizing agent compartment for collecting sanitizing agent fumes, guides for guiding the bristle end of the toothbrush into the bristle receiving space, and an opening for receiving the bristle end of the toothbrush therethrough, whereby the bristle end and the bristles passing through the opening along the guides into the bristle receiving space, while the flaps close about the handle to retain the fumes of the sanitizing agent around the bristle and bristle end of the toothbrush.

3,741,379
PACKAGE

Hermann Kappler, Statesville, and Robert A. Wellons, Jr., Charlotte, both of N.C., assignors to Niemand Industries, Inc., Statesville, N.C.

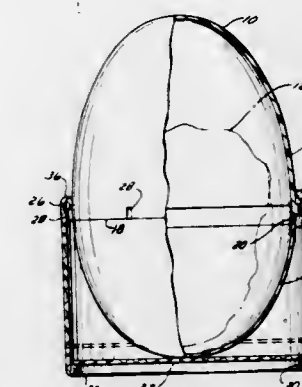
Filed Mar. 1, 1971, Ser. No. 119,733

Int. Cl. B65d 85/18

U.S. Cl. 206—46 AP

10 Claims

A hollow egg-shaped container for an article, formed of two parts fitted together along a seam about the widest diameter of the container, is disposed partially within a cylinder so that the seam is surrounded by the cylinder. One end of the cylinder is spun inwardly so as to engage the container and prevent removal of the container from that end. The other end of the cylinder is also spun inwardly and a circular disc is disposed between the container and the spun end to hold the container



3,741,380

SHOCK ABSORBING PAPERBOARD PACKAGE

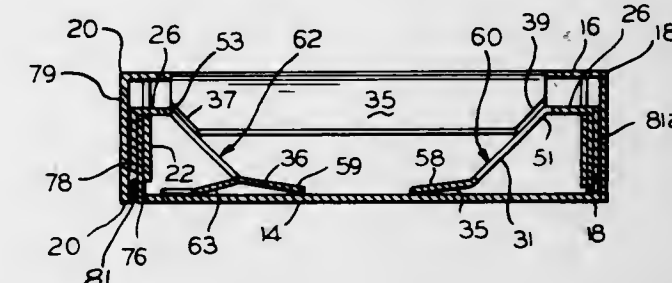
Henry B. Carney, Chicago, Ill., assignor to Associated Packaging, Inc., Chicago, Ill.

Filed June 23, 1971, Ser. No. 156,002

Int. Cl. B65d 5/50

U.S. Cl. 206—45.14

6 Claims



A cardboard or paperboard container, carton or package (hereinafter collectively called "package") is made from a single blank having top, bottom, side, and end panels. In addition to these panels, the blank also includes a floating center panel which cooperates with angular side panels to form an inner carton which floatingly supports a product displayed in the package. If the package is dropped, the floating panel tends to absorb the shock.

3,741,381

SAFETY PACKAGE ASSEMBLY AND DIVIDES CLAMP THEREFOR

John T. Thompson, 2331 20th Street, Los Angeles, Calif., and George W. Gillemont, 244 Loring Street, Santa Monica, Calif.

Division of Ser. No. 869,504, Oct. 27, 1969. This application Feb. 24, 1971, Ser. No. 118,398

Int. Cl. B65d 77/08

U.S. Cl. 206—47 A

10 Claims



A safety package assembly for isolating chemically reactive constituents until ready for intermixing comprising inner and

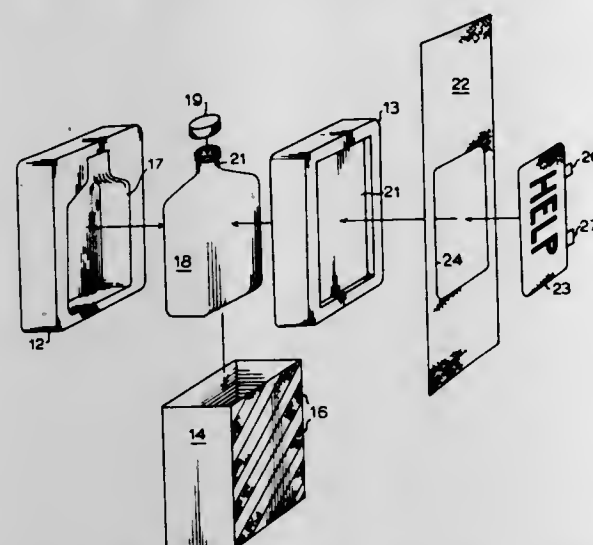
outer tubular containers, the opposite ends of the inner container being charged with proper quantities of the two reactive constituents and previously held isolated by a detachable divider clamp assembly applied crosswise of the collapsed mid-portions of said container. A wall failure at either or both ends of the inner container merely permits a constituent to escape into the contiguous compartment of the outer container. Even when both ends of the inner compartment fail the constituents are retained captive and positively isolated until removal of the clamp. The divider clamp assembly is formed of differentially resilient materials, the stiffer more resilient outer member having sharp edged ribs positioned to press the container walls against the softer inner clamping member.

3,741,382
HIGHWAY SAFETY KIT

Robert W. Larimer, Sr., 7967 Poplin Drive, Santee, Calif.
Filed June 9, 1971, Ser. No. 151,430
Int. Cl. B65d 79/00

U.S. Cl. 206—47 R

1 Claim



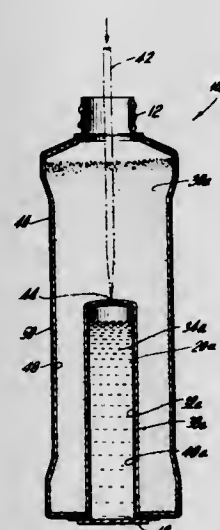
A highway safety kit having a small plastic container of gasoline surrounded by a two-piece plastic foam protective case one of which has a recess therein for carrying a sheet of material with a high visibility color with a tear-out center section having a distress message thereon for taping to a vehicle in distress, the remainder being worn by an occupant of the vehicle; and a slip cover dimensioned for receiving and retaining the assembled package therein.

3,741,383
DISPLAY BOTTLE HAVING FRANGIBLE INNER COMPARTMENT

John C. Wittwer, Armonk Road, Mount Kisco, N.Y.
Filed Apr. 10, 1972, Ser. No. 242,384
Int. Cl. B65d 79/00

U.S. Cl. 206—47 A

6 Claims



A unitary container for shipping and storing a liquid and a non-liquid (e.g., a powder), or two incompatible materials one

of which has solvent properties. The materials are normally separated in the container and can be mixed when desired. The container includes a first chamber for storing the liquid and a second chamber for storing the non-liquid material. One of the chambers is surrounded by the other chamber, and in one embodiment of the invention is separated therefrom by a wall formed of a two-layer laminate. One layer of the laminate which is in contact with the liquid material is impervious to the liquid but penetrable. The inner layer of that laminate is rigid but soluble in the liquid, such that when the insoluble layer is pierced, the soluble layer comes into contact with the liquid and can thereupon be mixed with the liquid. In another embodiment of the invention, the container wall is formed of a two-layer laminate in which the inner layer is soluble and normally in contact with the non-liquid material. When the outer wall comes into contact with the liquid, its inner layer is thereby dissolved, and the normally rigid container wall thereupon becomes flexible and compressible.

3,741,384
INDIVIDUAL SPRINKLE-PACKET WITH RIBBED BREAK-OPEN NECK

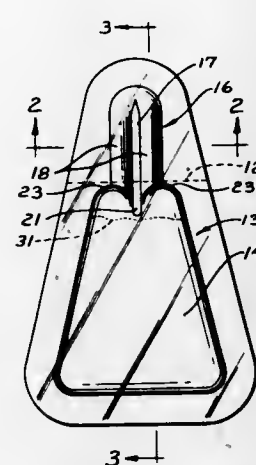
Charles E. Cloud, Wilmette, Ill., assignor to Cloud Machine Corporation, Skokie, Ill.

Filed Dec. 3, 1971, Ser. No. 204,436

Int. Cl. B65d 83/00

U.S. Cl. 206—56 AA

3 Claims



An individual sprinkle-packet for salt, pepper, sugar and the like is in the class comprising a pocketed plastic sealed along its edges to a paper backing, which can be bent back along a given line to rupture the plastic and provide one or more sprinkling openings. This invention, in preferred form, provides a pocket tapering and reducing to a narrow neck. Along the longitudinal center line of the neck, the plastic is depressed to form an inward rib which stiffens the neck, and supports its humped portions to ensure rupturing. The rib portion extends slightly into the pocket body, so that breakage adjacent to the pocket forms two small sprinkling apertures.

3,741,385
FASTENER DEVICE

Joseph T. Corey, Williamsville, N.Y., assignor to Permclip Products Corporation, Buffalo, N.Y.

Continuation-in-part of Ser. No. 22,519, March 25, 1970, Pat. No. 3,644,632. This application Feb. 10, 1972, Ser. No. 225,207

Int. Cl. B65d 69/00; B42f 3/00

U.S. Cl. 206—56 AB

12 Claims

A fastener device for fastening papers or the like to a backing member including a strip or prong member having a central portion and bendable prong end portions on which papers are to be impaled and an overlay member for fixing the strip member to the backing member. The overlay member has an intermediate portion adapted to overlie the central portion of the strip member and also has end portions having a pair of apertures through which the prong end portions ex-

tend. The overlay member has adhesive on its lower surface to bond it to the central portion of the strip member to thereby retain it in position so that it will not become misaligned in handling prior to the time that the overlay member is adhe-



sively secured to the backing member. The fastener devices are fabricated on a web and coiled into a roll from which single fastener devices are adapted to be severed incidental to the process of securing each fastener device to a backing member.

3,741,386
X-RAY FILM PACKAGE

Gunter Schmidt, Malibu, Calif., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

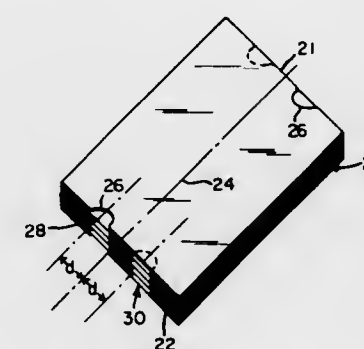
Continuation-in-part of Ser. No. 52,980, July 7, 1970. This

application Apr. 22, 1971, Ser. No. 136,530

Int. Cl. B65d 85/00, 85/30, 85/62

U.S. Cl. 206—62 R

10 Claims



A package comprising a light-proof envelope or bag containing a plurality of X-ray film sheets stacked for co-operation with a dispensing machine and useful in a daylight handling system for daylight loading and unloading of cassettes. The film sheets are identical and may have a photographic emulsion layer on one or both surfaces. The adjacent films in the stack have their surfaces in contact. Each sheet has a cut-away portion along one edge thereof for coating with a film selector cam. In the stack, the sheets are alternated so that the cut-away portions lie along a common stack edge and are arranged in two parallel rows. The cut-away portions in adjacent sheets are in different rows and in superposition. After the package is in a dispenser, the envelope or bag is stripped from the stack so that the sheets can be removed one at a time from the stack and passed into film holders or cassettes engaged with the dispensing machine.

3,741,387
SLIDE-SLEEVE PACKAGE

Alten E. Whitecar, Westville, N.J., assignor to Smith Kline & French Laboratories, Philadelphia, Pa.

Filed Apr. 27, 1971, Ser. No. 137,869

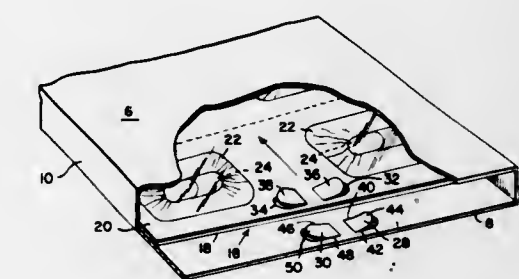
Int. Cl. B65d 13/06, 73/00

U.S. Cl. 206—79

5 Claims

A slide-sleeve package has a pair of openings in the slide and a pair of tongues in the sleeve passing through the

openings. The tongues, extending in opposite directions and transversely to the axis of the sleeve, engage the walls of the



openings to provide a resistance to the axial movement of the slide.

3,741,388
METHOD FOR EFFICIENTLY SEPARATING SLURRY-STATE LIQUID INTO SOLID PART AND LIQUID PART AND AN APPARATUS THEREFOR

Kenji Takahashi, Suita, Japan, assignor to Kanegafuchi Boseki Kabushiki Kaisha, Tokyo, Japan

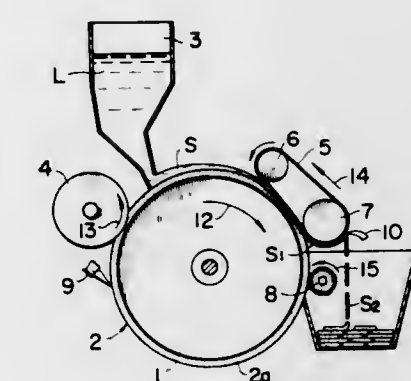
Filed Aug. 5, 1971, Ser. No. 169,330

Claims priority, application Japan, May 17, 1971, 46/32412

Int. Cl. B01d 33/04

U.S. Cl. 210—67

11 Claims



A foam having inter-communicating fine pores throughout has a high liquid absorbing power and is rich in liquid-holding ability. When a slurry-state liquid is poured onto the surface of a liquid-permeable filter structure provided with such a porous layer having a good elastic recoverability from its compressed state, the liquid part of said slurry is absorbed in the foam structure due to the capillary action of the pores, whereas the mud-like solid part (wet cake) suspended in the slurry is retained on the surface of the porous layer in coagulated fashion and thus it is separated from the liquid part. By positioning a transfer means having a substantially even and smooth work surface so as to be in appropriate contact with the resulting layer of the solid part deposited on the sheet surface, the said solid part is transferred from the said sheet surface onto the work surface of the transfer means and is deposited thereon. Therefore, by causing this sheet structure to make continuous circulatory movement and also causing the transfer means which is positioned close thereto to move continuously at roughly the same speed and in the direction corresponding to the moving filter structure, and by continuously pouring the slurry-state liquid onto the foam surface, it is possible to continuously separate the said slurry into the solid part and the liquid part with a high efficiency. If the separating apparatus is arranged so that the filter structure is mounted on the circumference of a rotary drum body, the separating apparatus will conveniently have a compact size, requiring only a small floor area and space for its installation.

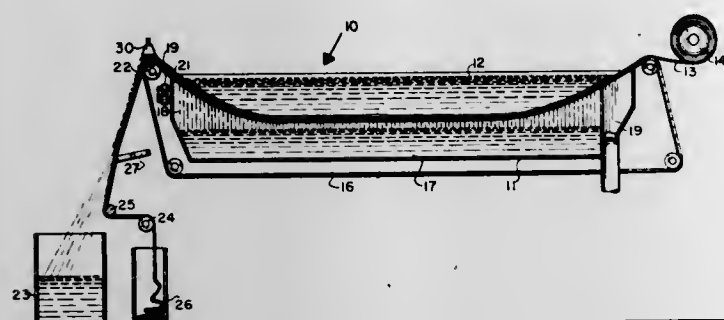
3,741,389

FILTERING APPARATUS

Herbert S. Anderson, Briarcliff Manor, assignor to Anaconda Wire & Cable Company, New York, N.Y.
Filed Nov. 24, 1971, Ser. No. 201,920
Int. Cl. B01d 33/14

U.S. Cl. 210-77

5 Claims



An adherent filter cake is removed from areas of a filter cloth by progressively suspending the cloth and beating the reverse side. The beater bars are shaped in undulations so that different bars strike different points across the width of the cloth.

3,741,390

TERTIARY FILTER

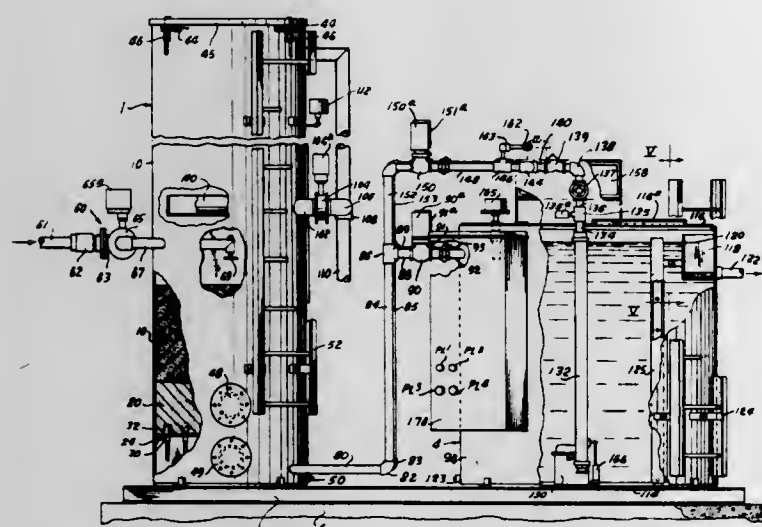
Grover L. Wallace; Thomas D. Ward, and Paul R. Johnson, all of Mineral Wells, Tex., assignor to Harsco Corporation, Wormleysburg, Pa.

Filed Dec. 13, 1971, Ser. No. 207,111

Int. Cl. B01d 23/24

U.S. Cl. 210-80

13 Claims



A method and apparatus for filtering liquid wherein contaminated liquid is delivered selectively to first and second filter tanks having filter media disposed therein. The contaminated liquid, filtered through one of the filter tanks, is delivered to a backwash storage tank where a predetermined volume of filtered liquid is maintained. When the filter in the first tank becomes partially clogged with solid particles removed from the contaminated liquid, flow of contaminated liquid is diverted to a second filter tank and liquid which has been filtered is pumped from the backwash storage tank through the first filter for cleaning. An automatic control system is provided for automatic switching of flow between the first and second filter tanks and for controlling the backwash cycle.

3,741,391
APPARATUS FOR ELIMINATING OIL SLICKS FROM
LARGE BODIES OF WATER

Ferdinand Philipp Donsbach, Rudesheimer Str. 35b, 655 Bad Kreuznach, Germany

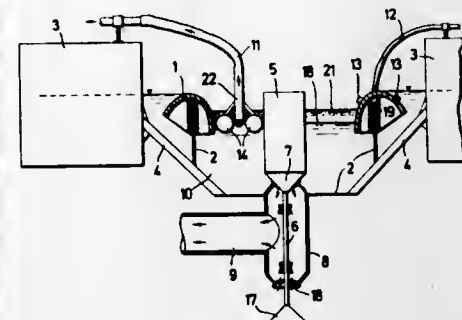
Filed Jan. 13, 1971, Ser. No. 106,202

Claims priority, application Germany, June 19, 1970, P 20 30 209.4

Int. Cl. B01d 23/00

U.S. Cl. 210-123

12 Claims



Water contaminated with an oil slick is drawn into and confined within a large tub shaped vessel so that the lighter contaminating liquid can be drawn off at the top while the water is pumped away from a lower level.

3,741,392

APPARATUS FOR THE PURIFICATION OF WASTE WATER

Marco Adegeest, Zandvoort, Netherlands, assignor to Corodex N.V., Zandvoort, Netherlands

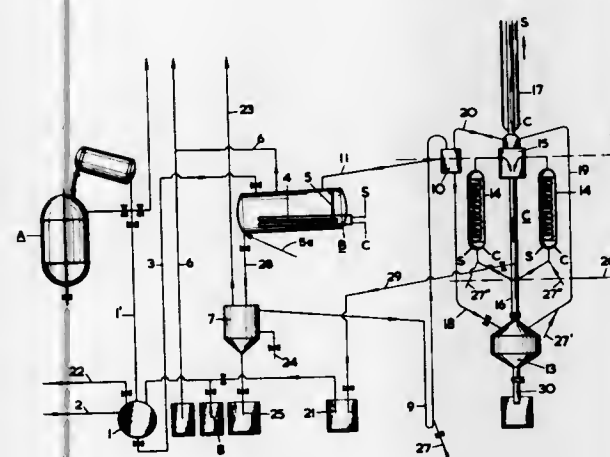
Division of Ser. No. 87,557, Nov. 6, 1970, Pat. No. 3,655,047.

This application May 25, 1971, Ser. No. 146,830

Int. Cl. C02c 5/02

U.S. Cl. 210-180

6 Claims



Apparatus for the removal of impurities from waste waters resulting from the manufacture of phenol/formaldehyde resins. Such apparatus includes a mixing tank with lines to feed it with contaminated water, acid, and phenol. The tank discharges to a heatable reservoir which has a gravity drain to a settling tank as well as an off-take for gaseous products and a bleed-off line from an intermediate zone for conveying fluids to an overflow tank. That tank has a return line to the reservoir and a gravity drain for liquid resin. It is connected also to an expansion boiler which is heated by fluid from heat exchange units. A stack removes vapor upwardly and a gravity drain conducts liquid resin downwardly to a storage vessel. A bleed-off line from an intermediate zone in the last mentioned drain to an acid recovery vessel may be added, if desired. Air injectors are installed as needed to maintain circulation.

3,741,393

AERATION SEPTIC TANK

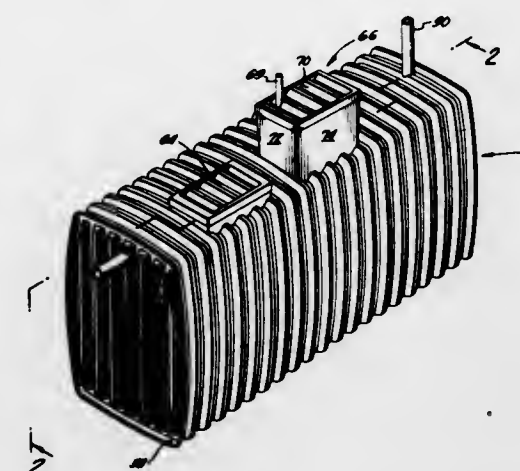
James Estes, and George A. Laird, both of Santa Ana, Calif., assignors to Aeration Septic Tank Company, Gunnison, Colo.

Filed Feb. 22, 1972, Ser. No. 228,045

Int. Cl. B03d 1/00

U.S. Cl. 210-195

9 Claims



A rigid lightweight septic tank construction employs a corrugated tubular shell, corrugated end walls and intermediate bulkheads that separate the tank into three functionally distinct major chambers. A panel extending from an opening formed in one of the bulkheads separates one of the tank chambers into two clarifying and settling compartments from which the treated sewage may be discharged.

3,741,394

LIQUID FILTERING APPARATUS

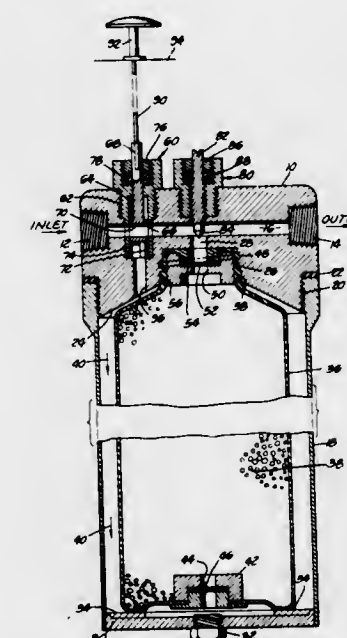
Lloyd F. Defenbaugh, 21 E. Valerio Street No. 4, Santa Barbara, Calif.

Filed July 7, 1971, Ser. No. 160,414

Int. Cl. B01d 35/02, 29/08

U.S. Cl. 210-282

4 Claims



A liquid filtering apparatus primarily intended for the filtering of water comprising a housing which includes means for inserting the apparatus in the water line, wherein removable cartridges may be inserted containing suitable filtering means such as activated carbon particles, there being a three-way diverter valve operable to divert water flow through the filtering substance or straight through the apparatus bypassing the filtering substance. The device also includes a metering valve for controlling the back pressure within the unit in order to maximize contact between the fluid and the filtering material.

3,741,395

DISPOSABLE HUMAN BLOOD DIALYSIS DEVICE

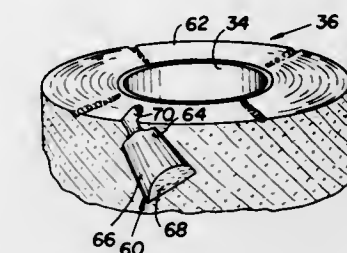
Lester Zimmerman, Hicksville, N.Y., assignor to Vernitron Medical Products, Inc., Great Neck, N.Y.

Filed Mar. 11, 1971, Ser. No. 123,232

Int. Cl. B01d 31/00

U.S. Cl. 210-321

7 Claims



A dialysis device for handling human blood in an artificial kidney system using an improved interleaved, wrapped arrangement of the tubular blood-filtering membrane and its supporting mesh which cooperate to provide the filtering body thereof, wherein the membrane inlet and outlet are confined against rupturing movement and the helical wrap of the membrane is supported by the mesh without a severe change in direction, thereby minimizing the introduction of a flow resistance force that can not be readily controlled.

3,741,396

WATER PURIFYING APPARATUS

Jacques Muller, 123 Avenue du General de Gaulle, La Garenne-Colombes, France

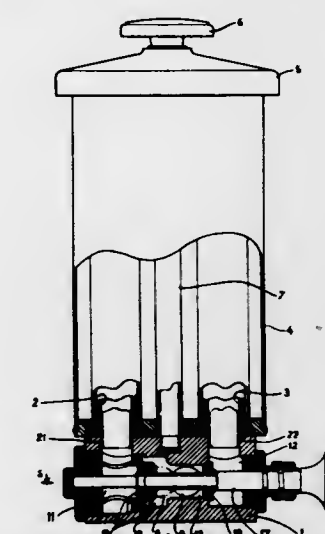
Filed Sept. 21, 1971, Ser. No. 182,423

Claims priority, application France, Oct. 16, 1970, 7037363

Int. Cl. B01d 29/42

U.S. Cl. 210-335

6 Claims



A water purifying apparatus comprising a body portion supporting a tank containing a plurality of hollow filter elements, the body portion having an inlet port adapted to be connected to a source of untreated water and a discharge port adapted to be connected to the system to be supplied with water, the body portion containing valves which may be manually controlled to direct the untreated water either through the filter elements into the discharge port, or directly to the discharge port.

3,741,397

PAINT STRAINER

Louis M. Gerson, Middleboro, and William G. Simmons, Walpole, both of Mass., assignors to Louis M. Gerson Co., Inc., Middleboro, Mass.

Filed Aug. 9, 1971, Ser. No. 170,123

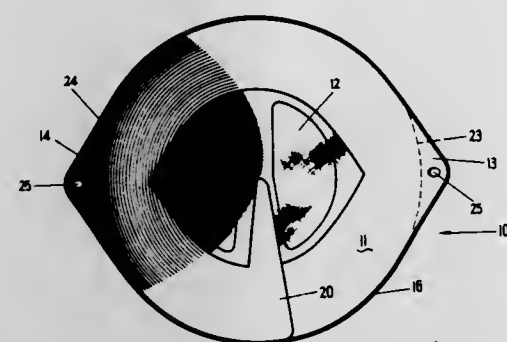
Int. Cl. B01i 23/28

U.S. Cl. 210-497

1 Claim

A paint strainer has a generally conical body formed of a thin impermeable sheet material such as paper. The body has a

plurality of cutouts covered by straining screen means with a filling opening defining a preselected circumference. A plurality of diametrically opposed tabs at 180° locations are integrally formed with the body and extend outwardly from the filling opening. Each of the tabs defines a base line extending over a distance corresponding to at least 17½ percent of the



circumference of the filling opening. The tabs can be perforated or scored to allow them to be bent over a support structure or removed entirely. The tabs having a wide base, enhance the load carrying characteristics of the body when hand or mechanically held by the tabs. Buckling, wrinkling and sagging are thus eliminated when the strainer body is filled.

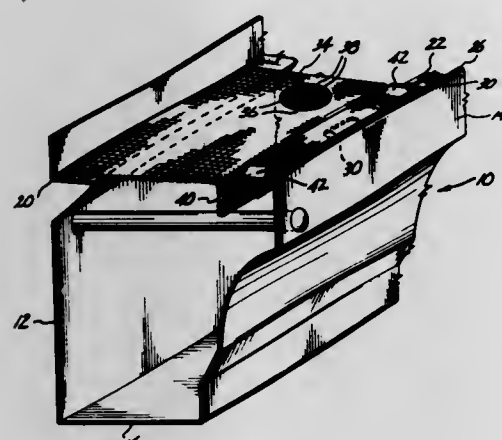
3,741,398 ROOF GUTTER AND PROTECTOR

Stanley L. Abramson, 17253 S.W. Kelok Road, Lake Oswego, Oreg.

Filed Dec. 29, 1971, Ser. No. 213,496
Int. Cl. B01d 23/00

U.S. Cl. 210-474

3 Claims



A combination roof gutter and an elongated mesh screen overlying the gutter for preventing debris from collecting therein. The sides of the gutter have flanges extending longitudinally therealong adjacent their upper edges, which flanges support opposite longitudinal edges of the screen. The screen includes elongated parallel wires extending longitudinally of the screen and interwoven cross wires extending transversely of the screen. The cross wires are deformed along lines paralleling the longitudinal wires to form a crease in the screen which projects downwardly into the gutter. The crease directs water down and into the gutter. A raised shoulder extends continuously along an outer edge of the flange farthest from the roof to prevent water flowing along the screen from overflowing the edge of the gutter.

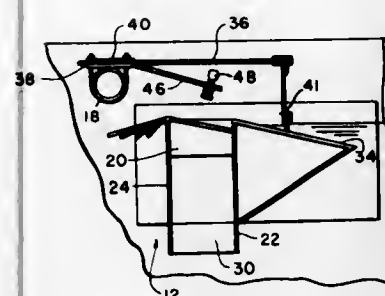
3,741,399 SKIMMER MECHANISM FOR A WASTE FLOTATION CELL

Ronald L. Peterson, Richmond, Va., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 19, 1971, Ser. No. 126,190
Int. Cl. B01d 21/06

U.S. Cl. 210-525

5 Claims



A skimmer blade is utilized to gather scum from the surface of a tank and convey same up a ramp into a collection trough. The blade is preferably mounted on two flexible members attached to a driven support arm for this purpose. The flexibility, length and cross-section of the blade supporting members can be chosen for proper depth of entry into the floating material and proper contact with the ramp.

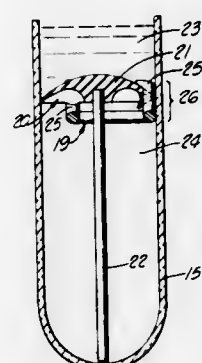
3,741,400 BLOOD SAMPLE CONTAINER

John M. Dick, 5360 Burlingame Avenue, Los Angeles, Calif.

Filed June 15, 1970, Ser. No. 46,168
Int. Cl. B01d 21/26

U.S. Cl. 210-516

6 Claims



A generally tubular shaped container includes an expandable head valve member and retaining clip assembly therewithin. On centrifuging the clip is disengaged from the valving member, permitting it to expand toward the inner walls of the container to form two separate compartments, one for the blood cells and one for the serum. During centrifuging, the valve member head is temporarily deformed at its edges an amount sufficient to allow the cells to move therepast, and at the conclusion of centrifuging the head resumes sealing engagement with the container wall. The serum may then be simply poured out of the container for testing.

In a further aspect, the tubular container has a spring-loaded valving member disposed at substantially the mid-point thereof. In a still further form, filter means are located within a test tube, through which serum can pass, but blood cells cannot.

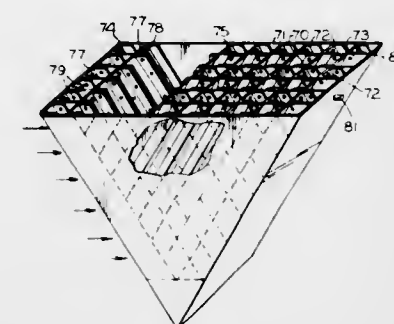
3,741,401 PERFORATED TUBE MODULE FOR LIQUID TREATMENT

Andrew K. Hsiung, Corvallis, Oreg., assignor to Neptune Microfloc Incorporated, Corvallis, Oreg.

Filed Nov. 26, 1971, Ser. No. 202,228
Int. Cl. B01d 21/00

U.S. Cl. 210-519

7 Claims



A device for liquid treatment, such as for separating settleable particles from liquid, comprises a set of spaced apart generally parallel inclined perforated sheets forming settling compartments therebetween. Means are provided to distribute an influent liquid so as to impinge substantially uniformly on the first of said sheets and thereafter flow through the perforations therein from the first of such settling compartments uniformly and sequentially to the last thereof. Withdrawal means for the effluent are positioned adjacent the top of the last settling compartment, whereby the liquid flows upwardly through the compartments as it passes sequentially from the first to the last. The particles in the liquid settle out on the sheets whence they slide downwardly therealong to the bottoms thereof into sludge collecting and withdrawing means positioned therebelow.

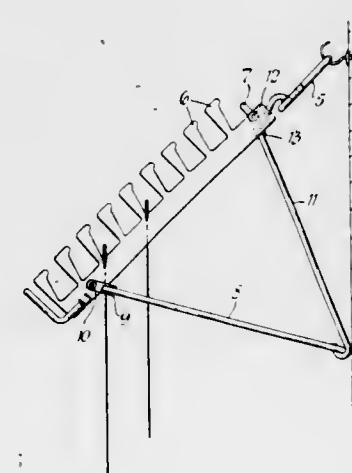
3,741,402 SUSPENSION UNITS FOR FILES

Sidney Major Russell, Southdown House, Southdown Road, Shawford, Winchester, England

Filed Oct. 20, 1971, Ser. No. 190,888
Claims priority, application Great Britain, Dec. 4, 1970, 57,623/70

U.S. Cl. 211-104

2 Claims



The invention provides a device for stowing suspended files comprising a frame which can hang vertically to support a number of files in substantially vertical overlapping relationship and which can be set by strut means to lie at an angle to the vertical or horizontally for easy identification and removal of selected files.

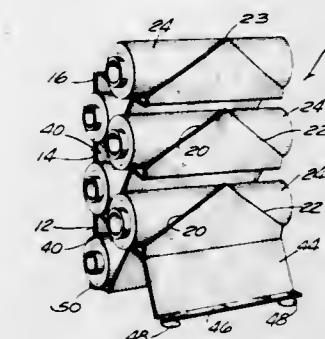
3,741,403 ROLL FILM DISPENSER

Ernest W. Fleischer, Jr., and Rodney M. Greene, both of 2508 East Bellview Place, Milwaukee, Wis.

Filed Oct. 29, 1970, Ser. No. 85,156
Int. Cl. B26f 3/02

U.S. Cl. 211-135

8 Claims



A roll film dispenser having a base unit provided with a storage roll trough and an upwardly and forwardly located dispensing trough supports additional units to form a vertical array of staggered dispensing and storage troughs for rolls of perforated sheet film. Each unit is formed from a single piece of sheet material with angularly related converging portions forming the troughs. The forward walls of the dispensing troughs are at a sufficient angle with the vertical to eliminate the need for a core weight.

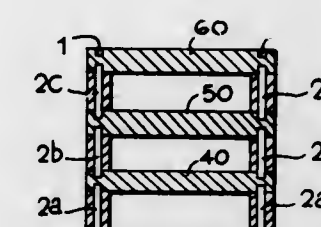
3,741,404 INTERLOCKING FURNITURE

Leon Joseph Jourdain, Rue du Vieux-Moulin 2, Maransart, Belgium

Filed July 1, 1971, Ser. No. 158,791
Claims priority, application Belgium, July 1, 1970, 752821
Int. Cl. A47f 5/00

U.S. Cl. 211-148

4 Claims



A flexible shelf arrangement is provided having a plurality of shelves maintained in spaced parallel, horizontal position by a plurality of vertical parts of equal height disposed therebetween. The shelves are each provided with a plurality of orifices which are vertically aligned with the corresponding orifices on the other shelves. An equal number of vertical uprights extend into the orifices to maintain the lateral stability of the arrangement. Grooves are provided in the vertical parts and in the upper and lower surfaces of each shelf to hold a side panel in a vertical position.

3,741,405 LOAD LOCK

Kennedy McConnell, Riverdale, and Raymond F. Juechter, Glenwood, both of Ill., assignors to Interlake, Inc., Chicago, Ill.

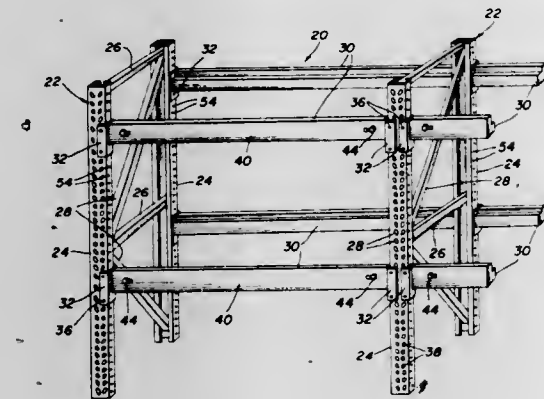
Filed July 20, 1971, Ser. No. 164,343
Int. Cl. A47f 5/10; F16b 17/00

U.S. Cl. 211-177

27 Claims

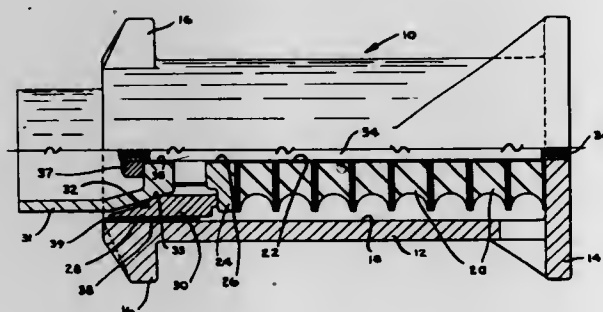
The load lock of the present invention is to lock the beam of a pallet rack structure to an upright of an end frame and includes an L-shaped bolt having a shank slidably extending through aligned holes in the upright and an end plate of the beam and having a headed handle portion extending through a

contoured slot in the beam wall adjacent the end of the beam. The handle portion is encircled by a generally cylindrical spring metal retainer having a pair of extensions embracing the bolt between the shank and the handle portion, having diametrically opposed projecting tabs engaging the inner face of the beam wall adjacent the slot and with cooperation of the head to prevent removal of the load lock, and having projections engageable with the edges of the contoured slot to hold



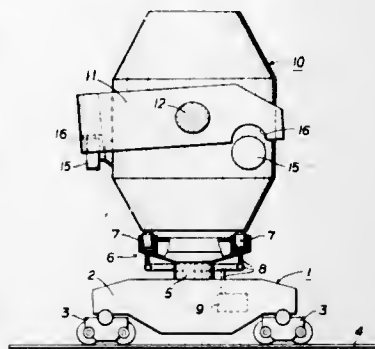
the load lock in any adjusted position of the shank with respect to the hole through which it extends in the beam end plate. The load lock is so constructed than when properly inserted in a contoured slot with its shank projecting into the beam end plate opening it cannot be removed. A modified form of beam slot is made long enough to permit removal of the shank from the beam end plate hole and the removal of the load lock from the slot; a load lock movement limiting device is provided to prevent this from being done unintentionally.

3,741,406
FRICION DRAFT GEAR
David G. Anderson, Evanston, Ill., assignor to Miner Enterprises, Inc., Chicago, Ill.
Filed June 22, 1971, Ser. No. 155,542
Int. Cl. B61g 9/10
U.S. Cl. 213-22 8 Claims



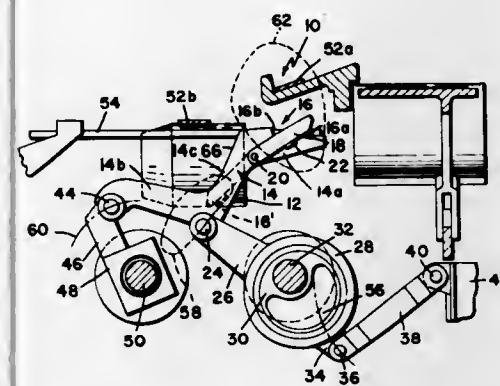
A friction draft gear having a housing closed at one end, resilient means in the housing, and a friction clutch in the open end of the housing which is adapted to provide both a relatively smooth or constant friction action and a highly efficient, substantially square-wave work curve. The friction clutch has a friction bore with an inward taper which may vary from a few degrees to zero degrees, at least one set of friction shoes disposed circumferentially in the friction bore, non-metallic friction material disposed intermediate the friction shoes and the friction bore, and a wedge member engageable with the friction shoes and adapted to receive impact forces.

3,741,407
CONVERTER HANDLING VEHICLE
Ronald Spannlang, Linz-Ebelsberg, Austria, assignor to Vereinigte Österreichische Eisen- und Stahlwerke Aktiengesellschaft, Linz, Austria
Filed Aug. 2, 1971, Ser. No. 167,936
Claims priority, application Austria, Aug. 6, 1970, 7154
Int. Cl. C21c 1/00
U.S. Cl. 214-1 D 2 Claims



The invention relates to a converter handling vehicle for transporting a converter and for positioning a converter into and removing it from a tiltable carrying ring, comprising a vehicle frame arranged on bogies, a liftable and lowerable carrying platform, a plurality of hydraulically operable lifting aggregates for receiving the converter and pressure spaces in said aggregates communicatingly connected by a common conduit for supplying a pressure agent. By means of these lifting aggregates it becomes possible to adapt the converter to an inclined or slanting position of the carrying ring when the converter is being put into position.

3,741,408
TRANSFER APPARATUS
Kenneth L. Klusmier, Worcester, Mass., assignor to Morgan Construction Company, Worcester, Mass.
Filed Aug. 2, 1971, Ser. No. 168,276
Int. Cl. B65g 7/00
U.S. Cl. 214-1 QG 4 Claims

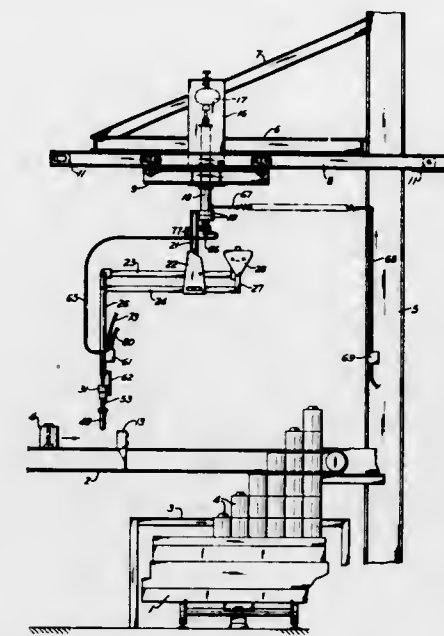


An apparatus for transferring elongated elements from a first location to a laterally disposed second location. The apparatus includes a plurality of transfer members which are pivotally manipulated by operating means in a manner such that an elongated element at the first station is engaged at spaced points along its length by the transfer members and carried along the upper portion of a generally elliptical path to the second location.

3,741,409
TRANSFER APPARATUS FOR ARTICLES WITH A VERTICAL PASSAGE
Paul C. Painter, Natrona Heights, Pa., assignor to Freeport Brick Company, Freeport, Pa.
Filed Dec. 1, 1971, Ser. No. 203,721
Int. Cl. B66c 1/66
U.S. Cl. 214-1 BC 10 Claims

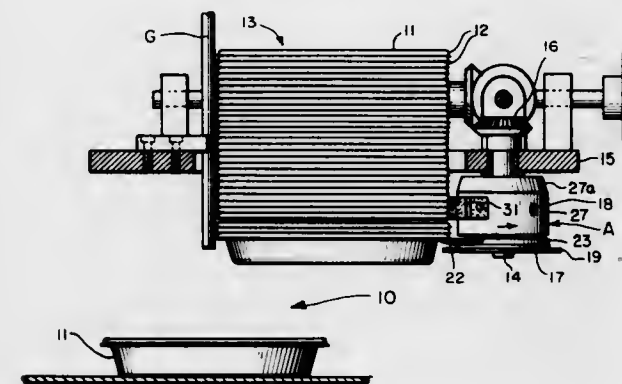
An inflator head provided with an opening through it is supported for vertical and lateral movement. Secured to the head

around its opening is the open upper end of a resilient bag that extends downwardly from the head for insertion in an article having a vertical opening in it. There are means connected with the head opening for delivering air under pressure to the



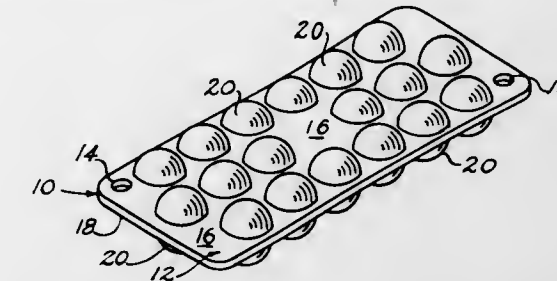
bag to inflate it and for releasing the air pressure from the bag. Means are also provided for raising the head-supporting means so that after the bag has been inflated in an article to grip the wall of the opening therein the article can be picked up by the bag and transferred to another location.

3,741,410
SEPARATOR
Ernest J. Henschke, Des Plaines; George H. Logemann, Mundelein; Stanley Moorad, Niles, and Lino P. Savio, Glenview, all of Ill., assignors to Ekco Products, Inc., Wheeling, Ill.
Filed Mar. 24, 1971, Ser. No. 127,445
Int. Cl. B65g 59/10
U.S. Cl. 214-8.5 K 8 Claims



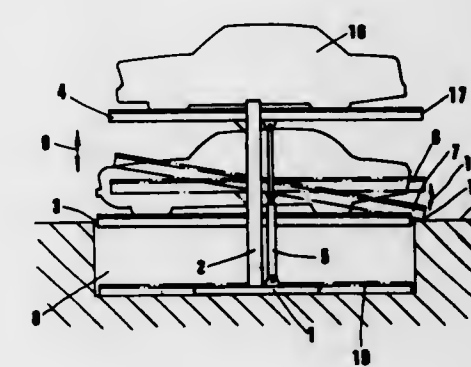
A separator unit for sequentially denesting the lowermost container from an upright stack of nested-like containers, each having an outwardly projecting rim at the mouth thereof. The unit includes a first driven rotor with which the rim of the lowermost container has downward engagement along the surface of a segmental ledge extending from the first rotor pending rotation of the rotor through an arc to withdraw the ledge from the rim, and a blade on a second rotor with which the rim of the lowermost container is engaged and gradually pushed downwardly to separate the lowermost container from the stack when the flange of the first rotor is withdrawn from engagement with the rim of the lowermost container. The second rotor is coupled to the first rotor for rotation in unison with the first rotor about a common axis while allowing the second rotor to have limited movement relative to the first rotor along the common axis.

3,741,411
MOLDED CUSHION PAD INSERTABLE BETWEEN HEAVY PANELS
Bobbie D. Peacock, c/o MA Industries, 2350 Sylvan Road, Forest Park, Ga.
Filed Oct. 4, 1971, Ser. No. 186,233
Int. Cl. B65g 1/14
U.S. Cl. 214-10.5 R 1 Claim



A molded plastic cushion pad for insertion between respective heavy panels such as precast concrete, architectural slabs used in building construction and the like. The pad is placed between such heavy panels when panels are stacked against each other so as to prevent damage, permit the circulation of air and so forth. A typical plastic pad is molded from polyethylene about the size of a man's wallet and is rectangular in formation with large protruding, hemispherical bumps on both sides making the pad also about the thickness of a man's wallet. The main body of the pad is a thin flat sheet of polyethylene and the hemispherical bumps are molded intricately therewith. Heavy concrete slabs may be stacked one on the other vertically with the present cushion pad therebetween.

3,741,412
DEVICE FOR THE PARKING OF VEHICLES ON SEVERAL PLATFORMS ARRANGED ABOVE EACH OTHER
Kaspar Klaus, Schlachthofstrasse 46, Memmingen, Germany
Filed Mar. 8, 1971, Ser. No. 122,083
Int. Cl. E041 6/06
U.S. Cl. 214-16.1 ED 7 Claims



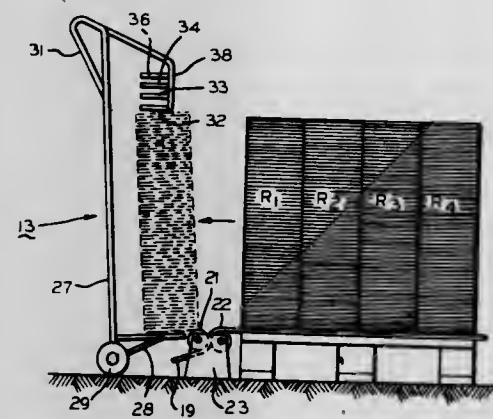
The invention concerns a device for the parking of vehicles on several platforms, arranged above each other, with incline and hoisting equipments for all platforms.

3,741,413
STRUCTURE FOR HANDLING STACKED FLAT ARTICLES
James J. Friel, Audubon, Pa., assignor to Container Corporation of America, Chicago, Ill.
Filed Nov. 8, 1971, Ser. No. 196,482
Int. Cl. B65g 67/02
U.S. Cl. 214-41 10 Claims

A plurality of vertical stacks of flat articles, such as carton blanks or the like, are arranged in upright rows on a flexible pallet pad in turn resting upon a pallet. A free end of the pallet pad is trained through a pair of nip rolls which advance the

first row of the stack onto a structure which is then rocked to a position where each stacked pile of such row falls against a stop mounted on the frame so that each pile is in a particular imbricating relationship. The stops are staggered so that each pile varies in imbrication to prevent the blanks of one pile from interleaving with the blanks of an adjacent pile.

The structure referred to may be part of a vehicle arranged



to move between the stacked pallet and a blank feeding machine.

The vehicle may be moved to a stand with the piles arranged as described, and pusher means engages one side of the outermost pile on the vehicle to push as desired a remote one of the piles onto a conveyor structure of a blank feeding machine, all the while maintaining the blanks of one pile from interleaving with blanks of an adjacent pile.

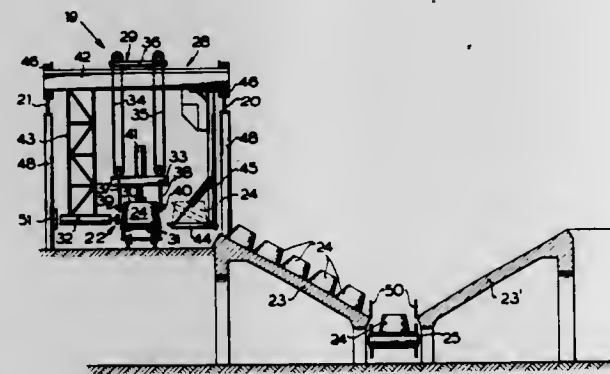
3,741,414

INSTALLATION FOR COOLING CALCIUM CARBIDE RUN OFF INTO VESSELS

Johannes Krause, Hermulheim, and Wilhelm Portz, Ertstadt-Kierdorf, both of Germany, assignors to Knapsack Aktiengesellschaft, Knapsack near Cologne, Germany
Division of Ser. No. 24,542, April 1, 1970. This application Jan. 11, 1972, Ser. No. 217,063
Int. Cl. B65g 67/24

U.S. Cl. 214-44 R

10 Claims



The invention provides an installation for cooling calcium carbide run off into vessels, comprising a rail system carrying trucks which serve as tapping vessels and are disposed under and at a distance from the tapping level of the calcium carbide furnaces, a movable device for ejecting the carbide blocks from the trucks, and a plurality of juxtaposed inclined planes which are constructed as chutes and the upper ends of which are disposed near a portion of the rail system which extends rectilinearly over a substantial length, while their lower ends lead to a conveyor belt. The trucks each have an upper portion which is lifted from a flat base to allow the blocks to be pushed off onto the chutes when they are cooled to a surface temperature of about 500°C to 600°C at which they are only partially solidified and just able to retain their block form without being supported laterally. The exposed blocks then rapidly cool to a temperature of about 200°C on the chutes which are overlapped to provide vents between them for the passage of cooling air below, between and above them.

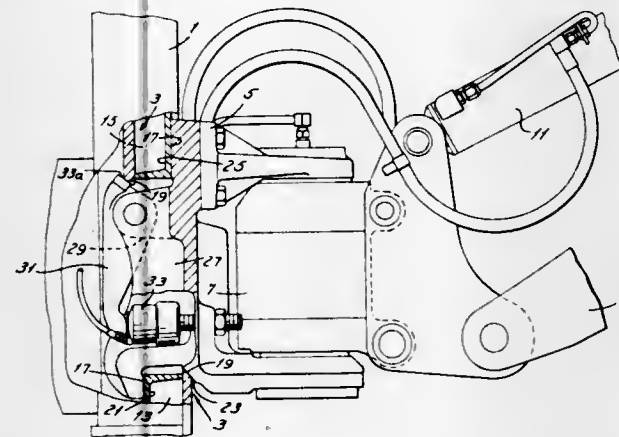
3,741,415

VEHICLE CARRYING AN IMPLEMENT

Lewis R. Lee, Basildon; Robert S. D. Whybro, Hullbridge, and William A. Bennett, Hornchurch, all of England, assignors to Ford Motor Company, Dearborn, Mich.
Filed Feb. 10, 1972, Ser. No. 225,081
Int. Cl. B66f 9/00

U.S. Cl. 214-138 C

4 Claims



A carriage is disclosed to be attached to the rear of a tractor for supporting a backhoe. The carriage is slidably mounted on a transversely extending slideway and locked by one or more levers which are pivotally mounted on the carriage and rockable to engage the slideway.

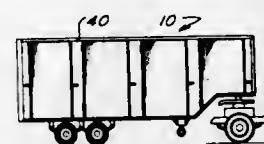
3,741,416

FOAM HANDLING APPARATUS AND METHOD

Patrick J. Bilbow, Wilkes-Barre, Pa., assignor to Lyn-Weld Co., Inc., Wilkes-Barre, Pa.
Filed Dec. 21, 1970, Ser. No. 99,790
Int. Cl. B60p 3/00

U.S. Cl. 214-152

7 Claims



Foam buns are compressed for storage and/or shipment to reduce the volume of the buns. A power operated platen is disposed between adjacent buns to equalize the compression. Compression of the buns preferably takes place in the body of an over-the-road vehicle.

3,741,417

POULTRY HANDLING SYSTEM

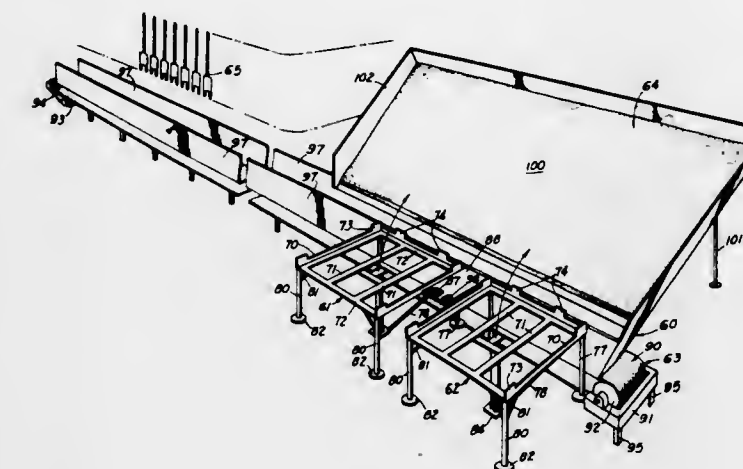
Milton O. Blankenship, Route No. 2, Canton, Ga.
Filed Jan. 19, 1971, Ser. No. 107,771
Int. Cl. B65g 65/30

U.S. Cl. 214-314

5 Claims

A receiving station having an upwardly open operable conveyor surface for conveying poultry to be processed from one location along a predetermined path to a second location is provided with an adjustable support platform means movable between operable and inoperable positions for effecting a transfer of poultry by gravity from a container means onto the conveyor surface in response to the platform being moved to the operable position. Padded guide means is provided on an opposite lateral side edge of the conveyor means from the adjustable platform means for absorbing the impact of poultry deposited thereon and for effecting a guided movement of the deposited poultry onto the conveyor means. The conveyor means is operable for effecting a transfer of the poultry deposited thereon from a first location adjacent the operable platform to a second location adjacent suspension means used for conveying poultry through a processing operation. Special

container means is provided for transporting poultry from poultry growing facilities to the receiving station. The container means is detailed to be supported on the platform



means and for movement to the angular oriented operable position for effecting a transfer of poultry by gravity from within the container means onto the conveyor and padded guide means.

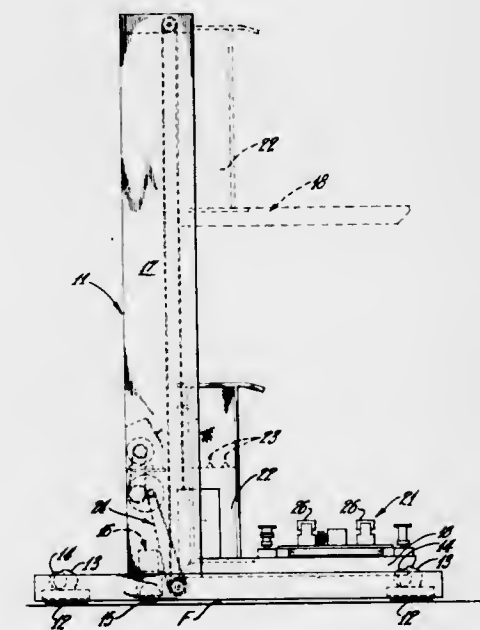
3,741,418

MATERIALS HANDLING VEHICLE

Reynold F. Gamundi, Lyndhurst, Ohio, assignor to Eaton Corporation, Cleveland, Ohio
Filed Mar. 17, 1972, Ser. No. 235,738
Int. Cl. B60p 1/02

U.S. Cl. 214-512

14 Claims



A load lifting vehicle including a shuttle which can be rotated free of the load to provide end loading and unloading. The shuttle assembly is mounted on a rotatable platform such that the shuttle table can be extended to either side of the vehicle transversely to the path of travel, or toward one end thereof parallel to the path of travel. Load-receiving pads capable of supporting the load are provided so that relative vertical movement of the shuttle table and the pads will free the shuttle of the load. The shuttle assembly can then be rotated 90° to provide end loading.

3,741,419

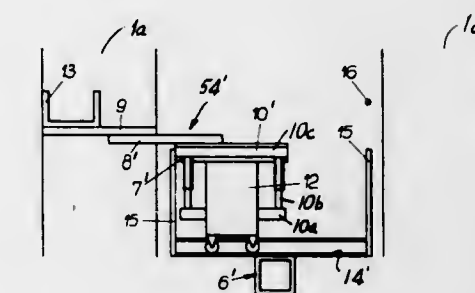
SHELF LOADER FOR LONG MATERIALS

Klaus-Peter Bergerhoff, Waldheim Kr. Aachen, and Theobald Becke, Hagen, both of Germany, assignors to Demag Aktiengesellschaft, Duisberg, Germany
Filed Aug. 19, 1970, Ser. No. 65,227
Claims priority, application Germany, Oct. 10, 1969, P 19 51 143.4

U.S. Cl. 214-730

Int. Cl. E04h 6/06

1 Claim



A shelf loader for long materials comprises an elongated frame which is movable on wheels between shelf compartments and which carries a lift frame which is movable upwardly and downwardly on a side thereof. The lift frame provides a stand for one or more operators and it includes a telescoping member having a load carrier thereon which may be shifted laterally in a direction toward the shelf compartments for the purpose of lifting long elements from the shelves or inserting them on shelves. In one form the load carrier is attached to the lifting frame by hinged braces which permits it to be lifted upwardly and shifted laterally, and in another arrangement it is carried on a car which may be moved transversely along the lifting frame from one shelf side to an opposite shelf side. The lifting frame is adapted to carry a removable hoist. The load bearing platform is advantageously carried on a support truss which is vertically movable in order to shift the load off the carrier to permit the shifting movement of the carrier and the realignment of the load therewith at a laterally spaced location. The load carrier itself includes transversely shiftable portions so that the load may be shifted by a combination of movements of the shiftable load carrier portions and the lifting truss.

3,741,420

LOAD HANDLING IN FORK LIFT TRUCKS

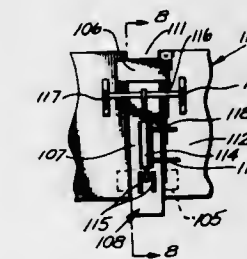
Thomas N. Melin, 1424 24th Avenue, Longview, Wash.

Division of Ser. No. 801,137, Feb. 20, 1969, Pat. No.

3,589,541, which is a continuation-in-part of Ser. No. 439,846, March 15, 1965, Pat. No. 3,429,470. This application Feb. 25, 1971, Ser. No. 118,845
Int. Cl. B65g 47/00

U.S. Cl. 214-750

1 Claim



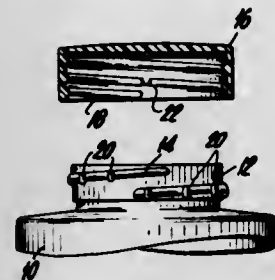
A slope-piling arrangement for a fork-lift truck in which one of the lifting forks has its vertical leg movably engaged with the fork apron so that the fork leg, during movement relative to the apron, is constrained to move vertically, and in which a power drive mechanism is connected between the apron and the fork for moving the fork relative to the apron.

3,741,421 SAFETY LOCKING CAP

John C. Wittwer, RFD No. 2, Mount Kisco, N.Y.
Filed May 10, 1971, Ser. No. 141,613
Int. Cl. B65d 41/04

U.S. Cl. 215—9

2 Claims



A self-locking and sealing cap and bottle in which cooperating locking elements in the form of lugs and detents are provided on the matching threads of the cap and the bottle. A plurality of locking elements is provided on at least one of the bottle and cap, to thereby ensure that engagement of that one locking element with a corresponding element on the other member is achieved when the cap is tightly secured on the bottle. The locking lugs may be shaped with one edge tapered in the direction of rotation of the cap to permit ready rotation of the cap in that direction.

3,741,422 METHOD AND MEANS FOR SECONDARY CLOSURE

Robert A. Wold, and Anthony P. Higgins, both of Fremont, Calif., assignors to Raychem Corporation, Menlo Park, Calif.

Filed July 19, 1971, Ser. No. 163,781
Int. Cl. B65d 41/00, 43/02; B65b 7/00

U.S. Cl. 215—38 A

11 Claims



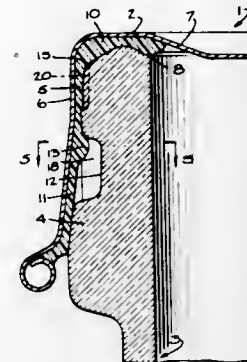
Described herein are methods and means for providing containers with secondary closures resistant to the passage of moisture, bacteria and the like. Heat recoverable tubular members having one or more integral tear tabs and preferably provided with a hot melt adhesive or other sealant material on the inner surface thereof are radially inwardly heat-recovered about the generally cylindrical neck portions of containers provided with a primary closure such as a cap. The tear tab is preferably provided with a stress-raising characteristic positioned to resist tearing during radial recovery of the secondary closure and to facilitate removal of the same when the container is to be opened. Simultaneously with or following heat recovery the container, including the container-primary closure interface about which the tubular member is recovered, is sterilized.

3,741,423 PRESS-ON TWIST LIFT-OFF CONTAINER SEALING MEANS

Daniel D. Acton, and George J. Foss, both of Lancaster, Ohio, assignors to Anchor Hocking Corporation, Lancaster, Ohio
Filed Oct. 27, 1971, Ser. No. 193,031
Int. Cl. B65d 23/00, 53/00

U.S. Cl. 215—40

23 Claims



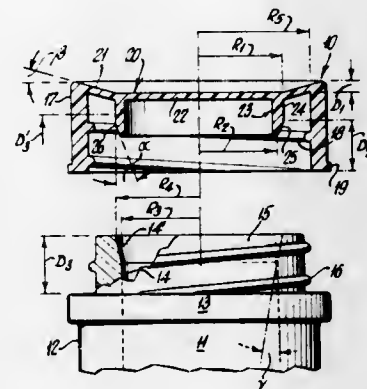
A closure cap is described which is pressed without rotation onto a cooperating container to initially seal it. The cap is removed from the container by a twisting and lifting motion and may thereafter be snapped back onto the container to reseal it. The rim of the container has an interrupted circular slot with radially outwardly directed camming ramps between the slot sections. The closure cap has a plastisol lined skirt including anchoring portions which enter into the slot sections after the press-on sealing operation to hold the closure cap in place. The portions of the gasket entering the slots may be preformed on the gasket or they may be formed during sealing as bulges in the gasket material resulting from a deformation of the gasket during sealing. The outwardly directed ramps facilitate cap removal by wiping off the gasket anchoring positions when the cap is twisted on the jar permitting the cap to be lifted off. Where the cap is used for a vacuum seal, an additional vacuum breaking venting groove may be included in the glass finish. The venting groove is filled with the gasket compound during sealing to provide a hermetic seal and when the cap is twisted during removal, the twisting motion carries the gasket material out of the groove permitting air to pass under the cap gasket and into the sealed package.

3,741,424 BOTTLE CLOSURE

William James Landen, Cheshire, Conn., assignor to Eyelet Specialty Company, Wallingford, Conn.
Filed Sept. 27, 1971, Ser. No. 184,074
Int. Cl. B65d 41/04

U.S. Cl. 215—43 R

8 Claims



The invention contemplates a single-piece molded-plastic screw cap for secure liquid-sealing of the contents of a bottle, which may be of glass or molded-plastic construction. The seal action is established at a non-plugging interference between (a) an annular flange within the cap and (b) a flared mouth or

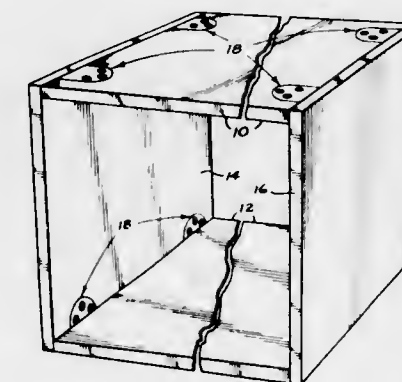
tapered counterbore in the bottle opening. The cap arrangement is such, in relation to bottle-neck dimensions, that a strong axial force is generated by local deformation of the cap, to increasingly load the seal contact in the course of threaded advance of the cap to its fully set position; at the same time, local resilient deformation of the flange at seal contact expands the seal action from essentially a circle of contact to an annulus of contact.

3,741,425 CORNER-CONNECTED CABINET ASSEMBLY

Dixon L. Freeman, Tacoma, Wash., assignor to Monitor Cabinets, a division of Comerco, Inc., Tacoma, Wash.
Filed Aug. 16, 1971, Ser. No. 172,167
Int. Cl. B65d 13/00, 9/12

U.S. Cl. 217—12

3 Claims



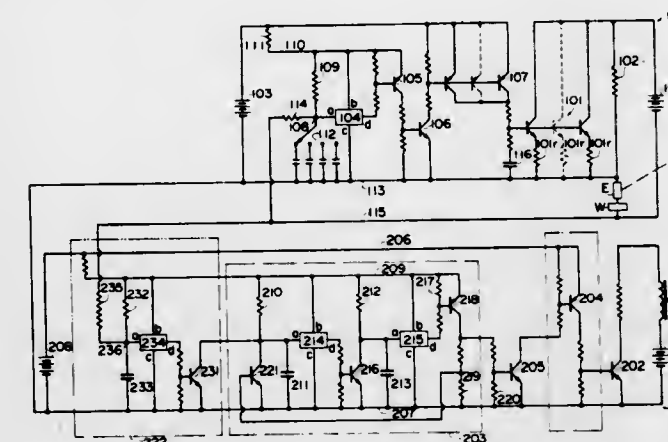
A cabinet assembly includes a pair of end pieces, a top piece and a bottom piece, each provided with cooperating pairs of marginal recesses. Angled connectors seat in and are secured to the recesses, locating the pieces in cabinet-forming relation.

3,741,426 SPARK-DISCHARGE SURFACE TREATMENT OF A CONDUCTIVE WORKPIECE

Kiyoshi Inoue, Tokyo, Japan, assignor to IJR (Inoue-Japox Research Inc.), Yokohama, Japan
Filed July 28, 1971, Ser. No. 166,685
Int. Cl. B23k 9/04

U.S. Cl. 219—76

21 Claims



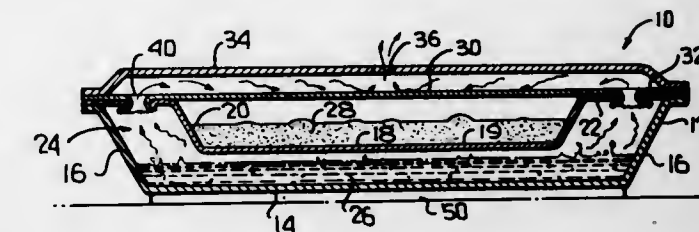
Method of and apparatus for the surface treatment of a workpiece or substrate, e.g., to fuse material thereto, wherein an electrode is brought into iterative contact with the workpiece to form an interface and an electrical pulse is applied across the interface. A circuit network responsive to the interface impedance controls an electronic switch to deliver the pulses when the impedance is in the proper range of impedance values.

3,741,427 DOUBLE BOILER FOOD TRAY

Diane J. Doyle, Western Springs, Ill., assignor to Continental Can Company, Inc., New York, N.Y.
Filed Feb. 8, 1971, Ser. No. 113,281
Int. Cl. A47j 27/10

U.S. Cl. 220—13

7 Claims



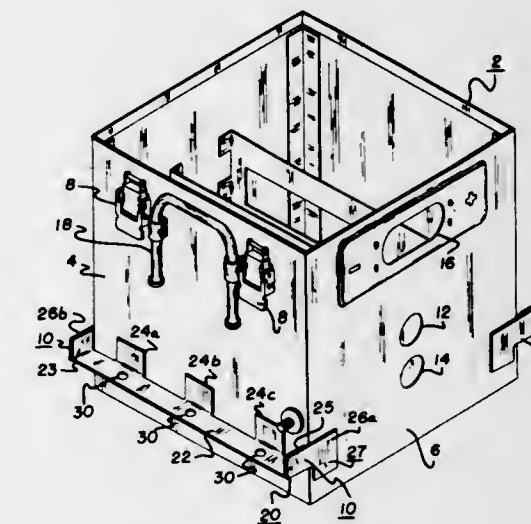
A double boiler food tray, or the like, wherein a cover is fastened to an inner tray such that the fastening means also provides a vent for the escape of steam created during heating.

3,741,428 VIBRATION RESISTANT CASE AND MOUNTING BRACKET

John Martin Evjen, and Leonard Ronald Dinkler, both of Gainesville, Fla., assignors to General Electric Company, Owensboro, N.Y.
Filed Aug. 12, 1970, Ser. No. 63,182
Int. Cl. B65d 25/24

U.S. Cl. 220—18

1 Claim



A structure is provided comprising a thin-wall metal rectangular parallelepiped case having at least one mounting bracket welded to the case. The mounting bracket is designed to be bonded to at least two surfaces of the case so that vibrational forces having vectors along all three axes will be resisted by adhesion means in shear in the planes of the thin walls to provide lower stresses for equivalent vibrating forces.

3,741,429 BICYCLE CANTEN

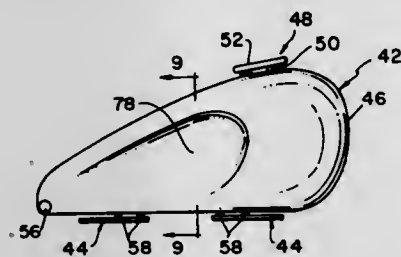
Jack A. Purcell, Jr., Taylor; Jerome A. Leonard, Walled Lake, and John S. Juratovic, Detroit, all of Mich., assignors to Bort, Inc., Hazel Park, Mich.
Filed Jan. 25, 1971, Ser. No. 109,498
Int. Cl. B65d 25/24

U.S. Cl. 220—18

5 Claims

A bicycle canteen having a unitary rigid structure is provided with a universal clamping means for securing the canteen to either singular or dual membered main crossbars of a bicycle. The canteen is secured along the main crossbar of a bicycle between the forward end of the seat and the handlebar fork member. A combination inlet cap and cup is provided to

seal the canteen making it liquid-proof after the canteen is filled and provide a cup to act as a receptacle when the liquid



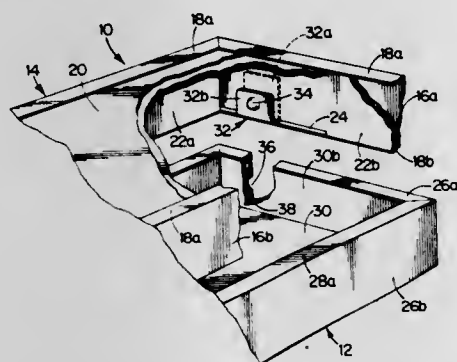
is removed from the canteen. The canteen takes the general shape of fuel tanks such as found on motorcycles and is basically speed-form or aero-dynamically shaped.

3,741,430 CONTAINER

George G. Bergh, 1 Peck Road, R.F.D. 3, Plainville, Mass., and Robert G. Bergh, 77 Metcalf Road, North Attleboro, Mass. Continuation-in-part of Ser. No. 122,566, March 1, 1971, abandoned. This application Jan. 3, 1972, Ser. No. 214,688 Int. Cl. B65d 43/16

U.S. Cl. 220-38

3 Claims



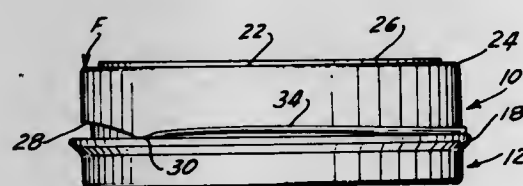
A container having base and lid sections, one of which has a wall member dimensioned to be surrounded by and nested within the wall member of the other section when the container is closed. The container further includes hinge means providing a pivotal connection between the wall members of the base and lid sections. The hinge means defines a pivotal axis which, during opening and closing of the container, is movable laterally relative to one section while being fixed against lateral movement relative to the other section.

3,741,431 CONTAINER WITH SNAP-OPEN COVER

Ralph V. Burdick, Colonial Green, Loudonville, N.Y. Filed Apr. 1, 1971, Ser. No. 130,267 Int. Cl. B65d 43/04

U.S. Cl. 220-43 P

2 Claims



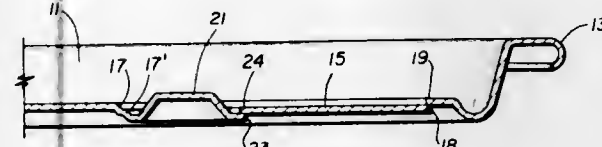
A container having a snap-open cover in which the cover is provided with a skirt having a single arcuate cut-away portion, curled edge for strengthening and improved fulcrum zones joining the cut-away portion and curled edge which cooperates with a flattened peripheral ledge on the container bottom to facilitate opening in a snap action.

3,741,432 CONTAINER WITH CLOSURE TAB AND PRESSURE RELEASE TAB ON CLOSURE TAB

Elmer D. Werth, Arvada; Nelson E. Sipe, Denver, and Ronald A. Pearce, Lakewood, all of Colo., assignors to Coors Container Company, Golden, Colo. Filed Jan. 20, 1972, Ser. No. 219,258 Int. Cl. B65d 51/16

U.S. Cl. 220-44

9 Claims



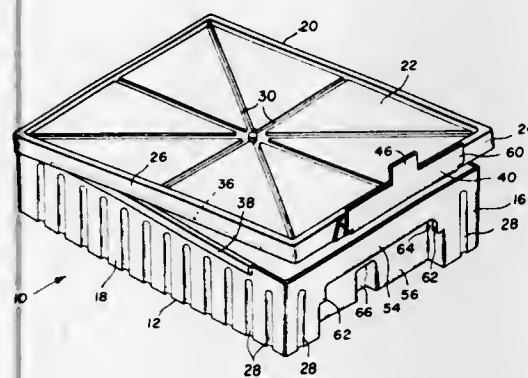
A beverage container having an end or lid provided with an opening which serves as a pour opening, a pressure release vent and an air intake opening. The opening is covered by a depressible closure tab separable from the container end except at a hinge portion integrally connected to the container end. A pressure release vent tab, smaller in area than the closure tab, is located on the closure tab and hingedly connected to said closure tab. Manual pressure applied to the pressure release vent tab and transferred to the closure tab separates the release tab from the closure tab to open the release vent and facilitate easy separation of the closure tab from the container end to expose the opening in the end for simultaneous discharge of container contents and admission of air into the container. The pressure release tab may also function as a vacuum release means.

3,741,433 BOX HAVING A CARRYING HANDLE-LATCH

Ralph C. Bentley, Canadaigua, and James R. Burroughs, Long Island, both of N.Y., assignors to Voplex Corporation, Pittsford, N.Y. Filed Mar. 15, 1971, Ser. No. 123,993 Int. Cl. A47j 27/08, 36/10

U.S. Cl. 220-55.7

8 Claims



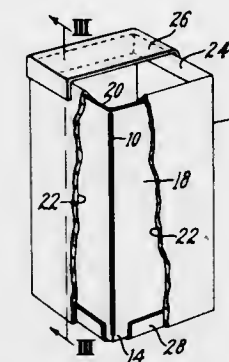
A thin plastic rigidified box comprising a receptacle, a cover for the receptacle, and a detent and carrying handle-latch for releasably securing the cover to the receptacle. The carrying handle latch is movable between an unlatched position in which the cover may be readily removed from the receptacle, and a latched position in which the latch serves the dual function of releasably securing the cover to the receptacle and providing a carrying handle for the box. The carrying handle-latch comprises a flexible arm having a handle forming hook latch for latching onto a shoulder on the receptacle, and one or more auxiliary flap latches integral with the arm that are forced past a flange and into a notch in the receptacle for greatly increasing the force required to move the hook latch to its unlatched position.

3,741,434 TRASH DISPOSAL DEVICE

Robert E. Traverse, 706 Washington Street, Dorchester, Mass. Filed Feb. 22, 1971, Ser. No. 117,441 Int. Cl. B65d 25/14, 25/34

U.S. Cl. 220-65

2 Claims



A trash disposal device adapted for sink-side use in a plurality of modes comprises a rectangular open-topped container fitting within a rectangular open ended body member having at its upper end a reentrant flange overlying the rim of and extending into the container to prevent particles entering between the member and the container or a liner therefor.

3,741,435 BOTTLING MACHINES

Albert Adelin Mathieu Auguste Collon, Brussels, Belgium, assignor to Vickers-Vandergeeten Societe Anonyme, Brussels, Belgium Filed May 12, 1971, Ser. No. 142,630

Claims priority, application Belgium, May 14, 1970, 750,409 Int. Cl. B65d 87/20

U.S. Cl. 220-93

6 Claims



A bottling machine for filling bottles with a liquid under the action of pressure gas includes a single reservoir (1) for the liquid and pressure air, such reservoir being provided with a float (2) serving to prevent contact of the pressure air with the liquid and to prevent the formation of waves on the liquid surface when the machine is started or stopped. The float may take various forms, for example it may be formed as a hollow body (3) of revolution made of non-oxidizable material, as a solid body (5) of revolution made from a material having a specific gravity of less than one, or as a buoyant open section (7) made of non-oxidizable steel. In another form of the invention, the float is formed from a plurality of interconnected sections (8).

3,741,436 HANDLING OF MAGNETICALLY ASYMMETRICAL ARTICLES

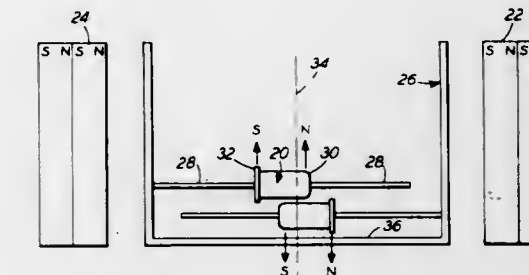
Ernst F. Hartline, Reading; Donald M. Large, Temple, both of Pa., and Gregory E. Montone, Alexandria, Va., assignors to Western Electric Company, Incorporated, New York, N.Y. Filed May 14, 1971, Ser. No. 143,511 Int. Cl. B23q 7/12

U.S. Cl. 221-156

17 Claims

Articles having axial leads, such as diodes, are handled by initially storing the articles within a magnetic bin and feeding the articles from the bin with a magnetic wheel. The articles are magnetic but they are not "magnetically symmetrical."

The magnetic asymmetry causes a tangling of the articles when they are suspended within the storage bin. A number of techniques are provided to eliminate the tangling: the field strength of the bin is reduced, the field is biased to one side of the bin and the bin walls are placed close together to constrain the articles.



Additional improvements in handling are achieved by operating a magnetic feed wheel with discrete high angular-acceleration steps so that the articles which are not singularly attracted to pickup locations on the wheel are shaken free of the wheel by the stepping action. Thus, uniform feeding of the articles is achieved.

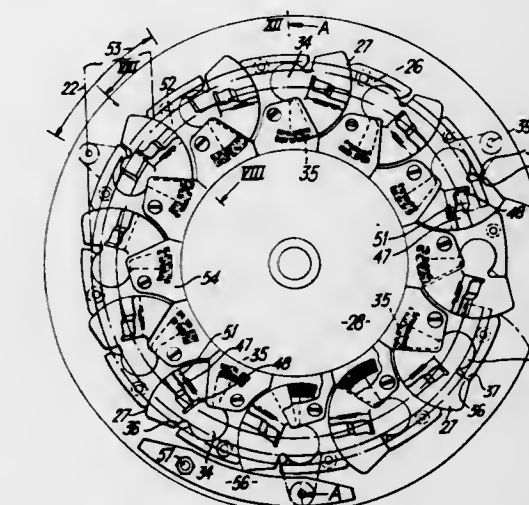
3,741,437 SEED DISPENSER HAVING SPRING BIASED SEED SELECTORS

Walter H. Ward, Vereeniging, Transvaal, South Africa, assignor to South African Farm Implement Manufacturers Limited, Vereeniging, Transvaal, South Africa Filed Oct. 4, 1971, Ser. No. 185,978

Claims priority, application Great Britain, Oct. 8, 1970, 47,979/70 Int. Cl. A01c 7/20

U.S. Cl. 221-219

6 Claims



A seed dispenser including a seed reservoir with its lower portion connected to a seed hopper, a fixed annular seed guide having a seed discharge opening and a plurality of seed selector elements mounted on a rotatable mounting plate. The seed selector elements select seeds from the lower portion of the seed reservoir and slide the seeds along the seed guide to the discharge opening where they are ejected. The fixed annular seed guide includes a frusto-conical surface and a cylindrical surface. The seed selector elements have seed-engaging surfaces which cooperate with the frusto-conical surface to push and guide seed along the frusto-conical surface. A cam is provided to rotate the seed selector elements relative to the rotatable mounting plate to allow seed to enter the space between the seed-engaging surfaces and the annular seed guide. The annular seed guide may include a recessed portion to dislodge excess seeds carried by the selector elements. The axis of rotation of the rotatable mounting plate may be slightly offset from the axis of the annular seed guide to assist in dislodging excess seeds.

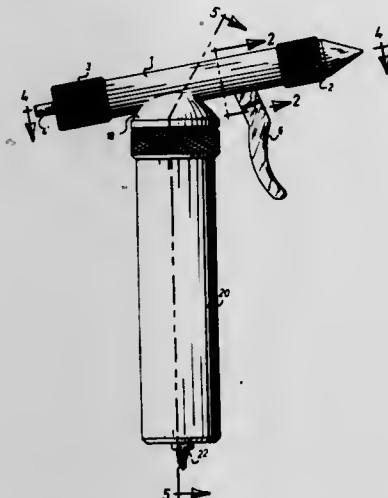
3,741,438
PASTE GUN

Paul Joseph Gardoni, 7100 Viau Street, Apt. 809, Montreal, Quebec, Canada

Filed June 22, 1971, Ser. No. 155,486
Int. Cl. B05b 15/00

U.S. Cl. 222-96

6 Claims



A paste gun comprising a body, a nozzle for dispensing the paste at one end of the body, a casing removably attached to the body and adapted to contain a supply of the paste material to be dispensed, means to pressurize said casing whereby the paste will be dispensed under air pressure, a manually-operated trigger depending from the body and adapted to open a valve located in the nozzle at the discharge opening to start and stop the dispensing of the paste. Preferably, the air pressure is built up in the casing by means of a hand-operated air pump. The air pump can be removed and a check valve prevents discharge of the air from the casing.

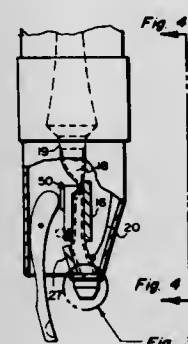
3,741,439
VISCIOUS LIQUID DISPENSER

Roger Keith Vehrs, 4515 E. Cambridge Street, Fresno, Calif.

Filed Nov. 4, 1971, Ser. No. 195,557
Int. Cl. B65d 35/28

U.S. Cl. 222-103

10 Claims



A viscous liquid dispenser suitable for dispensing the contents of collapsible tubes comprising a reservoir adapted to hold a viscous liquid, a length of elastic tubing connected at the upstream end thereof to said reservoir and having a high modulus of resilience; a wall means spanning at least a portion of the length of said elastic tubing and positioned adjacent thereto, a lever moveable with respect to said elastic tubing wherein both arms of said lever may be moved to wedge a portion of said elastic tubing against said wall means, the upstream portion of said moveable lever pressing said elastic tubing against said wall means before the downstream portion of said moveable lever presses said elastic tubing against said wall means to force said viscous liquid in the downstream direction where it is expelled from the orifice at the downstream end of said length of elastic tubing, and a closure means positioned adjacent said elastic tubing and above said downstream orifice to prevent viscous liquid from leaking.

from said orifice when said device is not in use and to prevent air from entering said elastic tubing after the expelling stroke of said lever so that additional viscous liquid is drawn by suction into said elastic tubing, said closure means being overridden by the movement of said viscous liquid during said expelling stroke.

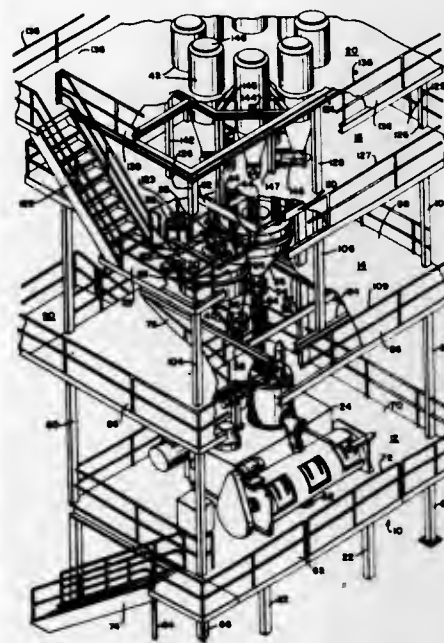
3,741,440
MODULAR BLENDING SYSTEM

William I. Sanders, Jr., Oakland, Calif., assignor to De Met Engineering Company, Oakland, Calif.

Filed Nov. 5, 1971, Ser. No. 195,957
Int. Cl. B67d 5/60

U.S. Cl. 222-132

7 Claims



Easily assembled and disassembled modular blending plants are provided having demountable operative units organized to permit ready modification of capability and capacity of the blending plant. The modules are organized into a rectangular superstructure. The operating units are arranged in a predetermined vertical relationship, being supported by platform cross beams of a predesigned organization.

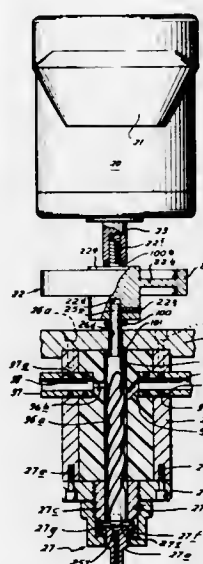
3,741,441
METHOD AND APPARATUS FOR DISPENSING EPOXY

William J. Eberle, P.O. Box 1262, Reading, Pa.

Filed Dec. 2, 1970, Ser. No. 94,478
Int. Cl. B67d 5/62

U.S. Cl. 222-135

11 Claims



A method and apparatus for mixing and dispensing liquid resin and catalyst in predetermined quantities for filling battery case tops or similar devices wherein the contents of, and

3,741,443

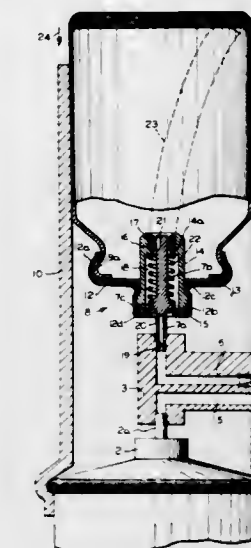
DISPENSING SYSTEM WITH PROPELLANT METERING VALVE

Jean Marand, Saint-Benoit, France, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Nov. 19, 1970, Ser. No. 90,896
Int. Cl. B65d 83/14

U.S. Cl. 222-145

1 Claim

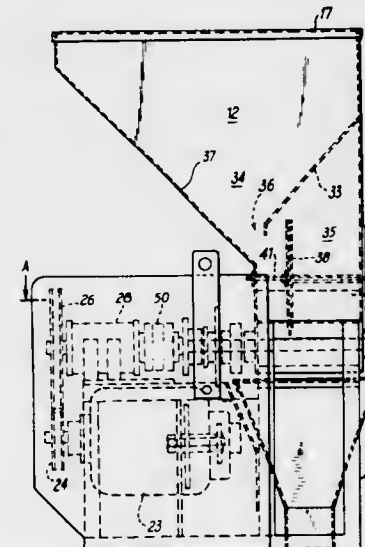


3,741,442
APPARATUS FOR MIXING AND DISPENSING DIFFERENT PARTICULATE MATERIALS IN ACCURATELY CONTROLLABLE PROPORTIONS
Derek Burt Hargreaves, Adlington, and Eric Staniforth, Macclesfield, both of England, assignors to National Research Development Corporation, Macclesfield, England
Filed June 16, 1971, Ser. No. 153,683
Claims priority, application Great Britain, June 17, 1970, 29302/70

Int. Cl. B67d 5/52

U.S. Cl. 222-142

3 Claims



There is disclosed apparatus for mixing and dispensing at least two different particulate materials in accurately controllable proportions comprising at least two containers, metering means associated with each container adapted continuously to receive particulate material from its container, drive means for said metering means, means for adjusting the metering capacity of at least one of said metering means, and means for dispensing together all the particulate material issuing from said metering means to a desired location. The metering means preferably consists of a pair of rollers disposed to form a nip through which material reaching the upper side thereof is dispensed at a rate depending upon the speeds and directions of rotation of the rollers, their surface characteristics and their relative dispositions and sizes, and comprising means for adjusting the length of nip exposed to material in the associated container and thereby the metering capacity of the rollers. The means for adjusting the length of the nip may conveniently comprise a vertical shutter lying at right angles to the roller axes and in close-fitting relationship with the walls of the container and the rollers and means for adjusting the position of the shutter longitudinally of the rollers. In the preferred embodiment disclosed there are three containers each with metering means consisting of roller pairs, two being provided with means for adjusting the length of nip exposed.

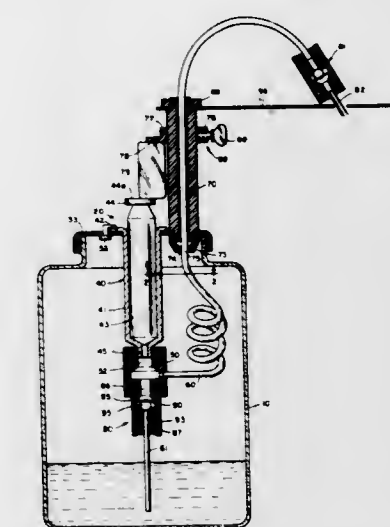
3,741,444
ADJUSTABLE DISPENSING APPARATUS

George G. Goda, 390 First Avenue, New York, N.Y.

Filed June 14, 1971, Ser. No. 152,636
Int. Cl. B67d 5/42

U.S. Cl. 222-309

7 Claims



An apparatus for repetitively dispensing predetermined amounts of liquid from a dispensing bottle. An output tube for remote dispensing is provided with a check valve at its end to assure consistent accuracy. In a preferred embodiment, a volume spacer is provided so that the amount to be dispensed can be adjusted without relying on the human eye to effect adjustment.

3,741,445

SAFETY VALVE FOR AEROSOL PACKAGE

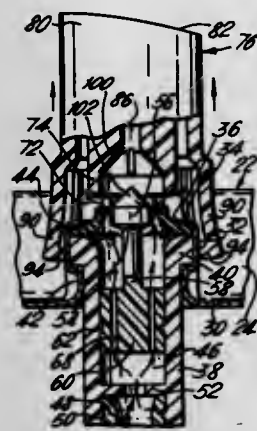
Edward H. Green, 11 Army Trail Road, Addison, Ill.

Continuation-in-part of Ser. No. 876,746, Nov. 14, 1969, abandoned. This application Apr. 21, 1971, Ser. No. 135,943

Int. Cl. B65d 83/14

U.S. Cl. 222—397

19 Claims



A valve assembly for securement to a container for dispensing pressurized product has a cover member with a central upstanding boss, a perforated diaphragm held in the top of the boss and capable of invagination inwardly of the package and outwardly of the package. A housing depending from the interior of the boss carries an upstanding post providing a valve seat on the outside of the diaphragm, the post extending through the perforation of the diaphragm. Pressure from the interior of the package holds the diaphragm against the valve seat, normally preventing invagination outwardly of the package. An actuator member engages over the boss and has an external metering orifice and connection to a clearance chamber on its interior, the clearance chamber being formed by a skirt engaging the top of the diaphragm and aiding in preventing outward invagination of the diaphragm. The exterior of the actuator member has elongate axially extending fingers with enlarged bottom ends that engage the crimps on the exterior of the boss and are adapted to ride up and down in the crimps. To operate the valve mechanism, pressing down on the actuator member causes the skirt to press the diaphragm downward away from the valve seat, invaginating the same inward, enabling the pressurized product to emerge through the passageways in the actuator member. Releasing of the actuator member causes the internal pressure to reseal the diaphragm on the valve seat. Unusual pressure on the interior of the package will force the diaphragm to invaginate outward of the package into the clearance chamber and forcing the actuator member off the boss to permit the pressurized product wholly to be expelled.

3,741,446

LOW PRESSURE PRODUCT CONTAINER DISPENSING VALVE

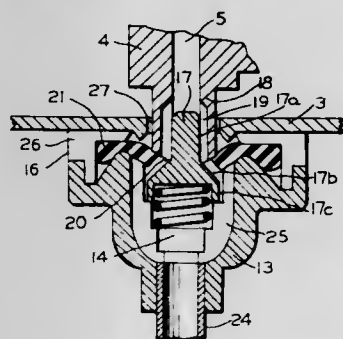
Jean Marand, Saint-Benoit, France, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Dec. 3, 1970, Ser. No. 94,695

Int. Cl. B65d 83/14

U.S. Cl. 222—402.24

12 Claims



An annular valve body member has a chamber therein and is coupled to the cover of a product container. A solid valve

stem moves longitudinally within the chamber and is urged out of the chamber. The upper portion of the stem is fitted to a coupler-aspirator which is in turn coupled to a propellant. A flexible annular gasket is positioned between the valve body member and the product container cover. The inner periphery of the gasket obturates a flow path which extends from the chamber, around the valve stem and into the coupler-aspirator.

3,741,447

CONTAINER CAP

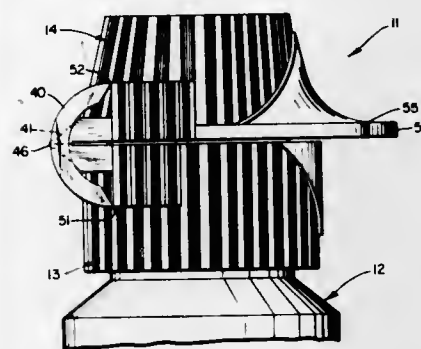
Gilbert DeWayne Miles, Ossining, and Russell Park McGhie, Somers, both of N.Y., assignors to Colgate-Palmolive Company, New York, N.Y.

Filed Nov. 18, 1971, Ser. No. 199,859

Int. Cl. B67d 3/00

U.S. Cl. 222—517

6 Claims



An integral captive cap structure has a closure lid connected to the body by an axially short thick hinge element containing the hinge axis about which the lid is pivoted to closed position over the body, a frictional lock being provided between the closed lid and body. Cooperating parts on the closed structure adapt it to fit a chuck or clutch of a conventional container capping machine.

3,741,448

COLLAPSIBLE WIG STAND

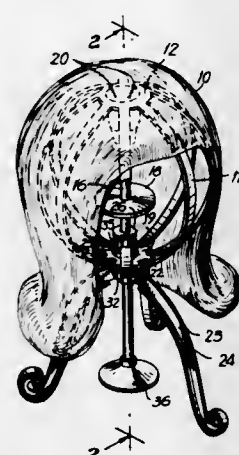
Shirley Kay Friedman, and Morris Friedman, both of Fort Lee, N.J., assignors to Globetrotter Industries, Inc., New York, N.Y.

Filed Apr. 1, 1971, Ser. No. 130,126

Int. Cl. D06c 15/00

U.S. Cl. 223—66

10 Claims



A wig stand in collapsed form consists of flexible, essentially straight ribs joined at both ends to hubs. The ribs and hubs surround a center post fixed in one of the hubs and passing through the other. Forcing the hubs together buckles the ribs outward and locks them into a cage of a form suitable for holding a wig, and simultaneously spreads and locks into spread position three legs for supporting the cage. Means are provided for fastening the stand to a flat surface and for fastening a wig to the wig stand.

3,741,449

GARMENT HANGER

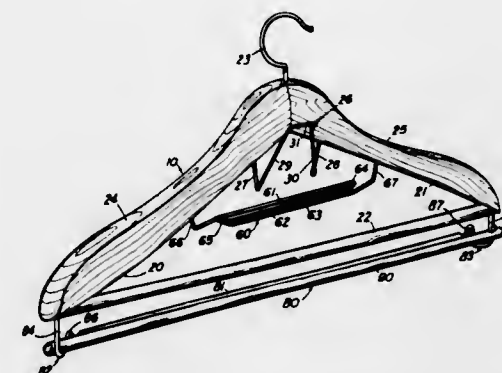
David D. MacKenzie, 15 Peachtree Avenue, N.E., Atlanta, Ga.

Filed Feb. 11, 1972, Ser. No. 225,473

Int. Cl. A47j 51/14

U.S. Cl. 223—91

9 Claims



A hanger for use in supporting garments, the hanger being provided with a support frame having two oppositely directed frame elements defining downwardly and outwardly sloping surfaces detailed for supporting the shoulder portions of a garment. Retaining means is attached to an intermediate portion of the hanger frame for engaging a hanging loop of a supported garment to accurately center and maintain the garment on the hanger frame. The hanger includes a plurality of horizontally extending support rods extending between the oppositely directed frame elements at a position below the sloping surfaces for supporting additional garments, such as trousers. One of the horizontally extending rods is pivoted at one end and angularly adjustable between a garment supporting position and a garment on and off loading position. The hanger includes releasable latch means for maintaining the pivotal rod in a garment supporting position. Tie support means is provided on the hanger between the oppositely directed frame elements.

3,741,450

COMPARTMENT ORGANIZER

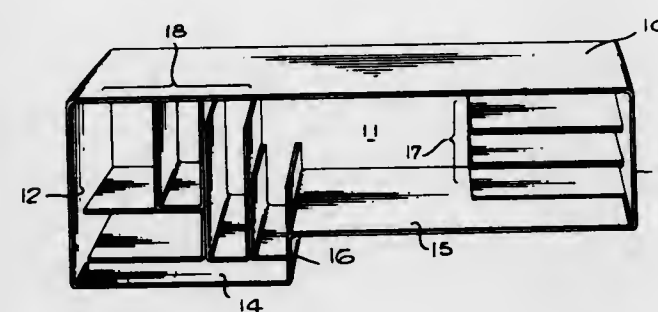
Wesley D. Seastrom, La Canada, Calif., assignor to Seastrom Manufacturing Co., Inc., Glendale, Calif.

Filed Sept. 17, 1971, Ser. No. 181,451

Int. Cl. B60r 5/02

U.S. Cl. 224—42.42 R

5 Claims



An organizer is disclosed herein for storing a plurality of dissimilar articles in an orderly arrangement which includes a plurality of separate and individual storage elements adapted to be selectively arranged with respect to each other for providing a plurality of open pockets intended as storage space. Each storage element includes a U-shaped cross section having opposite sides connected at one end by an integral section piece. The opposing surfaces of the opposite sides and the section piece define an open-sided and open-ended area for insertably receiving articles to be stored. Pressure sensitive adhesive material is employed to secure selected ones of the plurality of storage elements together in a predetermined manner so that the respective openings will readily accommodate insertion of the articles without interference.

3,741,451

BURSTER APPARATUS

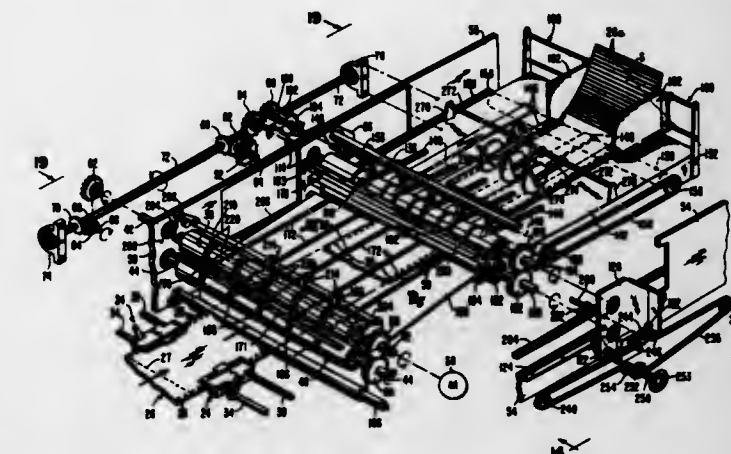
Frank V. Parenti, Dayton, and Robert W. Stanek, Warren County, both of Ohio, assignors to The Standard Register Company, Dayton, Ohio

Filed Jan. 4, 1971, Ser. No. 103,620

Int. Cl. B26f 3/02

U.S. Cl. 225—100

17 Claims



Burster apparatus for separating a continuous strip or web of material into portions, or sheets or the like, the strip customarily having spaced-apart score lines or the like, along which separation occurs. The apparatus has a plurality of spaced-apart pairs of rollers or cylinders. The spaced relationship between pairs of rollers is adjustable. The rate of rotation of one pair of rollers is different from the rate of rotation of a pair of rollers which is adjacent thereto.

One pair of rollers is movable to a position adjacent another pair of rollers for the bursting of a web consisting of short portions. Strip engagement means are movable into and out of web engaging position. The engagement means are of assistance in severance of certain types of webs. Resilient auxiliary contact means are carried by at least one roller member to assist in proper movement of a sheet or the like after separation thereof from a web occurs.

3,741,452

MODIFIED STEEL RULE DIE

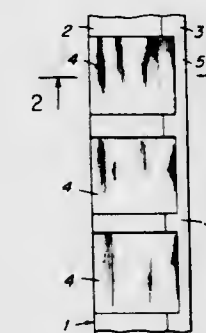
William J. Clayton, Fairport; Clair C. Smith, Holcombe, and Earl K. Dewey, Canadaigua, all of N.Y., assignors to Mobil Oil Corporation, New York, N.Y.

Division of Ser. No. 849,721, Aug. 13, 1969, abandoned. This application Mar. 29, 1971, Ser. No. 129,232

Int. Cl. B26f 3/02

U.S. Cl. 225—103

1 Claim



The formation of plastic bodies from thermoplastic sheet using the hot platen technique and trimming in place in the mold, wherein the molded product is removed from the forming press while still attached to the sheet. A sheet having the molded product attached thereto but much more easily removed is formed by using a modified steel rule die. The die is modified by cutting small slots at a plurality of points in the outside edge of the blade so that at the point of slotting, the

cutting edge of the die is narrower than the rest. When the die is pressed into the sheet following the molding step, a long crack forms around the periphery of the product until the point of a slot is reached and a small crack forms along the length of the slot leaving an attachment to the sheet between the long and the small cracks.

3,741,453

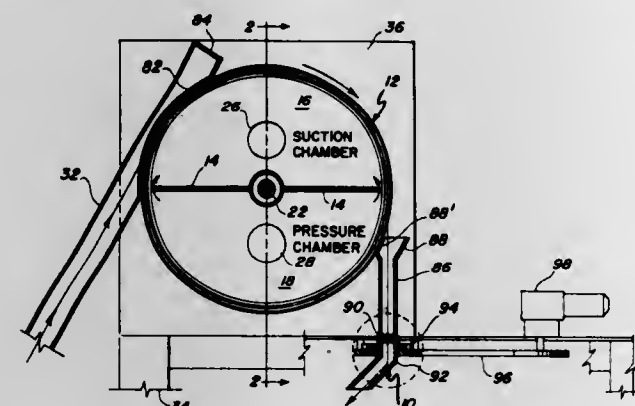
PIDDLER MECHANISM FEEDING MEANS

John H. Pierce; Walter Carl Credle, and Lewis O. Crawford, Jr., all of Charlotte, N.C., assignors to R. H. Bouligny, Inc., Charlotte, N.C.

Filed Nov. 12, 1971, Ser. No. 198,310

Int. Cl. B65h 17/28

U.S. Cl. 226-7



Means is provided for feeding strand material to a piddler mechanism for coiling delivery of the same into a collection bin. The feeding means employs a rotating drum having a perforate periphery at a portion of which suction is impressed to grip and feed the strand material, while maintaining pressure at a following peripheral portion to free the strand material in a manner that prevents it from lapping on the drum and that materially lessens the tension on the material as it moves forward to and through the piddler mechanism.

ERRATUM

For Class 226-145 see:
Patent No. 3,741,458

3,741,454

PROJECTION APPARATUS

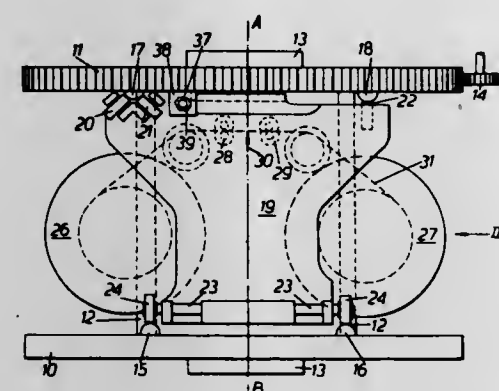
Ian Graham Thom, Edinburgh, Scotland, assignor to Ferranti Limited, Hollinwood, England

Filed May 17, 1972, Ser. No. 253,932

Claims priority, application Great Britain, May 18, 1971, 15,510/71

Int. Cl. B65h 17/22

U.S. Cl. 226-179



Projection apparatus such as for a moving-map display, has storage means for a length of film and means for moving the

film along its length through a projection field. The storage and transport means are mounted on a carriage arranged to move in a transverse direction along at least one guide member. Movement is effected by a motor carried on the carriage and having a capstan drum which engages a taut cable attached to the apparatus parallel to the guide member.

3,741,455

FASTENER DRIVING TOOL

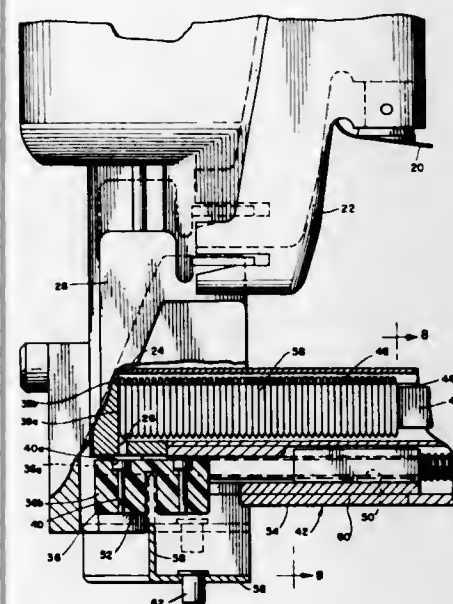
Oscar A. Wandel, Mundelein, and Thomas H. Dorney, Wood Dale, both of Ill., assignors to Fastener Corporation, Franklin Park, Ill.

Filed Nov. 20, 1968, Ser. No. 777,262

Int. Cl. B27f 7/02

U.S. Cl. 227-8

2 Claims



There is provided a fastener driving tool for automatically feeding a component such as a clip and fastening the same in position by driving a fastener therethrough into a workpiece. The tool includes a housing having structure defining a drive track with a fastener driving member movable through the drive track. A magazine assembly is provided having first guide means for supplying clips to the guide track, and having second guide means for supplying fasteners to said guide track whereby operation of the fastener driving member through a drive stroke is effective to drive a fastener through the component and into a workpiece.

3,741,456

GAS PROPORTIONING AND PRESSURE CYCLING APPARATUS FOR WELDING EQUIPMENT

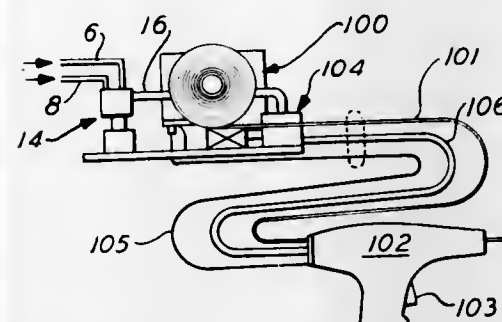
Francis E. Smith, Scotch Plains, N.J., assignor to Airco, Inc., Murray Hill, New Providence, N.J.

Filed May 20, 1971, Ser. No. 145,377

Int. Cl. B23k 1/00

U.S. Cl. 228-41

12 Claims



A gas mixing system for mixing a plurality of different gases wherein all the inlet means for the various gases are controlled simultaneously by a bistable pressure responsive device mechanically coupled thereto.

3,741,457

LINEUP CLAMP AND BACKUP DEVICE

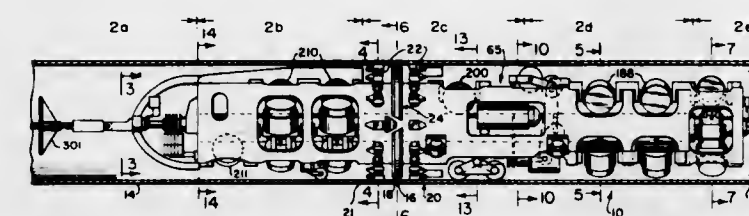
Richard B. Gwin, Arlington; William L. Ballis, Hilliard; Claude W. Churchheus, Laurelville; Bruce L. Hutt, Valley View; Charles R. Chew, Chagrin Falls, and Arthur M. Hall, Newton Falls, all of Ohio, assignors to Columbia Gas System Service Corporation, Wilmington, Del.

Filed Aug. 19, 1971, Ser. No. 173,157

Int. Cl. B23k 19/00

U.S. Cl. 228-44

55 Claims



A pipe clamp for aligning and spacing a pair of pipes to be welded is disclosed wherein a housing, having first and second axially aligned housing sections with adjacent end positions positioned relative axial movement, is adapted for disposition within and coaxially of a pair of pipes to be welded, with the adjacent end portions of the housing sections located adjacent the inside of the joint between the adjacent ends of the pipe to be welded. A plurality of clamping chambers are slidably mounted in each of the housing sections for radial movement between extended and retracted positions and are moved between these positions by pneumatic drive means for selective engagement with the inner surface of the surrounding pipes. A pneumatic drive mechanism is operatively connected between the clamping members mounted on the first housing section and the second housing section for moving the first housing section and the clamping members thereon a predetermined distance with respect to the second housing section, after the clamping members are extended so that a pipe clampingly engaged with the clamping members on the first housing section is moved a predetermined distance with respect to a pipe clampingly engaged with the clamping members on the second housing section whereby the adjacent pipe ends are spaced that predetermined distance. The second housing section is also provided with a weld joint backup shoe assembly slidably mounted thereon for radial movement between extended and retracted positions and is located between the clamping members on the first and second housing sections. The backup shoe assembly is extended and retracted by pneumatic drive means into and out of position adjacent the joint between the pipes to be welded, after the pipes have been spaced, to provide backup support for molten weld metal during the welding operation.

3,741,458

HYDRAULIC CONTROLLER FOR STRIP MATERIAL FEEDER

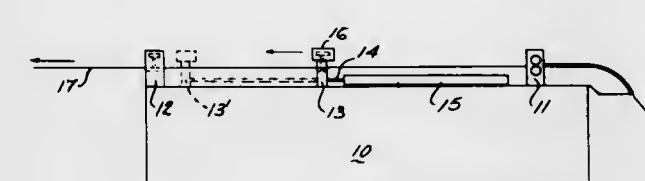
Albert Orser Aylesworth, 3050 Alexander Boulevard, Windsor, Ontario, Canada

Filed Oct. 14, 1971, Ser. No. 189,237

Int. Cl. B65h 17/44

U.S. Cl. 226-145

13 Claims



An apparatus is described for intermittently feeding strip material to a punch press or like machine and including a

reciprocal carriage member having material grippers provided thereon. The carriage member is reciprocated by way of an air or hydraulic cylinder and the stroke of the carriage cylinder is controlled by means of a counteracting hydraulic plunger cylinder connected to a closed hydraulic system.

3,741,459

MACHINE FOR APPLYING ACCURATELY-SPACED FASTENING ELEMENTS

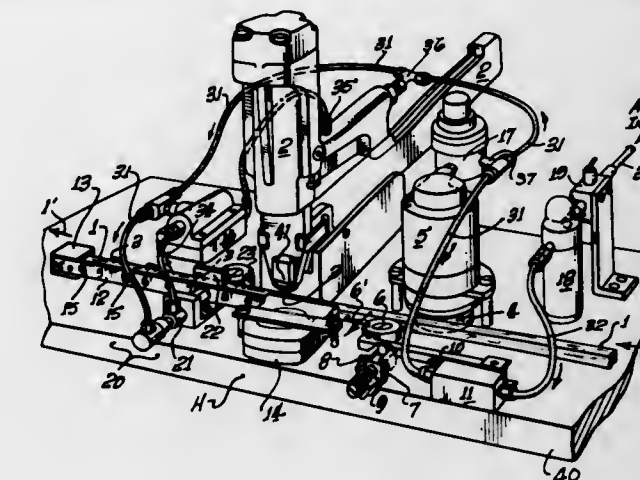
Ellis John Arkush, Jr., 1144 Gleneagles Terrace, Costa Mesa, Calif.

Filed Sept. 30, 1971, Ser. No. 185,195

Int. Cl. B27f 7/14

U.S. Cl. 227-3

7 Claims



An automatic machine for applying fastening or similar elements such as staples to a workpiece, in a row having accurately predetermined spacings. Cumulative spacing errors are absent. One application is for the insertion of the staples into the tilt rods of shutters. An elongated control element such as a punched steel tape is used to control a pneumatic stapling gun or the like. Holes are punched in the tape at positions corresponding to the locations that the fasteners are to have on the workpiece. One end of the tape is attached to the workpiece and moves with it past the stapling gun. The holes are sensed by a sensitive air pilot valve, which causes the gun to fire when a hole is sensed. The workpiece is moved continuously by a motor and roller. Insertion of a workpiece, such as a wooden rod, starts the machine via a roller-actuated valve. When the workpiece has passed through the machine, this valve releases and stops the machine. The machine is inexpensive, self-contained, and portable. Tapes are easily changed.

3,741,460

APPARATUS FOR PRODUCING A STREAM FEEDER

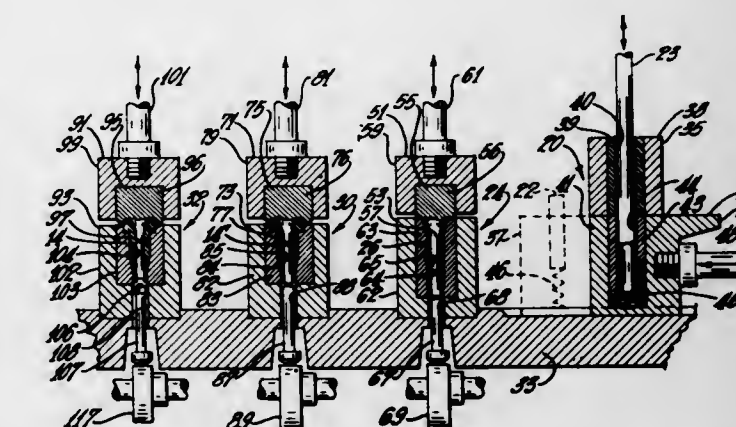
Leonard A. Matulewicz, Toledo, Ohio, assignor to Owens-Corning Fiberglass Corporation, Toledo, Ohio

Division of Ser. No. 733,040, May 29, 1968, Pat. No. 3,579,807. This application Dec. 7, 1970, Ser. No. 95,860

Int. Cl. B23k 1/20

U.S. Cl. 228-5

5 Claims

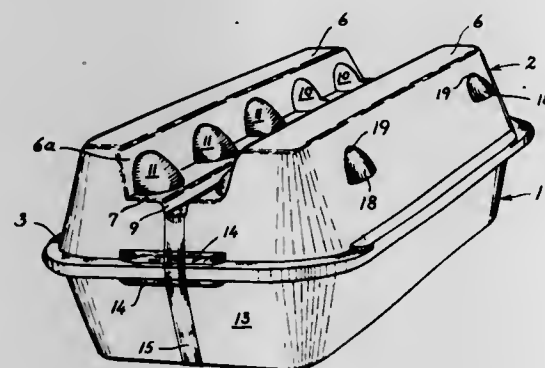


Apparatus and method for forming a feeder for flowing streams of filament forming material such as molten glass by

deforming tubular members into contoured longitudinal members and subsequently securing the longitudinal members to a plate with orifice openings in alignment with such openings.

3,741,461 ARTICLE-REVEALING CARTON FOR FRAGILE OBJECTS

Jens Hassing-Hansen, Bagsvaerd, Denmark, assignor to Ak-tieselskabet Brodrene Hartmann, Lyngby, Denmark
Filed Feb. 18, 1971, Ser. No. 116,432
Claims priority, application Japan, Feb. 23, 1970, 45/17001
Int. Cl. B65d 1/00, 81/16, 25/54, 85/32
U.S. Cl. 229-2.5 5 Claims

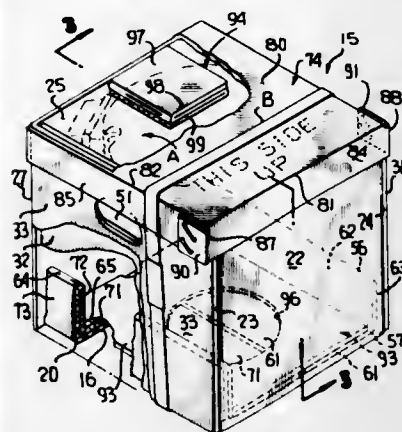


The present invention relates to an article-revealing carton for fragile objects, particularly eggs, consisting of a container section with a cover section hinged thereto, said container section having a plurality of article-receiving compartments arranged in at least two parallel rows and also upwardly extending projections located between said rows of compartments, and said cover section having at least two upwardly projecting gable portions extending parallel with the rows of compartments and a roof portion recessed between two neighboring gable portions and interconnecting the lowermost edges of the opposed sides of the neighboring gable portions, and moreover there is provided a number of apertures corresponding to the compartments in the container section, said apertures being formed in the recessed roof portion and the sides of the gable portions adjoining thereto, and being arranged so as to coincide with the respective compartments in the container section, when the cover section is closed thereon, and that the recessed roof portion has a downwardly projecting web which extends along the entire length of the roof portion and has a trough-shaped cross section and forms an open-end channel, and that the web and the projections are so formed and arranged in relation to each other that the web rests on the tops of the projections, when the cover section of the carton is closed on the container section.

3,741,462
CONTAINER FOR HERMETIC COMPRESSOR
Milford G. Flint, Kirkville, and Paul C. Contegni, Solvay, both of N.Y., assignors to Continental Can Company, Inc., New York, N.Y.
Filed June 25, 1971, Ser. No. 156,871
Int. Cl. B65d 5/18
U.S. Cl. 229-16 R 19 Claims

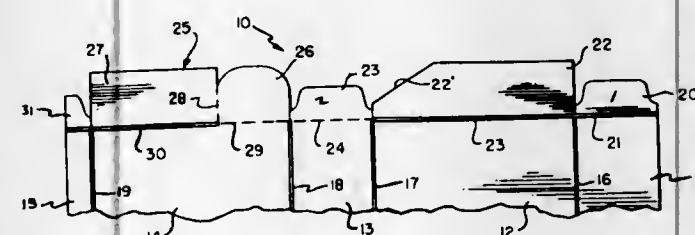
This disclosure relates to a novel container blank adapted to be set up into a container in which is to be packaged a hermetic compressor, the blank including bottom, side, end and cover panels, fold line means for effecting relative movement of the panels to a set-up position defining the closed container, and at least two other panels outboard of the first-mentioned panels which are readily removable therefrom, one of these panels having an opening adapted to receive a portion of a packaged article, such as the compressor heretofore noted, and the other being twice folded to form a cushioning component. The container blank additionally preferably includes a

pair of reinforcing panels joined one each to opposite sides of the bottom panel and defining three reinforcing panel portions with two of the terminal panel portions meeting in line contact at approximately the midpoint of the bottom panel with the



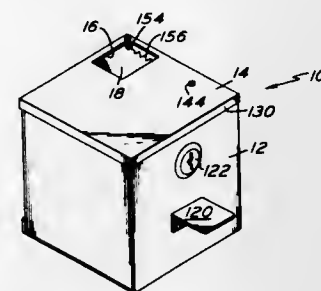
two remaining reinforcing panel portions being in upright relationship at opposite corners of the container whereby these corners and the bottom of the container are adequately reinforced to prevent inadvertent and/or accidental damage during storage or shipment.

3,741,463
EASY OPENING STRUCTURE FOR DRUMHEAD CARTON
Chauncey Young, and William H. Watson, both of St. Louis, Mo., assignors to Rexham Corporation, New York, N.Y.
Filed Jan. 14, 1971, Ser. No. 106,525
Int. Cl. B65d 5/72
U.S. Cl. 229-17 R 4 Claims



The disclosure herein relates to a tear opening arrangement for end filled, end sealed cartons and, more specifically, to an improved tear opening structure for membrane sealed rectangular parallelepiped cartons of the type in which a separate safety shield material of polyethylene coated glassine polyester film or the like is heat sealed or otherwise tightly sealed to the four end closing flaps of the carton. Simple and improved corner opening is achieved by the provision of a special lift tab and severable dust flap which cooperate through the interposed membrane.

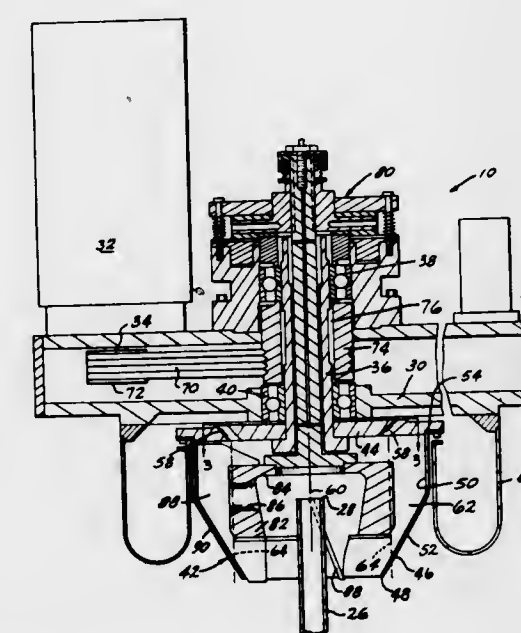
3,741,464
CASH BOX
Henry Verbeke, Chester, N.J., assignor to APL Corporation, Great Neck, N.Y.
Filed July 23, 1971, Ser. No. 165,552
Int. Cl. G07b 15/00
U.S. Cl. 232-15 15 Claims



A cash box adapted to be used in vending machines. The box comprises a container having an opening formed in the

top thereof. A plate is slidably mounted in the box adjacent the opening. The plate is releasably retained in a first position, whereby the opening remains open. The plate is also releasably locked in a second position wherein the opening is sealed. The plate is moved to the second position whenever the cash box is removed from the vending machine in which it was placed. The plate can only be moved to its first position when the cash box is unlocked. In this way, the man servicing the vending machine will be able to remove the locked cash box, but will be unable to remove any of the cash contents of the same until the box is unlocked by an authorized person having the key to the cash box.

3,741,465
CENTRIFUGAL SEPARATOR WITH INTERNAL SCRAPER BLADES
Herbert R. Lincoln, Detroit, Mich., assignor to Star Cutter Company, Farmington, Mich.
Filed Jan. 20, 1971, Ser. No. 108,031
Int. Cl. B04b 1/00
U.S. Cl. 233-7 4 Claims



Apparatus for removing the solid particles from a liquid in which a bowl of generally inverted cup shape is rotated about a vertical axis concurrently with the supply of a liquid containing solid particles to the inner surface of the bowl so that the solid particles are centrifugally forced against the inner surface of the bowl and retained thereon. The bowl has fluid outlet openings in its top wall which extend radially outwardly from the axis of rotation of the bowl a distance greater than the spacing of the lower edge of the bowl from the axis of rotation so that fluid with the solid particles removed therefrom will flow out the outlet openings. Blades, positioned within the bowl so that they have scraping edges located adjacent the bowl inner surface, are mounted independently of the bowl for rotation about the same vertical axis on which the bowl is rotated and normally rotate with the bowl. When the blades are braked, the blades scrape the solid particles off the inner surface of the bowl so that the particles can fall out of the bowl through the lower open end.

3,741,466
JET CENTRIFUGE
Carl W. Weiland, 2980 Interlaken, Orchard Lake, Mich.
Filed July 16, 1971, Ser. No. 163,469
Int. Cl. B04b 1/00
U.S. Cl. 233-38 1 Claim

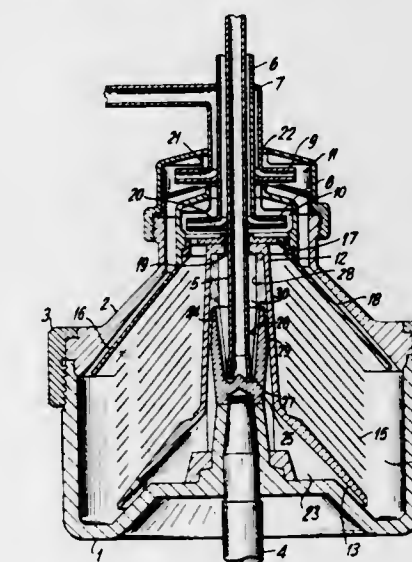
A high speed bowl centrifuge of the type having a rotatably mounted bowl and an independently, rotatably mounted central support member which is enclosed thereby upon which a

plurality of disks are coaxially mounted for rotation therewith. The periphery of the disks and the inner surface of the bowl define therebetween a substantially annular space, into which, in the preferred embodiment, at least one pitched extension protrudes from at least one disk. Under normal centrifuging operations, the central support member and bowl are rotated in a common direction at a common rotational speed and thus sludge builds up at the inner surface of said bowl. During the



cleaning operation the central support member is rotated in such a direction as to urge sludge towards said sludge outlet due to the pitch of said extension. The bowl may also be rotated in the opposite direction as to apply a stripping force to the sludge. Furthermore, both of the above-mentioned rotations are at a substantially lower rotational speed than the centrifuging speed so that the extension encounters less compacted sludge.

3,741,467
CENTRIFUGAL SEPARATOR
Ove Allan Valentin Kjellgren, Stockholm, Sweden, assignor to Alfa-Lavall AB, Tumba, Sweden
Filed July 22, 1970, Ser. No. 57,056
Claims priority, application Sweden, July 24, 1969, 10414/69
Int. Cl. B04b 1/00
U.S. Cl. 233-41 6 Claims

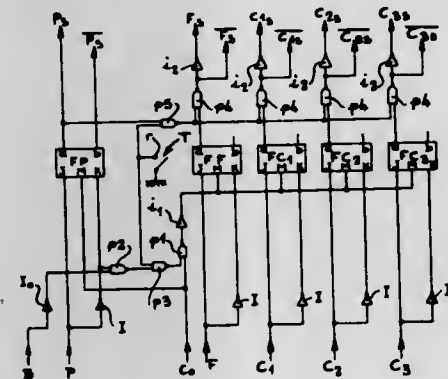


In a centrifugal separator having a source of supply of a liquid to be separated, a surface of the separator which contacts the liquid is coated with a poly-alkene which is at least partly fluorinated.

3,741,468
PREPARATION OF PERFORATED JACQUARD CARDS OR PAPERS
Gabriel Servillat, Saint-Cyr-Au-Mont-D Or, France, assignor to Verdol S.A., Lyon (Rhône), France
Filed June 22, 1971, Ser. No. 155,525
Claims priority, application France, July 10, 1970, 7026737
Int. Cl. F27b 9/04
U.S. Cl. 264-65 6 Claims

In the preparation of designs on squared paper for the perforation of Jacquard cards or papers, such designs comprising a background (conventionally uncolored) and color zones

each corresponding to a given color, the background is considered as an additional color zone corresponding to a particular color (different from those of the other color zones) and in each color zone (including the background) and in each row the designer only colors the first square which is met during the reading-in operation either at the beginning of the row or when passing from a color zone to the next one, the reader having to consider any uncolored square (white square) as if it were of the same color as the last colored square met in the row. This simplifies considerably the work of the designer and reduces the cost of the design. If the design comprises some few squares or "points" situated within a given color zone (including the background) and corresponding to a particular color (different from all the other colors of the design) they are wholly colored and the color of the said given zone is not



repeated after them, the reader considering the color of such points as having priority to momentarily prevail on the color of the zone which remains, so to speak, in the reader's memory.

When the design is read-in by photo-electric means emitting color signals and also coincidence signals whenever they are centered on a square, there is inserted between these means and the perforating means a logic circuit having for each color (including background) a registering device (flip-flop) conditioned by the color signal and set or reset by the coincidence signal. The white signal (uncolored square) blocks the passage of the coincidence signal to the devices (excepting that of the priority color) thus causing repetition of the previous color. As to the priority color signal, it acts as the white signal and furthermore it momentarily inhibits the outlets of the other registering devices.

3,741,469

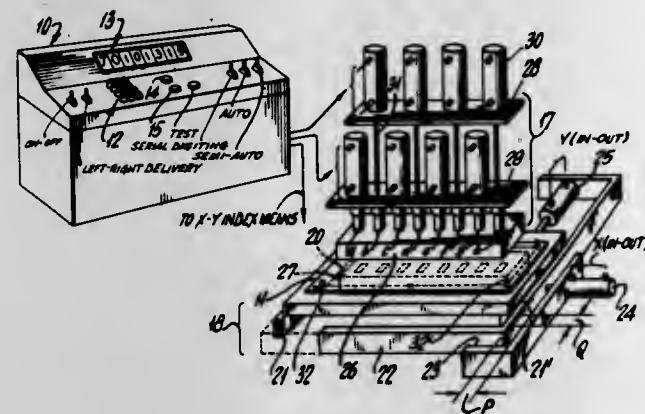
ENCODING AND MARKING APPARATUS

John A. Castaldi, and Herbert Goetz, both of Brooklyn, N.Y., assignors to Supreme Equipment & Systems Corp., Brooklyn, N.Y.

Filed Jan. 20, 1972, Ser. No. 219,248
Int. Cl. G06k 1/02

U.S. Cl. 234-90

19 Claims



The invention contemplates digit-marking apparatus for characterizing a read-out surface with n -digit binary data for each of m decimal digits, wherein m digit-marking elements are employed in a cycle of n indexed displacements of the marking elements and read-out surface with respect to each

other. The invention is described in connection with card-punching of binary-coded data, using a four-station two-dimensional index pattern, thus establishing for each of the several decimal digits a four-bit binary-code punch pattern.

3,741,470

ADDING MACHINE

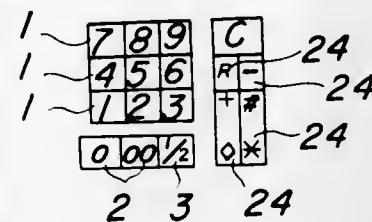
Ryoichiro Koshi, Mitaka, Japan; Gian Piero Barozzi, and Giancarlo Horeschi, both of Rossi, Italy, assignors to Citizen Watch Co., Ltd., Shinjuku-ku, Tokyo, Japan

Filed Dec. 28, 1970, Ser. No. 101,967

Claims priority, application Japan, July 6, 1970, 45/58896
Int. Cl. G06c 29/00

U.S. Cl. 235-60 TK

1 Claim



An adding machine in which a " $\frac{1}{2}$ " key provided on a key board in addition to numeral setting keys for numeral 0-9 and function keys is operatively connected with the numeral setting mechanism for "5" key and a mechanism is provided for automatically selecting a 0-pin depending upon whether the lowest digit position of a numeral set in the machine is "0.0" or " $\frac{1}{2}$ (0.5)," whereby "0" is automatically added to the numeral set in the machine only when the " $\frac{1}{2}$ " key is not depressed, while "5" is added when the " $\frac{1}{2}$ " key is depressed, and thus the addition or subtraction of numerals is performed with the digit positions of one numeral in accord with those of another numeral.

3,741,471

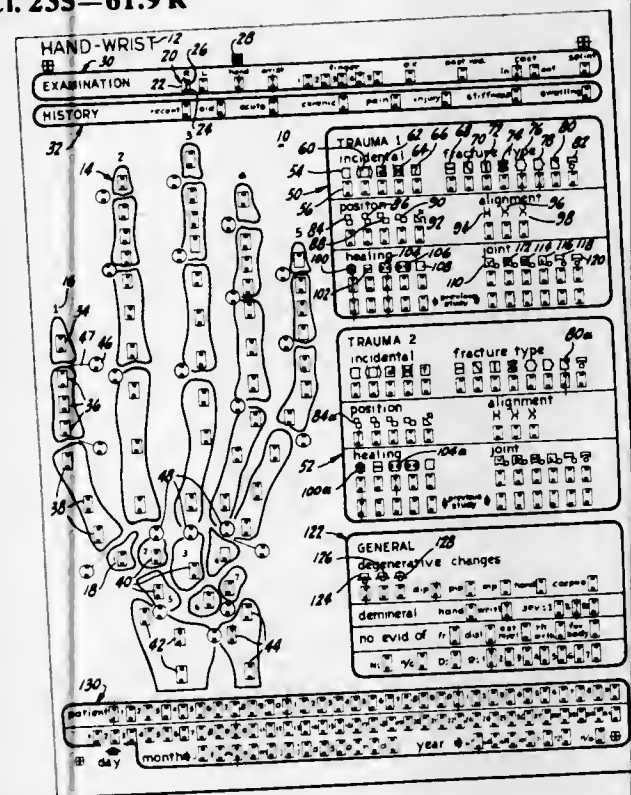
METHOD AND SYSTEM FOR RECORDING, PROCESSING AND DISPLAYING VISUALLY OBSERVED INFORMATION FROM PHYSICAL STRUCTURE

Richard L. Mani, San Francisco, Calif., assignor to Comprehensive Health Testing Laboratories, Inc., San Francisco, Calif.

Filed Dec. 9, 1971, Ser. No. 206,488
Int. Cl. G06k 19/00

U.S. Cl. 235-61.9 R

14 Claims



A method and system for recording visually observed information of a physical structure and producing graphic displays

of the information in accordance with a predetermined program. The system includes a record sheet provided with a graphic illustration of a typical anatomical structure together with indicia receiving sites on the sheet with certain of the sites being superimposed on selected portions of the anatomical structure and arranged in a pattern which, when read by mark sense reading means, provides an input into data processing equipment programed to generate a print-out of diagnostic descriptions of the anatomical structure. The program is arranged to generate diagnostic descriptions which progress from generalized statements to more specific descriptions and nuances of the diagnosis in accordance with the order in which the sites are marked. In one embodiment certain of the sites are arranged in a first group adjacent to or superimposed over a portion of the anatomical illustration for which information is to be described, with additional sites being provided on the sheet adjacent the illustration for recording specific description and nuances of pathology for one or more sites marked in the first group. Additional sites are provided on the sheet for recording generalized information regarding the observed pathology and patient access information and the like. Certain of the sites are provided adjacent printed pattern recognition symbols generally descriptive of the information to be recorded by marking such site.

3,741,472

ELECTRICAL COUNTER

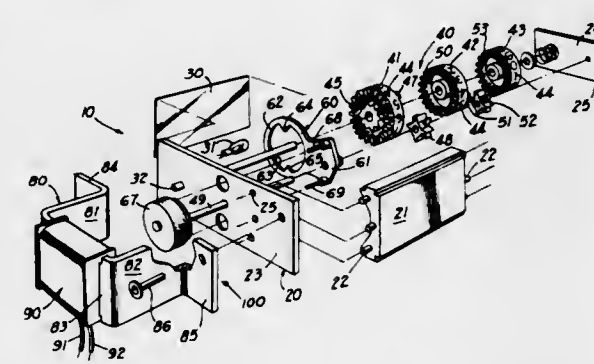
Clarence E. Pittman, Atlanta, and Ivan H. Crim, Chamblee, both of Ga., assignors to Lectra Data, Inc., Atlanta, Ga.

Filed Jan. 24, 1972, Ser. No. 220,018

Int. Cl. G06m 1/04

U.S. Cl. 235-92 C

5 Claims



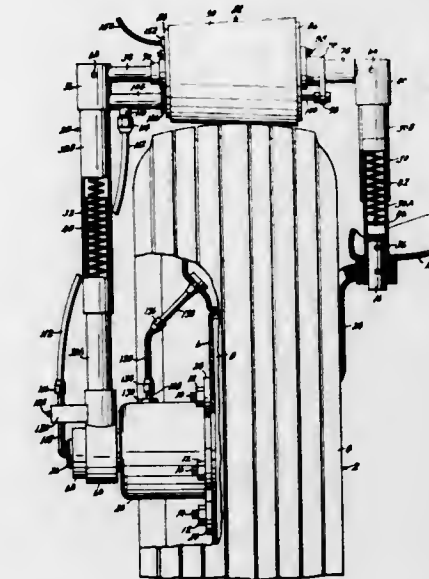
A counter capable of serially receiving and accumulating a plurality of input values. The counter includes an ordinal series of register wheels having carry means operable for effecting a transfer of a value representative of an input value of one from a lower order register wheel into a next adjacent higher order register wheel in response to advancement of said lower order register wheel past a predetermined point. Input means is operatively associated with the ordinal series of register wheels and operable for effecting an increment of advancement of the lower order register wheel a predetermined amount representative of an input value of one in response to a cycle of operation of the input means. The input means includes a permanent magnet which is normally biased in a first predetermined direction by a magnetic attraction means. Electromagnetic means is operatively associated with the magnetic attraction means for reversing the polarity of the magnetic attraction means whereby the permanent magnet will be biased in a second predetermined direction in response to an electrical pulse being applied to said electromagnetic means. The permanent magnet will thereafter be automatically biased in the first predetermined direction in response to the completion of the electrical pulse being applied to the electromagnetic means. Thus an electrical pulse applied to the electromagnetic means will effect oscillating movement of the permanent magnet to thereby effect corresponding oscillating movement of the input means to effect an increment of advancement of the lower order register wheel a predetermined amount representative of an input value of one.

3,741,473
ODOMETER

Carl E. Finley, 401 E. Fourth Street, Lamar, Mo.
Filed Dec. 8, 1971, Ser. No. 205,968
Int. Cl. G01c 22/00

U.S. Cl. 235-95 R

9 Claims



An odometer consisting of a frame attachable to a steerable, unpowered automobile wheel so as to be movable but not rotatable therewith, a roller carried by the frame on an axis parallel to the wheel axis and urged resiliently against the periphery of the tire of the wheel so as to be rotated when the wheel turns, and mechanism operable to count and indicate revolutions of the roller. The roller may be conical coaxially with its axis, and mechanism may be provided for moving the roller parallel to its axis, responsively to changes of air pressure in the tire, whereby to compensate for differences of tire diameter, and hence the distance travelled for each rotation thereof, resulting from different tire pressures.

3,741,474

AUTOPILOT SYSTEM

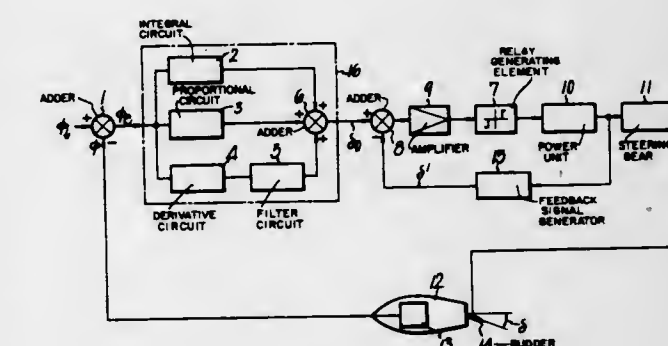
Shin-ichi Kawada, Yokohama; Yoichi Hirokawa, Kamakura, and Isao Masuzawa, Tokyo, all of Japan, assignors to Kabushikikaisha Tokyo Keiki (Tokyo Keiki Co., Ltd.), Tokyo, Japan

Filed Feb. 18, 1971, Ser. No. 116,516

Claims priority, application Japan, Feb. 24, 1970, 45/65668
Int. Cl. G05b 11/42

U.S. Cl. 235-150.1

5 Claims



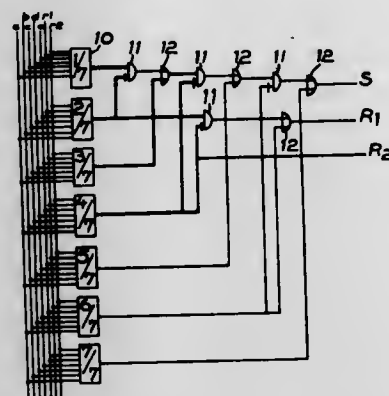
A marine autopilot system in which derivative, proportional, filtering and integral functions are performed including a device for changing the time constant of an integrator and either or both of the time constants for the differentiator and the filters such that the automatic steering loop remains so as to control a ship safely.

3,741,475

SUMMING ARRANGEMENTS

Pierre Hardy; Leon Hardy, both of Paris, and Simeon Lekar-ski, Saint-Cloud, all of France, assignors to Jean Gachot, Enghien-les-Bains, France, a part interest
 Filed Aug. 4, 1971, Ser. No. 168,905
 Claims priority, application France, Aug. 5, 1970, 7028920
 Int. Cl. G06f 7/385; G06d 1/04; F15c 4/00
 U.S. Cl. 235-175

10 Claims



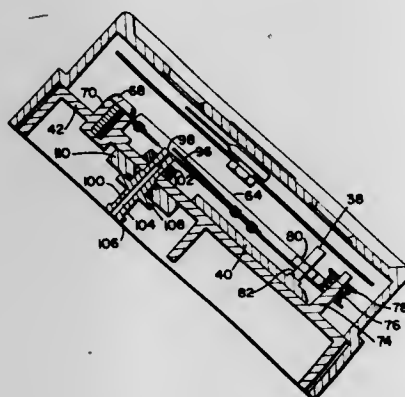
A summing arrangement is described in which numbers represented by binary signals are summed by using threshold devices. The threshold devices each have a plurality of inputs which are connected to receive the input signals. Since all the threshold devices have different threshold criteria, the number of threshold devices energized will vary in accordance with the number of signals present at the inputs and thus provide an indication of the sum of the signals received. Logic circuits are then used to convert this information into a binary output. The threshold devices can comprise fluidically operated devices.

3,741,476

PNEUMATIC THERMOSTAT

Dalny Travaglio, Kensington, Calif., assignor to Universal Pneumatic Controls, Inc., Belmont, Calif.
 Filed Jan. 13, 1972, Ser. No. 217,570
 Int. Cl. F24f 7/06
 U.S. Cl. 236-87

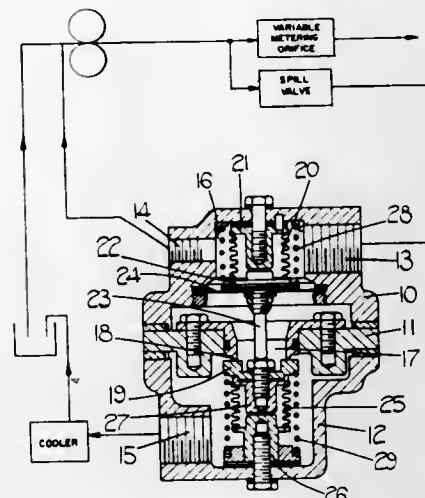
14 Claims



A pneumatic thermostat for air conditioning and heating systems utilizes an adjustable hinged arm with a bimetal member that is positionable by a cam for controlling air flow through a bleed orifice. Air to the orifice from a pressure source is also supplied to a calibration chamber in the thermostat so that the resulting pressure therein will control the position of an indicator pin that becomes visible from outside the thermostat at certain pressure levels. Means are provided for adjusting the position of the hinged arm without opening the thermostat so as to control the amount of air flow through the bleed orifice and hence the pressure in the calibration chamber. Proper calibration is attained by setting the cam relative to a known temperature level and adjusting the arm position by visual reference to the position of the indicator pin.

3,741,477
 TEMPERATURE SENSITIVE FLOW-DIVIDING VALVE
 Brian Edmund Sparks, Warwick, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
 Filed June 16, 1971, Ser. No. 153,646
 Claims priority, application Great Britain, June 16, 1970, 29,107/70
 Int. Cl. G05d 23/12

9 Claims



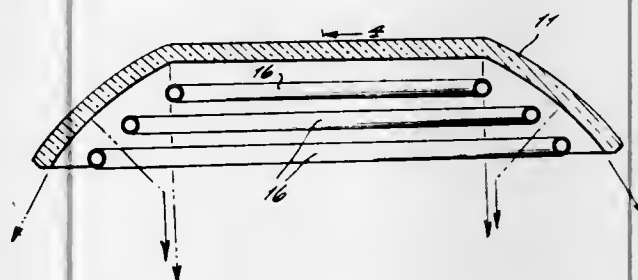
A temperature sensitive flow-dividing valve has an inlet and first and second outlet. A closure member between the inlet and the second outlet is movable by a bellows within which is a temperature-sensitive fluid. This bellows is also responsive to a rise in pressure at the inlet to close the valve. A further bellows is responsive to a rise in pressure at the second outlet to move the closure member to open the valve.

3,741,478

HEATING COILS

Frank Summa, 22 Starbuck Street, Staten Island, N.Y.
 Filed July 9, 1971, Ser. No. 161,201
 Int. Cl. F28f 13/18
 U.S. Cl. 237-73

1 Claim



A heat exchanger for providing radiant heat, the device comprising a circular reflector which is inwardly dished on one side so to form a concave reflective surface of parabolic character, three circular heater coils of each a different size being positioned concentrically in front of the parabolic reflector, all of the heater coils being connected to a steam source by means of a hand operated controll valve, and the diametrically opposite side of the heating coil being connected to a steam outlet valve.

3,741,479

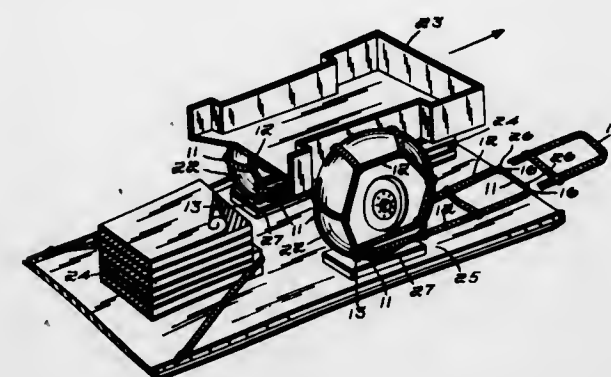
DRIVE-OFF AID FOR WHEELED VEHICLES AND METHOD

Predrag Shopalovich, Ashland, Mass., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
 Filed Oct. 4, 1971, Ser. No. 186,339
 Int. Cl. E01b 23/00

4 Claims

A drive-off aid for removing a self-propelled wheeled vehicle under its own power from a position on an airdrop plat-

form when shock absorbing material arranged between the vehicle and the platform prevents the tractive wheels of the vehicle from developing sufficient traction in contact with the platform surface to permit the vehicle to be driven off the platform, and the method for using same. The drive-off aid comprises a flexible ladder-like member having one end adapted



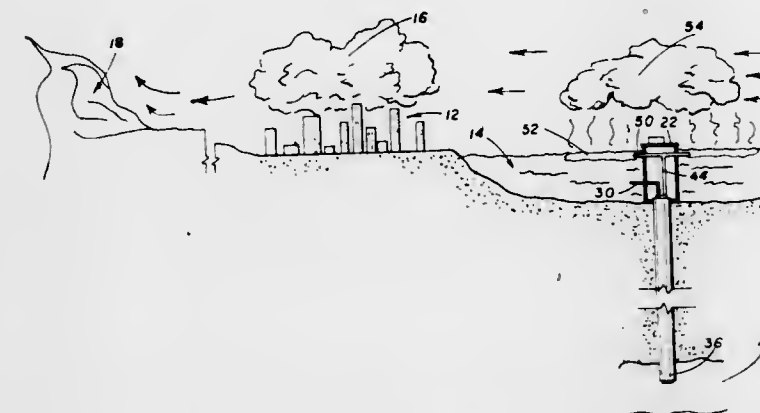
for attachment to the end of the platform and the other end adapted for tractive engagement with the periphery of a tractive wheel of the vehicle in such a manner that rotation of the tractive wheel causes the ladder-like member to be wound upon the periphery thereof to thereby pull the vehicle off the shock absorbing matter by its own power.

3,741,480

SMOG AND WEATHER CONTROL SYSTEM

Allen T. Van Huisen, 2267 Clover Drive N.W., Grand Rapids, Mich.
 Filed July 2, 1970, Ser. No. 51,835
 Int. Cl. A01g 15/00

7 Claims



An air cleansing system for cities and other geographically located areas in which geothermal wells supply heat to a top surface of a body of water upwind from the geographical area, creating a moist high pressure area over the water. The high pressure area, moved by the wind will precipitate the smog particles from the air.

3,741,481

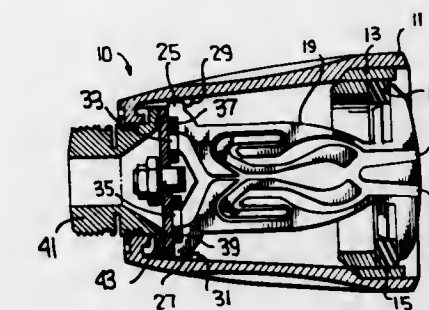
SHOWER SPRAY

Peter Bauer, Germantown, Md., assignor to Bowles Fluidics Corporation, Silver Springs, Md.
 Filed July 19, 1971, Ser. No. 163,566
 Int. Cl. B05b 3/14

25 Claims

A shower spray element includes a plurality of three-sided channels, the fourth side remaining open to atmosphere. Water is issued through each channel in the form of a jet which experiences "Coanda" attachment to one side of the channel. By selecting different angular orientations of the attachment side in the various channels, the issuing jets can be angled to provide even spray coverage with a minimum

number of channels. In a modified embodiment a fourth side is provided for each channel to form a fluidic switching element wherein the jet issuing from each channel may be directed along either of two angularly displaced paths or, alternately to oscillate.



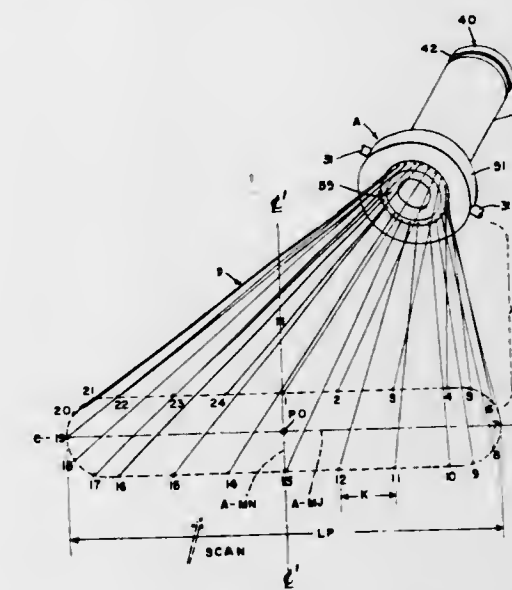
may fill a channel encompassing both paths. The switching element may be connected as a fluidic oscillator whereby the overall spray pattern produced by the spray element is caused to oscillate.

3,741,482

DISTRIBUTION DEVICE

Kay E. Eliason, Fort Madison, Iowa, and James R. James, Louisville, Ky., assignors to Atlantic Richfield Company, New York, N.Y.
 Filed Sept. 17, 1971, Ser. No. 181,440
 Int. Cl. B05b 7/10

11 Claims



An improved foam spray nozzle adapted, in a principal embodiment, for pneumatically driving a viscous stream of urethane foam constituents onto substrates in a controlled pattern and thickness uniform coating being projected by a gas jet arrangement in a prescribed "ballistic" fashion whereby the jet ports surround an open-ended material outlet and are disposed and tilted in a pattern reflecting the contemplated spray pattern.

3,741,483

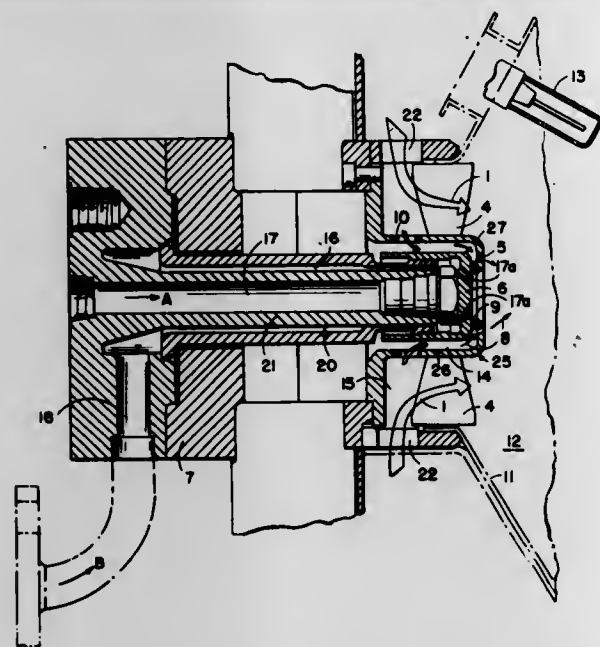
COMBUSTION AIR SUPPLY ARRANGEMENT FOR GAS TURBINES

Katsuyuki Kawaguchi, Akashi, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
 Filed Dec. 10, 1971, Ser. No. 206,621
 Int. Cl. B05b 7/10

5 Claims

The combustion chamber of a gas turbine has a mixture of air and fuel sprayed therein through an injection nozzle including a central passage for the fuel and annular passage and

port means for air under pressure to spray the fuel into the combustion chamber in the form of a spray cone. Additional air is directed into the combustion chamber through a relatively large annular flow passage surrounding the fuel injection nozzle, and a whirler, in the form of a set of radial vanes disposed at a small angle to the direction of flow, is interposed in this channel. The vanes are mounted at their inner ends on an enlarged and elongated hub, and their outer ends are free. The circumferential wall of the hub defines, with the outer circumferential surface of the fuel injection nozzle, a relatively small annular flow passage. Openings in the wall of the hub upstream of the vanes allow air to flow into this latter annular



passage and the air is discharged through a series of small diameter ports in an annular end wall of the hub arranged slightly in advance of the discharge end of the fuel injection nozzle. The ignition conditions at starting up of the turbine, under low flow rates of fuel and low air pressures, result in their being little excess air reaching the fuel injection spray cone through the pores. When running under load, as the fuel flow rate and the air pressure increase, the amount of smoke decreases with the injection of larger quantities of additional air through the ports and forming a stable vortex around the spray cone. The end result is a practically smokeless operation of the gas turbine both at start-up and during running under load.

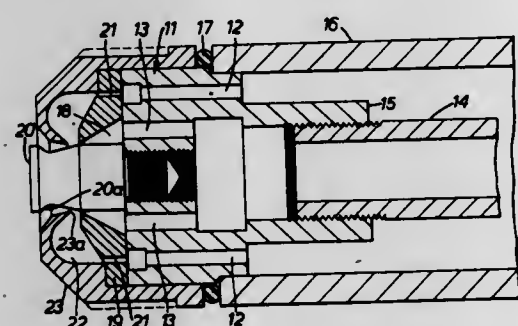
3,741,484 ATOMISERS

Alan Cresswell, Strood, England, assignor to Decafix Limited, Rochester, Kent, England
Filed Sept. 24, 1971, Ser. No. 183,585
Claims priority, application Great Britain, Sept. 30, 1970, 46400/70

Int. Cl. B05b 7/06

U.S. Cl. 239—424

8 Claims



Method and apparatus for atomising liquids in which a liquid is fed from an outer, annular, convergent nozzle into a stream of gas fed at sonic velocity from a coaxial inner convergent nozzle. A divergent deflector is positioned coaxially within the outlet openings of the two nozzles.

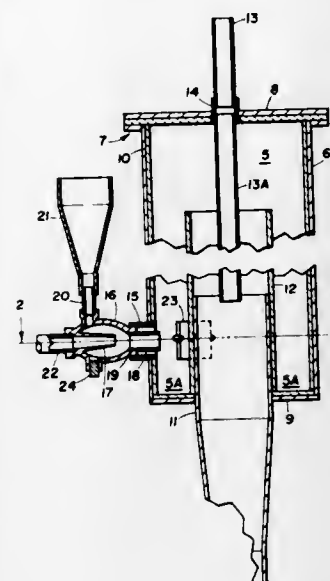
3,741,485 FLUID ENERGY GRINDER FOR INCREASING BULK DENSITY OF MATERIALS

Wayne T. Gage, Niagara Falls, and Leo W. Karski, Lewiston, both of N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y.

Filed June 3, 1971, Ser. No. 149,429
Int. Cl. B02c 19/06

U.S. Cl. 241—39

4 Claims



A grinder for increasing the bulk density of finely divided materials, using an energetic stream of driving fluid to act upon the particulate materials within a suitable grinding chamber. Particle sizes are reduced sufficiently by impact grinding to give a product of increased bulk density. The grinder is especially effective for the size reduction of hard abrasive materials.

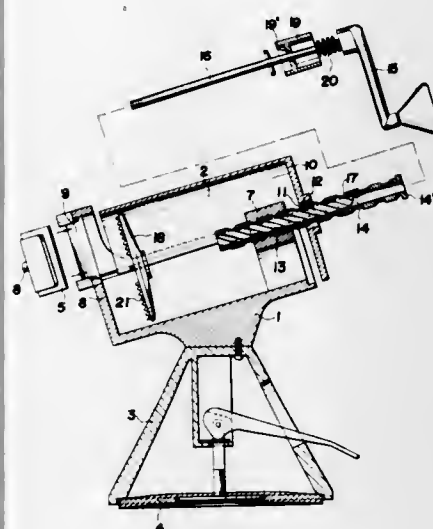
3,741,486 ICE SHAVING DEVICE FOR HOME USE

Isamu Kawamata, 18-14, Akatsuka 5-Chome, Itabashi-ku, Tokyo, Japan

Filed June 14, 1971, Ser. No. 152,873
Claims priority, application Japan, June 18, 1970, 45/60524; June 18, 1970, 45/60525; June 22, 1970, 45/62063
Int. Cl. B02c 19/00, 19/20

U.S. Cl. 241—95

5 Claims



A body member, which is semi-cylindrical over most of its length, has a cylindrical inner end wall portion formed with an opening into which there projects an ice shaver blade mounted in a block which is adjustably secured to the body member by a screw of the like. The opposite or outer end of

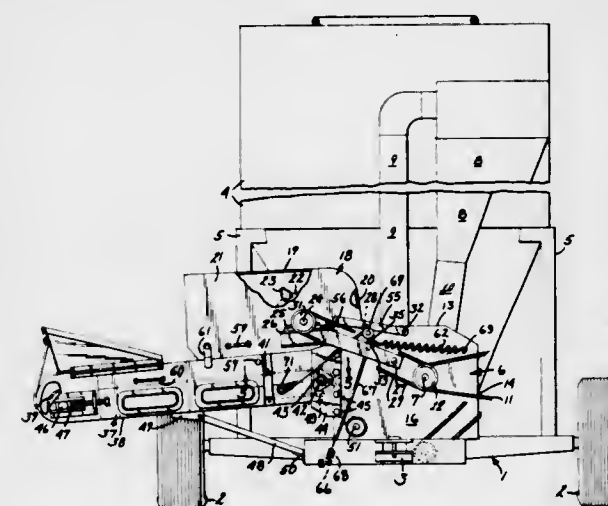
the body member is open. A semi-cylindrical cover member has its lower edges guided in grooves in the upper edges of the semi-cylindrical portion of the body member for sliding relative to the body member and has a cylindrical outer end wall arranged to close the open end of the body member. A rotatably mounted shaft has an ice gripping plate secured to its inner end and an operating handle secured to its outer end. In one embodiment of the invention, this shaft extends through an externally threaded tubular member which is threadably engaged in a bushing fixed in the body member, and a spring biased frictional connection is provided between the outer end of the tubular member and the operating handle. In another embodiment of the invention, the rotatable shaft is externally threaded and is engaged through an internally threaded bushing rotatably mounted in the bushing support in the body member. An adjustably spring biased friction member is mounted in the bushing support for adjustably restraining the bushing against rotation. In both embodiments of the invention, as the shaft is rotated, the threaded interconnection effects advance of the ice gripping plate toward the ice shaver in accordance with the reduction, by shaving, of the quantity of ice between the gripping plate and the ice shaver.

3,741,487 MEANS FOR MOUNTING AUXILIARY APPARATUS ON A PORTABLE FEED MILL

Glenn G. Kanengieter, Prairie, Minn., assignor to Owatonna Manufacturing Company, Inc., Owatonna, Minn.
Filed Oct. 28, 1971, Ser. No. 193,315
Int. Cl. B02c 12/02

U.S. Cl. 241—223

11 Claims



A shredder attachment and an infeed conveyor attachment each mounted on a portable feed mill and mixer for delivering material to the inlet portion of a hammer mill and, selectively, to shred or otherwise reduce the conveyed material prior to entry thereof into the mill. Both attachments are moveable between lowered operative positions relative to the feed mill and mixer, and raised storage positions thereon.

3,741,488 APPARATUS AND METHOD OF PRODUCING YARN RESERVES ON BOBBIN-RECEIVING MEMBERS

Olivier Wuest, Winterthur, Switzerland, assignor to Rieter Machine Works, Ltd., Winterthur, Switzerland
Continuation of Ser. No. 744,864, July 15, 1968, abandoned.
This application Aug. 11, 1970, Ser. No. 63,017
Claims priority, application Switzerland, July 19, 1967, 10300/67

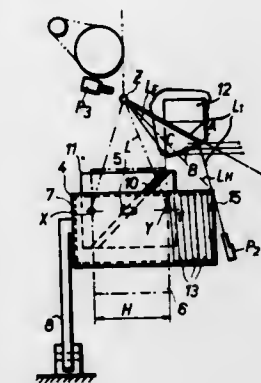
Int. Cl. B65h 54/34

U.S. Cl. 242—18 PW

21 Claims

A cam having a yarn guide surface is mounted above the sleeve on which the yarn is to be wound. The cam projects into

the yarn path to deflect the yarn away from the yarn guide for winding of the yarn into a bobbin. After engaging the end of



the sleeve, the speed of the yarn towards the yarn guide is braked by the cam so that a large yarn reserve can be built up on the sleeve prior to winding of the bobbin.

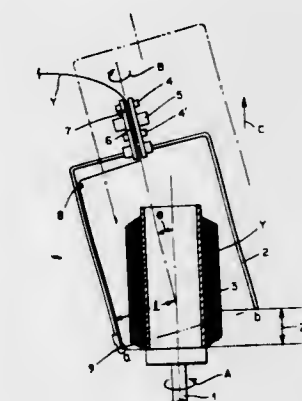
3,741,489 BOBBIN WINDER, METHOD AND YARN PACKAGE PRODUCED THEREBY

Sadao Kawamura, Kyoto, and Hideo Matsuno, Osaka, both of Japan, assignors to Toray Engineering Co., Ltd., Osaka, Japan

Filed Mar. 18, 1971, Ser. No. 125,780
Int. Cl. B65h 54/04, 55/04, 57/00

U.S. Cl. 242—18

9 Claims



In an apparatus for winding yarn on a bobbin, the yarn is distributed by a flyer which rotates about an axis that is disposed at an angle to the bobbin axis. The bobbin is rotated in a direction opposite to the direction of rotation of the flyer. The flyer moves axially relatively to the bobbin in a single direction throughout the winding period. The resulting package contains yarn that runs continuously in and out between the inner periphery and the outer periphery of the yarn package enhancing subsequent package dyeing operations.

3,741,490 YARN PACKAGE DOFFING APPARATUS AND METHOD

Jean V. Venot, Villerest, France, assignor to Jonathan Logan, New York, N.Y.

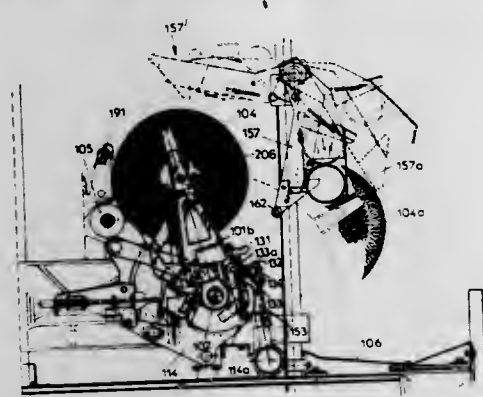
Filed Nov. 16, 1971, Ser. No. 199,291
Int. Cl. B65h 54/02

U.S. Cl. 242—18 A

23 Claims

An improved method and apparatus for doffing wound packages of strand materials and donning empty cores for re-

sumption of winding, in which the mounting of an empty core onto a core supporting arm is particularly facilitated by slow-



ing movement of the arm as the arm returns to a winding position and an empty core is donned.

3,741,491

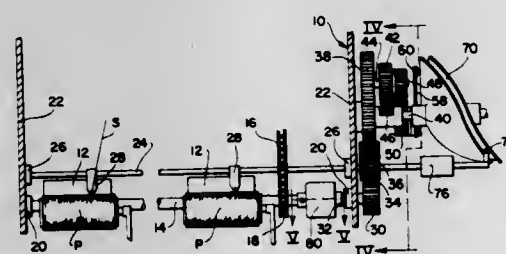
APPARATUS FOR WINDING YARN

Hans Heinrich Richter, Warwick, R.I., assignor to Leesona Corporation, Warwick, R.I.

Filed Nov. 29, 1971, Ser. No. 202,784
Int. Cl. B65h 54/38

U.S. Cl. 242-18.1

6 Claims



Apparatus for winding an advancing strand of yarn into a package is disclosed. The apparatus includes means for rotatably supporting and driving a package at a substantially constant rate of speed and means for traversing a strand onto the package as the package is rotated. Drive means for operating the traversing means is provided and regulating means for periodically increasing and decreasing the speed of the drive means as the strand is traversed onto the package is included. The control means is operable in response to the regulating means to disrupt the synchronism between the rotation of the package and the traversing of the strand onto the package to thereby prevent the formation of bands or "ribbons" wherein the strand coils in the package are crowded together or "piled."

3,741,492

APPARATUS FOR WINDING SEWING THREAD UPON BOBBINS

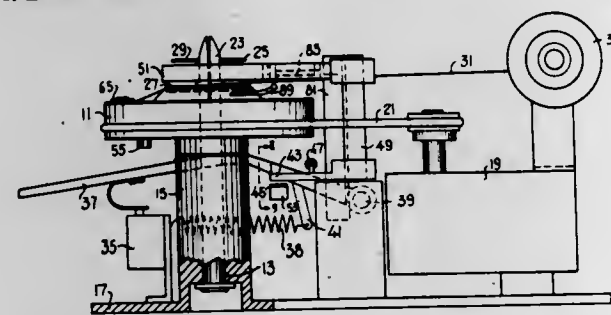
Erik Lennart Johansson, Hertig Karls alle 71, 703 40 Orebro, Sweden

Filed June 15, 1971, Ser. No. 153,288

Claims priority, application Sweden, June 16, 1970, 8331/70
Int. Cl. B65h 54/00, 63/08

U.S. Cl. 242-20

7 Claims



An apparatus for winding sewing thread upon a bobbin is provided with means for holding the thread end when starting

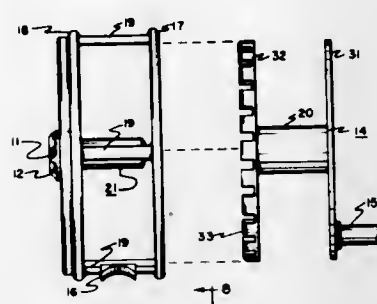
the winding and until the thread is securely anchored on the bobbin. Said means comprises a spring clip fastened to the rotor turning the bobbin and located thereon at a greater radius than the bobbin. The thread end part stretched between the bobbin and said holding means can be caught by a stationary member movable into the path described by said thread end, whereby the thread end is disengaged from the holding means and can be covered by the following thread turns upon the bobbin.

3,741,493
FISHING REEL

Cyril W. Jones, 3100 Warm Springs Avenue, Boise, Idaho
Filed May 13, 1971, Ser. No. 142,987
Int. Cl. A01k 89/02

U.S. Cl. 242-84.1 R

5 Claims



The fishing reel of the invention includes a line crank winding assembly having a ratchet about the outermost periphery of the assembly. The line winding assembly is journaled for rotation on an axle suitably mounted in a reel housing and the ratchet portion of the winding assembly is engageable with a spring loaded pawl pivotally mounted in the housing. Drag tension on the winding assembly may be selectively adjusted in response to movement of an eccentric disc provided to urge a spring against the pawl. The winding assembly is engaged and disengaged from the axle in the housing in response to movement of an eccentric locking means on the axle engaging the terminal edge of a bushing provided in the innermost portion of the line core hub of the winding assembly.

3,741,494

ENERGY ABSORBER FOR AUTOMOBILE SAFETY BELTS

Ernst Fiala, Berlin, Germany, assignor to Wolf-Dieter Klink, Lindach, Germany

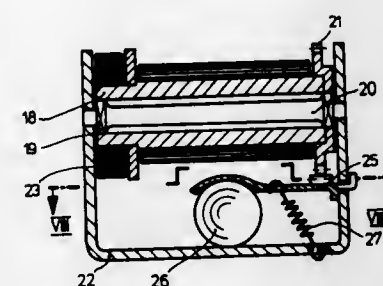
Filed May 26, 1971, Ser. No. 146,887

Claims priority, application Germany, May 29, 1970, P 20 26 277.5

Int. Cl. A62b 35/00

U.S. Cl. 242-107.4

14 Claims



An energy absorber for automobile safety belts which comprises a mounting rigidly or non-rigidly coupled to the chassis, a take-up member which is rotatable relative to the mounting and a torsion bar located between the mounting and the take-up member such that when an impact force is sensed, the torsion bar absorbs the energy of the impact force.

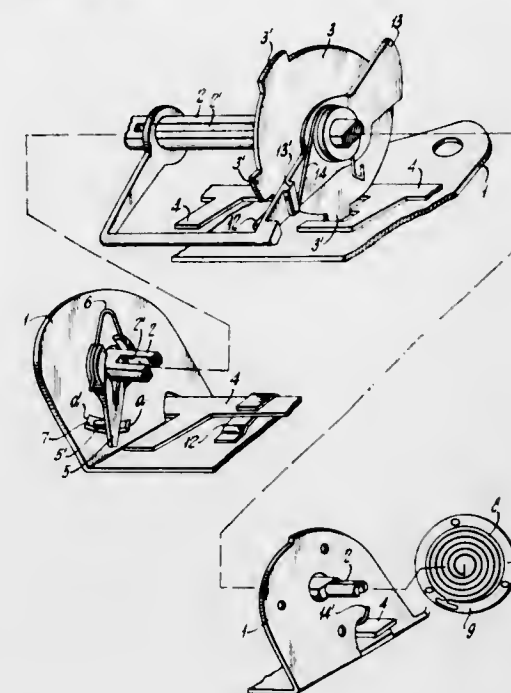
3,741,495
AUTOMATIC LOCKING RETRACTOR SYSTEM WITH STOPPER DEVICE

Takezo Takada, Hikone, Japan, assignor to Takata Kojyo Co., Ltd., Tokyo, Japan

Filed June 16, 1971, Ser. No. 153,784
Int. Cl. A62b 35/00

U.S. Cl. 242-107.4

6 Claims



A safety belt retractor mechanism in which the belt may be locked in any selected position against withdrawal and retraction includes a reel upon which the belt is wound and which is spring biased in a belt retraction direction. A coaxial toothed wheel rotates with the reel and a rockable locking member is spring biased into locking engagement with a tooth. A first control member is rotatably mounted on the reel shaft and is spring biased to urge the locking member to a wheel tooth disengage position and responds to a pull on the belt to release the locking member to a tooth engage position. A second control member is engaged by the reel shaft through a slipping clutch to swing in the direction of rotation of the shaft to retain the locking member in a disengaged position with the belt withdrawal rotation of the reel and to release the locking member with the belt retraction rotation of the reel.

3,741,496

SAFETY SEAT BELT RETRACTOR

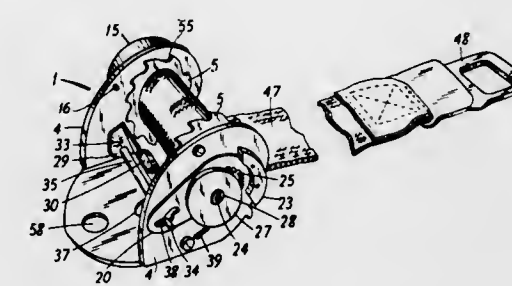
Herbert R. Beller, Mount Clemens, Mich., assignor to Allied Chemical Corporation, New York, N.Y.

Filed July 13, 1971, Ser. No. 162,073

Int. Cl. A62b 35/00

U.S. Cl. 242-107.4

17 Claims



A reel-type retractor for a safety belt incorporating an improved automatic locking device. The retractor is designed so that a driving member rotating in accordance with the reel, cooperates with a driven member to actuate a locking device, thus preventing further extension of the belt when the acceleration of the reel exceeds a preselected rate.

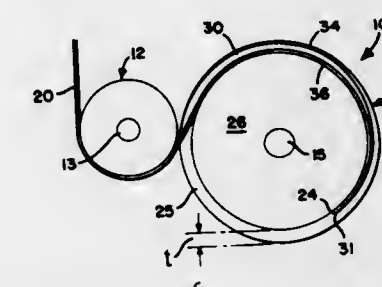
3,741,497
TAKE-UP HUB AND TAPE COMBINATION FOR TAPE TRANSPORT

Kingston E. Ganske, Rough and Ready, Calif., assignor to Arvin Industries, Inc., Columbus, Ind.

Filed Jan. 25, 1972, Ser. No. 220,628
Int. Cl. G03b 1/04; G11b 15/32

U.S. Cl. 242-192

7 Claims



A take-up hub is biased against a rotatable capstan and has a beveled peripheral surface for receiving magnetic tape from a supply. The tape has a tapered end portion of a length equal to the mean circumference of the hub and the taper is formed so the first layer on the hub forms an underlayer which permits subsequent layers to be wound thereon without a bumping action.

3,741,498

APPARATUS FOR RECEPTION OF A CASSETTE WITH A RECORDING CARRIER MATERIAL

Richard Siegemund, Saint Georgen, Black Forest, Germany, assignor to Firma Dual Gerbruder Steidinger, Georgen/Schwarzwald, Germany

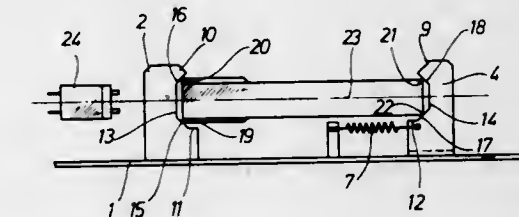
Filed Dec. 29, 1971, Ser. No. 213,279

Claims priority, application Germany, Jan. 2, 1971, P 21 00 092.0

Int. Cl. G03b 1/04; G11b 15/32, 23/04

U.S. Cl. 242-199

2 Claims



An apparatus for receiving a cassette containing a band-like recording carrier capable of being rewound in a reproduction device, which comprises a cassette, and a band constituting a recording carrier. Holding means are provided for the cassette disposed on opposite sides of the latter and adjustable in a direction towards each other. The sensing plane of the band is disposed within the range of one side of the cassette arranged substantially perpendicularly to the adjustment direction of the holding means. The holding means engaging the sensing side of the cassette have a symmetrical, substantially V-shaped recess, the latter being formed such, that the center of the cassette in relation to the thickness of the cassette upon impression of the cassette into the V-shaped recess assumes coincidence with the plane of symmetry of the V-shaped recess.

3,741,499

CLUTCH ARRANGEMENT FOR TAPE TRANSPORT

Lloyd Osborn, Fort Wayne, Ind., assignor to V-M Corporation, Benton Harbor, Mich.

Filed Sept. 20, 1971, Ser. No. 182,071

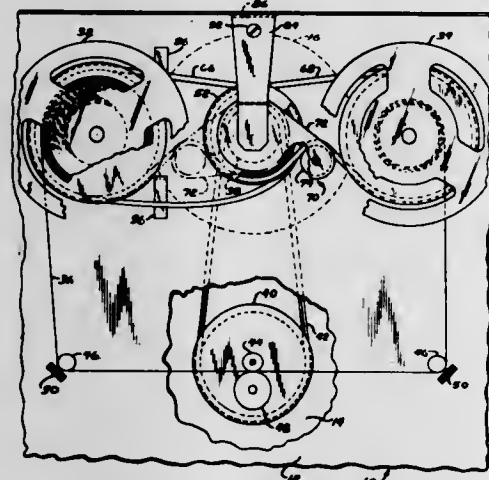
Int. Cl. B11b 15/32; G03b 1/04

U.S. Cl. 242-201

14 Claims

A clutch arrangement for use with belt driven tape supply and take-up reels wherein the clutch is effective to provide a

controlled drive torque on the take-up reel and no torque on the supply reel over a wide range of speed ratios between the



reels and a reel drive pulley. The clutch is operative to provide a substantially constant drive torque during bi-directional rotation of the reels.

3,741,500

CMG FINE ATTITUDE CONTROL SYSTEM

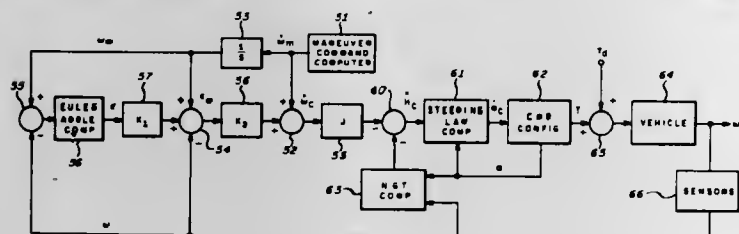
Sam P. Liden, Phoenix, Ariz., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Apr. 21, 1971, Ser. No. 136,088

Int. Cl. B64g 1/00

U.S. Cl. 244-1 SA

3 Claims



The invention teaches an attitude control system for providing control torques on a vehicle, such as a space satellite, using four single gimbal control moment gyroscopes. The relatively simple constant-gain steering law permits three axis control after failure of any one of the four control moment gyroscopes.

3,741,501

SELF MONITORING STRIKE SYSTEM

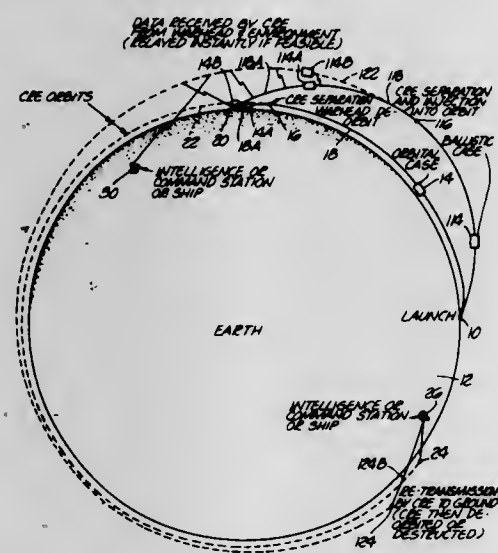
Robert J. Salkeld, 410 1/2 Landfair Avenue, Los Angeles, Calif.

Filed May 6, 1968, Ser. No. 727,106

Int. Cl. F41g 7/16

U.S. Cl. 244-3.14

3 Claims



A missile includes a detachable data collection and return element (CRE) which separates from the missile at an ap-

propriate point in its trajectory at, for example, the apogee, continues to collect data with respect to the environment and the missile itself (including confirmation of its own burst and also bursts of other missiles in its salvo). Such CRE unit either relays instantly or stores and relays back upon command when its trajectory brings it within range of an intelligence collecting or command station which may be located at a great or safe distance from the scene of destruction. When the missile trajectory is ballistic (for example in a typical ICBM or IRBM case) then the CRE unit carries a propulsion module capable of providing enough additional boost to place it in an orbit or longer trajectory such that it will be brought back into suitable position for retransmission of collected data. In the case when the missile trajectory is orbital the CRE unit needs no propulsion and in such case continues on in its initial orbit after the warhead is deboosted to the target. In some cases the CRE unit may be used as a moving reference point from which signals are transmitted to the warhead for accurate control of a flight path to the target.

3,741,502

LONG RANGE MISSILE PROGRAMMER

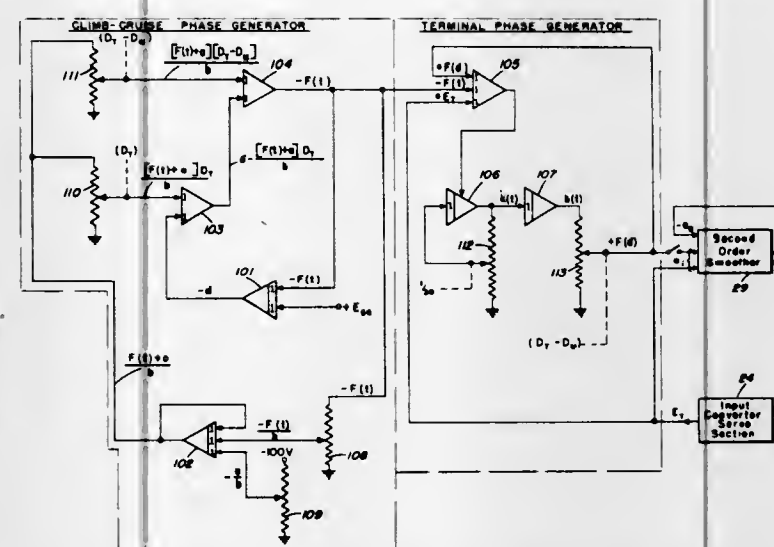
Irvin H. Schroeder, Simpsonville; Melvin E. Hosea, Silver Spring; Vincent J. Caggiano, Rockville, and Leo C. Miller, Silver Spring, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 15, 1961, Ser. No. 110,615

Int. Cl. F41g 7/00

U.S. Cl. 244-3.13

10 Claims



In an apparatus for controlling the flight trajectory of a guided missile, second order programming computer and smoother means for manipulating input parameters in accordance with the relations

$$e_0 = \int_{t=G}^{t=P} e_0 dt,$$

$$e_0 = -2\omega_n(e_0 - e_i) - \sigma \int_{t=G}^{t=P} \omega_n^2(e_0 - e_i) dt$$

+ constant,

and $e_i = E_i + k(t) [Dr - Dm] = E_i + F(d)$

where e_0 is the output data from said computer,

e_i is the input data to said computer,

\dot{e}_0 is the first derivative of e_0 ,

ω_n is the gain sensitivity factor of the computer,

E_i is the elevation of the target,

σ is a constant,

P is the present time,

G is the time of guidance initiation,

$k(t)$ is a time varying programming factor and $F(d)$ is the output of an input driving function generator, a first input

source of voltage for said second order programming computer means relating to E_i , driving function generator means $F(d)$ electrically coupled to and directed as a second input to said second order programming computer means, said driving function generator means comprising a climb-cruise phase generator in series with a terminal phase generator, means within said climb-cruise phase generator to produce an output function $F(t) = (b^2 GG - a Dm) / (b + Dm)$ where $F(t)$ is the program variable defining the climb and cruise phases,

D_M is the slant range to the missile,

E_{CC} is the initial condition elevation angle of the guidance transmitter, and

a and b are constants, the output of said climb-cruise phase generator being directed as a first input to said terminal phase generator, means electrically connected to the input of said terminal phase generator providing a second input to said terminal phase generator relating to E_i , feedback means electrically connected to the output of said terminal phase generator to feed back the output $F(d)$ of said driving function generator as a third input to said terminal phase generator, means within said terminal phase generator for acting upon said first, second and third inputs prior to terminal phase initiation to produce an output function

$$k(t) = \int_G^P [F(d) + E_i - F(t)] dt,$$

means within said terminal phase generator to render ineffective said first, second and third inputs upon terminal phase initiation, means within said terminal phase generator to produce after terminal phase initiation a function $k(t) = k_T + 30k_T(1 - t - T_{TP})^{30}$ where k_T is the value of $k(t)$ at terminal phase initiation.

K_T is the first derivative of k_T , and

T_{TP} is the time from terminal phase initiation to the present, means to feed back the output voltage e_0 of said second order programming computer means to its input, and means delaying maximum gain sensitivity of said computer means until the missile is within a predetermined range of the target, whereby noisy input radar data is smoothed until maximum maneuverability of the missile is required.

3,741,503

AIRCRAFT LANDING GEAR

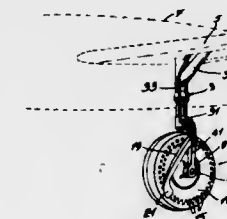
Henry Cabeza, 2090 Cambridge Road, T.M.R., Montreal, Quebec, Canada

Filed Apr. 10, 1972, Ser. No. 242,521

Int. Cl. B64c 25/40

U.S. Cl. 244-103 S

7 Claims



Means for rotating an aircraft wheel wherein the tire of the wheel is formed with several peripheral vanes distributed in two adjacent coaxial circular rows and wherein a nozzle

directs a jet of air on the vanes. The vanes of one of the two rows are arranged in the space between two successive vanes of the adjacent row. The nozzle has a fluid outlet sufficiently wide to cover both rows.

3,741,504

CARGO HANDLING SYSTEM

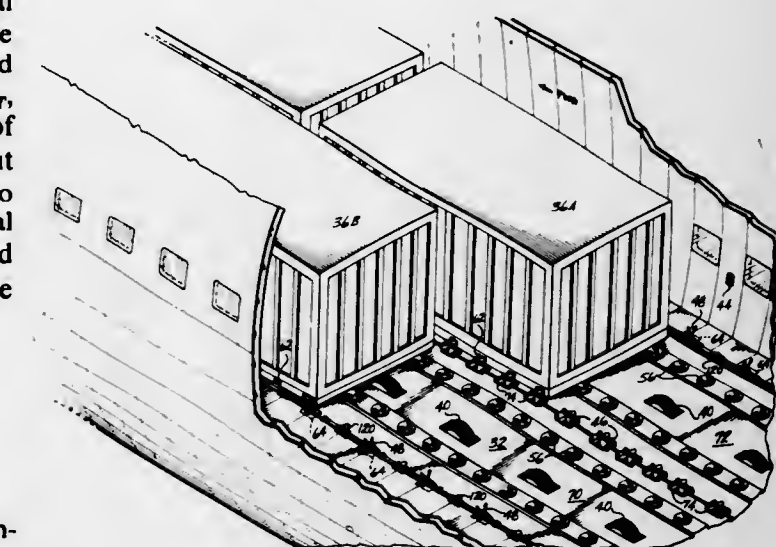
John Alberti, Seattle, and William W. Nanninga, Bellevue, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed May 6, 1971, Ser. No. 140,772

Int. Cl. B64c 1/22

U.S. Cl. 244-137 R

5 Claims



A cargo handling system for carriers but specifically for aircraft incorporating an automatic guide and restraint device which is utilized in cooperation with a side manually adjustable fore/aft locking device with a slaved vertical restraint device. During cargo loading operations, the system allows approximate positioning of a cargo carrying means, which means triggers automatically the engagement of center guide restraint devices; thereafter, the manually aligning and subsequent locking of side fore/aft locking devices and thereon engagement of connected slaved vertical restraint devices is accomplished; however, securing of the carrying means incorporates limited freedom so that the carrier structure is independently flexible from the cargo carrying means. During cargo unloading operations, manual disengagement of side fore/aft locking devices and activation of cargo propulsive means will move the cargo carrying means toward the exit and the cargo carrying means will automatically disengage the center guide device's restraints and the slaved vertical restraint devices. The center guide restraint device carries spring loaded restraint lips, mounted on a slidably positioned body, which lips swing into the cargo carrying means' pocket and travel with the pocket for a given stroke length. When the stroke length is surpassed, the lip pivots out of the pocket and the slideable body recycles to its original position. The side lock is adjustable in fore and aft direction and is manually aligned and engaged with the cargo carrying means' pocket. The slaved vertical restraint device follows the alignment and provides for simultaneous engagement into a next pocket.

3,741,505

AERODYNAMIC DECELERATOR

Roger K. Engel, Sioux Falls, S. Dak., assignor to Raven Industries, Inc., Sioux Falls, S. Dak.

Filed Mar. 8, 1971, Ser. No. 121,702

Int. Cl. B64d 17/02

U.S. Cl. 244-145

3 Claims

A parachute construction having a parachute canopy with

load lines extending downwardly therefrom for attachment to a load with the canopy formed of a fabric of random oriented



nylon filaments self-bonded at the filament junctions and may be calendered to a predetermined porosity.

3,741,506 PARACHUTE CANOPY

Richard Kohnke, Heinrich-Stoess-Strasse 31, Ziegelhausen bei Heidelberg, Germany
Continuation of Ser. No. 869,997, which is a continuation-in-part of Ser. No. 700,772, Jan. 26, 1968, abandoned. This application Feb. 25, 1971, Ser. No. 118,950
Claims priority, application Germany, Jan. 27, 1967, P 15 06 051.2

Int. Cl. B64d 17/02

U.S. Cl. 244—145

2 Claims



A parachute canopy, especially a cargo parachute, is made of one-piece gores composed of unwoven bonded fibrous textile material, such as spunbond. The canopy is inexpensive and disposable.

3,741,507 TIRE BEAD CORE RING

Friedrich Wilhelm Hahn, Nachrodt, Germany, assignor to Hahn & Co. KG, Nachrodt, Germany
Filed June 2, 1971, Ser. No. 149,138
Claims priority, application Germany, June 2, 1970, P 20 26 874.0

Int. Cl. B60c 15/04

U.S. Cl. 245—1.5

17 Claims



A tire bead core ring for being embedded within the bead of a tire including at least two cable rings each of a wire stem and

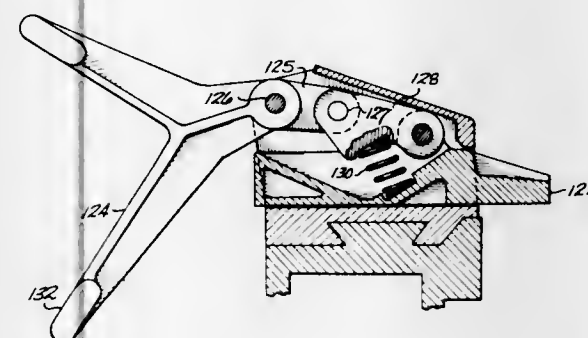
at least one layer of wires concentric therewith, and at least one layer of wires encasing the cable rings and bringing them into a supporting and force-transmitting relationship.

3,741,508 CARGO HANDLING SYSTEM SIDE LOCKING DEVICE

John Albertl, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed May 6, 1971, Ser. No. 140,771
Int. Cl. B60p 7/08

U.S. Cl. 248—119 R

3 Claims



A cargo handling system for carriers but specifically for aircraft incorporating an automatic guide and restraint device which is utilized in cooperation with a side manually adjustable fore/aft locking device with a slaved vertical restraint device.

During cargo loading operations, the system, by the use of a conveyor arrangement inclusive of a cargo propulsive means allows the approximate positioning of a cargo carrying means, which means triggers automatically the engagement of the center guide restraint devices; thereafter, the approximate manually aligning and subsequent locking of the side fore/aft locking devices and thereon engagement of connected slaved vertical restraint devices is accomplished; however, the securing of the carrying means incorporates limited freedom so that the carrier structure is independently flexible from the cargo carrying means.

During cargo unloading operations, manual disengagement of the side fore/aft locking devices and activation of the cargo propulsive means will move the cargo carrying means towards the exit and upon movement the cargo carrying means will automatically disengage the center guide device's restraints and the slaved vertical restraint devices.

The center guide restraint device carries spring-loaded restraint lips, mounted on a slidingly positioned body, which lips swing into pockets provided in the cargo carrying means and travel with the pocket for a given stroke length. When the stroke length is surpassed, the lip pivots out of the pocket and the slideable body recycles to its original position.

The side lock is adjustable in fore and aft direction and is manually aligned and engaged with a pocket of the cargo carrying means. The slaved vertical restraint device follows exactly the alignment and provides for simultaneous engagement into a next pocket.

3,741,509 TRIPOD TYPE JACK ASSEMBLY

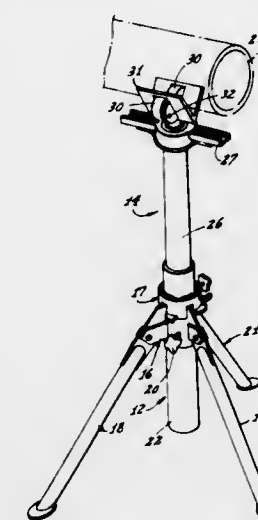
Lonnie M. Kelley, 11733 E. 166th Street, Norwalk, Calif.
Filed June 10, 1971, Ser. No. 151,812
Int. Cl. F16m 11/38

U.S. Cl. 248—171

3 Claims

A tripod type jack assembly or support device including

camming means functioning — when activated — to maintain the legs in their folded side-by-side relation with the body of



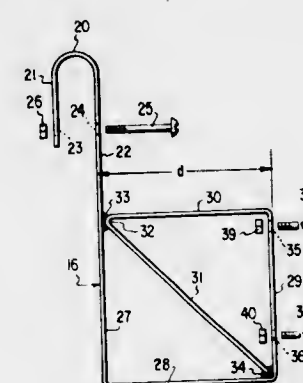
the jack thereby rendering the assembly easier to transport and store.

3,741,510 LADDER SUPPORT SPACER

Donnie G. Barnes, 2339 Truman Avenue, Pensacola, Fla.
Filed Dec. 10, 1971, Ser. No. 206,629
Int. Cl. F16m 13/02

U.S. Cl. 248—229

4 Claims



A support and spacer device for ladders, especially suitable for use with scaffold structures, the device including a downwardly opening U-shaped hook supporting a rectangular frame having a diagonal brace. U-bolts are provided to surround the vertical side portion of a ladder, above and below a rung, and penetrate the side of the rectangle opposite the hook portion. The structure is advantageously made from a single piece of strap steel, one end thereof being formed into the U-shaped hook and the remainder thereof being bent, in four bends, into a rectangle having the diagonal brace. Two welds and five holes complete the structure which is normally used in pairs, more than one pair being advantageously employed with a movable scaffold or the like.

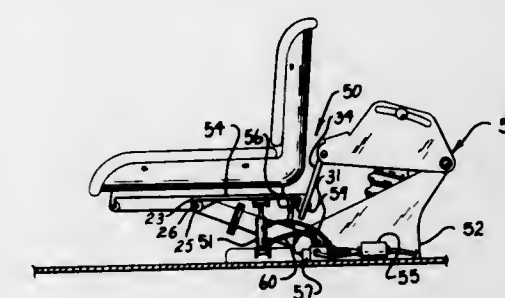
3,741,511 SEAT TILTING STRUCTURE

Glen E. Streeter, N. Ardinger Street, Hamilton, Mo.
Filed June 1, 1971, Ser. No. 148,325
Int. Cl. B60n 1/02

U.S. Cl. 248—371

2 Claims

A seat tilting structure for movable vehicles and more particularly tractors, graders, earth working equipment, and the like, to permit a driver or operator thereof to remain in a substantially vertical position when the vehicle is in a non-level position includes a generally upstanding support standard having one end of a first portion of a tilting arm mounted thereon and extending outwardly therefrom and rotatably supporting a



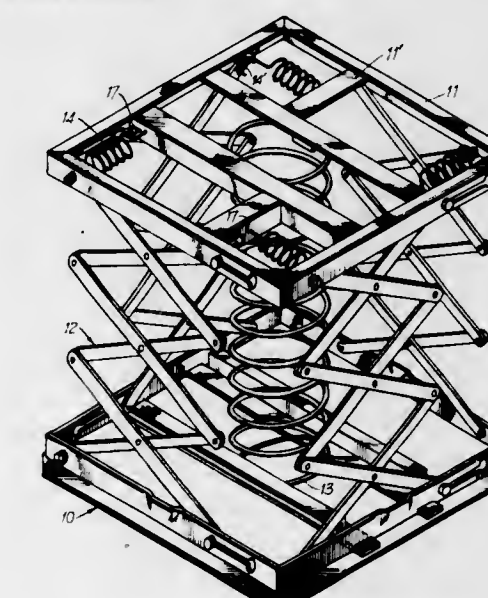
the seat support member may be selectively adjusted to a level position when the vehicle is in a non-level position.

3,741,512 SELF-LEVELING DISPENSER

Frank C. Olsson, East Lyme, Conn., assignor to AMF Incorporated, White Plains, N.Y.
Filed Nov. 4, 1971, Ser. No. 195,648
Int. Cl. A47b 9/00

U.S. Cl. 248—399

1 Claim



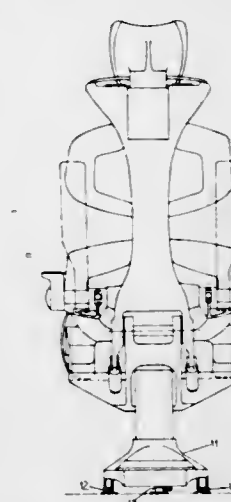
A tongs type self-leveling dispenser having a main compression spring has releasable torsion springs for each of its tongs to provide additional rates of resistance.

3,741,513 VEHICLE SEATS, ESPECIALLY AIRCRAFT SEATS

Anthony Ian Wilson, Leigh-on-Sea, Essex, England, assignor to Teleflex Limited, Basildon, Essex, England
Filed Nov. 19, 1971, Ser. No. 200,353
Int. Cl. F16m 13/00

U.S. Cl. 248—429

6 Claims



In a vehicle seat a mount for said seat having a base which is adapted to be positionally adjusted fore-and-aft along a track

comprising three parallel equally spaced rails, roller means attached to said mount and so positioned thereon to ride on said parallel rails, said rails adjusted to support, guide and hold down said base of said seat on said rails, driving and locking means associated with said centrally disposed rail to selectively drive or lock said base on said rails, said roller means including a swivelling bogie mounted on said base, said drive means including a drive motor adapted to drive driving gear means, said driving gear means operably mounted on said swivelling bogie and adapted to mesh with corresponding rack teeth disposed on and along said centrally disposed rail, said swivelling bogie including a slipping clutch means to provide speed rundown of said drive motor, in the event said base of said vehicle seat is positionally locked on said rails.

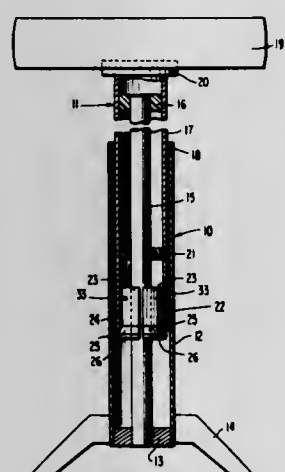
3,741,514

QUICK ADJUSTABLE HEIGHT SUPPORT

Gordon R. Snurr, 520 West 6th Street, Waynesboro, Pa.
Filed Apr. 17, 1972, Ser. No. 244,464
Int. Cl. E04g 25/08

U.S. Cl. 248—412

10 Claims



An adjustable height support for chairs, stools or like structures embodies first and second telescoping linearly movable assemblies or units. A gravity responsive wedge locking mechanism on one of said units is rendered inactive or released relative to the other unit by a mere lifting of the one unit carrying the locking device. Releasing of the one unit and allowing the same to drop freely serves to activate the locking device substantially instantaneously. An infinite range of height adjustment is available without the necessity for manual levers, handles or the like.

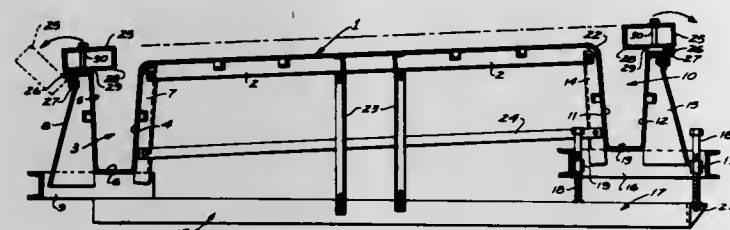
3,741,515

VARIABLE PITCH FORM

Edward K. Rice, 2077 Linda Flora Drive, Los Angeles, Calif.
Filed Nov. 24, 1971, Ser. No. 201,865
Int. Cl. B28b 7/08

U.S. Cl. 249—26

10 Claims



A variable pitch form for the casting of concrete slabs which become modules of multiple story building structures, the form having an upwardly facing slab casting panel bordered longitudinally by channel shaped beam casting forms integrally connected to the slab casting panel by flexible fillet casting strips. Means are provided for raising and lowering one longitudinal margin of the slab casting panel and the cor-

responding beam casting form while maintaining the beam casting forms as well as leg casting forms at the corner of the slab in an essentially vertical position. Outboard end forms are provided to match various selected slab pitches or slopes. The beam forms carry pivotal ledge casting forms to provide longitudinal ledges for the support of adjacent modules.

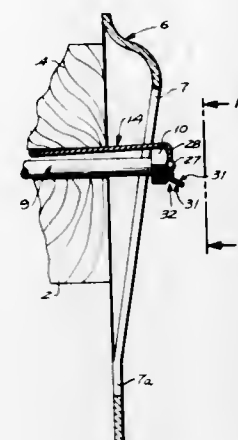
3,741,516

CONCRETE FORM SECURING MEANS

Warren E. Rugger, P.O. Box 127, Lakewood, Calif.
Continuation-in-part of Ser. No. 191,181, Oct. 21, 1971,
abandoned. This application Mar. 31, 1972, Ser. No. 240,005
Int. Cl. E04g 17/06

U.S. Cl. 249—216

10 Claims



A securing means for maintaining the two sides of a concrete form in fixed spaced relation before, during and after pouring the concrete. The securing means includes a tie wire or rod intended to extend between and through a pair of spaced forms and one embodiment having at each end a double head capable of being twisted, the rod being weakened in the region between the forms, for severance for removal on application of sufficient torque. A tie strap is received between each double head and is secured to the form to prevent inward collapse of the form. A wedge engages each headed end to prevent relative inward and outward movement of the form. Another embodiment is provided with a single polygonal head at each end having a central axially extending projection and the end of the tie strap is provided with a lateral portion having a perforation fitting the projection.

3,741,517

SUBTERRANEAN CLAMPING MECHANISM FOR SUBMARINE WELLS

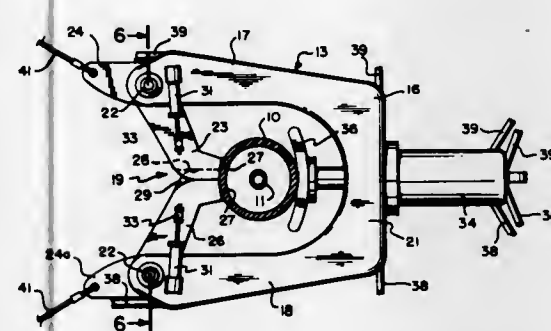
Ivo C. Pogonowski, Houston, Tex., assignor to Texaco Inc.,
New York, N.Y.

Filed Feb. 9, 1971, Ser. No. 113,842

Int. Cl. F16k 7/07; E21b 33/06

U.S. Cl. 251—5

1 Claim



The invention relates to a marine apparatus which includes a clamping device that is submergible beneath the water's surface to be aligned with, and to squeezably deform the upstanding well casing of an uncontrollably flowing well. The apparatus includes a clamping yoke having spaced apart arms

which define an opening or slip for registering about the upstanding well casing. A pair of displaceable cross members extend from the termini of the arms to interlock with each other and to engage the well casing. A hydraulic cylinder carried on the yoke is adapted to urge the clamping device into contact with the casing whereby to deform and crush the latter against the interlocked cross members.

3,741,518

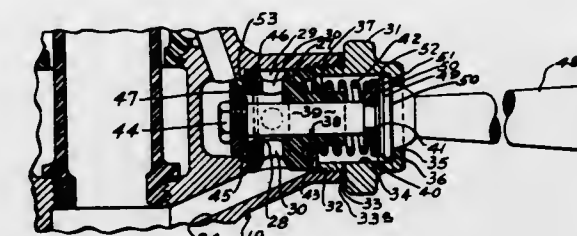
RELIEF VALVE MECHANISM FOR FLUSHOMETERS

Oscar L. Engstrom, 35 Bond Street, Long Island, N.Y.
Filed Oct. 20, 1971, Ser. No. 190,771

Int. Cl. F16k 31/383

U.S. Cl. 251—44

5 Claims



A manually actuated relief valve member particularly suitable for temporarily relieving or "bleeding" a pressure head in flush valves or flushometers for instituting a flushing cycle therein, is described. An actuating handle controls operation of a rod member slidably arranged within a valve body member and having at its inner (high pressure) end a circular washer seatable upon an annular valve seat at the inner end of the valve body member. A first water flow passageway leading to the high pressure end of the release valve mechanism is such as to present greater resistance or impedance to water flow than a second water release passageway leading from the low pressure end of the relief valve mechanism so that substantially no pressure head can develop between the high and low pressure ends, (inner and outer ends) of the valve body member, thereby substantially eliminating leakage to the outer end of the valve body member and preventing leakage at the handle without the use of packing glands and the like.

3,741,519

LOCK MEANS FOR PLUG VALVES

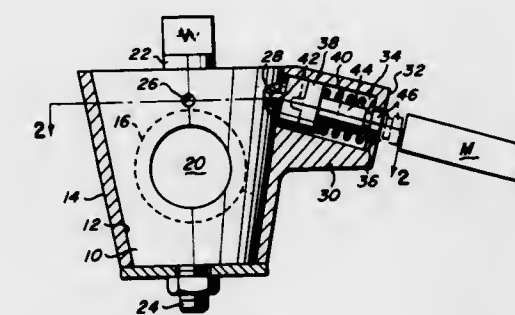
Carl W. Moyer, Junction City, Ohio, assignor to Allied
Machine Works, Zanesville, Ohio

Filed Mar. 29, 1971, Ser. No. 128,829

Int. Cl. F16k 35/06

U.S. Cl. 251—111

20 Claims



The plug valve disclosed includes a spring loaded locking detent which can be disengaged from the valve plug to unlock it, only by means not readily apparent to the layman, such means being a magnetized implement.

3,741,520

BELLOWS SEALED SHUTOFF VALVE

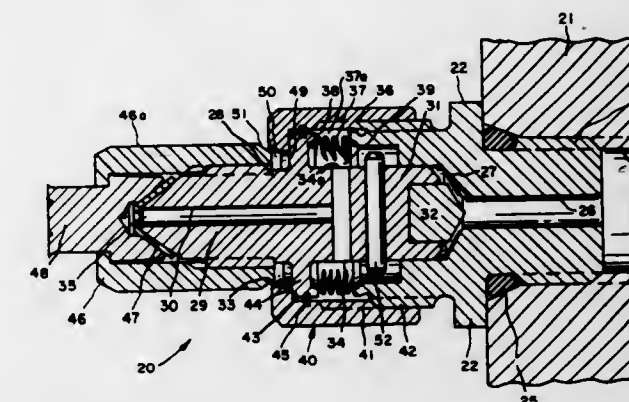
Thomas C. Richmond, Cumberland, R.I., assignor to U.S.
Phillips Corporation, New York, N.Y.

Filed Apr. 13, 1970, Ser. No. 27,935

Int. Cl. F16k 1/50

U.S. Cl. 251—144

2 Claims



A positive-shutoff valve in combination with a chamber chargeable with a fluid under pressure, the valve having a tubular base with a valve seat, a coaxially movable piston cooperating with this seat to close the valve, and a flexible, tubular metal enclosure surrounding a sealed flow chamber between said seat and a second duct through the piston. An actuator moves the piston between open and closed positions, and an auxiliary closure seals the piston duct.

3,741,521

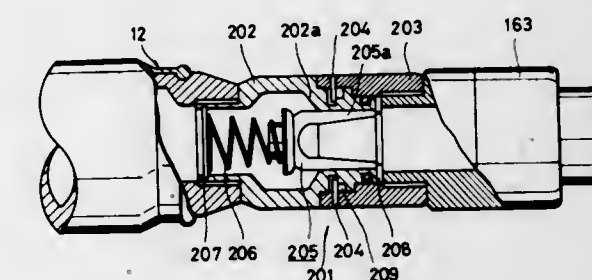
PIPE COUPLING WITH SAFETY VALVE

Hiyoshi Tatsuno, 4-4-11 Shirogane, Minato-ku, Tokyo, Japan
Filed June 3, 1971, Ser. No. 149,694

Int. Cl. F16l 29/00, 37/28

U.S. Cl. 251—149.7

3 Claims



A safety pipe coupling for liquid dispensing machines, which is particularly useful for a suspended nozzle type liquid fuel supplying device, has a first portion which includes a valve means biased by a spring toward its valve seat, a second portion connected to a nozzle at one end, means for connecting said first and second portions under normal conditions and for releasing the portions from each other when a stress larger than a predetermined value is applied therebetween, and a means for holding said valve open against the spring during normal conditions.

3,741,522

GATE VALVE

Karl Heinrich Frohlich, Rohrbach/Saar, Germany, assignor to
Th. Jansen G.m.b.H., Rohrbach/Saar, Germany

Filed June 10, 1971, Ser. No. 151,678

Claims priority, application Germany, June 12, 1970, P 20
29 146.7

Int. Cl. F16k 3/10

U.S. Cl. 251—159

3 Claims

A gate valve in which four shifting devices, driven in pairs, engage the four corners of a rectangular frame. The latter transmits force, through eight force-transmitting points,

namely two points per frame side, to a pressure applying pipe which is axially movable and adapted to lock the gate in position or release it. The eight points are evenly spaced about the periphery of the pressure-applying pipe so that the forces are distributed in an excellent manner on the gate.



3,741,523

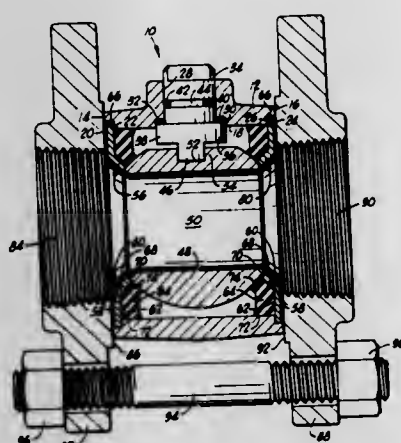
SEAT FOR BALL VALVE

Domer Scaramucci, Oklahoma City, and Ladd M. Adams, Norman, both of Okla., assignors to Balon Corporation, Oklahoma City, Okla.

Filed Aug. 30, 1971, Ser. No. 175,871
Int. Cl. F16k 5/06

U.S. Cl. 251-315

22 Claims

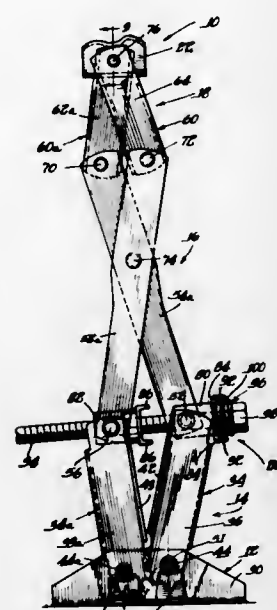


An improved ball valve wherein each annular valve seat comprises a stamped metal seat ring disposed in a respective end of the valve body with the inner periphery of the seat ring conforming to and sealingly engaging the valve ball. An elastomeric annular seal is bonded to the side of the seat ring adjacent the valve ball and sealingly engages the valve ball and the bore through the valve body. The outer periphery of the annular seal has a diameter greater than the bore and is deformed by the bore to provide sealing engagement therewith and to retain the annular valve seat in the valve body during shipment and assembly of the valve in a pipeline. An elastomeric annular seal bead is bonded to the side of the seat ring opposite the annular seal to provide sealing engagement between the valve and a pipe flange carried by the pipeline. In another form the stamped metal seat ring is sized and shaped to conform to the periphery of a relatively deep counterbore formed in the valve body. In another form a circumferential bead is formed on the outer periphery of the annular seal and matingly engages an annular groove formed in the bore through the valve body.

3,741,524
SCISSORS JACK
George H. Morgan, and Robert Harlan Nehrig, both of St. Joseph, Mich., assignors to Auto Specialties Manufacturing Company, St. Joseph, Mich.
Filed Sept. 18, 1970, Ser. No. 73,293
Int. Cl. B66f 3/22

U.S. Cl. 254-122

10 Claims



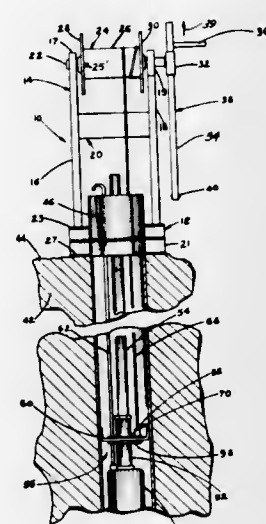
A scissors jack, constructed in accordance with the present invention, is disclosed herein and generally includes a base supporting a lower link assembly, an intermediate link assembly and an upper link assembly, all of which cooperate with each other and with a screw assembly for driving a load lifting element between a lowered or load releasing position and a raised or load lifting position.

3,741,525
PUMP-PULLING APPARATUS FOR WELLS
William L. Smedley, 245 Graham Road, N.W., Grand Rapids, Mich.

Filed Dec. 15, 1971, Ser. No. 208,218
Int. Cl. B66c 23/60

U.S. Cl. 254-139

5 Claims



A compact, portable pump-pulling apparatus for lifting a sealed submersible pump from a well casing includes a frame adapted to be securely mounted to the well casing. A drum is rotatably mounted within the frame by an axle which has a slidably mountable handle at one end for rotating the drum. The drum has means for securing one end of a lifting cable thereto, the other end of which is attached to a seal located above the submersible pump. Winding the cable on the drum

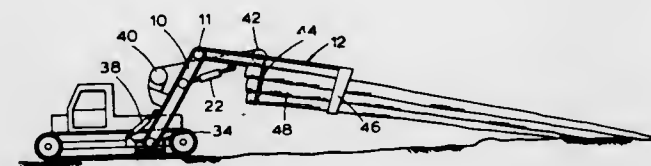
pulls the pump, seal and pipe from the well. Incorporated into the device are means to secure it to the head of the well casing thereby eliminating the necessity for a base structure to stabilize and support the pulling apparatus. The means also provides positive alignment with the casing.

3,741,526
LOADING AND CONVEYING DEVICE TO BE MOUNTED ON A TRACTOR OR THE LIKE

Hans Kasin, and Odd Krane Thvedt, both of Notodden, Norway, assignors to Christiania Spigerverk, Division JoBU
Filed June 1, 1971, Ser. No. 148,812
Int. Cl. B66c 26/30

U.S. Cl. 254-139.1

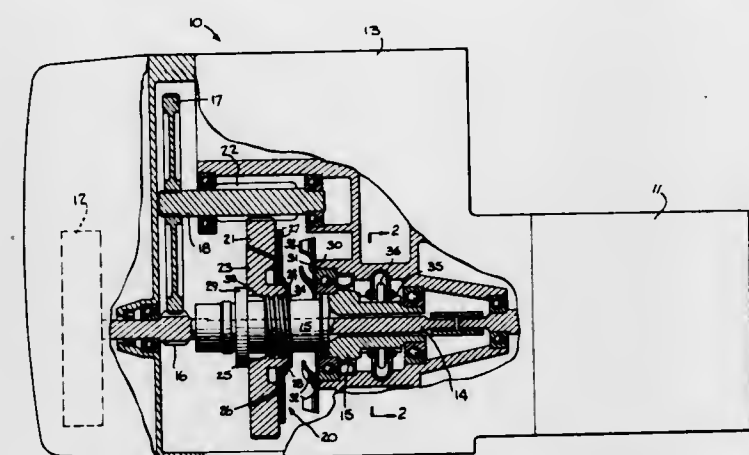
6 Claims



A loading and conveying device for timber logs and the like to be mounted on a motor vehicle. The device comprises an upright mast with a rearwardly directed cantilevered loading beam provided with means for hoisting and carrying the fore end of the load, such as a bundle of timber logs or the like, the rear end of which rests on the ground. The cantilevered beam is at the rear end provided with a transverse yoke member adapted to rest against and partly around the bundle. The winch equipment includes a hoisting strap depending from a point on the cantilevered beam positioned closer to the mast proper. The mast is in its mounting on the tractor body pivotally supported about a horizontal as well as about a vertical axis.

3,741,527
STRESS LIMITING HOIST
Robert R. Dahl, Forrest City, Ark., assignor to Eaton Corp., Cleveland, Ohio
Filed Oct. 12, 1971, Ser. No. 188,287
Int. Cl. F16d 7/02; B66d 1/12
U.S. Cl. 254-168

10 Claims



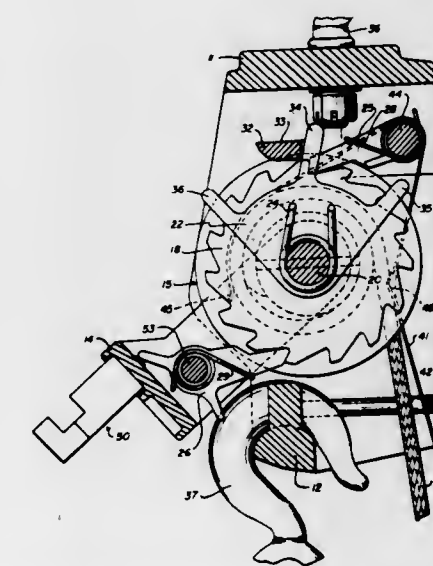
A hoist motor operates a hoist load shaft through an overload clutch having a circular gear that is in frictional relation to a disc member for applying a predetermined amount of torque for lifting a load, and slipping when there is overload. The disc member is mounted through screw threads on the load shaft and pressing the member against a shoulder to transmit the predetermined torque in load lifting direction. The screw threads have a limited length in axial direction that causes them in effect to disengage when the hoist motor rotates the disc in load lowering direction. The clutch cannot then apply the predetermined torque but a spring presses end portions of the threads against each other so as to transmit torque that is limited to a small amount, much less than the

frictional surfaces of the clutch would accept. The load shaft operates a load chain having a limit member that strikes a stop surface on the hoist frame to limit lowering movement of the hoist. The hoist stress that is due to the small amount of lowering torque, when added to the considerable stress that may be due to a load when the chain limit member strikes the stop surface of the hoist, will be insufficient to overstress parts of the hoist.

3,741,528
CABLE GUARD FOR RATCHET LEVER DRUM PULLER
Anthony G. Profet, 4212 Oldfield Road, Charlotte, N.C.
Division of Ser. No. 2,895, Jan. 14, 1970. This application
Jan. 3, 1972, Ser. No. 215,232
Int. Cl. B66d 1/00

U.S. Cl. 254-190 R

1 Claim

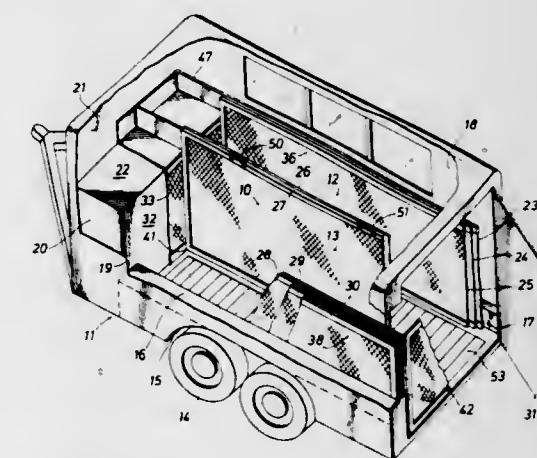


A cable guard is provided for use in connection with a Ratchet Lever Drum Puller having a ratchet toothed wheel integrally cast with the drum, and having a reverse ring construction. The cable guard is provided from a single sheet of material which also assists in preserving the helical wind of the cable, and the cable guard cooperates with a cable guide to assist in securing the former, and to deter improper positioning of the dead end hook on the cable guide.

3,741,529
TRAILER-BORNE HORSE CORRAL
Leon Blagg, Flying X Ranch P.O. Drawer H, Bertram, Tex.
Filed June 6, 1972, Ser. No. 260,217
Int. Cl. E04b 17/18

U.S. Cl. 256-26

21 Claims



In the representative embodiment of the present invention disclosed herein, a uniquely-arranged corral is formed of a plurality of pivotally-intercoupled upright panels which are adapted to be folded together into a compact assembly. In this manner, when the assembly is placed in a typical horse trailer,

the trailer interior is appropriately divided into two side-by-side stalls of a comfortable size. On the other hand, when the assembly is unloaded from the trailer, its unique self-supporting arrangement allows the several panels to be easily extended for providing a sturdy, well-proportioned, divided corral of about five times the area occupied by the folded assembly within the trailer.

3,741,530

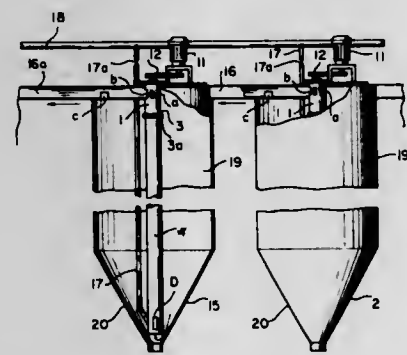
APPARATUS FOR STIRRING AND TRANSPORTING SLURRIES

Constantin C. Stefanoiu, Oradea, Romania, assignor to Uzina De Alumina Oradea, Soseaua Borsului Kn., Romania
Filed Oct. 26, 1971, Ser. No. 192,629

Claims priority, application Romania, Oct. 23, 1970, 64770
Int. Cl. B01f 7/24, 15/02

U.S. Cl. 259—67

6 Claims



Apparatus for stirring and transporting slurries in vessels of great volume used, for example, in the alumina industry. The apparatus of the invention is adapted to replace, with greater economic efficiency, the generally previously-used pneumatic system for the stirring and transportation of slurries. The present apparatus uses a tube centrally placed in the vessel; a turbine pump driven, for example, by an electric motor, is mounted in the tube. The turbine pump raises the slurry to the level of some apertures or windows in the tube. The thus-raised slurry overflows through the windows to fall partly into the same vessel and partly into a conduit for transportation out of such vessel. The conduit has windows through which the level of the slurry is maintained constant in the vessel. The device provides an intensive stirring and the transportation of the slurry independent of the density of the slurry, with a much lower power consumption as compared to pneumatic stirring. Such intensive stirring eliminates the encrustation on the bottom of the vessels and on the side walls of the receiver. The system of the invention also ensures the perfect vertical homogenization of the slurry, eliminating at the same time foaming and the eventual chemical reactions between the components of the slurry and those of air, and the consequent breaking down of the solid phase of the slurry.

3,741,531

CENTRIFUGAL SUSPENSION PUMP

Igor Jurievich Chaplygin, ulitsa Vernosti, 13, kv. 157; Dmitry Nikolaevich Mitjushin, ulitsa Varvarinskaya, 30, kv. 1; Dmitry Petrovich Zapolnov, Antonovsky pereulok, 13, kv. 51; Natalia Nikolaevna Karamzina, Piskarevsky Prospekt, 16, kv. 290; Valentina Grigorievna Lebedeva, ulitsa Khatulina, 19, kv. 10, and Irina Mikhailovna Lomagina, ulitsa Glinki 2, kv. 32, all of Leningrad, U.S.S.R.

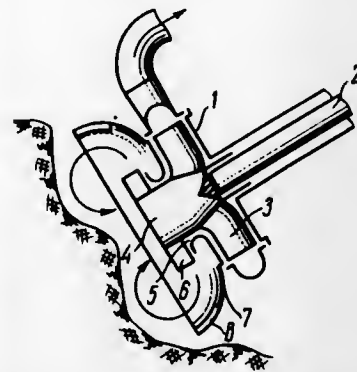
Filed July 13, 1971, Ser. No. 162,204
Int. Cl. B01f 5/16; F04d 1/0

U.S. Cl. 259—96

3 Claims

The invention relates to the pump for handling suspensions and forming them concurrently the main distinctive feature of this pump being additional vanes installed on the impeller and intended to bring solid particles to a suspended state, said

vanes being arranged radially around the suction opening of the pump. Such a design ensures a strong turbulent flow which is concentrated in the suction zone and which provides for an



3,741,532

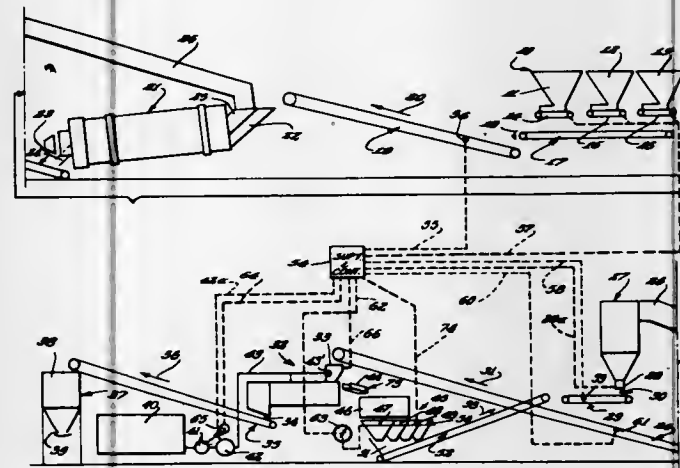
PROPORTIONING CONTROL SYSTEM FOR AN ASPHALT PLANT

Robert E. Farnham, Naperville; Fredric W. Prill; Donald W. Smith, both of Aurora, and James L. Plociennik, North Aurora, all of Ill., assignors to Barber-Greene Company, Aurora, Ill.

Division of Ser. No. 856,007, Sept. 8, 1969, Pat. No. 3,625,488. This application Mar. 26, 1971, Ser. No. 128,586
Int. Cl. B28c 7/04

U.S. Cl. 259—149

7 Claims



An asphalt plant employs a supervisory control system including weighing apparatus at different plant stations for signaling weights of flowing material in the plant for controlling the amount of material and bitumen flow. Continuous supervision and control of asphalt production enables optimum operation of an asphalt plant utilizing fewer components of production equipment than found in conventional asphalt plants.

3,741,533

MIXING APPARATUS

Fred M. Winn, Jr., Tulsa, Okla., assignor to The Dow Chemical Company, Midland, Mich.

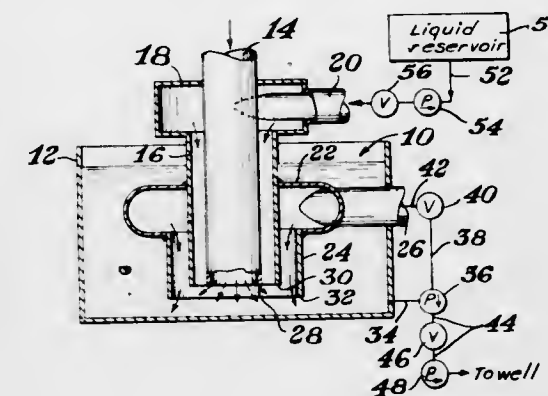
Filed Oct. 14, 1971, Ser. No. 189,247
Int. Cl. B01f 5/12, 15/02

U.S. Cl. 259—4

6 Claims

This invention relates to apparatus for continuously mixing dry bulk material with a liquid to form a slurry. The apparatus provides for the dry material to be added to the liquid for initial wetting of the dry material. The wetted material is then directed against a baffle from which it is deflected into a reser-

voir. The slurry thus formed is circulated by a suitable pump from the reservoir through a system of piping back into a shroud enveloping the initial wetting device, and is discharged with a rotary motion back into the reservoir. Centrifugal force resulting from rotary motion of the slurry prevents material from splashing back into the dry material delivery tube.



In the initial wetting stage of the system, the liquid is formed into a hollow cylindrical pattern within and more or less concentric with the circulating slurry which has also been shaped into a hollow cylindrical pattern, revolving helically as it exits into the reservoir. The dry material is introduced into the hollow center of the liquid cylinder, and therefore must pass through the liquid before exiting into the reservoir.

ERRATA

For Classes 261—078, 261—140, and
266—23 thru 269—96 see:
Patents Nos. 3,741,551, 3,741,552 and
3,741,555 thru 3,741,563

3,741,534

CONTROL DEVICE FOR GUIDE MOTION REVERSAL AND THE REGULATION OF TRAVELLING SPEED OF MACHINES AND ESPECIALLY FABRIC FOLDING MACHINES

Gunter Stumpf, Hohenweg 13, Kries Munsingen, 7421 Mehrstetten, Germany

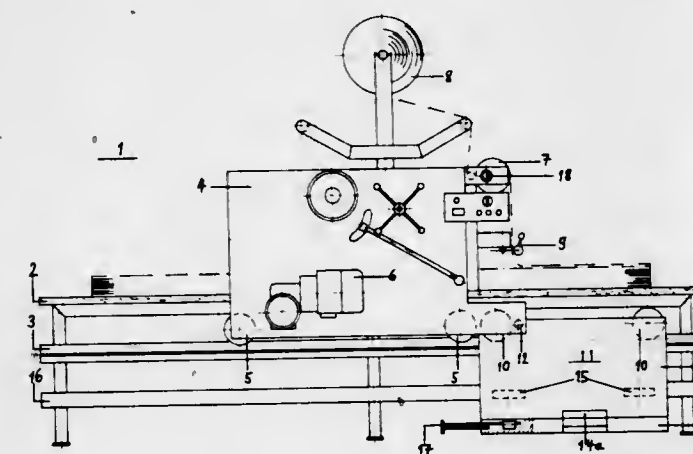
Continuation of Ser. No. 889,620, Dec. 31, 1969, abandoned.
This application Oct. 28, 1971, Ser. No. 193,309

Claims priority, application Germany, Nov. 7, 1969, P 19 56 216.4

Int. Cl. B65h 29/46

U.S. Cl. 270—31

9 Claims



To control a carriage of a machine such as a fabric folding machine, a handle or knob is provided to rotate a member accommodated within the same. This member has a circumferential groove in which are accommodated the levers of switches controlling the direction of rotation of a motor which drives the carriage. A gear train driven by said member controls a potentiometer which controls the speed of the motor.

3,741,535

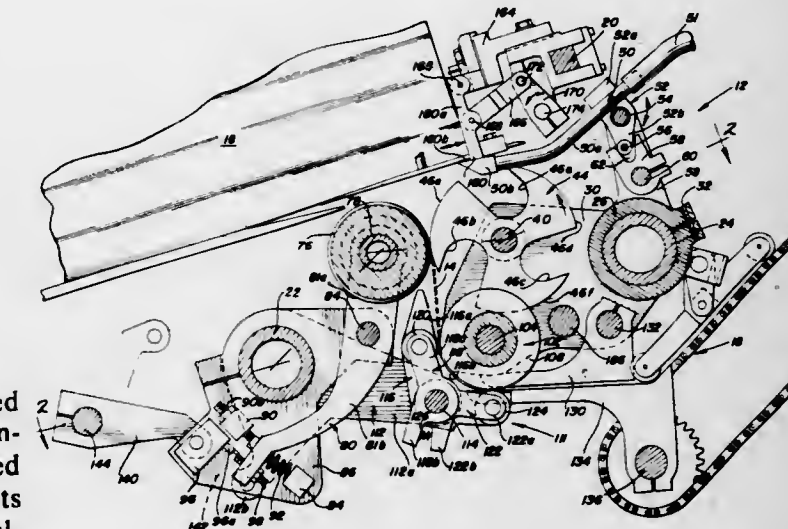
SHEET STOCK FEEDING MECHANISM

Victor Palkovic, Westchester, and Harry F. Semple, Des Plaines, both of Ill., assignors to Garden City Envelope Company, Chicago, Ill.

Filed May 17, 1971, Ser. No. 144,195
Int. Cl. B65h 3/08

U.S. Cl. 271—101

15 Claims



The described apparatus feeds sheet stock such as envelope blanks from the bottom of a supply stack into a transporting conveyor such as the conveyor for an envelope-converting machine. The apparatus includes a pair of transverse load-supporting members. A segment feed roll is mounted on a drive shaft which is journaled in a first bearing member affixed to one of the supporting members. A pinch feed roll is disposed adjacent the segment feed roll to form a nip through which the sheet stock may be drawn. The pinch roll has a drive shaft journaled in a second bearing member which is resiliently mounted on the other of the transverse supporting members, and this drive shaft is driven through a universal coupling.

3,741,536

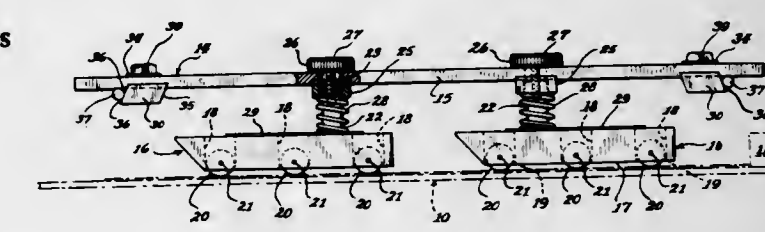
REGISTER BAR FOR PRINTING PRESS SHEET CONVEYORS

Eugene A. Anderson, 414 W. Taylor Road, Lombard, Ill.

Filed July 13, 1971, Ser. No. 162,220
Int. Cl. B65h 9/00

U.S. Cl. 271—48

7 Claims



A ball support for printing press conveyors. The support has quick attaching facilities with adjustment features allowing precise location of balls relative to register stops while allowing adjustment of the height of the ball support above the paper being fed to the register stops.

3,741,537

APPARATUS FOR FEEDING THE PILE BOARD OF A SHEET SEPARATING DEVICE

Werner Lange, Berlin, Germany, assignor to Veb Pentacon Dresden Kamera-und Kinowerke, Dresden, Germany

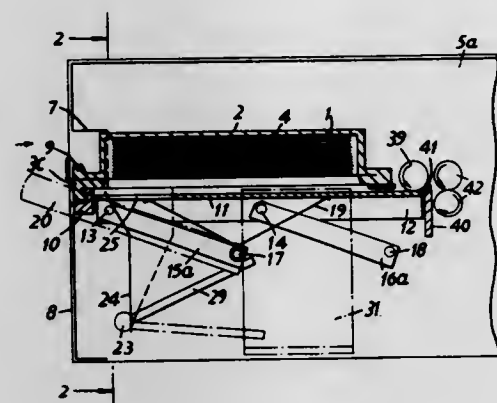
Filed July 16, 1971, Ser. No. 163,339
Int. Cl. B65h 1/00

U.S. Cl. 271—61

13 Claims

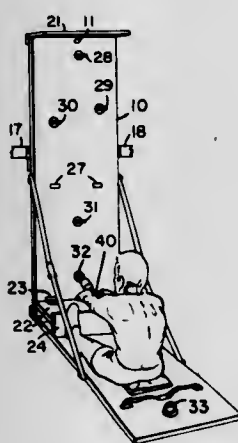
A photo-copying apparatus has a housing containing a stack receiving platform, means for separating and feeding sheets

from a stack on the platform and a replaceable cassette. An aperture in the housing adjacent the platform enables the cassette to be inserted. Guides for supporting the cassette above the platform are provided which cassette has a withdrawable



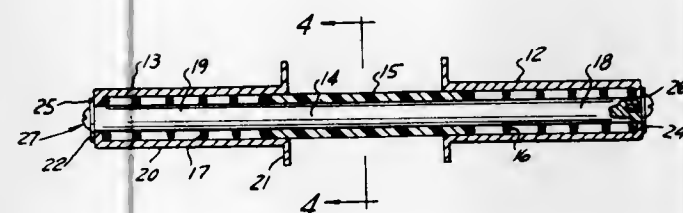
stack supporting slide which seals the cassette against entry of light. Means are provided for sealing the housing against light entry when the cassette is inserted. A stack of sheets in a cassette in the housing can be transferred to the platform by withdrawal of the slide.

3,741,538
FRICTION TYPE EXERCISING DEVICE MOUNTED ON A COLLAPSIBLE STRUCTURE
Fred Lewis, El Dorado Hills, and Ronald E. Useldinger, San Jose, both of Calif., assignors to Ronald E. Useldinger, San Jose, Calif.
Filed Mar. 22, 1971, Ser. No. 126,679
Int. Cl. A63b 21/00, 21/20, 21/10
U.S. Cl. 272-58 1 Claim



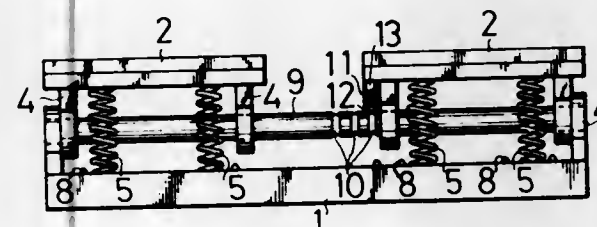
Collapsible physical exercising apparatus that may be folded into a compact unit when not in use. This apparatus is provided with a vertical panel having means for detachably attaching a friction-type cord gripping device thereto. Said device is provided with a device having a variable frictional resistance developed by a cord wrapped around a shaft and having a handle that is gripped by the operator in performing various physical exercises. This apparatus is also provided with a short panel and a long horizontal panel which are pivotally attached to the bottom part of the vertical panel. The long panel is provided with a pad upon which the operator rests during the performance of other physical exercises such as exercises simulating the rowing of a boat and the pedaling of a bicycle and the short panel functions as a foot brace during the rowing exercise.

3,741,539
SPRING RESISTANT TYPE OF EXERCISING DEVICE
Teresa E. Hutchins, and Robert L. Hutchins, both of 302 North McKinley, Flushing, Mich.
Filed July 1, 1971, Ser. No. 158,673
Int. Cl. A63b 21/00
U.S. Cl. 272-83 R 1 Claim



An exercising device for the exercise and development of arm, chest and shoulder muscles having a compression spring between two handles which are grasped and pushed toward each other thereby causing the user's muscles to work against the force of the spring.

3,741,540
NETHER LIMBS TRAINING IMPLEMENT
Yasuhiro Shimizu, No. 1072 Shimoishihara, Chofu-shi, Tokyo, Japan
Filed Jan. 3, 1972, Ser. No. 214,558
Claims priority, application Japan, Oct. 25, 1971, 46/98103;
Oct. 25, 1971, 46/98102
Int. Cl. A63b 23/04
U.S. Cl. 272-83 R 1 Claim

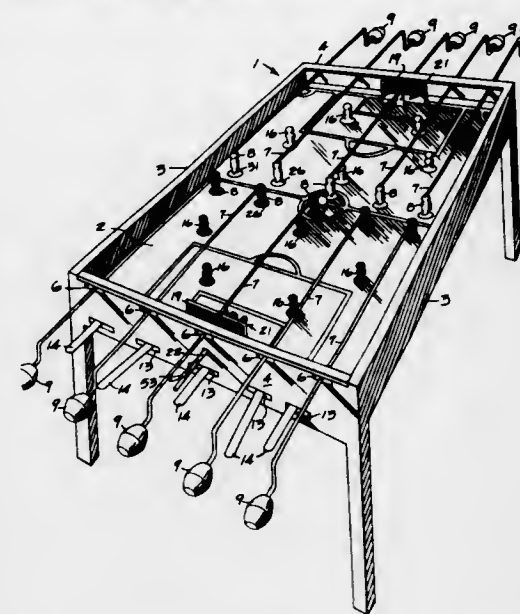


A nether limbs training implement having footboards having formed on its surface a plurality of protuberances, the footboard being jointed to a base block so that the footboard is swingable upwards. Springs are disposed between the footboard and base block to provide a force acting to push up one side of each of the footboards. One footboard has a spring mounted underneath that forces a steel ball into grooves on the shaft supporting the footboards.

3,741,541
SIMULATED TABLE FOOTBALL GAME
Nerino Crismani, 1250 Francisco Street, San Francisco, Calif.
Filed Oct. 20, 1971, Ser. No. 190,920
Int. Cl. A63f 7/06
U.S. Cl. 273-85 H 6 Claims

A plurality of figures simulating football players are manipulated on a table freely into various positions by tubular handles which extend beyond the respective ends of the table and are guided in elongated slots; each tubular handle has a resilient squeeze bulb adapted to be gripped for suitable manipulation of the respective playing figure and, when the ball is adjacent to a figure, by squeezing the bulb air is blown through a nozzle against a plate simulating kicking feet, which swings the feet against the ball so that the ball appears to be kicked by the player. Other figures, corresponding to defensive players on each team, are manipulated through handle

bars extended beneath the table with magnets at their inner ends adjacent the magnetic bottoms of the respective defen-



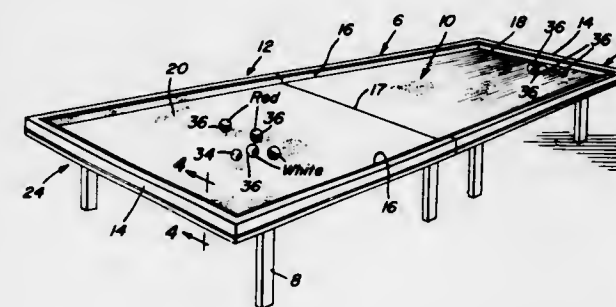
sive figures; in addition a goalie figure at each end is provided with a manipulator for moving hand-like members to grip the ball.

3,741,542
ARROWHEAD WITH REMOVABLE BLADES
Richard S. Karbo, Whittier, Calif., assignor to Brunswick Corporation, Chicago, Ill.
Filed Feb. 11, 1971, Ser. No. 114,586
Int. Cl. F41b 5/02
U.S. Cl. 273-106.5 B 3 Claims



A readily disassemblable hunting arrowhead including a first blade engaged in a slot communicating with the front end of the collet and a second blade, orthogonal to the first, engaged in a second slot communicating with the rear end of the collet. Rearwardly and inwardly extending portions of the blades form wedge shaped elements which are engaged and wedged onto the collet by a beveled ferrule threaded onto the rear of the collet. There is a windsplit attached to the collet in front of each side edge portion of the second blade.

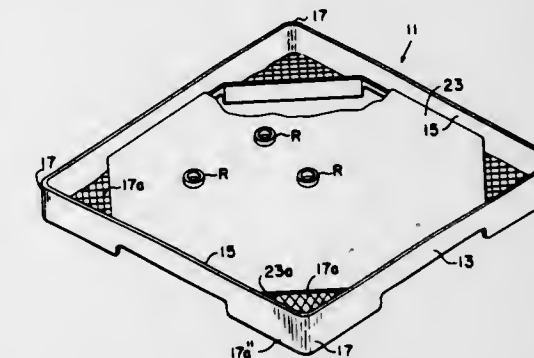
3,741,543
TABLE GAME WITH TARGET BALL AND SPHEROIDAL CURLING BOWLS
William B. McPhail, and Hazel M. McPhail, both of 14637 Evanston, Detroit, Mich.
Filed Sept. 28, 1970, Ser. No. 75,831
Int. Cl. A63d 3/00
U.S. Cl. 273-118 R 1 Claim



A projectile-type game device for indoor and outdoor use characterized by an elevated table having a planar carpet-

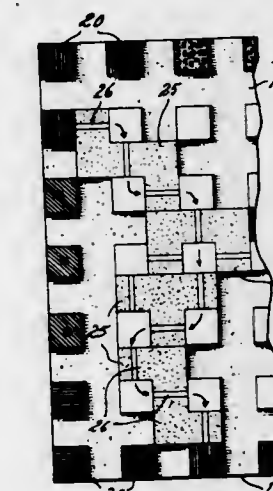
covered playing surface marginally encompassed by cushioned rails. A centralized transverse marker line divides the surface into a starting field which is located at the head of the table and a scoring field at the foot. A freely rotatable target ball provides a jack. A plurality of manually manipulable curling bowls are provided and are adapted to be slid, spun and delivered into the scoring field in a manner that they will come to a stop in a position as close as possible to the target ball. The peripheral surface of each curling bowl is provided with a concave recess forming a seat for a user's thumb and tip of the index finger and a flattened surface portion located diametrically opposite the recess. The player or contestant whose bowls are closest to the jack will count one for each close-up position. Play is continued until a predetermined score is made.

3,741,544
SURFACE PROJECTILE GAME APPARATUS HAVING REMOVABLE AND REVERSABLE GAME-PLAYING PANEL
Norman C. Wolff, Jr., Clayton, Mo., assignor to Affiliated Hospital Products, Inc., St. Louis, Mo.
Filed Feb. 20, 1970, Ser. No. 12,949
Int. Cl. A63f 3/00
U.S. Cl. 273-126 R 8 Claims



A game assembly having a frame unit with corner pockets, and a removable and reversible playing surface panel. The corner pockets may be rigid or flexible, and if rigid such may serve as feet for the frame unit. A plurality of discs or rollable objects, such as balls, may be employed in playing various games.

3,741,545
BOARD GAME CONSTRUCTION
Joseph A. Weisbecker, 1220 Wayne Avenue, Erlton, Cherry Hill, N.J.
Filed Oct. 13, 1971, Ser. No. 188,864
Int. Cl. A63f 3/00
U.S. Cl. 273-131 B 7 Claims



A game board wherein a plurality of spaced areas are provided on a background, which spaced areas are marked dif-

ferently from the background, and a plurality of separate elements are removably located on the background between selected areas, the separate elements being marked to visually blend with the background and also to present visual connections between the spaced areas.

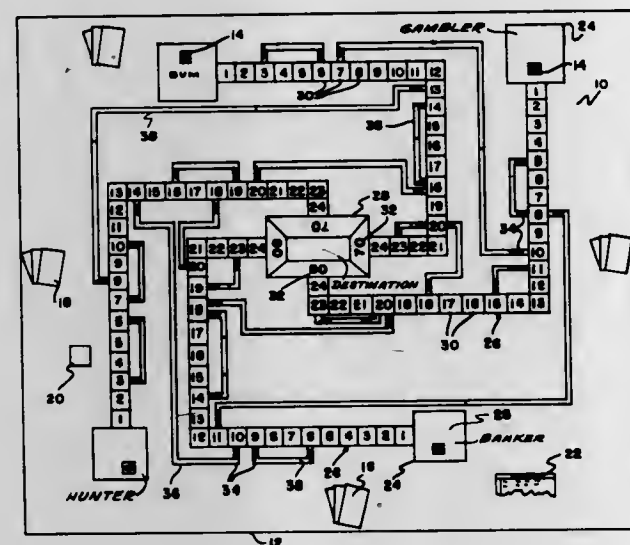
3,741,546

BOARD GAME APPARATUS

Chi-Sin Chen, 2513 Rice, Ponca City, Okla.
Filed Jan. 28, 1971, Ser. No. 110,400
Int. Cl. A63f 3/00

U.S. Cl. 273—134 AD

2 Claims



A game structure utilizing a main game board member, a plurality of game player pieces, a stack of bonus cards, a plurality of score sheets, and a rule booklet, wherein the game simulates one's real life. The game board has a plurality of starting positions interconnected by selectable pathways to a main winning or central destination goal. The selectable pathways comprise main individual pathways, equal in number to the number of starting positions, and each leading directly to the destination goal, together with alternate pathways, some of which by-pass consecutive spaces in the main individual pathways, and others of which lead from one main individual pathway to another. The plurality of main individual pathways are divided into an equal number of spaces between their respective starting positions and the common destination goal. The spaces along the main individual pathways are adapted to each and all be covered by individual cards, each of such cards bearing indicia stating either a number of steps to be taken or a score to be acquired, such cards being referred to hereinafter as "instruction" cards, or as a movement— or scoring—directing cards.

3,741,547

CHESS GAME APPARATUS

George Zurek, 300 North Euclid Avenue, Apt. 208, Pasadena, Calif.

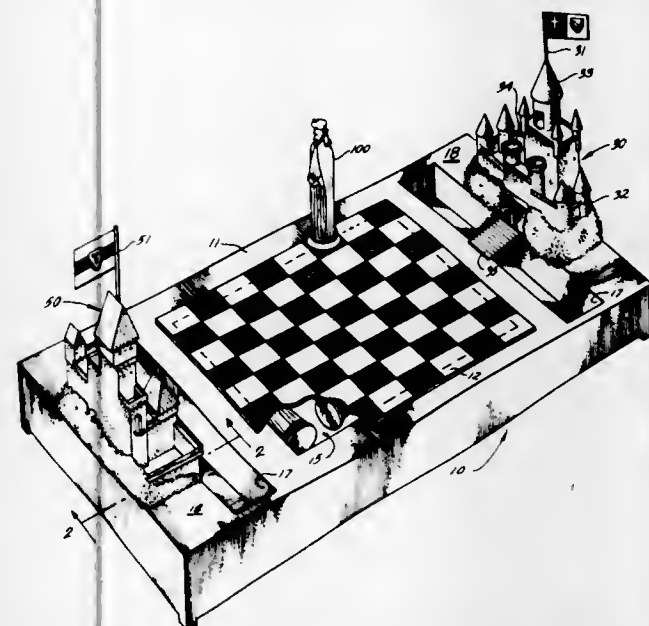
Filed Nov. 12, 1971, Ser. No. 198,141
Int. Cl. A63f 3/02

U.S. Cl. 273—136 B

6 Claims

A game board apparatus is disclosed which is particularly adapted to stimulate interest in the game of chess. A chess board and two model castles are supported by a base having

moat-like trenches adjacent opposite marginal edges of the chess board. Each model castle is disposed at a respective



playing end of the base and separated from the chess board by the adjacent moat. Each has a pivotally mounted drawbridge extendible across its adjacent moat.

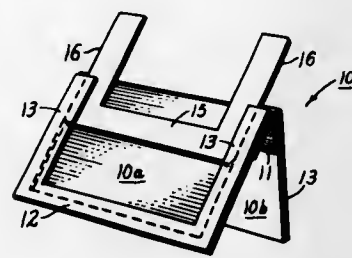
3,741,548

JIG-SAW PUZZLE BOARD WITH FRAMING INSERTS HAVING VARIOUSLY SHAPED OPENINGS

Donald H. Kaupp, 162 West 54th Street, New York, N.Y.
Filed May 10, 1972, Ser. No. 251,902
Int. Cl. A63f 9/10

U.S. Cl. 273—157 R

4 Claims



A board for holding jig-saw puzzles having inserts shaped to conform to various sizes and shapes of puzzle. The inserts are slidable in the channels in the board and, when in place, have central openings conforming to contour of the puzzle to be assembled.

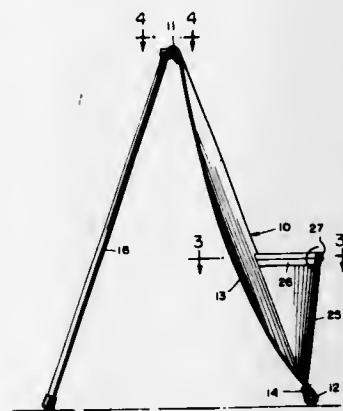
3,741,549

GOLF TARGET

Frank Wilson, Box 102, Grayslake, Ill.
Filed July 28, 1971, Ser. No. 166,920
Int. Cl. A63b 69/36

U.S. Cl. 273—181 A

5 Claims



A golf ball target structure for practicing chip shots and the like has a flexible target area, made of canvas or similar

material and a pocket attached to the lower part of the structure for receiving and collecting golf balls after striking the target area. The upper edge of the pocket is supported by an elongated, flexible and resilient stiffening member which is maintained in a flexed condition for holding the pocket spaced forwardly from the target area. The stiffening member is removable and may be stored in a flattened condition. The flexible target area is supported by a frame generally in the shape of a circle having a flattened chordal section, which permits the target to be rolled from one location to another. A pivoted leg connected to the upper edge of the frame permits the inclination of the target to be varied.

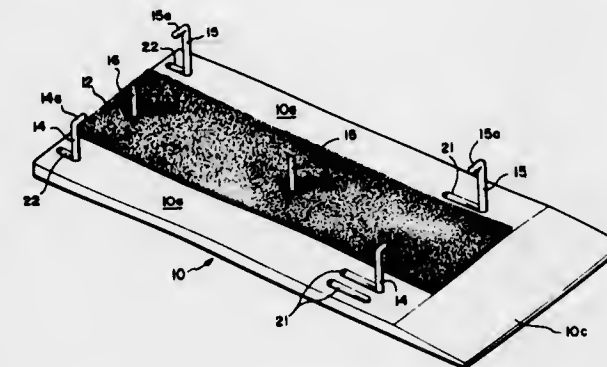
3,741,550

DEVICE FOR MONITORING GOLF PRACTICE SWINGS

John Landures, Salt Lake City, Utah, assignor to Dynasty Oil and Minerals Corporation, Salt Lake City, Utah
Filed Dec. 3, 1971, Ser. No. 204,596
Int. Cl. A63b 69/36

U.S. Cl. 273—186 R

6 Claims



A device for monitoring golf swings during practice with a golf club utilizes knock-down pegs pivotally mounted in a practice pad in mutually spaced relationship along a strip of artificial turf. Each peg has a preferably integral foot formed as a transverse pivot pin and rotatably received by a journal recess formed in the underside of the practice pad, the normally upright portion of the peg extending upwardly through the practice pad to be knocked down if and when hit during a practice swing. The practice pad is molded from a flexible resilient material to provide integral detents bordering the recesses. These yield to permit insertion of the pegs from the underside of the pad and serve to retain the pegs in operative position once inserted.

3,741,551

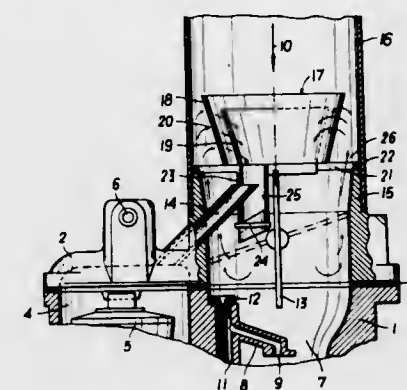
CARBURETORS FOR INTERNAL COMBUSTION ENGINES

Georg Hammerschmied, Schanzelgasse 4, A8010 Graz, Austria

Filed June 10, 1971, Ser. No. 151,714
Int. Cl. F02m 29/04

U.S. Cl. 261—78 R

14 Claims



A carburetor for internal combustion engines, wherein for the purpose of improving the fuel-and-air mixture a hollow

body open in the direction of the suction port axis and having apertures on the peripheral surface is provided in the suction port in front of the fuel outlet, a fuel-and-air-mixture current thereby forming around said hollow body in opposition to the main current in the suction port.

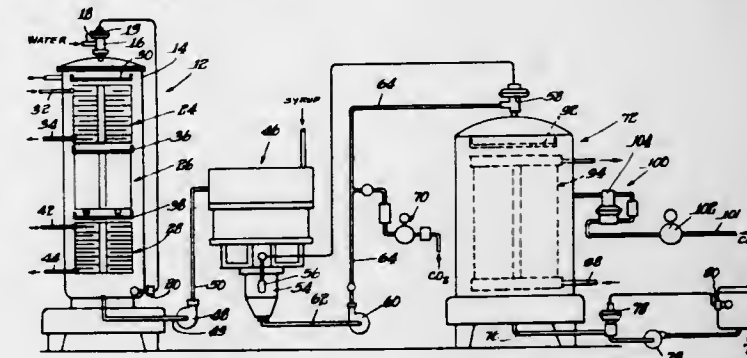
3,741,552

SYSTEM AND METHOD FOR CARBONATING BEVERAGES

Sigmund P. Skoli; Chester J. Witt, and Harry G. Mojonier, all of 4601 W. Ohio St., Chicago, Ill.
Filed Mar. 24, 1969, Ser. No. 809,661
Int. Cl. B01f 3/04

U.S. Cl. 261—140

25 Claims



A method and a system for carbonating a liquid product. The improved method attainable with the instant system provides a multi-stage carbonation procedure which achieves more accurate and more dependable control of the degree of carbonation of the final product. A primary carbonation process is utilized to pre-carbonate the liquid product prior to a final carbonating procedure which is capable of providing a uniformly carbonated, stable product. The primary carbonating step is effective to pre-condition the product prior to the secondary carbonating procedure, such that control of the end product may be achieved by adjustment in the primary carbonation process. The primary and secondary carbonation processes are isolated, one from the other, such that primary carbonation may take place at substantially constant pressure, unaffected by any pressure variations that might occur in the secondary treatment.

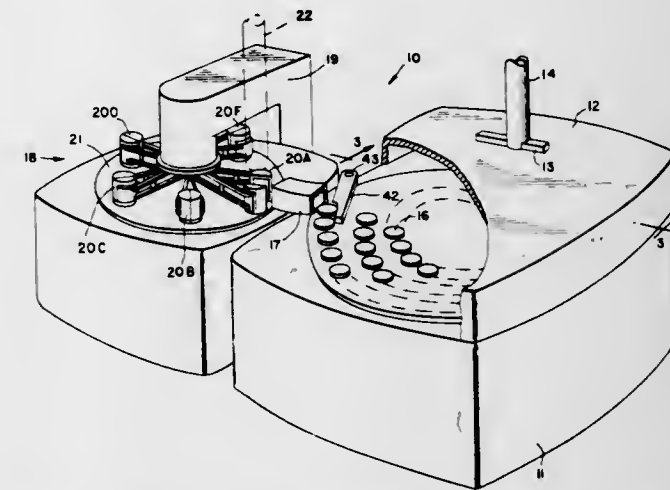
3,741,553

METHOD AND APPARATUS FOR FORMING CONTAINERS BY BLOW-MOLDING

Lawrence A. Moore, King of Prussia, Pa., assignor to Beloit Corporation, Beloit, Wis.
Division of Ser. No. 52,812, July 7, 1970, Pat. No. 3,661,489.
This application Nov. 26, 1971, Ser. No. 202,699
Int. Cl. F27b 9/16

U.S. Cl. 432—11

9 Claims



Preforms preferably of a suitable plastic material, are heated and then placed into a container mold where they are

formed into containers. The applicable heating oven depends on the shape of the preform when it is heated. A rotary oven with an outwardly spiralling path may be used for flat or partially reshaped preforms. An elongated oven may be used for heating an elongated strip, from which flat preforms are cut after heating. The container mold assembly is constituted by a plurality of individual molds, all rotatable together about an axis of the container mold assembly, the individual molds arriving successively at a loading station for receiving heated preforms.

3,741,554

LEHR HEATING SECTION

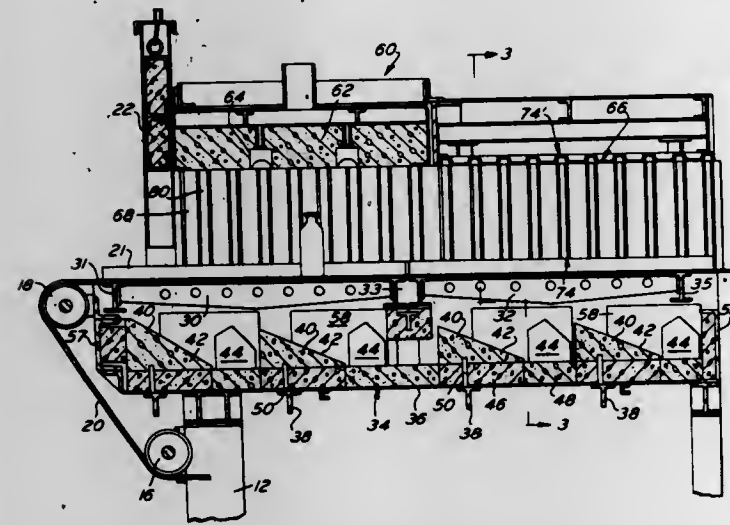
Willard Clark, Farmland, Ind., assignor to Maul Bros., Inc., Millville, N.J.

Filed May 17, 1971, Ser. No. 144,184

Int. Cl. F27b 9/24

U.S. Cl. 432-146

9 Claims



A lehr heating section for heat treating glass is disclosed. The tunnel walls have an irregular surface to cause turbulence in air convection currents and to provide for heat expansion. The burner section uses refractory blocks orientated by pins and recesses so as to avoid the use of mortar.

3,741,555

CONTROL APPARATUS AND METHOD FOR METALWORKING TOOLS

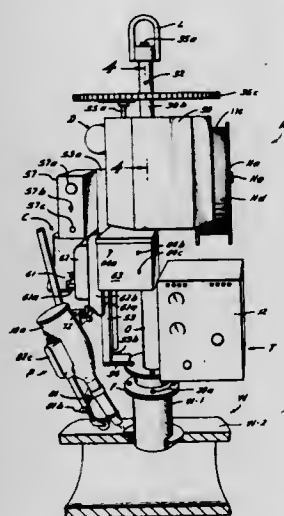
Vernon H. Roesel, Route No. 1-Box 131M, Cypress, Tex.

Filed Dec. 22, 1970, Ser. No. 100,573

Int. Cl. B23k 7/04

U.S. Cl. 266-23 M

10 Claims



An apparatus and method provided for controlling the position of a metal working tool, such as a welding head or torch or a cutting head or torch, with respect to the work pieces being joined or separated by the metal working tool.

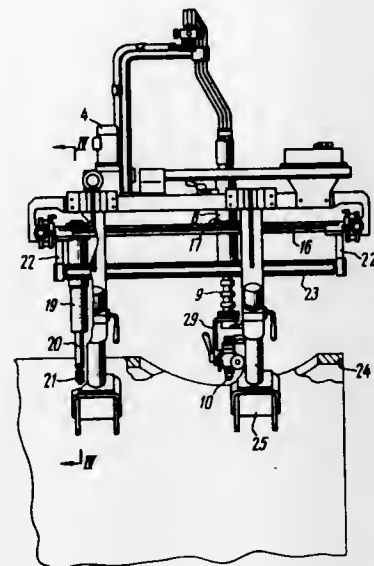
3,741,556
DEVICE FOR CUTTING OUT ROUND HOLES IN CYLINDRICAL AND OVAL PARTS AND STRUCTURES
Alexandr Il'ich Remensnikov, prospekt Lenia, 179, kv. 114; Viktor Mikhailovich Vasiliev, ulitsa Myasnikova 12, kv. 73, both of Volgograd, and Robert Ashotovitch Shiganov, ulitsa Uzeir Gadzhibekov 66, kv. 6, Baku, all of U.S.S.R.

Filed July 9, 1971, Ser. No. 161,095

Int. Cl. B23k 7/04

U.S. Cl. 266-23 N

1 Claim



The rod carrying the cutter moves vertically in the device in accordance with the vertical motions of the bar of the appliance which profiles the surface machined by the cutter because said rod and bar are kinematically linked by a splined rod.

3,741,557

APPARATUS FOR CONTROL OF CARBON CONTENT IN STEEL PRODUCED IN BASIC OXYGEN FURNACE PROCESS

Samuel S. Harbaugh, Natrona Heights, and Perry M. Rockwell, Glenshaw, both of Pa., assignors to Allegheny Ludlum Steel Corporation, Brackenridge, Pa.

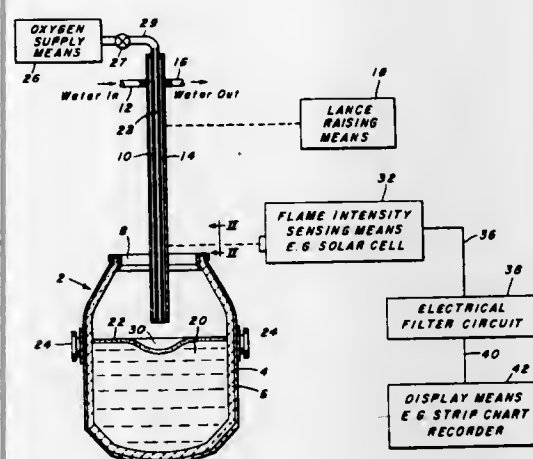
Continuation of Ser. No. 689,127, Dec. 8, 1967, abandoned.

This application Aug. 13, 1970, Ser. No. 63,650

Int. Cl. C21c 5/32

U.S. Cl. 266-35

7 Claims



This patent discloses an improvement in a basic oxygen furnace steelmaking process in accordance with which steel of desired carbon content is produced by observing the intensity of the flame at the mouth of the steelmaking vessel and controlling the supply of oxygen to the vessel in accordance with the above-mentioned observations. The control action taken as a result of the observations may be quite simple, e.g., ter-

mination of oxygen supply, or somewhat more complex, e.g., adjustment of lance position or oxygen-supply rate. As desired or needed, equipment of greater sophistication such as digital-computer means may be used to analyze the observations and determine the time of taking the necessary control action.

3,741,558

DEVICE FOR SECURING AND TENSIONING COILED SPRINGS

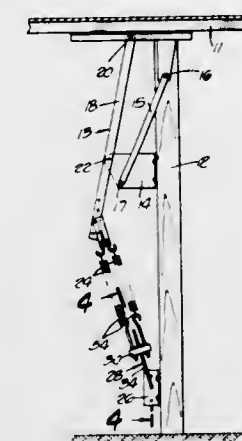
John Ochs, 2923 Yerrling Street, Lakewood, Calif.

Filed Oct. 26, 1971, Ser. No. 192,444

Int. Cl. F16f 1/26

U.S. Cl. 267-73

4 Claims



A device for securing and tensioning garage door springs in place including a cross-bar member, a downwardly extending rod threadably connected at one end to the cross-bar member and having a hook at the other end adapted to engage an anchor bracket, a pair of spaced upwardly extending threaded rods which protrude through apertures in the cross-bar and have hooked upper ends adapted to be connected to the springs, and nuts on each of the lower ends of said threaded rods adapted to engage the lower face of the cross-bar so that the threaded rods may be axially adjusted relative to the cross-bar.

3,741,559

OSCILLATORY MOTION COUPLER

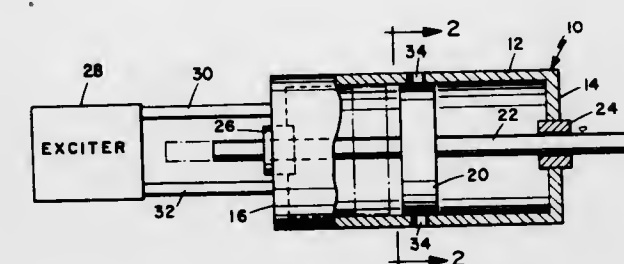
Frederick W. Ross, 755 Klamath Drive, Del Mar, Calif.

Filed Dec. 7, 1970, Ser. No. 95,525

Int. Cl. F16f 9/18

U.S. Cl. 267-124

22 Claims



A oscillatory motion coupler which when excited in oscillation transfers oscillatory motion induced in a cylinder to a piston free to oscillate within that cylinder. When excited at the natural frequency of the coupler the oscillatory motion can be amplified. The piston includes a piston rod to transfer the force on said piston to the exterior of the cylinder. Associated with the cylinder are passive pneumatic passages which offset the natural tendency of the piston oscillation center to move from its original location to one end of the cylinder or the other. The passages maintain the center of oscillation within the confines of the cylinders so as to prevent impact of the piston against either end thereof.

3,741,560

DAMPENED SHOCK ABSORBING BUMPER

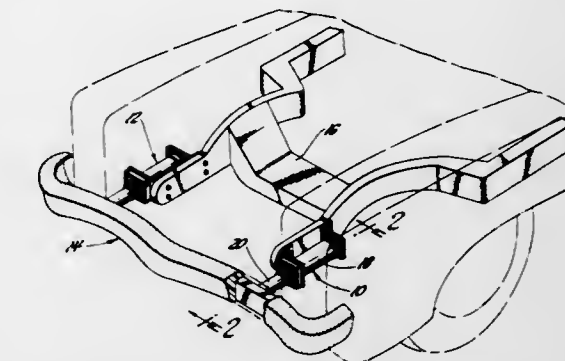
Albert L. Schaller, Clarkston, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 1, 1971, Ser. No. 176,830

Int. Cl. B60r 19/02; B61f 19/04; F16f 7/08

U.S. Cl. 267-134

3 Claims



An impact energy absorbing device includes a cylinder, a generally cup-shaped friction shoe slidable in the cylinder, a ram received in one end of the cylinder and having a bullet-shaped nose which is slidably received in the cup-shaped friction shoe, an elastomeric material filling a space between the bullet-shaped nose and the friction shoe, and spring means acting between the friction shoe and the other end of the cylinder to yieldably resist telescoping movement of the ram and friction shoe into the cylinder upon application of impact force thereto so that the friction shoe is radially expanded against the cylinder by radial displacement of the elastomeric material.

3,741,561

ROOF BOW APPARATUS

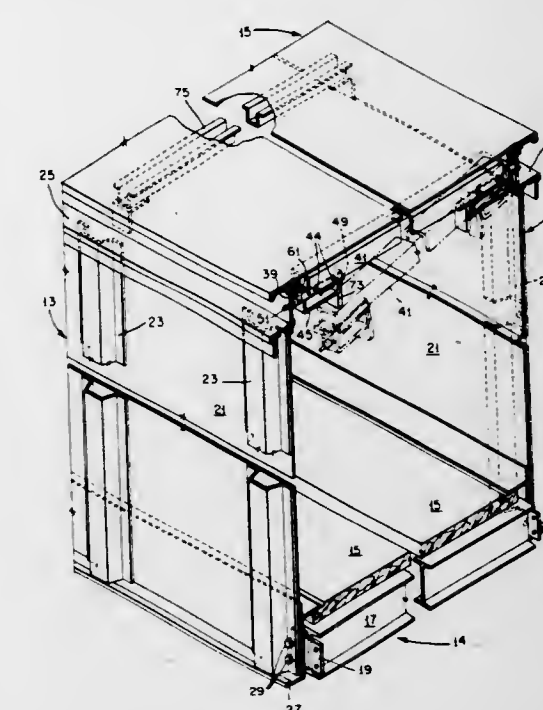
Robert B. Reidenbach, Exton, Pa., assignor to Gindy Manufacturing Corporation, Downingtown, Pa.

Filed July 7, 1971, Ser. No. 160,389

Int. Cl. B25b 5/16

U.S. Cl. 269-43

4 Claims



Temporary roof bow apparatus for a trailer comprising first and second resiliently actuatable pin latching mechanisms affixed at opposite ends of a transverse member. Each mechanism includes a tongue member which coacts with a groove portion of a longitudinally extending roof rail of an upstanding sidewall of the trailer. Spring biased latching pin means are engageable in longitudinally spaced apertures in the

side roof rail to retain the bow in place thereby positioning the opposed sidewalls of the trailer body in spaced relationship to one another. Upon pretacking a roof skin across the sidewalls at a next assembly station permanent roof bows of longer length are substituted for the temporary roof bows.

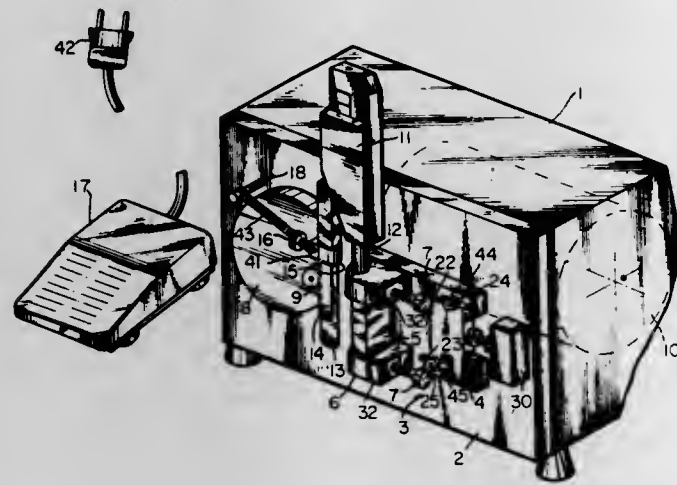
3,741,562

APPARATUS FOR THE OPERATION OF A TOOL
Alois Ruppert Resch, Heilbronn, Germany, assignor to The Bunker-Ramo Corporation, Oak Brook, Ill.
Filed Mar. 26, 1971, Ser. No. 128,462
Claims priority, application Germany, Apr. 24, 1970, P 20 076.4

Int. Cl. B25b 1/18, 7/16

U.S. Cl. 269-96

5 Claims



This invention relates to an apparatus for holding a tool and mechanically operating the tool. The apparatus comprises a clamp which holds the tool and which is adjustably mounted on a plate. The plate is adjustably mounted to the surface of a support frame. A thrust means is also mounted to the frame for applying thrust to a portion of the tool, the thrust means being controllable by a control means which may be in the form of a foot switch. Movement of the thrust means operates the tool.

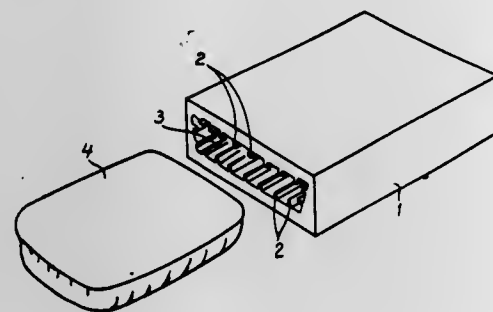
3,741,563

APPARATUS FOR HEAT TREATING PACKAGED PRODUCTS

Lennart Arvid Stenstrom, Huddinge, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden
Filed Mar. 30, 1970, Ser. No. 23,620
Int. Cl. B23q 3/00

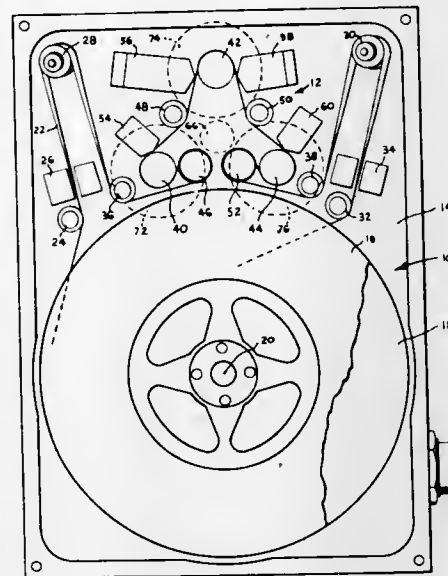
U.S. Cl. 269-287

6 Claims



A product tightly enclosed in a flexible package is subjected to heat treatment in a heat-inducing field while supported by a device comprising a plurality of flanges closely spaced from each other and lying close to the package so as to prevent its destruction due to internal pressure increase during the heat treatment. The flanges are positioned to expose the package over a large part of its surface, so that such part is accessible to a cooling medium.

3,741,564
TRI-CAPSTAN TAPE TRANSPORT
Gordon Schulz, Tujunga, Calif., assignor to Odetics, Inc., Anaheim, Calif.
Continuation of Ser. No. 59,879, July 31, 1970, abandoned.
This application Feb. 11, 1972, Ser. No. 225,507
U.S. Cl. 274-4 D 25 Claims



A tape transport for use in a precision magnetic tape recorder/reproducer including three capstans with associated capstan pulleys driven by a single motor pulley. Bi-directional differential operation is achieved by providing a "hard" drive between the motor pulley and the capstan pulleys and by varying the diameter of the capstans so that the outer two capstans rotate at a higher peripheral velocity than the central capstan. In this manner, differential tension is created between the second and third capstans regardless of the direction of tape movement. The present tape transport further includes a plurality of idlers which control the path of the magnetic tape to achieve a cumulative wrap angle of more than 600° without any capstan contacting the oxide side of the magnetic tape. Such tape path further provides a plurality of tangent points for locating magnetic heads to improve tape-to-head compliance and stability.

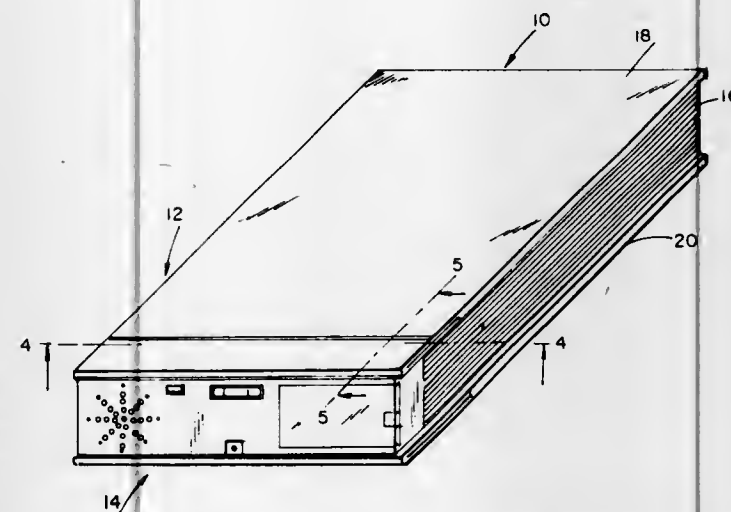
3,741,565

TALKING PHOTOGRAPH ALBUM

Julius Breitling, Bayside, and Bernard Pollack, Brooklyn, both of N.Y., assignors to Sight & Sound Wedding Albums, Ltd., Brooklyn, N.Y.
Filed Jan. 4, 1971, Ser. No. 103,763
Int. Cl. G11b 5/00

U.S. Cl. 274-4 C

9 Claims



A photograph album in which a playing device housing for recorded material forms the means for holding individual pages provided with photographs, the pages being fastened to the housing.

the housing to form a talking book. Support arms, extending from the playing device housing, provide support for the fastened individual pages. The pages are secured to the support arms by means of a fastening device which passes through each individual page and through the support arms and is locked in place. The support arms are disposed midway between the top and bottom of the playing device housing, so that the pages can be attached above and below the support arms, thereby minimizing the stresses placed on the individual pages when turning the pages.

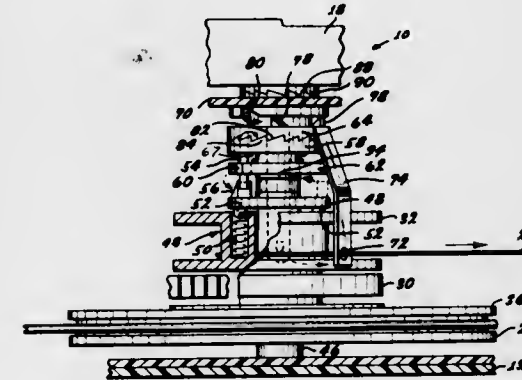
3,741,566

SEQUENTIAL PHONOGRAPH TOY

William R. Baynes, Palos Verdes Peninsula, and Ake L. Larsson, Redondo Beach, both of Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Nov. 13, 1970, Ser. No. 89,216
Int. Cl. G11b 25/04; A63h 3/33

U.S. Cl. 274-9 R

4 Claims



A phonograph having a record with several sayings which are played in sequence comprising a turntable that rotates in reverse when a cord is pulled to wind a spring motor. As the cord is pulled it pivots a crank that pushes a stop into the path of a turntable projection to stop the turntable, and thereby determine which groove will be next played. When the cord is released to allow the crank to return to its initial position, the crank ratchets the stop to a new position so that the next time the cord is pulled a new record groove will be played.

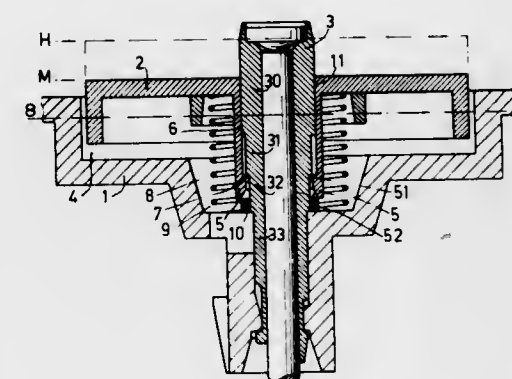
3,741,567

DEVICE FOR CENTERING DISC RECORDS ON THE TURNTABLE OF A RECORD PLAYER

Tadek Valentin Bis, Les Landes, Saint Paul, Orne, France
Filed Oct. 27, 1971, Ser. No. 193,019
Claims priority, application France, Nov. 2, 1970, 7039409
Int. Cl. G11b 17/04

U.S. Cl. 274-10 S

4 Claims



A device for centering disc records on a record player having a centering and ejection element which accommodates records having larger center holes and is displaceable over the central spindle which accommodates records with small center holes. The centering element is arranged to be recessed

in the turntable against the force of a spring. Projections are provided for locking the centering element in the recessed position. The centering element can be unlocked by exerting pressure on it, with the result that the centering element is clamped around a ring movable over the spindle and is resiliently widened, so that during its return it is capable of passing over a collar on the central spindle, and the ring is arrested by this collar.

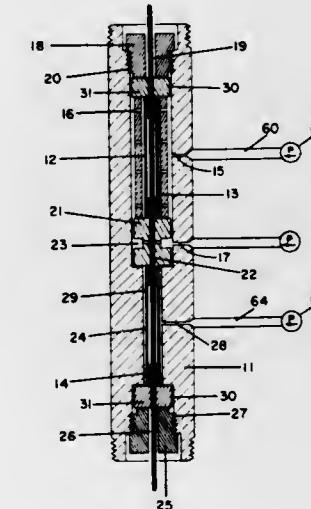
3,741,568

CABLE SEALING APPARATUS

Vaughan W. Rhoades, Tulsa, Okla., assignor to Cities Service Oil Company, Tulsa, Okla.
Int. Cl. F16j 15/46; F16r 41/00

U.S. Cl. 277-34.6

8 Claims



Disclosed herein is apparatus to be utilized in conjunction with a wellhead assembly consisting of a steel body accommodating a Hassler type sealing sleeve. The apparatus is utilized for sealing a cable which is extended within a wellbore containing fluids under pressure and is particularly applicable to the sealing of stranded cable which conventionally is most difficult to adequately seal, generally requiring large apparatus to accomplish the seal.

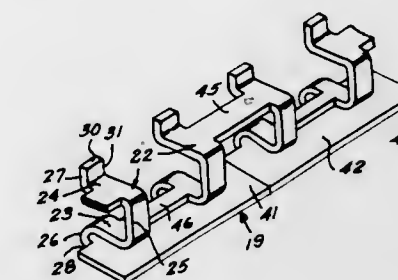
3,741,569

OIL CONTROL PISTON RING

Donald J. Mayhew, St. Louis, Mo., assignor to Ramsey Corporation, St. Louis, Mo.
Filed May 27, 1971, Ser. No. 147,423
Int. Cl. F16j 9/00

U.S. Cl. 277-140

13 Claims



A one or two-piece piston ring for oil control purposes, the ring being circumferentially expansive and having a plurality of axially centrally located U-shaped cross section legs connecting the axially top and bottom portions of the ring, the U-shaped cross section legs being alternatively connected to adjacent legs by circumferential bars at either the top or the bottom of the "U", the "U" opening inwardly, and the bars being dimensioned to provide the circumferential spring thrust for the ring independent of the cylinder contacting portions of the ring.

3,741,570

FLEXIBLE JOINT FOR SEWER PIPE

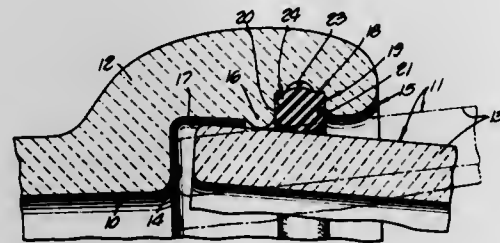
Ben B. Garrett, 13747 E. Philadelphia Street, Whittier, Calif.

Filed Nov. 16, 1970, Ser. No. 89,845

Int. Cl. F16j 15/10, 15/32

U.S. Cl. 277-207

8 Claims



A flexible joint for sewer pipe, particularly clay pipe, for connecting a bell pipe section and a spigot pipe section, in which the bell section has an internal circumferential rib forming a support for the spigot end and upon which it may fulcrum during relative tilting movements of the sections. The inner surface of the bell is relieved on one side of the supporting rib, and on the other side is formed with a groove for a sealing gasket of resilient deformable material, such as rubber, the groove having a peripheral space or cavity into which the gasket material can flow or expand under operating applied compression forces.

3,741,571

EXPANDING MANDREL

Wayne A. Prazak, Lincoln, Nebr., assignor to The Goodyear

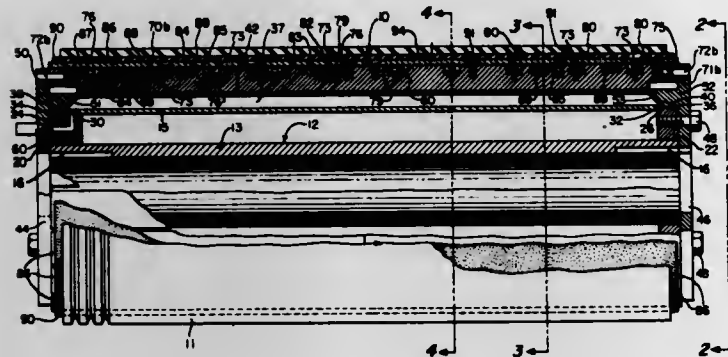
Tire & Rubber Company, Akron, Ohio

Continuation-in-part of Ser. No. 86,019, Nov. 2, 1970, abandoned. This application Sept. 15, 1971, Ser. No. 180,671

Int. Cl. B23b 31/40

U.S. Cl. 279-2

9 Claims



An expandable mandrel for use in manufacturing V belts, said mandrel having an inflatable expandable diaphragm, rigid axially extending segments disposed about the diaphragm, stop means surrounding the segments to limit the radially outer movement of the segments, coil springs disposed about the segments to contract the mandrel, and caps mounted on the radially outer sides of the segments to collectively provide a cylindrical surface.

The foregoing abstract is not to be taken as limiting the invention of this application, and in order to understand the full nature and extent of the technical disclosure of this application, reference must be made to the accompanying drawings and the following detailed description.

3,741,572

QUILL SPINDLE

Kenji Nemoto, Tokyo, and Fumihiro Ozawa, Matsudo, both of Japan, assignors to Seiko Seiki Kabushiki Kaisha, Tokyo, Japan

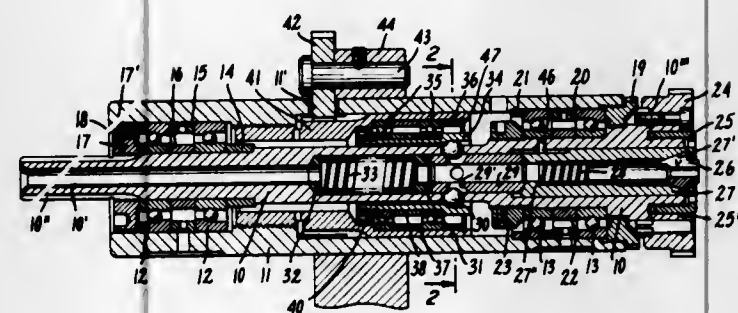
Filed Dec. 22, 1971, Ser. No. 210,900

Claims priority, application Japan, Dec. 26, 1970, 45/118920

Int. Cl. B23b 31/20, 31/26

U.S. Cl. 279-50

13 Claims



A quill spindle having a chuck, a pair of springs producing a resultant force on a pair of internal sleeves for urging the chuck into a chucking position, and an internally slideable coupling device, operable by an external device, for sliding one of the sleeves against the force of one of the springs to permit the other spring to automatically slide the other sleeve away from the chuck to remove the chucking force. A cap nut is connected to the forward end of the spindle to provide a stop for the chuck, and a flange is provided on the front of the spindle for circumferentially encompassing the cap nut to maintain the cap nut in accurate alignment. The coupling device includes a sleeve disposed within the quill for sliding movement in response to a force generated by the external device, for actuating a ball and eccentric socket mechanism coupled to one of the internal sleeves.

3,741,573

TOOL HOLDER FOR A MACHINE TOOL OR THE LIKE

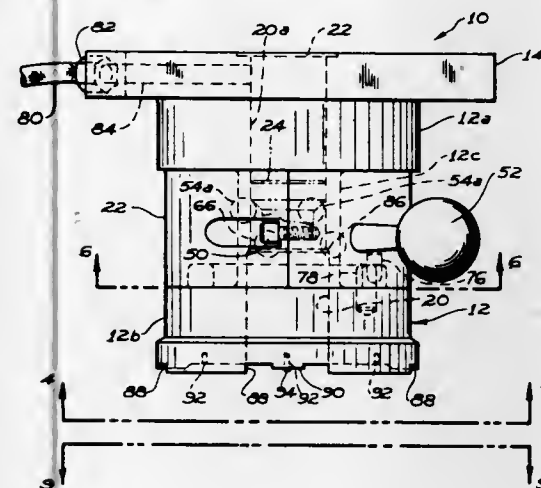
Steven J. Treer, 5271 Spencer Road, Lyndhurst, Ohio

Filed July 12, 1971, Ser. No. 161,507

Int. Cl. B23b 31/10; B23k 9/16

U.S. Cl. 279-81

14 Claims



A tool holder adapted for mounting on a machine, for removably retaining therein a tool having an elongated shank. The holder has gripping means for gripping the tool shank and securely holding it in predetermined position in the holder, and eject means adapted for coaction with the tool shank for ejecting the tool from the holder upon release of the gripping means. A cam is movably mounted on the holder body for actuating and deactuating the gripping means and the ejecting

means respectively, depending upon the selected movement of the cam. Means are also provided for precisely locating the tool with respect to the holder, for indexing the tool to a predetermined position with respect to the holder, and for supplying fluid to the tool via the tool receiving passage in the holder.

3,741,574

CART FOR TRANSPORTING TELEVISION SET

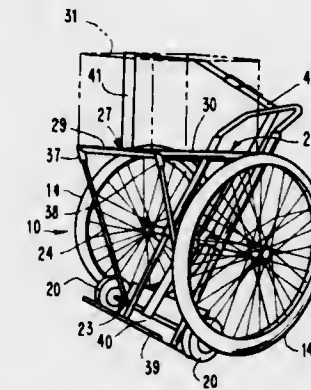
John M. Burrow, Jr., 307 N. Main Street, Lafayette, Ga.

Filed Dec. 30, 1971, Ser. No. 214,184

Int. Cl. B60p 3/22

U.S. Cl. 280-5.32

2 Claims



A cart supports a television set for moving up and down steps. To move up steps, a pair of wheels of relatively small diameter is placed on a first step and then a pair of wheels of large diameter is moved onto the same step by pivoting the frame of the cart about the axle of the pair of smaller wheels. After the larger pair of wheels rests on the first step, the frame of the cart is then pivoted about the axle of the larger pair of wheels to advance the smaller set of wheels to the next step. To move down steps, the opposite procedure is employed. The axle of the smaller pair of wheels is disposed from the axle of the larger pair of wheels a distance substantially equal to the radius of each of the larger pair of wheels.

3,741,575

AUTOMATIC BRAKE FOR SKIS

Ettore Bortoli, 6, Via Calabria, Thiene, Vicenza, Italy

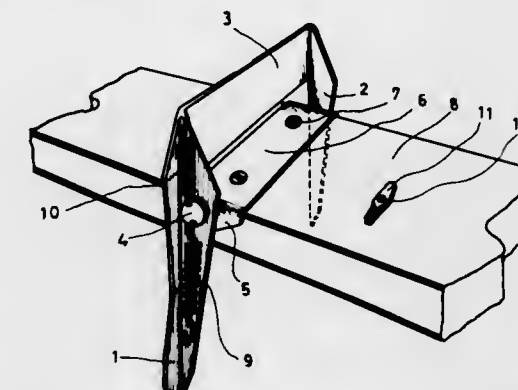
Filed May 17, 1971, Ser. No. 144,150

Claims priority, application Italy, May 26, 1970, 85577 A/70

Int. Cl. A63c 7/10

U.S. Cl. 280-11.13 B

3 Claims



An automatic brake for skis has a mounting for securing on the upper surface of the ski, for example by screws. A stirrup comprises a cross-member and two parallel arms disposed respectively one at each end of the cross-member. The stirrup is connected to the mounting by pivot means which permit movement of the stirrup about an axis parallel to the cross-member. Spring-loading is coupled to the mounting and to the stirrup to urge the stirrup into a first end position in which the parallel arms are normal to the plane of the mounting. The stirrup can be held in another end position, with the arms parallel to the ski, by the user's foot.

3,741,576

SKI BINDINGS

Georges Pierre Joseph Salomon, Avenue de Loverchy, Annecy, France

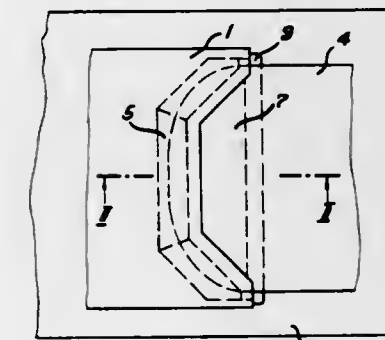
Filed Apr. 30, 1971, Ser. No. 139,115

Claims priority, application France, May 5, 1970, 7016366

Int. Cl. A63c 9/00

U.S. Cl. 280-11.35 H

8 Claims



A ski binding jaw fixed on a ski comprises a recess for centrally holding an end of a ski-boot sole above the ski. One of the recess and sole comprises an inclined surface, and the other of the recess and sole comprises an edge adapted to abut and wedge against the inclined surface.

3,741,577

SLED

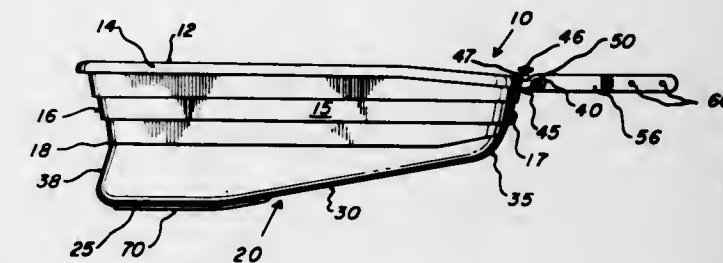
Steven L. Rude, Route 1, Bemidji, Mich.

Filed Jan. 25, 1971, Ser. No. 109,171

Int. Cl. B62b 13/04

U.S. Cl. 280-18

3 Claims



A snowmobile sled formed as a single one piece molded sled design having a generally rectangular open top, inwardly tapered or inclined sides and a bottom having a straight portion and an inclined portion leading toward the front of the sled. The molded design includes a semi-circular flange in which is positioned a single axis hitch in the form of a tubular member with a journaled rod therein, the rod carrying arms at the extremities of the same which are adapted to attach to the sides of a snowmobile such that the sled will be mounted with the top generally horizontal. The hitch is removably coupled to the sled by means of J shaped flange members which project around a portion of the sled at the top of the same and around the cylindrical member to retain the same on the sled.

3,741,578

HITCHING ATTACHMENT FOR A SNOWMOBILE

Roger Dumont, Thetford Mines, Quebec, Canada, assignor to Louis M. Bernard, Quebec, Canada

Filed June 18, 1971, Ser. No. 154,535

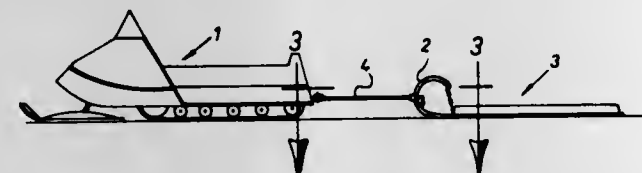
Int. Cl. B62b 13/00

U.S. Cl. 280-24

2 Claims

A hitching attachment to be fixed to a snowmobile and arranged to tow a sled and, more particularly, a toboggan. A hitching attachment having a pair of grips arranged to engage the opposite lateral sides of the curved front portion of a

toboggan and arranged to be displaced relative to one another to grip toboggans of different widths. The grips are slidably mounted for transverse displacement to allow lateral shifting of the sled or toboggan and a spring engages the grips to bias the toboggan towards a neutral position. A tying line of ad-



justable length and tension provided with a toggle clasp joins the two grips to hold the same into firm engagement with the above lateral sides. A towing bar arranged to be pivotally connected to a snowmobile and to said grips to allow various movements of the towed toboggan relative to the towing snowmobile.

3,741,579 PERAMBULATOR

Ernst-Guenter Kirsch, In den Poelten 5, 3472 Beverungen, Weser, Germany

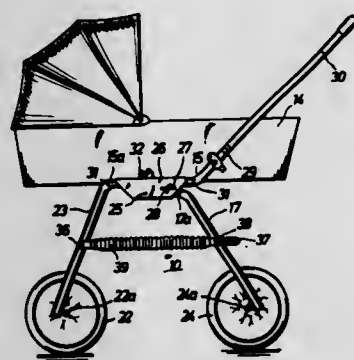
Filed Dec. 4, 1970, Ser. No. 95,066

Claims priority, application Germany, July 4, 1970, P 20 33 184.4

Int. Cl. B62b 11/00

U.S. Cl. 280—47.38

17 Claims



A perambulator having a body or seat mounted on a chassis, characterized by the feature that a body carrier is provided which is vertically displaceable relative to at least one frame part carrying at least one wheel and a spring member of resilient material located between the body and the upper end region of the frame part.

3,741,580 OCCUPANT RESTRAINT SYSTEM

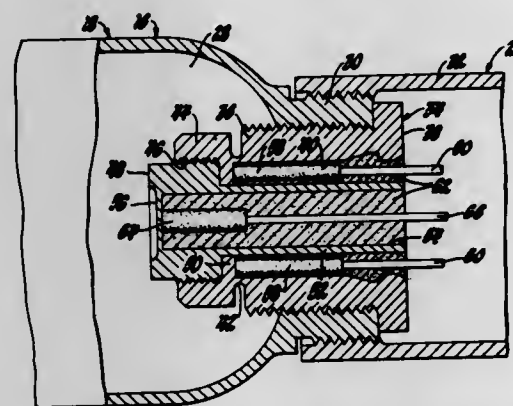
Thomas H. Vos, Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 27, 1971, Ser. No. 175,661

Int. Cl. B60r 21/08

U.S. Cl. 280—150 AB

4 Claims



A vehicle body occupant restraint system includes a source of pressure fluid, such as a pressure vessel of stored gas or a

gas generator, an inflatable occupant restraint cushion, and a passage communicating with the cushion. The passage is communicated with the source by a first plug having an internal cylindrical bore opening at one end to the source and being of at least the same cross sectional area as the passage to provide unrestricted flow from the source to the cushion through the plug bore and passage. A radially inwardly extending web or flange at the other end of the bore and an adjacent rupturable flange join the plug to an internally threaded plug head. An externally threaded head of a second plug is received within the head of the first plug. The second plug head includes an internal cylindrical bore which opens at one end to the passage across an explosively rupturable diaphragm. The other end of the bore opens to a hollow cylindrical extension which extends through the first plug to the source. The second plug bore and extension are of lesser cross sectional area than the first plug bore and passage. A first pair of electrically fired detonators within the second plug head seat against the diaphragm and are located in place by conventional stemming material. The space between the first plug and the extension of the second plug receives a second pair of electrically fired detonators which seat against the radial flange of the first plug and are located by conventional stemming material. The pairs of detonators are connected in parallel with each other and in series across a source of power and respective impact force responsive control systems. When an impact of predetermined low level intensity is sensed, the first pair of detonators are fired to remove the diaphragm and release the pressure fluid for flow through the extension and head of the second plug to the passage and to the cushion to inflate the cushion. The rate of flow of the pressure fluid is reduced since the bore and extension of the second plug are of lesser cross sectional area than that of the passage. This increases the inflation time of the cushion. When an impact of predetermined higher level intensity is sensed, the second pair of detonators are additionally fired to rupture the flange and remove the second plug and plug head from the first plug to permit unrestricted flow of pressure fluid to the cushion at the normal rate. The pairs of detonators may also be sequentially fired at the lower pulse level.

3,741,581 SUSPENSION AND STEERING APPARATUS FOR VEHICLES

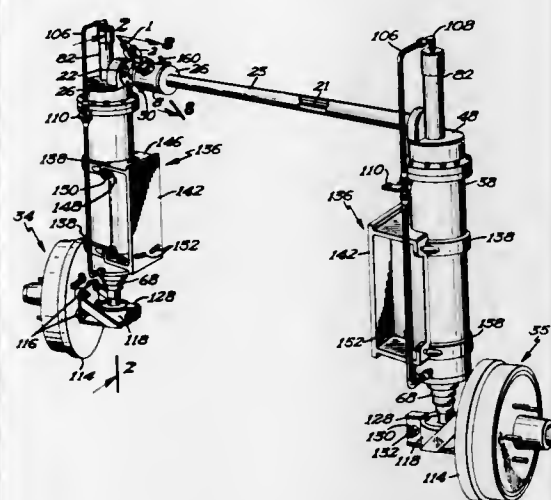
Arthur J. Patrin, Frederic, Wis., assignor to David W. Florence and Helen Patrin, Frederic, Wis., a part interest to each

Filed May 21, 1970, Ser. No. 39,481

Int. Cl. B60g 3/00, 11/14

U.S. Cl. 280—96.2 R

14 Claims



A vertically disposed spindle shaft rotatably supported within a hydraulic cylinder is utilized to transmit turning movements to the wheel of a vehicle by means of a gear train including a plurality of bevel gears driven by a bevel pinion on a vehicle steering column. A piston positioned transversely within the hydraulic cylinder on the aforesaid spindle shaft and vertically movable within the hydraulic cylinder with the

spindle shaft acts as a shock absorbing device and further serves as a support means for a main suspension coil spring contained within said cylinder, the spindle shaft being rotatably supported at the opposite ends of said cylinder as well as by said piston. Two different sets of flow passages in said piston of different cross-sectional areas cause said piston and spindle to move downwardly relative to said cylinder at a slower rate than they move upwardly to give the desired shock absorbing effect, and a valve controlled fluid conduit connecting the upper and lower ends of said hydraulic cylinder on opposite sides of said piston permits the adjustment of the shock absorber device to give the desired performance for a particular vehicle size and weight load. A threaded yoke connection of the aforesaid spindle shaft to a wheel hub permits the rotary adjustment of the wheel on the spindle for proper toe-in and wheel alignment, and final wheel alignment of both front wheels relative to a vehicle is accomplished by the rotatably adjustable mounting of the aforesaid hydraulic cylinder on a mounting block utilized for attaching the hydraulic cylinder to a vehicle frame.

3,741,582

SUSPENSION SYSTEM FOR A CAR

Konrad Eckert, Stuttgart-Bad Cannstatt, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

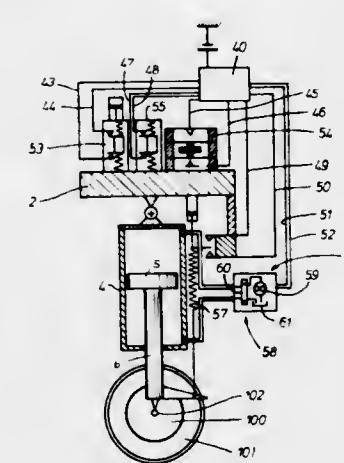
Filed Apr. 26, 1971, Ser. No. 137,352

Claims priority, application Germany, Apr. 25, 1970, P 20 20 292.0

Int. Cl. B60g 17/04

U.S. Cl. 280—124 F

11 Claims



A suspension system for supporting the body of a motor car includes cylinder and piston means connecting the body with the wheel shafts and forming first and second chambers connected with first and second sources of pressure fluid. A regulating valve varies and adjusts the flow cross section of the first and second conduits and thereby the flow of the pressure fluid into the first and second chambers until no resonance oscillations of the body take place.

3,741,583

MOTOR VEHICLE SAFETY DEVICE

Keizaburo Usui; Takashi Haruna, both of Yokosuka, and Yoshinori Akiyama, Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama City, Japan

Filed June 15, 1971, Ser. No. 153,180

Claims priority, application Japan, June 25, 1970, 45/63362; Nov. 7, 1970, 45/98036

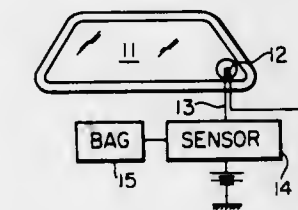
Int. Cl. B60r 21/08

U.S. Cl. 280—150 AB

8 Claims

Herein disclosed is a safety device for protecting a vehicle occupant from injury during a collision of a motor vehicle. The safety device uses an inflatable protector bag which is normally stowed in a contracted condition and which is expanded and projected to a protective condition intervening between the vehicle occupant and surrounding structural

parts of the vehicle cabin when an impact resulting from the collision is detected. The safety device also uses a blasting means which is adapted to destroy or release a window pane of any of the front windshield, side door windows and a rear window immediately when the inflatable protector bag is ex-



panded. The blasting means thus protects the vehicle occupant from hurting his eardrums and/or intestines due to a sudden rise in the atmospheric pressure in the vehicle cabin. The blasting means will also facilitate the vehicle occupant to get out of the vehicle cabin through the broken windows in the event of the collision.

3,741,584

DEVICE FOR INFLATING A SAFETY BAG FOR VEHICLE PASSENGERS

Hiroshi Arai, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi-ken, Japan

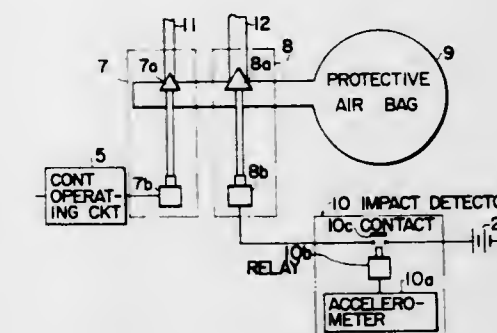
Filed Apr. 8, 1971, Ser. No. 132,274

Claims priority, application Japan, Dec. 1, 1970, 45/105455

Int. Cl. B60r 21/08

U.S. Cl. 280—150 AB

5 Claims



A device for inflating a safety bag which forms a protective cushion in a vehicle for passengers includes a compressed air source which is connected to the protective air bag through two separate connecting lines. Each line is controlled by a valve which is operated either by a collision-sensing or crash detector. One of the detectors is set to operate the valve at a first condition in which a collision is sensed and it provides an inflation of a bag at a predetermined rate which is less than the passage flow rate through the second valve controlled passage. The second valve is controlled by a separate detector which is set to operate at a higher value or at a distinct collision-sensing condition, for example, at the condition of actual impact, or after a predetermined first collision condition has been achieved. The collision conditions are measured, for example, by accelerometers. The arrangement is such that both flow passages, or at least one flow passage, will provide for an air connection to the bag to provide rapid inflation of the bag to protect the passenger as necessary.

3,741,585

LOW TEMPERATURE NITROGEN GAS GENERATING COMPOSITION

Roger R. Hendrickson, Bear River City; William O. Munson; Russell Reed, both of Brigham City, and Graham C. Shaw, Garland, all of Utah, assignors to Thiokol Chemical Corporation, Bristol, Pa.

Filed June 29, 1971, Ser. No. 158,108

Int. Cl. F16p 1/00; B60r 21/10, 21/08

U.S. Cl. 280—150 AB

39 Claims

A relatively low temperature nitrogen gas generating composition containing (A) metallic azides and (B) reactants therefor, such as, the metallic sulfides, metallic iodides, organic iodides, organic chlorides, metallic oxides and sulfur.

3,741,586

FOLDABLE REAR SUPPORTS FOR HAND-PROPELLED CARTS

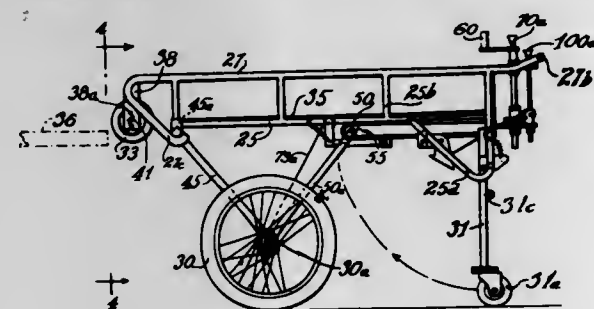
Max Wiczer, 6400 West Gross Point, Niles, Ill.

Continuation-in-part of Ser. No. 68,721, Sept. 1, 1970, Pat. No. 3,687,475. This application Dec. 17, 1971, Ser. No. 209,096

Int. Cl. B60s 9/02

U.S. Cl. 280—150.5

3 Claims



A hand-propelled cart with side wheels, and a rear caster leg foldable under the frame of the cart. The caster leg is freely pivoted and actuated by means of a hand lever to fold, a camming latch operating automatically to lock the caster leg in the folded position. A plunger is located in the rear of the cart, and operates a device when depressed to release the latch and allow the caster leg to drop to standing position; and another latch automatically locks the caster leg in such position.

3,741,587

TRAILER HITCH

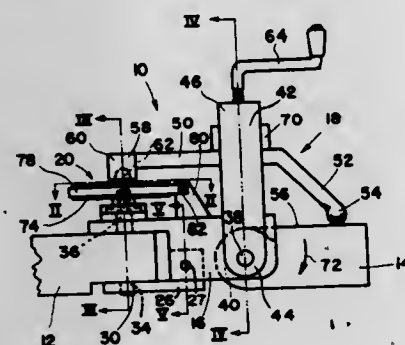
Ernest R. Wilaman, 1746 Larchmont Drive, Warren, Ohio

Filed Apr. 26, 1971, Ser. No. 137,259

Int. Cl. B62d 53/00

U.S. Cl. 280—406 A

16 Claims



A hitch assembly for connecting a trailer vehicle to tractor vehicle. A draw bar is securely attached to the tractor vehicle frame and projects rearwardly from the vehicle. The rear end of this bar is connected to a coupling member by a vertical pin. The coupling member is also connected to the trailer vehicle tongue by a horizontally extending pin. Movement

about the horizontal pin is limited by a restraining bar connected to the trailer vehicle tongue and extending above the coupling member where it is confined within a yoke carried by the coupling member.

3,741,588

TRAILER HITCH

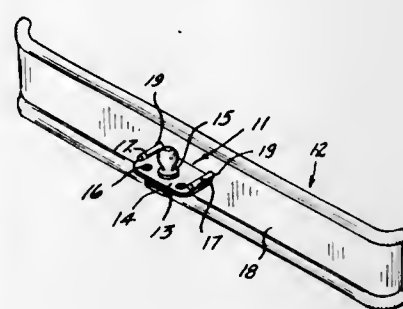
William E. Dotterweich, East Lansing, Mich., assignor to Foote Products, Valley Tow-Rite Division, The Scot and Fetzer Company, Lansing, Mich.

Filed Feb. 14, 1972, Ser. No. 226,122

Int. Cl. B60d 1/06

U.S. Cl. 280—491 E

5 Claims



A trailer hitch comprising a pair of parallel horizontal plates, each having curvilinear projections therefrom and the projections penetrating selected openings provided in an attachment surface, such as a vehicle bumper or extension from the frame, transverse to the horizontal plates. The projections are tilted into the openings to bear on the opposite side of the web of the bumper or frame extension from the plates. Thus the horizontal plates are positioned in relative parallel spaced registry relation. The trailer ball serves as a stud and extends through both registering plates and upon tightening partially closes the space between the plates and secures the hitch in compression relation relative to the attachment surface such as the bumper or frame extension.

3,741,589

PIPE HANGER

David P. Herd; John W. McCaskill, and James V. Bonds, all of Houston, Tex., assignors to Rockwell Manufacturing Company, Houston, Tex.

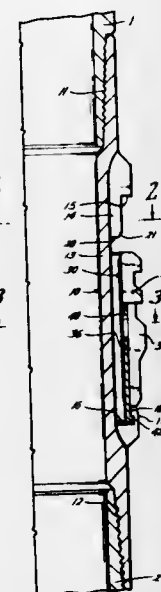
Continuation of Ser. No. 862,887, Oct. 1, 1969, abandoned.

This application Nov. 11, 1971, Ser. No. 198,000

Int. Cl. F16l 35/00

U.S. Cl. 285—3

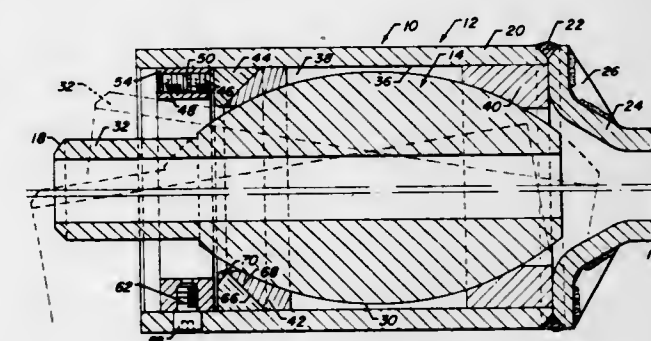
22 Claims



A hanger for suspending a pipe string within a well comprising: a tubular body member and a support ring mounted around the body member for axial movement thereon. The

body member may be adapted for connection at its upper end to a handling string and at its lower end to the pipe string to be suspended. The body member may be provided with a reduced outside diameter mid-portion and a larger diameter backup portion with stop shoulders at the upper end of the back-up portion and upper end of the mid-portion. The support ring may be axially split along one side so as to be contractable from its unrestrained position and self-expandable from the contracted position to its unrestrained position. The hanger is provided with a release arrangement for holding the ring around the body member mid-portion but being disengageable to allow the ring to move upwardly relative to the body member and around the back-up portion thereof in its unrestrained position until it contacts the stop shoulder at the upper end of the back-up portion. In this position the backup portion locks the ring in its unrestrained position and prevents downward movement of the body member relative to the support ring. In one embodiment the release arrangement is disengageable on contraction of the ring. In another embodiment the release arrangement initially holds the ring around the mid-portion in a collapsed condition. On disengagement the release allows the ring to expand to its unrestrained position for movement to the locked position around the back-up portion.

screws provides a support for a plurality of adjustment screws which can be moved in a direction parallel to the axis of the



socket portion for forcing a pressure ring positioned for axial movement within the socket against a sealing ring which bears against the ball portion of the joint.

3,741,592

RETENTION DEVICE

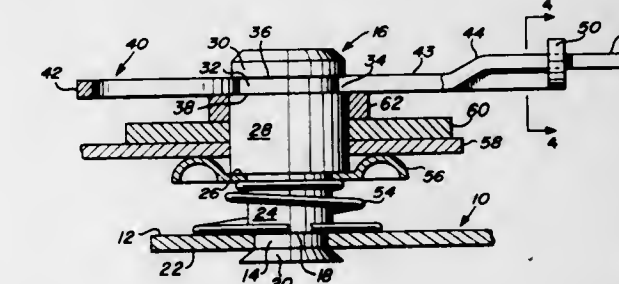
Randall E. Muncy, Springfield, Ohio, assignor to Muncy Corporation, Enon, Ohio

Filed July 29, 1970, Ser. No. 59,203

Int. Cl. F16c 11/00

U.S. Cl. 287—101

7 Claims



A retainer featuring a spring clip which in an unlatched condition has an elongate, modified "U" shape. At its open end the legs of the clip are spring formed to be biased from one another. Intermediate their ends the legs have mating bowed portions adapted to closely embrace a body portion of a stud or other shaft-like element while their projected extremities may be brought together and releasably latched under tension. In its latched condition the clip is fixed in a plane transverse to the stud or other shaft-like article to which it mounts to serve as a holding medium for elements mounted between it and means defining a reference plane through which the stud or shaft projects.

3,741,593

STRUCTURAL ASSEMBLY JOINT AND METHOD FORMING SAME

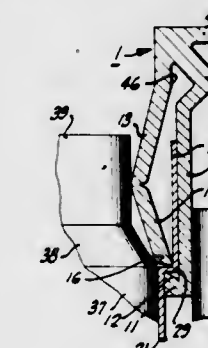
Andrew J. Toti, 311 W. River Road, Modesto, Calif.

Filed Dec. 21, 1970, Ser. No. 100,189

Int. Cl. F16b 5/00

U.S. Cl. 287—189.36 D

34 Claims



A structural assembly comprised of at least two structural members interconnected with each other into a rigid assembly

3,741,590

PIPE SECTIONS

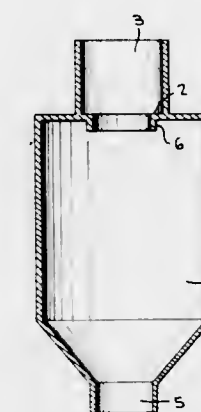
Gerardo Antonio Zuadi, Rua Henrique Lacombe 270, Ilha do Governador, Rio De Janeiro, Estado da Guanabara, Brazil

Filed July 2, 1971, Ser. No. 159,243

Int. Cl. F16l 25/00

U.S. Cl. 285—177

6 Claims



A pipe section for use in sanitary discharge down-piping having such a form as to prevent the growth on at least a part of its interior wall of a crust formed by repeated contact with said wall by sewage matter, whereby rodents cannot climb upwardly within said piping. The pipe section is provided intermediate its axially aligned inlet and outlet ends with an intermediate part of greater diameter which tapers or curves at its lower end to the diameter of the outlet.

3,741,591

BALL JOINT ASSEMBLY

Leroy E. Fessler, Roselle, and Wayne M. Davis, Highland Park, both of Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed Dec. 29, 1971, Ser. No. 213,692

Int. Cl. F16l 27/06

U.S. Cl. 285—270

12 Claims

Compact ball joint assembly for piping system has ball and socket portions which may be formed of pipe. A reaction member held internally of the socket portion by retaining means such as a retaining ring or radially extending socket

joint without requiring separate fastening means to effect interconnection. The assembly includes a deformable connecting member defining one or more slot structures into which one or more panel members, such as deformable sheets, may be inserted and rigidly locked in place upon deformation of the slot structures. Sealing means may be introduced into the slot structures to render the assembly airtight and waterproof. Each slot structure is defined by a deformable locking flange for urging a predetermined portion of a panel member into secure engagement with a recessed shoulder. The assembly method may be performed mechanically or by hand, in a continuous or discontinuous operation.

3,741,594

FASTENER ASSEMBLY

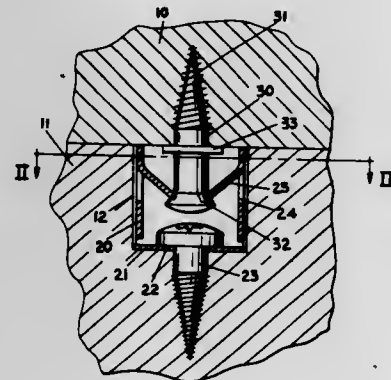
Edward J. Ostling, Muskegon, Mich., assignor to Modular Systems, Inc., Fruitport, Mich.

Filed Apr. 28, 1971, Ser. No. 138,132

Int. Cl. F16b 12/50

U.S. Cl. 287-23

5 Claims



A plunger type of fastener assembly for attaching two members together comprising a clip adapted to be seated in an aperture in one of the members so as not to protrude above the surface thereof. The clip has a base, with means for securing the base to the bottom of the aperture, a wall element extending upwardly from the base so as to contact the side of the aperture, and a plurality of finger-like projections which are integral with an intermediate portion of the wall element and extend angularly therefrom in the direction of the base, the projections being adapted to receive and retain therebetween the head portion of a screw means, the shank portion of which is adapted to be embedded in the other of the members.

3,741,595

APPARATUS FOR ASSEMBLING POSTS AND RAILS

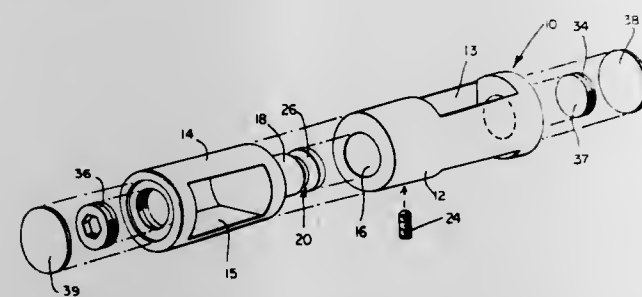
William J. Hörgan, Jr., Pittsburgh, Pa., assignor to Blumcraft of Pittsburgh, Pittsburgh, Pa.

Filed Feb. 25, 1972, Ser. No. 229,264

Int. Cl. F16b 7/00; F16d 3/08, 1/00; E04c 3/00

U.S. Cl. 287-51

9 Claims



Handrails and posts are adjustably assembled by means of a rotatably adjustable pierced fitting having a general shape longest in a direction that is perpendicular to both the handrail and post at the same time. The fitting permits adjustment both for height and pitch and has separate means to allow the lon-

gitudinally extending posts and handrails to be slid to various positions and then fixed with respect to a portion of the fitting. Means are also disclosed for temporarily fixing the relative position of the posts, handrails and fitting pieces and then rotatably adjusting them, and then permanently fixing their position.

3,741,596

MOTORCYCLE SEAT

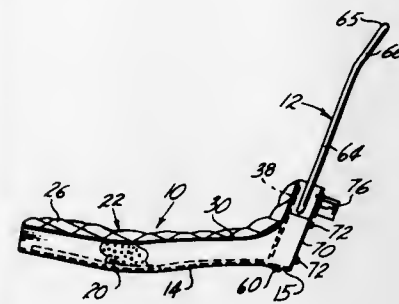
William D. Cate, 3715 Avalon Street, West Riverside, Calif.

Filed June 17, 1971, Ser. No. 154,026

Int. Cl. A47b 19/00

U.S. Cl. 297-195

9 Claims



A motorcycle seat with built-in means for retaining a safety bar in position. The seat has a frame made up of a bottom plate and a sturdy cast aluminum back member. The bottom plate is contoured to provide good seating comfort for an operator and passenger, and the aluminum back member is mounted at the rear of the plate to serve as an upwardly extending and rearwardly sloping backstop for the seat. The back member is fastened to the bottom plate by means of a metal tie strap bent sharply to extend along the top of the plate and then upwardly, flush against the forward face of the back member. The back member has receptive bores for the lower ends of the legs of a safety bar formed from a doubled length of metal rod. Running upwardly through the bottom plate and into the back member are aligned openings for a pair of bolts. These openings are of smaller diameter than, and positioned in alignment with, the bores for the safety bar legs. The bottoms of the safety bar legs have tapped holes designed to receive the bolts in threaded engagement and the safety bar is fastened in place by fitting the bolts through the openings in the plate, then tightening them in the tapped holes in the safety bar legs. The seat is finished by covering the frame with a suitable padding and upholstery.

3,741,597

PROTECTIVE GUARD FOR A MORTISE TYPE LOCK

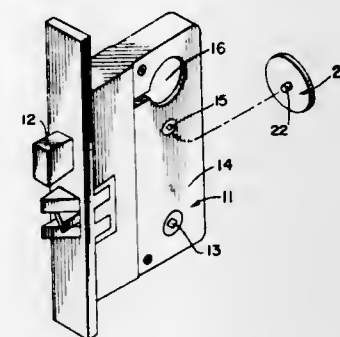
Richard J. Ohno, Branford, Conn., assignor to Sargent and Company, New Haven, Conn.

Filed Nov. 16, 1971, Ser. No. 199,271

Int. Cl. E05b 15/16

U.S. Cl. 292-1

3 Claims



A protective guard is disclosed for a mortise lock having a spindle hole comprising a disc of hardened metal. Located

centrally with respect to one side of the disc is a stub extending perpendicularly therefrom. The stub terminates in a radially extending flange. A bushing is positioned over the stub between the disc and the flange whereby the flange retains the bushing. The stub with its bushing is adapted to be friction fitted into the spindle hole of the lock. The disc and stub may be rotated but the bushing remains stationary. The protective guard prevents access to the spindle hole.

3,741,598

PNEUMATIC BUMPER

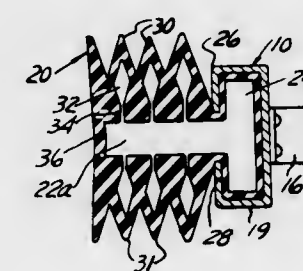
Andrew Novak, 3030 West Ridgeway; Lawrence L. Novak, 2201 Welch Boulevard, both of Flint, Mich., and Mick Novak, 12248 W. Mount Morris Road, Flushing, Mich.

Filed June 21, 1971, Ser. No. 154,974

Int. Cl. B60r 19/10; F16f 9/10

U.S. Cl. 293-71 P

4 Claims



An inflatable bumper for a vehicle which includes an elongated frame having an upper and a lower projecting lip and an inflatable tube of substantially "H" cross-sectional configuration including forward and rearward air chambers. The opposing lips of the frame extend between the chambers to hold the tube in place. An alternate embodiment includes a plurality of accordion-like lateral folds across the upper and lower surface of the front chamber to facilitate its resilient compression under collision conditions.

3,741,599

GRAB HOOK

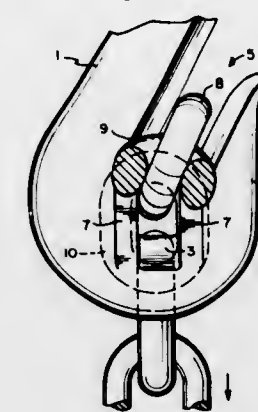
Walker E. Drayton, York, Pa., assignor to American Chain & Cable Company Inc., New York, N.Y.

Filed June 30, 1970, Ser. No. 51,069

Int. Cl. B64d 17/38

U.S. Cl. 294-82

17 Claims



An improved grab hook for use with a chain, the grab hook having seating surfaces for suspending the link of the chain disposed within the throat of the hook in spaced relation with respect to the hook.

3,741,600

SAFETY HOOK

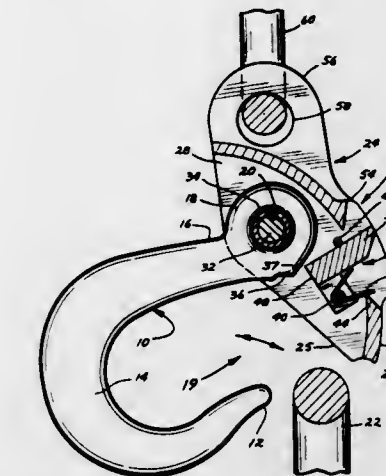
Edward J. Crook, Jr., Fort Wayne, Ind., assignor to American Holst & Derrick Company, St. Paul, Minn.

Filed July 30, 1971, Ser. No. 167,371

Int. Cl. B66c 1/36

U.S. Cl. 294-82 R

4 Claims



A hoisting hook carries an end loop of a load bearing line and has an eye, a curved hook with a hook tip spaced from the eye to form a throat therebetween, and a throat closure device in the form of a safety gate pivotally mounted for rotation about the eye of the hook. The gate has a bridging arm portion which, in closed relation, extends from the eye of the hook to the top of the hook across the hook throat and a connecting arm portion which extends upwardly from the eye of the hook to provide a gate eye to receive a hoisting line. When the end loop of the load bearing line is on the hook and the hook and gate combination is loaded, the load on the hook will tend to cause the bridging arm portion of the gate to close on the tip of the hook and to remain in a closed position. A self-locking latch is pivotally mounted entirely within the gate for movement between locking and release positions. The configuration of the bridging arm portion is such that it is extremely unlikely or impossible for the load line end loop to move off of encircling relation to the hook whether the load line is slack or loaded and when the hook is bridged. The safety gate can be rotated clear of the hook throat to provide virtually the entire throat dimension for receiving the edge of flat sheet or plate material or the like.

3,741,601

LATCH FOR GAS LIFT VALVE OR THE LIKE

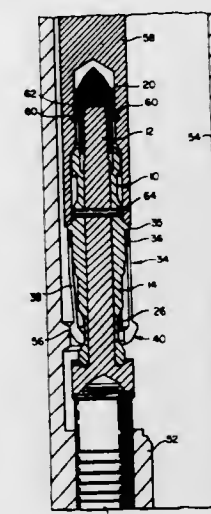
William Aaron Dudley, Dallas, Tex., assignor to Teledyne Inc., Los Angeles, Calif.

Filed Aug. 27, 1971, Ser. No. 175,428

Int. Cl. E21b 31/02

U.S. Cl. 294-86.18

10 Claims



A latch is disclosed which includes a central core, a sleeve

mounted to slide on the core and a collet mounted to slide on the sleeve. Positioning, locking and removal of the latch is effected by controlling the relative axial position of the central core, the sleeve and the collet.

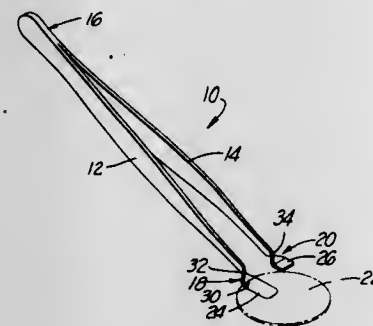
3,741,602 TWEEZERS

Sidney W. Ploeckelmann, 905 Sepulveda Boulevard, Manhattan Beach, Calif.

Filed Apr. 1, 1971, Ser. No. 130,110
Int. Cl. B25b 9/02

U.S. Cl. 294—99 R

4 Claims



Tweezers for holding a fragile unit including two arm members having respective free ends movable upon the application of horizontal pressure from an open position of nonvertical alignment to a closed position of vertical alignment, the arm ends include gripping surfaces for engaging and securely holding the fragile unit at its periphery when the tweezers are in a closed position.

3,741,603 LOCKING PLATE FOR AXLE END CAP

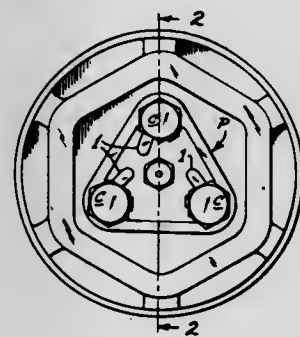
Ralph M. McLean, Jr., 12100 Georgian Trail, Des Peres, Mo.

Filed June 9, 1971, Ser. No. 151,241

Int. Cl. B60b 35/02; F16b 39/10; F16c 35/04

U.S. Cl. 295—36 R

8 Claims



A locking plate for the axle end cap of railroad bearings in which the locking plate is provided with a central aperture for receiving a grease fitting, said grease fitting adapted to interlock with said locking plate to space and connect said locking plate to the axle end cap, and a plurality of cap screw head apertures spaced about the central aperture each having a plurality of sides for receiving a cap screw head, said cap screw apertures extending around the cap screw heads to prevent rotation thereof.

3,741,604 ROAD VEHICLE HAVING A BELOW-BED STORAGE COMPARTMENT FOR A LIFT TRUCK

John R. Heath, 3407 N. 26th Street, Tacoma, Wash.

Filed June 29, 1970, Ser. No. 50,829

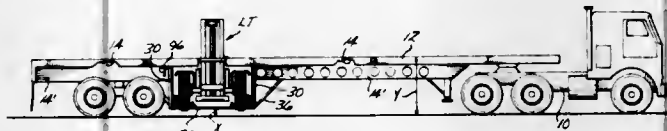
Int. Cl. B60p 3/06

U.S. Cl. 296—1 A

25 Claims

A laterally extending, tunnel-like compartment is located below the cargo bed of a cargo truck. A low profile fork lift

truck is fittable into this compartment. The edge of the cargo bed is recessed to provide a nook for receiving the lifting mast



of the lift truck. Ramps are provided so that the lift truck can be wheeled into and out from the compartment.

3,741,605 VEHICLE WITH DETACHABLE AUXILIARY PARTS

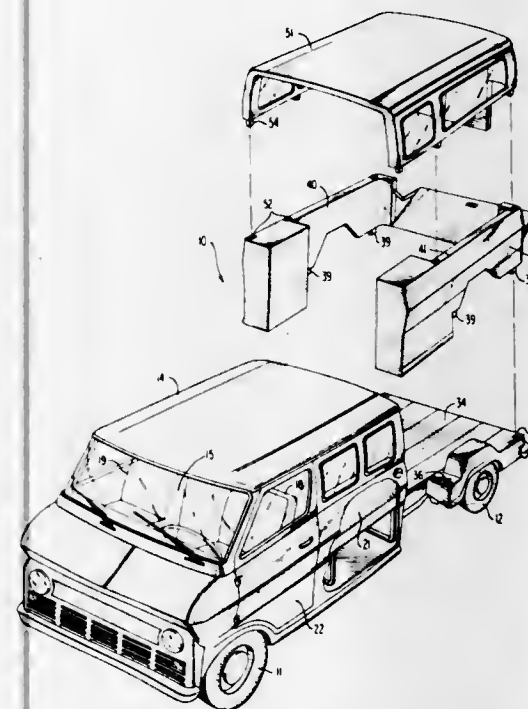
Hue R. Lee, 3390 Peachtree Road, Atlanta, Ga.

Filed May 20, 1971, Ser. No. 145,129

Int. Cl. B62d 33/08

U.S. Cl. 296—10

7 Claims



A passenger vehicle having a passenger cab at its front portion over its steerable wheels with front and rear passenger seating areas. The passenger cab is displaced forwardly of the rear non-steerable wheels and includes a sliding back door to allow passengers to pass into and out of the passenger cab toward the rear of the vehicle. Various auxiliary vehicle attachments can be attached to and carried by the rear portion of the vehicle, including a camper house, pickup truck sides and an auxiliary passenger van. The passengers can enter the auxiliary parts of the vehicle from the passenger cab through the sliding backdoor.

3,741,606 CAMPING TRAILER

John P. Grier, P.O. Box 505, Melbourne Beach, Fla.

Filed July 19, 1971, Ser. No. 151,230

Int. Cl. B60p 3/02

U.S. Cl. 296—22

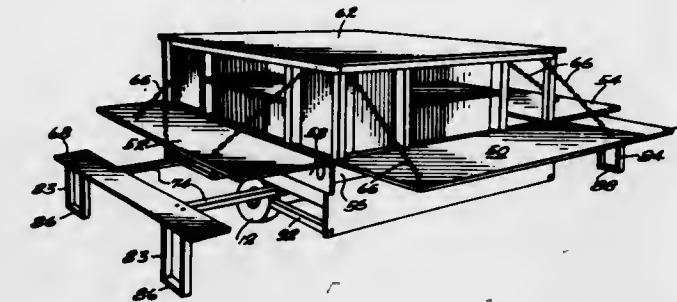
9 Claims

A picnicking and camping trailer adapted to be towed behind a vehicle such as a passenger automobile, pick-up truck or other vehicle. The picnic and camping trailer has a closed compartmentized body box having a plurality of separate compartments of varying sizes adapted to receive the various articles required for picnicking, camping or other recreational expeditions, such for example as a tent, bedrolls, cooking utensils, cold and normal temperature foods storage compartments, eating equipment, fishing and other sporting equipment, and all of the miscellaneous items or gear that are

required. The compartmentized body box has separate compartments of approximate sizes to separate the wet from the dry articles, and the rough articles such as tents from the food, cooking utensils etc.

The upper side, and preferably the back walls also of the camping and picnicking trailer are hinged along their bottom edges along horizontal axes to fold out and provide tables positioned at approximately 26 inches to 30 inches above ground level for the preparation and serving of food and for other purposes.

The lower side walls beneath the table forming walls are hinged mounted on laterally movable guides extending transversely of the camping trailer, and are movable outwardly and may be turned from vertical positions closing the lower side openings of the camping and picnicking trailer to horizontal positions spaced laterally beyond the outer edges of



the upper side walls when in the horizontal table forming position to provide benches approximately 16 inches to 18 inches above ground level and extending along the sides of the table and positioned at comfortable distances beyond the outer edges of the tables when in the horizontal positions to facilitate eating at the tables.

The bench forming members can be moved to the inner or travelling position and the upper table forming side walls can be hinged downwardly to the vertical position to permit ready access to the sides of the trailer to facilitate loading or unloading of the individual compartments of the body box.

The space on top of the camping trailer may be flat and may be used for many purposes such as sleeping, carrying of articles which for any reason cannot conveniently be positioned in any of the compartments, such for example as dead animals resulting from a hunt.

ERRATUM

For Class 297—195 see:
Patent No. 3,741,596

3,741,607 CHAIR

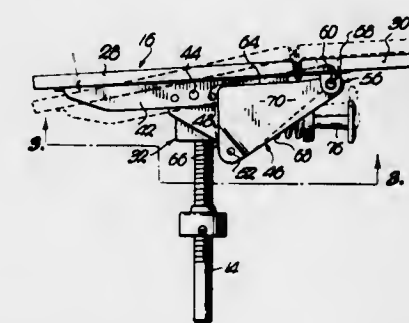
Harold W. Cramer, 8419 Linden, Prairie Village, Kans.

Continuation-in-part of Ser. No. 826,819, May 22, 1969. This application Oct. 5, 1970, Ser. No. 77,816

Int. Cl. A47c 1/02

U.S. Cl. 297—302

4 Claims



An office chair of the reclining type which is supported by the base and a standard, the chair having a back and a seat, the

seat having a front portion and a rear portion, the rear portion of the seat being connected to the back, the front and rear portion of the seat being hingedly interconnected, there being a link interconnecting the rear portion with the front portion of the seat whereby, when the chair is reclined, the rear portion of the seat will assume an angular position and the front portion of the seat will retain its initially, substantially horizontal position to thereby maintain the user of the chair in a true posture position.

3,741,608 LOAD DISCHARGE CONTROL SYSTEM

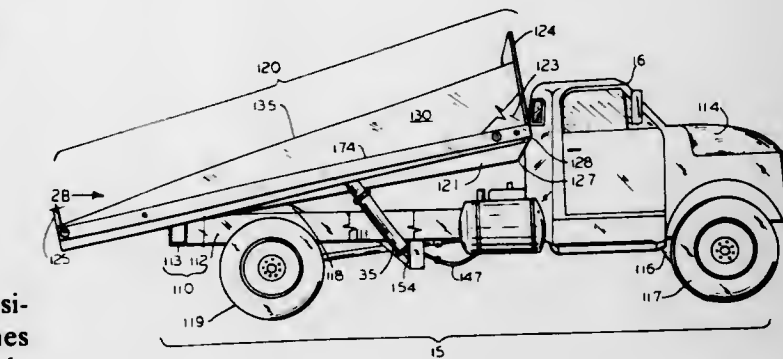
William T. Webb, 4720 Buffalo Trail, Amarillo, Tex.

Filed July 27, 1970, Ser. No. 58,409

Int. Cl. B60p 1/16

U.S. Cl. 298—17 S

3 Claims



Automatic control assembly in hydraulic system for raising and lowering a loaded movable truck bed includes a floating valve and provides for selectively raising and emptying the heavier portion of the loaded truck bed and instantaneous control to provide an overall even discharge from the bed and level orientation of the load.

3,741,609 CUTTER BAR

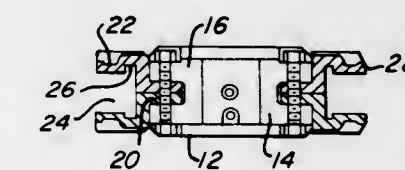
Ralph W. Mitchell, P. O. Box 6115, Franklin, Pa.

Filed June 29, 1971, Ser. No. 157,940

Int. Cl. E21c 25/30

U.S. Cl. 299—82

9 Claims



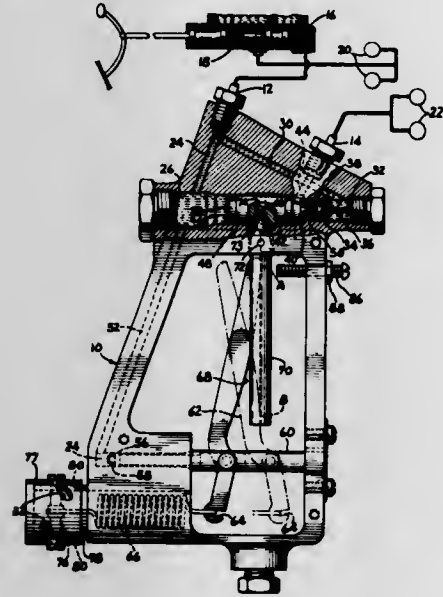
A cutter bar for a mineral cutting machine such as a coal cutter which bar is provided with a tapered body portion formed from a pair of oppositely facing elongated support channel members of U-shaped cross section secured and spaced apart in back toward back relationship by a plurality of spacer blocks rigidly secured therebetween and guideways formed of paired, channel-forming, one piece guide members of Z cross section having respective leg portions inserted in the support channels to form guideways of U-shaped cross section for a cutter chain having a link with leg portions to be inserted in the guideways and gibs on the ends of said leg portions to be received in gib raceways formed in the inside surfaces of the guide members adjacent to the bottom surfaces of the guideways.

3,741,610

VARIABLE RATIO PROPORTIONING DEVICE
 Harvison C. Holland, 230 22nd St., Santa Monica, Calif.
 Filed July 13, 1970, Ser. No. 54,206
 Int. Cl. B60t 8/26

U.S. Cl. 303—6 C

13 Claims



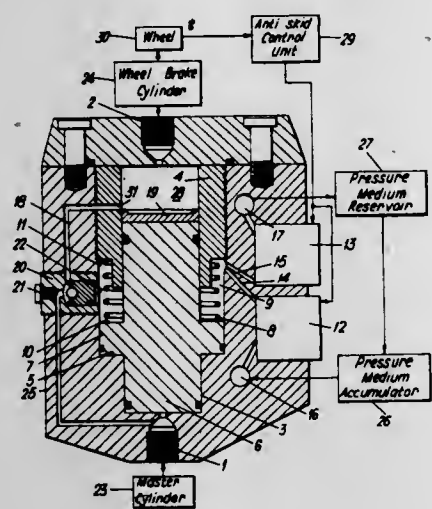
A proportioning device for producing a modulated outlet pressure which varies as a predetermined non-linear function of inlet pressure. A pair of opposed pistons are subjected to inlet and outlet pressures respectively and actuate a two-way valve for admitting pressure fluid to the outlet and permitting its return to the inlet. The forces on the pistons include pressure forces and also a biasing force whose value is determined by a third piston subjected to inlet pressure acting on the opposed pistons through a system of levers, a cam, and a spring.

3,741,611

PRESSURE MEDIUM CONTROL ARRANGEMENT FOR AN ANTISKID SYSTEM
 Otto Depenheuer, Bad Homburg, Germany, assignor to ITT Industries, Inc., New York, N.Y.
 Filed Apr. 27, 1972, Ser. No. 248,072
 Int. Cl. B60t 8/06

U.S. Cl. 303—21 F

9 Claims



The pressure medium control arrangement for an antiskid system disclosed herein disposes a piston directly and movably in the brake line between the master cylinder and the wheel brake cylinder. In this manner the brake line connected to the master cylinder and the brake line connected to the wheel brake cylinder are separated from each other. One transverse surface of the piston is applied with pressure built up in the master cylinder upon braking. A shoulder on the piston is applied with pressure from an accumulator in the opposite direction in response to an incipient skid signal. Movement of

the piston by accumulator pressure back towards the master cylinder input expands the volume of the brake line connected to the wheel brake cylinder and also pumps pressure medium back into the master cylinder. Heavy return springs and a pressure medium pump to return the pressure medium to the master cylinder are eliminated by the arrangement disclosed herein.

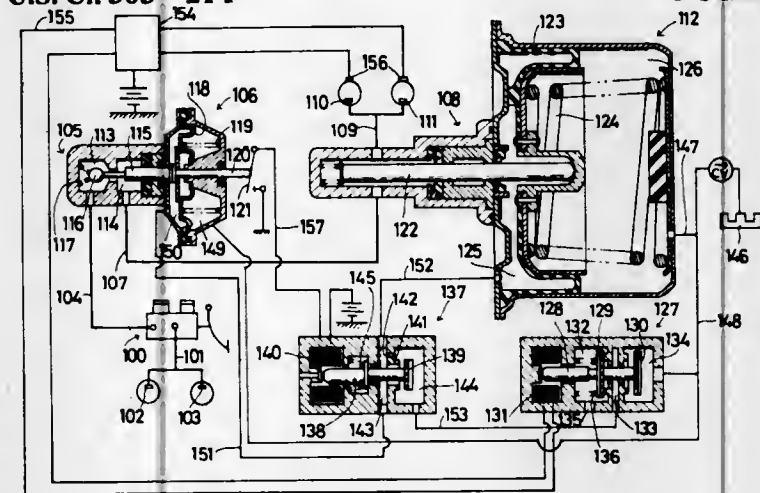
3,741,612

ANTI-SKID BRAKE SYSTEM
 Masamoto Ando, Kariya, Aichi Pref., Toyohashi, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya City, Aichi Pref., Japan
 Filed June 16, 1972, Ser. No. 263,433
 Claims priority, application Japan, June 18, 1971, 46/043844

Int. Cl. B60t 8/06

U.S. Cl. 303—21 F

8 Claims



An anti-skid brake system for the vehicle wheel which acts to limit, decrease, and permit subsequent increase of the brake application pressure in accordance with the generation of skid sensing signals, the brake system comprising a throttle means for controlling the pneumatic pressure supply to a servomotor assembly whereby the initial movement of the brake pressure reducing operation is started substantially simultaneously with generation of the skid sensing signal, while the brake pressure is subsequently reduced with a suitable decreasing ratio.

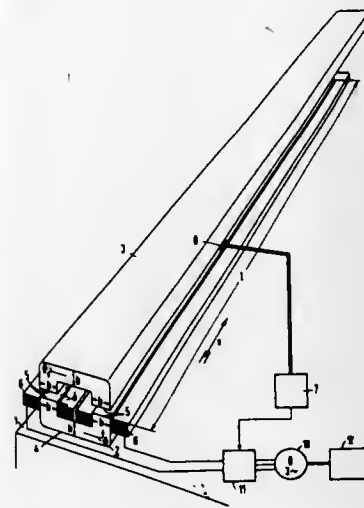
3,741,613

ELECTROMAGNETIC LEVITATION GUIDE
 Carl-Eric Pfaler, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany
 Filed July 14, 1971, Ser. No. 162,365
 Claims priority, application Germany, July 18, 1970, P 20 35 840.1

Int. Cl. F16c 39/06

U.S. Cl. 308—10

6 Claims



An electromagnetic levitation guide for a movable body has at least one direct-current magnet to hold the body in levita-

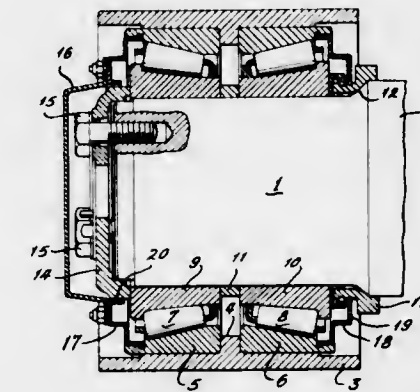
tion. A ferromagnetic rail is arranged along the travel path of the body at a constant spacing from the magnet, whereby the rail constitutes the armature return for the flux developed by the magnet. The magnet has a core having pole faces and the armature return also has pole faces; these pole faces are long and narrow and extend longitudinally in the direction of the travel path.

3,741,614

ROLLER BEARINGS
 Ronald Anthony Judge, Kingsthorpe, England, assignor to The Timken Company, Canton, Ohio
 Filed Aug. 27, 1971, Ser. No. 175,595
 Int. Cl. F16c 19/14

U.S. Cl. 308—180

3 Claims

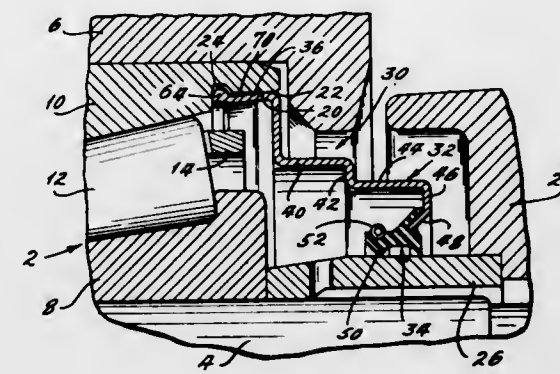


An axle box receives a pair of roller bearings and has an inwardly projecting abutment against which the outer races of the roller bearings abut. The inner races of the bearings receive a reduced journal at the end of an axle and are captured between a shoulder at one end of the journal and an end cap at the other end of the journal. A spacer is fitted around the journal and between the two inner races, and this spacer is selected to provide the correct adjustment for the bearings. The abutment encircles the spacer and is disposed between the outer races of the bearings so that thrust loading is transmitted between the axle box and bearings through the abutment.

3,741,615

BEARING SEAL CASE MOUNTING
 Dennis L. Otto, Malvern, Ohio, assignor to The Timken Company, Canton, Ohio
 Filed May 3, 1971, Ser. No. 139,521
 Int. Cl. F16c 33/78; F16j 15/32
 U.S. Cl. 308—187.1

3 Claims



A bearing seal case has a large circumferential wall which fits into a cylindrical socket in the end of a bearing cup. The circumferential wall includes an enlarged portion which frictionally engages the cylindrical surface of the socket by reason of an interference fit between the two, a reduced portion which tapers inwardly from the enlarged portion and is spaced

inwardly from the cylindrical surface of the socket, and a locking bead which projects outwardly beyond the reduced and enlarged portions and into a relief formed in the cup at the end of the socket. To prevent slippage between the seal case and the cup, an elastomeric material is bonded to the reduced portion, and this material is interposed between the cylindrical surface of the socket and the reduced portion in a distorted condition so that it remains firmly engaged with the cup when the normal interference fit between the enlarged portion and the cylindrical socket wall diminishes to the extent that the seal case might otherwise work loose.

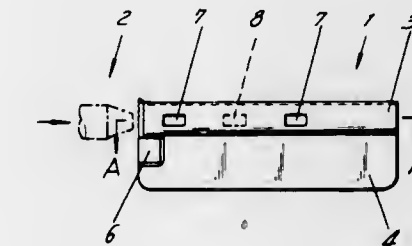
3,741,616

BEARING, PARTICULARLY FOR VEHICLE SUN VISOR
 Gert Mahler, Radevormwald, and Wolfgang Meissner, Wengern, both of Germany, assignors to Gebr. Hoppich G.m.b.H., Wuppertal-Elberfeld, Germany
 Filed Feb. 19, 1971, Ser. No. 116,826
 Claims priority, application Germany, May 22, 1970, G 70 19 067.9

Int. Cl. F16c 33/04

U.S. Cl. 308—237

8 Claims



A bearing formed by folding a sheet to create a hollow, cylindrical shell, bearing body for receiving a bearing shaft and flaps extending beyond the bearing body, means extending over a short length of the bearing body for holding the flaps of the folded sheet together to impart resiliency to the bearing body; a plurality of spaced projections on diametrically opposed locations in the interior of the shell of the bearing body, for being engaged by the bearing shaft, and for causing the bearing body to flex outward and to press inward against the bearing shaft, thereby to resiliently brake the visor against undesired reorientation.

3,741,617

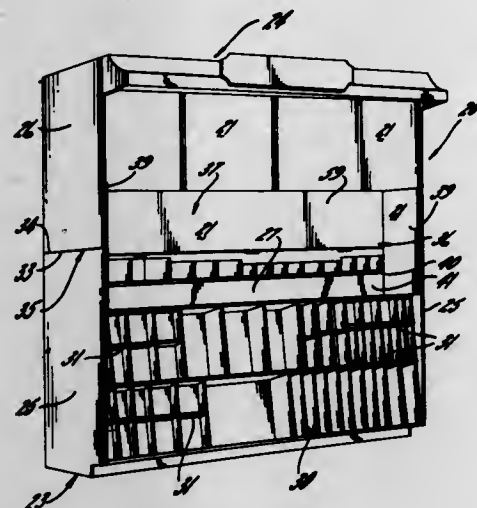
SELF-SERVICE MERCHANDISER
 Lawrence E. Gloyd, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill.
 Filed Aug. 30, 1971, Ser. No. 176,019
 Int. Cl. A47b 87/00

U.S. Cl. 312—108

8 Claims

A knockdown, portable merchandiser includes a base section with upright side walls spanned by a back wall and a plurality of open front compartments located between the side walls for self-service storage of retail articles. An upper section fits edge-to-edge on top of the base section and includes a storage box projecting below the lower edge of the upper section for insertion into the upper end of the base section to align and stabilize the upper section on top of the base section.

Rectangular panels overlap the side walls of the upper section and the base section with opposite ends of the panels attached



to the side walls of the base section and upper section, respectively, to hold the upper section on top of the base section.

3,741,618

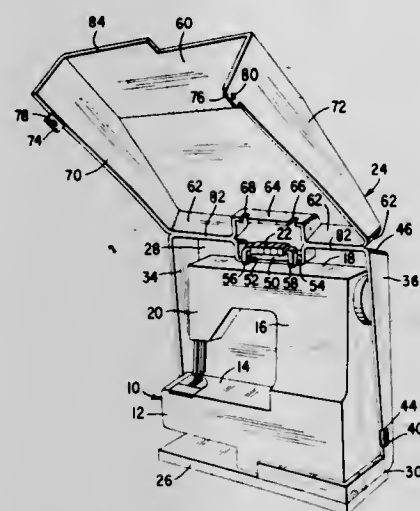
SEWING MACHINE CASES

Albert L. Newman, Cleveland Heights, Ohio, assignor to The Singer Company, New York, N.Y.

Filed May 3, 1971, Ser. No. 139,485

Int. Cl. A47b 21/00, 95/02

U.S. Cl. 312-208



An integrally formed case for a sewing machine which when closed provides a protective enclosure when the sewing machine is carried and provides a work supporting surface when the sewing machine is operated. The case is removably affixed to the sewing machine and when opened exposes the tubular bed for use.

3,741,619

LOCKING APPARATUS FOR VENDING MACHINES OR THE LIKE

Kermit W. Dyer, Overland Park, Kans.; John V. Handley, Kansas City, Mo., and Judson D. Smith, Prairie Village, Kans., assignors to The Vendo Company, Kansas City, Mo.

Filed Oct. 27, 1971, Ser. No. 192,981

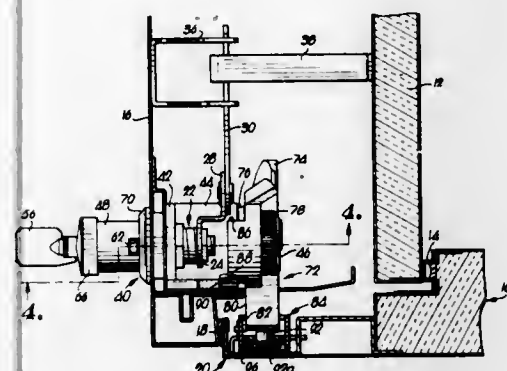
Int. Cl. E05b 65/04

U.S. Cl. 312-215

14 Claims

A locking system for a vending machine cabinet having an inner product area door and an outer security door for closing the cabinet as a whole utilizes the latch operating handle associated with the primary lock on the outer door, which latches the outer door to the cabinet, to conceal and prevent access to the secondary lock, which latches the two doors together with a space for housing control elements confined therebetween. Partial rotation of the handle when the primary

lock is unlocked, exposes the secondary lock to permit unlocking of the latter without causing unlatching of the outer door from the cabinet, thus permitting the doors to be unlocked from one another as a prelude to opening of the outer door only for access to said housing space without exposing the storage area of the cabinet to ambient temperature air as



would occur upon opening of the inner door also. Release of the primary lock alone permits access to the product area but not to the housing space to prevent unauthorized access to stored coins and tampering with control elements therein; while release of both locks permits access to either or both said area and said space, if desired.

3,741,620

FIFTH LEG FOR MERCHANDISING MACHINE CABINET

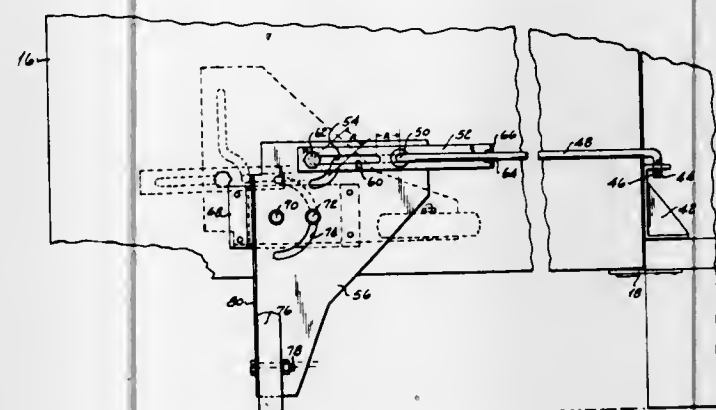
Leo Kull, West Caldwell, and Bruce B. Landis, Long Valley, both of N.J., assignors to Rowe International Inc., Whippany, N.J.

Filed Jan. 17, 1972, Ser. No. 218,071

Int. Cl. A47b 96/00

U.S. Cl. 312-276

14 Claims



A fifth leg for a merchandising machine cabinet having a door carrying a secondary merchandising unit and having a principal merchandising unit mounted in the cabinet so as to permit it to be swung out of the cabinet for loading, in which a leg pivoted on the door at a location remote from the door hinge moves from a retracted position to an extended position in response to movement of the door from said partially open position to said fully closed position so as to balance the machine whenever the door is between its partially open position and its fully open position.

3,741,621

ADD LENS PROJECTION SYSTEM WITH BALANCED PERFORMANCE

George L. McCrobie, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 1, 1971, Ser. No. 130,134

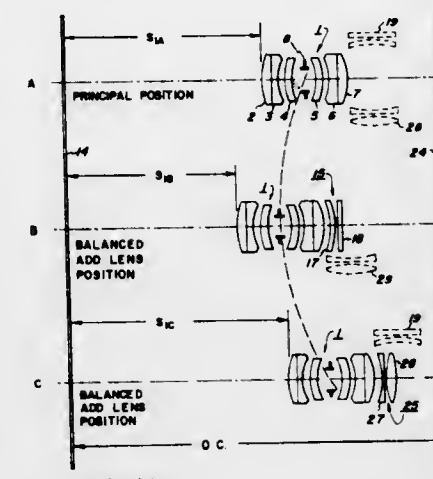
Int. Cl. G02b 15/10, 7/04

U.S. Cl. 350-183

7 Claims

An add lens projection system is designed such that substantially similar system performance is obtained with added and subtracted add lens elements at balanced positions on either

side of a principal position at which the basic lens combination is designed. The basic lens combination may include a non-



symmetrical split dagor lens or a non-symmetrical heliar lens plus singlet.

3,741,622

VARIABLE MAGNIFICATION OPTICAL SYSTEM

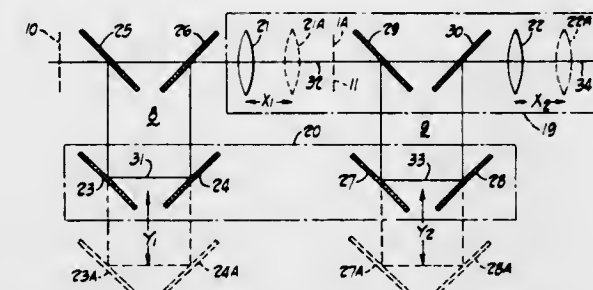
Arthur Cox, Park Ridge, Ill., assignor to The Austin Company, Cleveland, Ohio

Filed Aug. 4, 1971, Ser. No. 168,893

Int. Cl. G02b 7/04

U.S. Cl. 350-40

13 Claims



A variable magnification optical system is disclosed utilizing movable focus devices and movable reflective devices to obtain an extremely wide variation in magnification. A concave mirror and correcting lens is used for image input to the optical system and to correct the Petzval sum of the system.

3,741,623

COMBINED LENS AND REFLECTOR

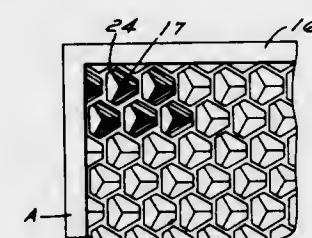
Michael J. Mihalik, Windsor, Ontario, Canada, assignor to Reflex Corporation of Canada Limited, Amherstburg, Ontario, Canada

Filed Aug. 14, 1970, Ser. No. 63,709

Int. Cl. G02b 5/12

U.S. Cl. 350-103

11 Claims



A combined lens and reflector comprising a body of light transmitting material having an outer surface and an inner surface. The inner surface is formed of a plurality of spaced cubic prisms separated by flat areas. Each prism comprises three surfaces intersecting one another to form a cube corner, the lines of intersection of said surfaces extending to a base having

six sides comprising alternating long and short sides with each line of intersection extending and intersecting a short side intermediate its ends. A method of making a combined lens and reflector is disclosed wherein a plurality of reflector pins having cubic ends are assembled together, an electroform is formed to produce a body having recesses each of which comprises a cubic shape. The electroform is then machined so that the bases of the recesses define hexagonal shapes having surfaces lying in a common plane. The lines of intersection of the cubic recesses intersect the short sides of the bases.

3,741,624

PROJECTOR DEVICE FOR DRAWING

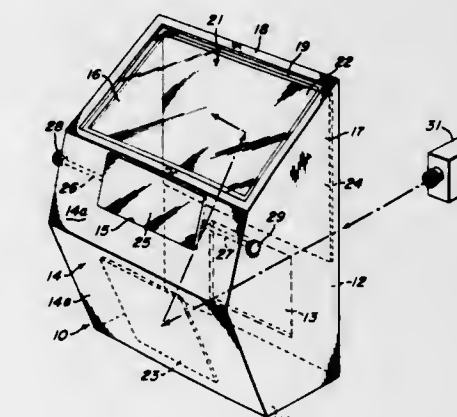
Charles H. Kuntz, 340 Great Oaks Drive, Dayton, Ohio

Filed Aug. 4, 1971, Ser. No. 168,862

Int. Cl. G03b 21/56

U.S. Cl. 350-121

6 Claims



A device receiving projected light images and reflecting them through a transparent work table from the underside. A user of the device mounts a work sheet on the top surface of the table and uses the image projected therethrough to depict a like image, or portions of it, on the work sheet. The device includes an adjustable mirror for enabling the user to obtain a direct view of the projected image when desired.

3,741,625

POLARIZATION-INSENSITIVE MILLIMETER-WAVE DIRECTIONAL COUPLER

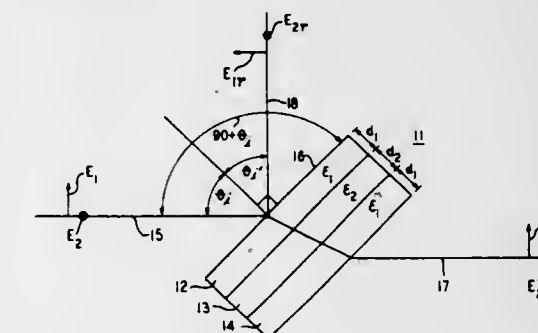
Adel Abdel Monem Saleh, Matawan, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 21, 1971, Ser. No. 154,995

Int. Cl. G02b 27/28

U.S. Cl. 350-147

5 Claims



A polarization insensitive quasi-optical directional coupler comprising three contiguous dielectric layers. Polarization insensitivity of the coupler is realized by selecting the thicknesses and dielectric constants of the layers and the angular orientation of the coupler such that they satisfy predetermined relationships.

3,741,626

COMMUNICATION

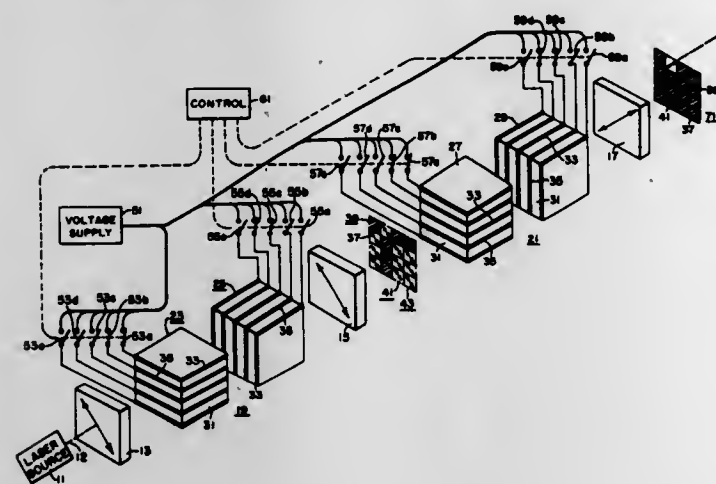
John L. Wentz, Ellicott City, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 18, 1971, Ser. No. 172,850

Int. Cl. G02f 1/26

U.S. Cl. 350-150

12 Claims



There is disclosed apparatus and a method for producing a selected visual pattern. A collimated linearly-polarized laser beam of radiation, is passed in succession through, and subdivided into a matrix of potentially visual elements by, a pair of matrices of coextensive light-modulating cells, each cell matrix formed by crossed arrays of electro-optic crystals disposed with their optic axes at right angles to the beam and at right angles to each other. Voltage is impressed on selected crystals of each array of the first matrix to produce a phase shift of 90° in the plane of polarization of the elements of the beam passed by these selected crystals. The beam emerging from the first cell matrix is passed through a linear polarizer whose polarization is in the same plane as the incident beam, the polarizer passes only elements of the beam which were modulated by crystals of both arrays and unmodulated elements. Voltage is impressed on crystals of each array forming the second matrix which are coextensive with the selected crystals of the first matrix; this voltage shifts the plane of polarization of the beam elements passed by both crystals of the second matrix by 90°. The beam emerging from the second matrix is passed through a polarizer whose plane of polarization is at 90° to the polarization of the incident beam. Only the elements of the beam which pass through the crystals of all four arrays emerges.

3,741,627

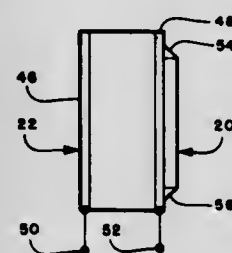
STRAIN BIASED FERROELECTRIC ELECTRO-OPTICS
Gene H. Haertling; Cecil E. Land, and Ira D. McKinney, all of Albuquerque, N. Mex., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Dec. 1, 1971, Ser. No. 203,723

Int. Cl. G02f 1/26

U.S. Cl. 350-150

8 Claims



An electrooptic birefringent device and apparatus using the same including a ferroelectric ceramic plate, which is capable of exhibiting electrically induced birefringence effects, rigidly mounted on a ferroelectric structure, means for electrically in-

ducing a dimensional change in said piezoelectric structure to produce a uniaxial stress in said ceramic plate in a direction parallel to the major surfaces of said plate, and means for thereafter applying electric fields between the major surfaces of the ceramic plate to effect birefringence changes therein.

3,741,628

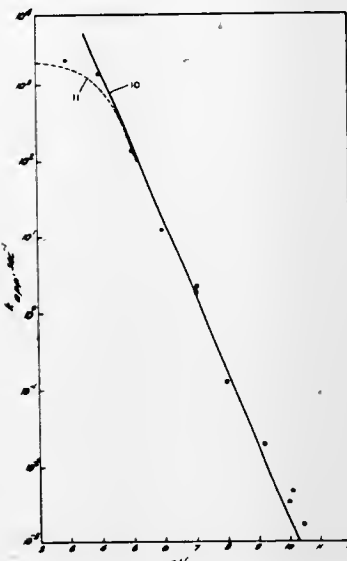
METHOD OF CONTROLLING THE INTENSITY OF A LIGHT BEAM USING PHOTOCHROMIC COMPOUNDS
John D. Margerum, Chatsworth, Calif., Hughes Aircraft Company, Culver City, Calif.

Division of Ser. No. 676,544, Oct. 19, 1967, Pat. No. 3,649,549. This application Dec. 29, 1970, Ser. No. 102,547

Int. Cl. G02f 1/36

U.S. Cl. 350-160 P

6 Claims



The disclosure herein relates to reversible phototropic systems, compounds and compositions and the discovery of photochromic structures which regularly undergo reversible phototropism as photo induced reversible color change in water and water containing substrates including particularly the control of their back reactions and the method of use thereof by providing a multiple color and color change indicator and/or light filters.

3,741,629

ELECTRONICALLY VARIABLE IRIS OR STOP MECHANISMS

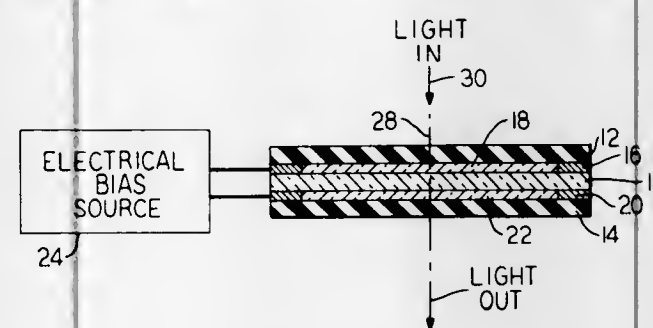
Frederic Jay Kahn, Madison, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Oct. 26, 1971, Ser. No. 192,115

Int. Cl. G02f 1/16

U.S. Cl. 350-160 LC

14 Claims



An electro-optic material whose optical transmission characteristic varies with applied voltage is disposed between two planar electrodes. One of the electrodes comprises a high-resistivity transparent section bounded by a low-resistivity annular section. Application of a voltage between the annular section and the other electrode establishes a radially-directed voltage gradient in the plane of the one electrode. In turn, the voltage drop across the electro-optic material is a function of

3,741,630

ULTRA-WIDE ANGLE PHOTOGRAPHIC LENS

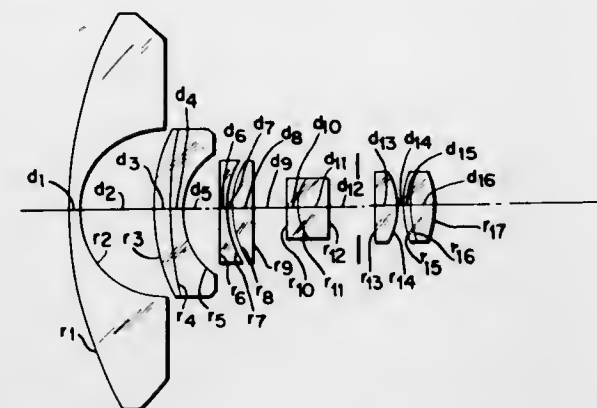
Jihei Nakagawa, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Nov. 5, 1971, Ser. No. 196,080

Int. Cl. G02b 9/62, 9/62

U.S. Cl. 350-214

4 Claims



Ultra-wide angle photographic lens having a sufficiently long back focus suitable for use in a single lens reflex camera and consisting of six lens components of which the first to third lens components beginning at the object side are of negative power, the fourth, fifth and sixth lens components being of positive power, the second, third, fourth and sixth lens components consisting of cemented lens elements, while each of the first and fifth lens groups consists of a single lens element. The ultra-wide angle photographic lens satisfies the following conditions:

$$f < |f_{123}| < 2.5f \quad (1)$$

$$n_2 > n_3; 15f < r_4 < 35f \quad (2)$$

$$\nu_4 > \nu_3; f < r_7 < 3.5f \quad (3)$$

$$f < r_{15} < 3.5f \quad (4)$$

$$\nu_6 < 30; \nu_{10} > 50 \quad (5)$$

where:

f = focal length of the entire system

f_{123} = resultant focal length of the first to third lens components, inclusive

r_i, n_i, ν_i = radius of curvature, refractive index and Abbe number, respectively, of each of the lens elements, i beginning at the object side

d_i = thickness of the lens element and air gap, i beginning at the objective side.

3,741,631

RADIATION INCIDENCE CONTROL MEANS

Nikolaus Laing, Aldingen near Stuttgart, Hofener, Germany

Filed Mar. 11, 1971, Ser. No. 123,210

Claims priority, application Switzerland, Mar. 16, 1970, 3853/70

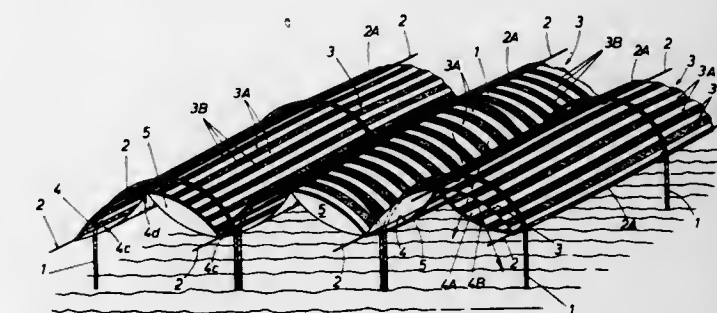
Int. Cl. G02f 1/30

U.S. Cl. 350-267

5 Claims

The described invention makes use of at least two screens which have complementary transparent and opaque patterns and which are relatively movable towards and away from each other so that when adjacent they obturate radiation and when separated they pass it. Thus radiation, for example upon a

plant-cultivation area or into a green house, is controllable. Selective filtration may be used to control selected parts of the



spectrum. The operation is preferably by inflating and deflating spaces between the screens at least one of which is pliable.

3,741,632

ANTI-GLARE MIRROR WITH ONE REFLECTING FACE FORMED OF AN ARRAY OF PRISMS

David Stern, Windsor, Berkshire, England, assignor to Combined Optical Industries, Limited, Slough, Buckinghamshire, England

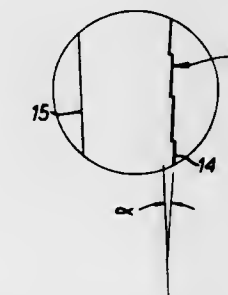
Filed Jan. 12, 1971, Ser. No. 105,900

Claims priority, application Great Britain, Jan. 23, 1970, 3,435/70

Int. Cl. B60r 1/04; G02b 5/08

U.S. Cl. 350-281

7 Claims



A method of making a mirror in which a body is moulded of transparent synthetic plastics material, the body having a plain face and a face equispaced therefrom and including linear prisms integral therewith, the prisms together forming a surface which will reflect incident light received from one direction in a common direction different from that in which the plain surface will reflect that incident light and with a reflective power different from that of the plain surface.

3,741,633

VEHICLE BLIND SIDE MIRROR SYSTEM

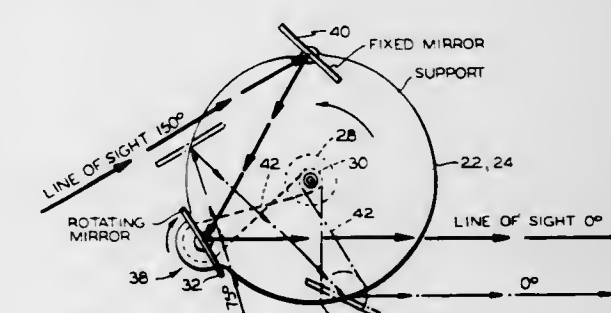
Ernest K. Haley, 134 Northwestern Parkway, Louisville, Ky.

Filed Oct. 13, 1971, Ser. No. 188,882

Int. Cl. G02b 5/08

U.S. Cl. 350-302

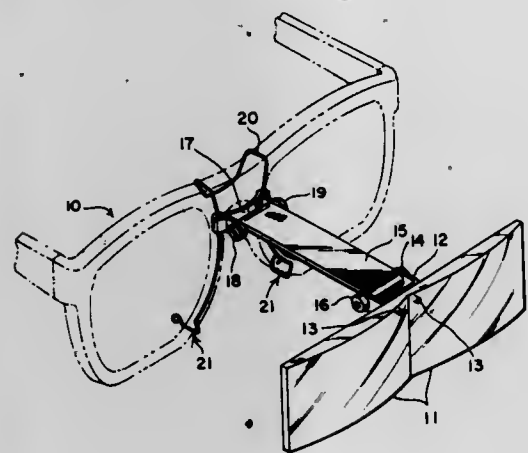
6 Claims



A blind side mirror system and apparatus including a fixed mirror and a rotating mirror so combined and operable to provide blind side viewing when backing or turning a semi-trailer.

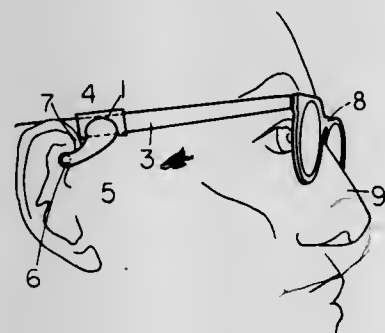
A belt drive is employed to pivot the rotating mirror according as the cab is turned. The mirror system is adjustable, and positioned and controlled from the cab, and can be positioned for view of the blind side when backing and turning in either direction. The mirrors can be rotated to a position where there will be minimum interference when not required. The mirrors are mounted in such a manner as to utilize normal rear view mirrors or direct viewing by the driver.

3,741,634
BINOCULAR SPECTACLES
Morton Stoltze, 1 Fox Lane, West Nyack, N.Y.
Filed Dec. 14, 1971, Ser. No. 207,883
Int. Cl. G02c 7/08; G02b 25/02, 27/02
U.S. Cl. 351—57



Binocular spectacles comprising at least one binocular lens, a flexible cylindrical wire bent so as to have an upper U-shaped lip disposed over the top of conventional eyeglass frames and end members having U-shaped lips for engaging the sides of the eyeglass frames, for mounting the lenses on the frames, and a pair of U-shaped mounting members pivotably coupled together by a rigid thin mounting strip, and attached to the binocular lens and cylindrical wire, for pivotably coupling the binocular lens to the mounting wire and pivotably securing the binocular lenses on the eyeglass frames.

3,741,635
SPECTACLE POSITIONING AND SECURING DEVICES
Stanley Wortman, 3623 Stettinius Avenue, Cincinnati, Ohio
Filed Nov. 1, 1971, Ser. No. 194,433
Int. Cl. G02c 5/14
U.S. Cl. 351—123

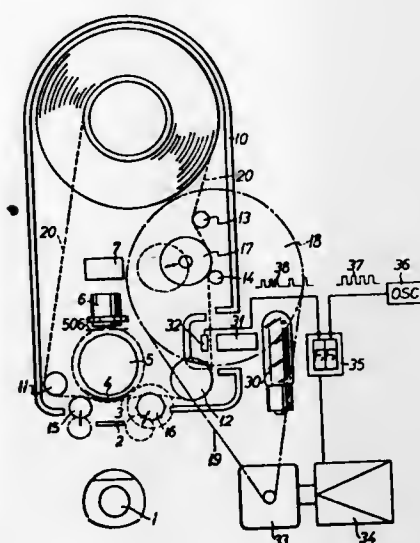


The invention teaches the use of an adjustable hook means adjustably secured to the temples of spectacles. The hook means being adapted to hook on to the forward helix of the ears of a person and fix the distance between the helix and the bridge of the nose of a person and thereby prevent the spectacles from sliding on the bridge of the nose of the person wearing the spectacles.

3,741,636
MOTION PICTURE PROJECTING DEVICE WHICH AUTOMATICALLY CHANGES THE PROJECTION SPEED
Yoshiaki Nakayama, Tokyo, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-Ashigara-shi, Kanagawa, Japan
Filed Mar. 3, 1971, Ser. No. 120,417
Claims priority, application Japan, Mar. 3, 1970, 45/18119
Int. Cl. G03b 21/48

U.S. Cl. 352—180

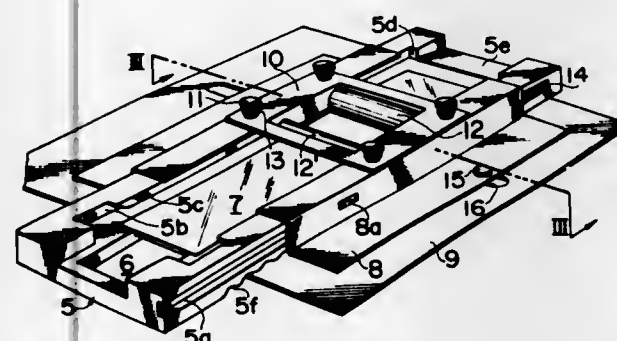
5 Claims



A motion picture projecting device having a means for sensing film projecting speed signals recorded on the film strip or on a separate magnetic recording tape and including a speed control means for automatically controlling the projection speed in response to the sensed speed signals to enable a reduced length of film per unit time to be used for more efficient use of the film.

3,741,637
SHEET-SHAPED FILM HOLDING MECHANISM IN PROJECTOR
Mamoru Katsuragi, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka-shi, Osaka, Japan
Filed Mar. 19, 1971, Ser. No. 125,962
Claims priority, application Japan, Mar. 19, 1970, 45/26319; Mar. 19, 1970, 45/26320; Mar. 26, 1970, 45/28987
Int. Cl. G03b 23/08, 21/00
U.S. Cl. 353—120

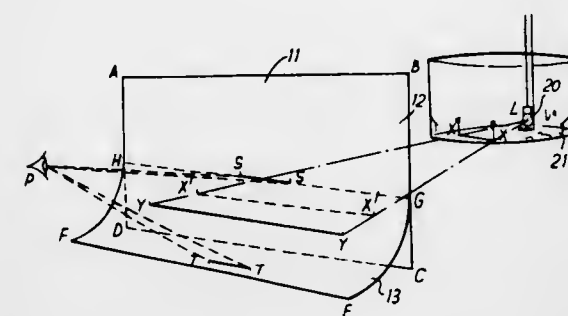
2 Claims



A sheet-shaped film holding mechanism for use with a projector adapted for individually projecting the respective picture frames of a sheet-shaped film having a number of picture frames on one sheet, such as, for example, a microfiche or jacket film. The film carrier is particularly adapted to facilitate loading and removal of the sheet-shaped film and switching from one picture frame to another. The holding mechanism includes rollers adapted for flattening a sheet-shaped film held thereby and for holding the film in such flattened condition.

3,741,638
VISUAL SIMULATION
Michael Edward Geary, Aylesbury, England, assignor to Redifon Air Trainers Limited, Aylesbury, England
Continuation-in-part of Ser. No. 710,603, Mar. 5, 1968, abandoned.
Filed Oct. 20, 1970, Ser. No. 82,425
Int. Cl. G03b 21/00
U.S. Cl. 353—122

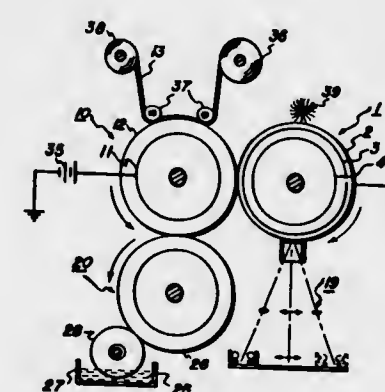
1 Claim



The shadowgraph visual simulation system, for a land vehicle simulator, includes a three-dimensional model of terrain; and a light source mounted at a fixed height within the boundaries of the model and able to change its relative position within the model boundaries in accordance with supposed changes of the position therein of the vehicle simulated. An upright translucent viewing screen is mounted at one side of the model and on to one side of this the light source projects a changing picture of the model scene. An observation station for a vehicle trainee is provided on the side of the screen opposite to the model and light source, wherein the point of observation of the trainee is low in relation to the screen height and the upper part of the screen is vertical and flat while the lower part curves progressively out of the vertical in the direction away from the model and light source, with the vertical upper part of the screen blending into the non-vertical lower part in a smooth curve at the "horizon" line of the picture on the screen, thereby improving the perspective for the case where the "viewpoint" represented by the light source is too high in relation to the model.

3,741,639
PHOTOELECTROPHORETIC IMAGING BY PHOSPHORESCENCE
Christopher Snelling, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Division of Ser. No. 32,238, Apr. 27, 1970, Pat. No. 3,681,221. This application Apr. 28, 1972, Ser. No. 248,767
Int. Cl. G03g 15/00
U.S. Cl. 355—3

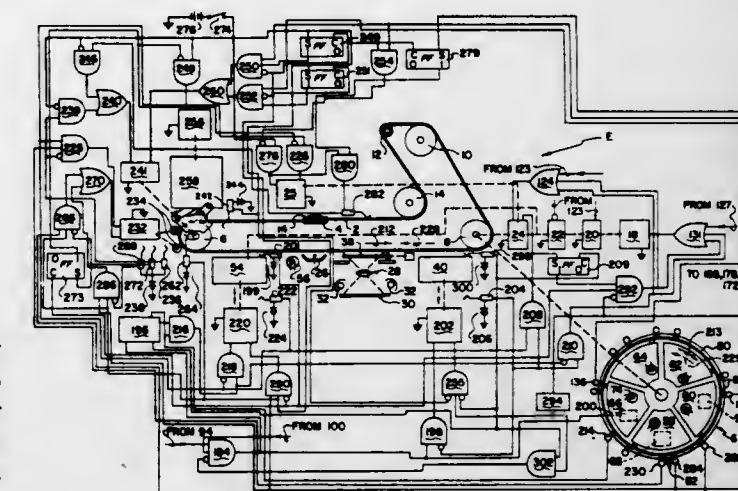
5 Claims



There is disclosed a photoelectrophoretic imaging system utilizing a phosphorescent energy source to provide the necessary radiation for imaging. In response to radiation emitted from the particular energy source the photoelectrophoretic particles present in the imaging suspension are effected in such a manner so as to produce an image.

3,741,640
SEQUENCER DEVICE FOR CONTROLLING WEB REPLACEMENT IN ELECTROPHOTOGRAPHIC APPARATUS
Lionel R. Hickey, Webster, and Frank L. Guyette, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Oct. 21, 1971, Ser. No. 191,291
Int. Cl. G03g 15/00
U.S. Cl. 355—3

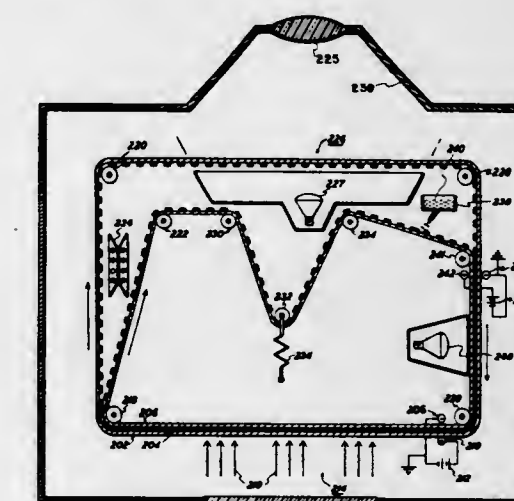
2 Claims



Electrophotographic copy apparatus is disclosed of the type having an electrophotosensitive web movable along an endless path relative to a plurality of actuable work stations, wherein each of the work stations is operative when actuated to perform a work operation on the web. The apparatus includes a mechanism effective when actuated for replacing the electrophotosensitive web on the path with a new web; and a sequencer which is effective in a first condition for controlling the actuation of the work stations for causing particular ones of the work stations to perform respective work operations on the web in timed relation to web movement in order to reproduce a predetermined number of copies of an information medium such as a document, and in a second condition for actuating the mechanism for replacing the electrophotosensitive web.

3,741,641
MANIFOLD IMAGING APPARATUS
Robert W. Gundlach, Victor, and John B. Wells, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.
Division of Ser. No. 838,193, July 1, 1969, Pat. No. 3,653,892.
This application Feb. 14, 1972, Ser. No. 225,884
Int. Cl. G03g 15/00
U.S. Cl. 355—5

11 Claims



An imaging apparatus wherein a reusable imaging layer comprising a cohesively weak electrically photosensitive

imaging material is sandwiched between a donor sheet and a receiver sheet, subjected to an electric field and exposed to an imagewise pattern of electromagnetic radiation to which it is sensitive. The donor and receiver sheets are then separated thereby fracturing the imaging layer in imagewise configuration. The imaging layer is rendered reusable by recombining the sandwich, subjecting it to an electric field while flood exposing the imaging layer to electromagnetic radiation to which it is sensitive. The apparatus is provided with a viewing station for viewing a positive or negative image.

3,741,642

HAND-FED ELECTROPHOTOGRAPHIC COPIER

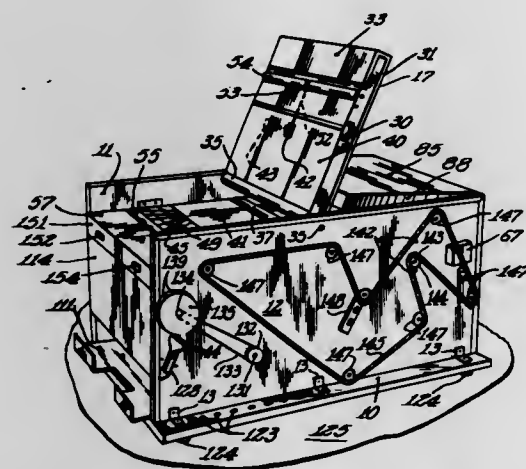
Kenneth R. Reick, Oak Brook, and David F. Wolff, Glen Ellyn, both of Ill., assignors to Sunbeam Business Equipment Co., Addison, Ill.

Filed Aug. 6, 1969, Ser. No. 847,905

Int. Cl. G03g 15/12

U.S. Cl. 355—8

17 Claims



A hand-fed electrophotographic copier cabinet has vertically aligned front entrances to copy sheet and document original guide passageways with respective conveyor rollers located to receive the respective edges of the copy and document at the same distance into the respective passages, with the document tripping a switch to illuminate a scanning aperture as the document approaches such aperture and the copy sheet approaches an exposure aperture while passing through an electrostatic charging device. The document maintains the switch closed until both the document and the copy sheet have left their respective apertures. An upper front cover serves as a document feed table and also as part of the document guide means carrying the control switch, idler rollers and a hold-down plate over the exposure aperture, and is mounted to be opened for immediate access to the document passage for any reason such as jamming difficulty. The exposed copy sheet travels through a developer tray, subsequent squeeze rollers and down a chute to a receiving point at the lower front of the cabinet while passing through a circulation of drying air and a set of copy sheet pacing rollers. At the upper rear and at the back of the cabinet respective covers enable ready access to the copy sheet transport and treatment area of the cabinet.

3,741,643

PNEUMATIC ASSEMBLY FOR REMOVING EXCESS DEVELOPER LIQUID FROM PHOTOCONDUCTIVE SURFACES

Ian Edward Smith, Lockleys; Peter John Hastwell, Elizabeth Grove, and Marinus Cornelius Vermeulen, Valley View, South Australia, all of Australia, assignors to Savin Business Machines Corporation, Valhalla, N.Y.

Filed Nov. 19, 1971, Ser. No. 200,433

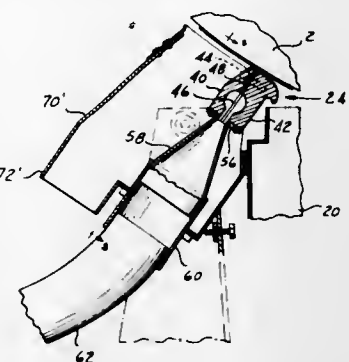
Int. Cl. G03g 15/10

U.S. Cl. 355—10

11 Claims

Our invention contemplates a pneumatic assembly for removing excess developer liquid from photoconductive sur-

faces. Electrophotographic apparatus for exposing an electrostatically charged photoconductive surface to a pattern of light and shade to produce a latent electrostatic image and then toning that image with a liquid toner is known to the art. In order that such electrophotographic apparatus may operate over extended periods of time and produce copy without soiled background, it is necessary to remove excess liquid toner from the photoconductive surface. It has been suggested that the excess toner be removed with an elongated jet of air or air knife. We have discovered that the angle of incidence of the air jet is significant and that advantageous results are obtained by positioning the air knife so that the air jet is substantially normal to the moving photoconductive surface. We have



provided means for removing an accumulation of toner contained in the developer liquid from the air knife nozzle and from the photoconductive surface adjacent the nozzle.

The removal of excess toner liquid evaporates the light components of the liquid, such as light hydrocarbon liquids, and creates some air pollution. We have provided means for preventing the discharge of evaporated hydrocarbon vapors into the atmosphere. We accomplish this by a hood around the air knife assembly into which sufficient air is bled. An amount of polluted air, equivalent to that bled into the system, is passed into a filter such as one formed of activated charcoal before being discharged into the atmosphere to remove the light hydrocarbon vapors from the discharged air.

ERRATUM

For Class 355—15 see:
Patent No. 3,740,864

3,741,644

ORIGINAL POSITION CONFIRMING MEANS FOR DUPLICATING APPARATUS

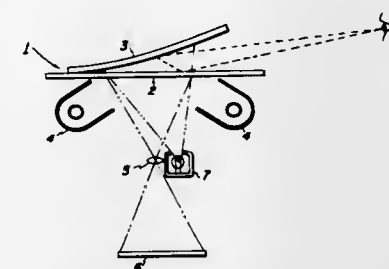
Seiji Matsumoto, Asaka; Satoru Honjo, Tokyo, both of Japan; Masamichi Sato, Urbana, Ill., and Osamu Fukushima, Setagaya-ku, Tokyo, Japan, assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 14, 1972, Ser. No. 217,732

Int. Cl. G03b 27/52

U.S. Cl. 355—40

3 Claims



Apparatus is disclosed for use in aiding an operator to accurately position an original to be reproduced in registration with the aperture and transparent platen in a reproducing system. The disclosed apparatus includes an auxiliary light

source which is disposed in a position apart from the path of projection of the optical system of the reproducing apparatus and illumination from the auxiliary light source is directed onto an area of the original to indicate the relative positioning between the original and the reproducing system.

3,741,645

PHOTO-ELECTRONIC FILM TRANSPORT

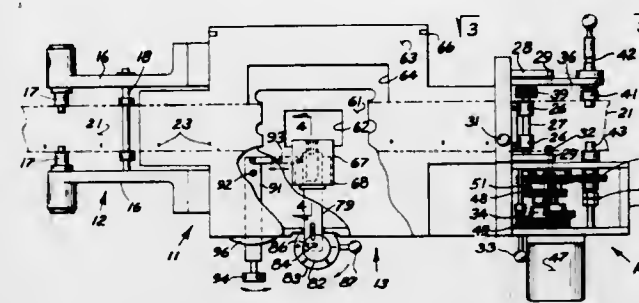
Henry C. Hollwedel, Jr., Belmont, and Donald R. Allan, Menlo Park, both of Calif., assignors to George Lithograph Company, San Francisco, Calif.

Filed Nov. 4, 1971, Ser. No. 195,699

Int. Cl. G03b 27/52

U.S. Cl. 355—41

6 Claims



Film, such as microfilm, is moved through an apertured frame positioned between an exposure beam (e.g. enlarger lamp) and sensitized paper or other object to be exposed. The edge of the film is pre-marked with locating spots which interrupt light from a source on one side of the film to a photocell on the opposite side. The light interruption controls operation of a motor which drives the film. Preferably there are two consecutive lights and photocells, the first causing the motor to slow and, through clutches to vary the gear ratio, and the second stopping the film accurately located relative to the frame aperture. Means is also provided to move the photocells toward and away from the film edge to sense different channels of locating spots and other means to adjust timing and positioning by moving the photocells short distances longitudinally of the film.

3,741,646

COPYING APPARATUS

Wilhelm Knechtel, Biebertal; Gerhard Petersdorf, Pohlheim/W-Stbg, and Winfried Sandner, Rechtenbach, all of Germany, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

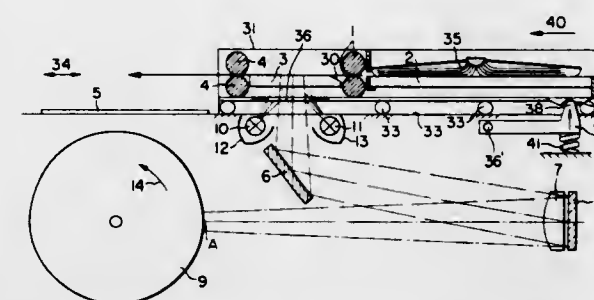
Filed Feb. 11, 1972, Ser. No. 225,483

Claims priority, application Germany, Feb. 16, 1971, P 21 07 321.2

Int. Cl. G03b 27/32

U.S. Cl. 355—50

7 Claims



A copying apparatus in which thin or thick originals such as individual sheets or thick books are selectively driven over an illumination slit aperture, characterized by a transparent book support such as a glass plate connected to a known transport mechanism for individual sheets such as a pair of transport rolls. The book support is located on the extension of the transport mechanism, and the transport mechanism and the book support are selectively movable together.

3,741,647

MICROFILM COPIER

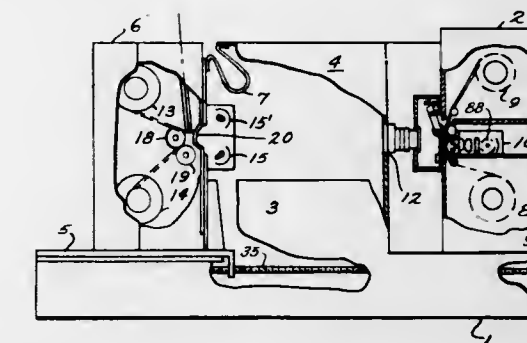
James W. Harris, Huntsville, Ala., assignor to Microcopy Inc., Huntsville, Ala.

Filed Dec. 18, 1970, Ser. No. 99,502

Int. Cl. G03b 27/48, 27/50

U.S. Cl. 355—50

23 Claims



A microfilm copier which permits continuous photographic copying from microfilm to paper or from paper to microfilm. The paper may be in the form of a roll or single sheets. The microfilm copier includes supply and take-up rolls for the microfilm and paper, a lens and projection lamp assembly for projecting from the developed to unexposed rolls, and a speed reducer for driving the paper and film rolls synchronously. In addition, the speed reducer compensates for changes in magnification factor between the microfilm and paper to maintain a proper ratio of driving rates between the paper drive means and the film drive means. Other features include, a crank and paper magazine carriage for changing the magnification factor, and a variable torque clutch for translating power from an input motor to the paper drive roller as a function of the amount of paper on the roll.

Some modifications to the basic microfilm copier include a drum holding a variety of lenses for changing magnification factors, a special magazine for holding microfilm which has been spliced end to end and looped for continuous projection, and an oscillating exposure plate adjacent to the paper exposure slot of the machine for making cutter marks on the exposed film when the microfilm copier is operating in a single sheet mode. A final modification involves the substitution for the paper magazine of another film magazine whereby a film microfilm copier is obtained.

3,741,648

ACOUSTIC BEAM SPLITTER FOR INFRARED LASERS

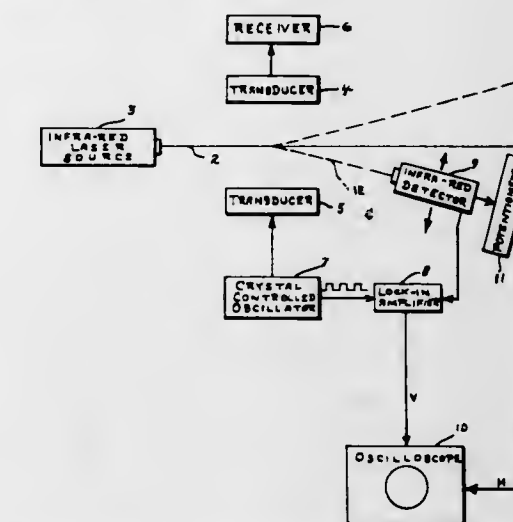
George H. Nickel, Los Alamos, N. Mex., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed July 16, 1971, Ser. No. 163,223

Int. Cl. H01s 3/12; G02f 1/32

U.S. Cl. 356—51

1 Claim



Ultrasonic waves are used to create a pseudograting that diffracts a small fraction of power from a high power infrared

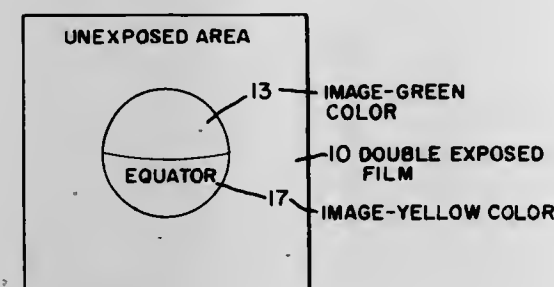
laser beam. The deflected portion of beam is analyzed using a scanning type infrared detector. The laser beam acoustic wave interaction occurs in a gaseous medium.

3,741,649

METHOD OF MAKING MULTI-COLOR SLIDE TRANSPARENCIES WITH SUPERIMPOSED IMAGES
Dorothy A. Podesta, Bronx; Judy L. Cardillo, Yonkers; Nancy E. Eisele, Pleasantville, all of N.Y.; Eileen Fox, Brookfield Center, Conn., and Margaret L. Neste, Mahopac, N.Y., assignors to Harcourt Brace Jovanovich, Inc., New York, N.Y.
Filed Apr. 5, 1971, Ser. No. 131,190
Int. Cl. G03b 27/04

U.S. Cl. 355—88

16 Claims



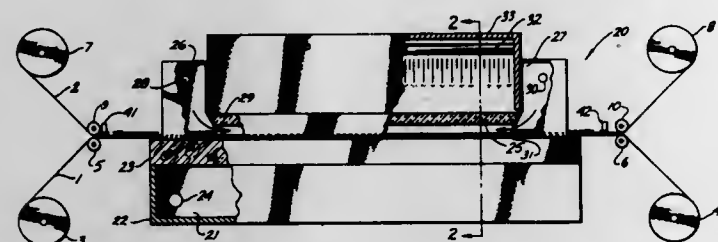
The process uses the steps of double exposing a film to two specifically selected colors for the purpose of achieving a third color on the transparency. After the film has been exposed to one color to provide a background color, a layer containing an image of a second different color is exposed to the film within the area of the background color so that a latent image of a third color is produced on the film corresponding to the image of the layer.

3,741,650

FILM HANDLING METHOD AND APPARATUS
Minard A. Leavitt, Sepulveda, and Poul B. Roulund, El Toro, both of Calif., assignors to Cutler-Hammer, Inc., Milwaukee, Wis.
Continuation-in-part of Ser. No. 27,690, April 13, 1970. This application Feb. 11, 1971, Ser. No. 114,600
Int. Cl. G03b 27/20

U.S. Cl. 355—91

36 Claims



One side of a pair of adjacent film lengths is supported by a platen of microporous material through which air is forced into the space between the platen and the film. A trough-shaped housing encloses the space on the other side of the film lengths except for the film edges. A fluid having a large static head is introduced into the space between the housing and the film. The housing has a center portion that is spaced a large distance from the film, i.e., a sufficient distance to maintain a high static head over the entire length of the housing. The housing also has transverse sides that are spaced a small distance from the film edges and the surface of the platen, i.e., a sufficiently small distance to form a constriction in the fluid flowing out of the housing transversely to the film lengths. The housing is transparent. Light from a source is coupled through the housing to the film, thereby exposing it.

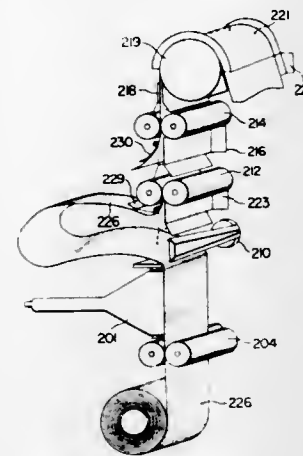
3,741,651
RECORDING DEVICE

Akira Nishiyama, Neyagawa; Yoshiteru Izura, Toyonaka; Masaaki Tanaka; Yuji Takashima, both of Osaka, and Toyota Noguchi, Tokyo, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan
Filed Oct. 12, 1971, Ser. No. 188,354
Claims priority, application Japan, Oct. 15, 1970, 45/91268; Oct. 15, 1970, 45/91269; Oct. 15, 1970, 45/91270; Oct. 15, 1970, 45/91271; Oct. 15, 1970, 45/91272; Mar. 30, 1971, 46/19350

Int. Cl. G03b 27/30

U.S. Cl. 355—100

6 Claims



A desired TV image displayed on a cathode-ray tube is transferred onto a recording paper which is placed in close contact with the faceplate of the tube, and the transferred image is then developed by a developing device. While the preceding exposed recording paper is being developed, the succeeding exposed recording paper is stored so that the problem that the developing time is lower than the exposure or image transfer time is overcome. Therefore, desired TV images may be recorded in a very small time interval.

3,741,652
METHOD FOR PRODUCING PLATES HAVING ENLARGED HALFTONE PATTERNS AND ARTICLE PRODUCED BY SAID PROCESS

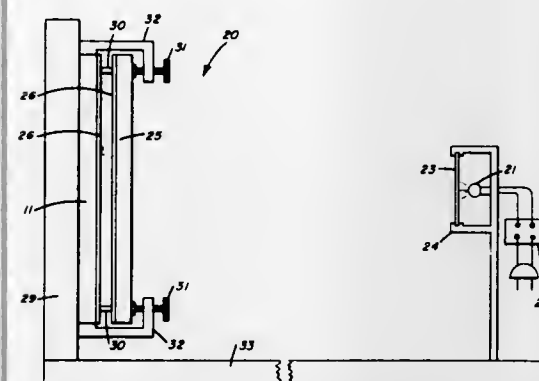
Blanchard M. Brock, Rochester, N.Y., and Paul R. Josephson, Jr., Fort Collins, Colo., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 16, 1972, Ser. No. 226,745

Int. Cl. G03b 27/02

U.S. Cl. 355—132

2 Claims



An unexposed lithographic-type photographic film or plate is placed a small distance away from a master halftone "screen," and the film or plate is exposed through the screen with the use of a point source of substantially monochromatic light. An "enlarged" image of the screen, i.e., one showing halftone dots, is formed by diffraction on the film or plate. The degree of enlargement, i.e., the increase in spacing between

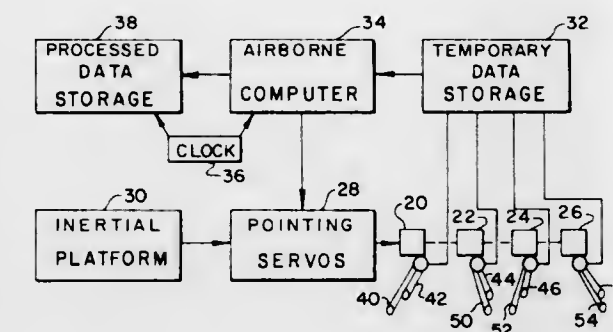
centers of adjacent halftone dots, is determined by the ratio of the light source to master screen, and light source to photographic film or plate distances. The enlarged screens are useful in the moire method for determining the dimensional stability of photographic films.

3,741,653

COMPUTER-AIDED LASER-BASED AIRBORNE MEASUREMENT SYSTEM
Oleg Svetlinchyn, Chelmsford, Mass., assignor to Geosystems, Inc., Waltham, Mass.
Filed July 6, 1970, Ser. No. 52,524
Int. Cl. G01c 3/00

U.S. Cl. 356—141

14 Claims



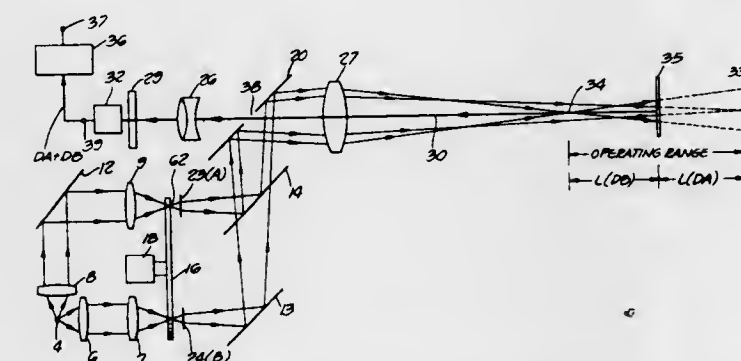
In an airborne vehicle, a system having laser sources and optical tracking assemblies electrically communicating with a computer is provided for determining the absolute (inertial) path, position, velocity and acceleration of the vehicle and for surveying the ground contour. A laser beam is directed toward a ground retroreflector and the reflected beam is tracked by an optical tracker. Another laser beam scans, in a pre-programmed pattern, the ground contour and another optical tracker follows the scanning beam. Modulation and phase comparison techniques are utilized to measure the range between the vehicle and the ground retroreflector and between the vehicle and the scanned ground. Data generated by the laser source and optical tracking assemblies are applied to the computer for determination of desired position data by triangulation. The inertial velocity and acceleration of the vehicle and the ground profile above sea level or some other specified reference surface are then determined using either airborne or ground based computer.

3,741,654

MEASURING APPARATUS
Irving R. Brenholdt, Greenwich, Conn., assignor to Farrand Optical Co., Inc., Valhalla, N.Y.
Filed Mar. 1, 1972, Ser. No. 230,599
Int. Cl. G01c 3/08

U.S. Cl. 356—4

6 Claims



Disclosed is a non-contacting measuring system relying upon the difference in the focal points of two transmitted, differently modulated, coaxial light bundles. The difference in intensity of the light reflected back from a to-be-measured object located between the focal points of the two light bundles

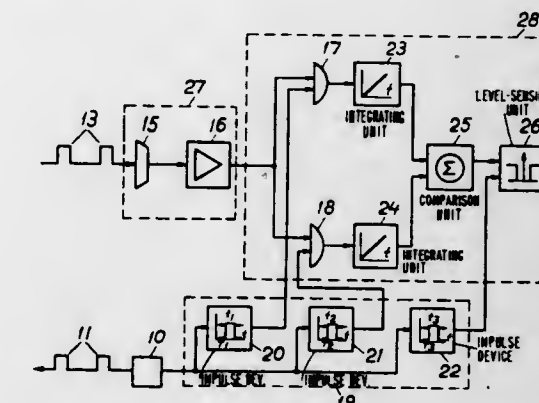
defines the precise location of the object relative to the two focal points.

3,741,655
MEANS FOR DETERMINING THE EXISTENCE OF AN OBJECT WITHIN A PREDETERMINED RANGE INTERVAL

Bernt Ling, and Anders Persson, both of Vasteras, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden
Filed Dec. 9, 1971, Ser. No. 206,277
Claims priority, application Sweden, Dec. 11, 1970, 16782/70
Int. Cl. G01c 3/08

U.S. Cl. 356—5

2 Claims

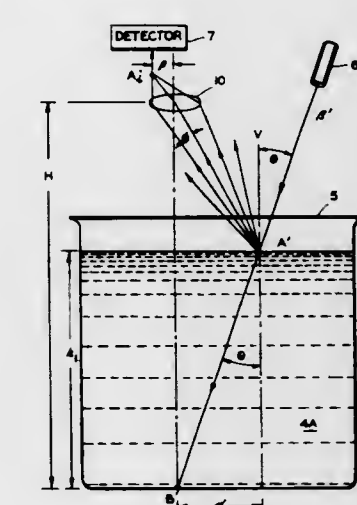


A signal-detector which detects whether or not an object exists at a predetermined distance comprises a detector unit and an evaluation device which operates with a first and second group of one or more time gaps, in which the first group comprises a first time gap arranged to coincide with the duration of at least a part of an expected and known signal and the second group of time gaps comprises a second time gap spaced from said first time gap and the magnitudes corresponding to the signals obtained during the time gaps are arranged to be compared in the evaluating device whereby an output signal from said device gives information as to whether an object exists or not.

3,741,656
FILL LEVEL MEASURING DEVICE
William A. Shapiro, Hackensack, N.J., assignor to The Bendix Corporation, Teterboro, N.J.
Filed May 27, 1971, Ser. No. 147,554
Int. Cl. G01f 23/00

U.S. Cl. 356—103

8 Claims



Apparatus employing optical means for measuring the level of a liquid or granular substance in a container under conditions when actual contact or even close proximity of the apparatus and the substance is impractical or undesirable.

3,741,657

LASER GYROSCOPE

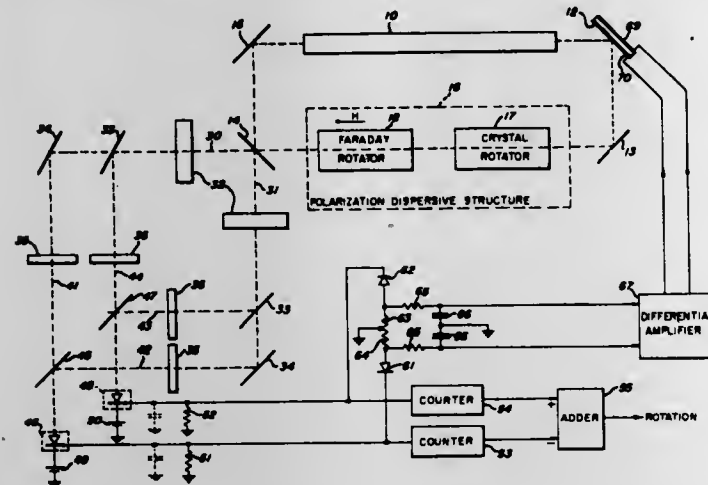
Kelme Andringa, Sherborn, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Mar. 3, 1971, Ser. No. 120,581

Int. Cl. G01b 9/02

U.S. Cl. 356-106 LR

17 Claims



A laser gyroscope system which detects frequency shifts in which waves are propagated along a path in opposite directions at different frequencies to minimize interaction between the waves with frequency separation of the waves maintained by both reciprocal and non-reciprocal polarization dispersion in which frequencies of the two waves propagating in one direction lie between the two frequencies of waves propagating in the opposite direction. Rotation of the system produces shifts of the frequencies so that variation in the difference between the separation between the two upper frequencies, which propagate in opposite directions, and the separation between the two lower frequencies, which propagate in opposite directions, is used to measure rotation rate.

3,741,658

SPECTROMETER FOR THE FAR INFRARED

Armand Hadni, Nancy; Robert Thomas, Saint-Die, and Jacques Weber, Verdun, all of France, assignors to Agence Nationale De Valorisation De La Recherche (Anvar), Paris, France

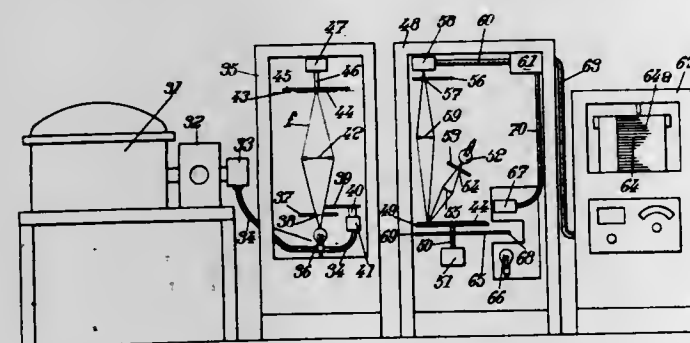
Continuation-in-part of Ser. No. 761,997, Sept. 24, 1968, Pat. No. 3,619,063. This application Sept. 21, 1970, Ser. No. 73,869

Claims priority, application France, Sept. 24, 1968, 68761997; Sept. 22, 1969, 6932159

Int. Cl. G01b 9/02

U.S. Cl. 356-106 S

14 Claims



It enables a recording and a reading of interferograms at very different speeds. It comprises an interferometer, a recording mean, a reading means and a wave analyzer. The recording means produce on a support an area of aspect different from the aspect of the support, this area having a contour which reproduces the interferogram supplied by the interferometer. The reading means deliver, for each reading of

the support, a signal representative of the transverse dimension of a part of the area whose variations reproduce the variations of the interferogram. To read the recording, there may be provided apodization means multiplying the signals delivered by the photo-electric cell; an eccentric opaque disc cooperates with a light source and a photo-electric cell, the apodization being done electronically in the unit. The invention enables very precise measurements in the far infrared.

3,741,659

BIAS CORRECTED MEASURING INSTRUMENT

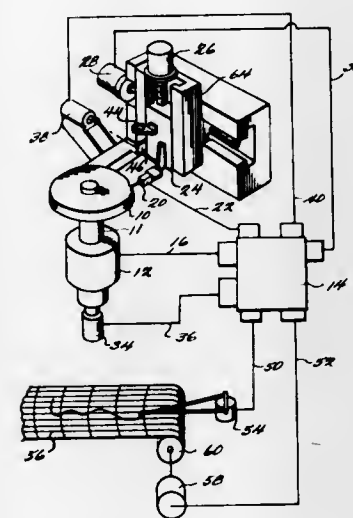
J. Franklin Jones, Jr., Springfield, Vt., assignor to The Fellows Gear Shaper Company, Springfield Windsor, Vt.

Filed June 19, 1970, Ser. No. 47,791

Int. Cl. G01b 9/02, 11/00, 3/14

U.S. Cl. 356-109

11 Claims



A multiple coordinate measuring system of the type wherein a probe explores some feature of a part being measured and acts through a transducer or similar device to record a measurement on a chart or other record. Both the part and probe are moved along coordinated and predetermined paths so that the probe remains a fixed distance from the surface of the part being measured when the theoretical dimension corresponds to the actual dimension of the part. Detected deviations of the probe from the fixed distance represent deviations of the actual dimension from the theoretical dimension and are recorded on charts or other records. In one embodiment of the invention of this application, the actual positions of both the part being measured and the probe during measurement are continuously detected and deviations of the part and measuring instrument from their theoretical positions are detected and employed to correct the detected signals from the probe indicating the deviation of the probe from the fixed distance.

3,741,660

CONVERSION OF CIRCULAR DICHROISM SPECTROPOLARIMETER TO LINEAR DICHROISM MEASUREMENT MODE

Ahmad Abu-Shumays, Pasadena, and Jack J. Duffield, Monrovia, both of Calif., assignors to Cary Instruments, a wholly owned subsidiary of Varian Associates, Monrovia, Calif.

Filed Oct. 27, 1971, Ser. No. 192,815

Int. Cl. G01n 21/40

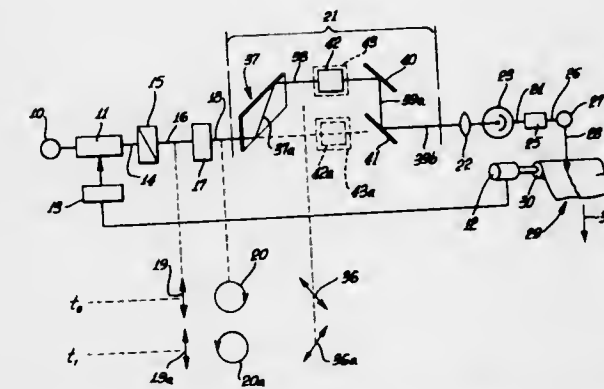
U.S. Cl. 356-114

13 Claims

For use in a spectropolarimeter having an electromagnetic radiation beam source, a detector, a linear polarizer in the path of the beam between said source and detector, and first converter means in said path and characterized as operable to convert linearly polarized radiation to elliptically polarized radiation, the combination comprising:

a. second converter means in said path and characterized as

operable to convert elliptically polarized radiation to linearly polarized radiation, and



b. a sample space in the path of the beam passing from said second converter means.

3,741,661

UNIVERSAL POLARIMETER

Tadaaki Yamamoto, and Toshiyuki Kasai, both of Kawasaki-shi, Kanagawa-ken, Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

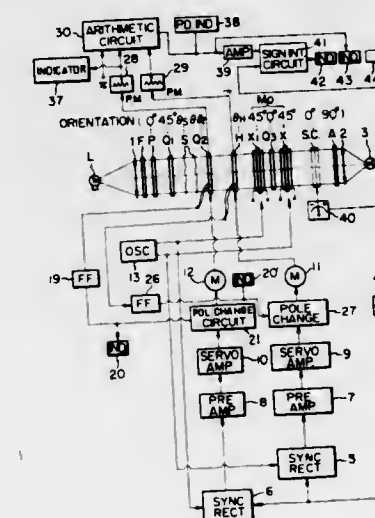
Filed Apr. 12, 1971, Ser. No. 133,046

Claims priority, application Japan, Apr. 16, 1970, 45/32218

Int. Cl. G01n 21/40

U.S. Cl. 356-117

7 Claims



A polarimeter is constructed to measure the two variables of polarization (angle of elliptical orientation and phase difference) of a polarized light beam after transmitting through a specimen oriented at an arbitrary angle. A polarizer and an analyzer are arranged on an optical axis in spaced-apart and crossed-Nicol prism relation. An optical modulator positioned intermediate the polarizer and the analyzer, has means connected thereto for the application of two separated signals to the modulator. A rotatable quarter-wave plate and a rotatable half-wave plate are cooperably related to the polarizer, analyzer and optical modulator, there being a servomotor coupled to the quarter-wave plate and another servomotor coupled to the half-wave plate. The optical modulator acts to modulate both of the two variables of polarization. One of the two signals derived from the optical modulator is applied to one servomotor to drive the quarter-wave plate, and the second signal is applied to the other servomotor to drive the half-wave plate. In the polarimeter, is incorporated into a device which can determine the direction of a major axis of polarization ellipse and the phase-difference in units of wavelength. The device is also capable to indicate the direction of the "fast" axis of a specimen affecting a polarization state of light.

3,741,662

VISIBLE LINE MARKER

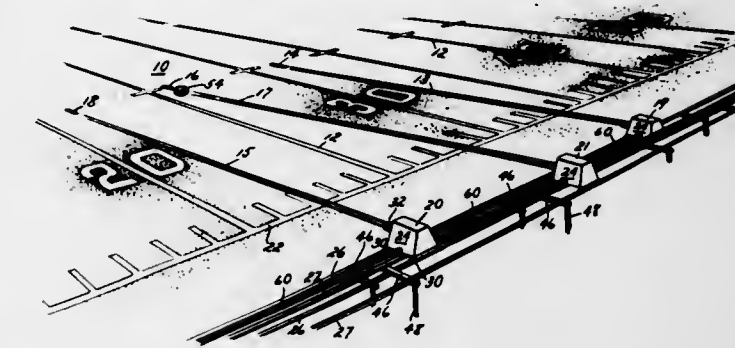
Willis C. Ploch, 20 Roosevelt Avenue, East Paterson, N.J.

Filed June 16, 1971, Ser. No. 153,755

Int. Cl. G01b 11/26

U.S. Cl. 356-172

2 Claims



Apparatus for forming visible lines of demarcation for sporting events, such as football, tennis and horse racing. The apparatus comprises laser beam generating means which projects a low intensity visible laser beam to form the lines of demarcation. The crossing of such light beam demarcation lines is indicated by illuminating the object when it crosses the line.

3,741,663

HOLE DETECTOR (FOR MOVING WEB)

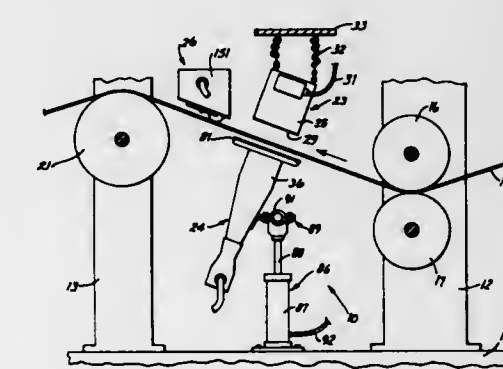
Michael J. Nevins, Delton, Mich., assignor to Nevins Machinery Corporation, Delton, Mich.

Filed Mar. 27, 1972, Ser. No. 238,291

Int. Cl. G01n 21/16, 21/32

U.S. Cl. 356-200

13 Claims



A hole detector for a moving web of translucent or opaque material capable of indicating the presence of relatively small holes at high web speeds. An elongate light source and light sensing trough are spaced on opposite sides of the moving web and extend transversely across the portion of the web to be monitored. Light sensors are spaced along the bottom wall of the trough remote from the web for receiving direct light inputs through web holes passing over the open top of the trough. The light sensors are nonresponsive to spurious light inputs and each sensor responds negligibly, at most, to passage of a web hole over neighboring sensors while permitting a space to be maintained between the web and the trough to prevent abrasion damage to the web being monitored despite normal flexing of the web. The trough depth substantially exceeds its width. The sidewalls of the trough diverge at a very shallow included angle from a bottom wall and terminate in shorter, parallel upper sidewalls. The sensors are separately compartmented within the trough, the walls of each compartment being substantially fully light absorptive. The trough has externally extending flanges at the top thereof for preventing light reflected from the undersurface of the web from reaching the sensors. The device is adapted to handle webs of decreased widths and includes devices for indicating the presence and locations of holes in the web.

3,741,664

METHOD FOR MEASURING THE LIGHT TRANSMISSION OF A PHOTOGRAPHIC FILM GIVING A DIGITIZED OUTPUT

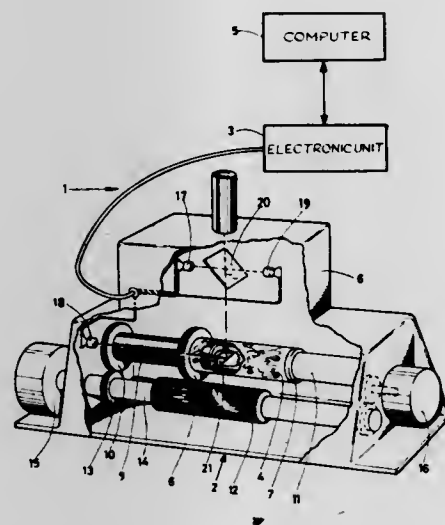
Jan Magnus Torin, c/o Saab-Scania AB, 581 88 Linköping, Sweden

Filed May 28, 1971, Ser. No. 147,950

Int. Cl. G01n 21/20

U.S. Cl. 356—203

3 Claims



Clock pulses are generated at a rate synchronized to scanning of a substance with a light beam. The light is energized in pulses having uniform duration in terms of clock pulses. Output of a photocell responding to incident light is integrated to produce a reference signal of linearly varying magnitude. Magnitude of output of photocell receiving light passed through the substance is compared with the reference signal, and a difference signal is produced whenever the difference between compared signals has a predetermined sign. During a predetermined uniform portion of every light pulse, clock pulses are counted so long as the difference signal persists, giving a digitized measure of substance transparency/opacity.

3,741,665

WRITING IMPLEMENTS

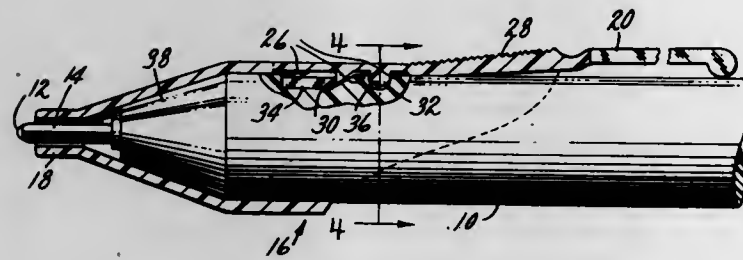
Edward A. Smagala-Romanoff, Beverly, Mass., assignor to Charles F. Coles, Christopher M. Weld, Sally C. Leighton, Henry Hornblower, Michael J. Perrin, John Gikas and James Tenn, a part interest to each

Filed Aug. 25, 1970, Ser. No. 66,764

Int. Cl. B43k 7/12

U.S. Cl. 401—117

5 Claims



A captive shielding cap for a writing implement such as a ball point pen, having a retracted position in which the writing end of the implement is exposed and a projected protective position for shielding the writing end of the implement.

3,741,666

ADJUSTABLE COSMETIC APPLICATOR

Martin M. Vasas, and Arthur H. Moore, both of Fairfield, Conn., assignors to The Bridgeport Metal Goods Manufacturing Company, Bridgeport, Conn.

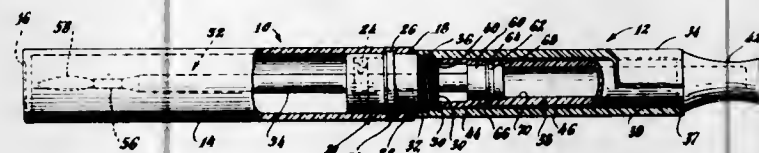
Filed Sept. 7, 1971, Ser. No. 178,163

Int. Cl. A46b 11/00

U.S. Cl. 401—127

12 Claims

An adjustable cosmetic applicator in which the length of the brush is selectively adjustable in accordance with the user's preference. The cosmetic applicator includes a body having a cylindrical shell forming a reservoir for liquid cosmetic with a closure member in the open end thereof, and a cap which includes a brush which is housed in the body when not in use.



The cap includes a cylindrical sleeve in which a plunger is slidably engaged. The brush assembly is seated within the plunger and the length of the brush extending past the sleeve is selectively adjustable by sliding the plunger in either direction within the sleeve.

3,741,667

TOOTH BRUSH COMPLETE WITH DISPENSER FOR THE TOOTH PASTE

Giuseppe Cesari, 17 via Nani, Bologna, Italy

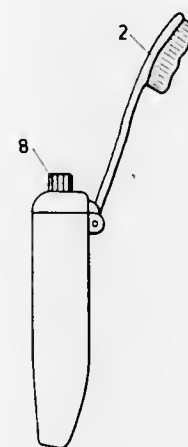
Filed May 6, 1971, Ser. No. 140,710

Claims priority, application Italy, May 14, 1970, 3449 A/70

Int. Cl. A46b 11/04

U.S. Cl. 401—175

2 Claims



A tooth brush which combines a container with a dispenser for the tooth paste. The container has a partial opening at the top and the tooth brush is supplied with paste while it is slotted into the aperture.

3,741,668

METHOD OF VENTING A STYLOGRAPHIC PEN

William E. Danjczek; Jean Pierre Leuenberger, both of Easton; Fortunato J. Micale, and Ralph W. Wagner, both of Bethlehem, all of Pa., assignors to Koh-I-Noor Rapidograph, Inc., Bloomsbury, N.J.

Filed Sept. 30, 1971, Ser. No. 185,020

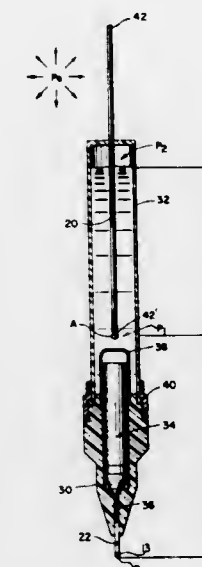
Int. Cl. B43k 1/10

U.S. Cl. 401—258

7 Claims

A vent system for a tube writing pen wherein the vent consists of a longitudinally adjustable capillary tube extending

within the writing fluid reservoir and venting at varying



predetermined depths in the writing fluid. The upper end of the capillary tube is open to atmospheric pressure.

ERRATUM

For Class 404—116 see:
Patent No. 3,741,083

3,741,669

GROUND COMPACTING APPARATUS

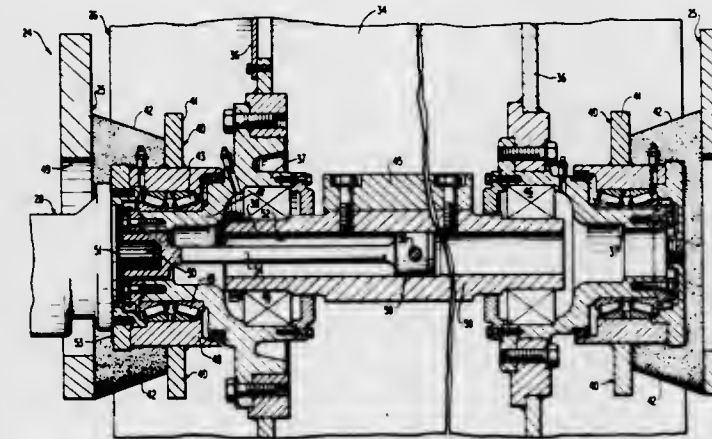
Jesse W. Harris, San Antonio, Tex., assignor to Tamco Manufacturing Company, Inc., San Antonio, Tex.

Filed July 1, 1971, Ser. No. 158,862

Int. Cl. E01c 19/28

U.S. Cl. 404—117

7 Claims



The roller of an earth compactor of the vibratory roller type is vibrated by revolving an eccentric mass about the roller axis. The eccentric mass is carried by a hollow shaft rotatable in bearings at end portions of the roller. A slender elongated steel drive shaft extends into one end of the hollow shaft. A hydraulic motor is detachably mounted for vibration with the roller and is connected by a spline connection to one end portion of the drive shaft. The other end portion of the drive shaft is rigidly connected to an interior portion of the hollow shaft. The length and flexibility of the drive shaft permit it to twist and flex so as to accommodate the substantial deflections and torque variations which occur as the eccentric mass is revolved to vibrate the roller.

3,741,670

PORTABLE POWER UNIT SUPPORT

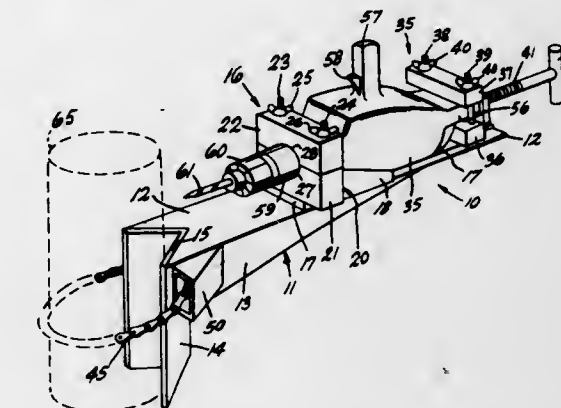
Edward G. Wood, 14318 9 Mile Road, Battle Creek, Mich.

Filed July 22, 1971, Ser. No. 165,166

Int. Cl. B23b 45/14

U.S. Cl. 408—92

6 Claims



A portable attachment is provided for use with power hand drills, comprising a frame, means for clamping the frame to a piece of work, a carriage mounted to travel longitudinally along said frame, clamping means mounted on the carriage adapted to clamp a power hand drill to same, and mechanical means for forcing the carriage to travel along the frame. In operation, a power hand drill is clamped to the carriage, the frame clamped to a workpiece, power applied to the motor, and the mechanical feed means operated to cause the power hand drill to drill holes into or otherwise operate upon the workpiece.

3,741,671

DRILL GUIDE

Robert F. Douglass, 5708 Willit Street, Omaha, Neb.

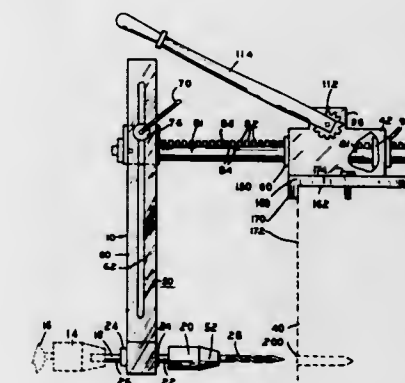
Continuation of Ser. No. 716,413, March 27, 1968,

abandoned. This application Jan. 8, 1971, Ser. No. 105,124

Int. Cl. B23b 45/14

U.S. Cl. 408—114

4 Claims



A drill guide comprising attachment means adapted to be anchored to a work-piece, a drill bit holder rotating in a bearing, means for adjustably positioning the bearing and bit holder with respect to the attachment means.

3,741,672

ADJUSTABLE TOOL HOLDER

Nils Rune Hedberg, Villavägen 11, 76200 Rimbo, Sweden

Filed July 29, 1971, Ser. No. 167,150

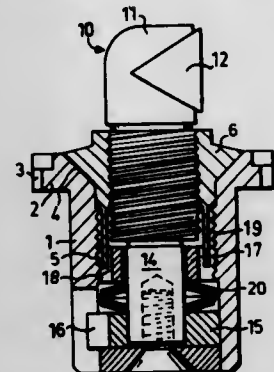
Int. Cl. B23b 29/02

U.S. Cl. 408—146

9 Claims

The present invention concerns an adjustment tool holder in which a tool carrier is threaded into a rotatable, but axially stationary adjustment sleeve and is displaced by rotation of said sleeve. A spring means compensating the unavoidable clearance of the threads is active between a shoulder of said carrier and a disc arranged in the support for the tool holder in

such a way, that the adjustment sleeve upon turning causes boring machine. The clamping parts may be hydraulically locked in position. Preferably, the arm is guided on the



said shoulder is unaltered, whereby the force of the spring means remains constant.

3,741,673

MODULAR MILLING MACHINE

William J. Jackson, Tamworth, and Hubert Busby, Birmingham, both of England, assignors to Cincinnati Millacron Inc., Cincinnati, Ohio

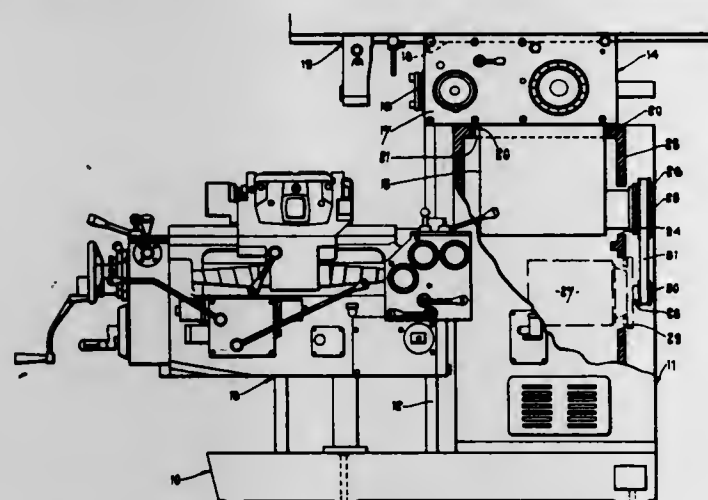
Filed Apr. 21, 1971, Ser. No. 136,049

Claims priority, application Great Britain, Apr. 22, 1970, 19,202/70

Int. Cl. B23b 47/00; B23c 1/00

U.S. Cl. 408-234

3 Claims



A modular design of a milling machine structure to permit either a vertical spindle arrangement or a horizontal spindle arrangement to be provided from the same basic structural units or modules. Thus, the same base, column, knee and spindle carrier can be employed in either a vertical or horizontal spindle machine, the former additionally including a head member.

3,741,674

RADIAL ARM BORING MACHINE

Emil Karl Witzig, Leuberg; Rudolf Frank, Ludwigsburg, and Willi Klein, Denkendorf, all of Germany, assignors to Emil Karl Witzig, Stuttgart-Wellmendorf and Rudolf Frank, Ludwigsburg, both of Germany

Filed Sept. 2, 1971, Ser. No. 177,310

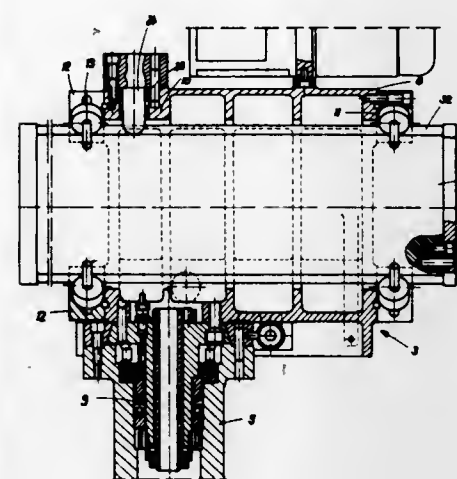
Claims priority, application Germany, Sept. 5, 1970, P 20 44 150.3

Int. Cl. B23b 39/12, 47/00

U.S. Cl. 408-237

12 Claims

To locate the length of the extension arm of a radial arm boring machine in position, a clamping arrangement is provided which acts on the arm from above, the clamping arrangement including a cam, preferably a wedge member which acts against another wedge element pressing the arm against its guide parts secured to the upstanding column of the



column by rollers secured at end surfaces of a housing, the shafts of the rollers being adjustable, adjustment preferably being effected by a screw or spindle arrangement.

3,741,675

SELF-PRIMING CENTRIFUGAL PUMP WITH AUTOMATIC AIR RELEASE VALVE

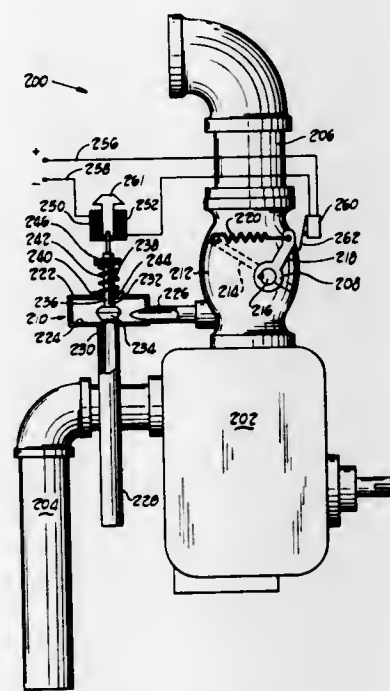
Robert J. Porter, Mansfield, and Stanley B. McFarlin, Jeromesville, both of Ohio, assignors to The Gorman-Rupp Company, Mansfield, Ohio

Continuation-in-part of Ser. No. 773,549, Nov. 5, 1968, Pat. No. 3,575,521. This application Feb. 22, 1971, Ser. No. 117,392

Int. Cl. F04d 9/00, 27/02

U.S. Cl. 415-11

11 Claims



An automatic air release valve is connected to the discharge side of a self-priming centrifugal pump for venting air from the pumping system during the priming cycle. The valve automatically closes upon completion of the priming cycle to prevent venting of liquid during the pumping cycle. A flow responsive actuator maintains the valve closed.

3,741,676

SURGE CONTROL FOR FLUID COMPRESSORS

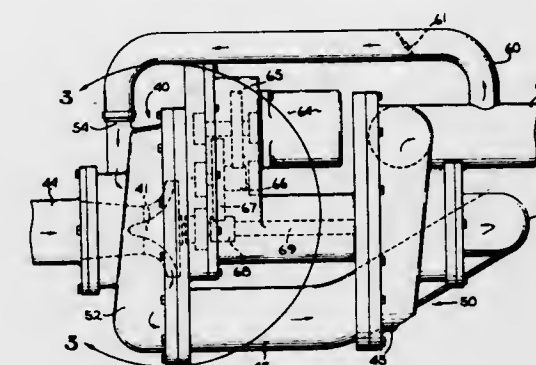
David Harold Silvern, Los Angeles, and Stanley J. Minton, Woodland Hills, both of Calif., assignors to Barodyne, Inc., Los Angeles, Calif.

Filed Oct. 12, 1971, Ser. No. 188,199

Int. Cl. F01d 1/12

U.S. Cl. 415-52

9 Claims



A control means for preventing surging under changing or low flow conditions in a fluid compressor such as an air compressor which includes a rotor and diffuser and at least two stages of compression is disclosed. Compressed air from the $n+1$ stage of the compressor is injected into the diffuser of the n th or lower stage of the compressor through a collection chamber which is disposed about the diffuser.

3,741,677

FLOW CONTROL APPARATUS FOR A CENTRIFUGAL COMPRESSOR

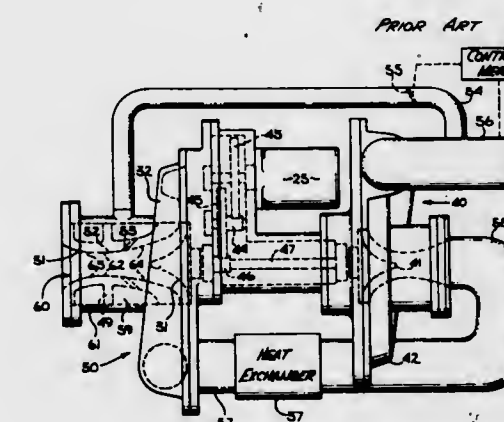
David Harold Silvern, Los Angeles, and Stanley J. Minton, Woodland Hills, both of Calif., assignors to Barodyne, Inc., Los Angeles, Calif.

Filed Oct. 12, 1971, Ser. No. 188,244

Int. Cl. F01d 1/12

U.S. Cl. 415-52

8 Claims



A control apparatus used for controlling a centrifugal compressor during low flow and overload conditions is disclosed. A manifold disposed in the inlet to the compressor includes passageways which allow fluid such as air from a higher stage of compression to be directed in a direction generally opposed to prevailing flow direction in the inlet thereby throttling the inlet flow. The manifold defines a sonic nozzle which throttles the inlet air during overload conditions.

3,741,678
COOLING AIR PROFILING STRUCTURES FOR A GAS TURBINE

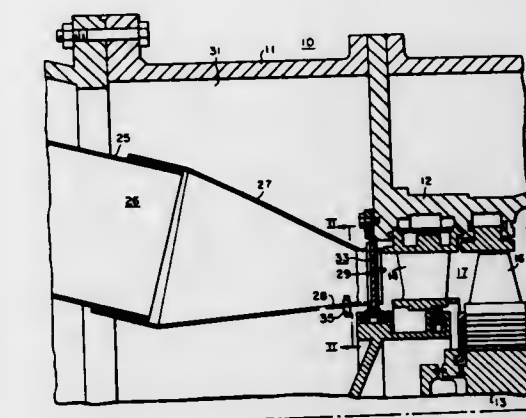
Sterling F. Arlington, Philadelphia, Pa., and Thomas J. Rahaim, Claymont, Del., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 28, 1971, Ser. No. 138,145

Int. Cl. F01d 25/12

U.S. Cl. 415-117

4 Claims



A gas turbine power plant having a combustion chamber including a transition portion to direct hot motive gases to the turbine rotor blades. An array of temperature profiling structures radially project into the transition portion to provide cooling fluid to profile the temperature of the hot motive gases. Each structure comprises a tubular support member having longitudinally extending slits for expansion purposes, the member projecting into an aperture in the transition portion and secured thereto. An air supply conduit is disposed within the support member and is fastened thereto outside of the combustion chamber. The profiling structures are securely positioned but allow for thermal expansion due to the relative temperature differentials among the transition portion, the support member, and the air conduit.

3,741,679

CENTRIFUGAL PUMP

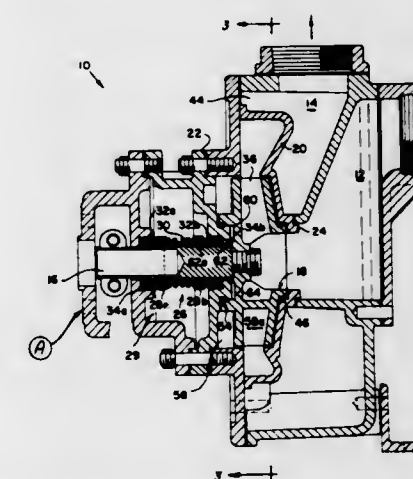
Douglas Johnston, Decatur, Ala., assignor to John Blue Company, a Division of Subscription Television, Inc., New York, N.Y.

Filed Sept. 17, 1971, Ser. No. 181,449

Int. Cl. F04d 29/08, 29/22

U.S. Cl. 415-170 A

6 Claims



A centrifugal pump is provided with an improved impeller sealing arrangement which substantially reduces the likelihood of seal failure or leakage of the pump. The drive shaft of the impeller is sealed on one side of the pump housing by a mechanical seal carried in a non-pressurized reservoir of liquid, and a reduced pressure area is created by the pump impeller on an opposite side of the pump housing so that any tendency to leak will be from the reservoir to the pumped fluid.

The mechanical seal which may be of a single or double face type is disposed within a reservoir containing an aqueous mixture of ethylene glycol which is under atmospheric pressure so that the normal direction of flow is from the reservoir through the seal faces and into the low pressure region. The above described pump may be provided with either straight centrifugal or self priming inlet housing sections and may be provided with a bearing pedestal or the pump shaft may be directly connected to the output shaft of an electric motor or other driving device.

3,741,680

SPLIT HOUSING PILOTING DEVICE

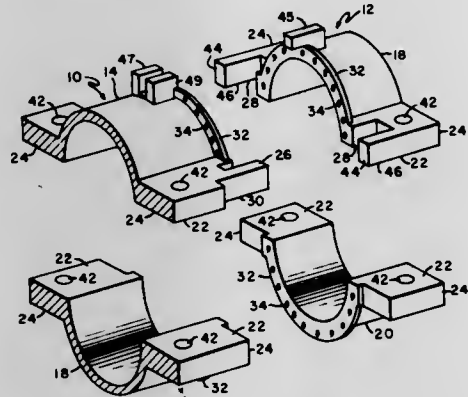
Irolt G. Killmann, St. Augustin, Germany, and Lawrence R. Matto, Shelton, Conn., assignors to Avco Corporation, Stratford, Conn.

Filed Apr. 5, 1972, Ser. No. 241,281

Int. Cl. F01d 25/24

U.S. Cl. 415-219 R

14 Claims



A pair of annular split housings are secured in end-to-end relationship so that their parting lines lie in a common plane. A series of tabs on one housing extends across the end-to-end junction into recesses in the adjacent housing to maintain the center lines of both housings within the common plane. Thus, the split line of the housings functions as the pilot surface for the housings.

3,741,681

HOLLOW TURBINE ROTOR ASSEMBLY

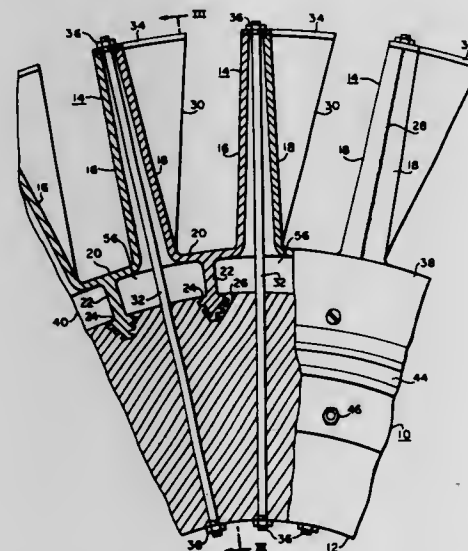
Stewart H. De Witt, Media, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 28, 1971, Ser. No. 147,805

Int. Cl. F01d 5/18

U.S. Cl. 416-95

6 Claims



Rotor assembly for axial flow turbines and the like characterized in that the rotor blades are supported from both the root and the tip of the blade. The blades are held in place by

bolts which extend through the blades and are connected at their inner ends to a rotor disc and at their outer ends to the blade tips or to a band surrounding an outer shroud for the blade tips.

3,741,682

AERATORS

William Swan Robertson, Manchester, England, assignor to Simon-Hartley Limited, Stoke-on-Trent, Staffordshire, England

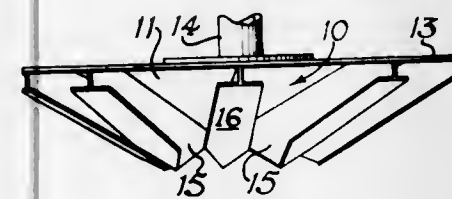
Filed Jan. 20, 1971, Ser. No. 108,120

Claims priority, application Great Britain, Feb. 13, 1970, 7,028/70

U.S. Cl. 416-179

Int. Cl. F01d 5/04

9 Claims



An aerator of the kind adapted to be rotated in the surface of a liquid for the purpose of agitating and aerating same, for example in the aeration of sewage liquors in the so-called activated sludge process, comprising a support member adapted to be rotated about its central vertical axis, a plurality of angularly spaced blades secured to the underside of said member and extending from a central region of the member towards its periphery, a plate being secured to the lower edge of each said blade and extending on both sides thereof at least along a part of the length of the blade from its outer end towards the center of the aerator.

3,741,683

LIQUID LEVEL CONTROL SYSTEM

Louis S. McTamney, San Jose, and Robert A. Begun, Los Gatos, both of Calif., assignors to FMC Corporation, San Jose, Calif.

Filed July 2, 1971, Ser. No. 159,325

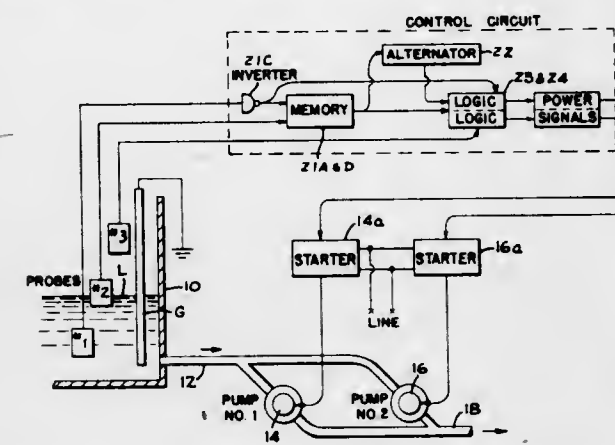
Int. Cl. F04b 41/06

U.S. Cl. 417-7

9 Claims

A liquid level control system has two motorized pumps for emptying a tank. Three electric probes at staggered heights provide liquid level signals to a control circuit, which circuit embodies a flip-flop memory, a signal switching alternator and two logic channels, one for each pump motor. When the liquid level rises to ground out both the first and second probes, the memory flips and a pre-selected pump is turned on. If the liquid rises to the third probe, the second pump is turned on. The alternator cannot be switched until the liquid drops below the first (lowest) probe, whereupon the memory is restored to its original condition. This switches the alternator so that the

sequence of pump operation on the next rising cycle is reversed. This circuitry insures 50 percent pump alternation



even though the liquid fluctuates about the first probe without reaching the second probe.

3,741,684

VACUUM INTENSIFIER

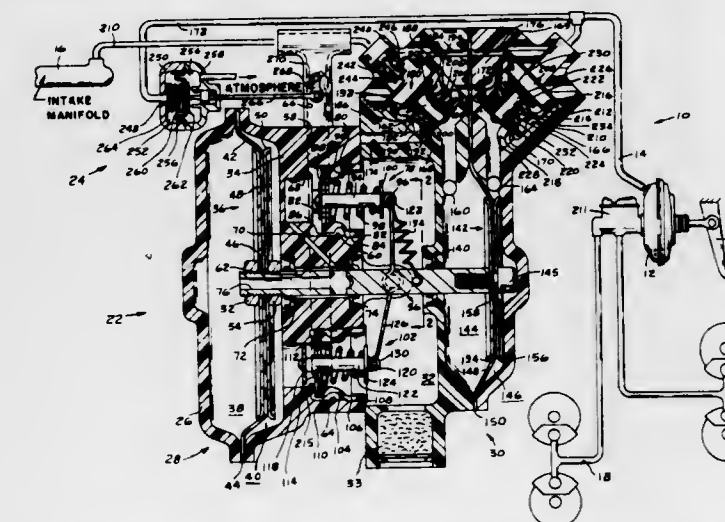
Leo J. Sobieralski, South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind.

Filed Sept. 20, 1971, Ser. No. 181,991

Int. Cl. F04b 49/00

U.S. Cl. 417-14

13 Claims



A vacuum intensifier for maintaining an operational partial vacuum within a predetermined range to effectively operate a vacuum powered device. A housing is divided into a power section and an evacuation section. The power section contains a first diaphragm which separates the power section into first and second chambers. The evacuation section contains a second diaphragm having a smaller area than the first diaphragm which separates the evacuation section into third and fourth chambers. The first and second diaphragms are connected together to correspondingly move in response to alternating porting of partial vacuum from a source and atmospheric pressure to the first and second chambers. Upon movement of the second diaphragm the third and fourth chamber will alternately inhale air from the vacuum powered device and exhale air to be dumped into a conduit going to the source of partial vacuum to uniformly lower the pressure level in the vacuum powered device.

3,741,685

FLUID OR FUEL INJECTION PUMP ASSEMBLY

Aladar O. Simko, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Nov. 15, 1971, Ser. No. 198,677

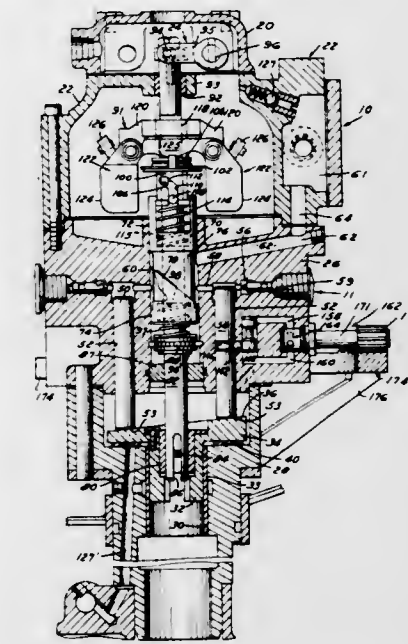
Int. Cl. F04b 49/00; F15b 15/26; F02m 63/02

U.S. Cl. 417-214

7 Claims

A fluid injection pump assembly, particularly adaptable for use as a fuel injection pump for an internal combustion engine

having a plurality of cylinders. The pump assembly includes a plurality of reciprocable pumping means, one for each cylinder of the internal combustion engine. Means are coupled to certain of the reciprocable pumping means, preferably alternate ones, and these means are responsive to a predeter-



mined external condition that controls the amount of fuel or liquid pumped by the pump for arresting the reciprocation of certain of the reciprocable pumping means. In an internal combustion engine fuel delivery is cut off to certain of the cylinders, for example, every other cylinder, during periods of idle or low load conditions on the internal combustion engine.

3,741,686

SELF RESONANT DRIVE FOR DEEP WELL PUMP

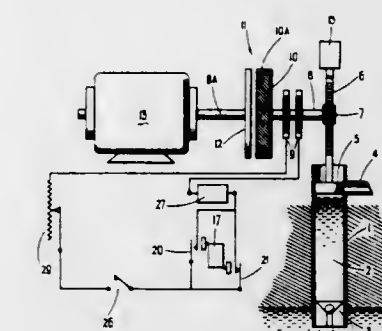
Edward W. Smith, P.O. Box 27, Milton, N.H.

Filed May 13, 1971, Ser. No. 143,082

Int. Cl. F04f 7/00

U.S. Cl. 417-240

24 Claims



Resonant column pumping devices drive a liquid column in coincidence with the resonant oscillations of the column both in frequency and phase for maximum operating efficiency. A piston at the top of the column is driven at a speed corresponding to the half wave frequency, or an odd harmonic thereof, of the liquid column by using the resonant column frequency to control the frequency of application of the driving force impulses transmitted to the liquid column. Means comprising inertial means are coupled to the piston and include actuating means, such as a slideable plunger, inertially responsive to the position of the piston for actuating a position adjustable switch means. The switch means in turn controls the time of the occurrence of the application of the motion to the piston at the resonant frequency of the liquid column, and at the proper phase with relationship to the motion of the liquid column.

3,741,687

JET-ACTUATED MEMBRANE PUMP

Ernst Holger Bertil Nystroem, P.O. Box 7, 1195 Dully/Bursinel, Switzerland

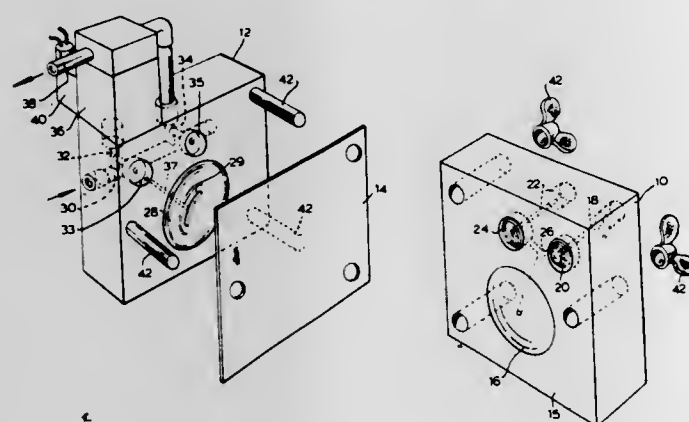
Filed Apr. 5, 1971, Ser. No. 131,055

Claims priority, application Great Britain, Apr. 15, 1970, 17,844/70

Int. Cl. F04b 35/02, 43/06

U.S. Cl. 417—317

9 Claims



The invention relates to a pump having a reservoir having an inlet thereto and an outlet therefrom, and a membrane defining at least part of one wall of the reservoir and movable alternately to draw fluid into the reservoir through the inlet and to expel fluid from the reservoir through the outlet, a membrane serving to open and close the inlet and a membrane serving to open and close the outlet. One or more membranes may be used and the or each membrane is preferably movable in response to changes in fluid pressure on the opposite side thereof to the reservoir.

3,741,688

CIRCULATION PUMP FOR REFRIGERATION PLANT

Johannes Anders Krosby, Hauketo, Norway, assignor to Kvaerner Brugs Kjøleudeling A/S, Sandvika, Norway

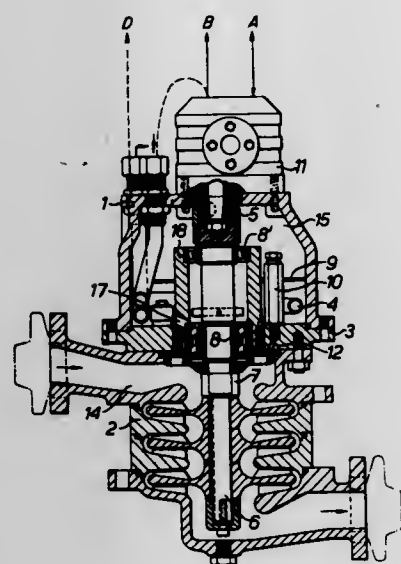
Filed Aug. 12, 1971, Ser. No. 171,111

Claims priority, application Norway, Aug. 18, 1970, 3140/70

Int. Cl. F04b 17/00

U.S. Cl. 417—372

5 Claims



A hydraulic or pneumatic motor for driving a pump in a refrigeration plant has the outlet conduit arranged in a loop in an oil chamber where the pump and motor is placed the loop giving off heat sufficient to evaporate cooling fluid which may leak into said chamber.

3,741,689

AIR OPERATED DIAPHRAGM PUMP

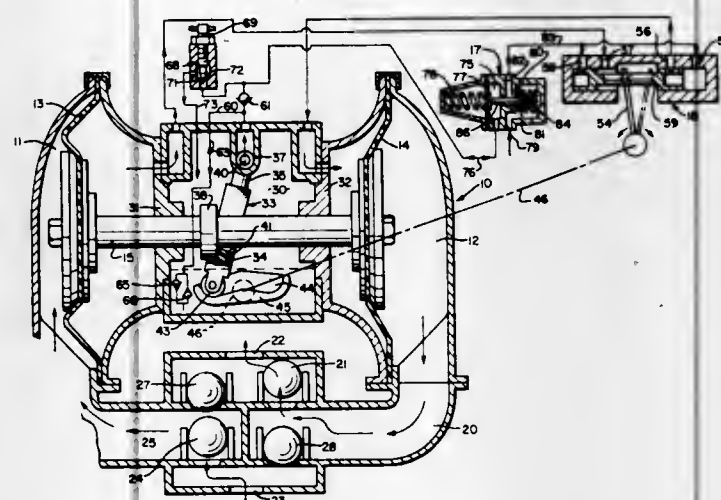
Warren E. Rupp, Mansfield, Ohio, assignor to The Warren Rupp Company, Mansfield, Ohio

Filed Aug. 5, 1971, Ser. No. 169,312

Int. Cl. F04b 17/00

U.S. Cl. 417—393

6 Claims



An air-operated diaphragm pump and a governor for controlling its speed of operation. An auxiliary pump is driven by the diaphragm pump and pumps a separate fluid through an adjustable orifice. For a given setting of the orifice the pressure of separate fluid varies with the rate of operation of the auxiliary pump. The pressure of separate fluid is transmitted to a control valve which admits more or less air to the diaphragm pump actuator valve in response to changes in the pressure. The actuating valve directs air to the diaphragm pump to cause it to reciprocate. The actuating valve is snapped from one position to another by the mechanism that actuates the auxiliary pump.

3,741,690

SEPARATING WALL FOR MAGNETIC MACHINE

Nikolaus Laing, Hoefener Weg 35-37, 7141 Aldingen near Stuttgart, Germany

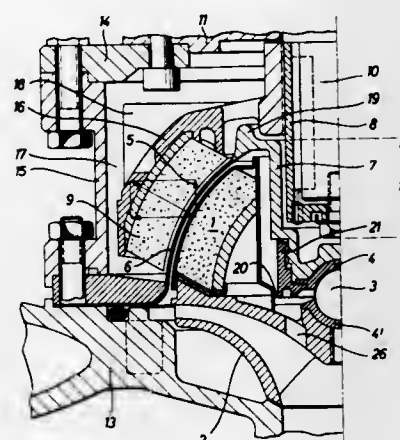
Filed Oct. 12, 1971, Ser. No. 188,565

Claims priority, application Austria, Oct. 13, 1970, 9220

Int. Cl. H02k 5/16

U.S. Cl. 417—420

6 Claims



Spherical pole ring magnetic couplings having a spherical bearing adapted to drive a centrifugal pump and resides in a construction in which a spherical hermetic wall separating the poles is so formed as to have a tubular column, surrounded by a concave pole ring. The column supports the bearing, so that overall length of the coupling is reduced.

3,741,691

HYDRAULIC PISTON PUMP ASSEMBLY

Friedrich Wilhelm Schwing, Rathausstrasse 126, Wanne-Eickel, Germany

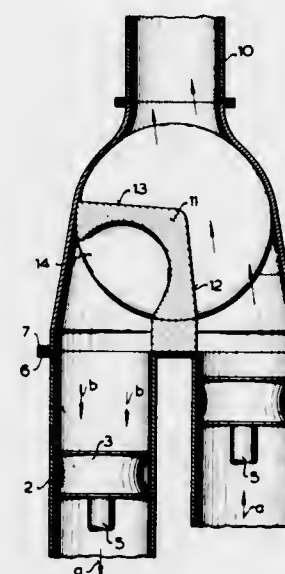
Filed Dec. 21, 1970, Ser. No. 100,270

Claims priority, application Germany, Dec. 20, 1969, P 19 63 875.6

Int. Cl. F04b 15/02, 7/00

U.S. Cl. 417—517

4 Claims



A piston pump with a hydraulic drive for conveying concrete has two concrete conveying cylinders having alternately operating pistons which suck concrete in through a rotary valve and discharge it through the same valve. A suction port for the two cylinders is arranged in the body of the rotary valve and is located between two discharge ports appertaining to the body of the rotary valve.

3,741,692

SURGE SUPPRESSOR FOR FLUID LINES

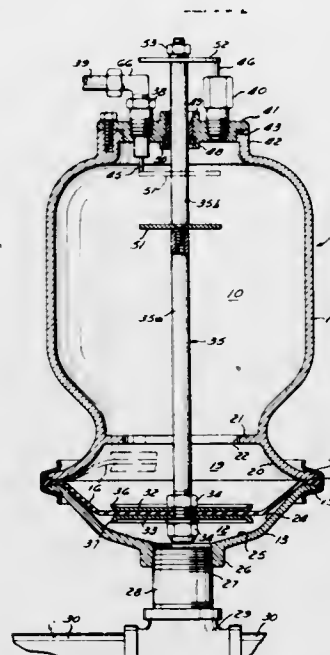
Warren E. Rupp, Mansfield, Ohio, assignor to The Warren Rupp Company, Mansfield, Ohio

Filed Dec. 17, 1970, Ser. No. 99,078

Int. Cl. F04b 11/00; F16l 55/04

U.S. Cl. 417—540

13 Claims



A surge suppressor for use with outlet conduits of pumps, such as air-operated diaphragm pumps, having a pulsating output and other fluid conduits that are subject to surges or shock pressures. The apparatus embodies a diaphragm, one side of which is subjected to the pressure of the fluid in the conduit and the other side of which is subjected to the pressure of air

within a chamber. Means are provided for automatically compensating for changes in the fluid pressure in the conduit by supplying air to the chamber if the pressure in the conduit increases and automatically bleeding air from the chamber if the pressure decreases, thus maintaining a substantially constant volume of air in the chamber even though the pressure in the conduit to which the device is attached may vary.

3,741,693

REVERSELY DRIVABLE FLUIDIC DEVICE

Thomas R. Stockton, Ann Arbor, Mich., assignor to Ford Motor Company, Dearborn, Mich.

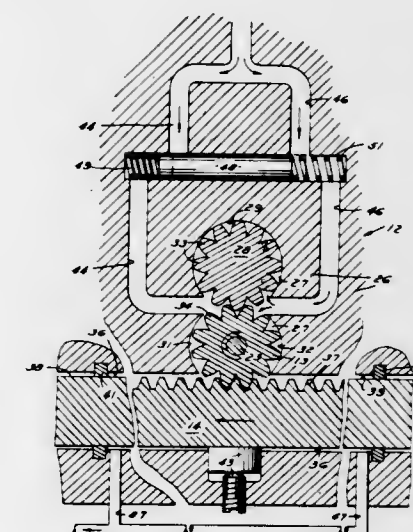
Division of Ser. No. 52,308, July 6, 1970, Pat. No. 3,628,623.

This application Oct. 7, 1971, Ser. No. 187,486

Int. Cl. F01c 21/16; F03c 3/00; F04c 15/04

U.S. Cl. 418—15

7 Claims



A reversely drivable double gear fluid motor adaptable for use in a vehicle power steering system in which linear displacement of one of the gears in a direction perpendicular to its axis of rotation within the gear chamber determines the direction of rotation of the motor.

3,741,694

POSITIVE DISPLACEMENT ROTARY ENGINE

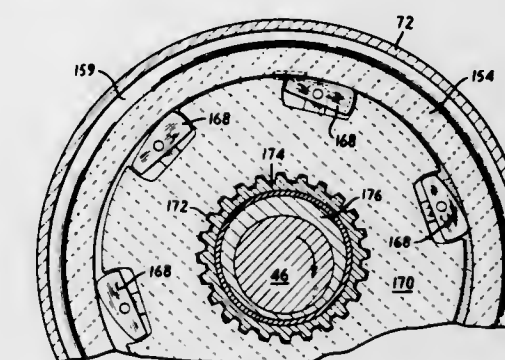
Frederick L. Parsons, 759 Morningside Road, Ridgewood, N.J.

Filed Apr. 7, 1971, Ser. No. 132,140

Int. Cl. F03c 3/00

U.S. Cl. 418—61

12 Claims



A rotary engine for generating mechanical power from energy in a fluid stream includes a positive-displacement air compressor, a combustion chamber and a multiple-stage positive-displacement power extractor or expander, all arranged about a common drive shaft. Eccentrically mounted inner and outer cylindrical members in the expander form a crescent-shaped expansion chamber which is divided by circumferentially spaced rocker-slipper vanes into a plurality of expansion stages. Combustion gases entering the expansion stages are caused to expand upon movement thereof toward the chamber exhaust, and thus to deliver energy to one of the

inner or outer members and thence to the drive shaft. A direct connection with the compressor provides high-pressure air flows within the expander for cooling and for sealing the expansion stages against leakage of combustion gases or lubricants, while reducing wear, partly by balancing the pressure forces exerted on the slippers by the combustion gases so as to urge the slippers into light sealing contact with the opposed member. The inner and outer members are arranged either to nutate one to the other or to rotate together at nearly the same speed, yielding significantly reduced relative sliding velocities therebetween to further reduce wear. Similar low-wear conditions are provided in the compressor, where eccentrically mounted double screw vanes, of a general V-shape in cross section, are caused to nutate within correspondingly shaped cavities in the housing so as to displace air at increasing pressure spirally towards a central outlet from suction inlets at each end. The vanes preferably are composed of flexible, non-metallic material to simplify sealing and to enhance heat-transfer characteristics. Variable lead vanes may be used to develop optimum compression ratios.

3,741,695

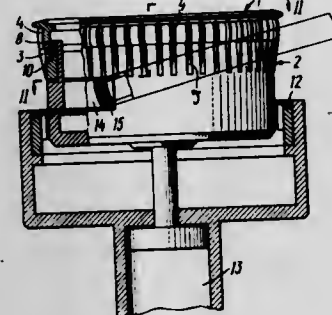
DEVICE FOR MANUFACTURING ENDLESS TIMING BELTS

Arsenty Vasilievich Yavorsky, ulitsa Zatonkogo 14v, kv. 70, Kiev, and Vasily Stepanovich Ermin, ulitsa Gorkogo 8, kv. 59., Alexin, both of U.S.S.R.

Filed Mar. 3, 1971, Ser. No. 120,621
Int. Cl. B29h 7/22

U.S. Cl. 425-28

5 Claims



A device for manufacturing endless timing belts with internal transverse teeth, comprising pulling the belt blank over a toothed mandrel whose outside diameter is larger than the inside diameter of the blank after which the blank is subjected to radial pressing and vulcanization; the device comprising a tapered mandrel whose diameter at the thicker end is equal to the diameter of the toothed mandrel, means for fastening the thicker end of the tapered mandrel to the toothed mandrel, and means for pushing the blank along the tapered mandrel from its thinner end to the thicker end and for pulling the blank over the toothed mandrel.

3,741,696

SEGMENTED TIRE MOLD

Alan Greenwood, Kent, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

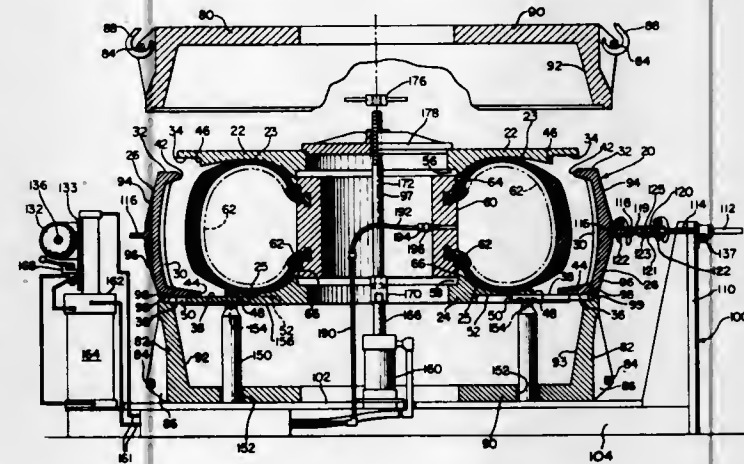
Filed June 1, 1971, Ser. No. 148,356
Int. Cl. B29h 5/08, 17/00

U.S. Cl. 425-47

29 Claims

A segmented tire mold having two sidewalls, a plurality of radially movable segments and a pair of internally conical casing rings cooperable with the segments to close the mold as the rings are urged coaxially together in a pot heater. A fixture cooperates with the mold to facilitate assembling or disassembling the mold. In the fixture, the casing rings can be moved axially away from the respective sidewalls and from each

other, freeing the segments to be moved outwardly by individual screw jacks operated by a common motor.



other, freeing the segments to be moved outwardly by individual screw jacks operated by a common motor.

3,741,697

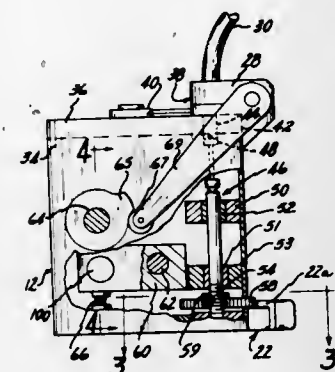
REMOTE CONTROL SYSTEM FOR POWDER COMPACTING PRESSES

Joseph E. Smith, Birmingham; Georges D. DeTroyer, Grosse Ile, and Raymond P. DeSantis, Royal Oak, all of Mich., assignors to Wolverine-Pentronix, Inc., Lincoln Park, Mich.

Filed Feb. 2, 1972, Ser. No. 222,737
Int. Cl. B30b 11/02, 11/14, 11/22, 11/18

U.S. Cl. 425-78

12 Claims



A multiple cavity press system for providing at a remote station both part collection and tool setup with provision for incremental, fine adjustment of ram fill and ram press stroke. For each press, the required incremental adjustment may be controlled from the remote station so that the appropriate size and weight corrections may be made immediately upon inspection of the collected parts. An operating means including a pneumatically actuated slide is used to provide for the incremental adjustment of ram travel in either direction.

3,741,698

STICK INJECTOR WITH PAPER FEED

Italo Caroli, Westmount, Quebec, Canada, assignor to DBM Industries Limited, Montreal, Quebec, Canada

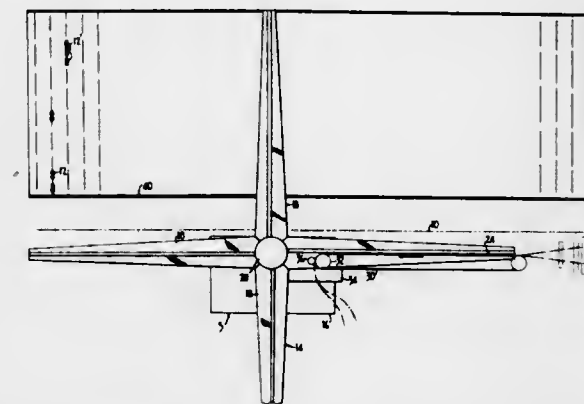
Filed June 16, 1971, Ser. No. 153,778
Int. Cl. A23g 5/02

U.S. Cl. 425-125

9 Claims

Apparatus is described for inserting sticks into liquid confection material. That material is contained in a mold which is being moved along through a bath of refrigerant. At least one and preferably many stick-gripping mechanisms that include a fixed element and a clamping element biased to releasably retain a stick therebetween are mounted on each arm of a supporting spider assembly. That spider assembly includes a plurality of arms that are disposed generally in a common plane, and is provided with means for reciprocally moving the spider

arms and gripping mechanisms transversely of that plane to effect both picking up and releasing of the sticks. In addition, the supporting spider assembly is indexable to pick-up sticks from a supply source at a pick-up station and transfer the sticks to a stick-release station. The supply of sticks comprises a strip of perforated paper or like material, with the sticks being supported in perforations in said strip. A stick-transferring conveyor is normally disposed over the moving molds at



the stick-release station. This conveyor includes a plurality of stick-supporting flights which are driven in synchronism with the moving molds. In that way the sticks can be inserted into the liquid confection material and supported therein until the material has itself hardened sufficient to support the sticks. Each stick-supporting flight includes a preformed backing element and a biasing member co-operating therewith to frictionally and releasably retain each stick therebetween.

3,741,699

VARIABLE VOLUME AND CONTROLLED DENSITY FORMING MECHANISM FOR COMPRESSION MOLDING PRESSES

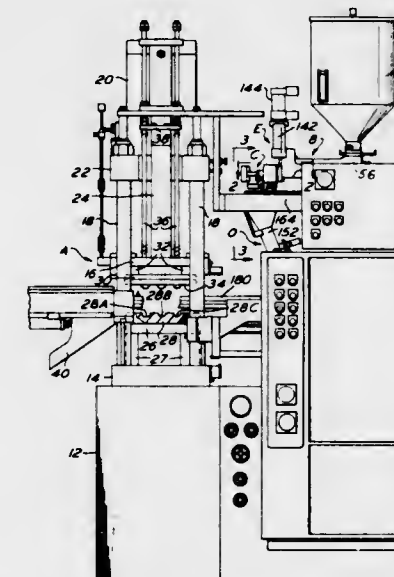
Vasken F. Arpajian, Huntingdon Valley, and Quentin M. White, Jenkintown, both of Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 45,078, June 10, 1970, Pat. No. 3,661,485. This application Mar. 15, 1972, Ser. No. 234,820

Int. Cl. B29c 3/04, 3/06

U.S. Cl. 425-145

13 Claims



An automatic compression molding system, especially for thermosetting materials, in which an extruder preplasticizes the powder and charges the preplasticized mass into preforms. The preheated and preformed mass can be varied in volume, density and temperature prior to being dispensed into the mold cavities.

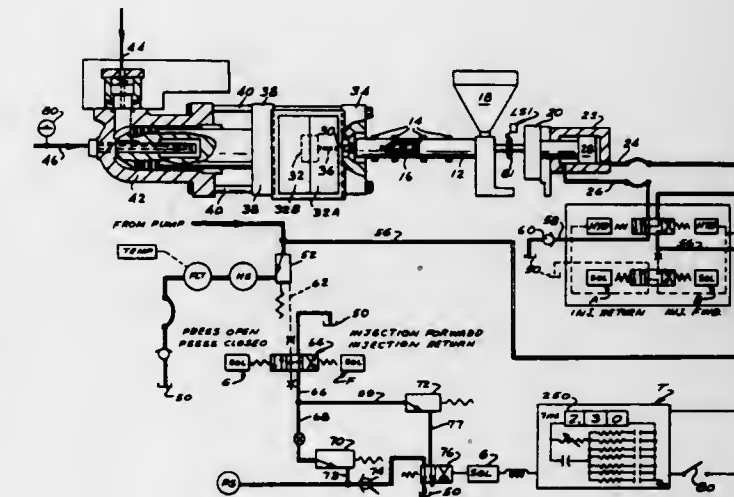
3,741,700

TIME MONITORED INJECTION MOLDING CYCLE WITH TIMED PRESSURE CONTROL

Herman R. Hutchinson, Wyncote; Vasken F. Arpajian, Huntingdon Valley, and Robert S. Malcomson, Lansdale, all of Pa., assignors to Pennwalt Corporation, Philadelphia, Pa. Continuation-in-part of Ser. No. 18,142, March 10, 1970, Pat. No. 3,642,402, and a continuation-in-part of Ser. No. 59,499, July 30, 1970, Pat. No. 3,695,800. This application Mar. 1, 1971, Ser. No. 119,975
Int. Cl. B28b 17/00

U.S. Cl. 425-159

11 Claims



Injection molding process control in which the viscosity index of a shot being injected is measured by timing the advancement of the ram, preferably at constant hydraulic pressure, from the moment of opening of the relief valve to a predetermined ram position before the molds are filled. Variations from a normal interval empirically determined to produce good parts are compensated in the same shot being injected by automatically increasing or decreasing the length of time of imposition of primary high pressure through an electronic clock and then reducing the pressure level for the duration of the injection stroke.

3,741,701

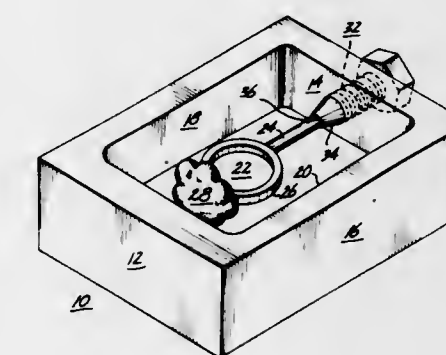
FRAME FOR PRODUCING CASTING FLASKS

Alden T. Nelson, 12413 First Avenue, South, Seattle, Wash. Filed June 11, 1971, Ser. No. 152,271

Int. Cl. B29c 1/00

U.S. Cl. 425-175

5 Claims

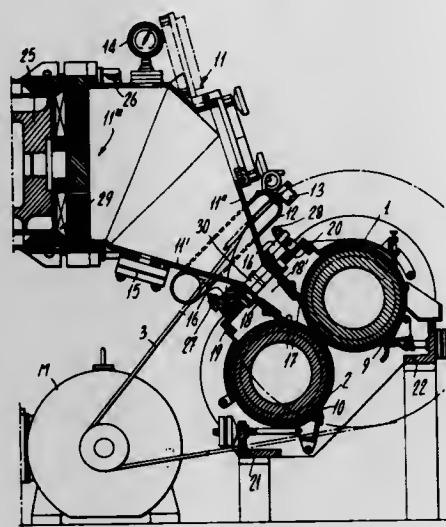


A frame for producing casting flasks is provided with pin-and-socket means for locating fixedly within the frame a model to be impressed within a flask.

3,741,702

APPARATUS FOR PRESSURE ROLLING SOAPS AND SIMILAR PRODUCTS

Carl Mazzoni, Via Ippolito Nievo 3, Busto Arsizio, Italy
 Filed Mar. 8, 1971, Ser. No. 121,801
 Claims priority, application Italy, Mar. 14, 1970, 21,955 A/70
 Int. Cl. C11d 13/10
 U.S. Cl. 425—201 6 Claims

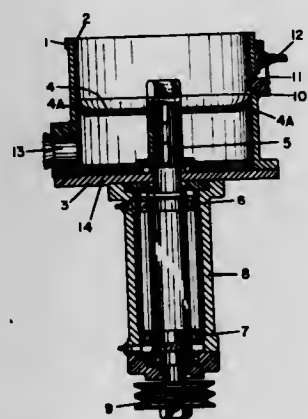


Apparatus for refining soap and similar products wherein the paste is extruded into a pressure chamber from which it is urged between two rolling rolls of different peripheral speed which cause said paste to be mixed and pulped, assuring a high degree of refining by a single rolling traverse.

3,741,703

APPARATUS FOR MAKING SPHERICAL GRANULES

Anthony Desmond Reynolds, London, England, assignor to Lilly Industries Limited, London, England
 Filed Apr. 26, 1971, Ser. No. 137,291
 Int. Cl. B29c 23/00
 U.S. Cl. 425—222 3 Claims

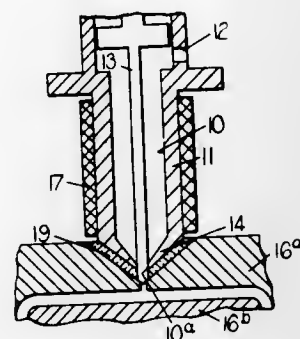


An improvement to an apparatus for making spherical granules from extrusions of wet plastic solid material comprising incorporating into said apparatus a rotatable frictional plate having the peripheral portion turned upwardly as it extends radially outwardly toward the encircling container wall.

3,741,704

APPARATUS FOR HOT RUNNER INJECTION MOULDING

Maurice Trevor Beasley, Nuneaton, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
 Filed Dec. 10, 1970, Ser. No. 96,953
 Claims priority, application Great Britain, Dec. 11, 1969, 60,502/69
 Int. Cl. B29f 1/03
 U.S. Cl. 425—245 4 Claims

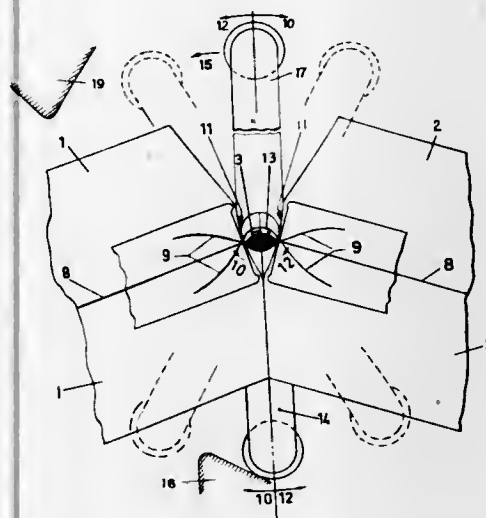


Apparatus for hot runner injection moulding includes a plunger reciprocable in a bore to inject molten synthetic resin material from a nozzle portion of the bore in a die cavity defining the shape of the article to be produced. Further the apparatus includes means thermally insulating the nozzle portion of the bore from the die when the apparatus is in use with the nozzle portion in position adjacent the die cavity.

3,741,705

TRIMMING APPARATUS FOR ROTARY EXTENSION BLOW-MOLDING MACHINES

Marcel Duikers, La Hulpe, Belgium, assignor to Solvay & Cie., Brussels, Belgium
 Filed Mar. 9, 1971, Ser. No. 122,417
 Claims priority, application Belgium, Mar. 12, 1970, 86300
 Int. Cl. B29c 17/10
 U.S. Cl. 425—311 6 Claims

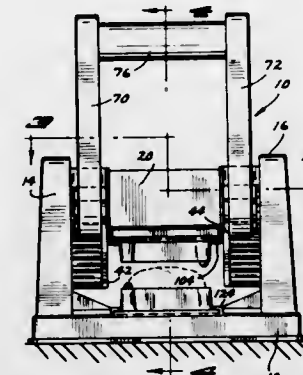


Apparatus for trimming unwanted material from between two sets of molds of a rotary machine for carrying out a process of extrusion blow-molding of hollow articles from a synthetic resin material has a double-edge blade, each cutting edge of which is arranged adjacent the bottom of a respective mold and oriented parallel to the closing plane thereof when the blade is in an inoperative position. The blade is mounted for pivotal movement about an axis parallel to the edges. Means are provided for pivoting the blade first in one rotational direction and then in the opposite rotation direction through an angle in each instance sufficient for shearing through unwanted material extending from the mold by coaction with the respective mold bottom.

3,741,706

TOY MOLDING DEVICE

Dwain Dennis Conley, and Jack Lewis Lemkin, both of Cincinnati, Ohio, assignors to General Mills Fun Group, Inc., Minneapolis, Minn.
 Filed Jan. 26, 1972, Ser. No. 220,826
 Int. Cl. B29c 3/00
 U.S. Cl. 425—406 12 Claims

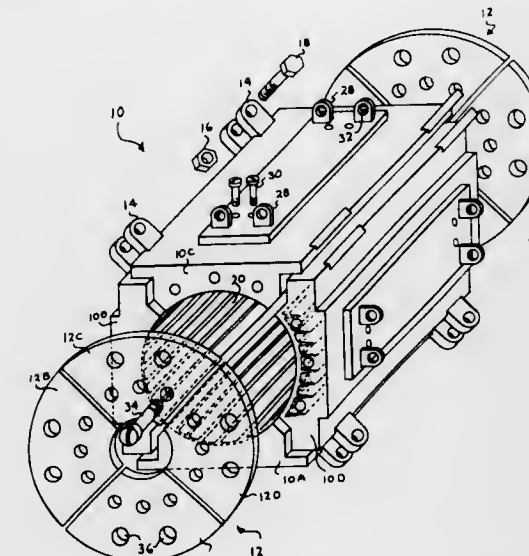


A molding device for forming a shaped object from a soft moldable material. The device includes at least one die having a mold cavity which cooperates with a second die or a forming plate, to form a three-dimensional object. By manipulating a handle assembly which forms a part of the device, the moldable material is forced into the mold cavity(ies), so that such material assumes the shape of the mold cavity.

3,741,707

DISMEMBERABLE MOLD FOR CENTRIFUGALLY CASTING FINNED STRUCTURES

Frederick W. Baumann; William C. La Bahn, both of Scotia; Robert G. MacNary, Elnora, and Albert R. Miller, Albany, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.
 Filed Jan. 24, 1972, Ser. No. 220,286
 Int. Cl. B29c 5/04
 U.S. Cl. 425—435 13 Claims



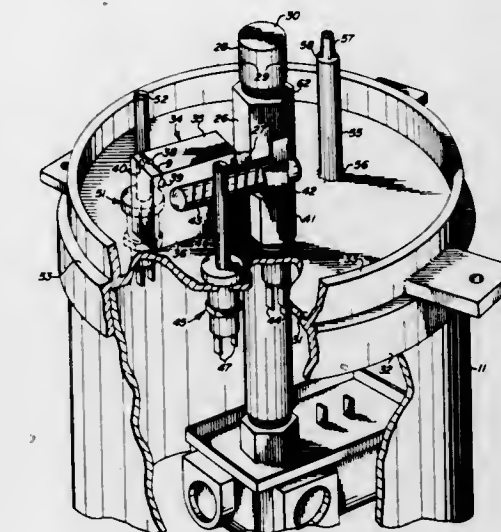
Finned motor frames above 10 inches in diameter are centrifugally cast utilizing a mold formed of four individual cast iron sections each having approximately a quadrant of an enlarged annular plate secured at opposite ends thereof to provide circular wheels for rotation of the mold. The quadrants of the plate, in association with orthogonal seating surfaces at the edges of the mold sections, provide coarse centering of the mold sections as the sections are assembled while fine centering of the sections to produce a smooth circumferential edge on the plate is achieved by tightening bolts extending orthogonally through eyelets protruding substantially radially outward at the edges of each mold section. Brackets also are provided along the exterior surface of each mold section to

strip the mold from the cast motor frame by the application of lateral force to the brackets.

3,741,708

AUTOMATIC GAS TORCH

Bernard J. Bernstein, 1320 East Nicolet, Phoenix, Ariz.
 Filed Mar. 16, 1972, Ser. No. 235,131
 Int. Cl. F23n 5/02
 U.S. Cl. 431—28 6 Claims



This specification discloses an automatic gas torch comprising a cylindrical housing having a horizontal platform positioned in its upper end. A gas pipe extends upwardly through the housing and platform projecting above the latter. Included in the gas pipe is a valve operated by a bi-metallic element. The gas pipe is formed with a small lateral orifice above the platform and a burner having a plurality of lateral ports is mounted on the upper end of the pipe. A burner block is mounted on the platform in a radial position relative to the pipe and has a central passage that opens onto the orifice. It is also formed with openings on its side faces and top which communicate with the passage.

Mounted on the platform adjacent to the burner block is an electric igniter and two thermo-operated switches on opposite sides of the block. One of these switches is included in the circuit of the bi-metallic element of the valve and the other in the circuit of the igniter. The first switch is normally open and the second, normally closed. When a main control switch is closed, the circuit to the igniter is completed and the igniter reaches a high temperature. The heat from the igniter is effective on the first thermo-switch to close it and complete the circuit through the bi-metallic element. As the latter heats to a required degree, the valve is opened and gas flows through the pipe. Some of this gas is emitted from the lateral orifice and enters the passage in the burner block and emerges from the openings in the block. Emerging gas from one opening is ignited by the igniter and the flame travels about the block to ignite the gas emerging from the other openings. The flame of one jet of gas heats the second thermo-switch to open it and interrupt the circuit to the igniter. The flame of the opposite jet heats the first thermo-switch to maintain the circuit to the bi-metallic element closed and the valve open. The flame from the top opening ignites the gas emerging from the burner ports.

3,741,709

SOLID STATE SAFETY CONTROL FOR FUEL BURNING APPARATUS

Loris D. Clark, Syracuse, Ind., assignor to Koehring Company, Milwaukee, Wis.
 Filed Jan. 11, 1972, Ser. No. 217,003
 Int. Cl. F23n 5/08
 U.S. Cl. 431—79 12 Claims

A solid state flame sensing control circuit for a fuel burning device incorporates a thermal sensitive circuit breaker, a heat-

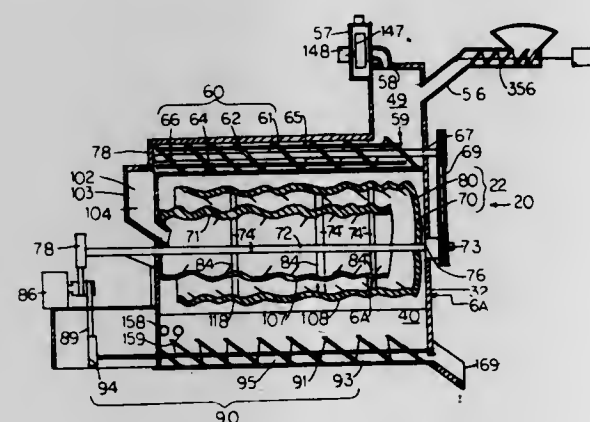
right polygonal pyramidal or truncated right conical internal surface that is open ended, the internal surface of one of the portions is heated while the internal surface of the other portion is thermally reflective and at the smaller end of the heated portion a screen is arranged to reduce the effective area of the said smaller opening. With the use of the heater spun filaments can be produced having a low degree of preorientation and a satisfactory uniformity.

3,741,717
GRAIN TREATING APPARATUSES AND PROCESSES OF OPERATION THEREOF

Lloyd M. Triplett, Route 1, Claude, Tex.
Filed Dec. 27, 1971, Ser. No. 212,131
Int. Cl. F27b 7/00

U.S. Cl. 432-105

5 Claims



A shell assembly, an agitating and transport drum assembly and a heating assembly adjusted to a non-oxidizing flame provide inexpensive yet reliable and safe grain drying: a multi-element scooped drum assembly provides improved contact of the heating gases and the solid particulate material.

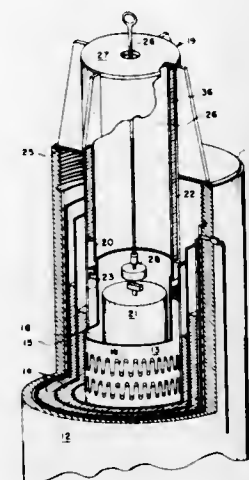
3,741,718
APPARATUS FOR LOADING A HIGH-PRESSURE FURNACE

Charles B. Boyer, Columbus; Franklin D. Orcutt, Galloway; Robert L. Shaw, Columbus, and Galen C. Gregg, West Jefferson, all of Ohio, assignors to Battelle Memorial Institute, Columbus, Ohio

Filed Oct. 5, 1971, Ser. No. 186,607
Int. Cl. F27b 14/00; F27d 3/00

U.S. Cl. 432-253

5 Claims



A method and apparatus that decrease the time normally used in a high-pressure, high-temperature furnace for heating a material to be treated to a desired temperature prior to treatment and cooling that material to low temperatures after the treatment. The material is heated prior to insertion into the furnace and held within a thermally insulated container having a means of communicating with the hot zone of the furnace until insertion is desired and the normal treatment carried out. Subsequent to the treatment the material is again placed within the container and allowed to cool or possibly subjected to further thermal treatments within the container. The use of this holding apparatus allows greater utilization of the high-pressure, high-temperature furnace by freeing it from the function of routine heating and cooling of the treated materials.

CHEMICAL

3,741,719
ACIDIC DISPERSE DYE STUFF PREPARATION
Visvanathan Ramanathan, Basel, and Hans Wilhelm Liechti, Oberwil, Basel-Land, Switzerland, assignors to Ciba-Gelby AG, Basel, Switzerland
No Drawing. Continuation of abandoned application Ser. No. 778,766, Nov. 25, 1968. This application July 15, 1971, Ser. No. 163,085
Int. Cl. D06p 1/18, 1/20, 1/68

U.S. Cl. 8-39

13 Claims

A dyestuff preparation which contains (1) a disperse dyestuff free from sulphonie acid and carboxyl groups which is at least partially protonated and which contains at least one non-quaternary basic nitrogen atom, (2) a non-cationic emulsifier, (3) an amount of acid which is at least equivalent to the basic nitrogen atoms present in the dyestuff, and, if desired, (4) a non-protonatable solvent miscible with water.

3,741,720
PROCESS FOR THE CONTINUOUS DYEING OF POLYESTER FIBERS

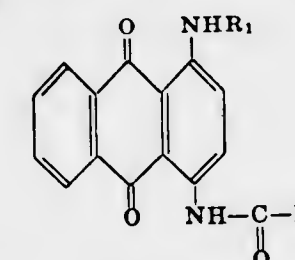
Volker Hederich and Gunter Gehrke, Cologne, and Rutger Neef, Leverkusen, Germany (all % Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany)

No Drawing. Filed Oct. 12, 1970, Ser. No. 79,717
Int. Cl. D06p 1/20

U.S. Cl. 8-39

8 Claims

The continuous dyeing of synthetic fibre materials from organic solvents. The fibre materials are impregnated with dye liquors which contain anthraquinone dyestuffs of the formula



in which R represents a C₁-C₁₇-alkyl radical, an aralkyl or optionally substituted aryl radical and R₁ stands for an alkyl radical which may be substituted by alkoxy or alkylamino groups, for a cycloalkyl, aralkyl or for an optionally substituted aryl radical, and subsequently subjected to a heat treatment.

3,741,721
AFTER-FIXING DYES WITH MONOAMINOALKYL-SILICONES WITH AMINOALKYL CHAINS HAVING 3 CARBON ATOMS

Domenick D. Gagliardi, East Greenwich, R.I., assignor to Union Carbide Corporation

No Drawing. Continuation of application Ser. No. 804,882, Apr. 8, 1959. This application Feb. 4, 1965, Ser. No. 430,478
Int. Cl. D06p 5/02

U.S. Cl. 8-74

18 Claims

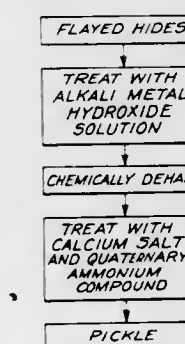
In a process for improving the fastness of dyeings and prints on previously dyed and printed printed substrata such substrata having been dyed and printed with water-soluble direct dyestuffs, the improvement that comprises after-treating the substrate to deposit thereon a coating of a dye-fixative selected from the group consisting of aminoalkyl silicones and metal coordinated complexes of the same selected from the group consisting of monomeric aminoalkylsilanes, aminoalkylpolysiloxanes, copolymers of aminoalkylpolysiloxanes with at least one other polysiloxane, blends of aminoalkylpolysiloxanes with at least one other polysiloxane and metal coordinated complexes

of such aminoalkyl silicones, such aminoalkyl silicone coloring assistant containing at least one amino substituent wherein the nitrogen atom of the amino group is connected to a silicon atom of the silicone directly through a divalent hydrocarbon radical and the amino nitrogen is separated by at least three carbon atoms from the silicon atom.

3,741,722
CURING AND PRETANNAGE OF HIDES
Don S. Elvrum, 6233 Saylin Lane, Annandale, Los Angeles, Calif. 90042
Original application July 19, 1967, Ser. No. 654,432, now Patent No. 3,574,517, dated Apr. 13, 1971. Divided and this application July 2, 1970, Ser. No. 51,861
Int. Cl. C14c 1/02, 1/06, 1/08

U.S. Cl. 8-94.16

15 Claims



Hides may be cured and pretanned by: treating raw hides with a sodium hydroxide solution so as to react the lipid material in order to cause formation of soaps, limited attack on protein material present in the hides, and swelling of the collagen in the hides; adding sodium chloride to the sodium hydroxide solution in order to enable this salt to be taken up from the solution by the hides, causing an increase in the strength of the swollen collagen; dehairing the hides; treating the hides with sodium sulphite solution so as to add strength to the swollen collagen; treating the hides with a mixture of a quaternary ammonium salt, and a calcium salt in order to precipitate any soaps present and to place the ammonium salt within the remaining hide material and to separate fascia tissue from the remaining hide material; and pickling the hides with an acid solution so as to effect a size reduction and strengthening of the swollen collagen. If desired, the hides may be bated prior to being pickled. The so-cured hides have properties which are related to the properties of the ammonium salt. The resulting hides can be further treated in accordance with conventional tanning practices.

3,741,723
TREATING KERATINIC FIBERS WITH POLY-SULFHYDRYLATED POLYMERS

Gregoire Kalopissis, Paris, France, assignor to L'Oréal, Paris, France

No Drawing. Continuation-in-part of application Ser. No. 633,372, Apr. 25, 1967, which is a continuation-in-part of abandoned application Ser. No. 565,371, July 15, 1966, which is a continuation-in-part of application Ser. No. 520,075, Jan. 12, 1966, which is a continuation-in-part of abandoned application Ser. No. 463,890, June 14, 1965, which is a continuation-in-part of application Ser. No. 463,953, June 14, 1965, which in turn is a continuation-in-part of abandoned application Ser. No. 267,851, Mar. 25, 1963. This application Feb. 4, 1971, Ser. No. 112,759
Int. Cl. D06m 3/10

U.S. Cl. 8-127.51

8 Claims

A process of treating keratinic fibers with polysulfhydrylated polymers to improve the mechanical properties

1385

of said fibers and polysulfhydrated polymer compositions used in said treatment.

3,741,724
APERTURED NONWOVEN FABRICS AND METHODS OF MAKING THE SAME
Carlyle Harmon, Scotch Plains, N.J., assignor to Johnson & Johnson

No Drawing. Filed Jan. 5, 1971, Ser. No. 104,174
Int. Cl. B29c 23/00; D04h 11/00
U.S. Cl. 8—115.5 3 Claims

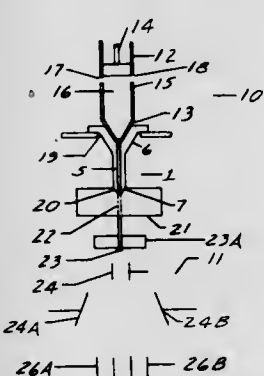
Apertured nonwoven textile fabrics comprising polyvinyl alcohol fibers and having a predetermined pattern of fabric apertures and fiber bundles created by applied fluid forces; and methods of making the same which comprises: chemically treating and modifying heat-sensitive, water-soluble polyvinyl alcohol fibers to (a) raise their wet softening temperature whereby they are essentially wet heat-insensitive up to a temperature of at least about 150° C. and (b) give them an average degree of acetalization of from about 20 mol percent to about 35 mol percent whereby they develop the necessary balance of hydrophobic-hydrophilic properties and are sufficiently water-insensitive and water-insoluble as to be capable of controlled movement and manipulation by applied fluid forces; forming a cohesive fibrous web from said heat-insensitive, water-insoluble fibers; and applying fluid forces to said fibrous web to move and rearrange said heat-insensitive, water-insoluble fibers into a predetermined pattern of fabric apertures and fiber bundles constituting an apertured nonwoven fabric.

3,741,725
CATALYTIC CONTROL OF AUTO EXHAUST EMISSIONS
James R. Graham, 5259 Hayledge Court, Columbia, Md. 21043

Filed Aug. 12, 1971, Ser. No. 171,151
Int. Cl. B01d 53/00
U.S. Cl. 423—213 4 Claims

A platinum catalyst system is described which is effective in removing NO_x from auto exhaust emissions in a three-bed system in which the NO_x is reduced in the first bed, the hydrocarbons and carbon monoxide are partially oxidized in the second bed and the hydrocarbon and carbon monoxide oxidation is completed in the third bed.

3,741,726
APPARATUS FOR COLLECTING AND DISPENSING LIQUIDS AND FOR PARTICLE COUNTING
Douglas Graham Mitchell, 31 Scotch Pine Drive, Voorheesville, N.Y. 12186, and Leonard Adler, 14 Oakley Road, White Plains, N.Y. 10606
Filed Aug. 9, 1971, Ser. No. 169,984
Int. Cl. B04b 9/12; G01d 15/18; G01n 31/02
U.S. Cl. 23—230 R 6 Claims



Method and apparatus for collecting analytical samples, particularly blood samples, for centrifuging these samples and separating them into two or more fractions and for dispensing the sample or sample fraction into two or more aliquots comprising a sample collector in the form of a body means having generally central capillary tubing

which is generally separable into two or more parts, one of which can be manually or automatically fitted as an integral part of tubing which feeds liquid including sample or sample fraction to a drop generator means wherein sample or sample fraction is dispensed into one or more aliquots. Means are also provided for incorporating this sample dispensing system in apparatus for chemical analysis by molecular absorption spectroscopy, molecular fluorescence spectroscopy, and other analytical techniques. Means are also provided to enable a sample to be diluted or reacted as necessary with diluent or reagent preferably using drop generator means and dispensed as a stream of drops preferably of much smaller diameter than the diameter of the drop generator means and passed through particle counting and separating means for accurate particle counting and separating.

3,741,727
ARSENIC SAMPLER

Howard L. Stroterhoff, Baltimore, Md., assignor to the United States of America as represented by the Secretary of the Army
Filed Feb. 4, 1972, Ser. No. 223,513
Int. Cl. G01n 31/22, 33/18
U.S. Cl. 23—230 R 9 Claims

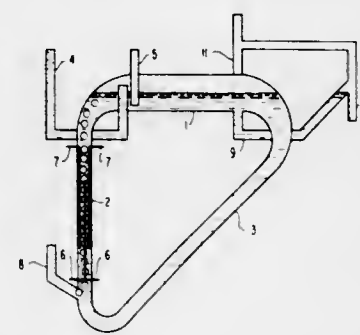


An apparatus and method to indicate the presence of arsenicals in water whereby a sample of water is taken into a clear and flexible plastic tube; a cap having a detection paper impregnated with a mercuric salt mounted in the cap is inserted on to the plastic tube to retain the water sample therein; a sealed thin wall glass ampule fixedly retained in the plastic tube is broken by squeezing the plastic tube at the ampule location and with the ampule between the fingers to release to the water sample a mixture of potassium bisulfate and cupric sulfate contained in the ampule to react with the water sample and any arsenical material therein and a zinc strip within the plastic tube; and any arsenical material present in the water being detected by a yellow to brown color imparted to the detection paper upon reaction of the mercuric salt therein with arsine produced upon release of the ampule contents to the water sample.

3,741,728
PROCESS AND APPARATUS FOR THE CONTINUOUS DETERMINATION OF WATER IN GASES
Eberhard Sstig, Marl, and Karl-Helz Reimermann, Dülmen, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany
Filed Jan. 24, 1972, Ser. No. 219,947
Claims priority, application Germany, Jan. 23, 1971, P 21 03 089.7
Int. Cl. B01k 3/00; G01n 31/16
U.S. Cl. 23—232 E 7 Claims

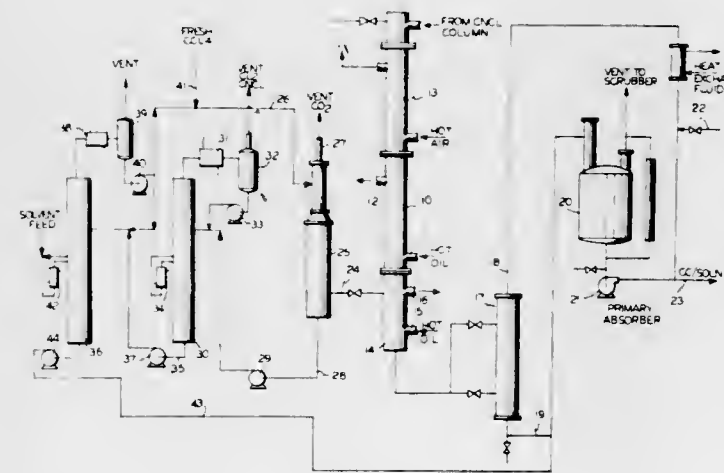
Process for conducting a continuous water determination in gases with the aid of coulometric titration accord-

ing to the "dead-stop" method with Karl Fischer reagent, which comprises effecting circulatory motion of the titration liquid in a closed titration system by continuously



supplying an anhydrous gas containing at least 5% by volume of oxygen to the titration liquid, the titration system having a closed loop-like configuration.

3,741,729
APPARATUS FOR PRODUCING A SOLUTION OF CYANURIC CHLORIDE FROM GASEOUS CYANURIC CHLORIDE
William J. Evers and Phillip G. McCracken, Mobile, Ala., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
Application Jan. 29, 1968, Ser. No. 701,352, which is a continuation-in-part of abandoned application Ser. No. 616,877, Feb. 17, 1967. Divided and this application Mar. 26, 1970, Ser. No. 30,614
Int. Cl. B01d 11/04, 3/14; C07d 55/42
U.S. Cl. 23—267 R 3 Claims

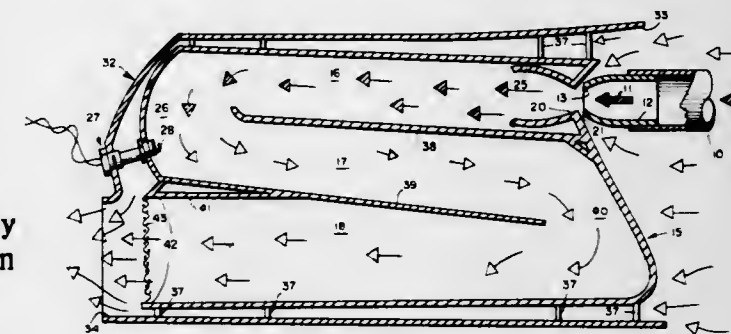


Gaseous cyanuric chloride from a trimerizer is passed into a condenser where it is condensed to a liquid and the condensate is held at an elevated temperature in a pot while the gases are flashed off. Thereafter, the liquid is absorbed in a first solvent in a primary absorption system. The flashed off gases are contacted with a different solvent, the materials other than cyanuric chloride are removed from the solution, and the cyanuric chloride is then transferred to the first solvent and the resulting solution mixed with the solution in the primary absorption system.

3,741,730
EXHAUST COMBUSTION SYSTEM
Frederick S. Alcott, 8436 Kedvale Ave., Skokie, Ill. 60076
Filed Jan. 3, 1972, Ser. No. 214,686
Int. Cl. F01n 3/14 5 Claims

Devices disclosed for inclusion in the exhaust system of a vehicle to achieve a more complete combustion of the exhaust gases prior to admitting them to the atmosphere. The device includes an inlet venturi which receives the exhaust gases from a vehicle's engine and also draws in

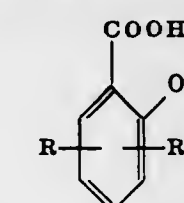
fresh air for mixing with the exhaust gases. The device includes an inner labyrinth-chamber defining member and an outer shell separated by a corrugated steel spacer. Atmospheric air is forced through the space between the outer shell and the labyrinth by the motion of the vehicle for cooling. The labyrinth defines a series of interconnected chambers of increasing cross sectional area, the first of which extends longitudinally of the device and



passes the exhaust gases mixed with fresh air adjacent a spark plug which periodically ignites the passing mixture. A second chamber passes the ignited gases in counter current with respect to the first chamber and into a third expanding chamber in which the direction of flow is again reversed. The cooling air encompassing the labyrinth mixes with the final exhaust gas from the third expansion chamber which passes through a flame screen.

3,741,731
EXTRACTION OF BORON FROM AQUEOUS SOLUTIONS WITH SALICYLIC ACID DERIVATIVES
Willard D. Peterson, Pasadena, Calif., assignor to Occidental Petroleum Corporation, Los Angeles, Calif.
No Drawing. Filed Aug. 18, 1971, Ser. No. 172,904
Int. Cl. B01j 9/04 13 Claims

A process for extracting boron values from aqueous boron containing solutions by contacting the aqueous solution with a substantially water immiscible solvent containing a substantially water immiscible nuclear-substituted salicylic acid having the formula

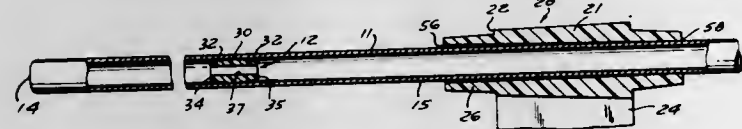


and salts thereof wherein R and R' are selected from the group consisting of hydrogen, halogen, alkyl, aryl, alkaryl, and cycloalkyl groups having sufficient carbon atoms that the salicylic acid derivatives has at least 11 carbon atoms. Preferably R is selected from the group consisting of alkyl, alkaryl, cycloalkyl, and aryl radicals having at least three carbon atoms and R' is selected from the group consisting of hydrogen, halogen and alkyl groups. The boron is sequestered by the salicylic acid derivative and thereby is extracted from the aqueous phase into the organic phase.

3,741,732
FRACTIONAL-FILL PIPETTE ASSEMBLY
Trevelyan A. Stanfield, Nutley, N.J., assignor to Beacon, Dickinson and Company, East Rutherford, N.J.
Filed May 18, 1972, Ser. No. 254,764
Int. Cl. B01j 3/02 7 Claims

A fractional-fill pipette assembly adapted to fill to a predetermined mark to obtain a desired known volume of

liquid such as blood, plasma, test reagents or the like is disclosed. A means formed of a hydrophobic material is positioned within the tube bore, a predetermined distance from one end thereof so as to divide the capillary tube into two segments, one of the segments having a precise known volumetric capacity for collecting a desired known volume of liquid so that when the liquid fills the segment containing the precise



known volume the liquid contacts the hydrophobic means defining the interface between the segments, the hydrophobic means breaks or resists the forces acting on the liquid filling the bore and prevents liquid from filling the pipette beyond the hydrophobic means by maintaining the surface tension of the liquid at the interface between the fluid and the hydrophobic means.

3,741,733 SINTERED HARD ALLOY AND METHOD OF MAKING

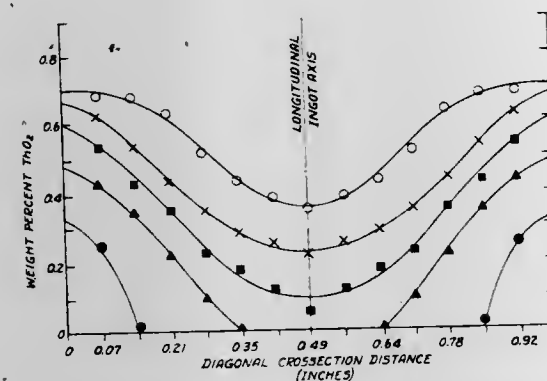
Richard Kieffer, Vienna, Austria, assignor to Ugine-Carbome, Paris, France
No Drawing. Filed Sept. 29, 1970, Ser. No. 76,637
Claims priority, application Austria, Sept. 30, 1969, A 9,227/69

Int. Cl. B22f 3/12
U.S. Cl. 29—182.5 6 Claims
A sintered hard metal alloy useful as a cutting tool bit and a process of making same comprising a metallic hard material phase having a nitrogen base and comprising nitrides or nitride-carbide mixtures or carbonitrides or mixtures thereof, preferably with metals of the transition metal Groups IVa and Va of the periodic table. The hard material phase is bonded by an auxiliary alloy phase comprising a mixture of metals from the iron group metals and from the chromium group metals.

3,741,734 METAL PRODUCTS AND PROCESS OF PREPARATION

Thomas E. Dunham, Cleveland Heights, Ohio, assignor to General Electric Company
Filed Oct. 4, 1971, Ser. No. 186,143
Int. Cl. B22f 7/00; B05c 3/02
U.S. Cl. 29—182.5 23 Claims

SYMBOL	INLET	DIFFUSION TIME (HRS)
○	A	0.25
□	B	1.00
△	C	2.50
×	D	4.00
+	E	7.00



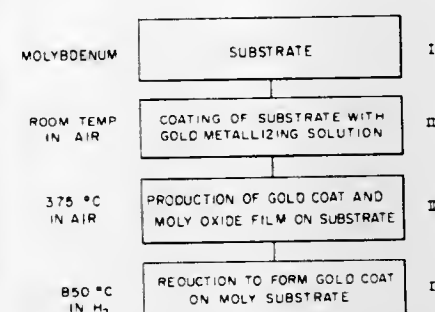
A liquid diffusion technique is described which enables fabrication of various metallurgical products having a compositional gradient which diminishes continuously with increasing distance from the exterior surfaces of the

particular product. More particularly, the products obtained by said technique have a predominant matrix of a base metallic composition in which is dispersed an additive metal or metal composition with the additive concentration being uniformly less with direction from the surface of the product to the product interior. It is possible by said technique to form dispersion alloy products wherein the alloying agent is present in a dispersed phase and the alloy concentration is varied in accordance with liquid diffusion principles. The present technique is particularly useful in power metallurgy applications to provide products with highly uniform compositional gradients when the solubility of the additive in the particular matrix composition is not significant.

3,741,735 COATING MOLYBDENUM WITH PURE GOLD

Robert L. Buttle, Summit, N.J., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Jan. 8, 1964, Ser. No. 336,605
Int. Cl. C23c 13/02

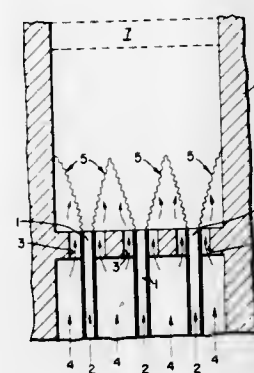
U.S. Cl. 29—198 6 Claims



The invention is directed to a method of bonding gold to a molybdenum substrate by means of an intermediate layer of molybdenum oxide. The intermediate layer is formed during the plating of the gold and may be subsequently reduced to pure molybdenum to form a direct bond.

3,741,736 PROCESS AND DEVICE FOR THE PRODUCTION OF ACETYLENE-ETHYLENE MIXTURES

Henning Bockhorn, Darmstadt, Fritz Fetting, Darmstadt-Eberstadt, and Hans-Adolf Herbertz, Neu-Isenburg, Germany, and Norberto Galdo, La Paz, Bolivia, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany
Filed Oct. 26, 1971, Ser. No. 192,605
Claims priority, application Germany, Oct. 27, 1970, P 20 52 543.3
Int. Cl. C10j 19/00; C07c 11/24
U.S. Cl. 48—113 10 Claims

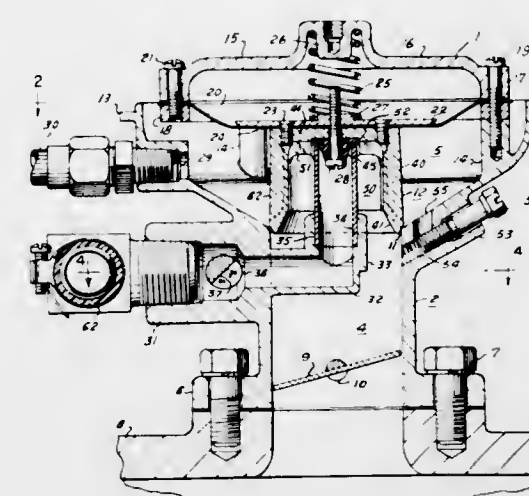


A process for the production of acetylene-ethylene mixtures by mixing at least one light saturated hydrocarbon with oxygen or an oxygen containing gas to form a first mixture, and reacting the first mixture in a flame reaction wherein the improvement comprises reacting the

hydrocarbon with the oxygen or oxygen containing gas in a diffusion flame to form a second mixture containing acetylene and ethylene. A device for carrying out the process is provided.

3,741,737 GAS CARBURETOR

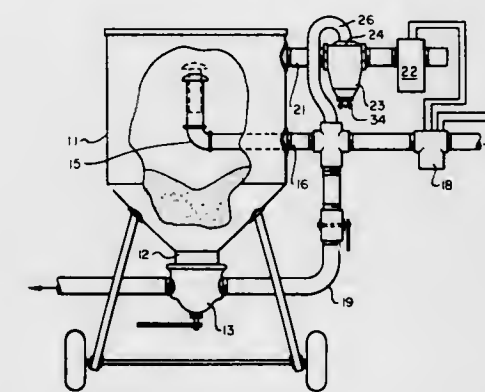
Sam P. Jones, Dallas, Tex., assignor to J & S Carburetor Company, Dallas, Tex.
Filed May 6, 1971, Ser. No. 140,688
Int. Cl. F02m 7/18, 9/12
U.S. Cl. 48—180 C 9 Claims
A carburetor for mixing air with natural or liquefied



petroleum gas comprising a housing having air and gas inlets and a common outlet, fixed means within the housing having an opening through which gas may flow into said housing from the gas inlet, movable means surrounding the fixed means and arranged to coact with its opening to control the flow of gas as well as control the flow of air through said housing, pressure responsive means connected to the movable means with one side exposed to atmosphere and its opposite side of the suction of an internal combustion engine whereby said movable means is actuated by said suction, said movable means having a plurality of separate passages for conducting gas from the opening of said fixed means in separate streams, and means aligned with the passages for impingement by the gas streams to disperse said streams so as to more thoroughly mix the air and gas.

3,741,738 ABRASIVE BLASTING EQUIPMENT AND SELF-CLEANING ABRASIVE TRAP THEREFOR

Robert V. Dowgin, Wayne, N.J., assignor to Pauli & Griffin Co., San Francisco, Calif.
Filed Apr. 12, 1971, Ser. No. 133,014
Int. Cl. B24c 7/00
U.S. Cl. 51—12 5 Claims

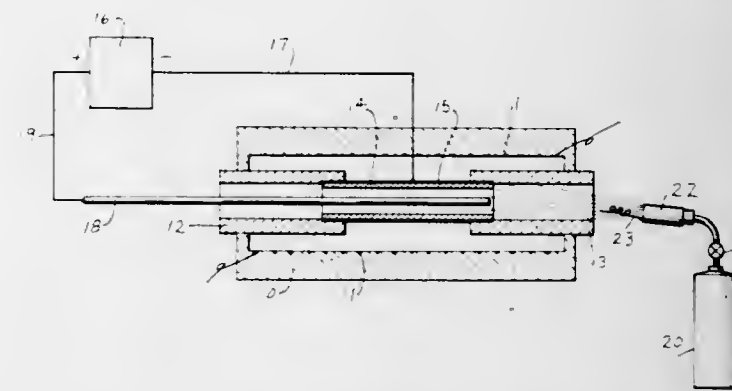


Abrasive blasting equipment of the type where the tank is depressurized to stop blasting having a self-cleaning abrasive

trap interposed between the tank and the exhaust valve to protect the valve from wear by abrasive entrained in the exhaust stream.

3,741,739 METHOD OF STRENGTHENING GLASS

Theodore C. Baker, Wayne, Ohio, assignor to Owens-Illinois, Inc.
Continuation of application Ser. No. 678,034, Oct. 25, 1967. This application July 7, 1970, Ser. No. 56,153
Int. Cl. C03b 5/26, 25/00
U.S. Cl. 65—30 8 Claims



A method for electrochemically tempering an alkali silicate glass article by an ion exchange process wherein larger alkali ions from an electrically conductive, gaseous medium are exchanged for the alkali ions present in the surface of the glass article.

3,741,740 GLASS-CERAMIC HAVING A REFLECTIVE SURFACE AND PROCESS FOR MAKING SAME

Perry P. Pirooz, Toledo, Ohio, assignor to Owens-Illinois, Inc.
Filed Dec. 6, 1971, Ser. No. 205,354
Int. Cl. C03c 29/00
U.S. Cl. 65—32 10 Claims

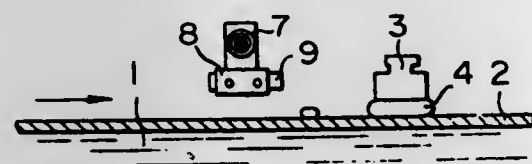
A glass composition capable of being thermally in situ crystallized to a glass-ceramic having a highly reflective integral surface film, which surface film is resistant to high temperatures, to chemical corrosion and to abrasion, said composition consisting essentially of a $\text{SiO}_2\text{-Al}_2\text{O}_3\text{-Li}_2\text{O-Fe}_2\text{O}_3$ base glass containing a nucleating agent. The base glass contains a sufficient amount of Fe_2O_3 to produce a highly reflective surface film on the glass-ceramic formed therefrom. There is also provided a process for preparing a glass-ceramic having such a highly reflective surface film. The glass-ceramic of the invention is particularly useful for lining the interior of cooking and baking ovens and, when the glass-ceramic is a flat plate of a few microns thickness with opposite reflective surfaces, it can be used to split light beams by selective transmittance and reflection.

3,741,741 PROCESS AND APPARATUS FOR THE PREPARATION OF SURFACE-MODIFIED GLASS RIBBON

Nobuyoshi Ohsato, Maizuru, Japan, assignor to Nippon Sheet Glass Co., Ltd., Osaka, Japan
Filed Aug. 17, 1970, Ser. No. 64,369
Claims priority, application Japan, Aug. 18, 1969, 44/65,209
Int. Cl. C03b 19/02
U.S. Cl. 65—99 A 5 Claims

This invention provides as improvement of the process for preparing a glass ribbon having modified properties by contacting the surface of a glass ribbon running continuously on a bath of molten metal with a glass-modifying molten alloy, and this improvement is characterized

in that a molten alloy containing a glass surface-modifying metal in a maximum content is fed onto the surface



of the glass ribbon flowing continuously on the bath of molten metal.

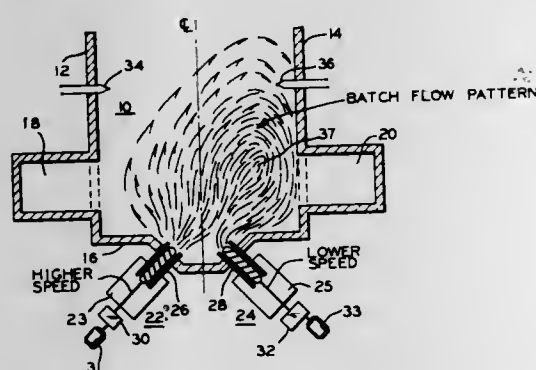
3,741,742

METHOD OF AND APPARATUS FOR INTRODUCING AND CONTROLLING FLOW OF BATCH IN A FURNACE

Richard Frank Jennings, Vienna, W. Va., assignor to Johns-Manville Corporation, New York, N.Y.
Filed July 19, 1971, Ser. No. 163,867
Int. Cl. C03b 5/24

U.S. Cl. 65—135

19 Claims



A method of and apparatus for processing heat softenable, inorganic batch material to maintain a homogeneous and a constant temperature mass of material in the melter section of a furnace of the continuous melting type. Batch introduction is directionalized to cause it to move transverse of the longitudinal axis of the furnace from a cooler to a hotter section of the furnace and effectively cool that section. This retards the advance of the batch out of the melting zone toward the refiner and forehearth by tending to enhance circulation in the melt by convection.

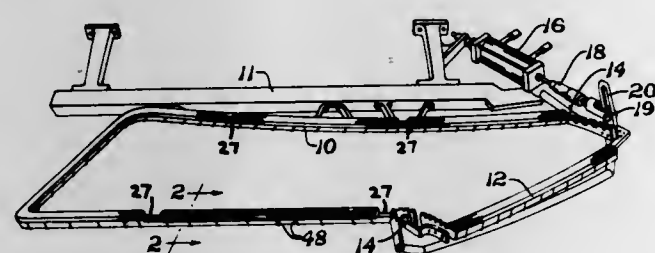
3,741,743

GLASS SHEET SHAPING FRAME

Samuel L. Seymour, 26 Crystal Drive, Oakmont, Pa.
Continuation-in-part of Ser. No. 83,935, Oct. 26, 1970, abandoned. This application July 31, 1972, Ser. No. 276,877
Int. Cl. C03b 23/02

U.S. Cl. 65—287

12 Claims



A shaping frame for engaging the peripheral portion of a glass sheet during shaping and tempering comprising a rigid reinforcing member aligned in offset relation to the margin of the glass sheet treated and screen means to space said glass sheet from said rigid reinforcing member, said screen means

preferably comprising a heavy wire mesh supported on the rigid reinforcing member and a fine wire mesh that contacts the glass supported in spaced relation to said rigid reinforcing member by the heavy wire mesh.

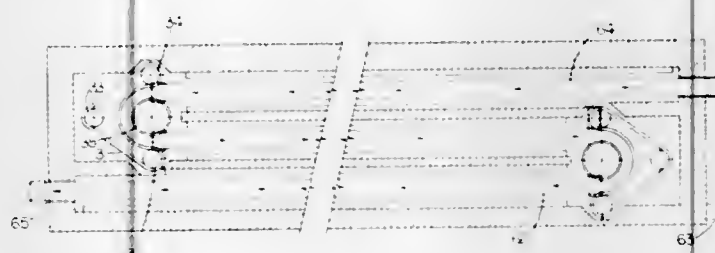
3,741,744

APPARATUS FOR ANNEALING, CONVEYING, TRANSFERRING, AND SPRAYING GLASSWARE

Edward W. Bowman, Uniontown, Pa., assignor to E. W. Bowman, Incorporated, Uniontown, Pa.
Filed Nov. 24, 1971, Ser. No. 201,890
Int. Cl. C03b 25/04

U.S. Cl. 65—348

10 Claims



A glass annealing Lehr to which newly formed glassware is passed under and over sprays of abrasion resistant material by transfer mechanism that engages the ware and suspends it to expose the bottom to spray, the transfer mechanism in one form being capable of transferring the ware from one conveyor to another moving in opposite directions out of contact with said conveyors during the transfer movement.

3,741,745

HERBICIDAL 2-ALKYTHIO-4,6-DIAMINO-1,2,4-TRIAZINES

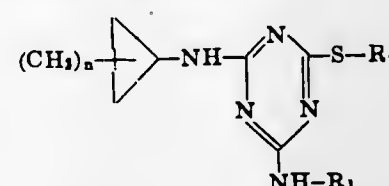
Dagmar Berrer, Riechen, and Christian Vogel, Binningen, near Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Original application Mar. 14, 1969, Ser. No. 807,429, now Patent No. 3,629,256. Divided and this application Apr. 9, 1971, Ser. No. 132,878
Int. Cl. A01n 9/22

U.S. Cl. 71—93

6 Claims

2-alkylthio-triazine derivatives of the formula



wherein n means 0 or 1, R_1 represents certain unsubstituted or substituted alkyl or cycloalkyl groups and R_2 represents methyl or ethyl are disclosed as herbicidally active compounds of enhanced toxicity to undesirable plant growth and improved selectivity. A method of controlling undesirable plant growth with the aid of such compounds and compositions containing them are also described.

3,741,746

METHOD OF REGULATING PLANT GROWTH

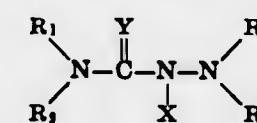
Richard J. Marrese, Wyckoff, Gordon C. Edwards, Cranford, and James Zielinski, Kenilworth, N.J., assignors to Esso Research and Engineering Company
No Drawing. Filed Nov. 12, 1969, Ser. No. 876,144
Int. Cl. A01n 9/12

U.S. Cl. 71—72

4 Claims

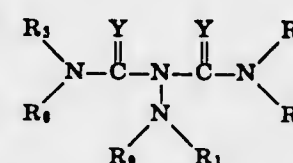
Semicarbazides, especially the tetraalkylated thiosemicarbazides and biuret derivatives, especially the mono- and dithiobiuret derivatives have demonstrated effective

growth regulating activity. Exemplary or preferred semicarbazides are those having the formula:



where R_1 and R_2 each represent an unsubstituted or substituted C_1 – C_{30} hydrocarbyl group, preferably C_1 – C_{10} , and Y can be either hydrogen, said unsubstituted or substituted hydrocarbyl group, and Y can be O or S.

Exemplary of preferred biuret derivatives are those having the formula:



where R_5 – R_{10} can be H, unsubstituted or substituted C_1 – C_{30} hydrocarbyl group, preferably C_1 – C_{10} , and Y can be O or S, and combinations thereof. Typical R_1 – R_{10} hydrocarbyl groups include: (1) saturated or unsaturated, acyclic or cyclic, aliphatics such as, e.g., ethyl, propargyl, cyclohexyl, cyclohexenyl, etc.; and (2) aromatic or hetero-aromatic radicals, such as phenyl, pyridyl, etc.

3,741,747

HIGHLY ALKALINE TITANATED CLEANER

Andrew Joseph Hamilton, Philadelphia, and George Schneider, Trevose, Pa., assignors to Amchem Products, Inc., Ambler, Pa.
No Drawing. Filed Sept. 30, 1971, Ser. No. 185,409
Int. Cl. C23f 7/10

U.S. Cl. 148—6.15 Z

7 Claims

Alkaline cleaning, activating and grain-refining of ferrous and zinc surfaces in preparation for zinc phosphate coating is performed simultaneously with a single stabilized treating solution having a pH above 10 containing a colloidal titanium salt.

3,741,748

METAL DISPERSOID POWDER COMPOSITIONS

David A. W. Fustukian, Edmonton, Alberta; Leon F. Norris; Robert W. Fraser, both of Fort Saskatchewan, Alberta, and David John Ivor Evans, North Edmonton, Alberta, all of Canada, assignors to Sherritt Gordon Mines Limited, Toronto, Ontario, Canada
Filed Oct. 1, 1970, Ser. No. 77,217
Claims priority, application Canada, Jan. 27, 1970, 073,147
Int. Cl. B22f 9/00

U.S. Cl. 75—0.5 AC

9 Claims



A powder composition suitable for powder metallurgical preparation of high temperature resistant wrought metal and metal alloy products. The composition contains highly disseminated and uniformly spaced refractory dispersoid particles fixed to metallic host particles. The host particles are in the form of anisodimensional platelets of nickel, cobalt, iron or an alloy based on at least one of these metals. The platelets

have a maximum thickness of about 1,000 millimicrons and a minimum width at least 5 times the thickness. The refractory dispersoid particles have a mean radius in the range of 2–20 millimicrons and are fixed in the planar surfaces of the platelets in a volume fraction of about 0.001 to 0.10.

3,741,749

METHOD FOR THE PREPARATION OF CHARGED CADMIUM-NICKEL POWDER AND BATTERY ELECTRODE POWDER MADE THEREBY

Bonnie K. Jochmann, Pittsburgh, Pa., and Torbjorn Nervik, Selbu, Norway, assignors to ESB Incorporated
No Drawing. Filed Sept. 3, 1971, Ser. No. 177,839
Int. Cl. C22c 17/00

U.S. Cl. 75—5 A

9 Claims

A metallic powder comprising cadmium, nickel and a cadmium nickel intermetallic compound is prepared by reacting in an aqueous acidic solution cadmium and nickel salts with a metal less noble than cadmium and nickel. The powder so produced has high surface area, high electrical activity and is easily fabricated into battery plates.

3,741,750

METHOD OF CONTROLLING BASIC OXYGEN FURNACE AND BESSEMER CONVERTER PROCESSES

Richard T. Davis, 18 Crumlin Ave., Girard, Ohio 44420

Continuation-in-part of application Ser. No. 34,267, May 4, 1970. This application Oct. 19, 1970, Ser. No. 82,215

Int. Cl. C21c 7/00

U.S. Cl. 75—60

2 Claims

A method of controlling the blowing process in a Bessemer converter or a basic oxygen furnace in which the blowing process may be brought to a definite end point indicative of proper oxidation and in which the necessity of further treatment of ingot deoxidation is eliminated. The amount and type of scrap introduced into the charge is precisely controlled, based on a history of previous blows.

3,741,751

HEATING OF MOLTEN METAL

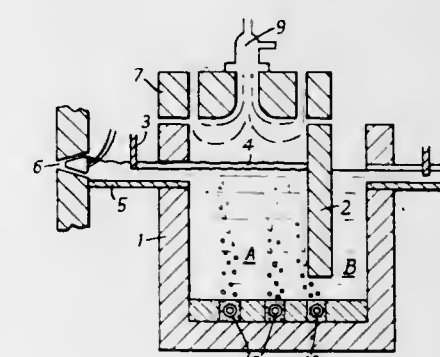
David Charles Bone, Quainton, England, assignor to The British Aluminium Company Limited, London, England

Filed Sept. 10, 1970, Ser. No. 71,155
Claims priority, application Great Britain, Sept. 12, 1969, 45,163/69

Int. Cl. C22b 9/00, 29/00, 21/06

U.S. Cl. 75—65

8 Claims



Molten metal, particularly aluminium and its alloys, is covered with a flux layer and is heated from above by a combustion system, the gaseous products of which are not shielded from the metal surface otherwise than by the presence of said flux.

3,741,752

ACID LEACHING PROCESS FOR TREATING HIGH GRADE NICKEL-COPPER MATTES

David John Ivor Evans, North Edmonton, Alberta; Herbert Veltman, and Patrick T. O'Kane, both of Fort Saskatchewan, Alberta, all of Canada, assignors to Sherritt Gordon Mines Limited, Toronto, Ontario, Canada
Filed Jan. 22, 1971, Ser. No. 108,905

Int. Cl. C22b 15/08, 23/04

U.S. Cl. 75—101

9 Claims

Nickel and copper values are separately recovered from copper-nickel-sulphide matte by means of a multi-stage acid leach process. The matte is treated in a first leaching stage in which the acid to acid-reactive metals molar ratio and leaching time are controlled to selectively extract the bulk of the nickel values while the copper values remain in the leach residue. The residue containing copper values and a minor portion of the nickel values is then acid leached in one or more stages to substantially completely extract copper values and the residual nickel values. Precious metal contained in the matte are concentrated in the residue from the secondary leaching stages. Copper is recovered from the solution from the secondary leaching stages and the spent solution containing one mole of acid per mole of copper recovered is recycled as required to the first leaching stage to maintain the desired sulphur balance in that stage.

3,741,753

METHOD FOR ADDING MANGANESE ALLOYING MEMBER TO STEEL

Heinrich Walz and Ray A. Bloom, Canton, Ohio, assignors to The Timken Company, Canton, Ohio
No Drawing. Filed July 26, 1971, Ser. No. 166,306

Int. Cl. C22c 33/00, 35/00

U.S. Cl. 75—129

8 Claims

A method for adding a manganese-base alloying agent to ferrous liquid metal by inserting into the liquid metal a wire-like configuration having a composition, by weight, of from about 65% to about 85% manganese, from about 10% to about 35% nickel, and with or without a balance of up to about 15% iron and/or up to about 0.5% aluminum with incidental impurities.

3,741,754

METHOD FOR MAKING METAL ALLOYS

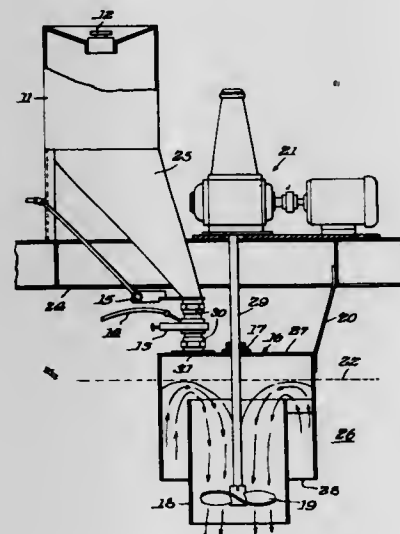
Charles M. Mainland, La Porte, Ind., assignor to United States Smelting, Refining & Mining Company, New York, N.Y.

Filed Apr. 29, 1971, Ser. No. 138,672

Int. Cl. C22c 1/02, 11/02

U.S. Cl. 75—135

10 Claims



An apparatus and method are provided for making metal alloys in which, at least one of the alloying metals

is reactive with air. The method involves the introduction of distinct particles of the air-reactive metal directly into a liquid bath of a non-air-reactive metal in combination with the use of an inert, protective gas (which is non-reactive with the air-reactive metal) as a covering for the alloying process.

The apparatus in turn is used to introduce air-reactive metal into a liquid bath of non-air-reactive metal and includes: an open-ended housing which can be inserted into the bath, a supply container used to contain the air-reactive metal, a valve located between the housing and the supply to adjust the flow of air-reactive metal from the supply, a gas inlet for introducing inert gas into the supply, and a mixing device, such as an agitator, disposed within the housing and used to promote the alloying reaction.

3,741,755

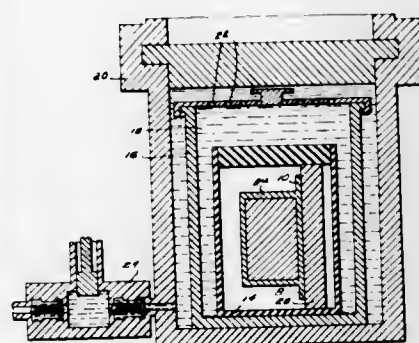
METHOD OF ISOSTATICALLY PRESSING METAL POWDER INTO DESIRED METAL SHAPES

Daniel D. Allen, 179 Salem St., Reading, Mass. 01867
Filed Nov. 4, 1971, Ser. No. 195,787

Int. Cl. B22f 1/00, 3/24

U.S. Cl. 75—214

14 Claims



Isostatic pressing of metal powder is carried out in an improved manner by utilizing a specially formed tooling enclosure body made of a relatively hard plastic material which takes the place of conventionally employed soft rubber. The relatively hard plastic material, while held in contact with a molding pattern is thermo-formed under vacuum and its thickness is controlled to provide a relatively stiff wall portions capable of receiving a quantity of metal powder and sustaining its weight without distortion or appreciable dimensional change during processing. Hydrostatic pressure exerted through the plastic tooling enclosure produces a metal shape made to exacting specifications and characterized by high quality surface finishing.

3,741,756

METAL CONSOLIDATION

John W. Andersen and Donald R. Cavote, Columbus, Ohio, assignors to Wheeling-Pittsburgh Steel Corporation, Pittsburgh, Pa.

No Drawing. Filed Oct. 27, 1971, Ser. No. 193,162

Int. Cl. B22f 1/00

U.S. Cl. 75—223

5 Claims

The application discloses a process for consolidation of metal particles at an elevated temperature within a bed of particulate material comprising a mixture of refractory material and a particulate "getter" material, selected from the group consisting of aluminum, titanium, and zirconium, for reacting with oxygen released from the refractory material during the heating period to prevent contamination of the consolidated product.

3,741,757

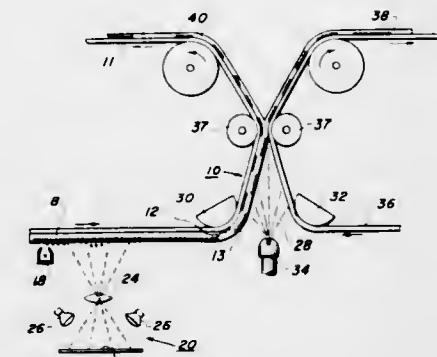
MIGRATION IMAGE DEVELOPED BY SPLITTING OR ABRADING SOFTENABLE LAYER

William L. Goffe, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Continuation-in-part of applications Ser. No. 460,377, June 1, 1965, now Patent No. 3,520,681, Ser. No. 483,675, Aug. 30, 1965, now Patent No. 3,656,990, and abandoned application Ser. No. 725,676, May 1, 1968. Said application Ser. No. 725,676 being a continuation-in-part of said applications Ser. Nos. 483,675 and 460,377, both being continuations-in-part of application Ser. No. 403,002, Oct. 12, 1964, now abandoned. This application Dec. 16, 1968, Ser. No. 784,164

Int. Cl. G03g 13/00, 13/06, 13/14

U.S. Cl. 96—1 R

19 Claims



Providing an imaged member comprising a layer of softenable material and migration material selectively distributed in depth in said softenable material in first image configuration and comprising in addition to said first image pattern of migration material a background of substantial amounts of migration material in said softenable material but spaced apart, in depth, from said first image pattern; and removing said background.

3,741,758

MIGRATION IMAGING EMPLOYING PRESSURE NIP DEVELOPMENT

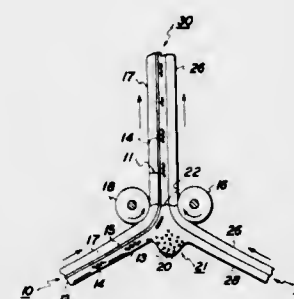
Thomas A. Chrzanowski, Penfield, and Bernard Grushkin, Pittsford, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 14, 1970, Ser. No. 97,803

Int. Cl. G03g 13/12

U.S. Cl. 96—1 R

12 Claims



A process for removing background from a migration imaged member comprising a layer of softenable material and migration material selectively distributed in depth in said softenable material with some background material, by extruding away the background material and contiguous portions of softenable material, for example, by passing the migration imaged member through a pressure nip wherein some of the softenable material is extruded in front of the nip carrying with it the unmigrated particles.

3,741,759

FROST IMAGING PROCESS

Roger N. Ciccarelli, Rochester, Ira L. Seldin, Penfield, and Frank G. Belli, Webster, N.Y., assignors to Xerox Corporation, Stamford, Conn.

No Drawing. Filed Aug. 19, 1971, Ser. No. 173,276

Int. Cl. B41m 5/20; G03g 13/22

U.S. Cl. 96—1.1

3 Claims

The invention relates to a frost imaging process wherein the surface deformable film comprises a thermoplastic material and an additive to improve the frostability of the film. The additive has a viscosity greater than the bulk thermoplastic material at the softening temperature of said bulk material.

3,741,760

IMAGING SYSTEM

Christopher Snelling, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Continuation of abandoned application Ser. No. 707,871, Feb. 28, 1968. This application May 17, 1971, Ser. No. 144,215

Int. Cl. G03g 17/00

U.S. Cl. 96—1.2

2 Claims

The subject matter of this patent application pertains to a method of photoelectrophoretic imaging. The process comprises the development of a localized electric field by a transparent electrode-coronode system, in conjunction with an imaging suspension comprising photoelectrophoretic imaging particles dispersed in an insulating carrier liquid. As a result of a non-homogeneous electric field developed in the imaging suspension, upon exposure selectively to an electromagnetic radiation source through the transparent electrode, an image is formed in the non-illuminated areas on the surface of the transparent electrode.

3,741,761

NON-ELECTROSTATIC PRINTING ELECTROGRAPHY

Costantino Marcus Cantarano, 49 Avenue Franklin Roosevelt, Thiais 94, France

Continuation-in-part of abandoned application Ser. No. 631,792, Apr. 18, 1967. This application Dec. 8, 1969, Ser. No. 870,405

Int. Cl. G03g 13/08, 15/08

U.S. Cl. 96—1 R

6 Claims



A method for producing electrographic images from conductivity characteristics ranging from an area exhibiting maximum conductivity, to an area exhibiting minimum conductivity, said conductivity pattern being affixed to an insulating backing member, comprising the steps of coating said conductivity pattern with a thin layer of developer powder capable of receiving an electric charge, disposing a fluid insulating layer against said coated conductivity pattern so that said coated conductivity pattern is electrically insulated between said insulating backing member and said fluid insulating layer, said insulating backing member and said fluid insulating layer being disposed between first and second electrodes, at least one of

3,741,771

WATER-SOLUBLE PROTEIN MATERIALS
Akiva Pour-El, St. Paul, and Thomas C. Swenson, Minneapolis, Minn., assignors to Archer Daniels Midland Company, Decatur, Ill.

No Drawing. Continuation-in-part of application Ser. No. 797,669, Feb. 7, 1969. This application Sept. 10, 1970, Ser. No. 71,254

The portion of the term of the patent subsequent to Jan. 30, 1990, has been disclaimed
Int. Cl. A23j 1/14; A23i 1/00

U.S. Cl. 99—79

13 Claims

Dispersed plant proteins are digested with an acid active enzyme at a pH below 4.6. Quiescent conditions are maintained in the reaction medium and digestion proceeds until the insoluble colloidal protein is substantially completely dissolved. The pH is raised to about 4.6 and the medium is allowed to stand causing additional insoluble protein to precipitate. The insoluble residue is removed and the soluble protein material is dried. A clear liquid, which can be carbonated, is formed containing the solubilized protein material at a pH corresponding to the isoelectric point of the protein.

3,741,772

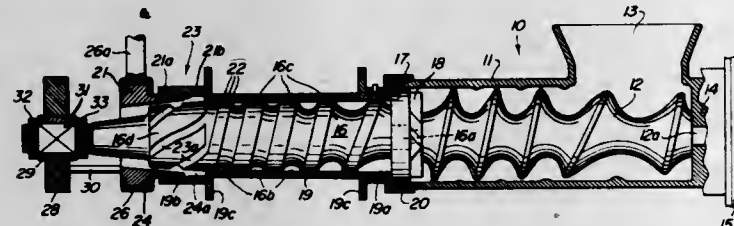
PROCESS FOR PRODUCING DE-BONED MEAT PRODUCTS

Archie Rae McFarland, Salt Lake City, Utah
Application Dec. 3, 1969, Ser. No. 881,688, which is a continuation-in-part of abandoned application Ser. No. 593,532, Nov. 10, 1966. Divided and this application Feb. 7, 1972, Ser. No. 224,181

Int. Cl. A22c 18/00, 25/00

U.S. Cl. 99—107

11 Claims



Material obtained from animals, poultry, or fish and containing edible flesh along with normally inedible relatively hard or tough components, such as bone, gristle, tendons, etc., is fed in ground condition into one end of a perforated conduit that has a conveyor screw therein which progressively decreases in conveying capacity from the feed end of the conduit to an imperforate discharge end thereof. Such inedible components are compacted within the imperforate discharge end of the conduit by an extension of the conveyor screw prior to discharge following build-up and conveyance along the interior surface of the perforate portion of the conduit as a filter mat through which edible flesh is forced toward and through the perforations of the conduit to provide a substantially bone-free edible product. The discharge passage surrounding the extension of the conveyor screw can be varied in size, preferably by a tapered ring that is movable back and forth axially of the conveyor screw extension, and preferably the spacing between conveyor screw and conduit is variable. The forward faces of the conveyor screw flights are preferably concave to provide a forwardly projecting circumferential overhang that tends to keep particles of bone near the axis of the screw, and the conduit wall thickness is unusually thick so as to withstand high pressures. Unusually high production rates can be obtained by feeding finely ground material into the conduit by means of a high pressure pump. The discharged and normally inedible components can be slurried in a digestant liquid and the digested material recovered as a food product by the application of centrifugal force. In instances where some minute particles of bone are discharged with the

fleshly components, they can be homogenized by subjecting such flesh components to an attrition operation.

3,741,773

PREPARATION OF RICOTTA CHEESE

Nicholas E. Pontecorvo, Tarzana, Calif., assignor to Pontecorvo R & D Company, Los Angeles, Calif.
Filed May 22, 1970, Ser. No. 39,721

Int. Cl. A23c 19/02

U.S. Cl. 99—116

9 Claims

A flotation method of collecting ricotta cheese curd in a reduced neck at the top of a processing tank. Whey and milk are treated to form the curd which rises to the top of the body of liquid in the tank. Hot water is then injected into the bottom of the tank to elevate the body of liquid until the curd is skimmed off from the neck and delivered into a receptacle.

3,741,774

PREPARATION OF A HIGH PROTEIN SIMULATED CHEESE PRODUCT

Morris P. Burkwall, Jr., Barrington, Ill., assignor to The Quaker Oats Company, Chicago, Ill.

No Drawing. Filed Mar. 23, 1970, Ser. No. 22,025

Int. Cl. A23c 19/12

U.S. Cl. 99—117

1 Claim

A high protein simulated cheese product is prepared by forming a mixture of specified amounts of cheese, pregelatinized starch, a high protein binding agent, water and sugar or sugar equivalents. The mixture is heated to 125° F. to 195° F. and while at a temperature within this range it is extruded into small strands.

3,741,775

MEAT-TYPE AROMAS AND THEIR PREPARATION

Chi-Hang Lee, Spring Valley, N.Y., assignor to General Foods Corporation, White Plains, N.Y.

No Drawing. Filed Dec. 7, 1970, Ser. No. 95,903

Int. Cl. A23i 1/26

U.S. Cl. 99—140 R

10 Claims

An aqueous solution of cysteine, thiamine and a 6-deoxy hexose is reacted at boiling temperature for a sufficient period of time to produce a meatlike aroma and flavor which is characteristic of roast and/or cooked beef. The composition evolving this aroma may be concentrated, stored and combined with solvents, carriers, extenders, thickeners, flavors and other aroma imparting materials.

3,741,776

PROCESS FOR PREPARING FOODS AND DRINKS

Masakazu Mitsuhashi, Okayama, Mamoru Hirao, Akaiwa-gun, and Kaname Sugimoto, Okayama, Japan, assignors to Hayashibara Company, Okayama, Japan

No Drawing. Filed Jan. 8, 1969, Ser. No. 789,935

Claims priority, application Japan, Jan. 23, 1968, 43/3,863

Int. Cl. A23i 1/26

U.S. Cl. 99—141 R

4 Claims

Maltitol is used as the major or sole sweetener of low or non-calorie foods. It serves the functions of providing solids volume, increased viscosity, body, luster, moisture retention and stability to the food without the necessity of sugary or starchy fillers.

3,741,777

TREATING PROCESS TO IMPROVE SEPARABILITY OF BACON SLICES

Raymond J. Wrobel, Chicago, and Robert B. Rendek, Hillside, Ill., assignors to Armour and Company, Chicago, Ill.

No Drawing. Filed Oct. 6, 1970, Ser. No. 78,618

Int. Cl. A22c 18/00; A22b 1/02

U.S. Cl. 99—159

10 Claims

A pickle solution containing lecithin is pumped into a pork belly and the belly then sliced to form bacon slices which can be more easily separated from each other.

3,741,778

PACKAGE WITH SELF-CONTAINED HANDLE FOR STORING AND HEATING FOOD, AND METHOD OF FORMING SAME

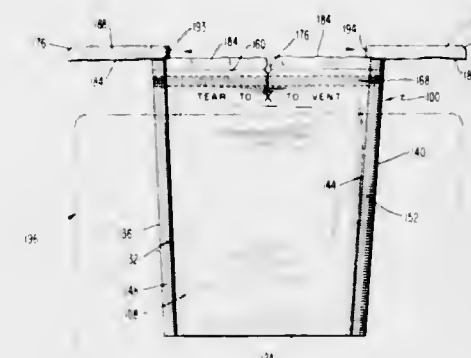
James H. Rowe, New Hyde Park, N.Y., assignor to Nabisco, Inc., New York, N.Y.

Filed Mar. 9, 1971, Ser. No. 122,307

Int. Cl. B65d 81/34

U.S. Cl. 99—171 H

18 Claims



A sealed package having a self-contained handle for storing portions of food and for heating or cooking the food in a toaster. The handle is adapted to be extended outwardly from the toaster and thus to remain cooler than other parts of the package to facilitate removal of the package after completion of the heating or cooking cycle. Also, methods are disclosed for making sealed packages of this type.

3,741,779

METHOD OF MARKING SHRIRD TUBING

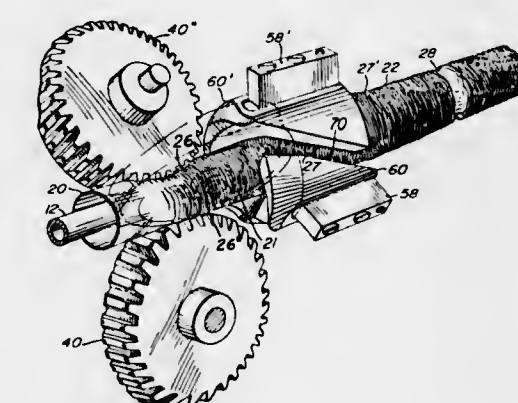
Algimantas P. Urbutis, Chicago, Bernard H. Schenk, Hinsdale, Joseph J. Risany, La Grange Park, and Walter V. Marbach, Palos Heights, Ill., assignors to Union Carbide Corporation

Application May 31, 1968, Ser. No. 765,711, now abandoned, which is a division of application Ser. No. 418,506, Dec. 15, 1964, now Patent No. 3,397,069, dated Aug. 13, 1968. Divided and this application Mar. 5, 1970, Ser. No. 16,662

Int. Cl. A22c 13/00

U.S. Cl. 99—176

2 Claims



A method for marking flexible tubular sausage casing by interrupting a regular shirring operation on a shirring mandrel, then advancing the casing and shirring irregularly for a brief interval of time, then repeating the regular shirring operation, the mark being constituted by a length of irregularly shirred tubing.

3,741,780

METALLIZING COMPOSITIONS CONTAINING BISMUTHATE GLASS-CERAMIC CONDUCTOR BINDER

Lewis Charles Hoffman, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Original application Nov. 4, 1970, Ser. No. 86,986, now Patent No. 3,684,536. Divided and this application Jan. 12, 1972, Ser. No. 217,234

Int. Cl. C23c 3/02

U.S. Cl. 106—1

8 Claims

Metallizing compositions for screen printing circuits onto ceramic substrates which consist essentially of, by weight, (a) 3–15% of a finely divided powder of such glass-ceramic precursors as a binder and (b) 85–97% of a finely divided noble metal powder. Dielectric ceramic substrates having printed and fired thereon such metallizing compositions.

3,741,781

DRY GRANULES OF NITROCELLULOSE CONTAINING A POLYOL AND METHOD FOR THE PREPARATION OF SUCH GRANULES

Jacques J. Plazanet and Christiane Gaillard, born Letellier, Bergerac, France, assignors to Etat Français representé par le Ministère d'Etat de la Defense Nationale, Delegation Ministerielle pour l'Armement (Direction des Poudres), Paris, France

No Drawing. Filed Jan. 4, 1971, Ser. No. 103,806

Claims priority, application France, Jan. 9, 1970, 7000350

Int. Cl. C08b 21/12, 21/14, 29/02

U.S. Cl. 106—180

7 Claims

This invention relates to dry nitrocellulose granules which are particularly useful for the manufacture of polyurethane varnishes, wherein they contain, in addition to the nitrocellulose, a polyol selected from the group comprising polyoxyalkyleneglycols and in particular polyoxypropyleneglycols with a molecular weight of 800 to 3000 and more, polyesters and polyethers containing free hydroxyl groups capable of reacting with isocyanates, in the proportion of 10 to 30% and preferably 15 to 25% by weight of polyol with respect to the nitrocellulose. The invention also relates to a method of preparation of the abovementioned dry nitrocellulose granules.

3,741,782

STABILIZED ZIRCONIUM SALTS

Donald T. Stewart, Buckinghamshire, and Ian McAlpine, Farnborough, England, assignors to The British Aluminium Company Limited, London, England

No Drawing. Filed May 13, 1971, Ser. No. 143,263

Claims priority, application Great Britain, May 13, 1970, 23,177/70

Int. Cl. C08b 21/00

U.S. Cl. 106—162

11 Claims

This invention relates to the stabilizing of zirconium salts such as are used to convert aqueous solutions of natural or synthetic polymers capable of forming hydrophilic colloids into insoluble films. More particularly, the invention is concerned with the stabilizing of a solution of an alkali metal zirconyl carbonate with a compound containing a diol group and of the general formula $R_1-CHOH-CHOH-R_2$. The invention extends to solutions so stabilized and to the use of the stabilized solutions in the manufacture of paper, paper board and the like cellulosic web materials.

3,741,783

HAIR PREPARATION

Deger Tunc, Edison, N.J., assignor to Johnson & Johnson

No Drawing. Filed May 3, 1971, Ser. No. 139,858

Int. Cl. C08h 17/34

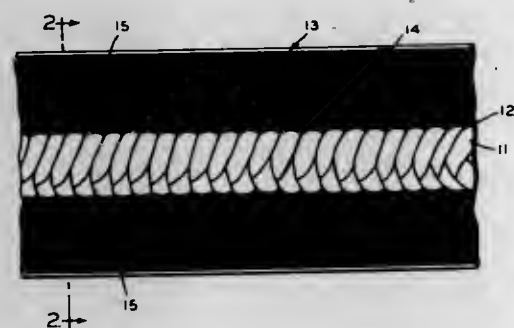
U.S. Cl. 106—189

15 Claims

A composition suitable for use as a hair preparation is provided which may be uniformly applied to the hair,

dries quickly upon application to form a flexible film, is easily removed from the hair by washing in the usual manner with soap and water, and may be formulated to provide a degree of curl retention suitable for a wide range of specific hair setting conditions. The composition comprises at least one sulfated alkali cellulose ether in a solvent mixture comprising at least 60% by weight of an alcohol and 0 to 40% by weight of water. Preferably, the composition comprises at least one sulfated alkali ether resin chosen from the group consisting of alkyl ethers, hydroxyalkyl ethers and hydroxyalkyl-alkyl ethers, wherein each of the alkyl and hydroxyalkyl groups contains no more than four carbon atoms. The composition, when combined with an aerosol propellant system, may be applied as a hair spray.

3,741,784
WATER-REPELLENT PRESERVATIVE DRESSING FOR POLYVINYL CHLORIDE FISHING LINES
Arthur M. Howald, Perrysburg, Ohio, assignor to Shakespeare Company, Columbia, S.C.
Continuation-in-part of abandoned application Ser. No. 25,087, Apr. 2, 1970, which is a division of application Ser. No. 703,146, Feb. 5, 1968, now Patent No. 3,523,034. This application Jan. 27, 1972, Ser. No. 221,375
Int. Cl. C08h 17/22, 9/08
U.S. Cl. 106—268

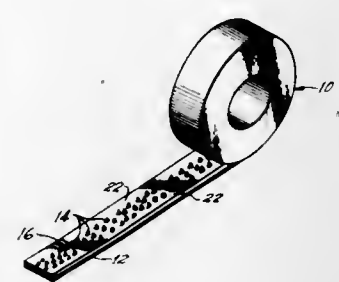


A water-repellent preservative dressing for a fly fishing line having a surface layer of plasticized polyvinyl chloride contains a preservative which is present in such a proportion as to maintain substantially constant the flexibility of the line, and which consists of 0.5 to 2.0 parts of at least one substantially non-volatile ester of the class consisting of monomeric polycarboxylic acid esters and phosphates which are primary plasticizers for polyvinyl chloride. The ester constitutes at least 50% of the weight of the thinner in a composition that consists essentially of one part of paraffin wax, .05 to 0.3 part of at least one soap of the class consisting of aluminum, calcium and magnesium soaps, and a thinner, any thinner other than the ester consisting of at least one solvent of the class consisting of kerosene, high boiling petroleum fractions, chlorinated paraffins and chlorinated naphthalenes.

3,741,785
SILICA TREATED ACICULAR ALKALI METAL TITANATES
Werner S. Lichtenstein, Chattanooga, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of abandoned application Ser. No. 21,199, Mar. 19, 1970. This application Feb. 23, 1971, Ser. No. 118,082
Int. Cl. C09c 1/36

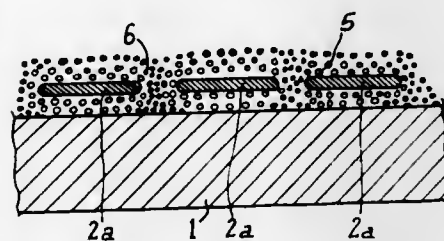
U.S. Cl. 106—299
Precipitation of hydrous silica in an amount ranging from 0.1 to 10 percent by weight of solid titanates present in an aqueous slurry of acicular alkali metal titanates results in a reduction of the formation of agglomerates or grit particles in the resulting titanates.

3,741,786
TRANSFER TAPE HAVING NON-CONTIGUOUS PRESSURE SENSITIVE ADHESIVE PATTERNS
John S. Torrey, Arcadia, Calif., assignor to Avery Products Corporation, San Marino, Calif.
Filed May 28, 1971, Ser. No. 147,881
Int. Cl. B32b 7/14; B41m 3/12
U.S. Cl. 117—3.1



There is provided a pressure sensitive adhesive transfer tape consisting of a release coated carrier tape bearing a plurality of substantially non-contiguous pressure sensitive adhesive segments. This construction allows the pressure sensitive adhesive segments to be transferred from the release coated carrier tape to a substrate without cutting the carrier tape and/or the adhesive.

3,741,787
DRY DECALCOMANIA
Roger Tordjman, 78 La Calle, Saint Cloud, France
Continuation-in-part of abandoned application Ser. No. 785,720, Dec. 20, 1968. This application June 8, 1971, Ser. No. 151,066
Claims priority, application Luxembourg, Aug. 7, 1968, 56,664/68
Int. Cl. B41m 3/12; B32b 7/06
U.S. Cl. 117—3.1

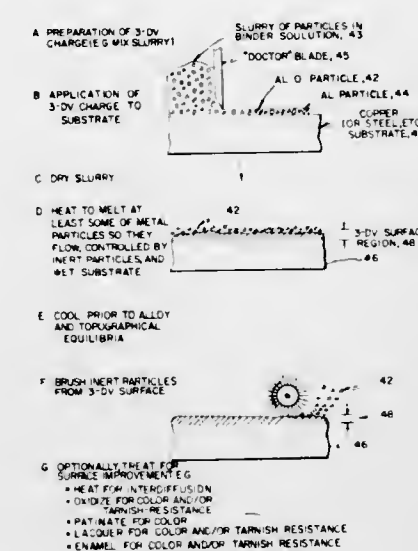


A pressure-sensitive decalcomania is formed of a support sheet containing a plurality of indicia and the adjacent surface of the support sheet. Selected solvents are employed in the adhesive coating for transferring the indicia to a receiving surface while retaining the adhesive coating surrounding the transferred indicia on the support sheet.

3,741,788
DECORATIVE TEXTURED METALLIC SURFACES
Irving Sheinhart, Framingham, Mass., Walter L. Finlay, New York, N.Y., and Donald A. Hay, Medfield, Mass., assignors to Copper Range Company, New York, N.Y.
Filed Sept. 23, 1970, Ser. No. 74,778
Int. Cl. C23c 17/00

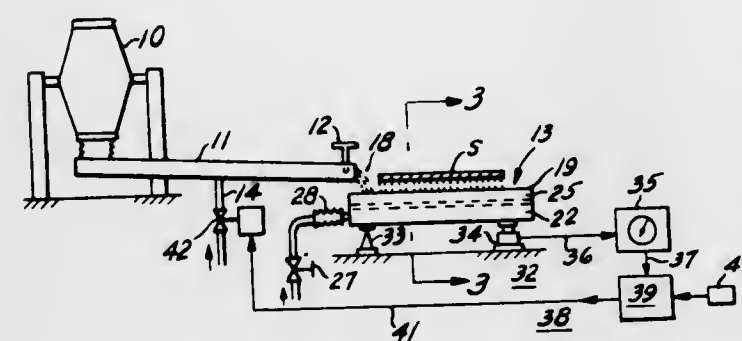
U.S. Cl. 117—9
Partial fusion of a particulate charge, some or all of which is metallic, to a predetermined point short of thermodynamic equilibrium, has been found to develop esthetically pleasing and economical decorative surfaces. By proper selection of constituents and of their process-

ing, including optional processing steps after formation of the decorative topography, the surfaces can be tarnish



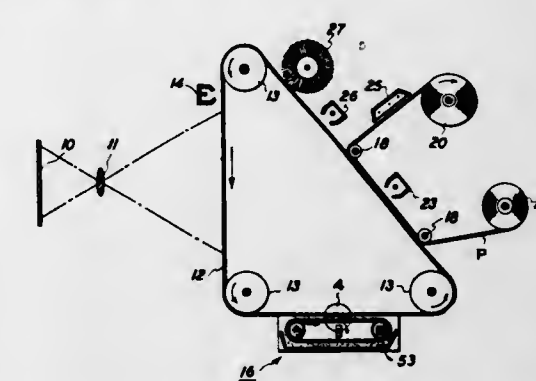
and corrosion-resistant. Various bronze compositions particularly lend themselves to this statement.

3,741,789
METHOD OF APPLYING PARTICLES TO A SURFACE
Harold K. Young, Herbert Wald, William O. Blanch, and Lacy C. Meadows, Baltimore, Md., assignors to Bethlehem Steel Corporation
Original application May 29, 1969, Ser. No. 829,014, now Patent No. 3,653,544. Divided and this application May 19, 1971, Ser. No. 144,952
Int. Cl. B44d 1/094
U.S. Cl. 117—16



Particle dispensing apparatus coats one or more surfaces of a workpiece such as a moving web, strip, sheet, plate or flat wire. Particles are fed from at least one source over fluidized conveyors to separate particle applicators associated with each surface to be coated. Each particle applicator includes a receiver-dispenser having a fluidized bed and counter-rotating brush rolls which continuously picks up fluidized particles and discharges them against one of the surfaces to be coated in an amount which varies with particle level in the receiver-dispenser. A separate load cell supports each receiver-dispenser and drives a load indicator which produces weight signals that are related to particle level in each receiver-dispenser. A controller receiving the weight signals acts on the conveyor means to independently maintain a predetermined level of particles in each receiver-dispenser. This provides a uniform application of particles on each surface of the workpiece to be coated.

3,741,790
METHOD FOR MAGNETICALLY DEVELOPING ELECTROSTATIC IMAGES
Paul S. L. Wu, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Original application May 28, 1968, Ser. No. 732,737, now Patent No. 3,592,166. Divided and this application Dec. 16, 1970, Ser. No. 98,882
Int. Cl. C03g 13/08, 15/08
U.S. Cl. 117—17.5



An improved method for magnetically developing electrostatic latent images on a photoconductive surface in the form of a belt. The method steps include forming the latent electrostatic images on a belt surface and transporting the belt surface along a predetermined path which is substantially parallel to and closely spaced to an endless belt carrying developer material including a magnetic component and an electrostatic component. The photoconductive belt and developer material transport move in the same direction. One or more magnetic fields are rotated in the development zone on an axis which moves in the same direction as developer material transport and photoconductive belt. The rotating magnetic fields move at speeds which are approximately two to three times the speed of the developer material transport and about four to five times the speed of photoconductive belt such that the developer material is caused to raise towards and away from the electrostatic images to be developed in a wave-like formation repeatedly during the development to effect a high quality of the images. Upon development of the image the developed image is transferred to a support sheet to form a permanent copy. To enhance solid area development an electric bias is coupled to the developer transport to suppress image background field.

3,741,791
SLURRY COATING SUPERALLOYS WITH FeCrAlY COATINGS
Douglas H. Maxwell, Monsey, N.Y., and James M. Gabriel, McKeesport, Pa., assignors to United Aircraft Corporation, East Hartford, Conn.
No Drawing. Filed Aug. 5, 1971, Ser. No. 169,533
Int. Cl. C23c 9/00, 17/00

U.S. Cl. 117—46 CA
A slurry coating, particularly for the nickel-base and cobalt-base alloys, which comprises, by weight, 20-30 percent chromium, 8-12 percent aluminum, 10-16 percent silicon, 0.1-3 percent yttrium, scandium or lanthanum, balance iron is applied to a suitable substrate and diffusion heat treated to provide oxidation resistance thereto.

3,741,792
METHOD OF CLEANING AND COATING A SURFACE WITH PARTICLES DISPERSED IN A JET FLAME
Clifford S. Peck, Elberton, Ga., and Clarence A. Garrison, Monroe, La., assignors to C. S. Peck Co., Inc. Elberton, Ga.
Filed Dec. 14, 1970, Ser. No. 97,553
Int. Cl. B05b 7/20, 7/02

U.S. Cl. 117—46 FC
A method for flame cleaning or flame coating employing the steps of producing a jet flame in a combustion

use in magnetic devices performing the functions of storage, switching, light deflection, etc., are improved by annealing for critical periods over the temperature range of from about 1200° C. to 1350° C.

3,741,803

METHOD FOR THE PRODUCTION OF FOG-RESISTANT THERMOFORMED STRUCTURES

William J. Clayton, Fairport, N.Y., assignor to Mobil Oil Corporation

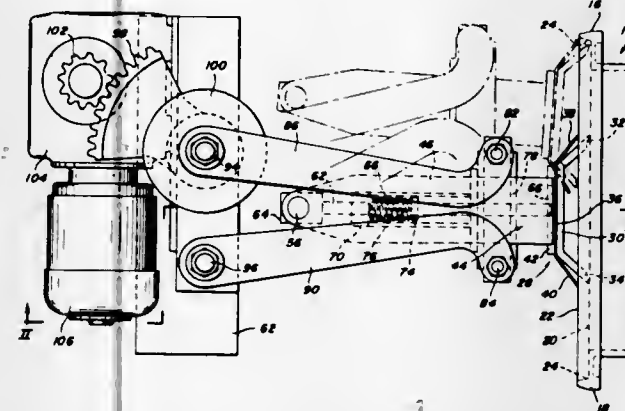
No Drawing. Continuation-in-part of abandoned application Ser. No. 799,527, Feb. 14, 1969. This application Apr. 12, 1971, Ser. No. 133,406

Int. Cl. B32b 27/30, 27/32

U.S. Cl. 161-247

5 Claims

The present invention relates to a method for the production of coated structures adapted for thermoforming into structures such as support structures for the containment of moisture emitting products, such as fresh meat or produce for example, the tendency of said structures to fog or become hazy as a result of water condensation in the form of droplets on the surface thereof being substantially reduced or completely eliminated.



3,741,804

CRYOGENIC CHEMICAL DEBURRING

Thomas F. Stapleton, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

No Drawing. Filed Oct. 4, 1971, Ser. No. 186,468

Int. Cl. B08b 7/00

U.S. Cl. 134-3

1 Claim

Process for chemically deburring machined or molded parts including the steps of refrigerating the part to a sufficiently low temperature such that it will form and retain a protective layer of ice on its principal surfaces during the deburring operation.

3,741,805

CHLORINE STABLE COMPOSITION FOR CLEANING AND SANITIZING AND METHOD OF USE

Homer E. Crotty and Charles R. Coffey, Cincinnati, and Thomas C. Tesdahl, Forest Park, Ohio, assignors to Chemed Corporation, Cincinnati, Ohio

No Drawing. Application Apr. 23, 1970, Ser. No. 31,373, now Patent No. 3,666,679, which is a continuation-in-part of application Ser. No. 749,585, Aug. 2, 1968, now Patent No. 3,578,499. Divided and this application Aug. 10, 1971, Ser. No. 170,644

The portion of the term of the patent subsequent to May 11, 1987, has been disclaimed

Int. Cl. B08b 7/00; C11d 3/48

U.S. Cl. 134-4

10 Claims

An aqueous gelling composition for cleaning and sanitizing comprising (A) a Xanthan gum, (B) a diluent selected from the group consisting of Na₂SO₄ and NaCl, (C) a linear alkyl benzene sulfonate, (D) propylene glycol dispersing agent, (E) fluorescein dye, and (F) a chlorine release agent such as chlorinated trisodium phosphate, chlorinated isocyanurates, or sodium hypochlorite; and its method of use.

3,741,806

METHOD OF CLEANING THE SEALING SURFACES OF DOORS AND DOOR JAMBS OF BY-PRODUCT COKE OVENS

Walter Stanke and Gottfried Mertens, Essen, Germany, assignors to Heinrich Koppers Gesellschaft mit beschränkter Haftung, Essen, Germany

Original application Oct. 13, 1969, Ser. No. 865,637.

Divided and this application Apr. 30, 1971, Ser. No. 138,956

Int. Cl. C10b 43/04

U.S. Cl. 134-6

2 Claims

The cleaning apparatus includes a cleaning tool with a base portion having a pair of spaced scrapers extending therefrom in diverging relation to each other. An arm member extends rearwardly from the cleaning tool base

portion. A rod member is pivotally secured to the rear end portion of the arm member and extends forwardly therefrom toward the cleaning tool base portion. An intermediate tubular support member is coaxially positioned on the rod member and has a transverse connecting portion adjacent the front end. A pair of levers is connected to the transverse connecting member and extend rearwardly therefrom and the other ends of the pair of levers are pivotally connected to a fixed frame member. A drive

mechanism is provided to reciprocally move the cleaning tool along a sealing surface of a coke oven door or door jamb. A spring between the rod and tubular support member urges the cleaning tool against the sealing surface and the friction between the scraper portion of the cleaning tool and the sealing surface pivots the cleaning tool and arm member relative to the lever members so that only one scraper contacts the sealing surface during the cleaning operation.

3,741,807

SEWER TREATMENT TO KILL TREE ROOTS AND OTHER ORGANIC GROWTH THEREWITHIN

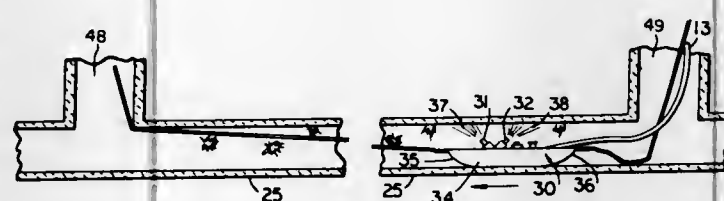
Frederick F. Horne, Carmel Valley, Calif., assignor to Airtigation Engineering Company, Inc., Carmel Valley, Calif.

Continuation-in-part of application Ser. No. 850,321, Aug. 6, 1969, which is a continuation-in-part of application Ser. No. 760,822, Sept. 19, 1968, both now abandoned. This application Mar. 10, 1971, Ser. No. 122,738

Int. Cl. A01n 17/06; B08b 9/02

U.S. Cl. 134-24

9 Claims



A composition for killing plant roots inside sewers, comprises an alkali metal alkyl dithiocarbamate in an amount of about 30%, a biodegradable liquid nonionic surfactant in an amount of about 12%, and water making up the remainder. One method for treating the sewer pipes comprises coating the inside wall of the pipe and any roots or other growth inside the pipe with the composition in the form of a foamy film by spraying it thereon or on the upper portion thereof, as from a continuously moving device. Preferred apparatus for so treating the sewer pipes comprises a sled having bottom skid means, a low center of gravity and a spray system mounted on said sled having generally upwardly directed nozzles, and means for pulling the sled through a pipe while supplying it with the composition under pressure. Another method comprises soaking with the solution diluted to about 2% of the

methyldithiocarbamate, this being done by plugging the pipe and filling the pipe above the plug with the diluted solution. Special plugging apparatus is described.

3,741,808

TANK CLEANER

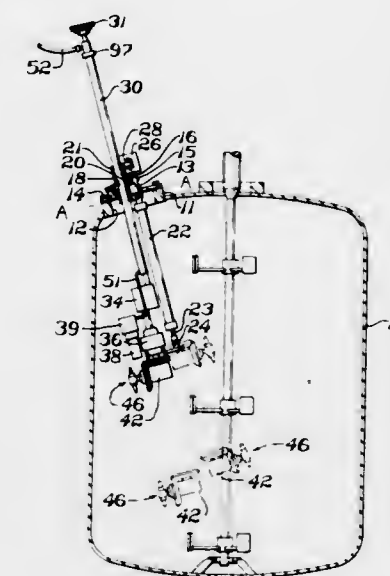
Lee F. Stalker, Louisville, Ky., assignor to The B. F. Goodrich Company, New York, N.Y.

Filed Aug. 12, 1970, Ser. No. 63,106

Int. Cl. B05b 3/10; B08b 3/02, 9/08

U.S. Cl. 134-58 R

8 Claims



A portable high pressure tank cleaning apparatus with a linear movable tubular member that is also rotatably and eccentrically adjustably secured to a base. A cleaning head is located on one end of the linear movable member. The linear movability and rotatable adjustability of the member on the base permits the cleaning head to be positioned at different positions in the tank.

3,741,809

METHODS AND APPARATUS FOR THE POLLUTION-FREE GENERATION OF ELECTROCHEMICAL ENERGY

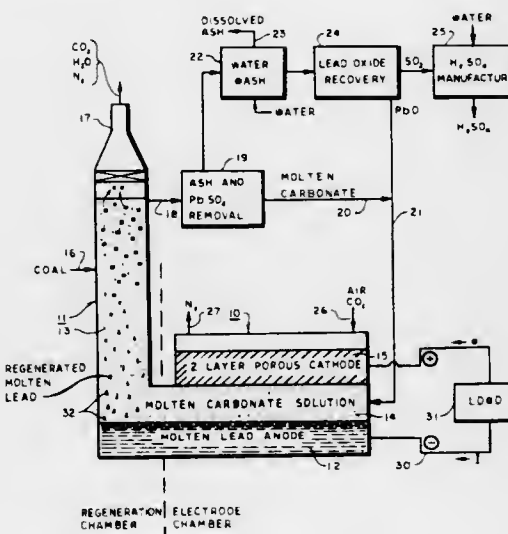
Michael Anbar, Palo Alto, Calif., assignor to Stanford Research Institute, Menlo Park, Calif.

Filed May 13, 1971, Ser. No. 142,980

Int. Cl. H01m 29/04

U.S. Cl. 136-86 A

4 Claims



Methods and apparatus for the pollution-free generation of electrochemical energy from coal, hydrocarbons or other carbonaceous fuels by a cyclic operation wherein a metal such as lead is oxidized in an electrochemical cell delivering electromotive force, with the resulting lead oxide then being reduced in a molten salt melt

within a regeneration chamber by the addition thereto of the fuel. The reduced lead metal is then returned to the cell for the next cycle. A useful salt melt for employment in the regeneration chamber comprises admixed alkali metal carbonates, and preferably a melt of this character is employed both as the vehicle in which the lead is reduced by the fuel as well as for the electrolyte in the cell. Passage of the lead and lead oxide between the respective cell and regeneration zones can be continuous or intermittent. The total operation is carried out without formation of pollutant gases, and only CO₂, N₂ and H₂O vapors are vented. Any sulfur present in the fuel is converted to lead sulfate and is removed from the salt, usually by treatment of a side-stream.

3,741,810

BATTERY CONSTRUCTION

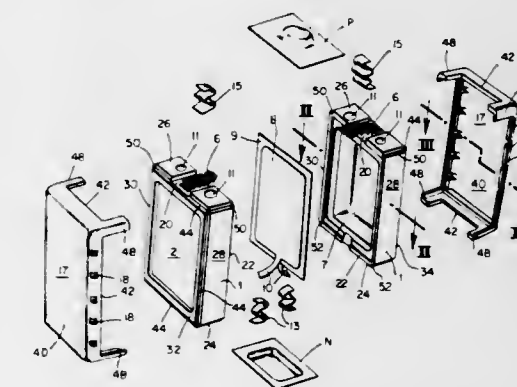
James R. Dafer, Yardley, and Richard P. Niederberger, Pineville, Pa., assignors to ESB Incorporated

Filed July 6, 1971, Ser. No. 159,815

Int. Cl. H01m 27/00

U.S. Cl. 136-86 A

7 Claims



An air depolarizable galvanic battery construction is disclosed. The battery includes a vessel structure having a portion thereof comprised of at least one air electrode. A closure means overlies the air electrode for preventing direct contact of foreign objects with the air electrode to thereby protect the air electrode from being damaged. The closure means is provided with air access openings and is disposed in spaced relation to the air electrode to permit circulation of air between it and the air electrode.

3,741,811

BATTERY ACTUATED BY LINEAR AND ANGULAR ACCELERATION

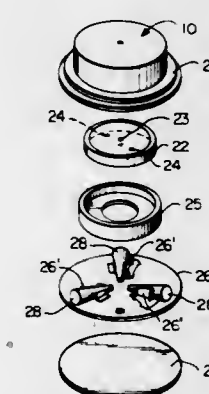
Joseph D. Coury, Wheaton, Md., assignor to the United States of America as represented by the Secretary of the Army

Filed Dec. 20, 1971, Ser. No. 209,795

Int. Cl. H01m 17/06

U.S. Cl. 136-90

4 Claims



A self actuated battery is disclosed which is supplied with an electrolyte from a self opening ampule. When the

battery is spinning on its cylindrical axis and subjected to axial acceleration, a diaphragm across the end of the ampule is punctured by a novel and unique cutter which responds to the combination of linear and angular acceleration forces, thereby allowing the electrolyte to flow from the ampule through a filled channel into the battery cells.

3,741,812

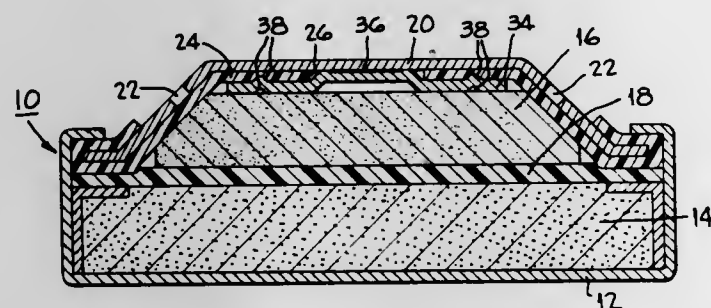
BATTERY HAVING GAS PERVIOUS, LIQUID IMPERVIOUS MEMBER SEALED OVER HOLE IN TOP

Patrick J. Spellman and John E. Oltman, Madison, and Gerald Sanden, Verona, Wis., assignors to ESB Incorporated

Filed Nov. 3, 1971, Ser. No. 195,371
Int. Cl. H01m 21/00

U.S. Cl. 136—107

10 Claims



A hole in the top of a battery is covered by a gas pervious, liquid impervious member secured to the interior surface of the top in a manner which provides a liquid-tight closure around the hole. The gas pervious, liquid impervious member may be extended to and around the edge of the top where it is crimped by the container and where it functions as a grommet to provide a liquid-tight closure around the perimeter of the top. The gas pervious, liquid impervious member may be crimped between the top and an electrically conductive current collector which is secured to the top. Constructions are illustrated in which the gas pervious, liquid impervious member is electrically nonconductive, while other constructions are shown in which the member is conductive.

3,741,813

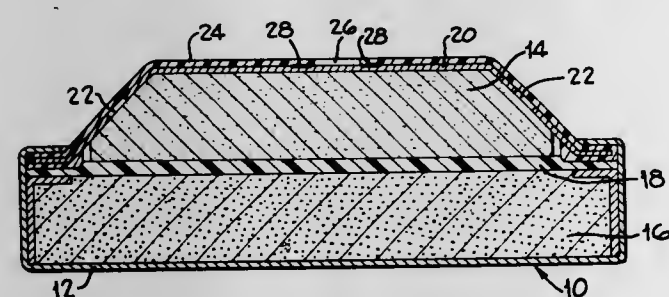
BATTERY HAVING GAS PERVIOUS, LIQUID IMPERVIOUS MEMBER SEALED OVER HOLE IN TOP

Bernard C. Bergum, Monona, and Trygve Lonnebotn, Madison, Wis., assignors to ESB Incorporated

Filed Nov. 3, 1971, Ser. No. 195,370
Int. Cl. H01m 21/00

U.S. Cl. 136—107

10 Claims



A hole in the top of a battery is covered by a gas pervious, liquid impervious member secured to the top in a manner which provides a liquid-tight closure around the hole. The gas pervious, liquid impervious member may be extended to and around the edge of the top where it is crimped by the container and where it functions as a grommet to provide a liquid-tight closure around the perimeter of the top. The gas pervious, liquid impervious

member may be crimped between the top and an electrically conductive contact member which is secured to the top. Constructions are illustrated in which the gas pervious, liquid impervious member is electrically nonconductive, while other constructions are shown in which the member is conductive.

3,741,814

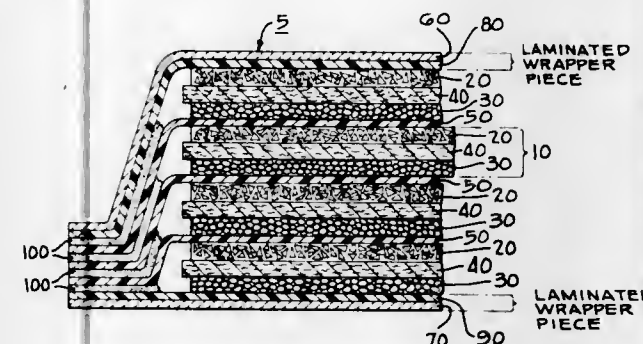
BATTERY HAVING WRAPPER COMPRISING LAMINATES OF METAL AND ELECTRICALLY CONDUCTIVE PLASTIC

John M. Bilhorn, Edgerton, Wis., assignor to ESB Incorporated

Filed Dec. 21, 1970, Ser. No. 99,985
Int. Cl. H01m 21/00

U.S. Cl. 136—111

8 Claims



A battery has a wrapper consisting of two pieces sealed around their perimeters. Each wrapper piece comprises a laminate of metal and electrically conductive plastic, the conductive plastic in each of the laminates being in contact with an end electrode within the battery. The wrapper pieces are closed around their perimeters to produce a liquid impervious sealed battery. Preferably, the metal in each of the two wrapper laminates comprises a foil of steel. The laminated wrapper pieces may be used to enclose either multi-cell or single cell batteries.

3,741,815

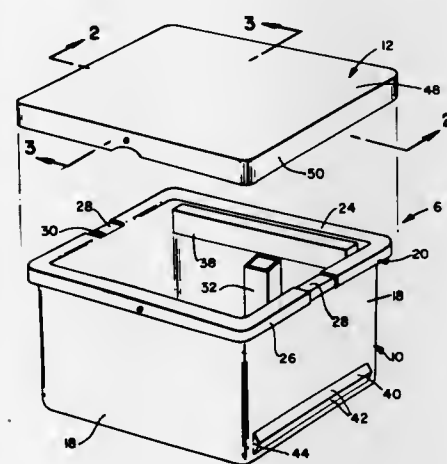
RAILROAD SIGNAL BATTERY BOX

Fred D. Peterson, Belmont, Calif., assignor to Peterson Products of San Mateo, Inc., Belmont, Calif.

Filed Jan. 25, 1972, Ser. No. 220,570
Int. Cl. H01m 1/04

U.S. Cl. 136—166

8 Claims



A box for storing batteries for railroad signal backup systems in the ground. A receptacle is constructed of a lightweight, thin-walled fiberglass material and is closed with a

cover removably placed over an open top of the receptacle. Means are provided to lock the cover to the receptacle, to permit air breathing while the receptacle is closed, and to pass cables buried in the ground through the receptacle bottom into the receptacle interior while preventing ground moisture from entering the receptacle. A wooden terminal strip is provided for the formation of electrical connections and anti-flotation lobes prevent a rising of the partially buried battery box when the ground water level rises above the receptacle bottom.

3,741,816

THERMOCOUPLE STRUCTURES

Edmond M. Wagner, Sierra Madre, Calif., assignor to Jade Controls, Inc., Montclair, Calif.

Continuation-in-part of application Ser. No. 734,512, June 3, 1968, now Patent No. 3,556,864, dated Jan. 19, 1971. This application Oct. 21, 1970, Ser. No. 82,762

Int. Cl. H01v 1/06

U.S. Cl. 136—228

13 Claims



A thermocouple is joined to a coaxial lead cable by a separable connector. The cold thermocouple junctions are formed at the connector, which comprises a sleeve, a nut having male threads, and a fitting having a cavity with mating female threads. The fitting is attached to the thermocouple tube so the thermocouple inner wire extends into the cavity, and the sleeve is attached to the outer conductor of the lead cable, so the inner conductor of the lead cable extends through the sleeve. The nut fits around the base of the sleeve. As the nut is screwed into the fitting, it forces the end of the sleeve to seat on a shoulder formed in the cavity of the fitting, thereby sealing the interior of the tube and the cable at their junction from the atmosphere. The electrical connection between the thermocouple inner wire and the inner conductor of the lead cable has limited longitudinal freedom of movement to accommodate for variations in the sleeve seating required to form the seal.

3,741,817

PROCESS FOR PRODUCING MONOCRYSTALS FROM III-V COMPOUND MELTS WITH A BORON OXIDE RIM

Klaus Bienert, Winfried Lang, and Fritz Kremser, Burg-hausen-Obb., Germany, assignors to Wacker-Chem-tronic Gesellschaft für Elektronik-Grundstoffe m.b.H., Postfach, Germany

No Drawing. Filed July 6, 1970, Ser. No. 52,751
Claims priority, application Germany, July 7, 1969,
P 19 34 369.2

Int. Cl. B01j 17/18; C01b 27/00

U.S. Cl. 148—1.6

3 Claims

A process for producing monocrystals from a melt of III-V compounds containing a component which is vola-

tile at the melting point of the compound, which comprises achieving the stoichiometry of the III-V compound by setting the vapor pressure of the volatile component, coating the surface of the melt of said III-V compound with an area, preferably a rim, of boron oxide melt, and drawing a monocrystal from the melt.

3,741,818

METHOD OF FABRICATING A COMPOSITE SEAL HAVING A REFRACTORY OXIDE SURFACE

Alan John Surrall, Redditch, England, assignor to British Leyland Truck and Bus Division Limited, Leyland, England

No Drawing. Filed Jan. 12, 1972, Ser. No. 217,388
Claims priority, application Great Britain, Jan. 26, 1971,
3,133/71

Int. Cl. C23c 11/00

U.S. Cl. 148—6.3

3 Claims

A method of manufacturing a counterface seal for a rotary disc-type matrix of a regenerative heat-exchanger comprises: forming a composite structure, consisting of a counterface element and heat-resistant support pad, by brazing highly-compacted blocks of a high-temperature material onto the support pad; thermally converting the composite structure to produce the required composition at the working surface of the counterface element; and lapping that surface to achieve the requisite flatness.

ERRATUM

For Class 148—6 see:
Patent No. 3,741,747

3,741,819

METHOD OF PREPARING LOW DENSITY WROUGHT ZINC ALLOY WITH IMPROVED STRENGTH AND LOW TEMPERATURE DUCTILITY

Pierre Chollet, Pierrefonds, and Edouard Gervais, Mon-treal, Quebec, Canada, assignors to Noranda Metal Industries Limited, Toronto, Ontario, Canada

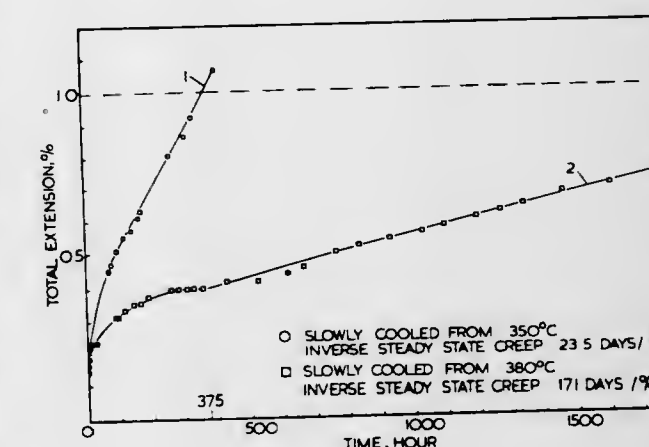
Original application Nov. 27, 1968, Ser. No. 779,377.
Divided and this application Jan. 20, 1971, Ser.
No. 108,199

Claims priority, application Canada, Sept. 24, 1968,
30,768

Int. Cl. C22f 1/16

U.S. Cl. 148—11.5 R

15 Claims



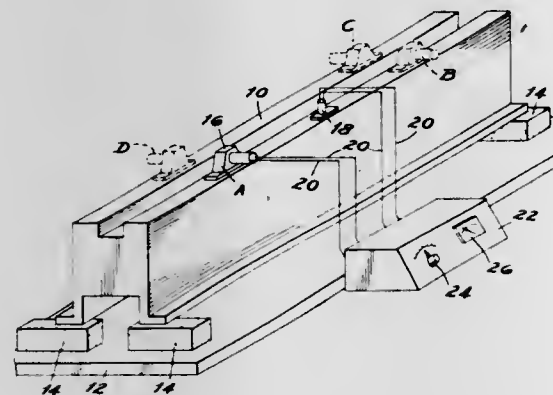
A method of heat treating a wrought alloy consisting essentially of 18-30% aluminum, up to 3% copper, up to 0.10% magnesium, up to 0.10% lithium and the balance zinc apart from incidental impurities, which comprises slow cooling said alloy from between about 380° C. and about 290° C.

3,741,820

METHOD FOR STRESS RELIEVING METAL
August G. Hebel, Jr., and August G. Hebel III, both of
1257 18th St., Detroit, Mich. 48216
Filed Dec. 7, 1970, Ser. No. 95,852
Int. Cl. C21d 1/04

U.S. Cl. 148—12.9

16 Claims



The method for stress relieving metal by vibration wherein the frequency locations of vibrational resonant peaks are found in the stressed metal and the metal is vibrated at a preferred stress relieving frequency to change the frequency locations of these resonant peaks. When the resonant peaks stabilize in new frequency locations, stress removal is complete. The preferred stress relieving frequency is selected from the vibrational response characteristics of the metal and is very efficient in relieving stresses.

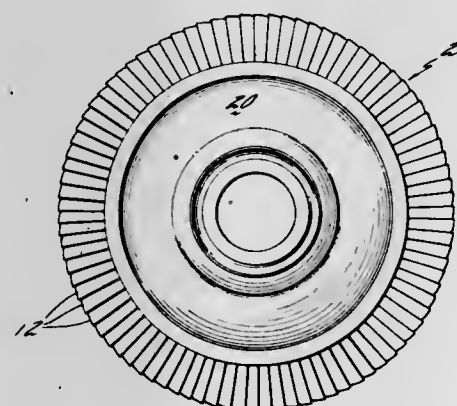
3,741,821

PROCESSING FOR INTEGRAL GAS TURBINE DISC/BLADE COMPONENT

Roy L. Athey, North Palm Beach, and Joseph B. Moore, Jupiter Tequesta, Fla., assignors to United Aircraft Corporation, East Hartford, Conn.
Filed May 10, 1971, Ser. No. 141,529
Int. Cl. C22f 1/10

U.S. Cl. 148—13.1

4 Claims



Integral blade/disc components for gas turbine engines, formed from the high temperature age-hardenable alloys, are differentially heat treated to provide one set of primary properties at the periphery and another set of primary properties radially inward thereof.

3,714,822

HIGH-STRENGTH STEEL

Alan T. Gorton, St. Paul, Minn., assignor to North Star Steel Company, St. Paul, Minn.
Filed July 14, 1971, Ser. No. 162,451
Int. Cl. C21d 1/28; C22c 39/20

U.S. Cl. 148—36

1 Claim

A high-strength ferrous alloy characterized by high yield strength, high ductility and high impact strength. The composition includes as alloying elements manganese,

nickel, carbon, silicon, chromium and vanadium. The balance is iron. After hot rolling, the bar is normalized and then air cooled. The alloy is particularly, though not exclusively, useful as anchor bolt material.

3,741,823

METHOD OF FORMING FIRST ORDER TRANSITION FILMS

James M. Lommel, Schenectady, N.Y., assignor to General Electric Company
Original application Nov. 18, 1968, Ser. No. 776,619, now Patent No. 3,607,460. Divided and this application Oct. 26, 1970, Ser. No. 84,176
Int. Cl. H01f 1/02

U.S. Cl. 148—103

2 Claims

Thin films of iron-rhodium exhibiting a broadly hysteretic first order transition between the ferromagnetic and antiferromagnetic states are produced by sequentially depositing iron and rhodium films upon a refractory substrate at a pressure in the range of 1×10^{-6} torr, annealing the structure in a vacuum of 1×10^{-6} torr at a temperature of approximately 700°C . for 1 hour to produce a complete diffusion of the iron and rhodium layers, and subsequently subjecting the diffused layers to a second anneal in an atmosphere greater than 10 parts per million oxygen in a thermal cycle that includes slowly heating the structure to 400°C ., maintaining the 400°C . for approximately 10 minutes and slowly cooling to room temperature. Films thus formed are advantageously employed in the recording of digital information by electron beam heating individual regions through a first order transition to the ferromagnetic state whereupon the regions are permitted to cool to a biasing temperature slightly higher than the temperature of transition back to an antiferromagnetic state. A magnetic field then is applied to the entire film to magnetize only those regions of the film in the ferromagnetic state and readout of the recorded information can be achieved by conventional electron beam microscopy. The ferromagnetism of the film subsequently can be erased by cooling the film below the transition temperature to the antiferromagnetic state or by the application of a strain to the film.

3,741,824

METHOD TO IMPROVE THE WELDABILITY AND FORMABILITY OF NICKEL-BASE SUPERALLOYS
David Scott Duvall, Middletown, and William A. Owczarski, Cheshire, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

No Drawing. Original application July 19, 1968, Ser. No. 746,011. Divided and this application Oct. 29, 1970, Ser. No. 85,232
Int. Cl. C21d 1/00, 9/50

U.S. Cl. 148—127

1 Claim

A procedure for improving the capacity of the advanced nickel-base superalloys to be welded without cracking is described. Concurrently, the process also provides enhanced room temperature formability. Basically, the procedure involves an overaging heat treatment of the material to produce a coarse γ' precipitate distributed throughout the alloy microstructure, a condition of low strength and enhanced room temperature ductility.

3,741,825

METHOD OF DEPOSITING AN EPITAXIAL SEMICONDUCTOR LAYER FROM THE LIQUID PHASE
Harry Francis Lockwood, New York, N.Y., and Michael Ettenberg, Freehold, N.J., assignors to RCA Corporation

Filed July 8, 1971, Ser. No. 160,608
Int. Cl. H01l 7/38

U.S. Cl. 148—171

10 Claims

One or more epitaxial layers of a semiconductor material are deposited on a substrate by providing for each

3,741,828

GAS GENERATOR COMPOSITIONS CONTAINING A SUBSTITUTED GLYOXIME

David C. Sayles, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army
No Drawing. Filed Aug. 16, 1967, Ser. No. 661,504
Int. Cl. C06b 1/04

U.S. Cl. 149—19

10 Claims

High performance gas generator compositions to be used on board missiles to provide secondary power. An hydroxyl-, amino-, or halogen-substituted glyoxime is used.

3,741,829

HIGH-ENERGY PROPELLANTS WITH POLYMERIC FLUORO-AMINO BINDER AND HYDRAZINE DIPERCHLORATE

Edward A. Hunter, Westfield, and Adolf H. Muenker, Piscataway Township, Middlesex County, N.J., assignors to Esso Research and Engineering Company
No Drawing. Filed Feb. 28, 1963, Ser. No. 262,293
Int. Cl. C06d 5/06; C08g 22/00

U.S. Cl. 149—19

12 Claims

12. Process of preparing a cured high-energy polyurethane which comprises reacting a poly(difluoroamine ether) alcohol with a compatible organic triisocyanate that crosslinks through formation of urethane functions replacing hydroxyl groups of the alcohol and with hydrazine diperchlorate.

3,741,830

STABILIZED PROPELLANT COMPOSITIONS AND METHODS FOR THEIR PREPARATION

Robert M. Wall, Brigham City, Utah, assignor to Thiokol Chemical Corporation, Bristol, Pa.
No Drawing. Filed July 12, 1965, Ser. No. 471,796
Int. Cl. C06d 5/06

U.S. Cl. 149—19

34 Claims

Certain organic compounds, called stabilizers, have been disclosed as being useful in preparing solid propellants having hydrazinium diperchlorate (HP_2) as an oxidizer. By use of these stabilizers, the usual hydrocarbon polymer fuel binder, e.g., polyalkadiene fuel binder, are rendered compatible with HP_2 where previously HP_2 and the binder reacted resulting in a hard brittle mass unsuitable as a propellant. The stabilizing compositions of the invention usually are sulfur and nitrogen containing compounds wherein the sulfur and nitrogen are usually bound in a heterocyclic ring and have (a) weakly basic characteristics and/or (b) aliphatic substituents and/or (c) heterocyclic substituents.

3,741,831

EXPLOSIVE COMPOSITION CONTAINING A VINYLIDENE CHLORIDE POLYMERIC LATEX

Richard L. Brennan, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed June 5, 1972, Ser. No. 259,842
Int. Cl. C06b 1/04

U.S. Cl. 149—41

13 Claims

An explosive composition is formed by mixing together a particulate inorganic oxidizer, a substantially saturated aqueous solution of magnesium nitrate, ammonium nitrate, or an aqueous ammoniacal ammonium nitrate solution, a setting agent which sets said composition to a solid material and a small but effective amount of a polymeric organic latex to increase the physical strength of said explosive and permitting the mixture to set. Chlorine containing organic polymeric latexes also increase the sensitivity of the explosive composition.

epitaxial layer to be deposited a separate solution of a semiconductor material dissolved in a molten metal solvent with each solution being unsaturated with the semiconductor material. A body of the semiconductor material is brought into contact with the solution and some of the body is dissolved in the solution so as to exactly saturate the solution. The body is then removed from the exactly saturated solution and the substrate brought into contact with the solution. The solution is cooled to deposit the epitaxial layer on the substrate. To deposit a plurality of epitaxial layers on the substrate, the substrate is successively brought into contact with each solution with the body of semiconductor material preceding the substrate into each solution so that each solution is exactly saturated with the semiconductor material when the substrate is brought into the solution.

3,741,826

METHOD OF MANUFACTURING VARIABLE CAPACITANCE DIODES

Masaichi Shinoda, Sagami-hara, and Masaru Igarashi, Yokohama, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

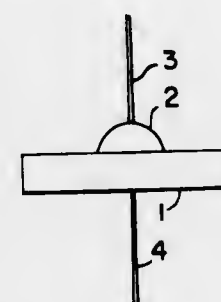
Continuation of abandoned application Ser. No. 663,639, Aug. 28, 1967. This application Sept. 18, 1970, Ser. No. 73,641

Claims priority, application Japan, Aug. 29, 1966, 41/56,824

Int. Cl. H01l 7/46

U.S. Cl. 148—178

4 Claims



Described is a variable capacitance diode with hyperabrupt junction and the method of manufacture thereof. The diode comprises an n-type germanium wafer, onto which a dot has been alloy diffused. The dot comprises bismuth with from 0.01 to 10% by weight of gallium. A small amount of an n-type impurity such as antimony or arsenic may be added.

3,741,827

AGE HARDENING PROCESS AND PRODUCT

Maurice Alfred Reynolds, Bodicote, near Banbury, and Ronald William Elkington, Adderbury West, near Banbury, England, assignors to Alcan Research and Development Limited, Montreal, Quebec, Canada

No Drawing. Filed Feb. 1, 1971, Ser. No. 111,610
Claims priority, application Great Britain, Feb. 12, 1970, 6,895/70

Int. Cl. C22f 1/04

U.S. Cl. 148—159

4 Claims

An aluminium-zinc-magnesium-copper alloy includes 0.12–0.20% zirconium and 0.2–0.4% silver and develops high strength and good stress corrosion characteristics when subjected to solution heat treatment and quenching, followed by artificial ageing. It is an advantage of this alloy that it is relatively insensitive to the rate of quenching. Particularly satisfactory properties are developed when the quenched alloy is heated to ageing temperature at a rate not exceeding 30°C./hour .

3,741,832
LIQUID OXIDIZERS CONTAINING NF₂ GROUPS THICKENED WITH POLYMERIC COMPOUNDS
 Lawrence Spenadel, Fanwood, and John P. Longwell, Westfield, N.J., assignors to Esso Research and Engineering Company
 No Drawing. Filed Feb. 28, 1963, Ser. No. 262,294
 Int. Cl. C06d 5/08

U.S. Cl. 149—109 6 Claims
 1. Method of improving the stability and burning characteristics of a liquid CNF₂ oxidizer selected from the group consisting of NF₂-substituted alkanes, NF₂-substituted cycloalkanes, NF₂-substituted dialkyl ethers, and NF₂-substituted epoxy alkanes containing from 2 to 10 carbon atoms per molecule with an NF₂ group linked to each carbon atom, which consists in dissolving into the liquid CNF₂ oxidizer a sufficient amount of a solid polymer selected from the group consisting of polymethylmethacrylate, of polybutadiene-NF₂ adduct which contains from 1 to 2 NF₂ group per monomeric unit, and mixtures thereof to give the resulting solution of the liquid oxidizer a viscosity in the range of 2 to 9 poises at 20° C.

3,741,833
EXPLOSIVE COMPOSITION CONTAINING A GLYCOL AND A HYDROXY ALKYL ETHER OF A POLYSACCHARIDE
 Errol Linton Falconer, Mont Saint-Hilaire, Quebec, Canada, assignor to Canadian Industries Limited, Montreal, Quebec, Canada
 No Drawing. Filed Feb. 29, 1972, Ser. No. 230,521
 Int. Cl. C06b 1/04

U.S. Cl. 149—109 5 Claims
 A substantially non-aqueous explosive slurry composition comprising essentially a suspension of inorganic oxygen-supplying salt in a fluid matrix, said fluid matrix comprising at least one lower aliphatic glycol selected from the group consisting of ethylene glycol, diethylene glycol, propylene glycol and dipropylene glycol thickened with a material selected from the group consisting of hydroxyethyl and hydroxypropyl ethers of polysaccharides and mixtures thereof.

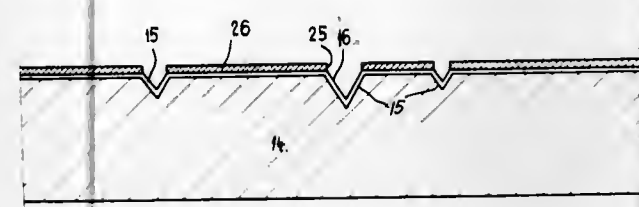
3,741,834
METAL TARNISH REMOVERS
 Ralph P. Williams and Rector P. Louthan, Bartlesville, Okla., assignors to Phillips Petroleum Company
 No Drawing. Filed Oct. 27, 1971, Ser. No. 193,141
 Int. Cl. C11d 3/28, 3/34

U.S. Cl. 252—542 10 Claims
 A composition and method suitable for removal of tarnish from metal surfaces, such as copper, silver, tin, lead, zinc, cadmium, and alloys thereof. The composition comprises one or more mercaptoamides or mercaptoimides, optionally including an abrasive and/or diluent.

3,741,835
METHOD OF PREPARING COPPER-PLATE PRINTING PLATES FOR PRINTING
 Gualtiero Glori, Lausanne, Switzerland, assignor to De la Rue Glori S.A., Lausanne, Switzerland
 Filed May 1, 1970, Ser. No. 33,853
 Claims priority, application Switzerland, May 8, 1969, 7,073/69
 Int. Cl. B44n 3/02; C23g 1/20

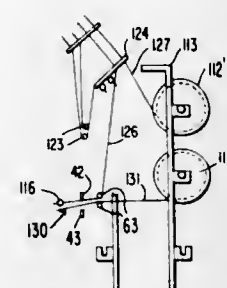
U.S. Cl. 156—14 4 Claims
 An engraved printing plate having an ink retaining surface of copper is prepared for printing by applying a layer of a material such as matt chrome which is repellent to ink but accepts a wetting agent over all of the surface. A protective coating is applied to the non-engraved part of the surface. This coating may be powdered bitumen applied to a film of printing ink and then fused by heat

treatment. The layer of chrome is then removed from the engraved part of the surface by chemical or electrolytic means and the protective coating is then removed by solvents.



3,741,836
METHOD OF SPLICING SYNTHETIC THERMO-PLASTIC CARPET YARN ENDS
 Willie V. Williams, 701 S. Green St., Dalton, Ga. 30720
 Original application Nov. 6, 1968, Ser. No. 773,773, now Patent No. 3,616,054. Divided and this application July 19, 1971, Ser. No. 164,004
 Int. Cl. B65h 69/08; D04h 3/14

U.S. Cl. 156—158 4 Claims



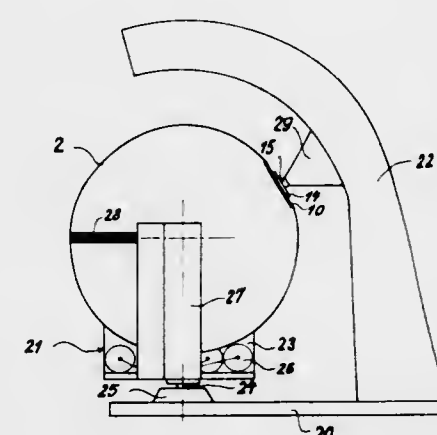
Yarn ends from substantially spent plural beams of carpet yarns are prepared for splicing with similar yarn ends of new full beams by a series of orderly preparation steps. Following this, each set of trailing yarn ends from a previous single exhausted beam is spliced quickly by the operation of the invention splicing apparatus with the yarn ends of a single new beam, and the identical splicing operation is repeated for a required number of new beams utilized in producing carpet of a given width.

3,741,837
METHOD OF PRODUCING VULCANIZABLE SHEET MATERIAL WITH MULTIFILAMENT GLASS CORD
 Alfred Marzocchi, Cumberland, R.I., and Robert R. McAuslan, Seekonk, Mass., assignors to Owens-Corning Fiberglas Corporation
 Filed May 17, 1971, Ser. No. 144,169
 Int. Cl. B31c 81/00

U.S. Cl. 156—171 5 Claims
 Glass cord composed of a plurality of gathered-together subelements such as filaments, strands, yarns and the like is combined with vulcanizable elastomeric stock material in a defined manner and according to prescribed methods as to yield a product in the nature of a curable preform or building block which is combinable with other similar building blocks or preforms composed of glass cord lengths and elastomeric stock to yield second and/or third stage building blocks or preforms which are ultimately of utility in erecting, constructing or building, by molding or other techniques, cured elastomeric products such as tires, belts and other rubber goods containing a glass cord reinforcement disposed or arranged in a particularly desirable manner as to reinforcedly impart to the ultimate structure the desired and/or optimum characteristics and/or properties of the glass cord and, of course, the inherent strength properties of the individual glass filaments making up the cord.

3,741,838
MANDREL FOR USE IN AND A METHOD OF PRODUCING CONTAINERS AND A MACHINE FOR EMPLOYING THE METHOD
 Birte Christensen and Borge Christensen, both of Tune-marken pr. 2690 Karlslunde, Denmark, and Helge Hovad and Karl Erik Hovad, both of Kvikmarken 22, 2860 Soborg, Denmark
 Filed Mar. 18, 1969, Ser. No. 808,081
 Claims priority, application Denmark, Mar. 18, 1968, 1,134/68
 Int. Cl. B65h 81/00

U.S. Cl. 156—173 3 Claims



A mandrel for use in the production of containers wherein a filament or strip shaped material is wound on to the mandrel, the mandrel consisting of a bladder core wholly or partially enclosed within a flexible jacket and having stiffening members inserted between the bladder core and the jacket. Said members are detachably or pivotally connected to a coupling member for mounting the mandrel on a shaft. Also a method of performing the winding process is described as well as machines for carrying out the method.

3,741,839
METHOD OF MANUFACTURING FLEXIBLE OPTICAL FIBER STRAND FOR TRANSMITTING IMAGES AND APPARATUS THEREFOR
 Yoshio Komiya, Tokyo, Japan, assignor to Canon Inc., Tokyo, Japan
 Filed Nov. 3, 1969, Ser. No. 873,580
 Claims priority, application Japan, Nov. 7, 1968, 43/81,435
 Int. Cl. B65h 81/00

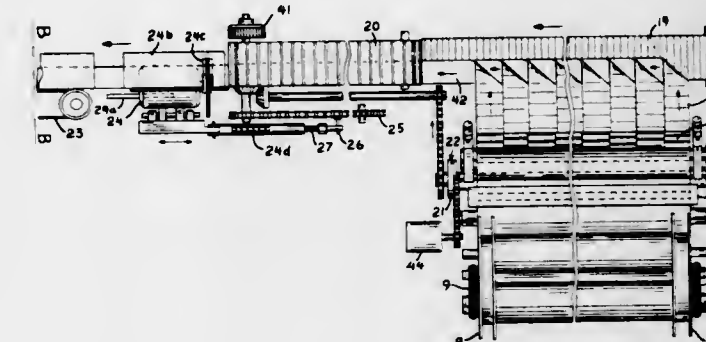
U.S. Cl. 156—174 1 Claim



Method and apparatus for manufacturing flexible optical fiber bundle for transmitting images in which the layers of fibers are formed by winding the fibers on a slanted surface formed on a winding drum.

3,741,840
METHOD FOR PRODUCING CONTINUOUS COMPRESSED HONEYCOMB
 John L. Booth, 1317 Tangelo Isle, Fort Lauderdale, Fla. 33315
 Original application Nov. 14, 1969, Ser. No. 876,665, now Patent No. 3,630,801. Divided and this application June 11, 1971, Ser. No. 152,444
 Int. Cl. B31d 3/02

U.S. Cl. 156—197 10 Claims



A machine for making a continuous unexpanded honeycomb product from a single continuous web of unexpanded material that includes a severing assembly for longitudinally severing the web into a plurality of strips of material, an applicator assembly for applying longitudinally spaced, transverse strips of adhesive to the one face of each of the severed strips of material, an assembly for turning the severed strips into face to face engagement with one another, a conveyor assembly to press the adhesive strips of one strip of material against the adjacent strip of material to provide a multiple layer of joined strips of material while the strips of material are pinned to another, a flying saw assembly to transversely sever the multiple layer to be of a predetermined length, a stacking box assembly for joining one face of one multiple layer of adhered strips of material to a face of another multiple layer of adhered strips of material, and a trimmer assembly for trimming the joined multiple layers to a predetermined height. Adjustments are provided for severing different width strips, for controlling the application of adhesive strips, and for varying the thickness of the joined multiple layers. Also, during making of the honeycomb product the strips of material are partially severed to readily permit a block of honeycomb product being pulled apart to provide two honeycomb structures. Also a method of making honeycomb is disclosed.

3,741,841
PRODUCTION OF SYNTHETIC PAPERS
 Takashi Toyoda, Yoshio Miyabe, and Yozo Ooba, Yokkaichi, Japan, assignors to Kabushiki Kaisha Oji Yuka Goseishi Kenkyujo, Tokyo-to, Japan
 No Drawing. Filed June 23, 1971, Ser. No. 156,042
 Claims priority, application Japan, July 6, 1970, 45/58,902; Aug. 21, 1970, 45/73,214, 45/73,215
 Int. Cl. B29c 17/02

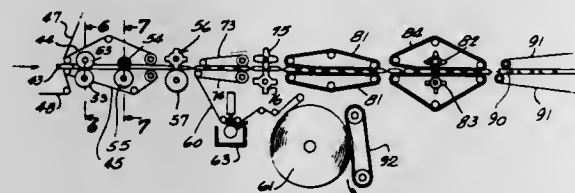
U.S. Cl. 156—229 5 Claims

A polypropylene resin containing from 0.2 to 30 percent by volume of a fine filler for a paper-like layer is laminated onto at least one surface of a base layer film stretched in a longitudinal direction and formed from a mixture of polypropylene resin and an additive of a type and quantity such as to lower the lower limit of the temperature range wherein the resin is practically stretchable, and the composite structure thus obtained is heat

stretched in a transverse direction and then cooled as it is held in its stretched state. The additive can be a plasticizer polymer or a fine filler.

3,741,842
METHOD FOR THE FABRICATION OF AN ABSORBENT PAD WITH A BODY CONTACTING COVER

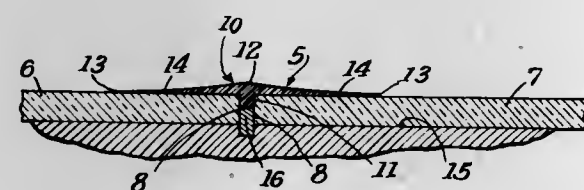
Curt G. Joa, Ocean Ridge, Fla.
(P.O. Box 1121, Boynton Beach, Fla. 33435)
Original application Aug. 15, 1969, Ser. No. 850,482, now Patent No. 3,666,611. Divided and this application Apr. 5, 1971, Ser. No. 131,550
Int. Cl. B32b 5/18
U.S. Cl. 156—213 11 Claims



Absorbent pad having a pulp filler, wadding envelope, and body contacting cover outside the envelope which is shorter than the pad is long, thus to leave end margins of the pad uncovered. The apparatus and method for fabricating such a pad involves superimposing separate pulp mats, one of which is compressed before superimposition in order that the compressed mat functions as a flow distribution ply, subdividing the superimposed mats into discrete pad fillers with gaps therebetween, encasing the spaced pad fillers in a wadding envelope which is continuous across the gaps, cross sealing the envelope across the gaps to form a continuous wadding envelope tube with links interconnecting the spaced filler pads, and applying the body contacting cover sheet thereto.

3,741,843
METHOD OF CONNECTING TWO MEMBERS WITH AN ELASTOMERIC HINGE

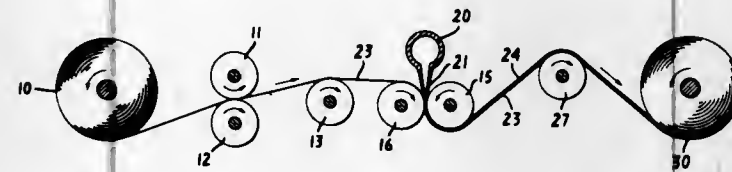
Anthony Louis, Los Angeles, Calif., assignor to Aquaria, Inc., Los Angeles, Calif.
Continuation-in-part of abandoned application Ser. No. 45,408, June 11, 1970. This application Mar. 1, 1971, Ser. No. 122,572
Int. Cl. B32b 3/02; B29c 27/00
U.S. Cl. 156—244 4 Claims



A hinge of elastomeric material for connecting adjacent edge portions of two members to connect the same so one can be swung from a coplanar or angular position relative to the other to a different angular position relative to said other member. The hinge is formed of silicone rubber or other silicone or siloxane having many of the properties characteristic of rubber, the same being applied, while in an uncured, extrudable form, upon surfaces adjacent the mentioned edge portions, and when cured having the above-mentioned rubber-like properties.

3,741,844
HOT MELT PROCESS FOR FORMING RESIN LAYER ON POLYURETHANE FOAM

A. William Schwartz, Larchmont, N.Y., assignor to Tenneco Chemicals Inc., Saddle Brook, N.J.
Filed June 3, 1971, Ser. No. 149,689
Int. Cl. B29c 3/00
U.S. Cl. 156—244 10 Claims



A process for laminating a polyolefin resin onto a polyurethane foam is provided by this invention. The resin is melted and the molten resin is flowed onto the foam and cooled.

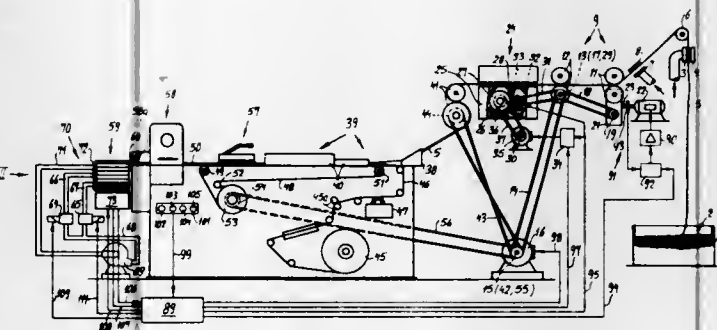
3,741,845
DIELECTRIC BONDING OF THERMOPLASTIC MASSES

Eugene G. Castagna, Clark, N.J., assignor to Chevron Research Company, San Francisco, Calif.
No Drawing. Continuation-in-part of application Ser. No. 37,397, May 11, 1970, which is a continuation of application Ser. No. 681,076, Nov. 7, 1967, both now abandoned. This application Jan. 18, 1971, Ser. No. 107,425
Int. Cl. B29c 19/04
U.S. Cl. 156—273 5 Claims

Thermoplastic masses are dielectrically bonded by contacting in a dielectric bonding field with a blend of normally solid poly-1-alkene, such as polypropylene, and about 1 to 20% by weight of elastomeric polymer of acrylonitrile and butadiene.

3,741,846
MACHINE FOR THE PRODUCTION OF FILTER ROD SECTIONS OR THE LIKE

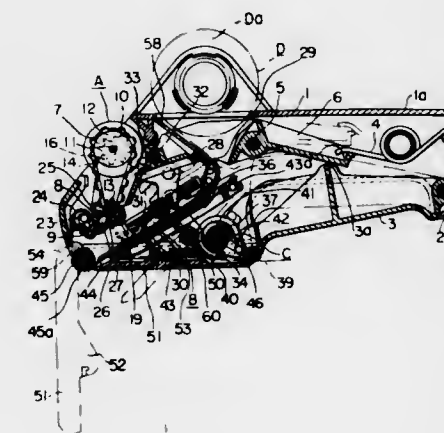
Heinz Greve, Hamburg, Germany, assignor to Hauni-Werke Korber & Co. KG., Bergedorf, Germany
Filed Apr. 5, 1971, Ser. No. 131,167
Claims priority, application Germany, Apr. 11, 1970, P 20 17 360.8
Int. Cl. G05g 15/00
U.S. Cl. 156—360 22 Claims



Filter rod sections are produced by moving a tow of filamentary filter material past a device which showers the filaments with atomized plasticizer and by thereupon converting the thus treated tow into a rod-like filler which is wrapped to form a filter rod. The latter is severed to yield a succession of filter rod sections which are transported by a fluted drum to storage or to a machine for the production of filter-tipped smokers' products. Groups of filter rod sections are withdrawn from the flutes of the drum at regular intervals for weighing to thus determine the quantity of filter material and/or plasticizer. The results

of the weighing operation are utilized to adjust the feeding mechanism for the tow and/or plasticizer if the measured quantities deviate from desired quantities. The feeding mechanism for the tow employs rolls which can be driven at a variable speed to thereby subject the filaments of the tow to a more or less pronounced stretching action. The feeding mechanism for the plasticizer employs a rotary brush which removes plasticizer from the periphery of a drum dipping into a supply of plasticizer, and a variable-speed drive for the drum.

3,741,847
HAND LABELER
Ye Sato, Tokyo-to, Japan, assignor to Kabushiki Kaisha Sato Kenkyujo, Tokyo-to, Japan
Filed Jan. 25, 1971, Ser. No. 109,519
Claims priority, application Japan, Jan. 31, 1970, 45/8,837
Int. Cl. B411 19/00
U.S. Cl. 156—384 2 Claims

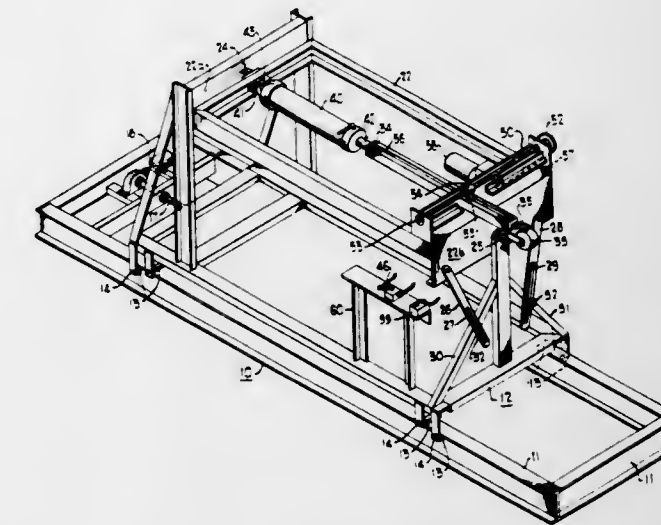


A hand labeler having a backing or base paper strip laminately supporting a label paper to constitute a label tape is sharply curved and doubled back near one end thereof away from the label paper and is provided with a specific slack in a narrow gap between opposed guides. When the end is pulled to take up the slack, the base paper is separated further from the label paper, and when the laminated combination of the label paper and the base paper strip is advanced as the end is held immovable, the base paper is separated still further from the label strip.

3,741,848
STITCHING MACHINE FOR RENEWING PNEUMATIC TIRES
Blaine F. Walters, 517 W. Main St.; William E. Stutzman, 617 Tayman Ave.; and Ray S. Fink, 604 Tayman Ave., all of Somerset, Pa. 15501
Filed Aug. 26, 1971, Ser. No. 175,103
Int. Cl. B29h 17/00, 17/02
U.S. Cl. 156—421 6 Claims

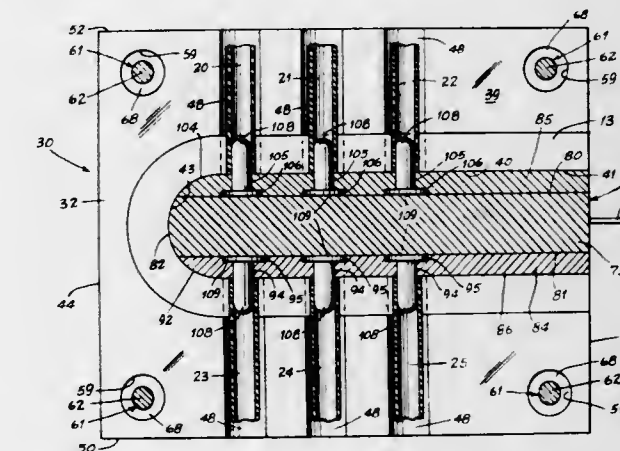
An improved stitching machine for rebuilding or renewing pneumatic tires, especially for rebuilding heavy-duty pneumatic tires bearing a lugged tread. The stitching machines comprises a fixed frame means having movably mounted thereon a carriage means which may be advanced and retracted longitudinally on the frame means. The carriage means includes a swivel frame means having operably mounted thereon roller means adapted to abut the surface of a tire being rebuilt. The roller means is preferably mounted on an arm which is operably connected to means, such as a piston, for urging the roller means against a tire being rebuilt at a pre-selected, constant force. The piston means is swivelly connected to the swivel frame. The roller means on said arm is further operably mounted in said swivel frame for transverse movement therein whereby said roller when forced by

said piston means against a tire being rebuilt may move over the surface thereof along a desired, pre-selected path.



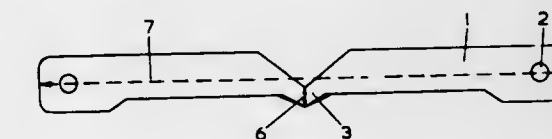
Suitable means are additionally provided for controlling the transverse movement of said roller.

3,741,849
METHOD OF JOINING TUBES TO MANIFOLD
John C. Hardy, Weatogue, Conn., assignor to Angelica Corporation, St. Louis, Mo.
Filed Feb. 8, 1971, Ser. No. 113,274
Int. Cl. B29b 1/14
U.S. Cl. 156—500 3 Claims



Apparatus and method for joining plastic tubes to a plastic manifold utilizing heat and pressure and an interlocking multi-part core.

3,741,850
PLASTICS WEB SLITTING AND SEALING DEVICE
Peter Edward Highfield and Gordon John Hill, Stevenage, England, assignors to British Visqueen Limited, London, England
Filed Aug. 20, 1970, Ser. No. 65,582
Claims priority, application Great Britain, Sept. 8, 1969, 44,343/69
Int. Cl. B32b 31/00
U.S. Cl. 156—515 6 Claims



A device for simultaneously slitting and edge sealing a plastics web, comprising a resistance heater in the form of a flat, elongated blade attached at its ends to a pair

of conductors and provided with a projection of a longer edge which, in operation, projects through the path of the web and serves to cut and seal the web, the blade width being reduced in the vicinity of the projection, characterized in that the contour of the blade and its position of attachment to the conductors are such that the neutral line of tension lies wholly within the material of the blade.

3,741,851

EMBOSED FOAMED SHEET MATERIALS

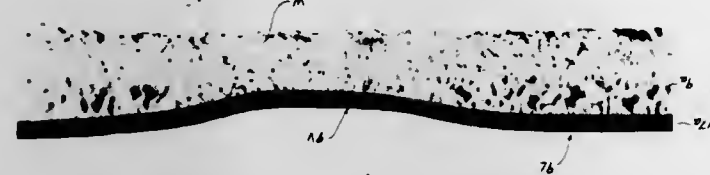
Edward R. Erb, East Greenville, and Richard L. Maass, Emmaus, Pa., assignors to GAF Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 821,409, May 2, 1969. This application Oct. 7, 1970, Ser. No. 78,878

Int. Cl. B44c 1/24; B32b 31/22

U.S. Cl. 161—2

9 Claims



Decorative sheet materials such as foamed vinyl floor coverings comprising, preferably, a base or substrate such as asbestos felt, a layer of foam or cellular resin material on the base having portions of different thickness providing a relief pattern, the foam of the lands having relatively large cells and the foam of the valleys being crushed and having smaller cells with cell walls bonded to each other, a layer of noncellular transparent resin material overlying both the land and valley areas of the relief pattern, and a printed color pattern or design being provided between the foam resin layer and the transparent resin layer, with colored areas of the pattern or design in accurate registration with and/or predetermined relation to the crushed or valley areas of the foam layer. In addition to the relief and color patterns, the product may also have a third pattern effect in registration with the relief and color patterns, i.e., a pattern of different light reflective characteristics at the exposed surface of the transparent layer. Apparatus and method for producing the covering materials according to the invention are also disclosed.

3,741,852

SEGMENTAL MULTIUNIT STUDY TABLE

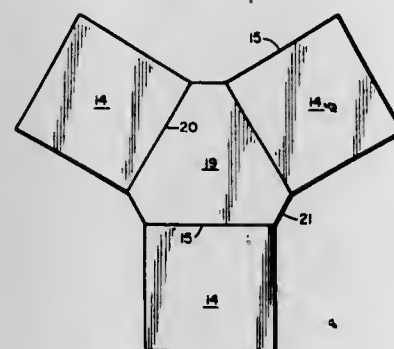
Richard N. Keener, Grand Rapids, Mich., assignor to American Seating Company, Grand Rapids, Mich.

Filed June 3, 1971, Ser. No. 149,704

Int. Cl. B32b 3/10; A47b 87/00

U.S. Cl. 161—37

4 Claims



A segmental study table accommodating a number of students about a central nucleus table is provided by a hexagonal table having three long sides of equal length

spaced by three short equal length sides, the long sides being engaged by wing tables presenting sides equaling the length of said long sides and mating therewith and forming substantially equal obtuse angles with the nucleus table short sides so as to provide between the wing tables equal space areas enlarging progressively outwardly from each short side of the nucleus table.

3,741,853

REPAIR OF WOOD PANELS

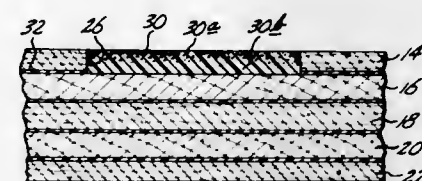
David M. Forsythe, Clackamas, and William J. Runckel, Portland, Oreg., assignors to Publishers Paper Co., Oregon City, Oreg.

Filed Aug. 6, 1970, Ser. No. 61,769

Int. Cl. B32b 3/02, 35/00

U.S. Cl. 161—41

7 Claims



A plywood panel having a filled region of repair therein, and a method of filling such region. A filler composition is used comprising a mixture of from 3 to 10% by weight comminuted cork with the remainder being essentially a thermosetting resin binder. The cork has a particle size which passes a 20 mesh screen and is retained on a 40 mesh screen. In the filling of a region of repair, the filler composition is poured into a previously prepared hole and allowed to cure. During curing, particles of cork float to the surface of the filler composition, producing stratification of the mixture, with a layer rich in cork adjacent the surface of the region of repair.

3,741,854

METHOD OF PREPARING A CELLULAR, URETHANE BACKED TUFTED RUG

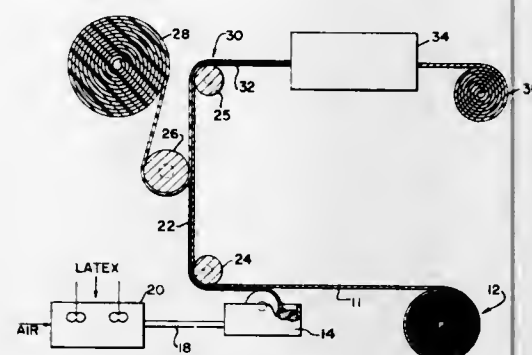
Frank A. De Gioia, Dalton, Ga., assignor to General Latex and Chemical Corporation, Dalton, Ga.

Continuation of application Ser. No. 866,159, Oct. 13, 1969, which is a continuation of application Ser. No. 586,074, Oct. 12, 1966, both now abandoned. This application Nov. 10, 1970, Ser. No. 88,473

Int. Cl. D05c 15/04

U.S. Cl. 161—67

16 Claims



The invention comprises a method of preparing a cellular urethane laminate by bonding a cellular polyurethane sheet material to a backing sheet material, for example of natural or synthetic fibers, with a foamable carboxylated latex containing pendant carboxylic and sulfonic acid groups and an amino compound. The laminate is heated to a temperature sufficient to cure the carboxylated latex and collapse the foamed carboxylated latex.

3,741,855

LOW FRICTION BEARING MATERIALS

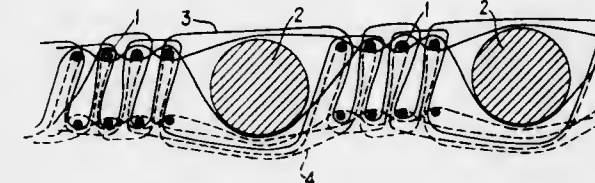
Michael Banks Harrison, Bristol, and Robert Benion, Clevedon, Somerset, England, assignors to AMPE Industrial Products Limited, Somerset, England

Filed May 18, 1971, Ser. No. 144,560

Int. Cl. D03d 15/10

U.S. Cl. 161—91

9 Claims



A bearing material comprises a woven fabric of mixed fibres of low friction material and fibres of high modulus material and particularly, carbon fibres.

3,741,856

NOVEL SEALANTS AND ADHESIVES

John Hurst, London, England, assignor to W. R. Grace & Co., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 676,652, Oct. 19, 1967. This application Feb. 28, 1969, Ser. No. 803,438

Claims priority, application Great Britain, Oct. 21, 1966, 47,419/66

Int. Cl. B32b 11/02

U.S. Cl. 161—88

3 Claims

Novel structures suitable for the formation of water-proof and/or adhesive layers on surfaces, particularly of concrete, the structures comprising a sheet-like substrate and contiguous thereto a membrane of a water-proofing pressure-sensitive adhesive. The substrate may be a sheet-like support having the membrane adherent thereto or be in the form of a protective coating which can be physically removed from the membrane without substantial damage thereto. If desired, the structures may be in the form of a roll comprising alternate layers of the membrane and sheet-like substrate, one face thereof being substantially more readily physically separable from the membrane than the other face.

3,741,857

COMPOSITE LIGHT WEIGHT BOARD AND MANUFACTURE THEREOF

Tsutomu Kakutani; Tetsuhiko Hirata; Shogo Matsuda, all of Tokyo; Kenji Inagaki, Yokohama, and Hidetoshi Innami, Kawasaki, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Nov. 19, 1971, Ser. No. 200,437

Claims priority, application Japan, Nov. 20, 1970, 45/102966

Int. Cl. B32b 1/00, 3/00, 31/00

U.S. Cl. 161—127

3 Claims



A composite panel member of thermoplastic resin comprising three constituents fused together at their mutually contacting points, the two constituents of which consist of two comb-sectioned sheets coupled with each other in a substantially opposite and in a longitudinally offset way, the remaining constituent consisting of an intermediate sheet arranged between the two comb members and in a zigzag and saw tooth like manner between the said both.

3,741,858

PRINTED CIRCUIT BOARD

Yoshio Fujiwara, Keiichi Naito, and Toru Odajima, Tochigi-ken, Japan, assignors to Sony Corporation, Tokyo, Japan

No Drawing. Filed Aug. 9, 1971, Ser. No. 170,334

Claims priority, application Japan, Aug. 10, 1970, 45/69,286

Int. Cl. B32b 5/02, 15/08, 15/14

U.S. Cl. 161—185

6 Claims

A printed circuit board including an epoxy resin impregnated glass fiber board and a copper foil laminated thereon with an adhesive is shown. The adhesive is comprised of a phenoxy resin, a low molecular epoxy resin and a cross-linking agent therebetween.

3,741,859

REINFORCED CORRUGATED BOARD MEMBER

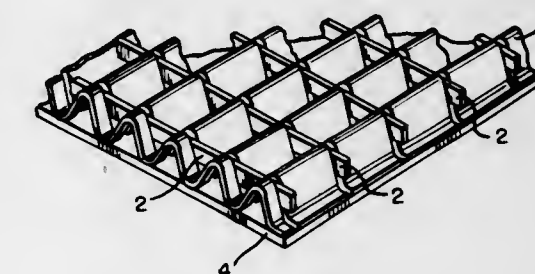
Kurt Wandel, R.F.D. 1, Downingtown, Pa. 19335

Application Apr. 30, 1969, Ser. No. 820,452, now Patent No. 3,589,964, dated June 29, 1971, which is a continuation-in-part of application Ser. No. 475,402, July 28, 1965. Divided and this application Aug. 14, 1970, Ser. No. 63,887

Int. Cl. B32b 3/28

U.S. Cl. 161—137

8 Claims



A reinforced corrugated member wherein the member includes a corrugated sub-member having a corrugated web and facing web adhered thereto, a plurality of slits in the exposed flutes of the sub-member and a plurality of strips of reinforcing material secured in the slits.

3,741,860

SYNTHETIC PAPERLIKE FILM SUITABLE FOR WRITING AND PRINTING AND ITS PREPARATION

Hiro Otsubo, Yoichi Shin, Yoichi Kobayashi, and Makoto Sumiyoshi, Yokkaichi, Japan, assignors to Kabushiki Kaisha Oji Yuka Goseishi Kenkyujo, Chiyoda-ku, Tokyo-to, Japan

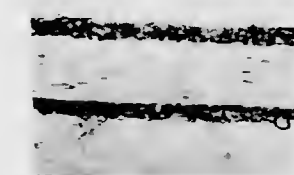
Filed Nov. 30, 1970, Ser. No. 93,714

Claims priority, application Japan, Nov. 28, 1969, 44/95,519; Mar. 12, 1970, 45/20,435; Aug. 26, 1970, 45/74,267

Int. Cl. B32b 5/16

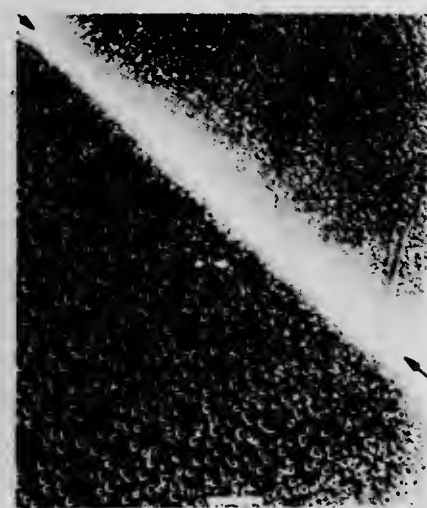
U.S. Cl. 161—162

14 Claims



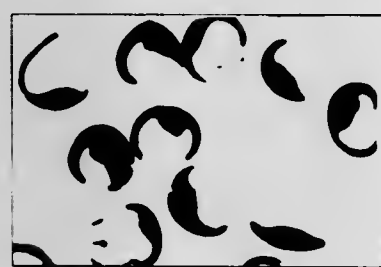
A film of a high-impact polystyrene in which minute rubber particles are dispersed in a polystyrene resin matrix is biaxially drawn with a drawing factor (product of biaxial elongations) greater than 6 and then treated at a temperature above 30° C. with a solvent which exhibits swelling-inducing action with respect to the rubber particles, and thereafter these actions of the solvent are stopped by cooling the film to a temperature at which the solvent does not exhibit these actions.

3,741,861
METHOD FOR IMPROVING THE CHEMICAL DURABILITY OF OPAL GLASSES
 André Andrieu, 3 Avenue de Stalingrad, Nemours, France
 Filed Apr. 5, 1971, Ser. No. 130,905
 Claims priority, application France, Mar. 27, 1970, 7011285
 Int. Cl. C03c 23/00
 U.S. Cl. 161—166 8 Claims



The present invention relates to a process for improving the chemical durability of glass articles and, particularly, to a thermal treatment which modifies a thin surface layer on glass articles that are opal because of phase separation therein in such a manner that the phenomenon of phase separation is suppressed or controlled within this thin surface layer; whereas, at the same time, the interior glass is allowed to attain or retain the degree of phase separation which is necessary to obtain the desired opalescence. This process is of special interest for products formed from glasses with immiscible vitreous phases which are likely to be exposed, during use, to the action of relatively reactive chemical solutions such as water, acids, alkaline wash waters, or phosphate wash waters.

3,741,862
HIGHLY CRIMPED POLYNOSIC FIBERS
 Masachio Kubota, Taro Yamamura, Atsushi Kawai, and Takehiro Katsuyama, Ohtake, Masamichi Ikeda, Iwakuni, and Seichi Omoto, Ohtake, Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan
 Original application Sept. 22, 1967, Ser. No. 669,800, now Patent No. 3,574,812. Divided and this application Aug. 27, 1970, Ser. No. 67,591
 Claims priority, application Japan, Sept. 22, 1966, 41/62,595; Oct. 12, 1966, 41/67,012
 Int. Cl. D01d 5/22; D01f 3/28; D02g 3/00
 U.S. Cl. 161—173 2 Claims

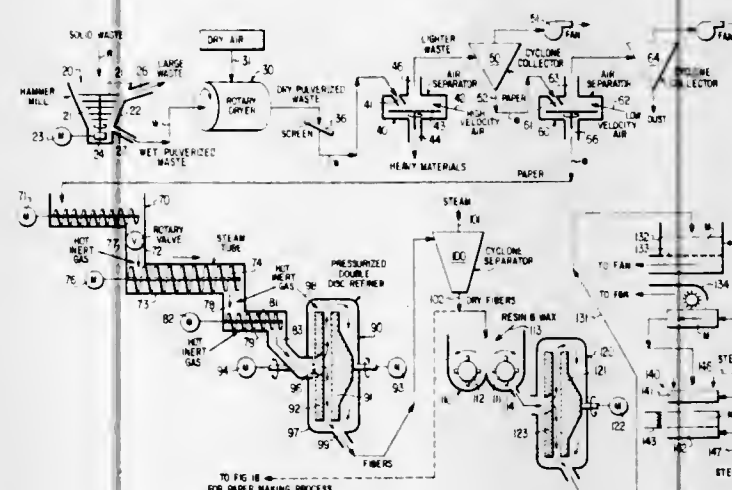


A viscose having a γ -value of at least 50 is extended into a coagulation bath containing formaldehyde, and the resulting filaments are stretched in a second bath at 45° to 75° C. under a tension of up to 0.3 g./d. and then treated in a third bath containing alkali metal, alkaline earth metal and/or ammonium salts of sulfuric acid at a pH of 2.0 to 10.5 and a temperature of 30° to 70° C. The obtained highly crimped polynosic fibers have an asymmetric structure with a core-stainable layer positioned

at the inside track of the crimp bend; the dye exhaustion is at least 40%, wet modulus is 0.5 to 1.8 g./d. and crimps are more than 10/25 mm.

ERRATUM
 For Class 161—247 see:
 Patent No. 3,741,803

3,741,863
METHOD OF RECYCLING WASTE CELLULOSIC MATERIALS
 S. Hunter W. Brooks, Richmond, Va., assignor to The Rust Engineering Company, Pittsburgh, Pa.
 Filed Aug. 27, 1971, Ser. No. 175,487
 Int. Cl. D21b 1/08
 U.S. Cl. 162—4 20 Claims

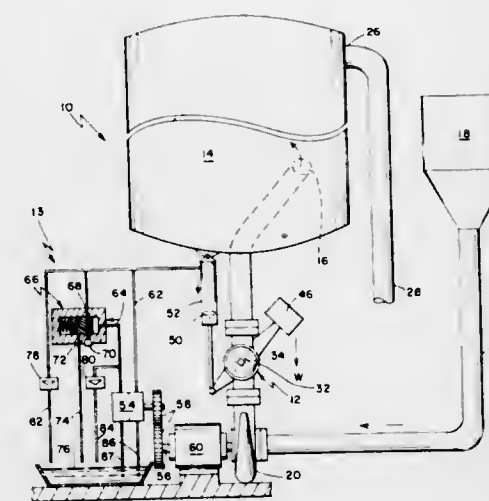


Method of providing cellulosic fibers and fiber bundles from sources of waste material, such as municipal and industrial waste products, for making medium density fiberboard and/or paper. The waste material is first pulverized or shredded into small pieces and then dried to remove excess moisture and to sterilize the material. The dried waste material is passed through one or more separators to remove the glass, metals, and other non-cellulosic materials therefrom, leaving the cellulosic materials for further treatment. After further heating the cellulosic materials in the presence of a nonflammable medium, such as steam, to raise its temperature and further sterilize the material, the cellulosic pieces are abraded under a pressure and temperature sufficient to break down the hydrogen bonds and to soften any lignin and other resins present, in what is referred to as a dry-refining process. This frees the fibers and fiber bundles from one another, and provides relatively long, thin, soft fiber structures. The fibers and fiber bundles are then intimately mixed with a resin and formed into a mat, after which the mat is compressed under heat and pressure to form a fiberboard. Alternatively, to make paper, the fibers are dispersed in water, formed into a sheet, compressed, and then dried.

3,741,864
CONTINUOUS DIGESTER CHECK VALVE
 Rohe Vester Pennington, Nashua, N.H., assignor to Improved Machinery Inc., Nashua, N.H.
 Continuation of application Ser. No. 202,775, Nov. 29, 1971, which is a continuation of application Ser. No. 836,214, June 12, 1969, which in turn is a continuation of application Ser. No. 576,277, Aug. 13, 1966, all now abandoned. This application May 10, 1972, Ser. No. 252,100
 Int. Cl. D21c 7/06
 U.S. Cl. 162—246 1 Claim

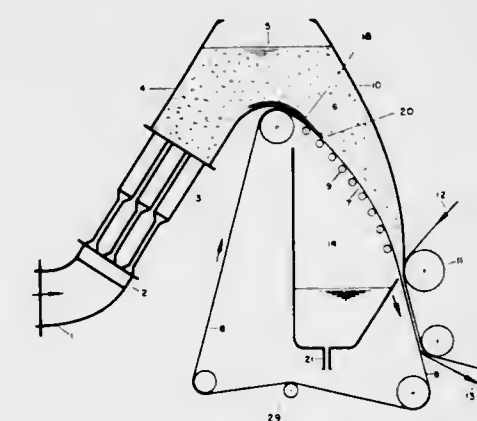
The combination with a pressurized vessel for continuously digesting wood chips in a chemical solution with a pump for forcing the chips and solution into the vessel

and a valve which is biased to its closed position and a control for the valve which opens the valve when the pump is operating, the valve being closed when the pump is not operating.



pump is operating, the valve being closed when the pump is not operating.

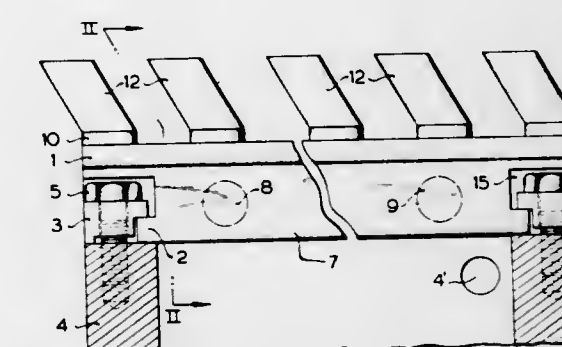
3,741,865
APPARATUS FOR MAKING A CONTINUOUS SHEET BY FILTRATION OF PARTICLES IN SUSPENSION IN A LIQUID
 Pierre Lejeune, Grenoble, France, assignor to Creusot-Loire, Paris, France
 Continuation-in-part of application Ser. No. 5,225, Jan. 23, 1970. This application Apr. 11, 1972, Ser. No. 242,934
 Int. Cl. D21f 1/00
 U.S. Cl. 162—317 6 Claims



A continuous sheet is formed by filtration of particles in suspension in a liquid on a moving filter screen sloping downwardly in its direction of movement. The slope of the screen and the amount of space above the screen are selected to provide a progressive increase in the pressure acting on the filtrate to give a uniform filtrate extraction along the length of the screen.

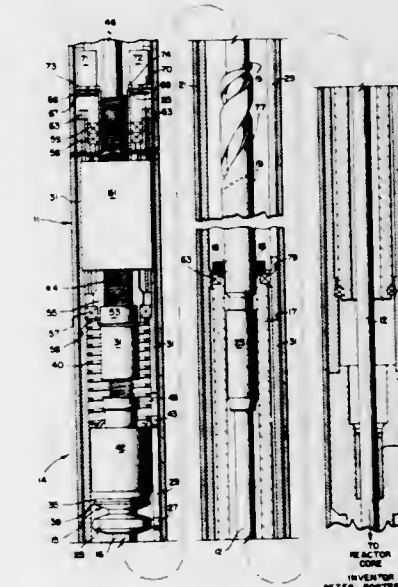
3,741,866
SUCTION BOX ARRANGEMENT FOR A PAPER MACHINE
 Hans Jud, Esslingen, Sulzgries, Manfred Nussbaum, Plochingen, and Karl-Dieter Fuchs, Ebersbach, Fils, Germany, assignors to Feldmühle Anlagen- und Produktionsgesellschaft mit beschränkter Haftung, Düsseldorf, Germany
 Filed June 15, 1971, Ser. No. 153,384
 Claims priority, application Germany, June 16, 1970, P 20 29 617.7
 Int. Cl. D21f 1/48
 U.S. Cl. 162—374 10 Claims

The cover of a suction box consists of units juxtaposed over the width of the machine and individually fastened



the cover and of one or more supporting elements secured to all the sections in the group and connecting the same into a unit.

3,741,867
CONTROL ROD DRIVE SYSTEM
 Peter Fortescue, La Jolla, Calif., assignor to Gulf Oil Corporation, Pittsburgh, Pa.
 Filed June 15, 1971, Ser. No. 153,182
 Int. Cl. G21c 7/20
 U.S. Cl. 176—36 S 10 Claims

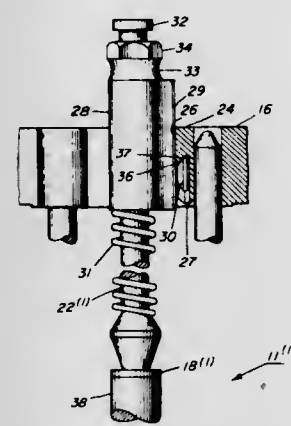


A control rod drive system for a nuclear reactor is described in which a flywheel is used to absorb kinetic energy of the control rod and associated elements near the end of a scram stroke. In this manner, braking of the control rod is accomplished without producing undue stress therein and in the associated elements.

3,741,868
FUEL BUNDLE WITH REMOVABLE RODS
 Frank D. Qurnell, Robert N. Ikemoto, and James L. Lass, San Jose, Calif., assignors to General Electric Company
 Filed Mar. 30, 1970, Ser. No. 23,723
 Int. Cl. G21c 3/34
 U.S. Cl. 176—78 26 Claims

A removable rod arrangement for the fuel bundle of a nuclear reactor core providing ready insertion and removal of the removable rods without disassembly of the

fuel bundle wherein the removable rods are accurately positioned by complementary positioning surfaces and re-



tained in position by a spring-loaded, tapered pin and pin seat.

3,741,869

PROCESS FOR THE PRODUCTION OF CITRIC ACID BY SUBMERGED FERMENTATION

Adel J. Kabil, Vienna, Austria, assignor to Aktiengesellschaft Jungbunzlauer Spiritus- und Chemische Fabrik, Schwarzenbergplatz, Austria

No Drawing. Filed May 24, 1971, Ser. No. 146,454

Claims priority, application Austria, June 1, 1970, 4,893/70

Int. Cl. C12d 1/04

U.S. Cl. 195—36 R

3 Claims

The invention relates to a process for the production of citric acid which comprises subjecting a partially decarboxylated carbohydrate-containing solution to a submerged fermentation with a citric acid producing strain of *Aspergillus niger* in the presence of $K_4[Fe(CN)_6] \cdot 3H_2O$ as an inhibitor in an amount of less than 500 p.p.m.

3,741,870

METHOD OF PREPARING $\Delta^9(11)$ -ESTRONE

Gordon E. Mallett, Woking, England, assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed Oct. 12, 1971, Ser. No. 188,547

Int. Cl. C07c 167/14, 167/18

U.S. Cl. 195—51 F

1 Claim

$\Delta^9(11)$ -estrone is prepared from 19-hydroxy cholesterol by fermentation using a *Corynebacterium* species.

3,741,871

PREPARATION OF IMMOBILIZED ENZYMES

Lloyd E. Weeks, Creve Coeur, and John H. Reynolds, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Jan. 4, 1972, Ser. No. 215,426

Int. Cl. C07g 7/02

U.S. Cl. 195—63

10 Claims

An enzymatically-active, water insoluble composite comprises fibrous cellulose, a polyamine covalently attached to the cellulose by a carbamic linkage, and an active enzyme crosslinked to the polyamine by an alkylene diamine linkage. The composite of this invention is useful as a packing for enzyme reactors.

3,741,872

PROCESS FOR PURIFYING ENZYMES OF THE ASPARAGINASE-TYPE

Lucien Penasse, Paris, Pierre Barthelemy, Clichy-sous-Bois, and Denise Hasbiss, Paris, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Filed Mar. 12, 1971, Ser. No. 123,870

Claims priority, application France, Mar. 23, 1970, 10,333

Int. Cl. C07g 7/02

U.S. Cl. 195—66 A

6 Claims

Process for purifying enzyme of the asparaginase-type by precipitating the enzymes from aqueous solution by the addition of glycerol and ethyl alcohol.

3,741,873

METHOD FOR THE STABILIZATION OF ALPHA-1,6-GLUCOSIDASES

Seinosuke Ueda, Fukuoka, and Koso Kato, Okayama, Japan, assignors to Hayashibara Company, Okayama, Japan

Filed Apr. 26, 1971, Ser. No. 137,296

Claims priority, application Japan, Apr. 24, 1970, 45/35,182

Int. Cl. C12d 13/10

U.S. Cl. 195—68

4 Claims

The method for increasing pH stability, thermal stability and optimal temperature of isoamylases (alpha-1,6-glucosidases) which are obtained from the cultivation of strains of the genus *Actinomycetes* with the addition of calcium ions to said isoamylases.

3,741,874

METHOD OF PREPARING IMPROVED SELECTIVE CULTURE MEDIUM

Lenore Gordon, 10 Reading St., Ramat Aviv, Tel Aviv, Israel

No Drawing. Filed Jan. 20, 1972, Ser. No. 219,571

Int. Cl. C12k 1/10

U.S. Cl. 195—102

10 Claims

An improved culture medium which is selective for the growth, isolation and identification of *Hemophilus influenzae* bacteria is prepared by combining conventional culture medium ingredients with red blood cells under temperature conditions which release but do not destroy the X and V factors present in the blood cells, thereby making them available as nutrients in the culture medium.

3,741,875

PROCESS AND APPARATUS FOR OBTAINING A DIFFERENTIAL WHITE BLOOD CELL COUNT

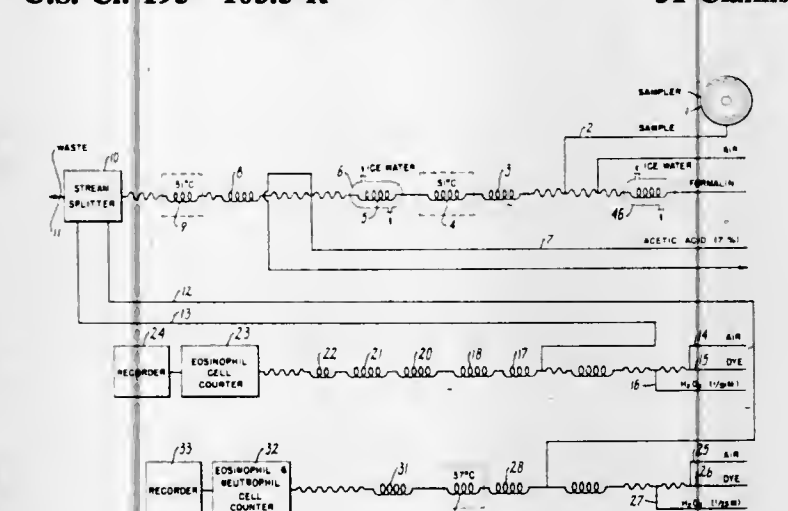
Hudson R. Ansley, Warwick, and Leonard Ornstein, White Plains, N.Y., assignors to Mount Sinai Research Foundation, Inc., New York, N.Y.

Filed Oct. 30, 1970, Ser. No. 85,333

Int. Cl. C12k 1/04

U.S. Cl. 195—103.5 R

31 Claims



A process and apparatus for obtaining a differential white blood cell count is disclosed. A cytological fixing agent is added to a sample of body fluid, such as blood, containing white blood cells to kill the blood cells contained in the solution and to immobilize the catalytic enzymes in the cells. The activity of the enzymes is not seriously impaired, and soluble components in the extracellular solution are not precipitated. When the body fluid also contains red blood cells a hemolyzing reagent is added after the fixation step to cause the red blood cells to release their hemoglobin content into solution. Addition of a specific cytochemical substrate, chromogenic precipitating coupling reagent, and pH buffer causes deposition of an insoluble dye in a specific type of cell containing the immobilized enzyme. The solution containing the dyed blood cells is then passed through a photometric counter which rapidly and accurately gives

a count of the dyed cells. Using different specific substrates for different enzymes contained in specific kinds of cells, absolute and relative counts of the different cells can be obtained.

3,741,876

METHOD OF MEASURING ENZYME REACTION RATES

George G. Guilbault, New Orleans, La., Robert G. Sanders, Spencer, Mass., and Robert L. Zimmerman, Jr., New Orleans, La., assignors to Mason Research Institute Inc., Worcester, Mass.

Filed Aug. 6, 1970, Ser. No. 61,584

Int. Cl. C12k 1/04

U.S. Cl. 195—103.5 R

29 Claims

A reaction rate between an enzyme reactant and a substrate reactant is fluorometrically measured by forming a solid reactant film of one of the reactants on a silicone matrix pad. The reactant film is then contacted with a solution of the other reactant to produce a fluorescent material. The change of fluorescence with time is measured by placing the pad in a fluorometer and this rate of change is compared against a calibration curve to determine the concentration of the reactant in the reactant solution.

3,741,877

METHOD AND APPARATUS FOR COLLECTING AND GROWING MICRO-ORGANISMS

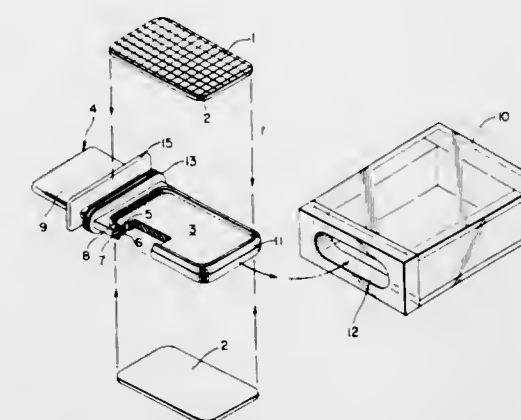
Charles P. Shaufus, Waltham, Robert E. Rose, Chelmsford, and Donald B. Rising, Stow, Mass., assignors to Millipore Corporation, Bedford, Mass.

Filed May 22, 1970, Ser. No. 39,759

Int. Cl. C12k 1/00

U.S. Cl. 195—127

6 Claims



A construction for collecting and growing micro-organisms obtained from an aqueous solution comprising a filter sealed to one surface of an absorbent pad containing a nutrient for the micro-organisms. The micro-organisms in aqueous solution are filtered through the filter under the capillary action of the pad. The micro-organisms are deposited on the filter and the aqueous solution passed into the pad provides a vehicle for contacting the nutrient and organisms.

3,741,878

PROCESS AND SYSTEM FOR EXTRACTING SALTS, CONCENTRATED BRINE, AND/OR PURE WATER FROM SALINE WATER

Asriel Osdor, Tel-Aviv-Israel, assignor to Hydro Chemical & Mineral Corp., New York, N.Y.

Continuation of abandoned application Ser. No. 831,087, June 6, 1969. This application May 30, 1972, Ser. No. 258,110

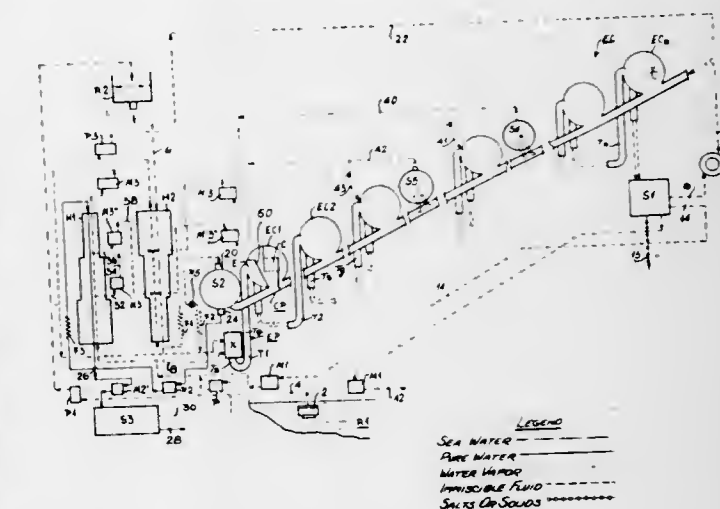
Int. Cl. B01d 1/00, 1/26, 1/28, 3/00, 3/02, 3/34, 7/00

U.S. Cl. 202—173

21 Claims

A process for extracting salts, concentrated brine, or pure water from saline water by distillation is characterized by replacing a part of the saline water before distillation with a quantity of an oil, distilling pure water

from the mixture through one or more cycles until the saline water reaches a concentration where a substantial quantity or most of the salt precipitates and separating from the mixture the precipitated salt, concentrated brine, and the oil.



3,741,879

APPARATUS FOR DISTILLATION OF FLUIDS

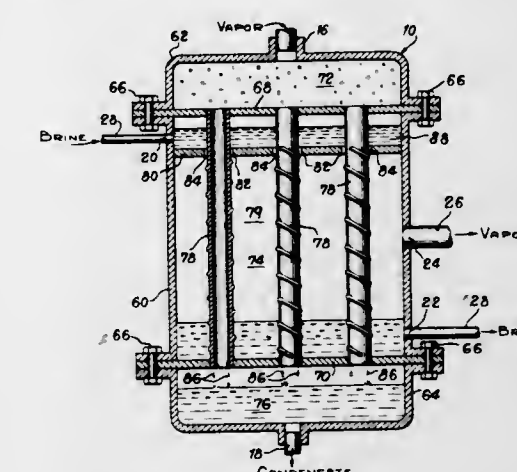
Theodore R. Best, Jr., 18 Kennedy Terrace, Westwood, N.J. 07675

Continuation-in-part of abandoned application Ser. No. 131,994, Apr. 7, 1971. This application May 30, 1972, Ser. No. 257,906

Int. Cl. B01d 1/00, 1/22, 3/00, 3/08, 3/28

U.S. Cl. 202—236

13 Claims



Fluids are subjected to distillation by causing vapors to pass vertically through tubular conduits while a cooler liquid film flows over the outside of the conduits. The vapors condense and give up heat to the liquid film causing a portion of it to vaporize. The tubular conduits are contained in a bundle within a shell in which the vapors thus generated are collected. A vapor outlet is mounted in the shell to permit emission of the vapors. A perimetric space surrounding the tube bundle serves to facilitate the emission of the vapors from the shell.

3,741,880

METHOD OF FORMING ELECTRICAL CONNECTIONS IN A SEMICONDUCTOR INTEGRATED CIRCUIT

Hiroshi Shiba and Hideo Tsunemitsu, Tokyo, Japan, assignors to Nippon Electric Company Limited, Tokyo, Japan

Filed Oct. 22, 1970, Ser. No. 83,140

Claims priority, application Japan, Oct. 25, 1969, 44/85,358; Oct. 30, 1969, 44/87,072

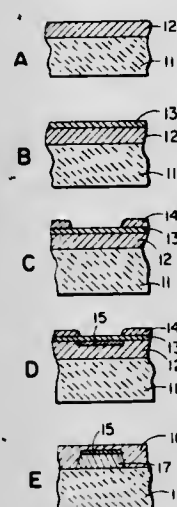
Int. Cl. C23b 5/46, 5/48

U.S. Cl. 204—15

18 Claims

A method of forming electrical connections in a semiconductor integrated circuit device in which an anodized

able metallic material such as aluminum is formed on a substrate. Anodic oxidation is then performed to form a thin porous oxide film of the metallic material. The surface of the porous oxide film is then selectively covered



with a photoresist. The exposed surface of the metallic material is then anodized to form a non-porous metallic oxide film, which thereafter serves as a mask during the formation of the wiring channel.

3,741,881 SURFACE TREATMENT OF POLYURETHANE FOR PLATING

Ismat A. Abu-Isa, Birmingham, and Roger J. Eldred, Detroit, Mich., assignors to General Motors Corporation, Detroit, Mich.
No Drawing. Filed Sept. 15, 1971, Ser. No. 180,903
Int. Cl. C23b 5/64

U.S. Cl. 204—30 3 Claims
The surface of a polyurethane elastomer is rendered electroplatable by first treating it with one of certain specific ultraviolet radiation sensitizers, then exposing it to intense ultraviolet radiation and subsequently subjecting it to a known electroless plating procedure. The resulting surface may then be electrolytically plated with copper, nickel, silver or other desired metal.

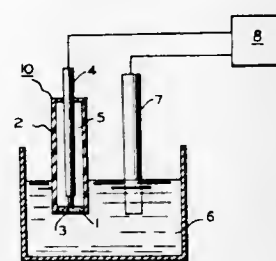
3,741,882
METHOD OF ELECTRODEPOSITING A LUSTERLESS, ELECTRICALLY CONDUCTIVE COATING
Glenn R. Schaer, Columbus, Ohio, assignor to the United States of America as represented by the Secretary of the Army
No Drawing. Filed Dec. 7, 1971, Ser. No. 205,732
Int. Cl. C23b 5/50

U.S. Cl. 204—42 4 Claims
A nickel electroplating solution is used for electrodeposition of a lusterless, abrasion, resistant, and electrically conductive coating on a metal body. The nickel electroplating solution contains activated carbon and the nickel coating may be deposited on an initial electroplated nickel layer not containing carbon.

3,741,883
DEVICE FOR MEASURING AN ACTIVITY OF CADMIUM IONS
Kenji Higashiyama and Hiroshi Hirata, Katano, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Feb. 28, 1972, Ser. No. 229,813
Claims priority, application Japan, Mar. 2, 1971, 46/11,124, 46/11,125; Mar. 3, 1971, 46/11,408, 46/11,409
Int. Cl. G01n 27/30

U.S. Cl. 204—195 M 6 Claims
A device for measuring an activity of cadmium ions comprises a selective electrode and a reference electrode immersed in a solution containing cadmium ions, said selective electrode including a disc in a batch composition

which comprises a combination of cadmium chalcogenide and at least one member selected from the group consisting of silver telluride and silver selenide or a combination



of silver sulfide and at least one member selected from the group consisting of cadmium telluride and cadmium selenide.

3,741,884
ELECTROCHEMICAL ELECTRODE LIQUID JUNCTION STRUCTURE AND METHOD FOR PRODUCING SAME
Maurice L. Deushane, La Habra, and David A. Rohrer, Whittier, Calif., assignors to Beckman Instruments, Inc.
Filed May 4, 1972, Ser. No. 250,279
Int. Cl. G01n 27/30, 27/36

U.S. Cl. 204—195 F 9 Claims

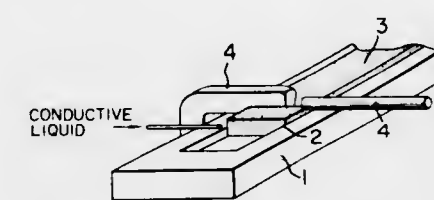


An electrochemical electrode for use in making ion potential measurements of solutions. The electrode embodies a liquid junction structure which is formed by coating the outer surface of a first glass tube with a material containing either a ceramic or an admixture of particles of glass and inert particles. The coated tube is mounted within an opening in a second glass tube and heat is applied to the two tubes in the region of the coating until the coating partially fuses and adheres by fusion to the first tube and the second tube is fused to the coating. The partially fused coating provides an annular porous liquid junction structure through which salt bridge solution may flow to contact a sample.

3,741,885
ELECTRIC CONDUCTOR FOR USE IN METALLIC SALT ELECTROLYTIC CELL
Kenji Sasaki, Takehara, Japan, assignor to Mitsui Mining & Smelting Co., Ltd., Chuo-ku, Tokyo, Japan
Filed May 4, 1971, Ser. No. 140,147
Claims priority, application Japan, May 7, 1970, 45/38,232
Int. Cl. C23b 5/68

U.S. Cl. 204—288 2 Claims
An electric conductor to serve for a metallic salt electrolytic cell which is characterized by the provision of: the liquid-containing portion prepared by engraving a groove or hollow on the surface of the conductor; a

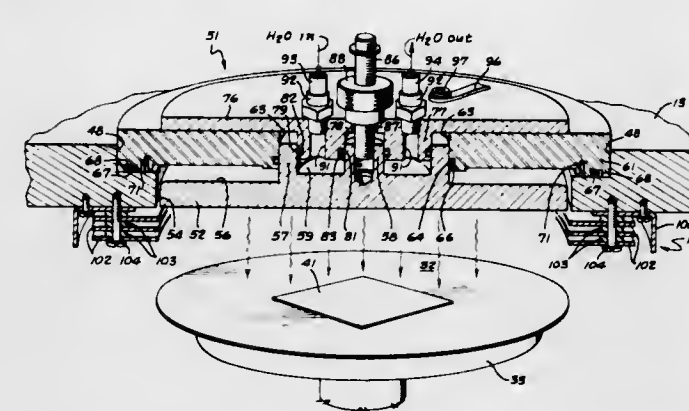
liquid-impregnable spongy substance inserted in said liquid-containing portion in such a fashion as bringing said spongy substance into contact with the electrode or electrode beam to be mounted on the liquid-containing portion on the occasion of electrolysis operation; and a con-



ductive liquid put in the liquid-containing portion to see that the portion of the spongy substance in contact with the electrode or electrode beam be maintained in wet condition during electrolysis by virtue of the conductive liquid impregnated in the spongy substance.

3,741,886
SPUTTERING SYSTEM AND TARGET ELECTRODE CONSTRUCTION FOR USE THEREWITH
Karel Urbanek, Atherton, and Edson G. Kerswill, Mountain View, Calif., assignors to Randex, Inc., Palo Alto, Calif.
Filed June 28, 1971, Ser. No. 157,419
Int. Cl. C23c 15/00

U.S. Cl. 204—298 16 Claims



Sputtering system having a housing forming an enclosed chamber with means for supplying a vacuum to the chamber in the housing. Supporting means is provided within the chamber for supporting an article to be coated. The housing is provided with a support plate having an opening therein which is generally opposite the support means. A target electrode is disposed in the opening and faces the support means. An insulating member is secured to the target electrode and to the support plate to support the target electrode so that it is spaced from the side wall of the support plate forming the opening and has its innermost surface generally flush with the innermost surface of the support plate and so that the space between the edge of the target electrode and the wall of the support plate defining the opening is less than one Debye length. Means is provided for supplying a voltage to the target electrode.

3,741,887
OXIDATIVE SWEETENING WITH A CALCINED COMPOSITE OF AN ALKALI METAL SILICATE, AN IRON SALT AND A COPPER SALT
Sun W. Chun, Murrysville, Harry A. Hamilton, Natrona Heights, and Angelo A. Montagna, Monroeville, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Filed July 15, 1971, Ser. No. 165,792
Int. Cl. C10g 27/04

U.S. Cl. 208—191 9 Claims
A copper-iron group metal catalyst useful in the conversion of thiols to disulfides is prepared by forming an

aqueous solution of sodium or potassium silicate; and a soluble iron group metal salt, such as ferric chloride, and coagulating the solution with a basic agent, such as ammonia, to form a precipitate. This precipitate is optionally dried and/or calcined before the addition thereto of a copper salt, such as copper chloride. After the addition of the copper salt, the composite is dried and calcined.

3,741,888
OXIDATIVE SWEETENING WITH A CALCINED COGELLED COMPOSITE OF SILICA AND IRON SALT IMPREGNATED WITH A COPPER SALT
Harold Beuther, Gibsonia, Sun W. Chun, Murrysville, Harry A. Hamilton, Natrona Heights, and Howard G. McIlvried, McCandless Township, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Filed July 15, 1971, Ser. No. 165,785
Int. Cl. C10g 27/04

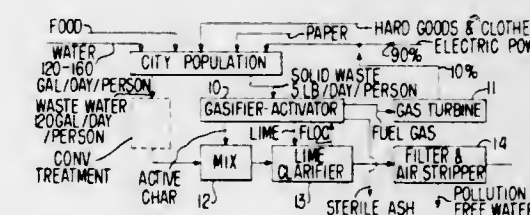
U.S. Cl. 208—191 10 Claims
Method of preparing a catalyst useful in the conversion of compounds containing a sulfhydryl group (thiols) to disulfides, i.e. the so-called sweetening reaction. The catalyst comprises an inorganic amorphous polymer of silicon, oxygen and an iron group metal impregnated with a copper salt.

3,741,889
OXIDATIVE SWEETENING OF HYDROCARBONS WITH A CALCINED COPPER-CONTAINING PRECIPITATE OF SILICA SOL AND IRON SALT
Sun W. Chun, Murrysville, Harry A. Hamilton, Natrona Heights, and Angelo A. Montagna, Monroeville, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
No Drawing. Filed July 15, 1971, Ser. No. 163,042
Int. Cl. C10g 27/04

U.S. Cl. 208—191 5 Claims
A copper-iron group metal catalyst useful for the conversion of thiols to disulfides is prepared by forming a solution of a substantially alkali metal-free silica sol and an iron group metal salt, such as ferric chloride, forming a gelatinous precipitate wherein the atomic ratio of the iron group metal to silicon to oxygen is from 1:2:5.5 to 1:12:25.5 and dispersing in said gelatinous precipitate an aqueous solution of a copper salt, such as CuCl₂, and thereafter drying and calcining said composite.

3,741,890
SOLID WASTE DISPOSAL AND WATER PURIFICATION METHOD AND APPARATUS
Richard D. Smith, Palo Alto, and Dale A. Furlong, Sunnyvale, Calif., assignors to Combustion Power Company, Inc., Palo Alto, Calif.
Filed Aug. 6, 1969, Ser. No. 847,994
Int. Cl. C02b 1/14; C02c 5/02

U.S. Cl. 210—40 13 Claims



A solid waste disposal and water purification system is described with a waste receiving, shredding, and drying

assembly, a gas turbine assembly for combusting hot fuel gases, and a gasifier assembly for pyrolyzing the waste and producing hot fuel gas and active char. The active char is removed from the gasifier assembly and is mixed with incoming polluted water for purification. The contaminated char is removed from the water which is then lime clarified, filtered and, if desired, sterilized and distilled. The contaminated char is reactivated for reuse in water purification or consumed in the gasifier assembly.

3,741,891

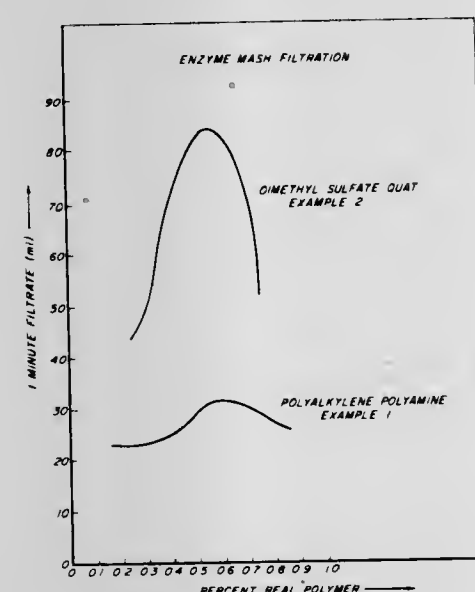
POLYQUATERNARY FLOCCULANTS AND PROCESSES OF PREPARING THEM BY QUATERNIZING ALKYLENE POLYAMINE RESIN POLYMERS FROM EPIHALOHYDRIN AND MONO-ALKYLAMINES

Hans Peter Panzer and Robert Rabinowitz, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn.

Original application Feb. 16, 1971, Ser. No. 115,557.

Divided and this application Feb. 19, 1971, Ser. No. 117,032

U.S. Cl. 210—54 Int. Cl. C02b 1/20



The cationic flocculant obtained by reacting a mono-alkylamine, such as monomethylamine, with an epihalohydrin, such as epichlorohydrin, is quaternized with quaternizing agents, such as dimethyl sulfate, methyl chloride, ethylene oxide, and the like, producing a polyquaternary polymer. The polymer shows improved flocculating power in flocculating aqueous dispersions, such as raw river water, digestion liquors from ilmenite and sulfuric acid, enzyme mashers, sewage flocculation, sewage sludge dewatering, and the like. The polymers are also useful in systems which contain chlorine, such as chlorinated river water, as the quaternary groups are substantially non-reactive with chlorine.

3,741,892

DEVICE FOR FILTERING A PARTICLE-LADEN FLUID

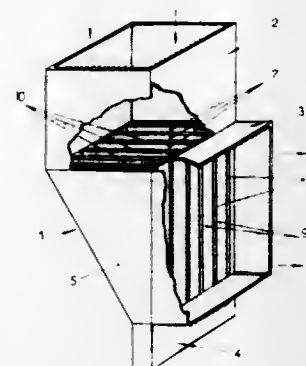
Lucien R. Bourdale, 30 Avenue Aristide Briand, Arpajon, France

Filed Nov. 22, 1971, Ser. No. 200,845

Claims priority, application France, Nov. 23, 1970, 7041907 Int. Cl. B01d 29/24

U.S. Cl. 210—65 2 Claims
A method of filtering a liquid or gaseous particle-laden fluid, in which method upstream and downstream paths of travel are imparted to the fluid on either side of a filtering sur-

face through which at least part of the fluid is thus caused to pass, said surface being located between an inlet for the laden



fluid and an outlet for the purified fluid. The invention also relates to a device for performing this method.

3,741,893

FLAME RETARDANT COMPRISING SUPPORTED ANTIMONY TETROXIDE

Rocco L. Mascioli, Media, and Robert G. Petrella, Glenolden, Pa., assignors to Air Products and Chemicals, Inc., Wayne, Pa.

No Drawing. Filed Oct. 8, 1971, Ser. No. 187,847

Int. Cl. C09k 3/28

U.S. Cl. 252—8.1 2 Claims

A finely divided inorganic oxide carrier powder is impregnated with pure antimony trichloride, and thereafter subjected to hydrolysis in an aqueous system to provide antimony oxide on the carrier particle. Such powder is calcined at 400–1000° C. to provide a supported cervantite. Synthetic resins, both cellular and non-cellular, can be made more flame retardant using the supported cervantite in combination with an organic halide. There is a synergistic effect of greater fire retardancy than would result from the additive effects of the inorganic powder and oxide of antimony. Plastic articles containing supported cervantite have an oxygen index of at least 25. Cervantite is the mineral designation for antimony tetroxide of Sb₂O₄.

3,741,894

CHEMICALLY MODIFIED ORGANIC POLYMERS

Stanley J. Storfer, Elizabeth, N.J., assignor to Esso Production Research Company

Original application June 15, 1967, Ser. No. 646,246, now Patent No. 3,555,006. Divided and this application June 8, 1970, Ser. No. 51,412

Int. Cl. C10m 3/48; B01j 13/00

U.S. Cl. 252—8.5 C 7 Claims

Long chain water-soluble organic polymers having hydroxyl groups located at β positions with respect to one another are reacted with α -keto carboxylic acids under aqueous conditions to form modified polymers useful in the preparation of oilfield drilling fluids and similar compositions.

3,741,895

COMPOSITION AND METHOD FOR IMPROVING FLUIDS FOR SECONDARY OIL RECOVERY

Willis G. Routson and Michael Neale, Walnut Creek, Calif., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Apr. 1, 1971, Ser. No. 130,539

Int. Cl. E21b 47/20; G01n 31/22

U.S. Cl. 252—8.55 D 4 Claims

When it is desired to maintain an excess of hydro-sulfite ions to provide a reductive environment in an aqueous medium employed for waterflooding in secondary oil recovery, the incorporation of a small amount of a reductive index agent, such as methylene blue, in said medium provides a method for determining when the hydro-sulfite ions have been depleted as by absorption of

oxygen. A preferred composition includes a mobility control agent such as hydrolyzed polyacrylamide in the medium.

3,741,896

BASIC ALKYLENE AMINE AND SULFUR BRIDGED ALKYLPHENOXIDES FOR USE IN LUBRICATING OILS

Andrew Doyle Abbott, Greenbrae, and Thomas V. Liston, San Rafael, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Continuation-in-part of abandoned application Ser. No. 97,300, Dec. 11, 1970. This application Oct. 4, 1971, Ser. No. 186,494

Int. Cl. C10m 1/34, 1/38

U.S. Cl. 252—42.7 7 Claims

Novel dispersant detergents are provided by combining, at an elevated temperature, a sulfurized alkylphenol and a Mannich base—prepared from formaldehyde, alkylphenol, and a lower alkyl monoamine—in the presence of an alkaline earth metal base and a liquid hydroxylic compound, so as to prepare the alkaline earth metal salt of a chemically combined sulfurized alkylphenol and Mannich base. The compositions which are detergent dispersants also provide antioxidant activity and alkalinity reserve.

3,741,897

EXTREME PRESSURE LUBRICATION THROUGH ADDITIVES

Josef Gansheimer, Munich-Obermenzing, and Oswald Schanzer, Munich, Germany, assignors to Dow Corning Corporation, Midland, Mich.

No Drawing. Original application Jan. 2, 1970, Ser. No. 438, now Patent No. 3,677,946. Divided and this application Jan. 12, 1972, Ser. No. 217,402

Int. Cl. C10m 1/32

U.S. Cl. 252—25 1 Claim

Water insoluble organic compounds which liberate gaseous nitrogen at high temperatures and have at least one N—N single or double bond in each molecule are added to lubricants to improve lubricity and decrease corrosion while remaining readily removable from the surfaces to which they have been applied.

3,741,898

FOAMED PRODUCT FROM SODIUM SILICATE AND PROCESS OF MANUFACTURE THEREOF

William A. Mallow, Richard A. Owen, and Ethelbert J. Baker, Jr., San Antonio, Tex., assignors to Southwest Research Institute, San Antonio, Tex.

Continuation-in-part of applications Ser. No. 868,113, Oct. 21, 1969, and Ser. No. 102,504, Dec. 29, 1970. This application July 9, 1971, Ser. No. 161,218

Int. Cl. E04b 1/74

U.S. Cl. 252—62 19 Claims

A solidified foamed material is made by frothing a mixture of an aqueous solution of sodium silicate, a surface tension depressant and a silicon dioxide polymer forming agent with or without the inclusion of an alkali metal silicate gelling agent. In one form, the product is free of any substantial amount of filler. In another form, a filler is required.

3,741,899

PIEZOELECTRIC CERAMICS

Akio Koyano, Mishima, Japan, assignor to Sumitomo Special Metal Company Limited, Osaka, Japan

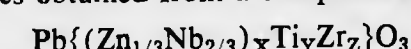
Continuation-in-part of abandoned application Ser. No. 713,081, Mar. 14, 1968. This application Dec. 16, 1970, Ser. No. 98,650

Claims priority, application Japan, Mar. 16, 1967, 42/16,516; Aug. 25, 1967, 42/54,660; Nov. 2, 1967, 42/70,734

Int. Cl. C04b 35/46, 35/48

U.S. Cl. 252—62.9 6 Claims

A ceramic having excellent piezoelectric and dielectric characteristics obtained from a composition of



wherein $X+Y+Z=1$. The piezoelectric ceramic has a high curie point, improved piezoelectric characteristics as compared with the conventional BaTiO₃ ceramics, has good insulation resistance, and is easy to sinter as compared with Pb(ZrTi)O₃ ceramics, thereby being very useful in the industry. The radial coupling constant of the ceramic can be increased by including an additive of at least one member selected from the group consisting of Na₂CO₃, Cu₂O, Ag₂O, MgO, NiO, Fe₂O₃, In₂O₃, SnO₂, Cr₂O₃ and Co₂O₃ in a total quantity up to 5 mol percent of the composition or at least one member selected from the group consisting of CaCO₃, SrCO₃, and BaCO₃ in a total quantity up to 10 mol percent of the composition.

3,741,900

CLEANING COMPOSITION

Justin J. Murtaugh, Guilford, Ind., and Robert C. Brown, Cincinnati, Ohio, assignors to The Drackett Company, Cincinnati, Ohio

No Drawing. Filed July 15, 1970, Ser. No. 55,285

Int. Cl. C11d 3/04

U.S. Cl. 252—89 16 Claims

A drain cleaning composition and the method for preparation, containing anhydrous magnesium chloride in combination with other inorganic salts such as but not limited to calcium chloride, sodium chloride and potassium chloride. The method involves fusing the ingredients, granulating and pelletizing or compacting.

3,741,901

WASHING COMPOSITIONS AND PROCESS

Jack Ziffer, Milwaukee, Wis., assignor to Pabst Brewing Company, Milwaukee, Wis.

No Drawing. Filed Aug. 7, 1970, Ser. No. 62,130

Int. Cl. C11d 3/02

U.S. Cl. 252—89 9 Claims

Water soluble sulfites and bisulfites are used to increase washing effectiveness of detergent compositions, especially those containing bacterial protease and/or bacterial amylase, and to give a buffered pH level, particularly where other components give too high a pH which would normally affect the stability of said enzymes.

3,741,902

LAUNDRY PRESPOTTER COMPOSITION

John H. Barrett, Jr., Norwalk, Calif., assignor to Purex Corporation, Ltd., Lakewood, Calif.

No Drawing. Filed May 24, 1971, Ser. No. 146,547

Int. Cl. C11d 7/42

U.S. Cl. 252—90 9 Claims

Laundry prespotter free of water and applicable to dampened fabrics without gelling consisting essentially of a liquid nonionic detergent, an organic liquid miscible therewith selected from certain alcohols, alkylene glycols, alkylene glycol alkyl or phenyl ethers, alkylene glycol esters, alkoxy ethanols and propanols and alkoxy triglycols, and optionally, an enzyme ingredient comprising alkaline or neutral protease or amylase; the prespotter can be packaged in an aerosol container for user convenience.

3,741,903

DETERGENT COMPOSITIONS

John Mon Evans, Lower Bebington, England, assignor to Lever Brother Company, New York, N.Y.

Continuation-in-part of Ser. No. 882,305, Dec. 4, 1969, abandoned. This application Dec. 8, 1971, Ser. No. 206,143

Claims priority, application Great Britain, Dec. 12, 1968, 59,272/68

Int. Cl. C11d 7/52

U.S. Cl. 252—95 9 Claims

A detergent composition of the low temperature bleaching type comprises an inorganic persalt, for example sodium perborate, an inorganic peracid precursor, for example

N,N,N',N'-tetraacetyl ethylene diamine, a cotton substantive fluorescent agent of the 4,4'-di(sym-triazinylamino)-stilbene-2,2'-disulphonate type and not more than 0.001 per cent of a triazine derivative of specified formula. The compositions have a decreased tendency to discolor and form malodors during storage.

3,741,904 PROCESS FOR PREPARATION OF A PROTECTED GRANULE AND DISHWASHING COMPOSITION FORMED THEREWITH

Richard Hans Christensen, Western Springs, Earl Edward Combs, Crestwood, and Mario Albert Petrone, Oak Park, Ill., assignors to Miles Laboratories, Inc., Elkhart, Ind.

No Drawing. Filed May 5, 1971, Ser. No. 140,606
Int. Cl. C11d 7/56

U.S. Cl. 252—99 5 Claims
A protected granule is prepared by adding to a builder salt an aqueous solution of a nonionic surfactant and subsequently adding a liquid sodium silicate having an $\text{SiO}_2/\text{Na}_2\text{O}$ ratio between 2.4 and 2.5 inclusive and a viscosity at 68° F. of between about 1700 and 2200 centipoises inclusive. This protected granule may be combined with a chlorine releasing agent to form an improved dishwashing composition.

ERRATUM

For Class 252—107 see:
Patent No. 3,741,952

3,741,905 PREPARATION OF THROUGH HOLE PRINTED CIRCUIT BOARDS, AND COMPOSITIONS USED THEREFOR

Edward B. Saubestre and Lawrence J. Durney, Hamden, Conn., assignors to Enthone, Incorporated, New Haven, Conn.

No Drawing. Filed Sept. 28, 1967, Ser. No. 671,243
Int. Cl. C11d 7/08; C23g 1/02

U.S. Cl. 252—142 12 Claims
This invention concerns an improvement in the process for rendering electrically conductive the non-conductive walls of the holes in the insulating boards or base in the preparation of through hole printed circuit boards, whereby the formation of a weakly adherent copper layer on the copper-clad surface portions of the board is inhibited with attendant elimination of the prior requirement of a sanding removal of the weakly adherent electroless copper prior to the electroplating. The improvement is provided by having present in an acidic liquid solution utilized to treat the board including the walls of the through holes prior to the activating and electroless copper plating, an effective amount of a lower alkyl thiourea. The acidic liquid solution containing the alkyl thiourea can be, for example, an acidic neutralizing solution utilized to neutralize alkaline material (derived from an alkaline cleaner) present on the board surface, or an acidic sensitizer solution for sensitizing the board surfaces for the activating step.

3,741,906 HINDERED PHENOXY RADICALS

William H. Starnes, Jr., Austin, Tex., assignor to Esso Research and Engineering Company

No Drawing. Filed Dec. 17, 1971, Ser. No. 209,447
Int. Cl. C09k 3/00

U.S. Cl. 252—182 7 Claims
Hindered phenoxy radicals are generated by dissolving 3,3',5,5'-tetra-*t*-butyl-1,1'-dichloro[bi-2,5-cyclohexadien-1-yl]4,4'-dione in a suitable solvent such as benzene. The so generated radicals may be reacted with a reactive substrate such as 2,6-di-*t*-butyl-4-benzylphenol.

3,741,907 FLUORESCENT PIGMENTS HAVING AN ISOCYANATE RESIN BASE

Hans-Peter Beyerlin, Stuttgart-Weilimdorf, Germany, assignor to G. Giegle & Co. GmbH, Stuttgart, Germany

No Drawing. Filed Mar. 16, 1971, Ser. No. 124,963
Claims priority, application Germany, Mar. 20, 1970, P 20 13 393.1; Dec. 28, 1970, P 20 63 948.9
Int. Cl. C09k 1/00, 1/02

U.S. Cl. 252—301.2 R 5 Claims
Brittle resins suitable as bases for fluorescent pigments are prepared from diisocyanates by polyaddition reactions with sulfonamides and/or polyols. The coloring matter may be dispersed in the polymerization mixture or the comminuted resins may be dyed in an acid dye bath. The resins are readily pulverized, resist elevated temperatures without softening or decomposing, and are insoluble or practically insoluble in the solvents usually employed in making organic coating compositions and inks.

3,741,908 DEPURATIVE PROCESS AND COMPOSITION

James Howard Dailey, Detroit, Mich., assignor to Chemetron Corporation, Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 853,976, Aug. 28, 1969. This application Mar. 4, 1970, Ser. No. 16,584

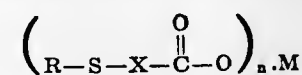
U.S. Cl. 252—330 12 Claims
This invention relates to a method for resolving oil-water mixtures and emulsions into separate phases and includes a composition comprising a critical proportion of iron and calcium salts, the calcium to iron ratio being from about 1.5:1 to about 5:1.

3,741,909 ANTIOXIDANT COMPOSITION TO STABILIZE ORGANIC MATERIALS

Izumi Yamane, Yokohama, Masuzo Nagayama, Tokyo, and Makoto Takai, Chiba, Japan, assignors to Lion Fat & Oil Co., Ltd., Tokyo, Japan

No Drawing. Filed May 4, 1971, Ser. No. 140,301
Claims priority, application Japan, May 9, 1970, 45/39,526

U.S. Cl. 252—401 6 Claims
A stable organic material composition prepared by mixing a compound expressed by the general formula:



(wherein R represents hydrocarbon radical having 6–22 carbon atoms, X represents a lower alkylene radical having 1–5 carbon atoms, M represents non-alkali metal and *n* represents an integer ranging from 1 to 5), along with a phenol-type antioxidant or amine-type antioxidant, with such an organic material as synthetic resin, rubberlike substance, various oils, etc.

3,741,910 CATALYST FOR THE PRODUCTION OF ACRYLONITRILE

Tatsuo Shiraishi, Susumu Kishiwada, Shinkichi Shimizu, Shigeru Honmaru, Hiroshi Ichihashi, and Yoshikiko Nagaoka, Niihama, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka-shi, Japan

No Drawing. Filed May 28, 1971, Ser. No. 148,166
Claims priority, application Japan, Sept. 11, 1970, 45/80,175

U.S. Cl. 252—437 5 Claims
In the production of acrylonitrile by a vapor phase reaction of propylene, ammonia and oxygen at an elevated temperature, a process which comprises contacting propylene, ammonia and oxygen with a catalyst composition comprising a catalyst system of the formula:



wherein X represents one or more of the metals, Ni, Mg and Co and *a*, *b*, *c*, *d*, *e*, *f*, *g* and *h* represent, respectively, the relative number of atoms of each component; provided that, when *c* is 12, *a* is 2 or less, but not 0, *b* is 0.5; *e* is 0.1 to 5; *f* is not more than 15 but not 0; *g* is 0 to 15; *f*+*g* is 2 to 15; and *h* is decided or determined depending on the number of the other atoms and is usually from 38.3 to 81.5.

3,741,911 PHOSPHATE-FREE DETERGENT COMPOSITION

Hugh J. S. Shane, Guelph, Ontario, Canada, assignor to Hart Chemical Limited, Guelph, Ontario, Canada

No Drawing. Continuation-in-part of abandoned application Ser. No. 58,202, July 24, 1970. This application Dec. 21, 1970, Ser. No. 100,356

U.S. Cl. 252—527 4 Claims
A detergent composition, preferably phosphate-free, is built using conventional builders, optionally including an organic sequestering agent, and contains as the active system a coacervate system containing an alkyl or alkyl-aryl polyoxyalkylene carboxylic acid and a non-ionic detergent. The coacervate system is suitable for washing fabrics and for use in automatic dish washing machines.

3,741,912 LOW FOAMING DETERGENT

Thomas M. Kaneko, Trenton, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Continuation-in-part of application Ser. No. 786,350, Dec. 23, 1968. This application Nov. 19, 1971, Ser. No. 200,610

U.S. Cl. 252—529 5 Claims
A composition adapted to be formulated with automatic dishwashing detergents for reducing foam during use thereof in the presence of proteinaceous matter, comprising:

- (A) about 95.0 to 99.5 weight percent of a nonionic surface active agent and
(B) about 0.5 to 5.0 weight percent of
(a) alkyl phosphate ester having 18 carbon atoms in the alkyl radical plus
(b) oxyethylated amines selected from the group consisting of an oxyethylated mono or di alkyl amine or a mono or di (hydroxy alkyl) amine wherein the alkyl group contains about 10 to 20 carbon atoms and the oxyethylene portion contains 1 to 50 units,
the weight ratio of said alkyl phosphate ester (a) to said oxyethylated fatty amine (b) being from about 2:1 to 1:2.

3,741,913 PROCESS FOR PREPARING SPRAY DRIED DETERGENT COMPOSITIONS

Ake Waag, Stenungsund, Sweden, assignor to Mo och Domsjö Aktieförägar, Ornskoldsvik, Sweden

No Drawing. Continuation of abandoned application Ser. No. 648,248, June 23, 1967. This application Feb. 19, 1971, Ser. No. 117,073

U.S. Cl. 252—544 14 Claims
A process is provided for preparing spray dried substantially homogeneous detergent compositions from aqueous slurries containing surface-active ethylene oxide adducts wherein prior to spray drying the aqueous slurry, an organic mono- or polyphosphate ester is incorporated with the surface-active ethylene oxide adduct and other ingredients employed in the detergent composition, in order to inhibit the slurry from separating into different

layers so that the particulate detergent composition produced will be substantially homogeneous and low foaming and have good cleaning power. The phosphate ester may be added to the ingredients of the detergent composition prior to, during or subsequent to the preparation of the aqueous slurry of the ingredients.

Detergent compositions are also provided, which can be prepared employing the above process, consisting essentially of at least one surface-active ethylene oxide adduct, and an organic mono- or polyphosphate ester, and optionally, inorganic builders, optical whiteners, chelating agents and dirt carriers, such as carboxymethyl cellulose.

3,741,914 CLEANING POLISHING COMPOSITION

Lawrence R. Parks, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed June 26, 1969, Ser. No. 836,935
Int. Cl. C11d 1/50, 1/12

U.S. Cl. 252—545 8 Claims
Cleaning and polishing compositions dryable to a bright surface without requiring buffing, comprising: a continuous aqueous phase; a dispersed, non-volatile, water-insoluble, solid film-forming polymer capable of being deposited in a smooth, bright, protective film upon evaporation of the aqueous phase and having a molecular weight of from about 5 million to about 15 million; a plasticizer for said polymer; a cleaning agent; and sufficient base to adjust the pH of the formulation to from about 8 to about 12.

3,741,915 SULFONATE DETERGENTS

Stanley C. Paviak, Shaler Township, Allegheny County, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

Filed May 14, 1971, Ser. No. 143,363
Int. Cl. C11d 1/14

U.S. Cl. 252—555 4 Claims
An aqueous composition of matter containing sodium alkene sulfonates or sodium hydroxy alkane sulfonates and an alkali metal sulfate in an amount sufficient to increase the viscosity thereof.

3,741,916 METHOD FOR POLYMERIZATION OF EPOXIDES

Harumi Asai and Ryuichiro Yoda, Tokyo, Japan, assignors to The Japanese Geon Company, Ltd., Tokyo, Japan

No Drawing. Filed Dec. 20, 1965, Ser. No. 515,168
Claims priority, application Japan, Jan. 5, 1965, 40/270; June 15, 1965, 40/35,180; July 7, 1965, 40/40,308

U.S. Cl. 260—2 EP 6 Claims
A method for polymerizing or copolymerizing an olefin oxide monomer having a 3-membered cyclic ether group in the presence of a catalyst system composed of an organoaluminum compound represented by the general formula $\text{AlX}_n\text{R}_{3-n}$ (wherein X stands for a halogen atom, R stands for an alkyl group having 1–6 carbon atoms and *n* stands for a number of 0–2), an organic acid salt of a transition element, which furthermore optionally contains water and/or a non-cyclic halogenated ether.

3,741,917 COLD CURE HIGH RESILIENCE FOAM

Edward Lewis Morehouse, New City, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Oct. 26, 1970, Ser. No. 84,181
Int. Cl. C08g 22/46

U.S. Cl. 260—2.5 AH 18 Claims
A process for producing cold cure polyether urethane foam comprising foaming and reacting a mixture com-

prising (1) organic polyol, (2) polyisocyanate, (3) blowing agent, (4) catalyst and (5) a siloxane block copolymer; mixtures suitable for use in producing said cold cure foams; and said cold cure polyether urethane foams derived therefrom.

3,741,918

POLY(OXYCAPROYL)-POLYURETHANE PRODUCTS

Joseph V. Koleske and George Magnus, Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Aug. 2, 1971, Ser. No. 168,469

Int. Cl. C08g 22/44, 22/10

U.S. Cl. 260—2.5 AY 9 Claims

This invention relates to the manufacture of poly(oxy-caproyl)-polyurethane products which exhibit markedly improved tensile strength while retaining a high level of other mechanical properties especially compression set. These products are prepared by reacting (i) a mixture of polymeric diols which comprise defined amounts of relatively high molecular weight poly(oxy-caproyl) diol and relatively low molecular weight poly(oxy-caproyl) diol with (ii) a diisocyanate compound, and (iii) a difunctional chain extender, and optionally, additional ingredients such as catalyst, surfactant, blowing agent, dyes, etc. The novel solid and microcellular elastomeric products have utility in applications such as shoe soles and solid industrial tires.

3,741,919

URETHANE COMPOSITION PREPARED FROM POLYISOCYANATES AND PHOSPHONATED POLYOXYALKYLENE ESTERS

Morton Lewis, Elmhurst, Ill., assignor to Swift & Company, Chicago, Ill.

No Drawing. Original application July 30, 1969, Ser. No. 846,247, now Patent No. 3,682,988. Divided and this application Sept. 27, 1971, Ser. No. 184,262

Int. Cl. C08g 22/14, 22/44

U.S. Cl. 260—2.5 AR 18 Claims

Phosphonated polyoxyalkylene ethers are produced by reacting a halogen-containing polyoxyalkylene ether with an aliphatic or aromatic phosphite. The resulting compositions are used to prepare flame resistant, non-rigid polyurethane foams.

3,741,920

MANUFACTURE OF THERMAL SHOCK RESISTANT FOAMS

Franz Weissenfels, Siegburg am Grafenkreuz, and Hans Jünger, Troisdorf, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

No Drawing. Continuation-in-part of application Ser. No. 31,418, Apr. 23, 1970. This application Feb. 28, 1972, Ser. No. 230,089

Claims priority, application Germany, Apr. 24, 1969, P 19 20 867.4

Int. Cl. C08j 1/26, 1/22

U.S. Cl. 260—2.5 FP 6 Claims

A phenolic foam having improved resistance to fire, heat and abrupt changes in temperature is prepared by foaming and hardening an intimate mixture of

(a) a conventional foamable phenolic resole resin containing a blowing agent, a hardener and a surface active agent, and

(b) in the range of 2 to 20 weight percent, based on the phenolic-resin, of a flowable hydroxyalkylated phenol.

3,741,921

FLAME RETARDANT POLYURETHANE FOAMS BASED ON POLYETHERS FROM 4,4,4 - TRI-CHLORO-1,2-EPOXYBUTANE

Milton Lapkin, Barrington, R.I., assignor to Olin Corporation

No Drawing. Continuation-in-part of application Ser. No. 62,784, June 10, 1970, which is a division of application Ser. No. 786,772, Dec. 24, 1968, which in turn is a continuation-in-part of application Ser. No. 563,714, July 7, 1966, all now abandoned. This application May 1, 1972, Ser. No. 249,119

Int. Cl. C08g 22/46, 22/16

U.S. Cl. 260—2.5 AS 10 Claims

Flame retardant polyurethane foams and a process for preparing them are disclosed. The process comprises reacting, in the presence of a catalyst, and a foaming agent, an organic isocyanate with a chlorinated polyhydroxy polyether prepared by reacting a dextrose- or sucrose-based material with 4,4,4-trichloro-1,2-epoxybutane.

3,741,922

AQUEOUS LATEX PAINT THICKENING COMPOSITION

Ronald L. Glomski and Albert B. Savage, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 696,984, Jan. 11, 1968, which is a continuation-in-part of application Ser. No. 484,760, Sept. 2, 1965. This application Apr. 22, 1971, Ser. No. 136,550

Int. Cl. C09d 3/80, 5/04

U.S. Cl. 260—17 R 5 Claims

This application discloses thickeners for aqueous polymer latex composition, the thickeners consisting of an intimate blend of cellulose ethers, said blend having a viscosity in 2 percent aqueous solution at 20° C. of from 1000 to 20,000 centipoises, said blend consisting of one water-soluble hydroxyalkyl alkyl cellulose ether having from 2 to 4 carbon atoms in the hydroxyalkyl group and 1 to 2 carbons in the alkyl group and having a viscosity of a 2 percent aqueous solution at 20° C. of greater than 10,000 centipoises and another water-soluble hydroxy-alkyl alkyl cellulose ether having from 2 to 4 carbons in the hydroxyalkyl group and 1 to 2 carbons in the alkyl group and having a viscosity in 2 percent aqueous solution at 20° C. of less than 1000 centipoises.

3,741,923

ELECTROPHORETIC COATING COMPOSITION CONTAINING A HEAT-CURABLE ACRYLATE RESIN, A FINE PARTICULATE COPOLYMER AND A PLASTICIZER

Peter Fritsche and Heidemarie Hulsman, Hiltrup, Germany, assignors to Glasurit-Werke M. Winkelmann G.m.b.H., Hamburg-Wandsbek, Germany

No Drawing. Filed July 7, 1971, Ser. No. 160,536

Claims priority, application Germany, Aug. 10, 1970, P 20'39 677.4

Int. Cl. C08f 45/26

U.S. Cl. 260—23 AR 6 Claims

An electrophoretic coating composition useful in preparing textured coatings is prepared by emulsifying a co-

polymer component II in alkaline ammonium and/or strong organic nitrogen bases in the presence of water to a stable dispersion. The copolymer component II is 10-25 percent by weight of the total composition and has therein

(a) 60-95 percent by weight of styrene,
(b) 0.5-10 percent by weight of α,β -unsaturated dicarboxylic acid having 3-5 carbon atoms, and
(c) 4.5-30 percent by weight of α,β -vinyl or α,β -vinylidene compound copolymerized therewith.

15-20 percent by weight of a plasticizer component III is added to the dispersion of component II at a pH of at least 8.5. The plasticizers of component III are compatible with components II and the later-mentioned component I, such as esters of phthalic acid, isophthalic acid, terephthalic acid, adipic acid, sebacic acid, glycolic acid, tartaric acid, citric acid, ricinoleic acid and mixtures thereof. To the dispersion of components II and III a solution of acrylate resin component I in organic solvents is added and the pH is adjusted to 8.2 ± 0.3 . Acrylate resin component I is 60-70 percent by weight of the composition and contains

(a) 50-90 percent by weight of an ester of acrylic or methacrylic acid with an aliphatic monoalcohol having 1-8 carbon atoms,
(b) 1-15 percent by weight of an α,β -unsaturated dicarboxylic acid having 3-5 carbon atoms, and
(c) 5-49 percent by weight of an α,β -vinyl or α,β -vinylidene compound copolymerized therewith. The dispersion of components I, II, and III is diluted with water to a solids content of about 5-20 percent.

3,741,924

RUBBER COMPOSITION

Taisuke Okita, Toyonaka, and Nobuyuki Yoshida, Takatsuki, Japan, assignors to Taoka Dyestuffs Manufacturing Co. Ltd., Osaka, Japan

No Drawing. Filed Feb. 13, 1970, Ser. No. 11,314

Claims priority, application Japan, Mar. 8, 1969, 44/17,827

Int. Cl. C09j 3/26

U.S. Cl. 260—27 R 7 Claims

There is obtained an ethylene-propylene-non-conjugated diene terpolymer rubber composition with improved tackiness and processability in the unvulcanized state, but nevertheless, with substantially the same physical properties in the vulcanized state as that of a conventional composition of said terpolymer rubber, by incorporating into 100 parts by weight of said terpolymer 1-40, preferably 2-30, parts by weight of an ethylene- α -olefin copolymer and 0.5-30, preferably 1-20, parts by weight of an alkylphenol-formaldehyde resin, a modified alkylphenol-formaldehyde resin, rosin, rosin ester, or a mixture of these resins.

3,741,925

WATER-REPELLENT ETHYLENE COPOLYMER DISPERSIONS

John William McDonald, Memphis, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Apr. 2, 1971, Ser. No. 130,842

Int. Cl. C08f 45/52, 45/24; C08j 1/40

U.S. Cl. 260—28.5 R 14 Claims

An aqueous ethylene copolymer dispersion, from which an improved water-repellent coating can be applied, is provided. The dispersion comprises an ethylene copolymer, an ammonium salt of a mineral acid, and from 0 to 25 percent by weight, based on solids weight, of an amino-formaldehyde resin. An article having thereon a coating of the dispersed phase of the dispersion and a process for preparing the article are also provided.

CEMENT COMPRISED OF ZINC OXIDE AND ACRYLIC ACID COPOLYMER

Anton Jurecic, Springfield, Del., assignor to Pennwalt Corporation, Philadelphia, Pa.

No Drawing. Continuation-in-part of abandoned application Ser. No. 18,319, Mar. 10, 1970. This application July 1, 1971, Ser. No. 159,018

Int. Cl. C08f 45/24, 45/04

U.S. Cl. 260—29.6 M 5 Claims

A copolymer comprised of 10 to 90 mole percent of acrylic acid and at least one mono-olefinically unsaturated polycarboxylic acid selected from the group consisting of glutaric acid, aconitic acid, citraconic acid, mesaconic acid, itaconic acid, fumaric acid, maleic acid and tiglic acid, is mixed with zinc oxide to prepare improved cements for dental and orthopedic use.

3,741,927

TREAD STRIPS FOR TIRES FORMED OF HOMOPOLYMERS OF BUTADIENE

Karl-Heinz Nordsiek, Neithart Sommer, and Helmut Schwesig, Marl, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany

No Drawing. Filed Nov. 24, 1970, Ser. No. 92,537

Claims priority, application Germany, Nov. 29, 1969, P 19 60 065.8

Int. Cl. C08f 45/08, 45/28

U.S. Cl. 260—33.6 AQ 15 Claims

Tire tread strips for automobile tires having a good combination of wear and skid resistance are formed of a polybutadiene homopolymer composition consisting essentially of:

(a) a homopolymer of 1,3-butadiene having an average vinyl group content of 25-50%, a cis-1,4-double bond content of 10-40%, a trans-1,4-double bond content of 15-55%, a Mooney viscosity (ML-4) of between 40 and 120, and a deformation-elasticity of at least 25, whose vinyl groups are distributed along the longitudinal axis of the macromolecule toward an end thereof in a substantially decreasing manner;
(b) 5-100 parts by weight of a plasticizer, based on 100 parts by weight of polybutadiene; and
(c) 30-120 parts by weight of a carbon black, based on 100 parts by weight of polybutadiene.

3,741,928

EPOXIDE MOLDING COMPOSITIONS CONTAINING META-TOLYLENE DIAMINE AND A SILICIOUS FILLER

George A. Salensky, Metuchen, N.J., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 698,140, Jan. 16, 1968. This application July 21, 1971, Ser. No. 164,818

Int. Cl. C08g 51/04

U.S. Cl. 260—37 EP 10 Claims

The disclosure of this application is directed to epoxide molding compositions, containing m-tolylene diamine and a silicious filler, which have excellent shelf life and can be molded into shaped articles characterized by excellent properties.

3,741,929

INORGANIC FLAMEPROOFING COMPOSITION FOR ORGANIC MATERIALS

Pearl Burton, Leominster, Mass., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 880,467, Dec. 8, 1969, which is a continuation of application Ser. No. 679,210, Oct. 30, 1967, which in turn is a continuation of application Ser. No. 391,004, Aug. 20, 1964, all now abandoned. This application Apr. 6, 1971, Ser. No. 131,815

Int. Cl. C08f 45/04; C08g 51/04; C09k 3/28

U.S. Cl. 260—40 R 5 Claims

A flame retardant insulation material is formed of a non-halogenated composition which is relatively stable

where R' is hydrogen or alkyl of from 1 to 4 carbon atoms, n is an integer from 1 to 3, R'' is of the scope of R' or cycloalkylene of from 4 to 7 carbon atoms or substituted cycloalkylene of from 5 to 12 carbon atoms or phenyl, and k is an integer greater than 1.

The polymeric material, when in liquid form, is adapted to be used as a curing agent to cure polyepoxides to obtain epoxy resins.

3,741,945

VINYL ALCOHOL COPOLYMERS CONTAINING HYDROXY SULFONYL GROUPS

Guy Bourat, Bourg-la-Reine, and Rodolphe Margraff, Ris-Orangis, France, assignors to Rhone-Poulenc S.A., Paris, France

No Drawing. Continuation of abandoned application Ser. No. 821,947, May 5, 1969. This application Aug. 27, 1971, Ser. No. 175,693

Int. Cl. C08f 27/06, 47/00

U.S. Cl. 260—79.3 R

14 Claims

Vinyl alcohol copolymers partially etherified with hydroxy sulfonyl organic radicals and optionally partially crosslinked by ether groups are useful in making cation-exchange membranes.

3,741,946

EMULSION COPOLYMERIZATION OF ISOBUTYL VINYL ETHER AND VINYL CHLORIDE

Wiley E. Daniels, Easton, Pa., assignor to GAF Corporation, New York, N.Y.

No Drawing. Continuation of application Ser. No. 594,651, Nov. 16, 1966. This application Aug. 7, 1970, Ser. No. 62,134

Int. Cl. C08f 1/60

U.S. Cl. 260—87.5 G

7 Claims

A process for preparing copolymers of isobutylvinyl ether and vinyl chloride having an η_{rel} (1% weight/volume in toluene) of 1.3 to 1.5, a volume strength of 3,000 to 5,000 p.s.i.g., and an elongation of 3.5 to 7%, which consists of copolymerizing isobutylvinyl ether and a portion of the vinyl chloride to be polymerized in an aqueous phase containing a high purity sodium alkyl sulfate and potassium persulfate so as to yield a 40–50% conversion followed by equal incremental additions of the remaining portions of the vinyl chloride to be copolymerized for a period of time until constant pressure is obtained, and subsequently isolating the resultant copolymer by coagulation with a primary aliphatic alcohol or a water-soluble salt of a potassium cation.

3,741,947

POLYMERIZATION AND COPOLYMERIZATION OF ARYL-SUBSTITUTED OLEFINS CONTAINING HALOGEN IN THE NUCLEUS

Erwin Schrott, Gerhard Bier, and Albert Gustav Martin Gumboldt, Frankfurt am Main, Germany, assignors to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Jan. 14, 1959, Ser. No. 786,683

Claims priority, application Germany, Jan. 16, 1958, F 24,823

Int. Cl. C08f 7/02

U.S. Cl. 260—91.5

2 Claims

New isotactic polymers of halophenylalkenes are produced by using as the polymerization catalyst a titanium trichloride produced by reducing titanium tetrachloride with ethyl aluminum sesquichloride at 0° C., then heating it at 100° C. and finally activating it with diethylaluminum chloride. Among the new crystalline polymers described are poly-4-(para-chlorophenyl)-butene-(1); poly-4-(3,4-dichlorophenyl)-butene-(1); and copolymers of halophenylalkenes with 1-olefins.

3,741,948 PROCESS FOR THE PREPARATION OF N-PROTECTED - α - L-GLUTAMYL - S - BENZYL-L-CYSTEINYLGLYCINES

Masuo Murakami, Yuji Kawashima, Hideyo Kawakami, and Osamu Hasegawa, Tokyo, Japan, assignors to Yamanouchi Pharmaceutical Co., Ltd., Tokyo, Japan

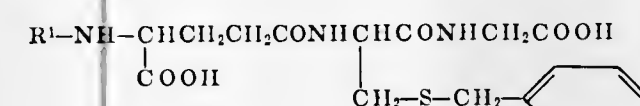
No Drawing. Filed May 28, 1970, Ser. No. 41,636
Claims priority, application Japan, June 19, 1969, 44/47,920

Int. Cl. C07c 103/52

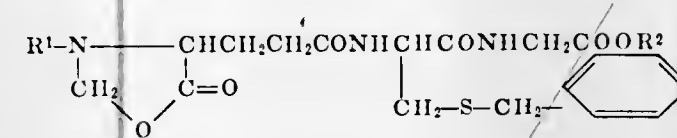
U.S. Cl. 260—112.5

4 Claims

An improved process is provided for the preparation of N-protected- α -L-glutamyl-S-benzyl-L-cysteinyglycines of the formula



in which R¹ represents a protecting group for the amino group. These compounds are valuable as intermediates for the production of glutathione, involving hydrolysis of a compound of the formula



in which R¹ has the same meaning as above and R² represents a hydrogen atom or a lower alkyl group. The hydrolysis is effected in the absence of an organic solvent miscible with water to prevent formation of undesirable compounds.

3,741,949

EXTRACTION OF BACITRACIN WITH NON-IONIC RESINS

Bernard Ores, Montrenil-sous-Bois, and Claude Rauber, Saint-Denis, France, assignors to Roussel-UCLAF

No Drawing. Filed Oct. 7, 1970, Ser. No. 78,963

Claims priority, application France, Oct. 10, 1969, 6934774

Int. Cl. C07c 103/52

U.S. Cl. 260—112.5

4 Claims

A novel process for the extraction of bacitracin from fermentation broths wherein the said antibiotic was formed by micro-organisms, by adsorption on nonionic resins.

3,741,950

METHOD FOR HARDENING GELATIN

Mitsunori Sugiyama, Reiichi Ohi, Tadao Shishido, and Masaki Omura, Ashigara-machi, Japan, assignors to Fuji Photo Film Co., Ltd., Nakanuma, Minami Ashigara-shi, Kanagawa, Japan

No Drawing. Filed July 2, 1971, Ser. No. 159,519

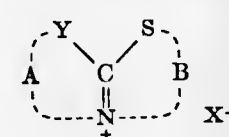
Claims priority, application Japan, July 2, 1970, 45/57,911

Int. Cl. C09h 7/00

U.S. Cl. 260—117

14 Claims

A method for hardening proteins using as the hardener at least one compound of the general formula



wherein A and B are necessary atoms for forming a heterocyclic ring, Y represents sulfur or selenium and X stands for an anion, is disclosed. The hardening effects of the compounds are further potentiated when used in combination with at least one metal ion such as manganese, cobalt, nickel, copper, zinc, silver or cadmium ion.

3,741,951

1-(p-BENZAMIDO)-3-METHYL-TRIAZENES

Fritz K. Hess, Hudson, and Patrick B. Stewart, St. Andrews East, Quebec, Canada, Karl Zeile, Ingelheim am Rhein, Germany, and Kurt Freter, Beaconsfield, Quebec, Canada, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany

No Drawing. Filed Dec. 16, 1971, Ser. No. 208,912

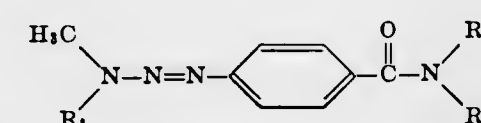
Claims priority, application Austria, Dec. 21, 1970, A 11,481/70

Int. Cl. C07c 115/00

U.S. Cl. 260—140

4 Claims

Compounds of the formula



wherein

R₁ is cyclohexyl, phenyl-(alkylene of 1 to 2 carbon atoms) or pyridyl-(alkylene of 1 to 2 carbon atoms), R₂ is hydrogen or alkyl of 1 to 2 carbon atoms, and R₃ is straight or branched alkyl of 1 to 4 carbon atoms or cycloalkyl of 3 to 6 carbon atoms;

the compounds are useful as immunosuppressants.

3,741,952

SYNERGISTIC ANTISEPTIC COMPOSITIONS CONTAINING A HALOGENATED ANILIDE OF THIOPHENE CARBOXYLIC ACID

David Taber, 2000 Lincoln, Evanston, Ill. 60433

No Drawing. Filed Mar. 8, 1971, Ser. No. 122,093

Int. Cl. C11d 3/48, 9/50

U.S. Cl. 252—107

1 Claim

Compositions possessing antibacterial activity through the effects of a synergistic combination of thiophene-2-carboxy-4'-bromoanilide and either hexachlorophene or tribromosalicylanilide.

3,741,953

GUANIDINOSULFONYLPHENYL AZO PIGMENTS HAVING ACETOACETAMIDOPHENYL COUPLING COMPONENT RADICALS

Armand Henrard, Gand, Belgium, and Fritz Kehrer and Hans Wasem, Basel, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 691,707, Dec. 19, 1967, now Patent No. 3,598,803. This application Sept. 30, 1970, Ser. No. 77,015

Claims priority, application Switzerland, Jan. 17, 1967, 630/67, Patent 476,802; Jan. 26, 1967, 1,173/67, Patent 475,304

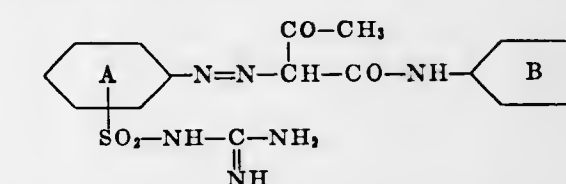
Int. Cl. C09b 29/32

U.S. Cl. 260—193

3 Claims

Pigments of the monoazo series which contain a nu-

clearly bound sulfonic acid imido-ureide group and are, e.g., of the formula



are useful for the coloration of plastics, textiles, paper, natural resins and rubber. The resultant dyeings are very fast to migration and light and show good heat stability.

3,741,954

MONOAZO AND DISAZO COMPOUNDS HAVING A NITROANILINOSULFONYLOXYPHENYL GROUP

Ruedi Altermatt, Tecknau, Basel-Land, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed Sept. 23, 1970, Ser. No. 74,924

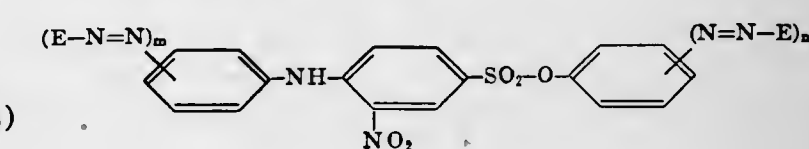
Claims priority, application Switzerland, Oct. 21, 1969, 15,709/69

Int. Cl. C09b 29/34

U.S. Cl. 260—205

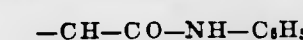
15 Claims

Compounds of the formula



and substituted derivatives thereof,

wherein each E is independently aryl or acylacetyl, e.g., phenyl, naphthyl, thiazolyl, benzothiazolyl, thiadiazolyl, imidazolyl, pyrazolyl and acyl



and substituted derivatives thereof,

m is 0 or 1, and n is 0 or 1, with the proviso that the sum of m and n is 1 or 2.

These dyes are highly suitable for dyeing and printing fibres, yarns and textiles consisting of synthetic or regenerated organic materials of high molecular weight and hydrophobic character.

3,741,955

3 β -HYDROXY - 14,15 β -OXIDO - 14 β -BUFA-4,20,22-TRIENALIDE-3 β -(α -L-RHAMNOPYRANOSIDE)

Kurt Radschelt, Kelkheim, Taunus, Ulrich Stache, Hofheim, Taunus, Werner Fritsch, Neuenhain, Taunus, Werner Haede, Hofheim, Taunus, and Ernst Lindner, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Apr. 6, 1971, Ser. No. 131,808

Claims priority, application Germany, Apr. 8, 1970, P 20 16 704.8

Int. Cl. C07c 173/00

U.S. Cl. 260—210.5

1 Claim

Cardioactive 3 β - hydroxy-14,15 β -oxido-14 β -bufa-4,20,22-trienolide-3 β -(α -L-rhamnopyranoside).

Method of making this compound by acylating and dehydrating proscillaridin; forming a haloalcohol from the resulting Δ^{14} -olefin; dehydrohalogenating to form the 14,15 β -epoxide; and hydrolyzing to form the free L-rhamnopyranoside.

3,741,956
CARDIO-ACTIVE GLYCOSIDES OF 3 β ,14-DIHYDROXY-4,5 β -OXIDO-14 β -BUFA-20,22-DIENOLIDES AND PROCESS FOR THEIR PREPARATION

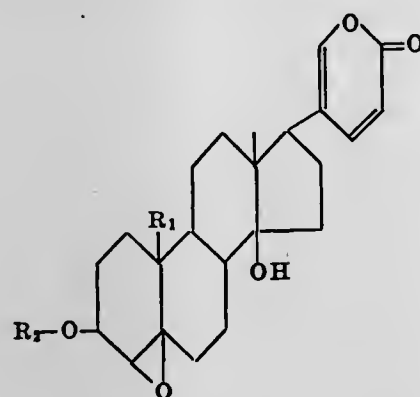
Kurt Radsch, Kalkheim, Taunus, Ulrich Stache, Hofheim, Taunus, Werner Fritsch, Neuenhain, Taunus, Werner Haede, Hofheim, Taunus, and Ernst Lindner, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

Filed Apr. 29, 1971, Ser. No. 138,458

Claims priority, application Germany, May 2, 1970, P 20 21 556.9

Int. Cl. C07c 173/00

U.S. Cl. 260—210.5 2 Claims
 3-hydroxy-4,5 β -oxido-bufadienolides of the general formula



in which R₁ is CH₃—, CHO—, CH₂OH, CH₂O-alkyl, CH₂O acyl and R₂ is mono-, di- or trisaccharidyl, optionally esterified, etherified or condensed with carbonyl compounds, e.g. 3 β ,14-dihydroxy-4,5 β -oxido-14 β -bufa-20,22-dienolide, 3 β -(α -L-rhamnoside) and 3 β ,14-dihydroxy-4,5 β -oxido-14 β -bufa-20,22-dienolide, 3 β -(β -D-glucoside).

Method for making these compounds (1) by acylating the corresponding glycosides, reacting the acylates with HOHal-forming agents to the corresponding 4,5-halohydrins which are then converted into 4,5 β -epoxides by splitting off hydrogen halide, or (2) by reacting the corresponding aglycones of the above formula (R₂=H) with acylated 1-halopyranoses in inert solvents in the presence of silver salts, and finally hydrolyzing the acylated compounds to yield the free glycosides. These compounds have strong positive inotropic action and a pronounced cardioactive efficacy.

3,741,957

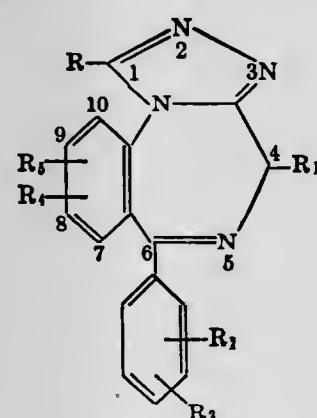
2-ACYL HYDRAZINO BENZODIAZEPINES

Jackson B. Hester, Jr., Galesburg, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

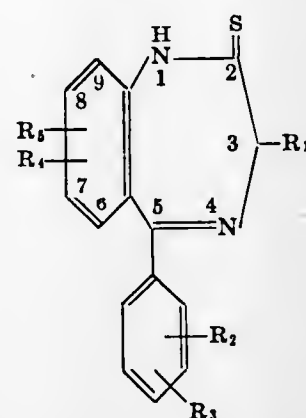
No Drawing. Continuation-in-part of abandoned application Ser. No. 807,933, Mar. 17, 1969, and a division of application Ser. No. 872,394, Oct. 29, 1969. This application July 15, 1971, Ser. No. 165,774

Int. Cl. C07d 53/06

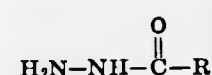
U.S. Cl. 260—239 BD 3 Claims
 6-phenyl-4H-s-triazolo[4,3-a][1,4]benzodiazepines of the Formula IV:



wherein R is selected from the group consisting of hydrogen, alkyl of 1 to 3 carbon atoms, inclusive, phenyl, benzyl and —COOR' in which R' is alkyl of 1 to 4 carbon atoms, inclusive; wherein R₁ is selected from the group consisting of hydrogen and alkyl of 1 to 3 carbon atoms, inclusive; and wherein R₂, R₃, R₄ and R₅ are selected from the group consisting of hydrogen, alkyl of 1 to 3 carbon atoms, inclusive, halogen, nitro, cyano, trifluoromethyl, and alkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, alkanoylamino and dialkylamino in which the carbon chain moieties are of 1 to 3 carbon atoms, inclusive, are produced by condensing a 1,3-dihydro-5-phenyl-2H-1,4-benzodiazepine-2-thione of the Formula I:



wherein R₁, R₂, R₃, R₄ and R₅ are defined as above, with an organic acid hydrazide of the formula:



wherein R is defined as above.

The new products of Formula IV including their pharmacologically acceptable acid addition salts are useful as sedatives, tranquilizers and muscle relaxants in mammals and birds.

3,741,958

6-AMINOPENICILLANIC ACID DERIVATIVES AND PROCESS FOR PRODUCING THEM

Peter Wolfgang Henniger, Leiden, Netherlands, assignor to Koninklijke Nederlandsche Gist-en Spiritusfabriek N.V., Delft, Netherlands

No Drawing. Continuation-in-part of application Ser. No. 834,544, June 18, 1969. This application Dec. 15, 1970, Ser. No. 98,445.

Claims priority, application Great Britain, Dec. 18, 1969, 61,843

Int. Cl. C07d 99/16

U.S. Cl. 260—239.1 10 Claims
 Novel derivatives of 6-isocyanatopenicillanic acid, their preparation, their use as intermediates in producing penicillins and novel penicillanic acids. The invention further relates to penicillins produced from 6-isocyanatopenicillanic acid and to compositions for therapeutic use containing them.

3,741,959

ACYLATION OF 7-AMINOCEPHALOSPORIN OR 6-AMINOPENICILLIN

Brian Edgar Looker, Greenford, John Attenburrow, Uxbridge, and Edward McKenzie Wilson, Westmoreland, England, assignors to Glaxo Laboratories Limited, Greenford, Middlesex, England

No Drawing. Filed Dec. 17, 1970, Ser. No. 99,328

Claims priority, application Great Britain, Dec. 23, 1969, 62,711/69

Int. Cl. C07d 99/16, 99/24

U.S. Cl. 260—239.1 21 Claims
 A process for acylating a cephalosporin or penicillin nucleus comprises reacting the 7- or 6-amino group with

an acyl chloride or bromide in the presence of an oxirane, e.g. ethylene oxide, a propylene oxide which binds hydrogen halide liberated in the reaction.

3,741,960

AMIDINOUREIDO CYCLOALIPHATIC PENICILLINS

Harvey E. Alburn, West Chester, and William Dvorch, Radnor, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Aug. 12, 1971, Ser. No. 171,367

Int. Cl. C07d 99/16

U.S. Cl. 260—239.1 4 Claims
 Amidinoureido cycloaliphatic penicillins are described as novel compounds for use as antibacterial agents, these compounds, being particularly useful in the treatment of infectious diseases caused by gram-positive and gram-negative bacteria, including those caused by *Pseudomonas* strains and *Proteus* strains and penicillin-resistant strains of *Neisseria gonorrhoeae*.

3,741,961

METAL CATALYZED CYCLIZATION OF ORGANIC NITRILES AND AMINO ALCOHOLS OR AMINO THIOLS

James Edward Kmiecik, Houston, and Heinz Schulze, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Filed Sept. 3, 1970, Ser. No. 69,502

Int. Cl. C07d 93/06

U.S. Cl. 260—243 R 20 Claims
 Amino alcohols or amino thiols are contacted with organic nitriles under alkaline or neutral conditions in the presence of metal catalysts to form 2-oxazolines, 2-thiazolines, or related compounds, such as benzoxazoles or oxazines.

3,741,962

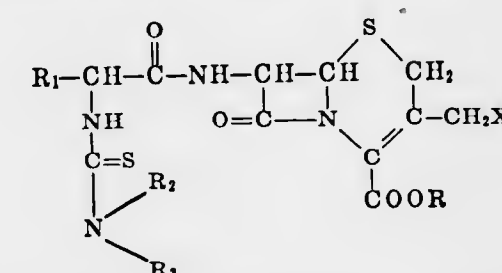
α -THIOUREIDOCEPHALOSPORANIC ACID COMPOUNDS

Hermann Breuer, Burgweinting, Germany, assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

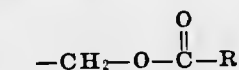
No Drawing. Filed May 21, 1971, Ser. No. 145,955

Int. Cl. C07d 99/24

U.S. Cl. 260—243 C 11 Claims
 New α -thioureidocephalosporanic acid compounds of the following general formula, and their salts,



wherein R is hydrogen, lower alkyl, aralkyl, a salt forming ion or the group



R₁ is hydrogen, lower alkyl, cyclo-lower alkyl, unsaturated cyclo-lower alkyl, aryl, aralkyl or a heterocyclic group; R₂ is hydrogen or lower alkyl; R₃ is hydrogen, lower alkyl, lower alkenyl, phenyl, benzoyl, lower alkoxy-lower alkyl or (carbo-lower alkoxy)lower alkyl; R₄ is lower alkyl, aryl or aralkyl and X is hydrogen, hydroxy, lower alkanoyloxy, aryloxy, aralkanoyloxy, the radical

of a nitrogen base, a quaternary ammonium radical or together X and R represent a bond linking carbon and oxygen in a lactone ring; are useful as antibacterial agents.

3,741,963

WATER SOLUBLE N-CARBOXY DERIVATIVES OF CEPHRADINE AND CEPHALEXIN AND A METHOD FOR THEIR PREPARATION

Friedrich Dursch, Hopewell, N.J., and Octavian Kocy, Bronx, N.Y., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Filed July 28, 1971, Ser. No. 166,979

Int. Cl. C07d 99/24

U.S. Cl. 260—243 C 4 Claims
 N-carboxy derivatives of cephadrine and of cephalexin are provided which are readily water soluble and are useful as antibiotics which may be administered parenterally.

3,741,964

METHOD FOR PRODUCING AMINO-3,4-DIHYDRO-2H-1,3,5-THIADIAZIN-2-ONES

John P. Chupp, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed June 1, 1971, Ser. No. 149,051

Int. Cl. C07d 93/26

U.S. Cl. 260—243 R 7 Claims
 Novel amino-3,4-dihydro-2H-1,3,5-thiadiazin-2-ones are produced by the reaction of 1-(1-chloro-N-methyl-formamido)-2-methylpropyl isothiocyanate with amines. These amino-3,4-dihydro-2H-1,3,5-thiadiazin-2-ones are useful as herbicides.

3,741,965

7-[D-(α -AMINO- α -PHENYL-, 2-THIENYL- AND 3-THIENYL-ACETAMIDO)]-3-(3-METHYLISOXAZOL-5-YL)-CARBONYLTHIOMETHYL-3-CEPHEM-4-CARBOXYLIC ACIDS

John Michael Essery and Lee Cannon Cheney, Fayetteville, N.Y., assignors to Bristol-Myers Company, New York, N.Y.

No Drawing. Filed Feb. 25, 1972, Ser. No. 229,546

Int. Cl. C07d 99/24

U.S. Cl. 260—243 C 44 Claims
 7-[D-(α -amino- α -phenyl-, 2-thienyl- and 3-thienyl-acetamido)]-3-(3-methylisoxazol-5-yl)carbonylthiomethyl-3-cephem-4-carboxylic acids and their nontoxic, pharmaceutically acceptable salts are valuable as antibacterial agents, as nutritional supplements in animal feeds, as agents for the treatment of mastitis in cattle and as therapeutic agents in poultry and animals, including man, and are especially useful in the treatment, particularly by oral administration, of infectious diseases caused by many Gram-positive and Gram-negative bacteria. Also included in this invention are the corresponding pivaloyloxymethyl, acetoxymethyl, methoxymethyl, acetyl and phenacyl esters of such acids and their nontoxic, pharmaceutically acceptable acid addition salts.

3,741,966

ANTISTATIC FIBER CONTAINING HIGH MOLECULAR WEIGHT TRIS(B-HYDROXYALKYL)-ISOCYANURATE-ALKYLENE OXIDE ADDUCTS

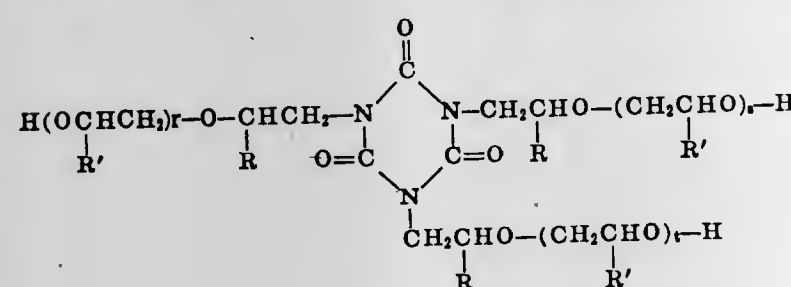
Gene C. Weedon, Richmond, Va., and Edwin D. Little, Convent Station, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 80,488, Oct. 13, 1970, which is a continuation-in-part of application Ser. No. 873,689, Nov. 3, 1969, both now abandoned. This application Jan. 3, 1972, Ser. No. 215,974

Int. Cl. C07d 55/38

U.S. Cl. 260—248 NS 7 Claims
 It has been found that an antistatic fiber of polyamide or polyester can be prepared by uniformly dispersing in

the polymer between about 1 percent and about 10 percent of a compound represented by the formula



wherein R and R' are independently at each occurrence hydrogen, methyl or ethyl and r, s, and t are integers from 31 to about 200. Preferably, the compound is a block copolymer of ethylene oxide, propylene oxide and tris(B-hydroxyethyl)isocyanurate having a molecular weight greater than 9,000, with the ethylene oxide moiety making up 10 to 95 percent of the molecular weight of the compound.

3,741,967

PHthalazine DERIVATIVES

Elvio Bellasio, Albate, Italy, assignor to Gruppo Lepetit S.p.A., Milan, Italy

No Drawing. Filed Mar. 3, 1970, Ser. No. 16,239

Int. Cl. C07d 51/06

U.S. Cl. 260—250 A

3 Claims

New 2,3-dihydro-1H-pyrazolo(1,2-b)phthalazine-1,5-(10H)-diones and 3,4-dihydropyridazino(1,2-b)phthalazine-1(2H),6(11H)-diones and process for the manufacture thereof. The compounds have anti-inflammatory activity.

3,741,968

CERTAIN O-(2-PYRIMIDYL) PHOSPHATES AND THEIR USE AS INSECTICIDES

Albert Howard Haubein, Newark, Del., assignor to Hercules Incorporated, Wilmington, Del.

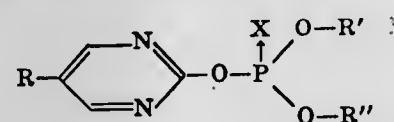
No Drawing. Filed Nov. 12, 1971, Ser. No. 198,415

Int. Cl. C07d 51/36

U.S. Cl. 260—251 P

5 Claims

Disclosed are compounds of the formula:



in which R is selected from the group consisting of H, F, Cl, Br and I, R' and R'' are selected from the group consisting of CH₃ and C₂H₅, and X is selected from the group consisting of O and S. These compounds have utility as insecticides.

3,741,969

CERTAIN 3-(β-CARBETHOXYETHYL)- AND 3-(β-CARBOXYETHYL)-4-PHENYL-3,4-DIHYDRO- AND 1,2,3,4-TETRAHYDRO-QUINAZOLINES

Hans Ott, Basel-Land, Switzerland, assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Original application Dec. 9, 1966, Ser. No. 600,403, now Patent No. 3,577,557. Divided and this application Jan. 18, 1971, Ser. No. 107,477

The portion of the term of the patent subsequent to Nov. 25, 1986, has been disclaimed

Int. Cl. C07d 51/48

U.S. Cl. 260—251 Q

8 Claims

The invention discloses compounds of the class of 6-phenyl-3,4-dihydro[1,5]benzodiazocin-2-(1H)-ones useful as tranquilizers. Also disclosed is preparation of said compounds featuring intermediates which are 1,5-methano-1,5-benzodiazocin-2-ones which are converted by acid treatment to the corresponding 6-phenyl-3,4,5,6-tetrahydro[1,

5]benzodiazocin-2-(1H)-ones which in turn may be oxidized to obtain the first-mentioned class of compounds. The bridged intermediates are prepared by dehydration of a 3-(β-carboxyethyl)-4-phenyl-1,2,3,4-tetrahydroquinazoline which is prepared by reduction of a 3-(β-carboxyethyl)-4-phenyl-3,4-dihydroquinazoline which is prepared by hydrolysis of a corresponding ester.

3,741,970

LINEAR ALKYL-AMIDO TRANS-QUINACRIDONE PIGMENTS

Otto Fuchs, Frankfurt am Main, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Dec. 3, 1970, Ser. No. 94,963

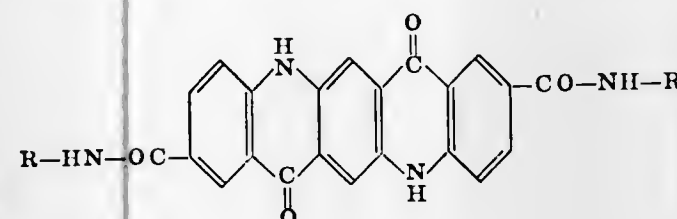
Claims priority, application Germany, Dec. 4, 1969, P 19 60 897.0

Int. Cl. C07d 39/00

U.S. Cl. 260—279 R

4 Claims

Linear trans-quinacridones of the general formula



wherein R is ethyl, n-butyl or n-hexyl and process for preparing them. Said pigments have pure bluish red violet shades and are excellently suited for getting pigments of neutral red shades by mixing them with molybdate orange.

3,741,971

WATER-INSOLUBLE BENZOXANTHENE-DICARBOXYLIC ACID IMIDE DYE STUFFS AND PROCESS FOR PREPARING THEM

Otto Fuchs and Helmut Troster, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Continuation of abandoned application Ser. No. 771,608, Oct. 29, 1968. This application May 10, 1971, Ser. No. 142,048

Claims priority, application Germany, Nov. 2, 1967, P 53,937; July 6, 1968, P 17 70 818.8

Int. Cl. C07d 39/00

U.S. Cl. 260—281

8 Claims

Benzoxanthene-dicarboxylic acid imide dyestuffs which dyestuffs have a yellow to greenish yellow shade and are excellently suited as fluorescent dyestuffs for the dyeing in the mass of synthetic polymers and for the preparation of daylight luminous paints. Moreover, they can be used for the dyeing of polyethylene glycol terephthalate and acetyl cellulose.

3,741,972

17-MONOCHLOROACETYL AJMALINE AND PHARMACEUTICALLY ACCEPTABLE SALTS THEREOF

Attilio Bonati, Milan, Italy, assignor to Inverni Della Befra S.p.A., Milan, Italy

No Drawing. Filed May 8, 1970, Ser. No. 35,880

Claims priority, application Great Britain, May 16, 1969, 25,142/69

Int. Cl. C07d 57/08

U.S. Cl. 260—293.53

3 Claims

The invention provides novel 17-acetyl derivatives of ajmaline and salts thereof which have valuable therapeutic properties useful in the treatment of cardiac arrhythmia. The invention also provides a process for producing the 17-acetyl compounds referred to, by partial hydrolysis or alcoholysis of the corresponding 17,21-acetyl derivatives which may be in the form of the free base or a salt thereof.

3,741,973

OXYGENATED 3-AZABICYCLO[3.3.1]NONANES

Gunther S. Fonken, Galesburg, Milton E. Herr, Kalamazoo, and Herbert C. Murray, Hickory Corners, Mich., assignors to the Upjohn Company, Kalamazoo, Mich.

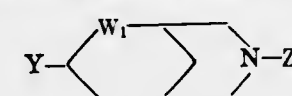
No Drawing. Continuation-in-part of application Ser. No. 666,991, Sept. 11, 1967, now Patent No. 3,556,943, which is a continuation-in-part of abandoned application Ser. No. 453,204, May 4, 1965. This application Oct. 23, 1970, Ser. No. 83,650

Int. Cl. C07d 39/00

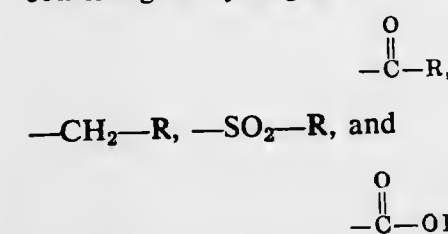
U.S. Cl. 260—293.54

11 Claims

Oxygenated azabicyclononanes of the formula:



wherein W₁ is selected from the group consisting of the carbonyl, alkylenedioxyethylene, hydroxymethylene and acyloxymethylene, wherein Z₂ is selected from the group consisting of hydrogen,



in which R is aryl and R₁ is alkyl and Y is selected from the group consisting of hydrogen, halogen, hydroxy and alkoxy. The compounds of the above formula are particularly valuable as central nervous system stimulants.

3,741,974

SUBSTITUTED TERPHENYLS

Rudolf G. Griot, Basel-Stadt, Switzerland, assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Application Apr. 3, 1969, Ser. No. 813,301, which is a continuation-in-part of application Ser. No. 725,172, Apr. 29, 1968, now Pat. No. 3,622,588, dated Nov. 23, 1971. Divided and this application Mar. 3, 1971, Ser. No. 120,687

Int. Cl. C07d 29/10

U.S. Cl. 260—293.83

4 Claims

This invention relates to ω-aminoalkoxy substituted terphenyls and N-oxides thereof useful as hypolipidemics, and to processes for preparation of such compounds involving key intermediates which include, for example: (1) substituted tercyclic-ols; or (2) p-(ω-aminoalkoxy)phenyl derivatives of various compounds which are, for example, cyclo-substituted-2-cyclohexen-1-ols, cyclo-substituted-cyclohexenes or cyclohexen-dienes; or (3) α-(m-terphenyl-4-yloxy) lower aliphatic monocarboxylic acids.

3,741,975

PROCESS FOR THE PRODUCTION OF N-ETHYL-N-(γ-PICOLYL) TROPAMIDE AND INTERMEDIATE THEREFOR

Nobuo Toshioka, Osaka, Shigeo Okumura, Takarazuka, and Itaru Mita, Ashiya, Japan, assignors to Santen Pharmaceutical Co., Ltd., Osaka, Japan

No Drawing. Filed Dec. 11, 1970, Ser. No. 97,374

Claims priority, application Japan, Jan. 9, 1970, 45/2755

Int. Cl. C07d 31/44

U.S. Cl. 260—295 AM

2 Claims

The present invention relates to a process for the production of N-ethyl-N-(γ-picoly)l-tropamide and inter-

mediate therefor. The said process is characterized by the steps of:

- reacting phenyl acetic acid chloride with N-ethyl-γ-picolyamine to form N-ethyl-N-(γ-picoly)l-phenylacetamide,
- formylating said N-ethyl-N-(γ-picoly)l-phenylacetamide with alkyl formate and then
- reducing an aldehyde radical of the amide thus obtained.

3,741,976

PROCESS FOR THE PRODUCTION OF PYRIDINE CARBOXYLIC ACIDS FROM LOWER ALKYL PYRIDINES

August Stocker, Othmar Marti, Theodul Pfammatter, and Gerhart Schreiner, Visp, Switzerland, assignors to Lonza Ltd., Basel, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 871,951, Oct. 28, 1969. This application Dec. 21, 1971, Ser. No. 210,557

The portion of the term of the patent subsequent to Mar. 28, 1989, has been disclaimed

Int. Cl. C07d 31/38

U.S. Cl. 260—295.5 R

14 Claims

Nicotinic acid and other carboxylic acids having a pyridine nucleus may be prepared by the oxidation of lower alkyl pyridine compounds in the presence of 25 to 600 percent excess nitric acid at temperatures of 180° to 370° C. and at pressures of 20 to 500 atm. The nitric acid concentration of the reaction mixture is adjusted to 10 to 28 percent to precipitate the oxidation product as a crystalline hydronitrate, which is separated from the mixture. The pH of an aqueous solution of the pyridine carboxylic acid hydronitrate is adjusted with the basic starting material to the isoelectric point of the specific pyridine carboxylic acid to precipitate the same. The crystalline precipitation is separated and the mother liquors are combined and recycled as the starting material after adjustment of the concentrations therein.

3,741,977

SUBSTITUTED 3-[4-UREIDOPHENYL]-1,3,4-OXADIAZOL-2-ONES

Roger Boesch, Vitry-Sur-Seine, France, assignor to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed Jan. 14, 1971, Ser. No. 106,568

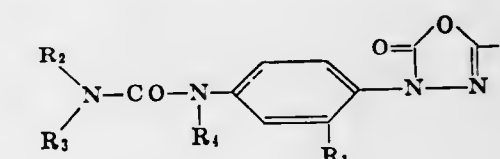
Claims priority, application France, Jan. 16, 1970, 7,001,573

Int. Cl. C07d 85/54

U.S. Cl. 260—307 A

11 Claims

The new oxadiazoline derivatives of the formula:



(wherein R represents alkyl or phenyl, or phenyl carrying at least one substituent selected from halogen, alkyl and alkoxy; R₁ represents hydrogen, halogen, alkyl, alkoxy, nitro or trifluoromethyl; R₂ represents hydrogen, alkyl, alkenyl, alkynyl, alkoxy or alkenyloxy; R₃ represents hydrogen or alkyl, and R₄ represents hydrogen or alkyl, the alkyl and alkoxy radicals containing 1 to 4 carbon atoms, and the alkenyl, alkynyl and alkenyloxy radicals containing 2 to 4 carbon atoms) are useful as herbicides against monocotyledons and dicotyledons.

3,741,978

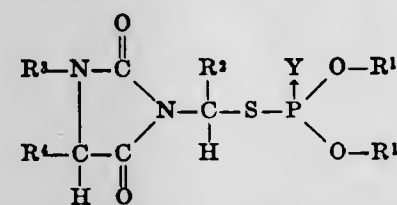
CERTAIN O,O-DI (C₁ AND C₂ ALKYL) PHOSPHORODITHIOATE AND PHOSPHOROTHIOATE ESTERS USEFUL AS INSECTICIDES AND ACARICIDES

Joel D. Jamison, Mountainside, N.J., assignor to Hercules Incorporated, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 694,883, filed Jan. 2, 1968. This application Apr. 21, 1971, Ser. No. 136,251.

Int. Cl. C07d 9/06

U.S. Cl. 260—309.5

Disclosed are compounds of the formula:



in which Y is O or S, each R¹ is selected from the group consisting of CH₃ or C₂H₅, and R², R³ and R⁴ are H or CH₃ with at least one of R² and R³ being CH₃, and the use of these compounds as insecticides and acaricides.

3,741,979

N 1-SUBSTITUTED-3-HALOINDAZOLES AND THEIR USE AS PESTICIDES

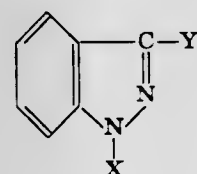
Pasquale P. Minieri, Woodside, N.J., assignor to Tenneco Chemicals, Inc., Saddle Brook, N.J.

Continuation-in-part of Ser. No. 87,615, Nov. 6, 1970. This application May 10, 1971, Ser. No. 141,999.

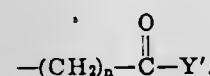
Int. Cl. C07d 49/18

U.S. Cl. 260—310 C

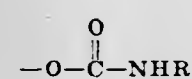
Compounds that have the structural formula



wherein X represents



—SCY₃, or —CH₂—Z; Y represents halogen; Y' represents halo-lower alkyl or halophenyl; Z represents halogen, —SCN, —CH₂OH, —CH₂Y,



—NR—N(R)₂, or —N=(CH₂)_m; R represents hydrogen or lower alkyl; m represents an integer in the range of 4 to 8; and n represents an integer in the range of 0 to 1 are used to control the growth of various plant and animal pests.

3,741,980

1,1-DISUBSTITUTED-2-ALKYL ISOINDOLINES

William J. Houlihan, Mountain Lakes, and Jeffrey Nadelson, Parsippany, both of N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

Filed Sept. 22, 1970, Ser. No. 74,467

Int. Cl. C07d 27/48, 27/50

U.S. Cl. 260—326.1

1,1-disubstituted-2-alkyl isoindolines, e.g. 1,1-diphenyl-2-methyl isoindoline, are prepared by treating a corresponding isoindolinone with mild reducing agent. The compounds are useful as analgesics.

3,741,981

N-PHENYLSUCCINIMIDE DERIVATIVES

Akira Fujinami, Ashiya-shi; Toshiaki Ozaki, Toyonaka-shi; Katsuji Nodera, Nishinomiya-shi; Keiichi Akiba, Takarazuka-shi; Sigeo Yamamoto, Toyonaka-shi; Katsutoshi Tanaka, Takarazuka-shi, and Tadashi Ooishi, Minoo-shi, all of Japan, assignors to Sumitomo Chemical Company, Ltd., Higashi-ku, Osaka, Japan

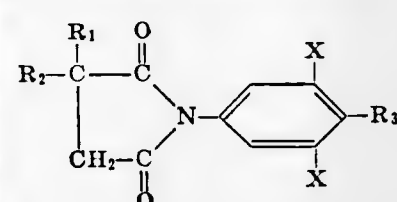
Filed Aug. 1, 1969, Ser. No. 846,931

Claims priority, application Japan, Aug. 12, 1968, 43/57498

Int. Cl. C07d 27/10

U.S. Cl. 260—326.5 FM

Novel N-phenylsuccinimide derivatives preferable as microbicides which are represented by the formula



wherein R₁ and R₂ represent individually a hydrogen atom, an alkyl group having 1 to 3 carbon atoms, a benzyl group or a phenyl group, which may have been substituted by a chlorine atom; R₃ represents a hydrogen atom, a halogen atom or a methyl group; and X represents individually a halogen atom, provided that in case all of R₁, R₂ and R₃ are hydrogen atoms at the same time, X represents other halogen atoms than chlorine atoms. Examples of said derivatives are

N-(3',5'-dihalogenophenyl)-3-methylsuccinimide,
N-(3',5'-dihalogenophenyl)-3,3-dimethylsuccinimide,
N-(3,4,5-trihalogenophenyl)succinimide,
N-(3,5-dihalogeno-4-methylphenyl)succinimide,
N-(3,5-dibromophenyl)succinimide,
N-(3',5'-dihalogenophenyl)-3-phenylsuccinimide,
N-(3',5'-dihalogenophenyl)-3-(halogenophenyl)succinimide,
N-(3',5'-dihalogenophenyl)-3-benzylsuccinimide, and
N-(3',5'-dihalogenophenyl)-3-methyl-3-phenylsuccinimide.

These compounds are prepared by cyclizing corresponding succinic acid monoanilides under dehydration conditions.

3,741,982

NOVEL BASIC, CATIONIC DYESTUFF

Sadao Fujino, Fukuoka-ken, and Yoshio Magara, Kitakyushu, both of Japan, assignors to Mitsubishi Chemical Industries, Limited, Tokyo, Japan

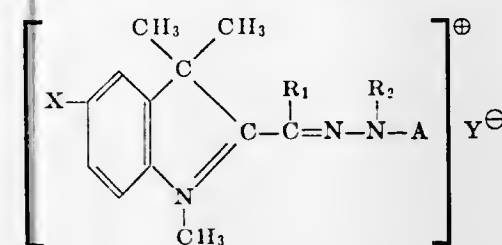
Filed Aug. 26, 1970, Ser. No. 67,250

Claims priority, application Japan, Sept. 3, 1969, 44/69903; Jan. 20, 1970, 45/52031; Feb. 6, 1970, 45/10468

Int. Cl. C07d 27/38

U.S. Cl. 260—326.15

A novel dyestuff having the general formula



(wherein R¹ represents an alkyl or an acyl group, R² represents hydrogen, an alkyl or an aryl group, X represents hydrogen or halogen atom or an alkyl or an alkoxy group, A represents benzene or naphthalene nucleus which may contain one or more substituents of an alkyl, an alkoxy, nitro amino, substituted amino, or phenoxy group or halogen atom and Y represents an anion) and which dyestuff can dye polyacrylonitrile and cellulose acetate fiber with excellent fastness to light and heat.

3,741,983

DIBENZOXAZEPINE AND DIBENZOTHIAZEPINE ALKANONITRILES

Harry Louis Yale, and Remesh Petigara, both of New Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Division of Ser. No. 13,767, Feb. 24, 1970, Pat. No. 3,702,852. This application Sept. 15, 1971, Ser. No. 180,905

Int. Cl. A61k 27/00; C07d 93/42, 87/54

U.S. Cl. 260—327 B

Disclosed herein are dibenzoxazepine and dibenzothiazepine derivatives which are substituted in the 5-position with a carboxyalkylene group. These compounds have been found to stimulate the central nervous system and to produce analgesia.

3,741,984

N-SULFAMOYL-2-THIOPENECARBOXAMIDES

Patrick J. Sheeran, Wilmington, Del., assignor to E. I. du Pont d Nemours and Company, Wilmington, Del.

Filed Aug. 19, 1971, Ser. No. 173,248

Int. Cl. C07d 63/12, 63/14

U.S. Cl. 260—332.2 C

Certain novel N-sulfamoyl-2-thiopenecarboxamides are effective herbicides especially well suited for the control of nut-sedge in the presence of valuable crops. A representative herbicidal compound within the above scope is N-(tert-butyl-sulfamoyl)-2-thiopenecarboxamide.

3,741,985

PHENYL-BENZODIOXANE DERIVATIVES

John H. Fried, Palo Alto, Calif., assignor to Syntex Corporation, Panama, Panama

Filed Jan. 21, 1971, Ser. No. 108,609

Int. Cl. C07d 15/08

U.S. Cl. 260—340.2

6-Phenyl-1,3-benzodioxan-4-one derivatives and 6-phenyl-1,3-benzodioxane derivatives and methods of preparing these compounds. The primary methods for preparing the aforementioned benzodioxane-4-one derivatives are characterized by the step of treating the corresponding 2-hydroxy-5-phenyl benzoic acid derivative with an alkyl ortho-ester in the presence of an acid catalyst. The primary methods for preparing the 6-phenyl-1,3-benzodioxane derivatives are characterized by the step of treating the corresponding 2-hydroxy-5-phenyl benzyl alcohol with a ketone or aldehyde in the presence of an acid catalyst. The aforementioned phenyl-1,3-benzodioxan-4-one derivatives and 6-phenyl-1,3-benzodioxane derivatives have analgesic activity and thus are useful in the treatment of mammals wherein analgesics are indicated.

3,741,986

PROCESS FOR PREPARING CYCLIC KETALS

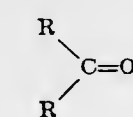
Ludwig A. Hartmann, Wilmington, Del., assignor to ICI America Inc., Wilmington, Del.

Filed Nov. 3, 1969, Ser. No. 873,660

Int. Cl. C07d 13/04

U.S. Cl. 260—340.9

Cyclic ketals based upon polyhydric alcohols containing at least three hydroxyl groups and at least three carbon atoms and ketones of the general formula



wherein each R is a halogenated alkyl radical and wherein the carbon atom adjacent to the carbonyl carbon of said ketone is completely halogenated, and processes for producing these cyclic ketals are described.

3,741,987

INTERMEDIATES IN TOTAL SYNTHESIS OF 16-DEHYDROGESTERONE

William S. Johnson, Portola Valley, Calif., assignor to The Board of Trustees of the Leland Stanford Junior University, Stanford, Calif.

Continuation-in-part of Ser. No. 788,092, Dec. 30, 1968, Pat. No. 3,598,845. This application Sept. 9, 1970, Ser. No. 70,898

Claims priority, application Canada, Dec. 23, 1969, 070,702

Int. Cl. C07d 13/04

U.S. Cl. 260—340.9

dl-Pregna-4,16-diene-3,20-dione (16-dehydroprogesterone) and dl-17-formylandrosta-4,16-diene-3,20-dione are prepared by a series of reactions starting with 1-methylcyclopropyl methyl ketone.

3,741,988

NOVEL BENZOYLPHENYLACETIC ACID ESTERS

Andre Allais, Les Lilas; Jean Meier, Coeuilly-Champigny, and Jacques Dube, Eaubonne, all of France, assignors to Roussel-Uclaf, Paris, France

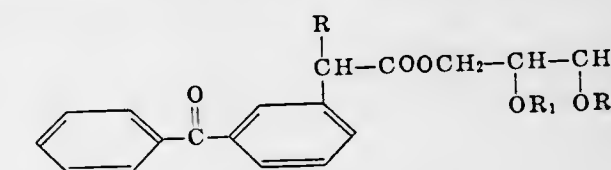
Filed Apr. 12, 1971, Ser. No. 133,429

Claims priority, application France, Apr. 15, 1970, 7013579; Sept. 24, 1970, 7034591

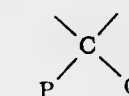
Int. Cl. C07d 13/04

U.S. Cl. 260—340.9

Racemates and optically active isomers of benzoylphenylacetic acid esters of the formula



wherein R is selected from the group consisting of hydrogen and alkyl of one to seven carbon atoms, R₁ and R₂ are hydrogen or taken together are



P and Q being alkyl of one to five carbon atoms and the two benzene rings may be optionally substituted with at least one member of the group consisting of chlorine, fluorine, bromine, trifluoromethyl and alkyl and alkoxy and alkylthio of one to seven carbon atoms, intermediates and process for their preparation and their use as analgesics and antiinflammatory agents.

3,741,989

LACTONIC ACETALS

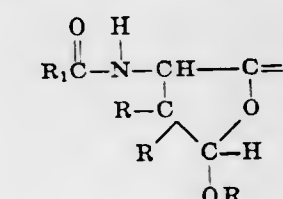
Harold Elmer Zaugg, Lake Forest, Ill., assignor to Abbott Laboratories, Chicago, Ill.

Filed Oct. 27, 1970, Ser. No. 84,464

Int. Cl. C07d 5/06

U.S. Cl. 260—343.6

Covers lactonic acetals of the formula



where R is a lower alkyl group and R₁ is an aryl group. Also covers their method of employment as herbicides.

3,741,990

ORGANIC COMPOUNDS AND PROCESSES

Norman A. Nelson, Galesburg, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

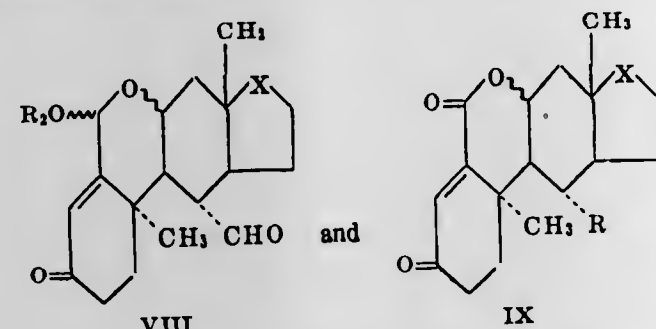
Division of Ser. No. 845,534, July 28, 1969, Pat. No. 3,634,460. This application Jan. 7, 1971, Ser. No. 104,796.

Int. Cl. C07d 7/18

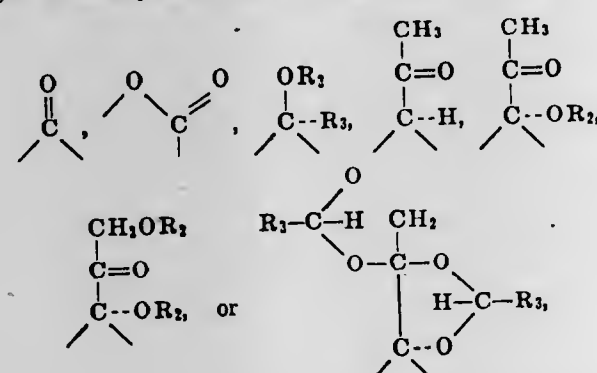
U.S. Cl. 260—345.3

10 Claims

This invention relates to novel ring B-secosteroid transformation products, to processes for their preparation and more particularly to compounds embraced by the following formulae:



wherein R is —CHO, —COOR, or —CH₂OR, in which R₁ is hydrogen or methyl and R₂ is hydrogen or acyl; X is hydrogen or methyl and R₃ is hydrogen or acyl; X is



in which R₂ has the meaning given above, R₃ is hydrogen or lower-alkyl and the alkali metal salts of those compounds wherein R is —COOR, in which R₁ is hydrogen. The compounds of the above formulae are anti-inflammatory agents, antiandrogenic agents and central nervous system stimulants.

3,741,991

DERIVATIVES OF 4A,9B-DIHYDRO-8,9B-DIMETHYLDIBENZOFURAN

Elizabeth Benz Morlock, St. Clair Shores, Mich.; Jay Donald Albright, and Leon Goldman, both of Nanuet, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 34,519, May 4, 1970, Pat. No. 3,646,060.

This application Nov. 23, 1971, Ser. No. 201,572

Int. Cl. C07d 5/34

U.S. Cl. 260—346.2 M

3 Claims

This disclosure describes derivatives of 4a,9b-dihydro-8,9b-dimethyldibenzofuran and of 4a,9b-dihydro-8,9b-dimethyldibenzofuran-3(4H)-one useful as intermediates or as analgetic agents.

3,741,992

DERIVATIVES OF 4A,9B-DIHYDRO-8,9B-DIMETHYLDIBENZOFURAN-3(4H)-ONE

Elizabeth Benz Morlock, St. Clair Shores, Mich.; Jay Donald Albright, and Goldman Leon, both of Nanuet, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 34,519, May 4, 1970, Pat. No. 3,646,060.

This application Nov. 23, 1971, Ser. No. 201,575

Int. Cl. C07d 5/34

U.S. Cl. 260—346.2 M

3 Claims

This disclosure describes derivatives of 4a,9b-dihydro-8,9b-dimethyldibenzofuran and of 4a,9b-dihydro-8,9b-dimethyldibenzofuran-3(4H)-one useful as intermediates or as analgetic agents.

3,741,993

MALEIC ANHYDRIDE PROCESS

William G. Hughes, Plainfield, N.J., assignor to Tenneco Chemicals, Inc., Saddle Brook, N.J.

Filed Feb. 3, 1970, Ser. No. 8,364

Int. Cl. C07c 57/19

U.S. Cl. 260—346.8

5 Claims

An improved process for the manufacture of maleic anhydride by the oxidation of benzene wherein the crude product stream, after condensation and separation of maleic anhydride, is scrubbed with water to recover an aqueous solution of maleic acid to obtain tail gas containing unreacted benzene, and the resulting tail gas is subjected to a chilled aqueous scrubbing step to effect removal of water-soluble constituents, reduce the amount of water vapor in the tail gas, and lower the temperature of the tail gas. From 0 to 65 percent of the thus treated tail gas may be recycled to the oxidation step to achieve certain processing benefits; while the unrecycled tail gas is scrubbed with a hydrocarbon oil to separate the benzene therefrom and to vent the tail gases, substantially free from benzene, to the atmosphere. The hydrocarbon oil containing the benzene is then stripped with steam to separate and recover the benzene.

3,741,994

VAT DYES

Fumio Fujii, Koji Kurahara, Akitoshi Igata, Nobuyoshi Abe, and Tetsuo Yamamoto, all of Omuta, Japan, assignors to Mitsui Toatsu Chemicals, Incorporated, Tokyo, Japan

Filed Apr. 7, 1970, Ser. No. 26,386

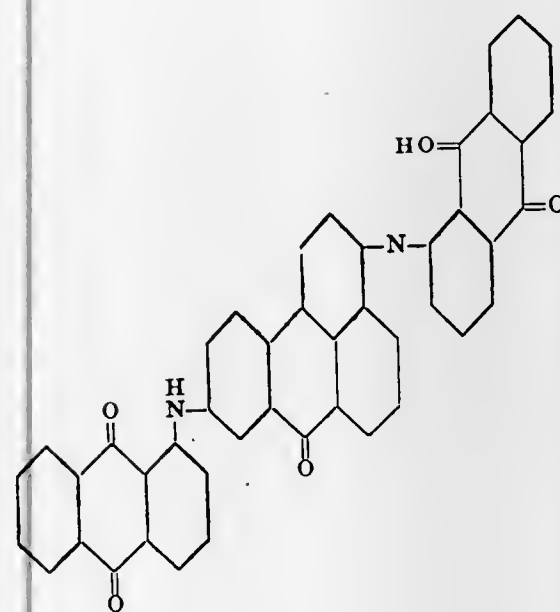
Claims priority, application Japan, Apr. 17, 1969, 44/29347; Sept. 24, 1969, 44/75278

Int. Cl. C09b 15/00

U.S. Cl. 260—364

13 Claims

New brown vat dyes prepared by heating a compound of the formula



in a melt comprising anhydrous aluminum chloride and urea, pyridine, picoline or lutidine or a combination thereof, if desired, in the presence of a halogenating agent. Said dyes are suitable for dyeing various kinds of fibrous material, but as they can not be directly defined by a structural formula, they are defined by the process for preparing them.

3,741,995

ANTHRAQUINONE PIGMENTS

Andre Pugin, Riehen/Basle; Kurt Burdeska, and Ernst Model, both of Basle, all of Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

Filed Mar. 17, 1971, Ser. No. 125,394

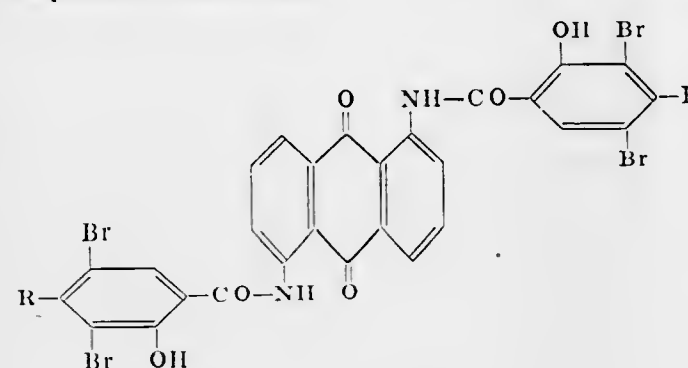
Claims priority, application Switzerland, Apr. 3, 1970, 4934/70 The portion of the term of this patent subsequent to Oct. 31, 1989, has been disclaimed.

Int. Cl. C09b 1/42

U.S. Cl. 260—377

Compounds of the formula

4 Claims



wherein R is methyl, methoxy or chlorine.

3,741,996

1α-HYDROXYCHOLECALCIFEROL

Hector F. DeLuca, Madison; Heinrich K. Schnoes, Waunakee; Michael F. Holick, and Erich J. Semmler, both of Madison, all of Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Dec. 2, 1971, Ser. No. 204,305

Int. Cl. C07c 171/10, 169/60

U.S. Cl. 260—397.2

2 Claims

1α-hydroxycholecalciferol and method for preparing the same. The compound is characterized by antirachitic and other vitamin D-like activity and finds application in situations where vitamin D is now being used.

3,741,997

PROCESS FOR THE PREPARATION OF PREGNANE DERIVATIVES

Hans-Detlef Berndt, and Rudolf Wiechert, both of Berlin, Germany, assignors to Schering, A.G., Berlin, Germany

Filed May 4, 1971, Ser. No. 140,262

Claims priority, application Germany, May 5, 1970, P 20 23 122.5

Int. Cl. C07c 167/00, 169/00

U.S. Cl. 260—397.4

30 Claims

17β-Hydroxy-17α-ethynyl steroids are converted to 17-ethers and 17-esters of 17α-hydroxy-20-keto-pregnane steroids by forming a 17-sulfite ester of the 17β-hydroxy group with thionyl chloride in the presence of base and then reacting the sulfite ester with an alcohol or carboxylic acid in the presence of an Hg⁺⁺ salt.

3,741,998

PRODUCTION OF AMMONIUM BETAINES

Harry Distler, Ludwigshafen, and Rudi Widder, Eppelheim, both of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen/Rhine, Germany

Filed Dec. 8, 1970, Ser. No. 96,270

Claims priority, application Germany, Dec. 18, 1969, P 19 63 399.9

Int. Cl. C07c 143/86

U.S. Cl. 260—401

6 Claims

The production of ammonium betaines by reaction of adducts of an oxide of sulfur and an amine with an aziridine, and the new ammonium betaines themselves. The new compounds obtainable according to the process of the invention are surfactants, particularly detergents and assistants in the textile

field, softeners, washing aftertreatment agents, germicides, and valuable starting materials for the production of detergents, cleaning agents, detergents, wetting agents, textile assistants, dishwashing agents, shampoos, emulsifiers, dispersing agents, flotation aids, softeners, disinfectants and thickeners.

3,741,999

N-SUBSTITUTED AMIDES OF NATURAL FATTY ACIDS

Takashi Seki, Toyonaka; Katsuyuki Toki, Nishinomiya; Hiroshi Nakatani, Toyonaka; Yoshio Suzuki, Amagasaki; Hideaki Fukushima, Takatsuki, and Yoshio Nawashiro, Moriguchi, all of Japan, assignors to Sumitomo Chemical Co., Ltd., Higashi-ku, Osaka, Japan

Continuation-in-part of Ser. No. 450,534, April 23, 1965, Pat. No. 3,551,462. This application Sept. 10, 1970, Ser. No. 71,205

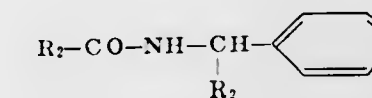
Claims priority, application Japan, Apr. 28, 1964, 39/24061; May 20, 1964, 39/28284; June 8, 1964, 39/32324; Aug. 28, 1964, 39/49073; Sept. 1, 1964, 39/49812; Sept. 5, 1964, 39/50947

Int. Cl. C09f 7/00

U.S. Cl. 260—404

5 Claims

Novel N-α-(C₁-C₄)alkyl-benzyl natural fatty acid amides of the formula



wherein R₁ is a fatty acid residue of a naturally occurring oil such as safflower oil etc., and R₂ is alkyl of 1-4 carbon atoms having excellent blood cholesterol lowering effects are provided.

3,742,000

IMIDOETHER AND AMIDINE DERIVATIVES OF SUBSTITUTED FATTY AMIDES

Patricia M. Scanlon, Arlington, Mass., and Elwyn R. Young, Nashua, N.H., assignors to W. R. Grace & Co., New York, N.Y.

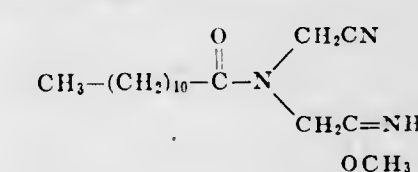
Division of Ser. No. 830,091, June 3, 1969, Pat. No. 3,641,103. This application Mar. 10, 1971, Ser. No. 128,613

Int. Cl. C09f 4/00

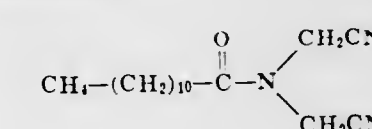
U.S. Cl. 260—404.5

2 Claims

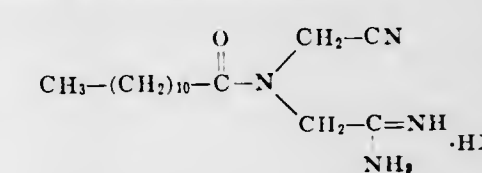
An imidoether having the formula



is prepared by reacting



with methanol in the presence of a sodium methoxide catalyst, and an amidine salt having the formula



is prepared by reacting the imidoether with ammonium chloride or ammonium bromide in the presence of methanol. The imidoethers are used to prepare the amidine salts, which in turn are useful as stabilizers for polyesters.

3,742,001

RENDERING PROCESS

Ezra Levin, Champaign, Ill., assignor to VioBin Corporation, Champaign, Ill.

Continuation-in-part of Ser. No. 408,231, Nov. 2, 1964, Pat. No. 3,538,973. This application June 29, 1970, Ser. No. 50,828

Int. Cl. C11b 1/10

U.S. Cl. 260—412.8

22 Claims

The process reduces the water content of a biological tissue, in particle form and retaining a fat content by coagulating the particles, and thereafter contacting the particles with a gas at an elevated temperature and having a water vapor pressure, at the temperature to which the gas raises the biological tissue, that is less than the vapor pressure of water contained in the tissue at that temperature. Subsequently, the at least partially dehydrated biological particles are extracted. In one embodiment of the invention the extraction is accomplished by warm polar type fat solvent, and in another embodiment of the invention partially dehydrated particles are introduced into a water-immiscible, fat, solvent, and by azeotropic distillation of water and solvent the water content is further reduced and by extraction the fat content is reduced. The process is preferably performed in a continuous manner by utilizing specific apparatus. The dehydrated, defatted product is treated for solvent removal.

3,742,002

IRON CHELATES USEFUL FOR SUPPLYING IRON TO PLANTS GROWING IN CALCAREOUS SOIL

John L. Ohlson, Bedford; Patricia M. Scanlon, Arlington, both of Mass., and Roger R. Gaudette, Hudson, N.H., assignors to W. R. Grace & Co., New York, N.Y.

Filed June 14, 1971, Ser. No. 153,038
Int. Cl. C07f 15/02; C07c 143/64, 101/72

U.S. Cl. 260—439 R

18 Claims

Iron chelates useful for supplying iron to plants growing in calcareous iron deficient soil are prepared by admixing an iron(II) or iron(III) compound with a compound formed by reacting a slat of an α -amino acid having the formula $H_2NC(Z)HCOOH$ wherein Z is hydrogen, a lower alkyl group, a phenyl group, an aralkyl group having 7–10 carbon atoms, an alkaryl group having 7–10 carbon atoms, or a cycloalkyl group having 3–8 carbon atoms with formaldehyde and a phenol having the formula $X-C_6H_4-OH$ where X is $-SO_3M$, $-COOM$, or an alkyl group having about 1–4 carbon atoms, and M is a member selected from a second group consisting of an alkali metal cation, $HN^+ \equiv (CH_2CH_2OH)_3$, and A, wherein A is one half of an alkaline earth metal cation.

3,742,003

CYCLODISILAZANES

Richard Paul Bush, Penarth; Norman Cecil Lloyd, Cardiff, and Christopher Arthur Pearce, Cowbridge, all of Wales, assignors to Dow Corning Limited, London, England

Continuation-in-part of Ser. No. 68,786, Sept. 1, 1970, abandoned, which is a division of Ser. No. 734,243, June 4, 1968, Pat. No. 3,607,895. This application Dec. 23, 1971, Ser. No. 211,777

Int. Cl. C07f 7/10; C07d 109/04

U.S. Cl. 260—448.2 N

3 Claims

Novel organosilicon compositions are prepared which contain silicon to nitrogen bonds which are attached to functional atoms and radicals. The novel compounds are used to prepare conventional siloxanes.

3,742,004

ROOM TEMPERATURE VULCANIZABLE SILICONE RUBBER STOCKS

Siegfried Nitzsche; Wolfgang Kaiser; Ernst Wohlfarth, and Paul Hittmair, all of Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Bavaria, Germany

Division of Ser. No. 63,608, Aug. 13, 1970, abandoned. This application Jan. 28, 1972, Ser. No. 221,790

Int. Cl. C07f 7/10

U.S. Cl. 260—448.2 N

2 Claims

A room-temperature vulcanizable silicone rubber stock is prepared by admixing an essentially linear diorganopolysiloxane having reactive end groups, preferably hydroxyl end groups, and as a crosslinker an organosilicon compound containing both oxime groups bonded to silicon through oxygen atoms and amino groups bonded to silicon through Si—N bonding. These materials can be stored in the absence of moisture and will cure to form elastomeric products upon exposure to moisture. Particularly useful as crosslinking agents are silanes of the general formula $R_2Si(ON=X)_2(NR'R'')$, wherein R is a monovalent hydrocarbon radical, R' is a monovalent hydrocarbon radical or H, X is $RR'C=$ or



where R^2 is a divalent hydrocarbon radical, a is 0 or 1, b and c have an average value of at least 0.5, $b+c$ is 3 or 4 and $a=b+c$ is 4.

3,742,005

HERBICIDAL THIOLCARBAMATES

Harry Tilles, El Cerrito, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

Continuation-in-part of Ser. No. 888,821, Dec. 29, 1969, abandoned. This application Dec. 14, 1970, Ser. No. 98,075

Int. Cl. C07c 155/08

U.S. Cl. 260—455 A

1 Claim

Novel N,N-dialkylthiocarbamates, in which the N-bonded alkyl radicals are different, are disclosed. The compounds are useful as herbicides.

3,742,006

A POLYMERCAPTAN COMPOSITION

Richard C. Doss, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Sept. 1, 1970, Ser. No. 68,770

Int. Cl. C01c 155/08

U.S. Cl. 260—455 A

1 Claim

A polymercaptan epoxy resin hardener composition and a process for curing epoxy resins through the use of said composition wherein the curing process yields an epoxy adhesive possessing excellent high temperature stability.

3,742,007

N-ALKYL-N-BI-, TRI- OR TETRACYCLOALKYL THIOLCARBAMATES

Hans Osieka, Ludwigshafen; Hans Kiefer, Wachenheim, and Adolf Fischer, Mutterstadt, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen am Rhine, Germany

Filed Oct. 19, 1970, Ser. No. 82,145

Claims priority, application Germany, Oct. 23, 1969, P 19 53 262.8

Int. Cl. C07c 155/02, 155/08

U.S. Cl. 260—455 A

9 Claims

New and valuable substituted thiolcarbamates having a good herbicidal action and a process for controlling the growth of unwanted plants with these compounds.

3,742,008

N-CYCLOALKYLTHIOCARBONYLOXY-SUBSTITUTED N-PHENYLUREAS

John Krenzer, Oak Park, and S. B. Richter, Chicago, both of Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill. Division of Ser. No. 781,584, Dec. 5, 1968, Pat. No. 3,637,795.

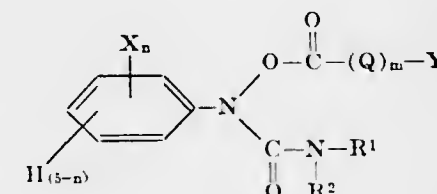
This application June 26, 1971, Ser. No. 147,175

Int. Cl. C07c 154/00

U.S. Cl. 260—455 B

5 Claims

This invention discloses new chemical compounds of the formula



wherein X is selected from the group consisting of alkyl, alkyl, halogen, haloalkyl, alkoxy, alkylthio, nitro and dialkylamino; n is an integer from 0 to 5; R' and R'' are independently selected from the group consisting of hydrogen and alkyl; Q is selected from the group consisting of oxygen, sulfur and alkylene; m is an integer from 0 to 1; and Y is cycloalkyl, optionally substituted with halogen or alkyl. This invention further discloses new herbicidal compositions comprising an inert carrier and, as an essential active ingredient, in a quantity toxic to weeds, a compound of the above description.

3,742,009

2-HYDROXYACETAMIDOBENZOPHENONE ESTERS

Stanley C. Bell, Hampton House, Penn Valley, Pa.

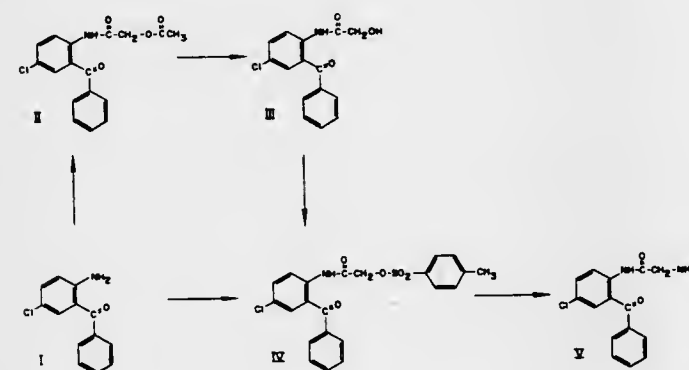
Continuation-in-part of Ser. No. 365,773, May 7, 1964, abandoned, which is a continuation-in-part of Ser. No.

301,873, Aug. 13, 1963, abandoned. This application June 18, 1967, Ser. No. 639,346

Int. Cl. C07c 143/68

U.S. Cl. 260—456 A

5 Claims



2-Arylsulfonylacetamidobenzophenones are prepared in three steps from 2-aminobenzophenones by 1) reacting the 2-aminobenzophenone with an acetylglucyl halide, 2) hydrolyzing the product to remove the acetyl group, and 3) reacting the so-formed 2-hydroxyacetamidobenzophenone with an arylsulfonyl halide. Alternatively 2-arylsulfonylacetamidobenzophenones are prepared in one step from 2-aminobenzophenones by reacting the 2-aminobenzophenone with a 2-arylsulfonylacetate. The so-obtained 2-arylsulfonylacetamidobenzophenones can be converted to 2-hydroxyaminoacetamidobenzophenones, which are valuable intermediates for the preparation of 1,3-dihydro-2H-1,4-benzodiazepin-2-ones having anti-convulsant, sedative and muscle-relaxant activity.

3,742,010

FLUORINATED CARBONATES

Donald E. Hardies, Wadsworth, and Jay K. Rinehart, Akron, both of Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Sept. 28, 1970, Ser. No. 76,275

Int. Cl. C07c 79/28; A01n 9/20

U.S. Cl. 260—463

34 Claims

Fluorinated carbonates are described which are useful as miticides. These carbonates often possess herbicidal, insecticidal, and/or fungicidal properties. Examples of the fluorinated carbonates are 2', 4'-dinitro-6'-secbutylphenyl-2,2,2-trifluoroethyl carbonate; 2', 4'-dinitro-6'-secbutylphenyl-2,2,3,3-tetrafluoropropyl carbonate and 2', 4'-dinitro-6'-cyclohexylphenyl 2,2,3,3-tetrafluoropropyl carbonate.

3,742,011

TRINITROPHENYL CHLOROFORMATE AND CARBONATE AND A PROCESS FOR PREPARING SAME

Jean-Paul Konrat, Vert-le-Petie, and Louis Le Roux, Sorgues, both of France, assignors to ETAT Francais Delegation Ministerielle pour L'Armement, Paris, France

Filed Mar. 1, 1971, Ser. No. 119,937

Int. Cl. C07c 79/30

U.S. Cl. 260—463

9 Claims

Picryl chloroformate and picryl carbonate and a process for the preparation of these compounds, wherein anhydrous silver picrate is contacted with phosgene in the presence of acetonitrile, at a temperature in the range of -25° to 50° C, preferably, about 0° C.

3,742,012

QUATERNARY STYRYL DYESTUFFS

Donald Lee Bauman, Wilmington, Del., assignor to E. I. du Pont de Nemours & Co., Wilmington, Del.

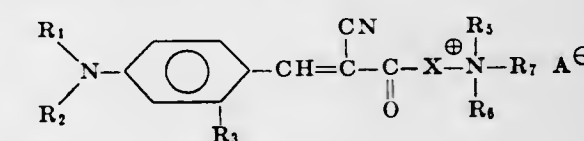
Filed Jan. 13, 1972, Ser. No. 217,934

Int. Cl. C07c 121/70

U.S. Cl. 260—465 D

4 Claims

Green-yellow dyes having the structure



wherein each of R_1 and R_2 is lower alkyl or cyanoethyl, R_3 is H, methyl, methoxy or chloro, X is -O-alkylene or -NH-alkylene, R_4 is lower alkyl, R_5 is lower alkyl or cyclohexyl, R_7 is lower alkyl or benzyl and A^+ is an anion.

3,742,013

FLUORINATED COMPOUNDS CONTAINING FUNCTIONAL GROUPS

Harold Crosbie Fielding, Northwich, England, assignor to Imperial Chemical Industries Limited, London, England

Division of Ser. No. 656,682, July 28, 1967, Pat. No.

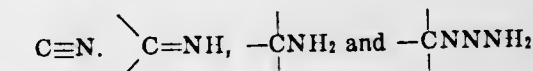
3,502,726. This application July 31, 1969, Ser. No. 870,788 Claims priority, application Great Britain, Aug. 24, 1967, 36,862/67

Int. Cl. C07c 121/02, 121/42

U.S. Cl. 260—465.5 R

4 Claims

Derivatives of oligomers of tetrafluoroethylene and of hexafluoropropene, contain one or more



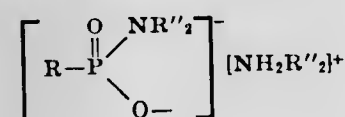
groups attached to the oligomer residue. Derivatives containing the first three of these groups are made by contacting an oligomer with anhydrous gaseous ammonia in a solvent medi-

ygen, with a reaction medium of liquid acetic acid containing palladium acetate, cupric acetate, and at least one acetate component selected from the group consisting of heavy metal acetates, except palladium acetate and copper acetate, alkali metal acetate, alkaline-earth metal acetate, and mixtures thereof, wherein said reaction is conducted at a temperature in the range of 100°C. to 140°C.

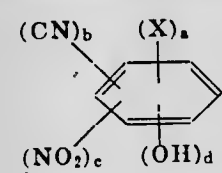
3,742,040

ALKYLAMMONIUM ALKYLPHOSPHONAMIDATES
Arthur Dock Fon Toy, Stamford, Conn., and Kenneth H. Rattenbury, Morgantown, W. Va., assignors to Stauffer Chemical Company, New York, N.Y.
Division of Ser. No. 592,328, Nov. 7, 1966, abandoned. This application July 28, 1969, Ser. No. 870,797
Int. Cl. A01n 9/36; C07f 9/44

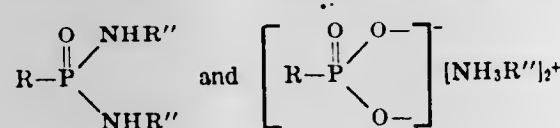
U.S. Cl. 260—501.21 7 Claims
An organic phosphorus composition comprising:
a. a major portion of an alkylammonium alkylphosphonoamidate of the formula:



wherein R is a halo substituted alkyl of from one to eight carbon atoms inclusive, or a radical of the formula:



wherein X is a halogen, a, b, c, and d, are integers of from 0 to 5 inclusive such that the sum $a+b+c+d$ is from 0 to 5, and R'' is an alkyl group containing from 12 to 18 carbon atoms; and b. a minor amount of by-products having the formulae:



wherein R and R'' are as defined above, is produced by reacting a phosphonic anhydride with a long chain alkyl amine. These compounds, exemplified by lauryl-ammonium, N-lauryl chloromethylphosphonoamidate, have utility as fungicides and bactericides.

3,742,041
PROCESS OF RESOLVING DL-SERINE M-XYLENE-4-SULFONATE

Ichiro Chibata, Suita-shi, Osaka-fu; Shigeki Yamada, Toyonaka-shi, Osaka-fu, and Masao Yamamoto, Kyoto-fu, all of Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan
Filed Oct. 2, 1969, Ser. No. 863,375

Claims priority, application Japan, Oct. 4, 1968, 43/72249; Oct. 4, 1968, 43/72250

Int. Cl. C07c 143/28

U.S. Cl. 260—501.12 10 Claims
A supersaturated solution of DL-serine m-xylene-4-sulfonate is prepared. The solution is seeded with crystals of one of the optically active enantiomers of said DL-serine m-xylene-4-sulfonate before and/or after the solution reaches the point of supersaturation. Crystallization is permitted to take place and the resultant crystals are recovered. The resulting enantiomer is useful as an intermediate in preparing optically active serine.

3,742,042
PROCESS OF PREPARING A STEREOISOMER OF α -HYDRAZINO- β -(PHENYL)ALKANOIC ACIDS

Sandor Karady, Elizabeth; Seemon H. Pines, Murray Hill; Manuel G. Ly, Edison, and Meyer Sletzing, North Plainfield, all of N.J., assignors to Merck & Co. Inc., Rahway, N.J.
Filed June 24, 1970, Ser. No. 49,541

Claims priority, application Canada, Mar. 25, 1970, 338,486

Int. Cl. C07c 151/00

U.S. Cl. 260—516 12 Claims
A decarboxylase inhibiting stereoisomer of a α -hydrazino- β -(substituted or unsubstituted phenyl)alkanoic acid is prepared by reacting the stereoisomer of an intermediate with a halogenating agent in an inert solvent and an aqueous base.

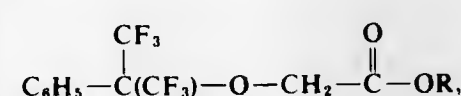
3,742,043

2-(ALPHA,ALPHA-BIS(TRIFLUOROMETHYL)BENZYL)ACETIC ACID AND ESTERS THEREOF

Stephen J. Kuhn, Sarnia, Ontario, Canada, assignor to The Dow Chemical Company, Midland, Mich.
Filed Apr. 24, 1972, Ser. No. 246,783

Int. Cl. C07c 65/00, 69/76

U.S. Cl. 260—521 A 2 Claims
New compounds are disclosed which correspond to the formula



wherein R is hydrogen or lower alkyl. They are prepared by reacting (a) esters of chloroacetic acid or bromoacetic acid with (b) α , α -bis(trifluoromethyl)benzyl alcohol in the presence of strong base. They are herbicides.

3,742,044

2-N-ALKYL-AMI NO-2-DEOXY-ALDITONITRILES AND THEIR ACID CONGENERS AS BIOCIDALS

Wallace H. Pippin, Holland, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Continuation-in-part of Ser. No. 55,237, July 15, 1970. This application Apr. 21, 1971, Ser. No. 136,178

Int. Cl. C07c 101/00

U.S. Cl. 260—534 M 1 Claim
Novel 2-Alkylamino-2-desoxyalditronitriles, their acid analogs, and salts thereof, and methods of preparation are disclosed starting the glucose amination with an appropriate monoamine, followed by treatment with hydrocyanic acid to yield the corresponding alditronitrile. These compounds have varied microbiocidal activity, and further, show surface active properties.

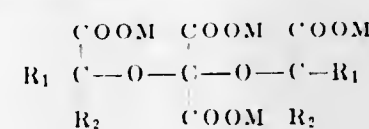
3,742,045
DETERGENCY BUILDERS

Kent P. Lannert, Freeburg, Ill., assignor to Monsanto Company, St. Louis, Mo.

Filed June 30, 1971, Ser. No. 158,539

Int. Cl. C07c 59/22

U.S. Cl. 260—535 P 4 Claims
Compounds having the formula



wherein M is an alkali metal or ammonium and R₁ and R₂ are hydrogen or methyl are useful sequestrants and detergency builders. Lower alkyl esters and acids of such compounds are useful intermediates for this production.

3,742,046

α -(DICHLOROVINYLTHTIO)-ACETOPHENONE

Carl D. Emerson, Kansas City, Mo., and Paul C. Aichenegg, Shawnee Mission, Kans., assignors to Chemagro Corporation, Kansas City, Mo.

Filed Aug. 5, 1970, Ser. No. 61,474

Int. Cl. C07c 49/80

U.S. Cl. 260—592 3 Claims
Beta-keto sulfides, i.e., beta-keto (trichloroethyl and dichlorovinyl) sulfides which possess plant-growth regulating properties and which may be produced by conventional methods.

3,742,047

PREPARATION OF ACID CHLORIDES

Erhard J. Prill, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 647,588, June 21, 1967, abandoned. This application Oct. 27, 1969, Ser. No. 870,969

Int. Cl. C07c 51/58

U.S. Cl. 260—544 Y 4 Claims
A process for the preparation of carboxylic acid chlorides and more specifically, the preparation of α -chloro acetyl chloride utilizing trichloroethylene as the starting compound. Carboxylic acid chlorides are useful compounds as intermediates in organic processes for the preparation of herbicides having an α -chloroacetyl moiety.

3,742,048

KERATIN FIBER DYE COMPOUNDS

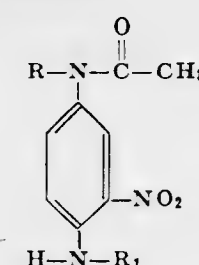
Kalopissis Gregoire, Paris; Bugaut Andree, Boulange-sur-Seine, and Zorayan Vahan, Enghien-les-Bains, all of France, assignors to L'Oréal, Paris, France

Division of Ser. No. 728,750, May 13, 1968, Pat. No.

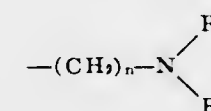
3,617,164. This application Oct. 7, 1970, Ser. No. 78,923

Int. Cl. C07c 103/12

U.S. Cl. 260—562 A 3 Claims
A compound of the formula



wherein R is selected from the group consisting of lower alkyl, hydroxyalkyl and alkylaminodialkyl, wherein each alkyl moiety has 1-6 carbon atoms and R₁ is selected from the group consisting of lower alkyl, lower hydroxyalkyl, lower alkoxyalkyl and



wherein n is 2-6 and R₂ and R₃ are lower alkyl having 1-6 carbon atoms, and the quaternary ammonium salt thereof. is useful as hair dyes.

3,742,049

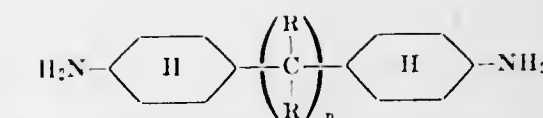
METHOD FOR PRODUCING BIS(4-AMINOCYCLOHEXYL) ALKANE

Hiroshi Komoto; Fusakazu Hayano, both of Saitamakent, and Toshio Takami, Tokyo, all of Japan, assignors to Asahi Kasei Kabushiki Kaisha, Kitaku, Osaka, Japan

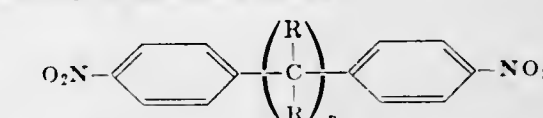
Filed Oct. 9, 1970, Ser. No. 79,469

Claims priority, application Japan, Oct. 16, 1969, 44/82253
Int. Cl. C07c 85/00

U.S. Cl. 260—563 D 5 Claims
A bis(4-aminocyclohexyl)alkane represented by the general formula



wherein R is hydrogen, or a methyl or ethyl group and n is 1 or 2, is made by the hydrogenation of a bis(4-nitrophenyl)alkane represented by the general formula



wherein R and n are defined above, in the presence of ruthenium oxide which shows an amorphous pattern by X-ray diffraction, aqueous ammonia or liquid ammonia and an organic solvent, at a reaction temperature of 110° - 170°C, preferably 130° - 140°C under an elevated hydrogen pressure. In this method, the proportion of the resultant three kinds of stereoisomers can be varied in a wide range.

3,742,050

CHEMICAL COMPOUNDS, PROCESSES FOR THEIR PREPARATION, AND PHARMACEUTICAL COMPOSITIONS INCORPORATING THE SAME

Harold Francis Hodson, London, England, assignor to Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoe, N.Y.

Filed Feb. 16, 1970, Ser. No. 11,722

Claims priority, application Great Britain, Feb. 28, 1969, 10,812/69

Int. Cl. C07c 123/00

U.S. Cl. 260—564 R 19 Claims
An amidine of general formula I, as shown in the accompanying drawings, or an acid addition salt thereof wherein: R¹ and R² are the same of different and each is a phenyl or thien-2-yl group, optionally substituted in one or more positions by a substituent selected from the class consisting of halogen, lower alkyl, lower alkoxy, hydroxy, lower alkylthio, trifluoromethyl, phenyl, phenoxy, phenyl-(lower alkyl) and phenyl-(lower alkoxy), each of said phenyl, phenoxy, phenyl-(lower alkyl) and phenyl-(lower alkoxy) substituent groups being optionally substituted in one or more positions by a member selected from the class consisting of halogen, lower alkyl, lower alkoxy, hydroxy and lower alkylthio; A¹ is a divalent straight or branched alkylene group containing from two to six carbon atoms and one or two divalent atoms which are each an oxygen or sulphur atom, provided that there are at least two carbon atoms between the divalent atom and the —NH— group and between the two divalent atoms; A² is a straight or branched alkylene chain containing from one to four carbon atoms; and Z is a member selected from the class consisting of hydrogen and lower alkyl.

The compounds are specific antagonists of serotonin, useful specifically as antipressor agents, anticontracting agents and anti-inflammatory agents. Their high activity is maintained for at least 24 hours.

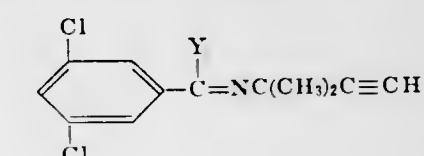
3,742,051
3,5-DICHLORO-N-(1,1-DIMETHYL-2-PROPYNYL)BENZIMIDOYL HALIDES AND DERIVATIVES

Thomas A. McLaughlin, Langhorne; Colin Swithenbank, Perkasie, and Roy Y. Yih, Doylestown, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed June 2, 1971, Ser. No. 149,346

Int. Cl. C07c 119/00

U.S. Cl. 260—566 D 3 Claims
Novel compounds are disclosed which are 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)benzimidoyl halides and imide, thioimide and amidine derivatives thereof of the general structure



These compounds possess herbicidal activity.

3,742,052

DIISOPHORONE DERIVATIVES AND COMPOSITIONS CONTAINING SAME

Carl Bordenca, Rocky River, Ohio, assignor to SCM Corporation, Cleveland, Ohio
Continuation-in-part of Ser. No. 661,493, July 26, 1967, abandoned. This application Sept. 22, 1970, Ser. No. 74,512
Int. Cl. C07c 119/00

U.S. Cl. 260—566 B

7 Claims

Diisophorone derivatives and ultraviolet radiation-screening compositions containing the diisophorone derivatives have been prepared and are described.

Stable compositions comprising insecticidally active cyclopropane carboxylic acid compounds such as pyrethroids which are degradable by ultraviolet radiation and diisophorone derivatives which are resistant to decomposition by ultraviolet radiation are described.

The ultraviolet radiation-screening properties and the resistance to degradation by ultraviolet light of the diisophorone derivative are shown. The stabilization of cyclopropane carboxylic acid compounds and the synergizing effects of diisophorone hydrazone on the insecticidal activity of pyrethroids are demonstrated.

3,742,053

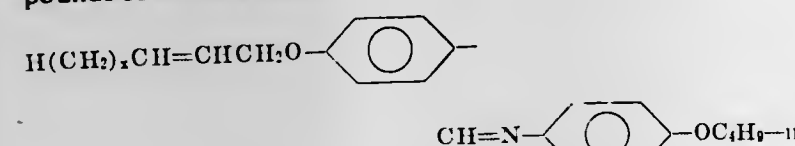
MESOMORPHIC PREPARATION

Edward L. Steiger, and Heinz J. Dietrich, both of Toledo, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio
Filed June 11, 1971, Ser. No. 152,433
Int. Cl. C07c 119/00

U.S. Cl. 260—566 F

3 Claims

There is disclosed the preparation of mesomorphic compounds of the structure:



where x is an integer of 0 to 10. The compounds are prepared by the reaction of para-n-butoxyaniline and para-n-alkenyloxylbenzaldehyde.

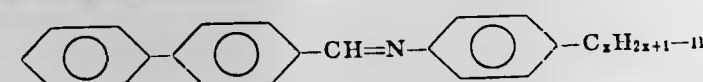
3,742,054

Heinz J. Dietrich, and Edward L. Steiger, both of Toledo, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio
Filed July 2, 1971, Ser. No. 159,554
Int. Cl. C07c 119/00

U.S. Cl. 260—566 F

2 Claims

There is disclosed the preparation of a mesomorphic composition of the structure:



where x is an integer of 1 to 10, typically 1 to 5. The composition is prepared by the reaction of para-n-alkylaniline and para-phenylbenzaldehyde, where the alkyl substituent contains one to 10 carbon atoms.

3,742,055

3-AMINO-BICYCLO[2.2.2]OCTAN-2-OLS

Jules Freedman, Thiensville, Wis., assignor to Colgate Palmolive, New York, N.Y.
Continuation-in-part of Ser. No. 797,233, Feb. 6, 1969. This application July 31, 1969, Ser. No. 846,605

U.S. Cl. 260—570.5 CA

8 Claims

The compounds are 3-amino-bicyclo[2.2.2]octan-2-ols which are useful as central nervous system stimulants.

Representative compounds disclosed in the application are 2-benzyl-cis-3-aminobicyclo[2.2.2]octan-2-ol hydrochloride, N-2-butyl-2-(3-trifluoromethylphenyl)cis-3-aminobicyclo[2.2.2]octan-2-ol, and 2-phenyl-3-pyrrolidino-2-bicyclo[2.2.2]octan-2-ol maleate.

3,742,056

AROMATIC ACET AMIDOXIME-O-CARBAMATES

Rosetta M. Henderson, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Apr. 20, 1971, Ser. No. 135,806
Int. Cl. C07c 123/00

U.S. Cl. 260—564 G

12 Claims

Aromatic acetamidoxime-O-carbamates are novel antihypertensive or antiinflammatory agents in warm-blooded animals.

3,742,057

CHELATED SODIUM COMPOUNDS

William Bunting, Baton Rouge, La., and Arthur W. Langer, Jr., Watchung, N.J., assignors to Esso Research and Engineering Company, Linden, N.J.
Filed Feb. 27, 1970, Ser. No. 15,286
Int. Cl. C07c 87/20, 87/38

U.S. Cl. 260—583 P

21 Claims

Chelated organosodium compounds comprising an organosodium having the formula RNa wherein R is a non-alkyl, hydrocarbon radical complexed with an aliphatic or cycloaliphatic tertiary chelating polyamine are prepared by admixture of the desired polyamine and organosodium. Such compounds have utility as catalysts, e.g. in telomerization and polymerization reactions, as additives, for separations, in making batteries, and in synthetic chemistry.

3,742,058

POLYMERIC TERTIARY ALKYLAMINE VULCANIZING AGENTS AND METHOD OF PREPARATION

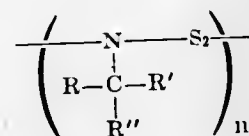
Kyung S. Shim, Irvington, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.
Continuation-in-part of Ser. No. 153,833, June 16, 1971, which is a continuation-in-part of Ser. No. 839,615, July 7, 1969, abandoned, which is a continuation-in-part of Ser. No. 831,722, June 9, 1969, abandoned. This application Aug. 2, 1971, Ser. No. 168,427

Int. Cl. C08f 27/06; C07c 85/00, 85/04

U.S. Cl. 260—583 EE

1 Claim

Poly(tertiary alkylamine) sulfide compositions useful as vulcanizing agents for synthetic and natural rubbers, the repeating structural unit of these compositions having the following formula:



wherein n can range between 3 and 100, R , R' and R'' are C_1 - C_4 alkyl groups which can be the same or different with the proviso, that the total number of carbon atoms in sum of $R+R'+R''$ is from four to 12, as well as a process for manufacturing the same.

3,742,059

COLOR-STABILIZED ALKANOLAMINES

William Dowd, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
Filed May 24, 1971, Ser. No. 146,489
Int. Cl. C07c 91/04

U.S. Cl. 260—584 R

16 Claims

Undesirable color formation in alkanolamine (e.g., triethanolamine) is inhibited by incorporating an inhibiting amount of an alkali or alkaline earth metal borate (e.g., sodium pentaborate) or an alkanolamine ester of boric acid into the alkanolamine.

um pentaborate) or an alkanolamine ester of boric acid into the alkanolamine.

3,742,060

PREPARATION OF AMINES

Ralph W. Lagally, and Johann G. D. Schulz, both of Pittsburgh, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Nov. 24, 1969, Ser. No. 879,601

Int. Cl. C07c 85/04

U.S. Cl. 260—585 A

3 Claims

A process for preparing alkyl amines which involves reacting an alkyl halide with ammonia in water as a reaction medium.

3,742,061

PROCESS FOR THE EXTRACTION OF HYDROGEN PEROXIDE FROM WORKING SOLUTIONS OF THE ALKYLANTHRAQUINONE PROCESS

Gerhard Kabisch, Rheinfelden, and Siegfried Raupach, Beuggen, both of Germany, assignors to Deutsche-Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

Filed Sept. 2, 1970, Ser. No. 69,153

Claims priority, application Germany, Sept. 10, 1969, P 19 45 752.4

Int. Cl. C01b 15/02; B01d 11/00

U.S. Cl. 423—588

11 Claims

Hydrogen peroxide is extracted from the working solution of the alkyl anthraquinone process by solvents which are lighter than water and which produce the dispersed phase in the extraction step. The extraction is carried out in unfilled towers which at the bottom are fitted with known elements for dispersing organic liquids, e.g. perforated plates.

3,742,062

FLUORINATED BETA-DIKETONES

Cecil C. Chappelow, Jr., and James F. Engel, both of Kansas City, Mo., assignors to Kerr-McGee Corporation, Oklahoma City, Okla.

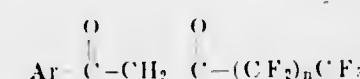
Filed Sept. 4, 1970, Ser. No. 69,939

Int. Cl. C07c 49/80

U.S. Cl. 260—592

6 Claims

A new class of compounds useful, for example, as metal extractants is provided. The compounds are β -diketones of the formula



wherein Ar is a perfluoro aromatic radical and n has a value of 0 to 15. The compounds are produced via the Claisen condensation of an acetyl aromatic compound and the lower alkyl ester of a perfluoroacid.

3,742,063

DIHYDROXYBUTANONES

Hugh Hagemeyer, Jr., and Alfred G. Robinson, III, both of Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y.

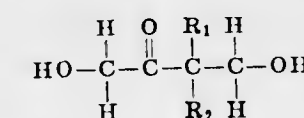
Filed Dec. 24, 1970, Ser. No. 101,403

Int. Cl. C07c 49/18

U.S. Cl. 260—594

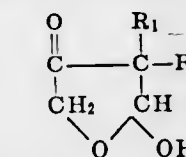
11 Claims

Dihydroxybutanones having the general formula



911 O.G.—53

wherein R^1 and R^2 are the same or different alkyl groups of from one to 10 carbon atoms are prepared by selective hydrogenation of hydroxy furanones having the formula



wherein R^1 and R^2 are as previously described. The selective hydrogenation of the starting material is effected at a temperature in the range of between 80° to 115° C. and a pressure of between 500 to 4,000 psig. in the presence of a Raney nickel catalyst. The dihydroxybutanones are useful as intermediates for preparation of commercially useful products such as polyols, solvent esters, polyesters and polyurethane products.

3,742,064

PHOSPHONIUM COMPOUNDS

Julius Diamond, Lafayette Hill, and King Auyang, Philadelphia, both of Pa., assignors to William H. Rorer, Inc., Fort Washington, Pa.

Filed Dec. 17, 1970, Ser. No. 99,313

Int. Cl. C07f 9/54

U.S. Cl. 260—606.5 F

33 Claims

Novel aralkyl phosphonium salts have been prepared. Compounds of this invention possess useful gastric anti-secretory, spasmolytic and anti-ulcerogenic properties. A method of treating gastrointestinal hyperacidity and ulceration has also been disclosed.

3,742,065

PROCESS FOR FORMING DIETHYLSULFIDE OR DIPROPYLSULFIDE

Robert L. Stoffer, Naperville, Ill., and Thomas D. Nevitt, Valparaiso, Ind., assignors to Standard Oil Company, Chicago, Ill.

Continuation-in-part of Ser. No. 767,499, Oct. 14, 1968, abandoned. This application Nov. 2, 1970, Ser. No. 86,352

Int. Cl. C07c 149/00

U.S. Cl. 260—609 R

9 Claims

A process for forming diethylsulfide or dipropylsulfide, which process may be employed to desulfurize various refinery streams such as distillate fuel bases, comprising reacting an olefin selected from the group consisting of ethylene and propylene with a sulfide reactant containing a dialkylsulfide wherein each alkyl group contains at least two carbon atoms in the presence of a catalyst selected from the group consisting of silica-alumina and alumina at a temperature in the range of from about 450°F. to about 600°F. and a pressure of from about 15 p.s.i.g. to about 500 p.s.i.g.

3,742,066

ETHER AND THIOETHER METHYL SULFOXIDES

Genichi Tsuchihashi, Tokyo, and Katsuyuki Ogura, Kyoto, both of Japan, assignors to Sagami Chemical Research Center, Tokyo, Japan

Filed Dec. 22, 1971, Ser. No. 211,100

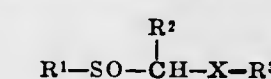
Claims priority, application Japan, Apr. 20, 1971, 46/24908; May 11, 1971, 46/30810

Int. Cl. C07c 149/14

U.S. Cl. 260—609 A

24 Claims

A novel sulfoxide derivative of the general formula



wherein R^1 and R^3 are the same or different, and each represents an alkyl group having 1 to 4 carbon atoms, a phenyl group or a halo- or methyl-substituted phenyl group, R^2 is a hydrogen atom, a lower alkyl group, benzyl group, or a p-methoxy- or p-bromo-benzyl group, R^1 and R^2 , together,

may form an alkylene group containing 3 carbon atoms, and X is an oxygen or sulfur atom, and to a process for its preparation.

3,742,067

ALKYL-STILBENE LIQUID-CRYSTAL COMPOUNDS
Edward L. Steiger, and Heinz J. Dietrich, both of Toledo, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio
Filed Jan. 8, 1971, Ser. No. 154,688
Int. Cl. C07c 43/20

U.S. Cl. 260—613 A

2 Claims

There is disclosed the preparation of novel p-methoxy-alkylene-oxy-p'-n-alkyl-stilbene liquid-crystal compounds of the structure:



where x and y are the same or different integers of 1 to 10, typically 1 to 5.

3,742,068

ETHERS OF 2,2,9,9-TETRAMETHYL-1,10-DECANEDIOL
George W. Moersch, 645 Riverview, Ann Arbor, Mich., and Paul L. Creger, 1730 Covington Drive, Ann Arbor, Mich.
Filed Apr. 17, 1970, Ser. No. 29,704
Int. Cl. C07c 41/10, 43/04

U.S. Cl. 260—615 R

2 Claims

1,10-Di-(lower alkoxy)-2,2,9,9-tetramethyldecane, and structurally-related trialkylsilyl compounds, aldehyde, ketone, and semicarbazones. The compounds lower serum triglyceride levels. The 1,10-di-(lower alkoxy) compounds can be produced by reacting 2,2,9,9-tetramethyl-1,10-decanediol with a lower alkylating agent in the presence of a base. The trialkylsilyl compounds can be produced by reacting the same diol with a silylating agent. The aldehyde can be reduced by hydrolysis of a substituted imine. The ketone can be produced by reacting a carboxylic acid, carboxylate salt, or nitrile with methylolithium under anhydrous conditions, followed by hydrolyzing the product. The aldehyde and ketone can be converted to semicarbazone derivatives by reaction with semicarbazide or its acid-addition salt.

3,742,069

PURIFICATION OF POLYGLYCEROLS
Robert H. Hunter, Mendenhall, Pa., assignor to ICI America Inc., Wilmington, Del.
Filed July 6, 1970, Ser. No. 52,704
Int. Cl. B01j 1/08; C07c 43/02

U.S. Cl. 260—615 R

9 Claims

Disclosed is a process for the purification of a crude polyglycerol product which comprises preparing a slurry of an inert finely divided solid filtering aid and an aqueous solution of a crude polyglycerol, such solution having a pH of from 10 to 12, separating the solid and liquid phase of the slurry, passing the liquid phase through an anion exchange resin, and then passing the liquid phase through a cation exchange resin.

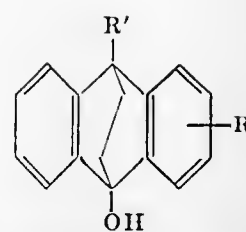
3,742,070

SUBSTITUTED 9,10-DIHYDRO-9,10-ETHANO-9-ANTHROLS AND PROCESS FOR PREPARATION
Jacques Robert Boissier, Paris, and Roger Ratouis, Saint Cloud, both of France, assignors to Societe Anonyme dite Societe Industrielle pour la Fabrication des Antibiotiques (S.I.F.A.), Puteaux, France
Continuation of Ser. No. 639,012, May 17, 1967, abandoned.
This application Sept. 8, 1970, Ser. No. 70,229
Int. Cl. C07c 35/22

U.S. Cl. 260—618 F

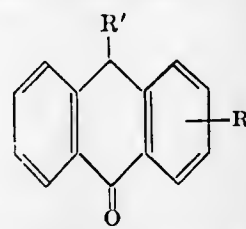
5 Claims

The compounds are new substituted 9,10-dihydro-9,10-ethano-9-anthrols of formula:



R - R': hydrogen, fluorine, chlorine or bromine atoms, lower alkyl or alkoxy or trifluoromethyl radicals, (at least one of the substituents R or R' not being a hydrogen atom)

They are extremely useful intermediates for the preparation of new pharmacologically active products. The compounds are prepared by the reaction of a substituted anthrone of formula



or of any easily hydrolysable ester of said anthrone, with ethylene under pressure, while heating in a solvent, and then possibly hydrolysis of the ester.

3,742,071

PROCESS FOR THE PRODUCTION OF HYDROQUINONE
Jerry D. Holmes, and Hugh J. Hagemeyer, Jr., both of Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Aug. 16, 1971, Ser. No. 172,325
Int. Cl. C07c 37/00

U.S. Cl. 260—621 R

11 Claims

Hydroquinone is produced by a process involving the reacting of acetylene with carbon monoxide and hydrogen in a non-reactive solvent containing a phosphine-rhodium complex catalyst having the general formula



wherein

X is Cl or I;
n is 1, 2 or 3;
y is 0, 1 or 2; and
n + y = 3

at a temperature of from about 100°C. to 250°C. and a pressure of from about 500 to 8,000 psi.

3,742,072

NITRATION OF TOLUENE AND NITROTOLUENES TO FORM TNT

Milton Roth, 11 Lenape Avenue, Rockaway, N.J.
Filed Mar. 28, 1972, Ser. No. 238,975
Int. Cl. C07c 79/10

U.S. Cl. 260—645

4 Claims

The invention provides a novel method for recovering and recycling nitrotoluenes contained in aqueous waste liquors obtained in the manufacture of TNT, particularly from systems for filtering vapors from spent sulfuric acid concentrators. In the novel method, the nitrotoluenes are efficiently and economically extracted from such liquors with toluene and the toluene containing the extracted nitrotoluenes is nitrated to produce TNT of military specification grade.

3,742,073

CONVERSION OF CHLOROAROMATICS TO META DERIVATIVES BEYOND EQUILIBRIUM
John D. Bacha, Monroeville, and Charles M. Selwitz, Pittsburgh, both of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
Filed Dec. 3, 1969, Ser. No. 881,850
Int. Cl. C07c 25/04

U.S. Cl. 260—650 R

2 Claims

The meta chloroaromatic content of the chloralkylbenzenes prepared by a HF-BF₃ catalyzed isomerization

process may be increased beyond the expected equilibrium by terminating the isomerization before equilibrium is attained, separating the resulting organic and HF layers and subjecting the HF layer to a temperature of from about 40' to 160°C. The process is particularly well suited to the formation of greater than equilibrium amounts of 1,3,5-chloroxylene and metachlorotoluene from isomeric mixtures of chloroxylens and chlorotoluenes, respectively.

3,742,074

PROCESS FOR THE PREPARATION OF AROMATIC TRIFLUOROMETHYL COMPOUNDS OF THE BENZENE SERIES

Hans Hermann, and Helmut Lindner, both of c/o Farbwerke Hoechst, Frankfurt/Main, Germany
Filed Dec. 29, 1970, Ser. No. 102,532
Claims priority, application Germany, Dec. 31, 1969, P 19 65 782.0
Int. Cl. C07c 25/14

U.S. Cl. 260—651 F

9 Claims

The preparation of trifluoromethyl compounds of the benzene series from the trichloromethyl derivatives and hydrogen fluoride is improved by using hexamethylene tetramine as a catalyst. The products are useful and versatile organic intermediates for dyestuffs.

3,742,075

STABILIZED 2,3-DICHLORO-1,3-BUTADIENE
Rudolf Mayer-Mader, Cologne, and Karl Dinges, Odenthal, both of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
Filed Mar. 4, 1971, Ser. No. 121,180

Claims priority, application Germany, Mar. 25, 1970, P 20 14 382.2
Int. Cl. C07c 17/40, 17/42

U.S. Cl. 260—652.5 P

4 Claims

This invention relates to the stabilization of monomeric 2,3-dichloro-1,3-butadiene, wherein a piperazine derivative corresponding to the formula:



in which R represents hydrogen, a linear or branched alkyl radical with one to five carbon atoms or a linear or branched hydroxyalkyl radical with two to five carbon atoms, is added to the monomer.

3,742,076

PROCESS FOR THE PRODUCTION OF 5-ETHYLIDENE NORBORNENE-2

Horoshuke Imai, Yokohama, and Mitsuo Matsuno, Kawasaki, both of Japan
Filed Mar. 3, 1971, Ser. No. 120,721
Claims priority, application Japan, Mar. 6, 1970, 45/18705
Int. Cl. C07c 5/24

U.S. Cl. 260—666 PY

12 Claims

A process is disclosed for preparing 5-ethylidene norbornene-2 at high yield and with minimum cost. The process is characterized by the Diels-Alder reaction of 3-halobutene-1 with cyclopentadiene, whereby there is produced 5-haloethyl norbornene-2. This product is dehydrohalogenated with use of a Lewis base thereby obtaining 5-ethylidene norbornene-2.

3,742,077

METHOD OF PREPARING TELOMERS UTILIZING AS CATALYSTS HYDROCARBON-SOLUBLE ORGANOMETALLIC COMPLEXES OF METALS OF GROUPS I AND IIA OF THE PERIODIC TABLE

Conrad W. Kamienski, Gastonia, N.C., and Jerome F. Eastham, Knoxville, Tenn., assignors to Lithium Corporation of America, New York, N.Y.
Continuation-in-part of Ser. No. 728,838, May 13, 1968. This application July 23, 1970, Ser. No. 57,820
Int. Cl. C07c 15/00

U.S. Cl. 260—668 B

12 Claims

Method of preparing telomers, such as those derived from toluene as the telogen and 1,3-butadiene as the taxogen, which comprises carrying out the telomerization reaction in the presence of a hydrocarbon-soluble organometallic complex of metals of Groups I and IIA of the periodic system, exemplified by complexes of di-n-butylmagnesium with n-butyllithium or n-butylium-potassium.

3,742,078

DEHYDROGENATION WITH A CATALYST CONTAINING PLATINUM, GERMANIUM AND AN ALKALI OR ALKALINE EARTH METAL
John C. Hayes, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Division of Ser. No. 852,104, Aug. 21, 1969, Pat. No. 3,647,719. This application Oct. 20, 1971, Ser. No. 191,093
Int. Cl. C07c 5/18

U.S. Cl. 260—668 D

15 Claims

Dehydrogenatable hydrocarbons are dehydrogenated by contacting them at dehydrogenatable conditions with a catalytic composite comprising a combination of catalytically effective amounts of platinum group component, a germanium component, and an alkali or alkaline earth component with a porous carrier material. A specific example of the catalytic composite disclosed herein is a combination of a platinum component, a germanium component, and an alkali or alkaline earth component with an alumina carrier material wherein the components are present in amounts sufficient to result in the composite containing, on an elemental basis, 0.01 to 2 wt. % platinum, 0.01 to 5 wt. % germanium, and 0.1 to 5 wt. % of the alkali or alkaline earth metal.

3,742,079

OXIDATIVE DEHYDROGENATION OF ETHYLBENZENE TO STYRENE USING A GOLD ON TITANIA CATALYST
Robert W. Etherington, Pennington, N.J., assignor to Mobil Oil Corporation, New York, N.Y.
Filed June 30, 1971, Ser. No. 158,535
Int. Cl. C07c 15/10

U.S. Cl. 260—669 R

5 Claims

Styrene is prepared from ethylbenzene by contacting a mixture of ethylbenzene oxygen-containing gas and an inert diluent with a catalyst consisting of gold supported on or admixed with titania, at an elevated temperature.

3,742,080

RHODIUM BASED CATALYSTS FOR THE SYNTHESIS OF 1,4-DIENES

Aaron Chung Liong Su, Wilmington, Del., assignor to E. I. du Pont Nemours and Company, Wilmington, Del.
Continuation-in-part of Ser. No. 815,486, April 11, 1969, Pat. No. 3,640,898. This application June 18, 1971, Ser. No. 154,653
Int. Cl. C07c 3/10, 11/12

U.S. Cl. 260—680 B

10 Claims

Improved catalysts are provided for the synthesis of 1,4-dienes from α-monoolefins and conjugated dienes. The catalysts are rhodium (III) salts in combination with amides, phosphoramides, phosphine oxides, or water. The improved catalysts allow control of the trans-cis ratio of the 1,4-diene

formed and are operable at useful rates in a wide range of solvent systems, both protonic and aprotic.

3,742,081
SEPARATE RECOVERY OF DIISOPROPYL SULFATE AND DIBUTYL SULFATE IN AN ALKYLATION ACID RECOVERY PROCESS

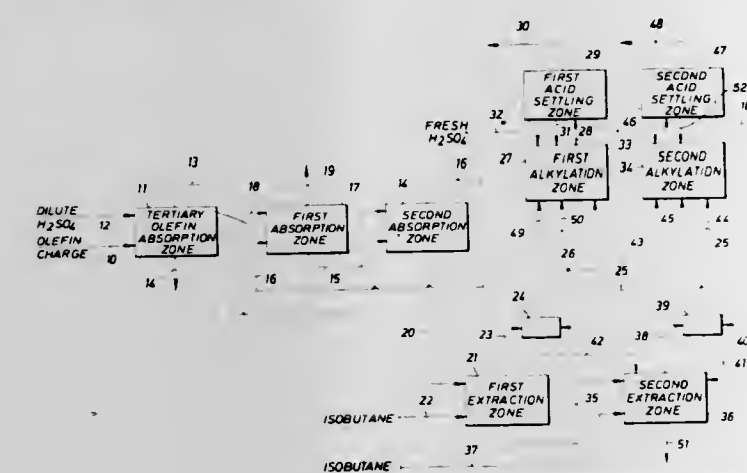
Arthur R. Goldsby, Chappaqua, N.Y., assignor to Texaco Inc., New York, N.Y.

Filed Nov. 4, 1971, Ser. No. 195,797

Int. Cl. C07c 3/54

U.S. Cl. 260—683.62

6 Claims



A sulfuric acid alkylation process wherein acid consumption is reduced by reacting spent acid with propylene and butylene to form diisopropyl sulfate and dibutyl sulfate in an olefin absorption zone and wherein the dibutyl sulfate and diisopropyl sulfate are separately recovered in an extraction zone. The efficiency of the alkylation reaction and the quality of alkylated products are enhanced by passing the recovered dibutyl sulfates and diisopropyl sulfates to separate alkylation reaction zones.

3,742,082
DIMERIZATION OF OLEFINS WITH BORON TRIFLUORIDE

James A. Brennan, Cherry Hill, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Nov. 18, 1971, Ser. No. 200,237

Int. Cl. C07c 3/18

U.S. Cl. 260—683.9

5 Claims

A process is provided for dimerizing 1-olefins which comprises contacting such olefins in a reaction zone with a minor proportion of at least one catalyst selected from the group consisting of phosphoric acid-promoted and water-promoted boron trifluoride catalyst in a mole ratio of catalyst to olefins of from about 0.005:1 to about 0.1:1 and at a temperature from about 100°C. to about 150°C.

3,742,083
THERMALLY STABLE POLYCARBONATE COMPOSITION

Charles A. Bialous, Mount Vernon, Ind., assignor to General Electric Company, Pittsfield, Mass.

Division of Ser. No. 28,987, April 15, 1970, Pat. No. 3,651,174. This application July 29, 1971, Ser. No. 167,487

The portion of the term of this patent subsequent to Mar. 7, 1989, has been disclaimed.

Int. Cl. C08g 49/04, 51/56, 17/13

U.S. Cl. 260—824 R

5 Claims

A polycarbonate composition consisting of an aromatic polycarbonate with 0.1 to about 2.0 weight percent of an alkaline earth carbonate and an organosiloxane polymer. The amounts of the organosiloxane polymer may be present in an amount of 0.1-2.0 weight percent based on the weight of the

polycarbonate. More specifically, the alkaline earth carbonate which can be employed herein is barium carbonate.

3,742,084
CORONA-RESISTANT ELECTRICALLY INSULATING ORGANIC POLYMERIC COMPOSITIONS

Murray Olyphant, Jr., East Oakdale, and Arno Don Bridenbecker, North St. Paul, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 856,846, Sept. 10, 1969, abandoned. This application Mar. 4, 1971, Ser. No. 121,171

Int. Cl. C08f 29/10, 35/02; H01b 3/46

U.S. Cl. 260—827

9 Claims

Organic, polymeric, electrically insulating compositions having high corona resistance comprising a base organic electrically insulating material and, in an amount equaling 1-10 percent of the weight of the base material, a silicone resin. A typical silicone resin is a hydrolyzate type of branched silicone resin prepared by condensation of mixed methyl and phenyl chlorosilanes.

3,742,085
THERMALLY STABLE POLYCARBONATE COMPOSITION

Charles A. Bialous, Mount Vernon, Ind., assignor to General Electric Company, Pittsfield, Mass.

Division of Ser. No. 28,987, April 15, 1970, Pat. No. 3,651,174. This application July 29, 1971, Ser. No. 167,486

Int. Cl. C08g 47/10, 49/04; C08f 29/16

U.S. Cl. 260—827

5 Claims

A polycarbonate composition consisting of an aromatic polycarbonate with 0.1 to about 2.0 weight percent of an alkaline earth carbonate and a mixture of an organosiloxane polymer and a polytetrafluoroethylene. The amounts of the organosiloxane polymer and polytetrafluoroethylene may be present in an amount of 0.1-2.0 weight percent each based on the weight of the polycarbonate. More specifically, the alkaline earth carbonate which can be employed herein is barium carbonate.

3,742,086
THERMOSETTING COMPOSITION

Joseph N. Epel, 22559 Bellbrook, Southfield, Mich., and Michael Hugh Richmond, 1314 Chudleigh Drive, Sarnia, Ontario, Canada

Filed May 28, 1971, Ser. No. 148,212

Int. Cl. C08f 33/00

U.S. Cl. 260—836

4 Claims

An improved thermosetting resin composition and the process of producing a thermoset resin comprising the reaction of an epoxidized polymer, especially epoxidized polybutadiene, with an alpha-beta unsaturated monocarboxylic compound and a compatible copolymerizable monomer.

3,742,087
THERMOPLASTIC BLENDS OF AROMATIC POLYSULFONES AND THERMOPLASTIC POLYESTERS

Eric Nield, Hertford, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Sept. 15, 1970, Ser. No. 72,495

Claims priority, application Great Britain, Sept. 25, 1969, 47,261/69

Int. Cl. C08g 39/10

U.S. Cl. 260—860

17 Claims

Thermoplastic polymer blends which contain from 99.9 percent to 1 percent of one or more aromatic polysulphones and from 0.1 percent to 99 percent of one or more thermoplastic polyesters have a desirable combination of physical properties and in particular better flow properties in the melt than the polysulphones themselves.

3,742,088
POLYCARBONATE RESINS BLENDED WITH ELASTOMERS FOR IMPROVED IMPACT STRENGTH

Charles B. Holder; Isaac D. Rubin, both of Wappingers Falls, and Carmen M. Cusano, Poughkeepsie, all of N.Y., assignors to Texaco Inc., New York, N.Y.

Filed Jan. 7, 1971, Ser. No. 104,789

Int. Cl. C08g 39/10

U.S. Cl. 260—873

5 Claims

The properties, in particular the impact strength, of polycarbonate resins having an average molecular weight of at least 8000 are improved by blending such resins with from about 3 percent to about 35 percent by weight of at least one elastomer characterized by an average molecular weight ranging from about 100,000 to about 2,000,000 and a second order transition (T_g) below 0°C.

3,742,089
CURABLE COMPOSITIONS OF MALEIMIDE SUBSTITUTED AROMATIC MATERIAL

Siegfried H. Schroeter, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed July 21, 1971, Ser. No. 164,810

Int. Cl. C08g 39/10

U.S. Cl. 260—873

2 Claims

Solventless blends are provided of aliphatically unsaturated maleimido substituted aromatic carbocyclic organic materials, and aliphatically unsaturated organic ethers. The blends are convertible to high performance films when cured with ultraviolet radiation on the surface of various substrates to impart improved surface characteristics thereto.

3,742,090
THERMOPLASTIC RESIN COMPOSITION CONTAINING AN ETHYLENE-VINYL ACETATE GRAFT COPOLYMER

Hiroshi Kluchl; Katsuke Oshima; Takashi Nishidol, and Toshihiko Aya, all of Otsu, Shiga, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed May 7, 1969, Ser. No. 822,671

Claims priority, application Japan, May 9, 1968, 43/30508

Int. Cl. C08f 37/18

U.S. Cl. 260—876 R

19 Claims

Weather- and impact-resistant resin copolymer composition consists of a mixture of 0.36 — 90 percent by weight of graft polymer (C) and 10 — 99.64 percent by weight of a resin component (D).

Resin component (D) is the polymer or copolymer resulting from polymerization of monomer mixture (A).

Graft polymer (C) is a copolymer of a monomer mixture (A) and trunk rubber component (B), the copolymerization percentage ratio by weight of A:B (degree of grafting) being 20 — 500 percent.

Monomer mixture (A) is selected from the group consisting of: aromatic vinyl compound, alkyl methacrylate wherein the alkyl group has one to three carbon atoms, and acrylonitrile.

Trunk rubber component (B) is an ethylene-vinyl acetate copolymer having a side chain which includes a $\text{CH}_2 = \text{C}(\text{CH}_3)\text{COO}$ -group.

3,742,091
VINYL MONOMER POLYMERIZATION PROCESS

Charles W. Moberly, and Gerald R. Kahle, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Aug. 17, 1970, Ser. No. 64,504

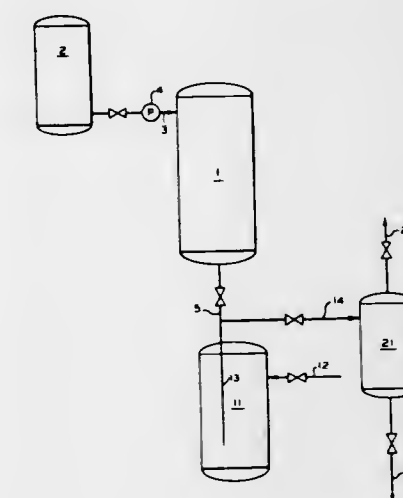
Int. Cl. C08f 15/06, 15/00, 19/08

U.S. Cl. 260—879

8 Claims

Agglomeration of vinyl polymers produced by liquid phase polymerization reactions is substantially inhibited when the

polymerization is effected in the presence of certain polymeric additives which are soluble in the liquid monomer. In some in-



stances the polymeric additive imparts to the polymeric product, upon molding, improved impact strength.

3,742,092
METHACRYLONITRILE POLYMERIZATION PROCESS

June T. Duke, Chagrin Falls, and Dorothy C. Prem, Warrensville Heights, both of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed July 14, 1971, Ser. No. 162,540

Int. Cl. C08f 15/22, 19/06, 19/08

U.S. Cl. 260—880 R

7 Claims

A polymerization process is described in which impact resistant methacrylonitrile homopolymers and copolymers are prepared in the presence of a diene rubber by free radical polymerization at improved rates by conducting the polymerization in aqueous emulsion in the presence of some preformed seed polymer having small particle size.

3,742,093
METHOD OF SEPARATING AN INSOLUBLE LIQUID FROM POLYMER COMPOSITION

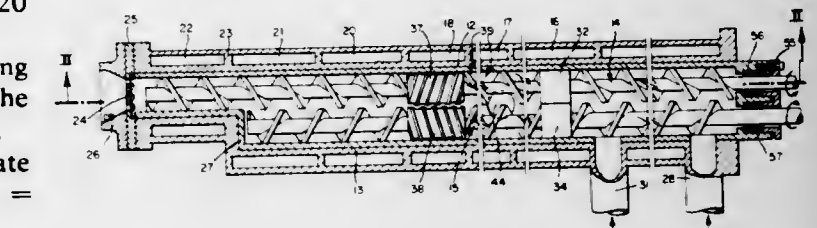
Richard H. Skidmore, Stratford, Pa., assignor to Welding Engineers, Inc., Norristown, Pa.

Filed Apr. 8, 1970, Ser. No. 26,622

Int. Cl. C08f 41/12; B29b 1/04

U.S. Cl. 260—893

14 Claims



Apparatus and method for separating a substantially insoluble liquid from a mixture containing a polymer or polymer mixture. The liquid is a vapor at the usual temperature and pressure of the polymer extrusion operation and is kept in liquid form by providing a high pressure region in the extruder. A liquid outlet is provided upstream of the high pressure region and the liquid is maintained under pressure and taken off as a liquid. The pressure-maintaining means may be a liquid outlet provided with a pressure control valve, trap or the like.

3,742,094
CYANOPHENYL O,S-DIALKYL
PHOSPHOROTHIOLATES

Shigeo Kishino; Yasuo Yamada; Yoshio Kurahashi, and Toyohiko Kume, all of Tokyo, Japan, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Jan. 5, 1971, Ser. No. 104,177

Claims priority, application Japan, Jan. 8, 1970, 45/2286
Int. Cl. C07f 9/18; A01n 9/36

U.S. Cl. 260—940 18 Claims
Optionally halogenated cyanophenyl O,S-dialkyl phosphorothiolates, i.e. cyanophenyl or halocyanophenyl O,S-dialkyl phosphorothiolates wherein one of the alkyl groups may be cycloalkyl, alkyl of 4-6 carbon atoms, a chlorine-substituted lower alkyl group or a phenyl group and the other alkyl group is methyl or ethyl, which thiophosphates possess microbicidal, especially fungicidal properties.

3,742,095
HYDROXYALKYL CARBAMYLALKYLPHOSPHONATES

Edward N. Walsh, New York, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.

Continuation-in-part of Ser. No. 644,073, June 7, 1967, abandoned. This application July 13, 1970, Ser. No. 54,579

Int. Cl. C07f 9/40; C09k 3/28; C08g 22/44

U.S. Cl. 260—943 7 Claims
The compounds described herein are hydroxyalkylcarbamylalkylphosphonates which are useful in preparing flame resistant polymer compositions. Exemplary of these compounds are bis-(hydroxyethyl) bis-(hydroxyethyl)carbamylethylphosphonate and diethyl bis-(hydroxyethyl)carbamylmethylphosphonate.

3,742,096
PHOSPHINIC ACIDS AND ESTERS OF ALKYLATED P-HYDROXYPHENYLALKANES

John Denon Spivack, Spring Valley, N.Y., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 618,988, Feb. 27, 1967, Pat. No. 3,534,127, which is a continuation-in-part of Ser. No. 612,336, Jan. 30, 1967, Pat. No. 3,488,368. This application Sept. 30, 1970, Ser. No. 76,998

Int. Cl. C07f 9/02

U.S. Cl. 260—953 8 Claims
Phosphinic acids and their esters of alkylated p-hydroxyphenylalkanes are prepared from alkylated p-hydroxyphenylalkyl halides and phosphorus halides in the presence of a complexing metal halide Lewis acid followed by a dissociation of the reaction complex with water to form the corresponding phosphinic acid or with an alcohol followed by water to form the corresponding phosphinic ester.

The phosphinic acids are useful as intermediates in preparing the phosphinates which in turn are useful as stabilizers of organic materials which are subject to oxidative deterioration.

3,742,097
PROCESS FOR PREPARING DIADDUCTS OF HYDROCARBYLTHIOPHOSPHORIC ACIDS

Oswald, Mountainside, N.J., assignors to Esso Research and Engineering Company, Linden, N.J.

Division of Ser. No. 541,135, April 8, 1966, abandoned. This application Dec. 10, 1969, Ser. No. 884,046

Int. Cl. C07f 9/16; A01n 9/36

U.S. Cl. 260—968 5 Claims
Sequential diadducts of methylacetylene are obtained in radical reactions with a dihydrocarbyl thiophosphoric acid and then with a hydrocarbon thiol. The order of addition is critical in obtaining novel compositions which are attractive as pesticides since their high effectiveness is coupled with a surprisingly low toxicity towards mammals.

3,742,098
PROCESS FOR THE PREPARATION OF S-VINYLIC ESTERS OF THIOPHOSPHORUS ACIDS

Alexis A. Oswald, Mountainside, N.J., and Joseph H. Lesser, Woodside, N.Y., assignors to Esso Research and Engineering Company, Linden, N.J.

Filed July 7, 1969, Ser. No. 839,645

Int. Cl. C07f 9/16; A01n 9/36

U.S. Cl. 260—971 1 Claim
Phosphoryl disulfides can be added to acetylenes to form S-vinyl thiophosphate esters. The additions occur by way of a free radical mechanism in the presence of radiation and/or chemical initiators. The adducts are highly effective as pesticides.

3,742,099
PREPARATION OF ALKYL OR ARALKYL ESTERS OF DITHIOPHOSPHORIC ACID OR DERIVATIVES THEREOF BY TRANSESTERIFICATION

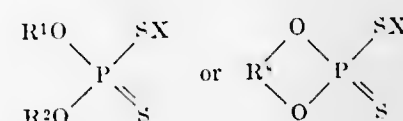
Terence Colclough, Wantage, and Ronald Brookes, Drayton, both of England, assignors to Esso Research and Engineering Company, Linden, N.J.

Filed Nov. 23, 1970, Ser. No. 92,152

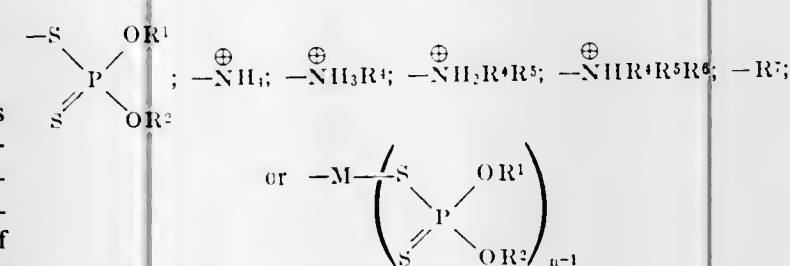
Claims priority, application Great Britain, Jan., 1970, 2,179/70

Int. Cl. C07f 9/08, 9/18

U.S. Cl. 260—982 9 Claims
A process for the preparation of alkyl or substituted alkyl esters of dithiophosphoric acid or derivatives thereof which are useful as intermediates for insecticides, or as lubricating oil additives. In this process an alcohol of the formula R¹OH is reacted with a compound of the formula



where R¹ and R² are hydrocarbyl groups, at least one being an aryl or alkaryl group, R³ is a divalent arylene group and X is —H.



where R³, R⁴, R⁵, R⁶ and R⁷ are hydrocarbyl groups, M is a metal and n is the valency of the metal.

3,742,100
PROCESS FOR THE PREPARATION OF ANHYDROUS MGCL PRILLS

Oystein Boyum, Skien; Karsten Eigil Eriksen, Eidanger; Per Solberg, Porsgrunn, and Kjell Wallin Tveten, Bole, all of Norway, assignors to Norsk Hydro a.s., Oslo, Norway

Filed Oct. 27, 1970, Ser. No. 84,537

Claims priority, application Norway, Oct. 29, 1969, 4293/69
Int. Cl. B01k 2/04

U.S. Cl. 264—14 12 Claims
The process prepares magnesium chloride prills suitable for the electrolytic production of magnesium from a melt. Molten magnesium chloride hydrate having a moisture content corresponding to from about 3.8 to about 6.2 moles of H₂O per mole of MgCl₂ is converted into droplets which are solidified to form prills. The prills are dehydrated to the desired low-moisture magnesium chloride or substantially anhydrous magnesium chloride.

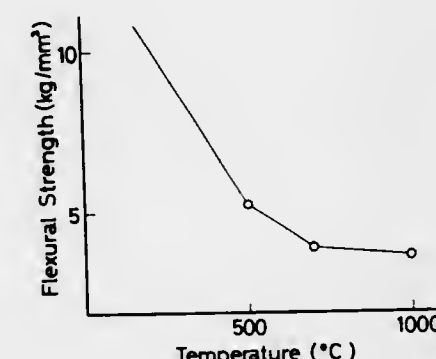
3,742,101
CARBON-GLASS COMPOSITE AND MANUFACTURING METHOD THEREFOR

Koji Ouchi; Michio Horie, both of Kawaguchi, and Hidemasa Honda, Tosu, all of Japan, assignors to Agency of Industrial Science & Technology, Tokyo, Japan

Filed Sept. 30, 1970, Ser. No. 76,683

Claims priority, application Japan, Oct. 2, 1969, 44/78166
Int. Cl. B29c 25/00; C01b 31/00

U.S. Cl. 264—29 2 Claims



A carbon-glass composite is manufactured by molding and curing glass fibers mixed with a resin. The molded product is heated in a vacuum at a temperature of 200°C to 1700°C in an inert or reducing atmosphere.

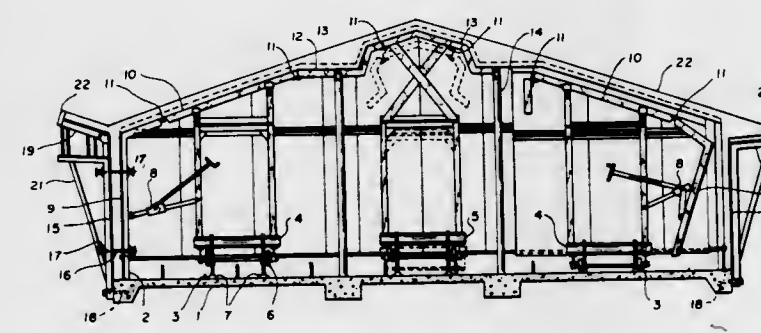
3,742,102
METHOD OF MAKING A CAST CONCRETE HOUSE HAVING INTEGRAL WALLS AND ROOF USING MOBILE INTERIOR FORMS

Charles W. Stickler, Jr., Mohnton, Pa., assignor to Gray Tech Industries, Inc., Mohnton, Pa.

Continuation-in-part of Ser. No. 123,539, March 12, 1971, abandoned. This application Nov. 18, 1971, Ser. No. 200,060

Int. Cl. B28b 7/04; E04b 1/16, 1/32

U.S. Cl. 264—32 6 Claims



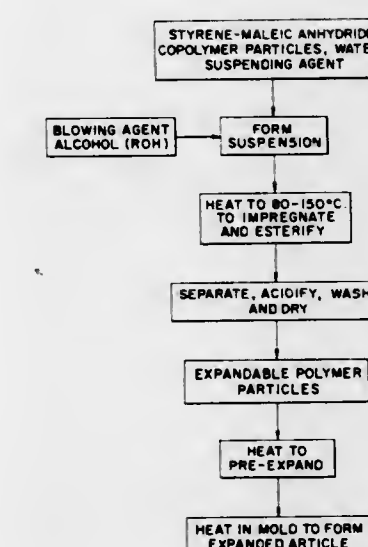
This invention relates to a cast monolithic house and to a method for casting, simultaneously, the roof, end wall and sidewalls thereof at the site. The method involves hinging together roof and sidewall forming portions of a form and lifting such form into place by wheeled carriers which are guided by jigs on the floor of the house. Jacks, mounted on the wheeled carriers, will lift the form into place. Wall form positioning linkage is connected between the wheeled carriers and the sidewall forming portions of the form to retract or expand them into normal vertical position in wedging relationship with floor bucks serving as base portions of said sidewall forming portions.

3,742,103
METHOD FOR PREPARING AND MOLDING EXPANDABLE, NON-EQUI MOLAR STYRENE-MALEIC ACID HALF ESTER COPOLYMER PARTICLES

John P. Spicuzza, Jr., Pittsburgh, Pa., assignor to Sinclair-Koppers Company, Pittsburgh, Pa.

Filed Apr. 22, 1971, Ser. No. 136,538

Int. Cl. B29d 27/00, 27/08; C08f 19/10, 27/12, 47/10
U.S. Cl. 264—53 4 Claims



Expandable, non-equimolar styrene-maleic acid half ester copolymer particles are prepared by a process comprising impregnating styrene-maleic anhydride copolymer particles with an alcohol in the presence of a hydrocarbon blowing agent in an aqueous suspension, heating the impregnated particles to allow at least partial esterification of the anhydride groups by the alcohol, cooling the suspension to room temperature, and separating the impregnated, partially esterified copolymer particles from the aqueous suspension.

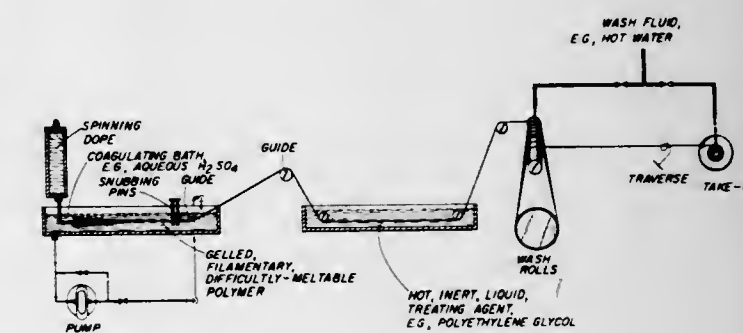
3,742,104
PRODUCTION OF SHAPED SYNTHETIC ARTICLES HAVING IMPROVED DYEABILITY

Saunders E. Jamison, Summit, and John W. Soehngen, Berkeley Heights, both of N.J., assignors to Celanese Corporation, New York, N.Y.

Continuation of Ser. No. 481,587, Aug. 23, 1965, abandoned. This application May 8, 1970, Ser. No. 33,180

Int. Cl. D01d 5/12; D01f 3/10

U.S. Cl. 264—78 4 Claims

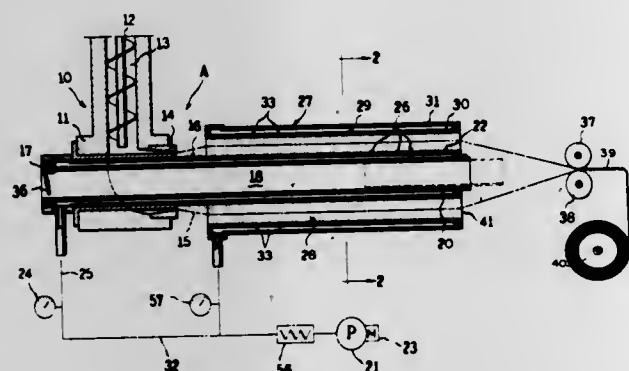


A chemical relaxation treatment for increasing dyeability of wet spun filamentary material such as high melting polyamides, polyurethanes and polyureas which filaments are spun from a concentrated sulfuric acid solution and coagulated in an aqueous sulfuric acid bath. The residual sulfuric acid contained in the filamentary material is subsequently activated to increase the dyeability of the resulting product.

3,742,105

METHOD FOR PRODUCING A SEAMLESS TUBING
 Shigeharu Kuroda, 1994-29, Oshikuma-cho, Nara, Japan
 Filed May 5, 1970, Ser. No. 34,688
 Int. Cl. B29c 23/00, 25/00; B29d 23/04
 U.S. Cl. 264—89

1 Claim

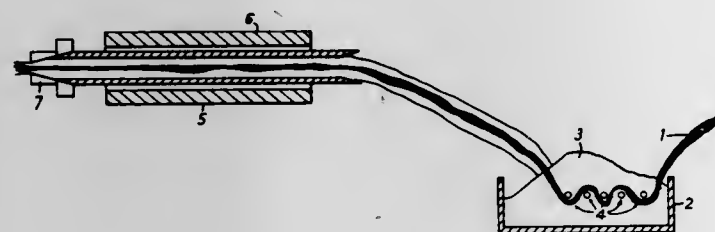


A method for producing a seamless tubing comprises extruding the thermoplastic material from extruder in the form of tubing in semi-molten condition, introducing the first compressed cooling medium into the tubing and radially spouting the fluid medium against the inner surface of the tubing wall for a certain distance thereby expanding the tubing into desired diameter and simultaneously cooling the tubing, and centripetally spouting the second compressed cooling fluid medium against the outer surface of the tubing wall simultaneously with the spout of the first fluid medium so as to sandwich the tubing wall by the both fluid medium for a certain distance. Further, an apparatus for the method comprises an extruder for extruding the thermoplastic material in the form of tubing in semi-molten condition, means for introducing the first compressed cooling fluid medium into the tubing, means for radially spouting the fluid medium against the inner surface of the tubing wall for a certain distance to expand and cool the tubing, means for centripetally spouting the second compressed cooling fluid medium against the outer surface of the tubing wall simultaneously with the spout of the first fluid medium so as to sandwich the tubing wall by the both fluid mediums for a certain distance, and means for continuously winding up the expanded, cooled tubing.

3,742,106

PRODUCTION OF IMPREGNATED ROVINGS
 Roger Vernon Price, Lipson, England, assignor to Imperial Chemical Industries Limited, London, England
 Filed Mar. 23, 1971, Ser. No. 127,302
 Claims priority, application Great Britain, Apr. 7, 1970, 16,512/70
 Int. Cl. B29b 1/00; B29f 5/00
 U.S. Cl. 264—131

8 Claims

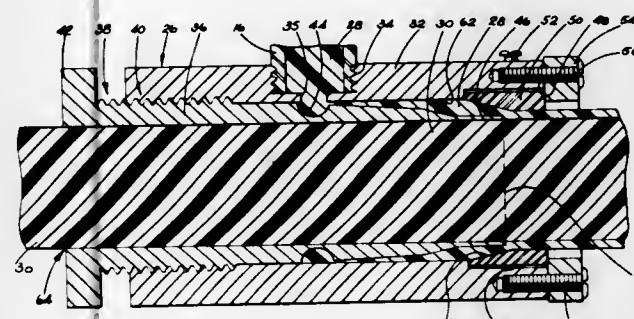


Spreading glass rovings out as they pass through a bed of a powdered thermoplastic and subsequently heating the roving so that the thermoplastic flows to produce a matrix around the fibres.

3,742,107

EXTRUSION PROCESS FOR OPTICAL FIBRES
 John J. Hawkins, Santa Ana, Calif., assignor to Poly-Optics, Inc.
 Filed Oct. 6, 1969, Ser. No. 863,990
 Int. Cl. B29f 3/10
 U.S. Cl. 264—174

6 Claims



An extrusion method for organic polymer optical fibres in which an elongate, solid body of organic polymer material is moved through a crosshead die wherein organic polymer material is extruded to intimately adhere to the surface of the body, and the clad body is then drawn to an increased length. At all times from adherence of the cladding material to the drawing step, the clad body is maintained at a temperature at or above the softening point of the cladding material or the body material.

3,742,108

Patent Not Issued For This Number

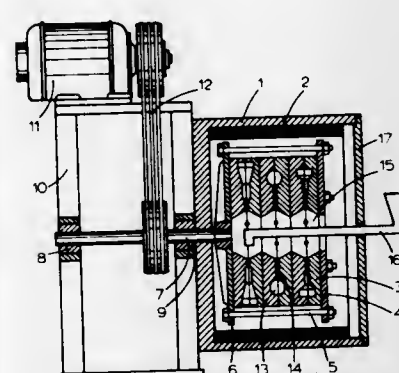
3,742,109

PROCESS FOR THE PREPARATION OF HIGH-MOLECULAR POLYMERIZATION PRODUCTS
 Jan W. H. Zijp; Hendrik Bosch, and Antonius Stevenhagen, all of Geleen, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands
 Continuation-in-part of Ser. No. 750,741, Aug. 6, 1968, abandoned. This application Oct. 21, 1970, Ser. No. 82,728
 Claims priority, application Netherlands, Aug. 9, 1967, 6710935

Int. Cl. B29c 5/04

U.S. Cl. 264—311

6 Claims

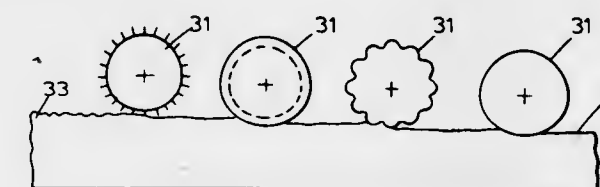


A process for producing polymers by the ionogenic polymerization of lactams is disclosed, wherein the lactam monomer, in the liquid state, mixed with a catalyst and promoter is introduced into a heated mold, which rapidly rotates about an axis outside the mold, via a conduit disposed co-axially with respect to the axis and via a feed channel which extends from the conduit at an angle to the axis and the polymerized, molded object is automatically removed from the mold in a radial direction due to centrifugal force.

3,742,110

METHOD OF SHAPING BRITTLE FOAMED CLAY BY CRUSHING WITH A BLUNT ROLLER
 Einar Kjelland-Fosterud, Hosle, Norway, assignor to Sentralinstitutt for Industriell Forskning, Oslo, Norway
 Filed May 13, 1971, Ser. No. 142,990
 Claims priority, application Norway, May 15, 1970, 1876/70
 Int. Cl. B29d 27/00
 U.S. Cl. 264—321

6 Claims



A method for forming an object of brittle foam material from foam clay or a similar ceramic building material in the

form of a block or element. The objects are formed under controlled, local crushing of the foam material by pressing during the forming one or more tools into the foam material with a force that exceeds the compression strength of the foam material and with a crushing area which multiplied by the compression strength defines a lesser force than that force which causes high enough tensile stress to exceed the tensile strength of the foam material, outside the local parts of the foam material which are crushed. The crushing area is less than 5 per cent of the surface which is formed and may be performed by a number of hammers having a controlled length of stroke. The crushing may be performed by means of one or more clay cylindrical discs which are pressed into the surface of the foam material and then moving and pressing the discs again for forming slits in the material or to divide the object.

ERRATUM

For Class 423—588 see:
 Patent No. 3,742,061

ELECTRICAL

3,742,111

METHOD AND FURNACE FOR THE ELECTRIC
MELTING OF GLASS

Helmut Pieper, Lohr am Main, Germany, assignor to Ingenieurbüro Glasofenbau Nikolas Sorg GmbH & Co. KG., Germany

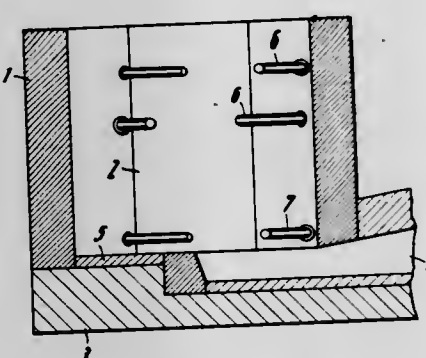
Filed Jan. 3, 1972, Ser. No. 215,062

Claims priority, application Germany, Jan. 5, 1971, P 21 00 335.0

U.S. Cl. 13-6

Int. Cl. C03b 5/02

17 Claims



A method for melting glass and an electric melting furnace are disclosed in which upper and lower sets of electrodes are spaced vertically to cause separate flows of glass circulating within adjacent upper and lower planes in a manner limiting glass flow between the respective planes. The set of electrodes in the lower plane are positioned so that rising glass flows from the tips thereof within the lower plane move upwardly to intersect descending glass flows within the upper plane at the interface between the planes thereby limiting glass flow between the planes. Preferably, each of the electrodes in the lower plane is circumferentially staggered relative to the electrodes in the upper plane and the amount of energy applied to glass in the lower plane is greater than the amount of energy applied to the glass in the upper plane.

3,742,112

AUTOMATIC RHYTHM INSTRUMENT

Eisaku Okamoto, Hamakita, Japan, assignor to Nippon Gakki Seigo Kabushiki Kaisha, Hamamatsu-shi, Japan

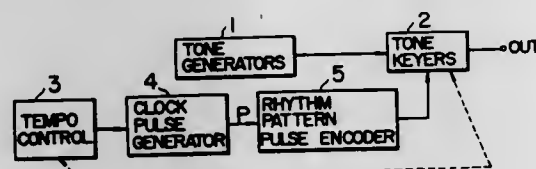
Filed Oct. 26, 1971, Ser. No. 192,161

Claims priority, application Japan, Oct. 27, 1970, 45/93983

Int. Cl. G10h 1/00

U.S. Cl. 84-1.03

4 Claims



An automatic rhythm instrument comprises a clock pulse generator, a tempo control for controlling the period of the clock pulse, a rhythm pattern pulse encoder receiving the clock pulse and generating rhythm pattern pulses for the selected rhythm, tone generators for generating tone signals, and tone keys for gating tone signals upon receipt of the rhythm pattern pulses. On each pulse of the rhythm pattern pulses, the tone keyer conducts for a time period determined by a time constant circuit included therein. The tempo control is also connected to the time constant circuit to vary the conducting time lengths of the tone keyers in accordance with the tempo by the tempo control, so that each sounding time length becomes shorter as the tempo becomes faster.

1456

3,742,113
STRINGED MUSICAL INSTRUMENT WITH
ELECTRICAL FEEDBACK

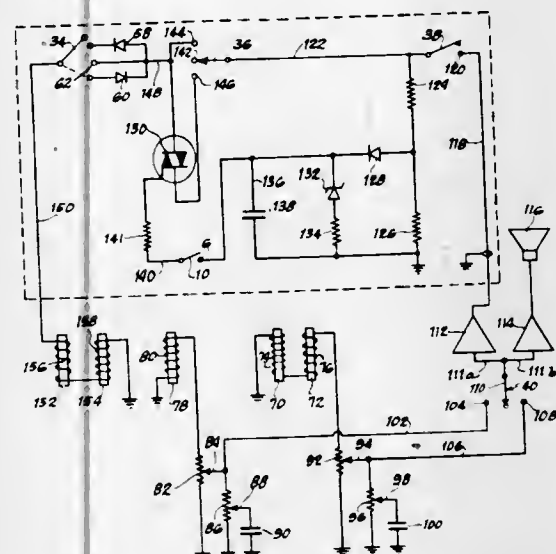
Marcus S. Cohen, 134 Woodland Avenue, Winnetka, Ill.

Filed Apr. 28, 1971, Ser. No. 138,213

Int. Cl. G01h 3/00

U.S. Cl. 84-1.04

11 Claims



This application discloses a stringed musical instrument including a means responsive to the vibrations of a string as it is plucked or hit, and a means for driving the oscillations of the string electromechanically. The means responsive to the vibration generates an electrical signal which is amplified and supplied to the driving means which causes continued vibration of the string. Means are disclosed wherein the string's vibrations can be sustained for an arbitrary period of time at its fundamental frequency or at higher harmonics thereof, or at a mixture of fundamental and harmonics, producing a sound rich in overtones unique to this instrument. Also disclosed are means whereby the player selects at will which of a plurality of strings will be driven continuously as drones, which will be driven only when played upon, and which will remain undriven. The effect is to make possible the creation of aesthetically pleasing sounds which are entirely different than those created by standard stringed instruments.

3,742,114

GUITAR-LIKE ELECTRONIC MUSICAL INSTRUMENT
USING RESISTOR STRIPS AND POTENTIOMETER
MEANS TO ACTIVATE TONE GENERATORS

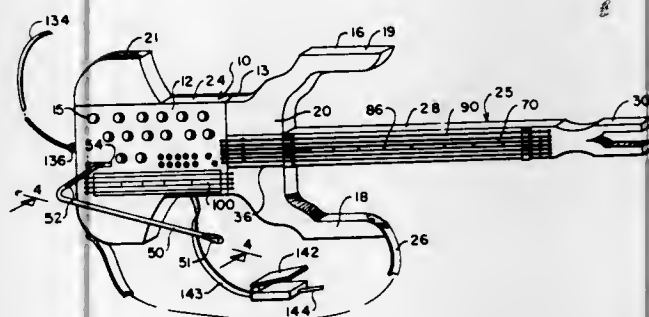
Robert G. Barkan, Box 140, N. Country Road, Miller Place, N.Y.

Filed July 22, 1971, Ser. No. 165,213

Int. Cl. G10h 1/02, 5/04

U.S. Cl. 84-1.16

11 Claims



An electronic guitar-like musical instrument comprises a central flat hollow box-like body with contoured forms extending laterally. A neck extends outwardly of one end of the body. On the neck is a fingerboard formed by a plurality of

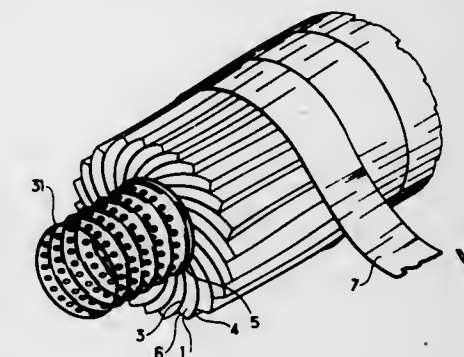
JUNE 26, 1973

ELECTRICAL

1457

electrical resistance strips over which are suspended wire strings. On the box-like body is a control panel provided with controls for the instrument. A short fingerboard is also provided on the control panel and is formed by short electrical resistance strips over which are suspended other wire strings. Tone generators in the box-like body are electrically connected in circuit with the strings, resistance strips and controls on the panel. Potentiometers on the panel control separate tone generators. A vibrato bar extends outwardly of the body for varying pitch of generated tones. Picked notes and chords, sustained and continuously varied notes and chords can be generated by the instrument.

central duct of the cylindrically formed cable. The faces of the



adjacent strips partly overlap.

3,742,115

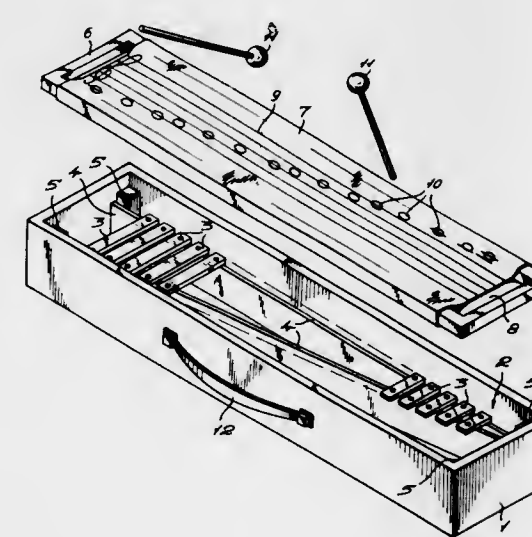
MUSICAL INSTRUMENT AND ASSOCIATED METHOD
Jose Jakubovicz, Praia do Flamengo 386, Rio, Brazil

Continuation-in-part of Ser. No. 841,339, July 14, 1969, Pat. No. 3,641,864. This application Nov. 17, 1971, Ser. No. 199,485

Int. Cl. G09b 15/02

U.S. Cl. 84-470

8 Claims



A musical instrument comprises sonorous bars mounted in sequence of pitch in a hollow, open box. A frame carrying a flexible band of material is mountable on the box in the opening thereof so as to be superimposed on the bars. A musical staff and notes are printed on the band and the notes correspond to the arrangement of the bars. The frame is fitted in the box to provide a singular position of the band in which the notes thereon are aligned with the respective bars therebeneath. By striking each note with a hammer the bar therebeneath is sounded to provide immediate association of the note and its corresponding sound.

3,742,117

OXIDATION-RESISTANT SEAL

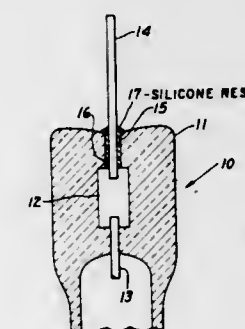
Victor A. Levand, Jr., Lyndhurst, and Richard H. Holcomb, South Euclid, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed May 11, 1972, Ser. No. 252,298

Int. Cl. H01j 5/38

U.S. Cl. 174-50.64

3 Claims



A seal for an electrical device comprising a fused silica member, a refractory metal lead-in conductor and an oxidation preventing barrier of silicone. The conductor has a foil portion attached to an outer lead which is embedded in the fused silica member thereby forming a capillary passage from the ambient air to the foil portion. This capillary passage is effectively closed off from moisture by filling it with a moisture-resistant, heat-resistant polymeric hydrocarbon silicone resin.

3,742,118

METHODS AND DEVICES FOR ENCLOSING
ELECTRICAL COMPONENTS

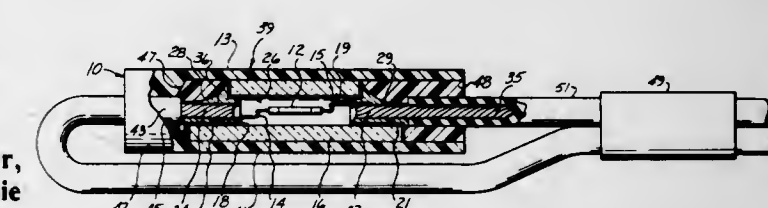
Kjell E. Myhre, Sierra Madre, and A. Michael Harrison, Pacific Palisades, both of Calif., assignors to Micron Instruments, Inc., Los Angeles, Calif.

Filed Sept. 30, 1971, Ser. No. 185,101

Int. Cl. H05k 5/06

U.S. Cl. 174-52 S

15 Claims



Methods and devices for enclosing electrical components include an electrically insulating enclosure having initially a pair of spaced openings. An electrical component is disposed in this enclosure, with one terminal lead of the electrical component being located at one opening and another terminal

3,742,116

TRANPOSED ELECTRIC CABLE AND METHOD OF
PRODUCING THE SAME

Marcel Aupoix, Paris, and Francois Moisson-Franckhauser, Bretigny-sur-Orge, both of France, assignors to Compagnie Generale D'Electricite, Paris, France

Filed June 19, 1972, Ser. No. 264,085

Claims priority, application France, June 23, 1971, 7122884

Int. Cl. H01b 11/02; H01v 11/00; H01b 13/06

U.S. Cl. 174-34

8 Claims

Transposed electric cable consisting of composite conductive strips arranged so that one of their edges is tangent to a

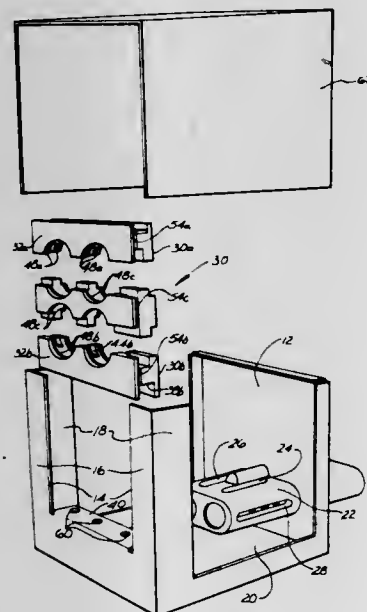
lead of the electrical component being located at another opening of the enclosure. The enclosure is provided with a recess at each opening forming indentations in the side of the enclosure at each opening. The one opening of the enclosure is closed with a solder connected to the one terminal lead of the electrical component. The other opening of the enclosure is closed with a solder connected to the other terminal lead of the electrical component. The quantities of solder employed in closing the openings of the enclosure are also utilized to connect external leads to the terminals of the electrical component. To this end, solder is applied at and through each indentation for closing the openings and connecting each terminal lead to an external lead.

3,742,119 TERMINAL HOUSING

Albert P. Newman, Cincinnati, Ohio, assignor to Empire Products, Inc., Cincinnati, Ohio
Filed Nov. 11, 1971, Ser. No. 197,665
Int. Cl. H02g 3/18

U.S. Cl. 174—65 R

5 Claims



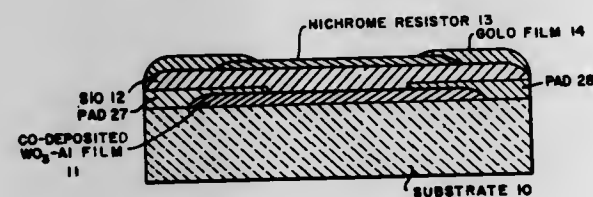
A terminal housing, having an electrical connector integral therewith, into which multiple conductor electrical cables may be brought and joined in electrical contact with said electrical conductor. Means are provided for securing said cables against movement relative to said housing, and to seal said housing against penetration by a liquid. Said means comprising a plurality of resilient members each interengagable with another, and containing hemispherical depressions through which said cables are brought into said housing.

3,742,120 SINGLE LAYER SELF-DESTRUCT CIRCUIT PRODUCED BY CO-DEPOSITION OF TUNGSTIC OXIDE AND ALUMINUM

Frank Z. Keister, Culver City, and Gary S. Smolker, Los Angeles, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 28, 1970, Ser. No. 90,204
Int. Cl. H05k 1/04; H01c 7/00; F42c 13/00
U.S. Cl. 174—68.5

1 Claim



A single layer self-destruct thermite material of tungstic oxide and aluminum simultaneously vacuum deposited on a

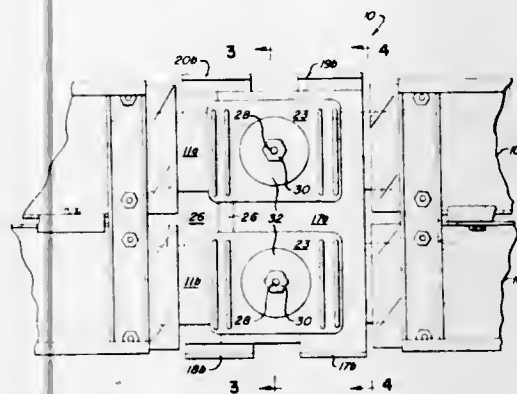
substrate underlying or overlying a thin film circuit separated therefrom by an electrical insulating thin film to cause thin film circuit destruction when the destruct film is ignited by electrical energy.

3,742,121 TAP-OFF SECTION FOR A FEEDER BUS DUCT RUN

John E. Schmidt, Oxford, Ohio, assignor to Square D Company, Park Ridge, Ill.
Filed Feb. 28, 1972, Ser. No. 229,766
Int. Cl. H02g 15/08

U.S. Cl. 174—72 B

10 Claims



The flat bus bars of the tap-off section are outwardly offset in their central portions from their closely spaced relationship in the adjoining portions. Connectors having relatively wide rectangular contact plate portions are electrically connected respectively to the central portions of the bus bars in a single-bolt type joint. Each connector has a relatively narrow off-center connecting strap portion, the free end portion of which extends perpendicularly to the contact plate portion. The lengths of the perpendicularly extending free end portions of the connecting strap portions vary according to the distances of the contact plate portions from a side of the tap-off section. In a four-pole tap-off section, two connecting strap portions are disposed at the top of the tap-off section and spaced from each other longitudinally of the tap-off section, and two connecting strap portions are disposed at the bottom of the tap-off section and spaced from each other longitudinally of the tap-off section. In a double run of parallel connected feeder bus duct sections, each connector of a tap-off section is electrically connected to a pair of corresponding bus bars connected respectively in the two runs.

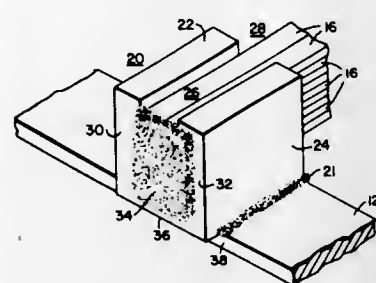
3,742,122 ELECTRICAL CONNECTOR

Nicholas G. Blavos; Kou Chi Lin, both of Sharon, and LeRoy E. Dobson, Jamestown, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 12, 1971, Ser. No. 188,301
Int. Cl. H02g 15/08

U.S. Cl. 174—94 R

8 Claims



Fixture means for connecting conductor straps to each other or to a bus bar. Partitions of the fixture means form channels into which the conductor straps are placed, with the ends of the straps being flush with the front faces of the partitions. A conducting material is welded across the partition faces and the conductor strap ends to provide a current path

from the conductor straps to the partitions. The fixture means is welded to the bus bar to provide a low resistance current path between the bus bar and the fixture means.

ERRATUM

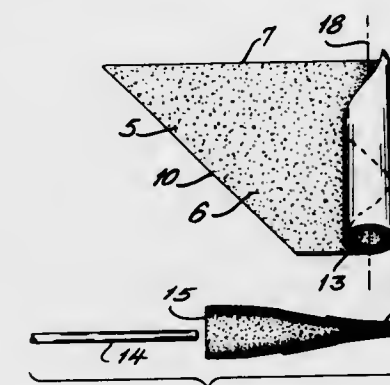
For Class 174—102 see:
Patent No. 3,742,363

3,742,123 INSULATOR FOR ELECTRIC WIRES

LeRoy E. Haub, Jr., 4401 Clarmont Court, Bridgeton, Mo.
Filed Nov. 25, 1970, Ser. No. 92,667
Int. Cl. H01r 5/12; H01b 17/00

U.S. Cl. 174—138 F

5 Claims



An insulator for insulating wires, said insulator being tubular in shape with a longitudinal opening therein for receiving one or more wires, said insulator adapted to cover and insulate the wire or wires and/or the ends thereof, said insulator being deformable under pressure and having pressure sensitive adhesive material on the inside surface so that said insulator adheres to said wire or wires and to itself upon sufficient deformation.

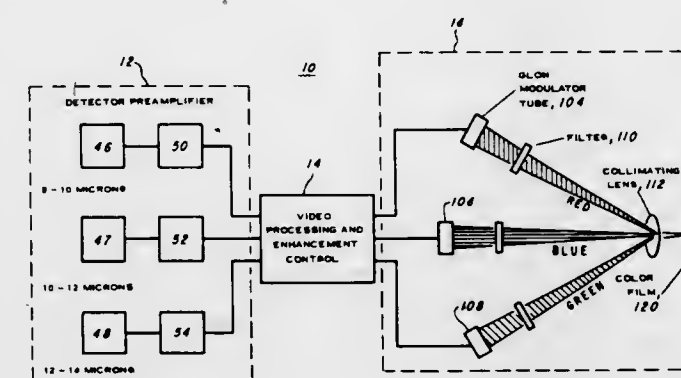
3,742,124 COLOR INFRARED DETECTING SET

Jesse C. Wilson, Richardson; Melvin J. Borel, Carrollton, and Charles B. Weaver, Dallas, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 16, 1971, Ser. No. 171,838
Int. Cl. H04n 9/02

U.S. Cl. 178—5.2 R

24 Claims



A color infrared detecting set is provided which utilizes the variation of emissivity of objects to add the effect of color to the sensing and presentation format. With color added to brightness a large number of shade combinations are possible and a large visible distinction between objects is realized.

Color image signals are obtained by infrared energy passing through filters of different wavelengths (for a range of detection interest) to corresponding detectors which convert the infrared energy to electrical signals. The electrical signals are amplified, weighted and summed in one channel to produce a brightness signal, and processed in another channel to produce a plurality of color-difference signals. The brightness signal drives a plurality of light modulators, and each light modulator receives a color perturbation signal derived from the color-difference signals to obtain a color signal representative of one of the tristimulus values. The color signals are combined to produce an image of brightness equal to a black and white image, but having an apparent hue.

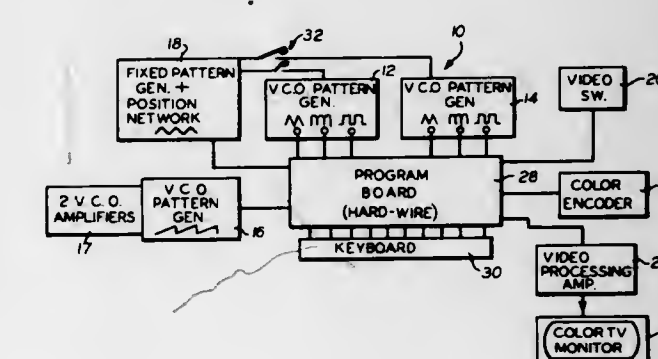
3,742,125 COLOR VIDEO ABSTRACT SYNTHESIZER

Eric J. Siegel, New York, N.Y., assignor to Electronic Visions, Inc., New York, N.Y.

Filed June 11, 1971, Ser. No. 152,349
Int. Cl. H04n 9/02

U.S. Cl. 178—5.2 R

18 Claims



An apparatus for synthesizing a color video abstract signal having a selectable color content characteristic and geometric form characteristic by a programmable predetermined mixing of the outputs of a plurality of pattern generators and a pseudo chrominance signal. The pseudo chrominance signal has variable hue and saturation characteristics, the color content characteristic being dependent upon the hue and saturation characteristics. In addition, the pattern generators are capable of providing a plurality of different selectable predetermined waveform configurations which configurations are, in turn, capable of providing at least two different geometric form characteristics. Both the color content characteristic and the geometric form characteristic of the resultant color video abstract signal are capable of being varied in a predetermined fashion. The pattern generator may be synced to a submultiple of the vertical or horizontal rate to provide a color video abstract display which is stable but may be electronically positioned on the display screen. In addition, the mixing of the various pattern generators is accomplished through a video switch in accordance with a preprogrammed interconnection of the various devices. By controlling the operation of the video switch, different geometric form characteristics with respect to both size and shape as well as zoom-in and zoom-out effect for the resultant video abstract display may be provided. Furthermore, a strobe effect for the resultant video abstract display may also be provided wherein the polarity of the color video abstract signal is reversed at a predetermined frequency so as to vary the signal from negative to positive and vice versa. In addition, a keyboard is provided for intermittently varying the preprogrammed interconnection of the devices so as to provide a different color video abstract display.

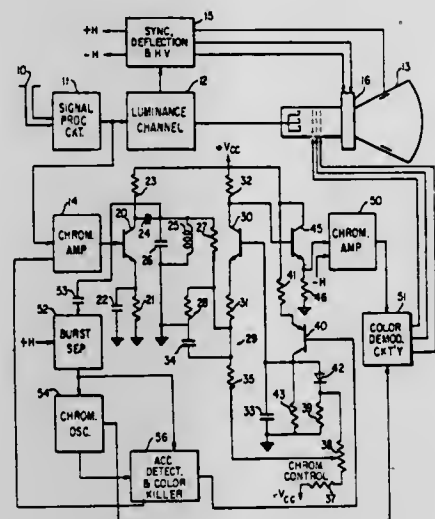
3,742,126

AMPLITUDE CONTROL CIRCUITS

Robert Dale Aitmanshofer, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.
Division of Ser. No. 829,510, June 2, 1969. This application
Apr. 28, 1971, Ser. No. 138,294
Int. Cl. H04n 9/48

U.S. Cl. 178—5.4 R

5 Claims



A common base amplifier is interposed in a chrominance processing amplifier chain and couples a first selective amplifier, included in said chain, to suitable output means. A unidirectional current device coupled to the low impedance input terminal of the common base stage, exhibits a varying impedance in accordance with a varying current flowing therethrough, which current variation is provided by suitable means coupled to said unidirectional device and responsive to varying d.c. control voltages. The varying impedance of the unidirectional device controls the amplitude of the signal applied from the first selective amplifier via the common base stage to the output means.

3,742,127

METHOD FOR RECORDING A PAL COLOR TELEVISION SIGNAL

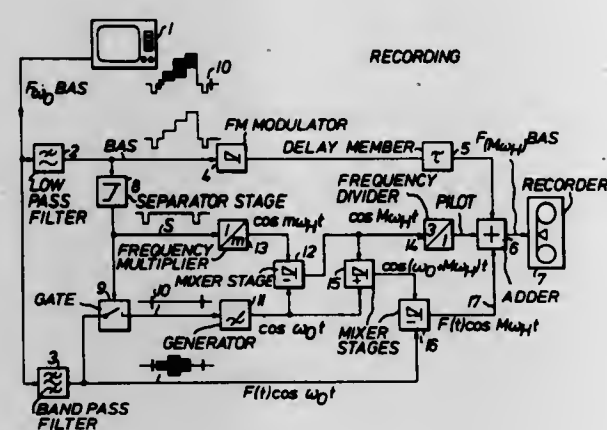
Walter Bruch, Hannover, Germany, assignor to Licentia Patent-Verwaltungs-GMBH, Frankfurt am Main, Germany
Filed Sept. 28, 1971, Ser. No. 184,427

Claims priority, application Germany, Oct. 2, 1970, P 20 48 501.2

Int. Cl. H04n 5/78, 9/32

U.S. Cl. 178—5.4 CD

2 Claims



In the recording of a PAL color television signal wherein the modulated chrominance subcarrier frequency is shifted by 25 Hz with respect to a frequency having a quarter-line frequency

offset with respect to the horizontal sweep frequency and is recorded in this form in a frequency band outside that of the luminance signal, the chrominance subcarrier is so shifted that in its recorded form it retains the 25 Hz shift and quarter-line frequency offset.

3,742,128

MANUAL CHROMINANCE SATURATION CONTROL CIRCUIT

Shuzo Wakai, Kyoto, and Hitoshi Sugano, Takatsuki, both of Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan

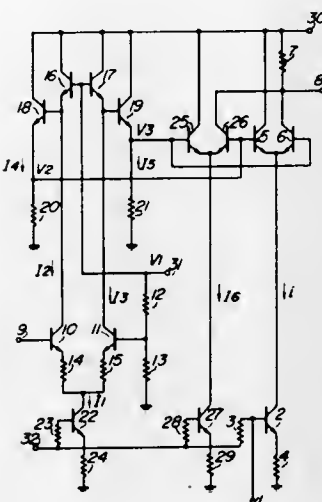
Filed Feb. 25, 1972, Ser. No. 229,331

Claims priority, application Japan, Mar. 5, 1971, 46/12069; Mar. 8, 1971, 46/12565

Int. Cl. H04n 9/48

U.S. Cl. 178—5.4 MC

3 Claims



A chrominance saturation control circuit to permit indirect or D-C mode control of chrominance saturation. The connection between the chrominance saturation control knob in a television receiver and the chrominance saturation control circuit can be achieved through wiring which transmits only D-C voltage. With this DC controlled chrominance saturation control, the television set may be made less susceptible to external interference compared to the case of using a shielded wiring for directly controlling the chrominance saturation.

3,742,129

APPARATUS AND METHOD FOR GENERATING HALFTONES FOR IMAGE REPRODUCTION

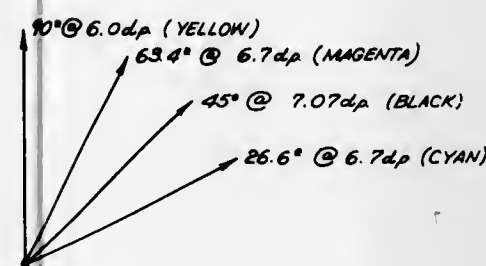
Webster C. Roberts, Mayfield Heights, and Alan M. Foster, South Euclid, both of Ohio, assignors to Harris-Intertype Corporation, Cleveland, Ohio

Filed July 7, 1971, Ser. No. 160,406

Int. Cl. H04n 1/46, 5/84

U.S. Cl. 178—5.4 CD

25 Claims



Apparatus and method are provided for forming halftone reproductions of continuous tone color images wherein for

3,742,130

TELEVISION RECEIVER INCORPORATING SYNCHRONOUS DETECTION

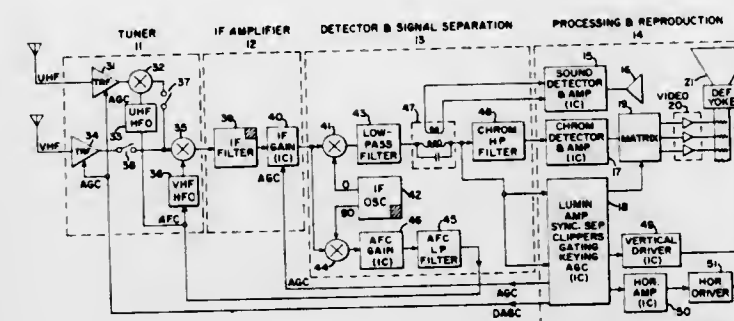
William Peil, N. Syracuse, N.Y., assignor to General Electric Company, Syracuse, N.Y.

Filed Aug. 6, 1971, Ser. No. 169,641

Int. Cl. H04n 9/50; H04b 1/16, 1/68

U.S. Cl. 178—5.4 SD

19 Claims



A receiver for the reception of black and white or color television signals is disclosed which employs synchronous signal detection. Employing a highly linear synchronous detector of appropriately large bandwidth permits all portions of the signal to be detected at the original levels in the same detector without mutual interference. The detected portions are then separated at base band after detection by simplified filters. A single wide band lumped filter passing the whole channel at an intermediate frequency may be employed for interchannel separation prior to detection. The design is intended for either discrete or monolithic solid state fabrication, the latter form permitting highly desirable realizations of critical circuits at low cost.

3,742,131

FREQUENCY INTERFERENCE REDUCTION IN CABLE TELEVISION SYSTEMS

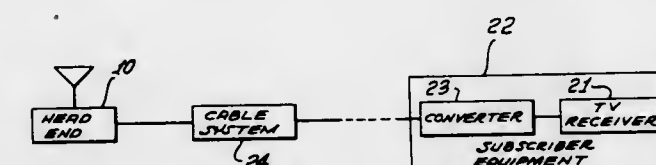
Gaylord G. Rogeness, Santa Ana, Calif., assignor to Anaconda Wire and Cable Company, New York, N.Y.

Filed July 2, 1971, Ser. No. 159,119

Int. Cl. H04n 7/10

U.S. Cl. 178—5.6

10 Claims



A cable television system includes:

- a head end means for receiving multiple channel programming with standard 1.5 MHz spread between adjacent channel picture and sound carriers, and for shifting said bands to provide greater than 1.5 MHz spread therebetween on the distribution cable,
- a converter having an input from the cable and an output operatively connectable with the television receiver, the frequency spread between adjacent channel picture and sound carriers at said input being substantially greater than 1.5 MHz, and

c. the converter including circuit means for selecting a desired channel on the cable and converting the frequencies associated with that channel to a predetermined output frequency band.

3,742,132

DRUM SERVO SYSTEM OF A VIDEO TAPE RECORDER FOR AN ELECTRONIC EDITING

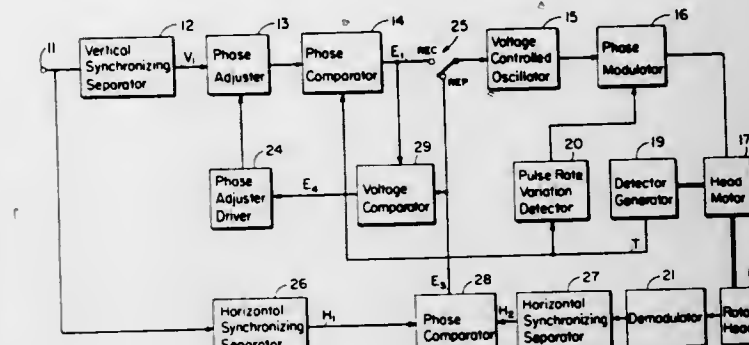
Isao Sanguu, and Tatsuo Konishi, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Filed May 20, 1971, Ser. No. 145,163

Claims priority, application Japan, May 23, 1970, 45/44321

Int. Cl. G11b 27/08

7 Claims



A drum servo system for electronic editing of television signals in a video-tape recorder in which the phase difference between a previously recorded reproduced signal, and a new recording signal is detected. The phase of the reproduced signal is shifted in response to that detection such that the phase of the reproduced signal is locked to that of the recording signal.

3,742,133

MONITORING SYSTEM

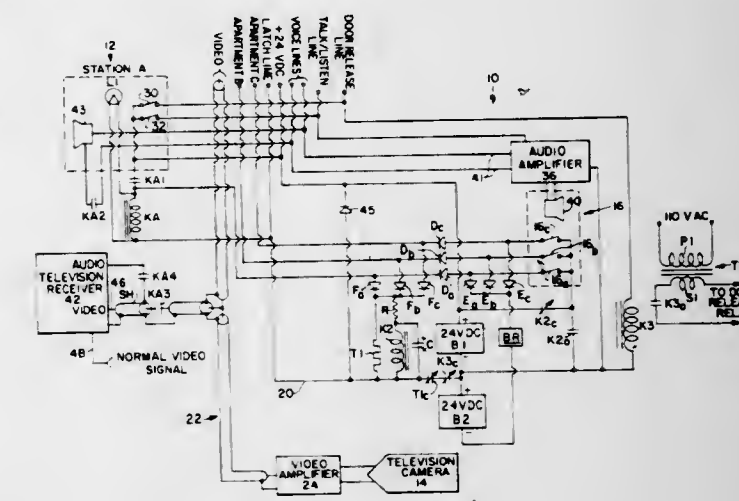
Joseph L. O'Sullivan, Milton, Mass., assignor to Seaboard Systems, Inc., Randolph, Mass.

Filed Sept. 15, 1971, Ser. No. 180,804

Int. Cl. H04n 7/02, 7/18

U.S. Cl. 178—6

18 Claims



The system is for use in an apartment house or other multi-unit dwelling and generally includes a central station which is preferably in the lobby of the apartment house and a plurality of unit stations, one being associated with each unit of the apartment house. The central or lobby station includes a plurality of manually actuatable switches, one identifying each apartment unit, a television camera and a

speaker/microphone arrangement for communicating with an occupant of the apartment house. Each unit station similarly includes a corresponding speaker/microphone arrangement, along with a lobby door release switch, a television receiver and a talk/listen switch. In accordance with the invention circuitry including relay and delay means are also located in the central station and unit stations.

When one of the switches in the lobby is depressed and the television receiver in the corresponding unit is on, the video signal from the lobby camera automatically overrides the video signal of the tuned-in station regardless of which station is tuned-in and the occupant can immediately observe the lobby area to determine whether or not to actuate the door release switch.

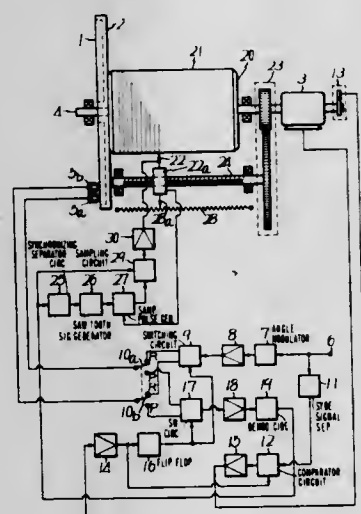
3,742,134

VISUAL RECORDING SYSTEM FOR VIDEO SIGNAL
Saburo Uemura, 4394 Kamari-machi, Kanazawa-ku, Yokohama-shi, Kanagawa-ken, Japan
Continuation-in-part of Ser. No. 757,034, Sept. 3, 1968, abandoned. This application Mar. 16, 1971, Ser. No. 124,879

Int. Cl. H04n 1/28

U.S. Cl. 178-6.6 DD

8 Claims



A system for the visual recording of a video signal records one field or frame of the video signal on a rotary magnetic recording medium, such as a magnetic disk, and then repeatedly reproduces the recorded signal. A portion of the repeatedly reproduced signal is sampled at each horizontal synchronizing signal period thereof, and controls a recording element, such as a discharge electrode, which discolours or otherwise visually alters a recording paper in correspondence with the amplitude of the sampled signal. The recording paper is supported on a cylindrical surface for relative movement with respect to the recording element both axially and in rotation by a mechanical interconnection to the rotary magnetic recording medium, and the position of sampling of the reproduced signal is sequentially shifted at every relative rotation of the recording paper and element while the relative axial movement is synchronized with such relative rotation.

3,742,135

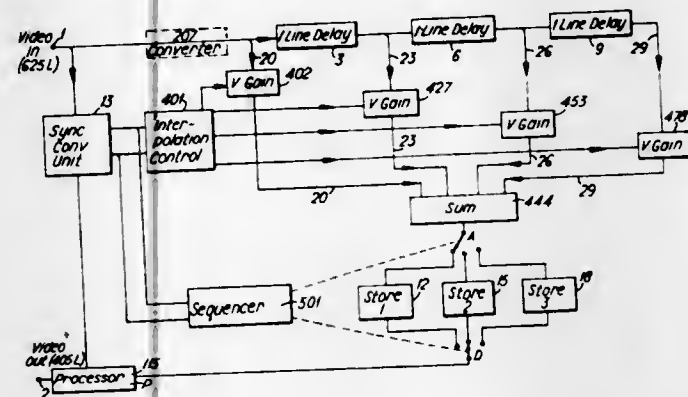
TELEVISION SYSTEMS
John Lewis Edwin Baldwin, Croydon, England, assignor to Independent Television Authority, London, England
Filed Mar. 22, 1971, Ser. No. 126,538
Int. Cl. H04n 7/00

U.S. Cl. 178-6.8

20 Claims

Video input signals of a field of a first line standard are converted to a second line standard, having a reduced number of

lines, via an intermediate line standard. The input signals are passed through one or more delay devices so that the picture information in corresponding parts of adjacent lines is available at any instant. By interpolation of this information there are produced lines of an intermediate standard which are stored. The intermediate standard contains the same number of lines as the first but the interpolated information is contained in the number of lines of the second standard. The excess lines of the intermediate standard may be blank. Output



signals of the second standard are obtained by reading-out only the wanted lines of the intermediate standard.

In a modification, where the second standard has more lines than the first, lines are added when reading-out the intermediate standard.

The apparatus is preferably of the digital type for all steps of the conversion. The novel use of digital shift registers as delay devices and storage devices is especially convenient and economic.

3,742,136

PICTURE GENERATING UNIT OF THE SCANNING TYPE
Tore Bertil Reinhold Olsson, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden

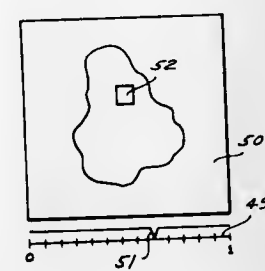
Filed Mar. 15, 1971, Ser. No. 124,209

Claims priority, application Sweden, Mar. 26, 1970, 4274/70

Int. Cl. H03k 5/20; H04n 5/22, 7/18

U.S. Cl. 178-6.8

12 Claims



A scanning device such as an IR camera generates horizontal and vertical scanning signals to direct a detector over a viewing field. The detector then emits information signals in accordance with the amplitude of a property, such as temperature, at points within the viewing field. The scanning and information signals are fed to a display device to give a visual indication of the temperature distribution of the viewing field. In addition a selective device through the agency of the scanning signals controllably selects a portion of the viewing field for detailed study. The selective device feeds signals to the display device to visually demarcate the selected area and also selects the information signals in that area for amplitude measurement. The measure of the amplitude is converted to a form suitable for visual display so that there is simultaneously displayed a representation of the field of view with the selected area demarcated and an indication of the temperature within the selected area.

3,742,137

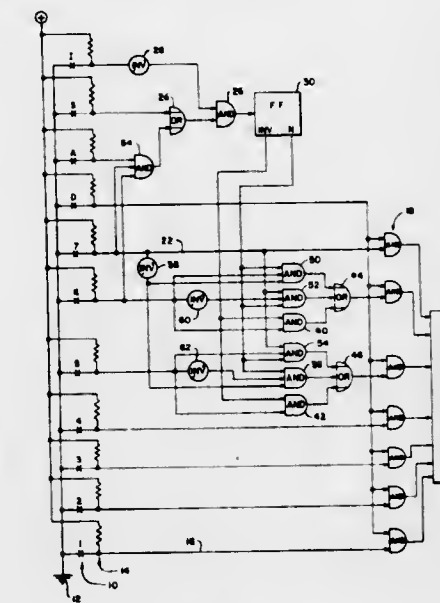
CASE SHIFTING CODE GENERATOR
Stuart M. Garland, Morton Grove, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed July 29, 1970, Ser. No. 59,217

Int. Cl. H04L 15/12

U.S. Cl. 178-17 C

1 Claim



A system for case shifting the binary coded representations of the alphanumeric and figure characters of the American Standard Code for Information Interchange (ASCII) comprising three gates on each of the fifth and sixth code levels with one of the three gates of each such level energized to pass the normal code generated by an ASCII code generator in the absence of a shift command. The other two AND-gates of each of the fifth and sixth levels are energized upon the occurrence of a normal shift command. One of these other two AND-gates in each level passes a normal fifth or sixth level code signal, and the other of these two AND-gates passes an inverted fifth or sixth level signal. In the presence of a shift command in combination with a "1" state signal in the seventh level, the inverted sixth-level AND-gate and the normal fifth-level AND-gate are energized. However, a "0" state signal in the seventh level causes the normal sixth-level AND-gate and the inverted fifth-level AND-gate to be energized. An additional AND-gate monitors the sixth and seventh levels and an auxiliary shift contact. Upon concurrence of "1" state signals in both the sixth and seventh levels and the closure of the auxiliary shift contact, the additional AND-gate delivers a shift signal to the normal shift apparatus of the circuit in order to case shift only the alphabetic characters.

3,742,138

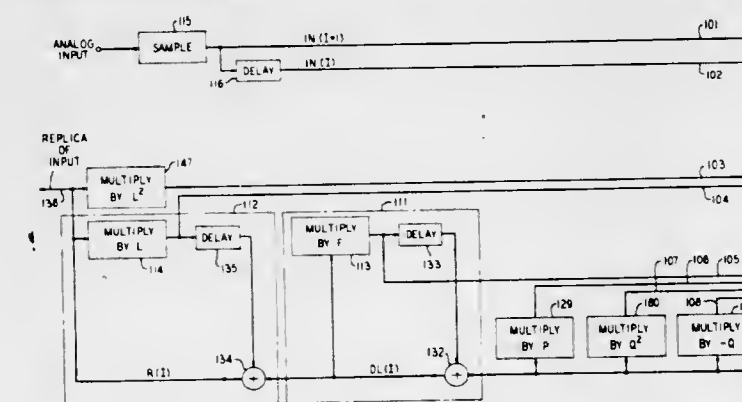
PREDICTIVE DELAYED ENCODERS
Cassius Chapin Cutler, Holmdel, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 30, 1971, Ser. No. 176,131

Int. Cl. H03k 13/02

U.S. Cl. 178-68

8 Claims



In a feedback type encoder, predictive delay apparatus allows for the calculation of estimated encoding error one sam-

pling period in advance of the sample being encoded. Each of a plurality of combinatorial means assembles a predicted error signal under conditions of hypothetical prospective output signals. In the embodiment shown, a one bit encoder is afforded exponential adaptation and double integration facilities in its feedback circuitry. The net result is a superior response to rapid directional changes in input analog signals with a substantial improvement in operational stability.

3,742,139

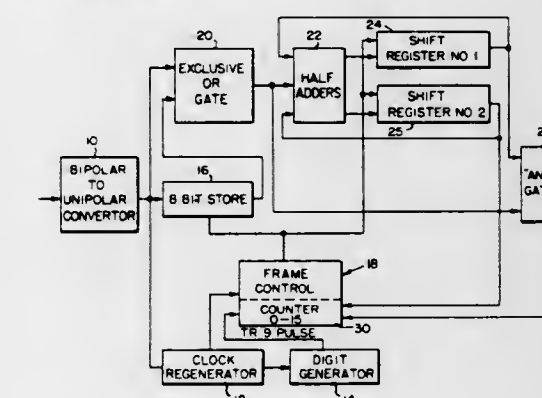
FRAMING SYSTEM FOR T-CARRIER TELEPHONY
Michael A. Bochly, 35 Nory Lane, Rochester, N.Y., and Paul K. Kavanaugh, 528 Countryside Lane, Webster, N.Y.

Filed Jan. 20, 1971, Ser. No. 108,005

Int. Cl. H04L 7/00

U.S. Cl. 178-69.5 R

3 Claims



A framing system for the receiver in a T-carrier system of the kind in which framing signals are transmitted only in alternate frames. A group of eight time slots is fed to a store and compared with the corresponding eight time slots two frames later. If there is no framing relationship, the circuit steps to the next succeeding group of eight time slots and repeats the comparison. If the timing relationship is found, further comparisons are made at intervals of two frames each. If the framing relationship persists, the receiver is synchronized, if not, the circuit steps to the next group of eight time slots. The process is iterative until the framing relationship is found. A half adder controls a pair of eight stage shift registers to detect candidate time slots and framing.

3,742,140

ARRANGEMENT FOR DAMPING TORSIONAL OSCILLATIONS INDUCED IN A HELICAL SPRING, PARTICULARLY IN ARTIFICIAL REVERBERATION DEVICES

Bernhard Weingartner, Vienna, and Werner Fidi, Baden Bei Vienna, both of Austria, assignors to AKG Akustische u. Kino-Gerate G.m.b.H., Vienna, Austria

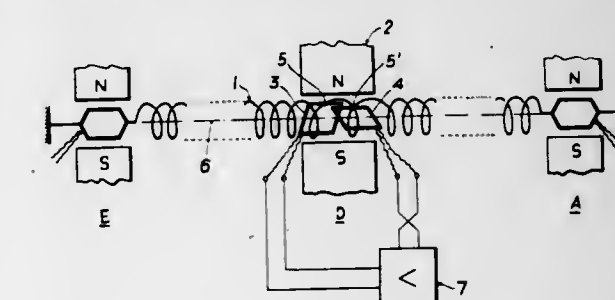
Filed Apr. 28, 1971, Ser. No. 138,208

Claims, priority, application Austria, May 19, 1970, A 4486/70

Int. Cl. H02k 33/18

U.S. Cl. 179-1 J

10 Claims



A spring system, particularly for an artificial reverberation device, includes a helical spring in which torsional oscillations are induced, and a moving coil system connected to the helical

spring for damping the oscillations electromechanically. The moving coil system includes two electrically and magnetically decoupled windings disposed in a permanent magnetic field with one winding being electrically connected to the input of an amplifier and the other winding being electrically connected to the amplifier output. The two windings are mechanically interconnected and arranged in tandem along the turn axis of the helical spring, with the axes of the two windings being mutually perpendicular to each other. The two windings may be mechanically interconnected in directly contiguous arrangement to form a rigid unit, or may be spaced apart and resiliently interconnected by a resilient coupling, such as a metal strip. The moving coil system may serve either as a driving system, for inducing torsional oscillations in the helical spring, or as a pick-up system, for detecting such oscillations. Preferably, the two windings are rectangular, but other configurations may be used with some decrease in the quality.

3,742,141

HOTEL/MOTEL ROOM STATUS SYSTEM

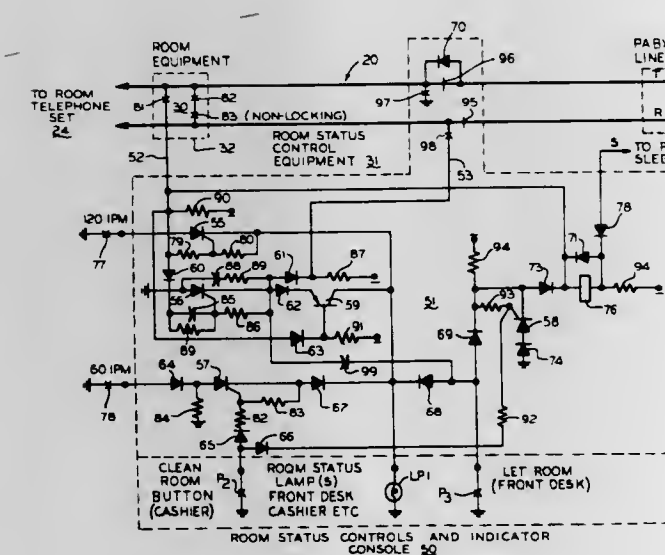
Robert H. Duncan, Memphis, and Thomas P. Miller, Jackson, both of Tenn., assignors to Terra Corporation, Jackson, Tenn.

Filed Oct. 19, 1970, Ser. No. 81,988

Int. Cl. H04m 11/00

U.S. Cl. 179-2 A

14 Claims



An electronic circuit is assigned to each room, in a hotel or motel, and selectively operated from a central control desk to light a lamp assigned to the corresponding room and thereby indicate whether it is vacant or rented. Various interruption rates may be used cause the lamp to flash in different manners, depending upon the current status of the room (i.e. unmade, being cleaned, or ready for occupancy). The electronic circuit may also be connected into computers or advance reservation systems in order to automate billing, room assignment, maintenance, and servicing.

3,742,142

REMOTE METER READER SYSTEM

Stephen J. Martin, Miami, Fla., assignor to Hunter Electronics, Inc., Hialeah, Fla.

Filed Dec. 28, 1970, Ser. No. 101,997

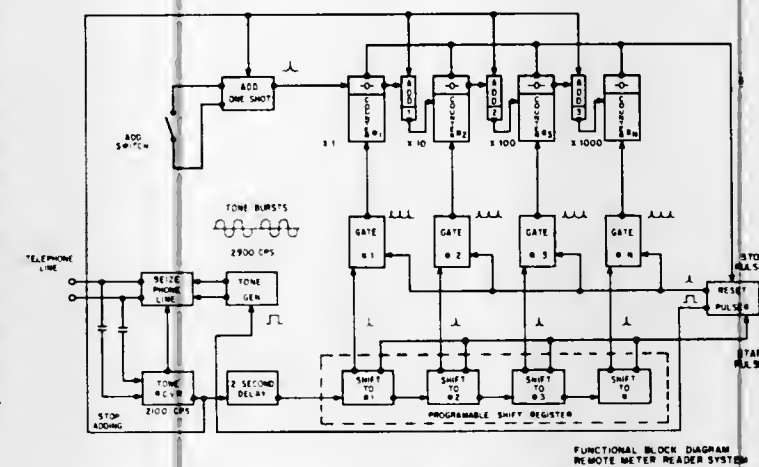
Int. Cl. H04m 11/00

U.S. Cl. 179-2 A

8 Claims

A method and apparatus by which a repeating event type meter, such as kilowatt hour meters as used by power companies, traffic counters as used by cities and counties, fuel meters showing number of gallons used, and other similar devices

can be interconnected to a telemetering unit, and by remote control from a distant end, either through telephone lines, AC



carrier lines or radio, the accumulated count can be displayed at the remote end.

3,742,143

LIMITED VOCABULARY SPEECH RECOGNITION CIRCUIT FOR MACHINE AND TELEPHONE CONTROL

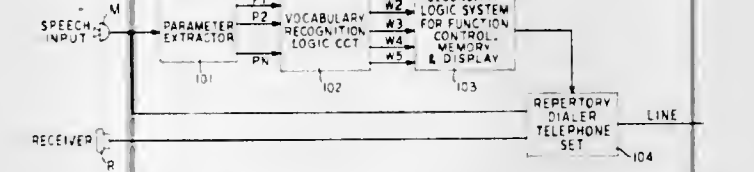
Mebein Awipi, Ocean, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 1, 1971, Ser. No. 119,551

Int. Cl. G101 1/02

U.S. Cl. 179-1 SA

3 Claims



Machine or telephone control by voiced commands is attained by translating the electrical signal derived from an acoustic signal or spoken word into a plurality of binary parameter waveforms each indicating sequentially the instantaneous condition or measurement of the corresponding parameter in terms of its being on either one side or the other of a preselected threshold or norm. A command output signal is generated only when the waveforms are found to have a particular sequence of binary parameter combinations that is acceptable to a sequential logic recognition circuit.

3,742,144

INTERCONNECTED LOGIC DIGITAL TRANSMISSION SYSTEM

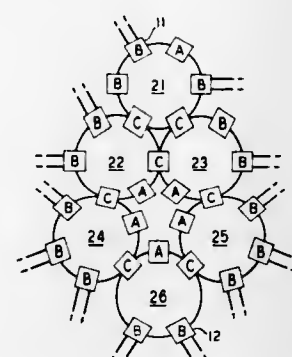
Lane Howard Brandenburg, New York, N.Y.; Bhaskarpillai Gopinath, Chatham, N.J., and Robert Paul Kurshan, New York, N.Y., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 24, 1971, Ser. No. 201,744

Int. Cl. H04j 3/08

U.S. Cl. 179-15 AL

10 Claims



A digital communication loop system wherein transfers of signal message blocks between interconnecting loops are only

made when a Hamming distance criterion is satisfied. Appended to each message block is a loop destination address code comprised of a first ordered concatenation of two binary sequences. Stored at each interconnecting loop transfer point is an address code identifying one of said interconnecting loops, comprised of a second ordered concatenation of two binary sequences. The product of the first and second ordered codes is formed to determine the Hamming distance between the loop destination address code and the address code identifying the interconnecting loop.

3,742,145

ASYNCHRONOUS TIME DIVISION MULTIPLEXER AND DEMULTIPLEXER

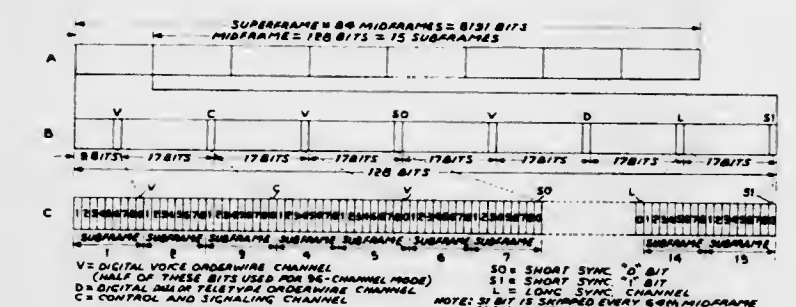
James M. Clark, Cedar Grove, and Robert H. Haussmann, Wayne, both of N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Apr. 17, 1972, Ser. No. 244,753

Int. Cl. H04j 3/04

U.S. Cl. 179-15 BA

22 Claims



There is described an asynchronous multiplexer and demultiplexer that operates on the basis of a stuff only technique. The multiplexer includes a different elastic store for each of the asynchronous input PCM data groups. Each of the elastic stores include a buffer register whose writing clock is synchronous with the asynchronous group input bit rate clock and a read clock which is synchronous with the bit rate of a synchronous data format employed for multiplexing the asynchronous group inputs. Each of the elastic stores produce a stuff request signal when the phase difference of the read and write clocks is equal to a given period, in numbers of bit periods. A common stuff control circuit samples the stuff requests and provides a control signal to inhibit the read clock to add or stuff a single stuff bit to the associated group data for each stuff request. Timing signals generated from a reference oscillator define the synchronous data format which includes 64 midframes within a superframe with each of the midframes including 15 subframes. Odd numbered ones of the subframes include 9 data bits and even numbered ones of the subframes include 8 data bits. The 9th data bit of the odd numbered subframes provide an overhead channel for transmitting digital voice orderwire, digital data orderwire, control words, a "zero" short sync bit, a "one" short sync bit and a long sync bit in each midframe. The bit assigned to the control words are employed to identify at the demultiplexer where the stuff bit has been added to the data format. The demultiplexer includes timing signal generators driven by the superframe rate recovered from the received data signal to provide the necessary timing signals to identify the supergroup frame, the midframe, the subframes and the data bits within the subframes. The timing signal generator in the demultiplexer is synchronized to the timing signal generators defining the data format in the multiplexer by a superframe recovery circuit responsive to both a short sync code and a pseudo-random long sync code. A common destuffing control is provided responsive to the code word identifying the presence or absence of a stuff bit to destuff the identified group data and thereby return the stuffed multiplexed group data to

asynchronous group data as originally applied to the elastic stores of the multiplexer. The demultiplexer includes for each asynchronous group data a different elastic store wherein the write clock is controlled by the recovered supergroup bit rate and the read clock is controlled at the group or midframe rate provided by the timing signal generators. The destuff control from the common destuff control circuit controls the write counter to cause destuffing of the associated one of the stuffed group data. A heterodyne type phase locked loop is employed in conjunction with each of the elastic stores to remove jitter from the destuffed group data.

3,742,146

VOWEL RECOGNITION APPARATUS

Edward Arthur Newman, Oxshott; Brian Edward Pay, Wraysbury, and David Roger Manning, Morden, all of England, assignors to National Research Development Corporation, London, England

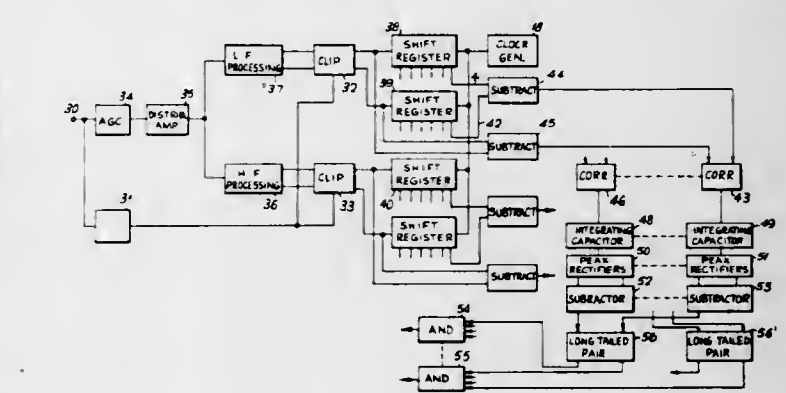
Filed Oct. 20, 1970, Ser. No. 82,348

Claims priority, application Great Britain, Oct. 21, 1969, 51,588/69; Oct. 21, 1969, 51,589/69

Int. Cl. G101 1/04

U.S. Cl. 179-1 SA

22 Claims



The recognition of signals having specific periods is described particularly in relation to recognizing vowels. Characteristic frequencies in vowels are recognized by circuits which delay the input signals for an interval related to a frequency to be recognized, correlate the delayed signals with undelayed input signals and integrate the resultant over a short period comparable with the duration of the vowel sound. The magnitude and sign of the integrated signal indicates whether the required signal is present. In order to deal with speech an incoming signal is first passed to a special form of AGC circuit and then divided into low and high frequency components. The presence of characteristic frequencies in these components is determined by the technique described above, and logic circuits indicate what combinations of frequencies and thus what vowels are present.

3,742,147

TIME DIVISION COMMUNICATION SYSTEM UTILIZING TIME SEPARATION SWITCHING

Robert Lawrence Carbrey, Boulder, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 9, 1972, Ser. No. 224,779

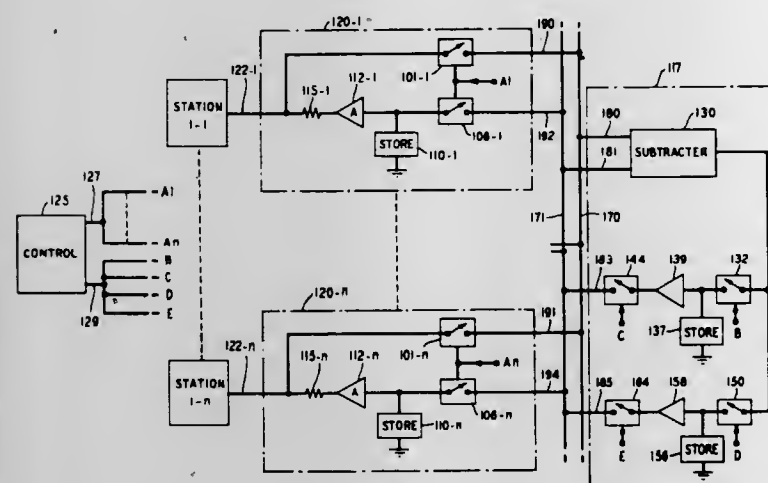
Int. Cl. H04j 3/00

U.S. Cl. 179-15. AT

11 Claims

A time division communication system wherein a plurality of time slots occurs in repetitive cycles and each time slot is divided into two time intervals includes a plurality of lines, first and second common buses, and a signal transfer network connected between the common buses. Each line as an associated line circuit which includes a store for storing signals received from the first common bus, means for coupling the stored signal to the connected line and means for selectively connecting the line to the second common bus. The signal transfer network is operative in a first time interval of a selected time slot to receive a sample of the first line circuit stored signal via

the first common bus, to receive a sample of the signal on the first line via the second common bus, to form a signal corresponding to the difference in the samples, and to store the



difference signal. During a second time interval of the selected time slot, a sample of the stored difference signal is applied to a selected second line circuit store via the first common bus.

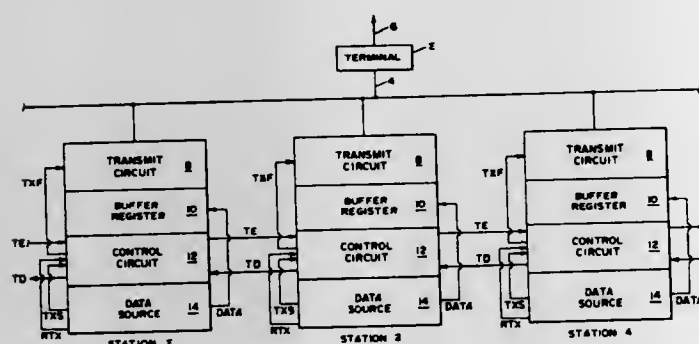
3,742,148 MULTIPLEXING SYSTEM

Kenneth S. Ledeen, 71 Elm Street, Holliston, Mass., and William M. Kahn, 189 Summit Avenue, Brookline, Mass.
Filed Mar. 1, 1972, Ser. No. 230,912

Int. Cl. H04j 3/16

U.S. Cl. 179-15 BA

14 Claims



A system for operatively connecting, one at a time, a plurality of sequentially arranged identical data input stations to a single terminal for data transmission. Each station contains a control circuit which is associated with it and each control circuit is connected to those control circuits associated with the next preceding and next succeeding stations. A signal is applied to each control circuit when data is to be transmitted from its associated station to thereby condition that station for transmission. Each control circuit operates to disable from transmitting its station's next succeeding station when either its own station is conditioned for transmission or when it itself is disabled by the control circuit of the next preceding station. Each control circuit also operates to disable from transmitting the next preceding station when it itself is disabled by the control circuit of the next succeeding station or when its own station is conditioned for transmission and it is not disabled by the next preceding control circuit. In the unusual situation where two stations are conditioned for transmission at exactly the same time, the succeeding station is given priority and its control circuit is able to disable the preceding station.

3,742,149 FREQUENCY DIVISION MULTIPLEX MICROWAVE COMMUNICATION SYSTEM USING POLARIZATION DIVISION MULTIPLEX TECHNIQUE

Hiroshi Yoshida, and Kimio Narahara, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

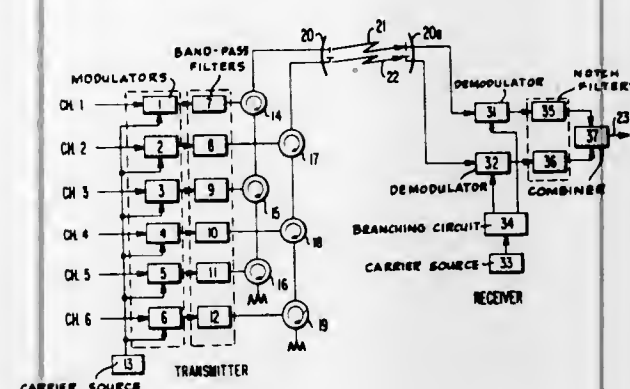
Filed Apr. 30, 1971, Ser. No. 139,164

Claims priority, application Japan, May 6, 1970, 45/38821

Int. Cl. H04j 1/08

U.S. Cl. 179-15 FS

4 Claims



A signal transmission and reception system which includes means for transmitting a plurality of information signals each of which occupies a different frequency band. The information signals, which may correspond to television signals, amplitude-modulate a carrier wave to produce single side band components of the modulated carrier wave, each single side band component corresponding to a different information signal. The components are combined into two groups of side band components each group being comprised of side band components corresponding to alternate, adjacent information signal frequency bands. The two composite signals are transmitted by transmitter means which uniquely polarize each composite signal with respect to the other. Receiving means, responsive to each of the polarized signals, detect the composite signals and apply each to a different demodulator. The demodulated signals are combined to reconstruct the information contained in the plurality of transmitted information signals.

3,742,150 INDUCTIVELY COUPLED DATA COMMUNICATION APPARATUS

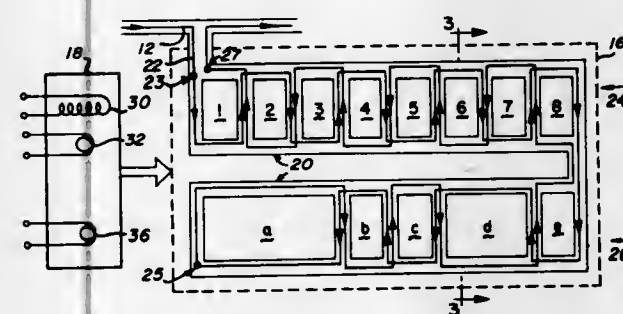
Leigh E. Sherman; Walter P. Adams, and Lynn D. Crawford, all of San Jose, Calif., assignors to Mobility Systems, Inc., Santa Clara, Calif.

Filed Apr. 28, 1971, Ser. No. 138,194

Int. Cl. H04b 5/00

U.S. Cl. 179-82

15 Claims



Data communication apparatus utilizing a current source, a first set of closely adjacent transmitting coils energized by that current source for developing a first series of magnetic fields and second set of closely adjacent transmitting coils energized by that current source for developing a second series of magnetic fields which have a particular relationship to the first series of magnetic fields, commensurate with the data to be

communicated. Carried by a vehicle passing over the transmitting coils is a magnetic field sensing means for each set of coils each of which develops an output signal for comparison with one another when the sensing means is at a preselected position with respect to each transmitting coil.

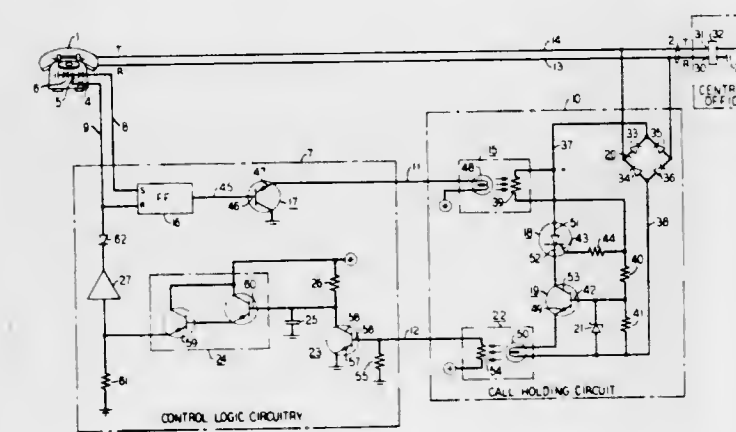
3,742,151 COMMUNICATION CALL HOLDING AND SUPERVISING CIRCUIT

Peter Gade Ruether, Denver, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 20, 1971, Ser. No. 209,658

Int. Cl. H04m 3/22

U.S. Cl. 179-99

17 Claims



An electronic call holding circuit including a PNP switch and an NPN transistor in a constant current configuration across a telephone line is disclosed. A pair of photoresistive devices isolate the line from logic control circuitry and provide for the coupling of hold commands to the PNP switch and for the detection of call supervisory signals on the line following the application of a constant current variable impedance hold condition across the line.

3,742,152 ULTRASONIC TRANSDUCERS

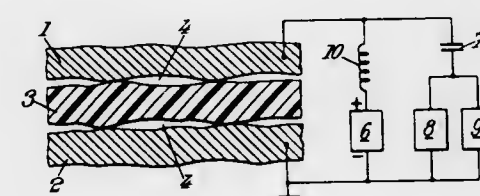
Jacques Lewiner, Saint Cloud, and Pierre Biquard, Paris, both of France, assignors to Agence Nationale De Valorisation De La Recherche (Anvar), Courbevoie, France

Filed Nov. 22, 1971, Ser. No. 200,795

Int. Cl. H04r 19/00

U.S. Cl. 179-111 E

2 Claims



A condenser has two plates capable of vibrating, separated from one another by a thin electrostatically charged dielectric. One of the plates is in contact with the propagation medium of the ultrasonic waves. The two plates are connected to an electrical emitter and/or receiver. The dielectric is permanently charged by prior treatment and an external DC voltage is applied between the plates in reverse sense to that used for charging the dielectric. The two electrostatic fields so created are added in effect.

3,742,153 TELEPHONE CIRCUIT FOR SIDETONE BALANCE AND AUTOMATIC TRANSMISSION LEVEL ADJUSTMENT

Ryoichi Matsuda, Musashino; Masaaki Terai, Hoya, and Yasuo Hojyo, Sayama, all of Japan, assignors to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan

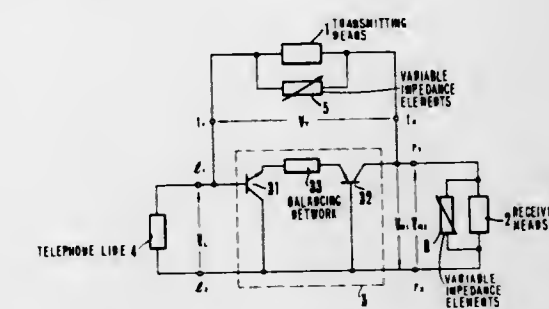
Filed June 29, 1971, Ser. No. 157,985

Claims priority, application Japan, Sept. 3, 1970, 45/76677

Int. Cl. H04m 1/58

U.S. Cl. 179-81 A

9 Claims



In a telephone circuit comprising a telephone line, transmitting and receiving means connected to the telephone line, there are provided amplifier means constructed to produce a current which is proportional to the input voltage but not related to the load and connected between the telephone line and the receiving means, the amplifier means being connected in parallel with the transmitting means, a first variable impedance element connected in parallel with the transmitting means, and second variable impedance element connected in parallel with the receiving means, the first and second variable impedance elements varying in accordance with the DC voltage condition of the telephone line.

3,742,154 CONTINUOUS INBAND TESTING OF TRUNKS WITH AUTOMATIC TRUNK SUBSTITUTION UPON DETECTING A DEFECTIVE TRUNK

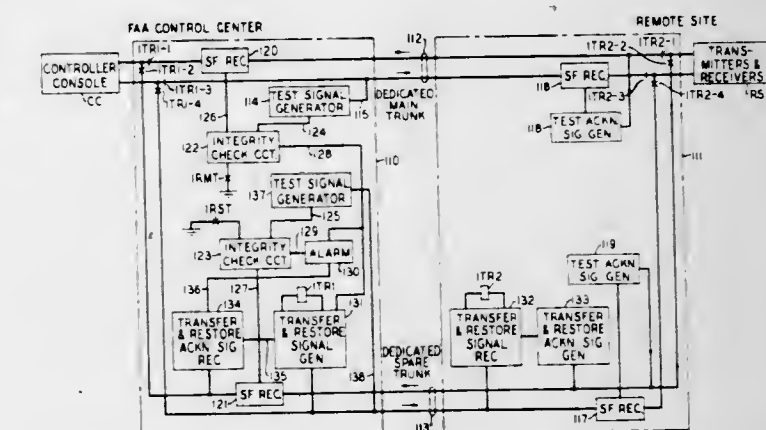
Richard Henry Bidlack, Boonton, N.J.; William John McKelvey, Boulder, Colo., and James Alan Rezelman, Spring Lake Heights, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 30, 1971, Ser. No. 214,139

Int. Cl. H04b 3/46

U.S. Cl. 179-175.3

8 Claims



The integrity of a dedicated trunk is checked by providing equipment for periodically transmitting inband test signals in both directions over the trunk. Each of the test signals is a 2,400 Hz signal periodically transmitted over the trunk from the near end. Equipment at the far end responds by returning a 2,600 Hz acknowledgment pulse over the trunk. Filters at both ends of the trunk prevent interference of the test signals with the voice frequency communications thereon. A counter at the near end of the trunk is initialized for each test signal transmitted to the far end and is blocked from counting by each acknowledgment signal returned over the trunk. Upon

transmitting two successive test signals to the far end and not receiving acknowledgment signals, the counter is incremented to the count of two and controls an automatic transfer of the voice frequency communications on the dedicated trunk to a spare trunk the integrity of which is similarly checked.

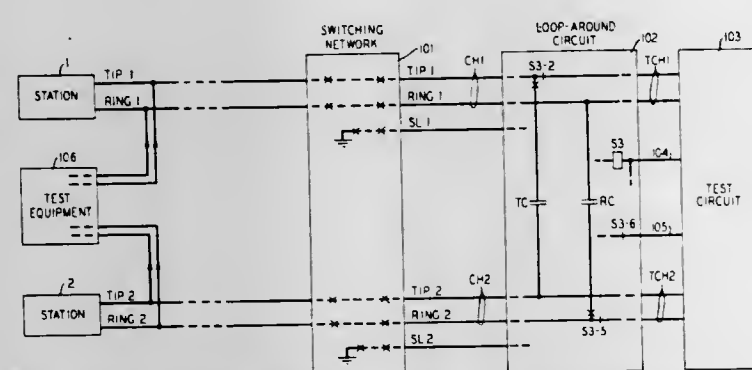
3,742,155

CALL SOURCE VERIFICATION ARRANGEMENT
Robert Grainger Buck, Farmington, Mich.; John Joseph Deltuvia, Sr., Jackson, N.J., and Albert Hunter Spinks, Burlington, N.C., assignors to American Telephone and Telegraph Company, New York, N.Y., by said Buck and Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., by said Deltuvia and Spinks

Filed Feb. 1, 1972, Ser. No. 222,521
Int. Cl. H04b 3/46

U.S. Cl. 179-175.3

17 Claims



An arrangement is disclosed for verifying that requests for a loop-around type test connection between two calling stations have originated from appropriate stations which are physically at the same location. Location verifying signals resulting from a series of one syllable words being spoken simultaneously into transducer elements of both calling stations are sensed and counted by a test circuit at the point of requested loop-around connection. Reception of a specified number of substantially simultaneous signals from both stations within a measured time period initiates establishment of the requested connection.

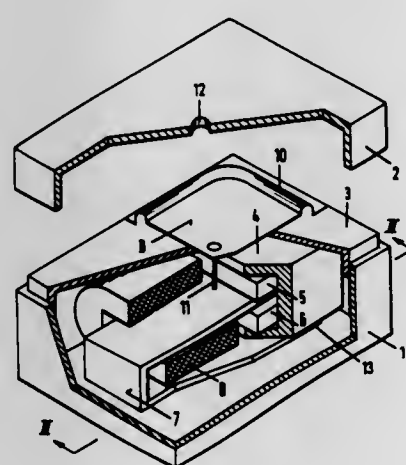
3,742,156

ELECTRO-ACOUSTIC MAGNETIC REED TYPE TRANSDUCER HAVING BOX-SHAPED POLE PIECE
Harmen Broersma, Amsterdam, Netherlands, assignor to Microtel N.V., Amsterdam, Netherlands
Filed Sept. 3, 1971, Ser. No. 177,643
Claims priority, application Netherlands, July 16, 1971, 7109841

Int. Cl. H04r 11/00

U.S. Cl. 179-119 A

4 Claims



An electro-acoustic transducer with an open ended box-shaped inner housing which supports one leg of a U-shaped armature within a main frame. The other leg of the U-shaped ar-

mature extends through the open end of the box shaped housing and is free to vibrate in an air gap formed between two permanent magnets which are fixedly mounted on opposite inner wall portions of the box-shaped inner housing. The vibratable leg of the U-shaped armature is surrounded by a coil and is connected by a drive pin to a diaphragm. The box-shaped inner housing forms the closing portion of d.c. and a.c. flux paths.

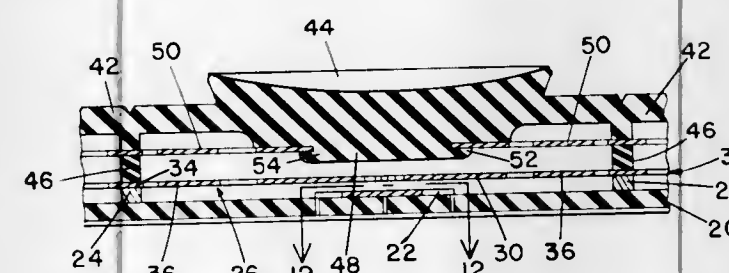
3,742,157

KEYBOARD SWITCH ASSEMBLY WITH IMPROVED MOVABLE CONTACT
Wayne V. Leposavic, Saratoga, Calif., assignor to Lematec, Inc., Santa Clara, Calif.
Continuation-in-part of Ser. No. 860,861, Sept. 25, 1969, Pat. No. 3,600,528. This application Apr. 16, 1971, Ser. No. 134,715

Int. Cl. H01h 9/26

U.S. Cl. 200-5 A

18 Claims



A multiple switch construction for a keyboard or the like produced as a flat panel embodying laminates of electrical conductors in desired patterns, assembled as stratifications in close proximity and separated by spacers. Individual depressible means operating through resilient members urge movable switch elements into contact with fixed electrical conductors with a rotary, wiping action to insure positive electrical contact.

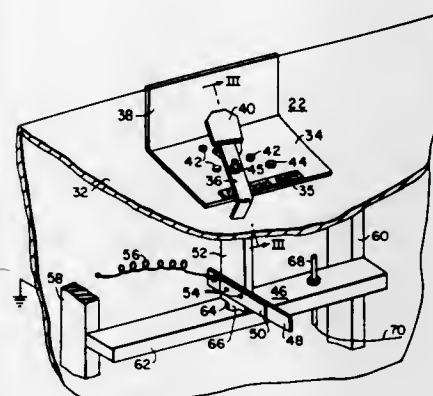
3,742,158

ROTARY TYPE GROUNDING SWITCH
Kenneth B. Bell, Frederick J. Brutt, and Alfonso J. Mazanek, all of Sharon, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 9, 1971, Ser. No. 179,079
Int. Cl. H01h 19/20

U.S. Cl. 200-11 G

3 Claims



A two-piece shaft, having a spring contact attached thereto, extends through an apparatus casing and through an index plate. A handle is attached to the shaft and has mounted thereon a spring loaded plunger assembly which locks the handle into position. The spring contact, which is grounded, is rotated when the handle is rotated. When the handle is locked in the operating position, the switch is open. When the handle is locked in the grounded position, the spring contact touches a terminal stud which is connected to the output circuit of the electrical apparatus, thus grounding the output circuit.

3,742,159

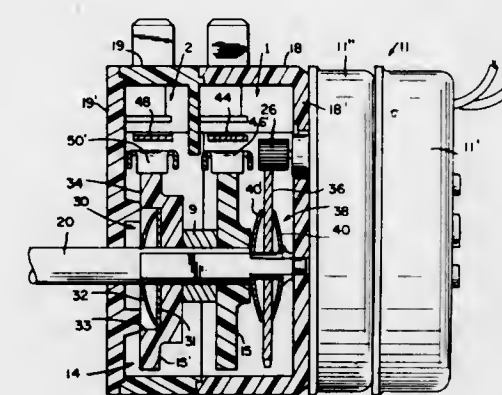
MULTI-CAM TIMER WITH CLUTCH MEANS ALLOWING INDEPENDENT CAM ADJUSTMENT AND ROTATION OF CAM ASSEMBLY INDEPENDENT OF MOTOR

William Ray Brown, Beech Grove, Ind., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.

Filed Apr. 13, 1972, Ser. No. 243,654
Int. Cl. H01h 7/08

U.S. Cl. 200-38 R

6 Claims



At least two cams having different settings are carried by a single shaft one of the cams including a clutch so as to be independently operable from the other. A second clutch allows both the cams to be manually rotatable independent of a motor drive means.

3,742,160

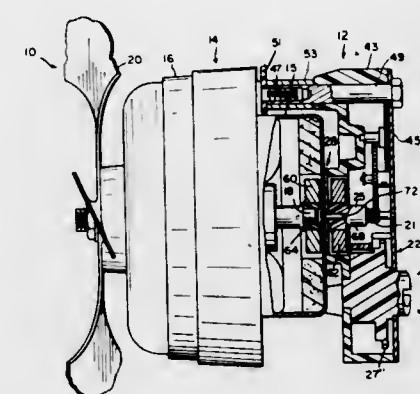
GAS CIRCULATING AND TIMER MEANS WITH MAGNETIC COUPLING DRIVE MEANS FOR CAM ACTUATED SWITCHES

Stephen F. Murray, and Maurice E. Schuder, both of Indianapolis, Ind., assignors to P.R. Mallory & Co. Inc., Indianapolis, Ind.

Filed Mar. 10, 1972, Ser. No. 233,641
Int. Cl. H01h 7/08, 35/40, 36/00

U.S. Cl. 200-38 R

11 Claims



A shaft extends through a motor. A fan is carried on one end of the shaft and on the other end a magnet. A rotor is spaced from and in axial alignment with the magnet. A second magnet is carried by the rotor juxtaposition the first magnet such that the motor, when operating, rotates the fan and the first magnet, the first magnet causing rotation of the second magnet and thereby the rotor. A cam means which operates switch means is coupled to the rotor.

3,742,161

ELECTRIC SWITCH ASSEMBLY AND COMBINATION THEREOF WITH SAFETY LOCKS

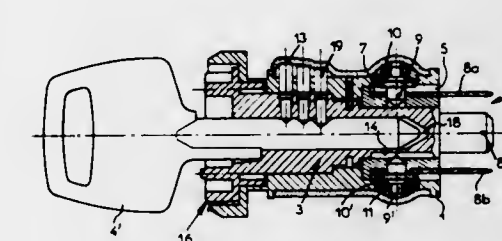
Paul Lipschutz, Croissy-sur-Seine, France, assignor to Societe d'Exploitation des Brevets Neiman, Neuilly-sur-Seine, France

Filed May 10, 1972, Ser. No. 252,123
Claims priority, application France, May 10, 1971, 7116793; Apr. 21, 1972, 7214101

U.S. Cl. 200-44

Int. Cl. H01h 27/00

6 Claims



An assembly incorporating an electric switch including movable contact pieces displaceable by the switch rotor for making and breaking contact with corresponding stationary contact pieces selectively, bearing elements co-operating with said movable contact pieces and mounted in corresponding radial orifices of the switch stator opening to the outside through the side wall of the latter whereby said bearing elements are radially movable therein and constantly project outwards therefrom and at least one resiliently yielding sleeve tightly surrounding the switch stator and covering said bearing elements to resiliently bias them inwards.

3,742,162

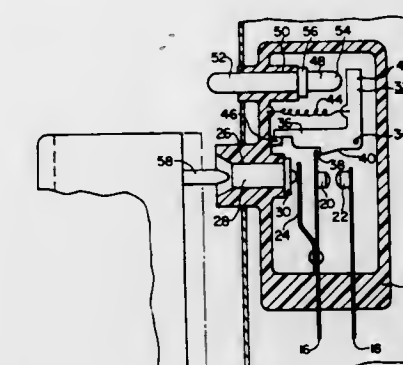
SELF-CONTAINED DOOR SAFETY SWITCH WITH MANUALLY DISABLED LATCH

William A. Wasemann, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 27, 1971, Ser. No. 192,920
Int. Cl. H01h 3/16

U.S. Cl. 200-61.62

4 Claims



The invention discloses a self-contained safety switch for use in conjunction with an electric motor driven appliance, such as laundry apparatus, enclosed by a cabinet having an access door in which proper use of the switch first requires that the door is closed to bias the contacts of the switch in a direction to close them while a blocking member, internal to the switch housing, prevents the contacts from closing until removed through manually pressing a pin extending through the housing. The door, while in a closed position, thereafter maintains the contacts closed; however, whenever the door is open, the contacts return to their initial position requiring a repeat process of closing the door and subsequently depressing the extending pin to again actuate the appliance.

3,742,163

ACCELERATION RESPONSIVE SWITCH WITH LINEARLY MOVABLE CONTACTORS

Heinz Gawlick, Furth; Hellmut Bandler, Erlangen; Uwe Brede, Schwaig; Gunter Hubsch, Kalchreuth, and Gunter Gottwald, Nurnberg, all of Germany, assignors to Dynamit Wobel Aktiengesellschaft, Troisdorf, Germany

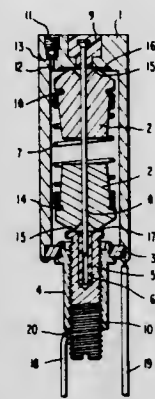
Filed Nov. 3, 1971, Ser. No. 195,436

Claims priority, application Germany, Nov. 30, 1970, P 20 58 743.3

Int. Cl. H01h 35/14

U.S. Cl. 200—61.45 R

20 Claims



An electric switch which is responsive to acceleration and/or deceleration having at least one movable contact arranged in a housing and biased into electrically conductive connection with a corresponding contact surface arranged in the housing. A spring serves for biasing the movable contact piece with a constantly effective force of a predetermined magnitude which is determined by the axial extent of the spring and a screw element serves for controlling the axial extent of the spring to vary the magnitude of force provided thereby. In response to an accelerative force in a predetermined direction, the contact piece overcomes the biasing force and moves away from its contact surface thereby interrupting the conductive circuit path through the switch.

3,742,164

HYDRAULIC CONTROL

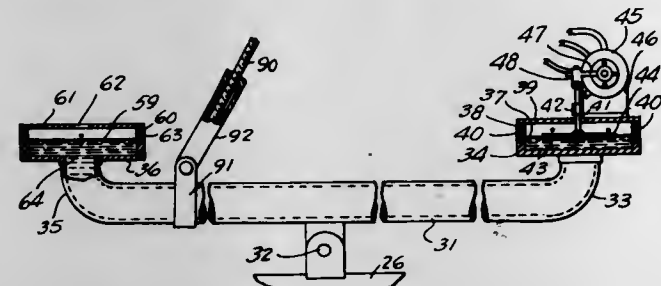
Wayne W. McMullen, 1055 N.W. 93rd Lane, Coon Rapids, Minn.

Filed Nov. 6, 1970, Ser. No. 87,442

Int. Cl. H01h 35/34; F16k 31/165

U.S. Cl. 200—83 R

7 Claims



A hydraulic control which incorporates an elongate fluid containing tube having diaphragms mounted at each end thereof for actuation due to movement of the fluid in the tube. One or both of the diaphragms are used to mechanically actuate hydraulic valves for controlling a mechanism. Movement of the tube about a central transverse pivot will cause gravity flow of the fluid toward the lower diaphragm moving it outwardly while simultaneously moving the upper diaphragm an equal amount inwardly. The tube is mounted on the device to be controlled and the hydraulic mechanism is used to return the device to a position in which the two diaphragms are equispaced outwardly from the tube. The tube is such that when used with high speed devices centrifugal force will cause the outer diaphragm to be raised and the inner diaphragm lowered

with respect to the curve that the device is moving through. In this instance the hydraulic mechanism may be used to bank the device as long as the centrifugal force is operating on the tube. In one modified form of the invention a thermal expansion & diaphragm action displacement resilient bag replaces the diaphragm not used for valve control.

3,742,165

DIFFERENTIAL PRESSURE SWITCH

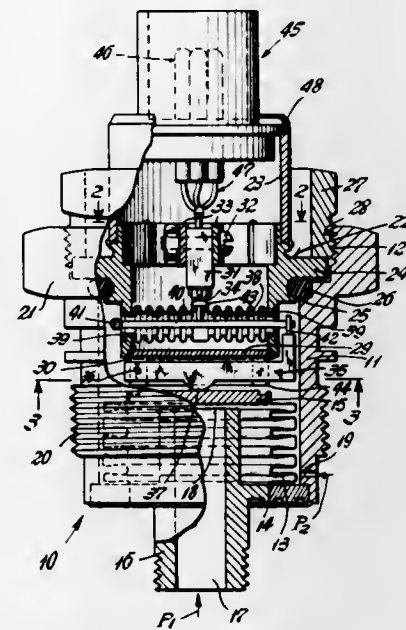
Robert R. Hellman, Bridgeport, Conn., assignor to Westport Development & Manufacturing Company, Inc., Milford, Conn.

Filed Dec. 30, 1970, Ser. No. 102,656

Int. Cl. H01h 35/32, 9/04

U.S. Cl. 200—83 Y

5 Claims



A differential pressure switch having a bellows mounted in a housing to which pressures are applied to cause the bellows end to be moved by the pressure difference toward and from an open end of the housing. A cap closes the open end and carries a snap action electrical switch that is sealed from the pressures by another bellows mounted transversely to the first, so that movement of the end of the first bellows caused by pressure differences is transmitted to the switch by radial distorting the another bellows.

3,742,166

PRESSURE SWITCH

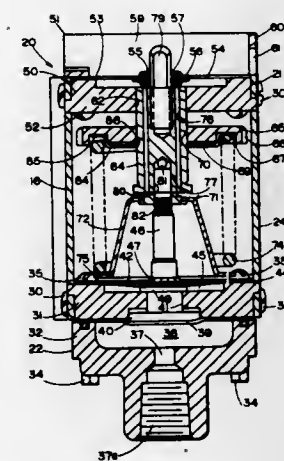
Carl A. Schaefer, Asheville, N.C., assignor to Square D Company, Park Ridge, Ill.

Filed Oct. 12, 1971, Ser. No. 188,038

Int. Cl. H01h 35/34

U.S. Cl. 200—83 SA

6 Claims



A modular differential spring and contact assembly is adapted for mounting on a pressure sensing module in

selected positions providing optimum sensitivity for different spring rates of the pressure sensing components. Independent adjustment means are provided for range spring force, differential spring force, differential pick-up, and sensitivity so that the pressure switch assembly is operative in a wide variety of pressure ranges with different pressure sensing means, range springs and contact means.

3,742,167

PEDAL SWITCH FOR DENTAL DRIVES

Manfred Muther, Bensheim, Germany, assignor to Siemens Aktiengesellschaft, Erlangen, Germany

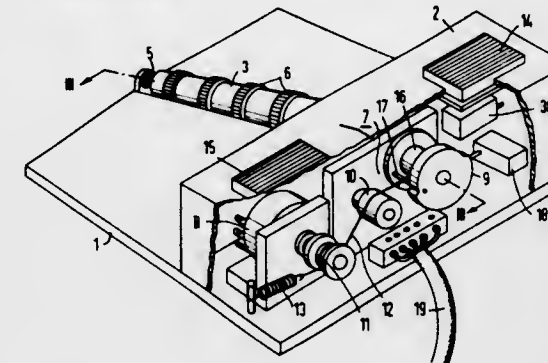
Filed Apr. 28, 1971, Ser. No. 138,217

Claims priority, application Germany, May 23, 1970, P 20 25 226.0

Int. Cl. H01h 3/14

U.S. Cl. 200—86.5

8 Claims



A pedal switch for electrical drives, particularly dental bore drives has adjusting members operated by foot for releasing several switching and actuating procedures. The invention is particularly characterized by the provision of a lying shaft constituting a common actuating member for setting the speed of rotation and possibly other switching operations, the radial movement of the shaft being transmitted to the switching and/or actuating members.

3,742,168

MINIMUM-OIL CIRCUIT BREAKER INCLUDING MOVABLE CONTACT ROD WITH ELASTICALLY DEFORMABLE BRAKING MEMBER FOR APPLYING BRAKING FORCE THERETO PROPORTIONAL TO GAS PRESSURE GENERATED IN ARC-QUENCHING CHAMBER

Werner Latal, Wettingen, and Willi Schneebeli, Zurich, both of Switzerland, assignors to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

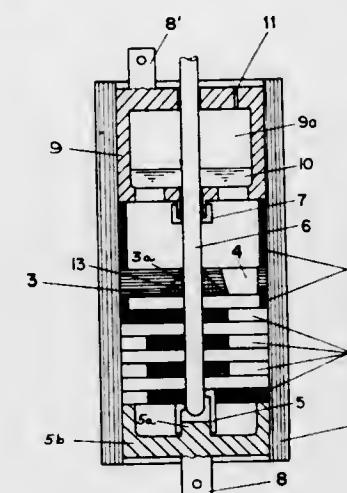
Filed Aug. 19, 1971, Ser. No. 172,970

Claims priority, application Switzerland, Sept. 10, 1970, 13472/70

Int. Cl. H01h 33/68

U.S. Cl. 200—150 B

3 Claims



A circuit breaker of the minimum-oil type includes a chamber for quenching the arc drawn between a movable con-

tact rod and a stationary contact as the two separate. To counteract and damp the acceleration effect produced on the movable contact rod within the quenching chamber as a result of gas pressure built up within the chamber due to arc action, a softly elastic annular damping member closely surrounds the movable contact rod and is deformed in a radially inward direction by the gas pressure to press against the movable contact rod and hence provide a braking action for the rod. The radially inward deformation of the elastic damping member is proportional to the gas pressure produced in the quenching chamber and hence provides a braking effect on the movable contact rod which desirably increases with an increase in gas pressure.

3,742,169

DEVICE FOR COMPRESSED GAS CIRCUIT BREAKER

Horst Eggert, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

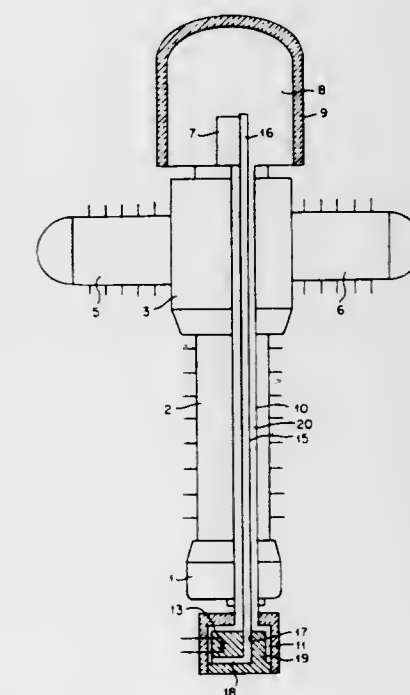
Filed Jan. 29, 1971, Ser. No. 110,925

Claims priority, application Germany, Jan. 30, 1970, P 20 50 024.2

Int. Cl. H01h 33/57

U.S. Cl. 200—148 E

3 Claims



A pressure gas switch having a high pressure container connected to ground potential and comprising a heating device is also connected to high voltage potential, with a second high pressure container via a tube and is provided with a hose, in order to improve the heating effect in the tube. The hose is so placed that a unidirectional flow may be effected through the hose as well as in the space between the tube and the hose.

3,742,170

LOAD TAP CHANGER BY-PASS SWITCH CONTROL ASSEMBLY AND MATERIAL COMPOSITION THEREOF

Thomas B. Topper, West Middlesex, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 30, 1971, Ser. No. 185,161

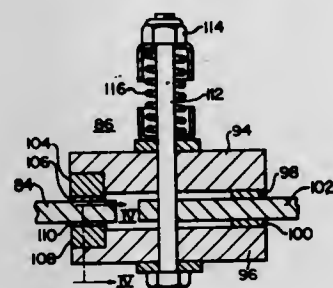
Int. Cl. H01h 1/02

U.S. Cl. 200—166 C

10 Claims

Contact structures with composite materials arranged to increase the operating life of the contact when used in load tap changer by-pass switches. An arc resistance refractory material is dimensioned and positioned to interrupt the current when the switch is opened. A highly conductive metallic material forms a sliding portion of the contact structure and is dimen-

sioned and positioned to conduct all of the switch current while the rotary blade of the switch is rotating. The material of



the sliding portion prevents galling of the rotary blade and considerably extends the operating life of the by-pass switch.

3,742,171

ELECTRIC SWITCH

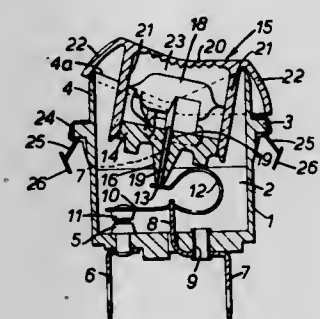
John Arthur Howe, Tollerton, England, assignor to TRW Incorporated, Cleveland, Ohio

Filed Nov. 30, 1971, Ser. No. 203,233

Int. Cl. H01h 9/18

U.S. Cl. 200—168 G

2 Claims



The invention has for its object the reduction of the vulnerability of a rocker switch having a rocker substantially closing the open end of a switch body to ingress of splashes of liquid. This is achieved by providing the actuating member with a shroud which covers the opening in the switch body in all positions of adjustment of the actuating member.

3,742,172

WALL-SWITCH-MOUNTED EXTENSION OPERATOR FOR TOGGLE SWITCH

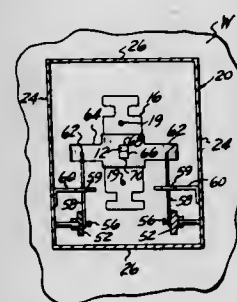
Phillip G. Velez, 32098 Riverdale, Mount Clemens, Mich.

Filed Dec. 23, 1971, Ser. No. 211,747

Int. Cl. H01h 3/40

U.S. Cl. 200—172 A

6 Claims



This amusement device enables a small child to actuate the operating lever of a toggle switch by swinging an imitation double-pole single-throw knife switch having knurled or toothed quadrant gears on the inner ends of its blades meshing with correspondingly-knurled or toothed gears rotatably mounted in a flanged casing bolted to the toggle switch. Pivoted to the peripheries of the casing-mounted gears are the lower ends of links, the upper ends of which are pivoted to a slide containing a vertical coupling slot, through which the wall switch operating lever projects. In a modification, the

knife switch blades carry quadrant gears which are of approximately half the radii of the casing-mounted gears such that an approximately 180 degree swing of the knife switch blades produces an approximately 90 degree travel of the wall switch lever.

ERRATA

For Classes 200—157 and 219—121 see:
Patents Nos. 3,742,364 and 3,742,365

3,742,173

METHOD AND EQUIPMENT FOR COOKING ELECTRONICALLY BY SPECIFYING WATTS SETTING

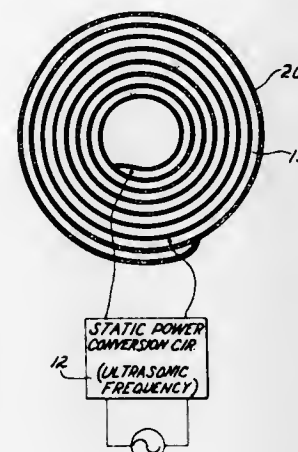
William P. Kornrumpf, and John D. Harnden, Jr., both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 27, 1971, Ser. No. 212,058

Int. Cl. H05b 5/04

U.S. Cl. 219—10.41

12 Claims



A method of cooking food using a recipe that specifies the absolute power level of an electronic range or appliance which inductively heats a cooking utensil. The power in watts generated by the electronic circuit driving an induction heating coil is a true indication of the power actually coupled to the utensil and used to heat the food. Induction cooking equipment for practicing the method requires only the addition of a wattmeter or other power measuring and indicating instrumentation. Adjustment to the desired watts setting can be manual or automatic.

3,742,174

INDUCTION COOKING APPLIANCE INCLUDING COOKING VESSEL HAVING MEANS FOR TRANSMISSION OF TEMPERATURE DATA BY LIGHT PULSES

John D. Harnden, Jr., Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 29, 1971, Ser. No. 213,336

Int. Cl. H05b 5/04

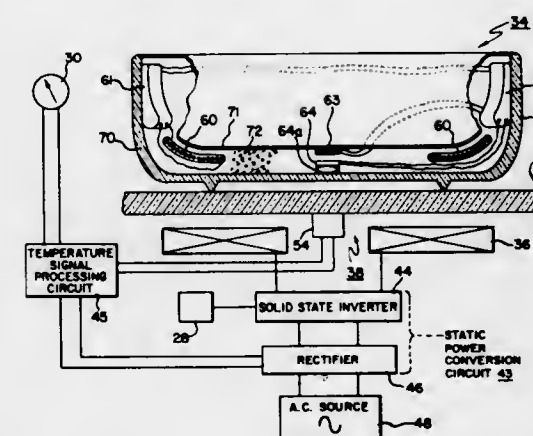
U.S. Cl. 219—10.49

12 Claims

Herein disclosed is an induction cooking/warming appliance wherein an induction coil is located below a vessel supporting means, such as a counter. The counter may have a passage therethrough for the transmission of light, or it may be a solid body of transparent or translucent material. A double-walled vessel for containing food to be cooked or warmed is provided. The vessel is supportable on the counter. An inner wall of the vessel is inductively heated by a main magnetic field produced by the induction coil; but, an outer wall of the vessel, which is in contact with the counter on which the vessel is supported, is not inductively heated. Moreover, the outer wall of the vessel transmits light. Included within the vessel between the two walls thereof is a temperature detection unit which includes a temperature sensor unit arranged for sensing the temperature of the inner wall of the vessel and means

responsive to the magnetic field produced by the induction coil for energizing an LED to produce light pulses at a rate corresponding to the temperature sensed by said temperature sensor unit. These light pulses are transmitted through the outer wall of the vessel and either through the counter or

correlated impedance changes to the magnetic receptor device and these impedance changes, in turn, are effective to help determine the true temperature of the foodstuff being cooked in the vessel.

**3,742,176
METHOD FOR PREVENTING THE LEAKAGE OF MICROWAVE ENERGY FROM MICROWAVE HEATING OVEN**

Takeshi Ishino, and Nobuyuki Ono, both of Akita-ken, Japan, assignors to T.D.K. Electronics Company, Ltd., Tokyo, Japan

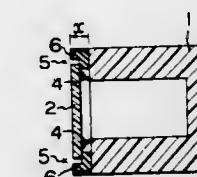
Filed June 22, 1970, Ser. No. 48,137

Claims priority, application Japan, Jan. 21, 1970, 45/5098; June 26, 1969, 44/50870

Int. Cl. H05b 9/06

U.S. Cl. 219—10.55

2 Claims



through a passage in the counter to a temperature receiving unit which includes a photodetector which is instrumental in developing a signal representative of the temperature of interest. Various embodiments of the vessel and the components thereof are disclosed.

3,742,175

INDUCTION COOKING APPLIANCE INCLUDING TEMPERATURE SENSING OF FOOD IN INDUCTIVELY HEATED VESSEL WITH IMMERSION-TYPE TEMPERATURE SENSING MEANS

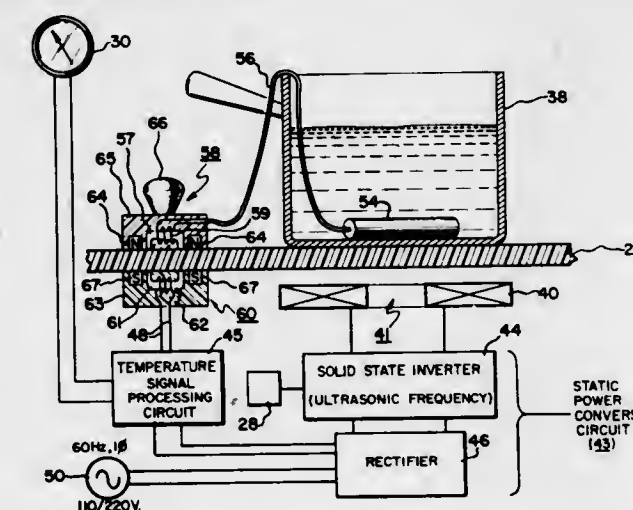
John D. Harnden, Jr., Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 29, 1971, Ser. No. 213,349

Int. Cl. H05b 5/04

U.S. Cl. 219—10.49

12 Claims



Disclosed in an induction range having a counter with an uninterrupted top or working surface on which a cooking vessel is supported and inductively heated by an induction coil situated beneath the counter. Since only the cooking vessel is inductively heated, rather than the counter, the counter is relatively cool. In order to actually determine the temperature of foodstuff being cooked in the vessel there is provided a temperature sensing unit suitably encapsulated in an immersion-type thermistor unit to which there is attached flexible cable comprising thermistor leads or conductors. The thermistor unit is immersed in the foodstuff in the vessel. The flexible cable extends out of the cooking vessel and is terminated in a portable magnetic coupling device which, when resting on the work surface of the range counter, magnetically couples signals representing temperature correlated changes in the thermistor unit's impedance to a magnetic receptor device mounted below the range counter. Thus, temperature changes in the immersed thermistor unit are reflected as temperature

The object of the present invention is to provide a method for preventing the leakage of microwave energy through the gap between the oven and the door during the operation of the microwave heating device, and the object of the present invention can be attained by placing ferromagnetic material, i.e., a mixture mainly composed of ferrite powder in the path of wave-leakage.

3,742,177

MICROWAVE OVEN HAVING SYNCHRONOUSLY ROTATABLE REFLECTORS

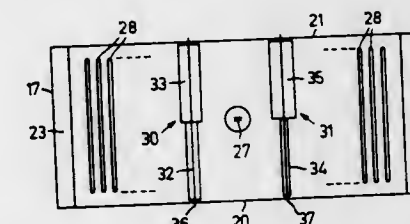
Stellan Brynolf Wikstrom, Sundbyberg, and Leo Malmquist, Ektorp, both of Sweden, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 10, 1972, Ser. No. 216,522

Int. Cl. H05b 9/06

U.S. Cl. 219—10.55

13 Claims



A microwave oven with a waveguide for supplying microwave energy to the oven cavity. A magnetron antenna projects into the waveguide. A pair of cyclically rotatable reflectors are located on opposite sides of the antenna within the waveguide. The reflectors are positioned and shaped so as to reflect microwave energy back to the magnetron with a given phase lag so as to cause the magnetron to operate in the sink range.

**3,742,178
INDUCTION COOKING APPLIANCE INCLUDING COOKING VESSEL HAVING MEANS FOR WIRELESS TRANSMISSION OF TEMPERATURE DATA**

John D. Harnden, Jr., Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 29, 1971, Ser. No. 213,335

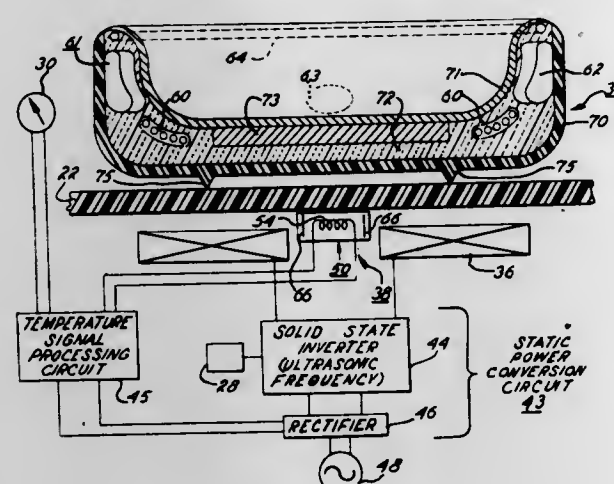
Int. Cl. H05b 5/04

U.S. Cl. 219—10.77

4 Claims

Herein disclosed is an induction cooking range having a counter which supports a food-containing vessel. The vessel is

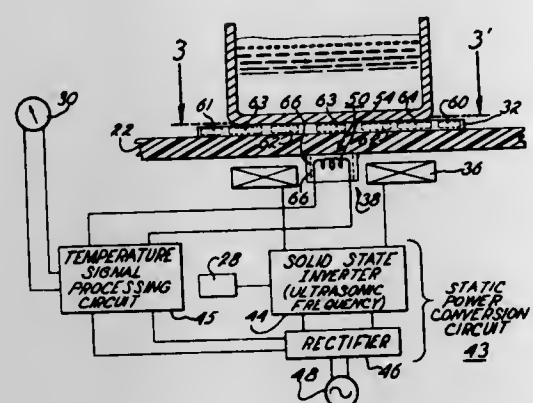
heated by the range's induction coil which operates at high frequency. The invention includes a temperature sensing unit comprising a temperature detection unit and a temperature receiving unit. The former unit is incorporated in the cooking vessel while the latter unit is remotely located therefrom in the



induction range. The aforesaid temperature receiving unit receives radio frequency transmissions of temperature data from the temperature detection unit in the vessel. The temperature detection unit in the vessel is powered by the main field produced by the induction coil.

3,742,179
INDUCTION COOKING APPLIANCE INCLUDING WIRELESS TRANSMISSION OF TEMPERATURE DATA
John D. Harnden, Jr., Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed Dec. 29, 1971, Ser. No. 213,357
Int. Cl. H05b 5/04
U.S. Cl. 219-10.77

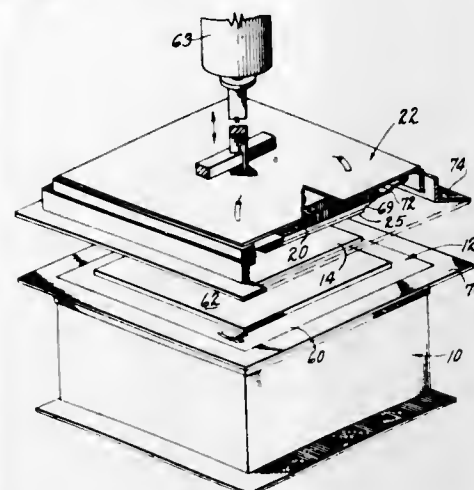
4 Claims



Herein disclosed is an induction cooking range having a counter for supporting a food-containing vessel; the vessel being heated by an induction coil which is driven at ultrasonic, or higher, frequencies. A temperature sensing unit is employed which includes a temperature detection unit located proximate to the vessel and/or food therein and a temperature receiving unit which is remotely located from the temperature detection unit and vessel but operating, nevertheless, to receive radio frequency transmissions of temperature data from the temperature detection unit which is, in the first instance, powered by the main field produced by the induction coil. Also disclosed is a compact packaging arrangement of the various electronic components of the temperature detection unit.

3,742,180
HIGH FREQUENCY CAVITY PRESS
Robert W. Bradley, Marblehead, Mass., assignor to USM Corporation, Boston, Mass.
Filed May 26, 1971, Ser. No. 147,083
Int. Cl. H05b 9/04
U.S. Cl. 219-10.81

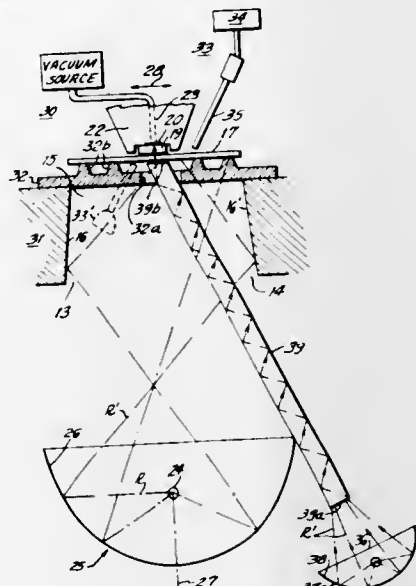
14 Claims



An apparatus for applying pressure and a high frequency electric field to material comprising a cavity for containing the electric field which encloses platens relatively movable to apply pressure to material placed between the platens. The cavity electrically communicates with the platens for supplying the contained electric field to the platens which, in turn, cooperate with each other to apply the field to the material between the platens. The cavity and platens are also directly coupled into the means for generating the electric field as a resonant circuit.

3,742,181
METHOD AND APPARATUS FOR HEATBONDING IN A LOCAL AREA USING COMBINED HEATING TECHNIQUES
Bernard J. Costello, Ringoes, N.J., assignor to Argus Engineering Company, Inc., Hopewell, N.J.
Continuation of Ser. No. 863,163, Oct. 2, 1969, abandoned.
This application Feb. 25, 1971, Ser. No. 119,016
Int. Cl. B23k 1/02
U.S. Cl. 219-85

11 Claims

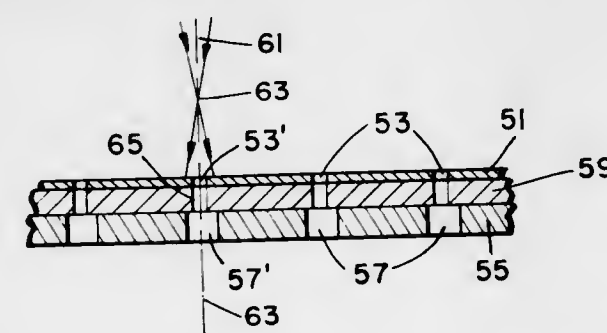


Apparatus for joining a dielectric or semi-conductive element to a metallic layer employing a combination of heating techniques. The substrate upon which the metallic layer is already deposited is heated to a "background" temperature substantially below the temperature required for bonding, to reduce the local temperature rise required to perform the bond and to reduce the shock experienced by the substrate due to thermal gradients which occur during the bonding cycle. The bonding energy in the form of radiant energy, is

focussed upon the side of the substrate opposite to the side on which the bond is to be formed, and in the region of said bond, and is at a level sufficient to heat the interface to a temperature greater than the bond point to enable the two materials to flow together and form the bond. Focussing the bonding energy upon the opposite surface of the substrate causes the bonding surface of the element to be hotter than the bulk of the element thus causing a thermal gradient across the element such that the top surface of the semiconductor element is much cooler than the under surface, providing an enhanced margin of safety in preventing thermal damage to active zones or thermally sensitive regions in the element being bonded. The dielectric or semi-conductive element being bonded to the metal layer is often scrubbed across the metal layer to enhance formation of the bond by removing oxide coatings which may have formed on the element and which would otherwise reduce the effectiveness of the bond.

3,742,182
METHOD FOR SCANNING MASK FORMING HOLER WITH A LASER BEAM
Richard J. Saunders, Milpitas, Calif., assignor to Coherent Radiation, Palo Alto, Calif.
Filed Dec. 27, 1971, Ser. No. 211,912
Int. Cl. B23k 27/00
U.S. Cl. 219-121 LM

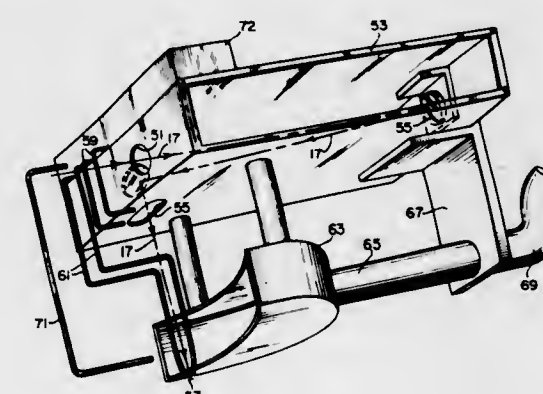
8 Claims



A technique of constructing a plurality of holes in sheet material by scanning a coherent laser beam across holes in a mask overlaying said material. The use of a stream of gas coaxially aligned with said coherent light beam is also disclosed. A special technique is included for making one or more holes in a non-homogeneous particulate sheet material having finely divided particles held together by a binder, such as green (unbaked) ceramic, with the use of a coaxial coherent light beam and gas pressure stream.

3,742,183
OPTICAL ELEMENT PROTECTION IN LASER APPARATUS
Rodolfo Castro, San Juan Capistrano; William J. Newton, Lakewood; Esteban J. Toscano, Oceanside, and Felix Jerome Viosca, Canoga Park, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed Nov. 26, 1971, Ser. No. 202,422
Int. Cl. B23k 9/00
U.S. Cl. 219-121 L

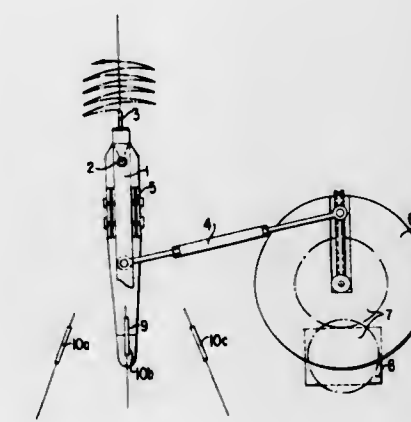
4 Claims



Debris produced by a laser cutter is kept out of the laser optics and is carried away by an airflow system which moves with the cutting beam.

3,742,184
METHOD AND APPARATUS FOR AUTOMATIC ARC WELDING IN A VERTICAL POSITION
Masayasu Arikawa; Atsushi Ohi; Akihiko Itochi, and Kenichiro Hashimoto, all of Fukui-ku, Kobe, Japan, assignors to Kobe Steel Ltd., Kobe, Japan
Filed Dec. 24, 1970, Ser. No. 101,244
Claims priority, application Japan, Dec. 27, 1969, 44/1036; Feb. 10, 1970, 45/11658
Int. Cl. B23k 9/12
U.S. Cl. 219-126

3 Claims



A method of arc welding in a vertical direction and an arc welding machine for automatically performing the steps of the same are provided. According to the arc welding method of the invention, the advancement of a consumable electrode wire is accelerated and the welding voltage of the welding torch is increased as the torch crosses the centerline of a generally vertically extending weaving pattern it is caused to follow during a welding operation. After passing the centerline, the voltage is decreased to its original level, as it is on the return stroke also. This method is further improved by increasing the welding current of the torch slightly after increasing the welding voltage and further by decelerating or stopping the weaving motion at both sides and at the center of the weaving path of the wire. The apparatus for automatically carrying out this arc welding method comprises, in conjunction with an advancing consumable electrode wire and a welding torch adapted to follow a weaving path in a generally vertical direction, means for changing certain of the welding conditions, such as the advancing speed of the metal wire, the welding voltage and current, the weaving speed, and means for aligning the centerline of the weaving path or width to the welding centerline of a base metal.

3,742,185
LITHIUM CONTAINING WELDING ELECTRODE
John M. Parks, Solon, Ohio, assignor to The Lincoln Electric Company, Cleveland, Ohio
Filed May 7, 1971, Ser. No. 141,375
Int. Cl. B23k 35/22
U.S. Cl. 219-146

13 Claims

An electrode for electric arc welding in air and a method of using same. The electrode contains lithium compounds and agents to reduce these compounds to elemental lithium in the welding arc. Lithium is added to the welding rods preferably in the form of lithium fluoride and/or lithium silicates, while the reducing agents are preferably calcium, aluminum and magnesium, and are preferably added in the form of intermetallic compounds of calcium and aluminum, and calcium and magnesium. A quench material to de-stabilize or quench the lithium-containing arc plasma and give it a higher voltage gradient may also be used. Satisfactory quench ingredients include carbohydrates; sugar (sucrose), because of its ready availability and lost cost, is preferred.

3,742,186

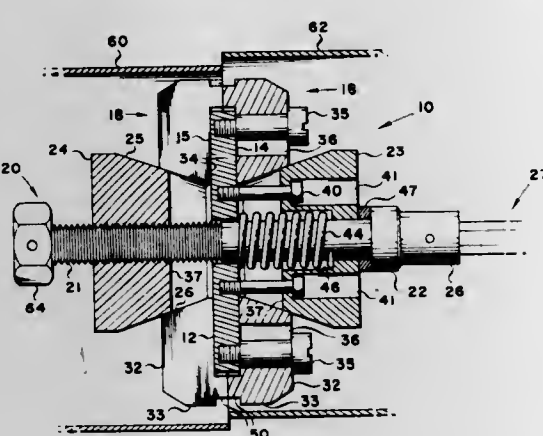
IMPROVEMENT IN A GRAPPLING DEVICE

Abraham M. Finkel, North Hollywood, and Charles R. Jensen, Santa Susana, both of Calif., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

Filed July 19, 1971, Ser. No. 163,650
Int. Cl. B21j 13/08

U.S. Cl. 219-160

10 Claims



A grappling device for achieving a seizure of two abutting tubes for welding purposes. The device comprises a pair of sets of wedge-shaped segments radially slidable on a center guide plate, and a corresponding pair of frustum members which move axially of the guide plate so as to radially extend or retract the segments. Means for axially moving the frustum members extend centrally of the plate and such members, and a cable means is attached thereto for flexible manipulation of the device from any point remote from the welding joint area irrespective of whether the configuration of abutting tubes is straight, bent, or curved. Actuation of the sets of wedge-shaped or mandrel segments provides a seizure upon and, thus clamping for the abutting tubes. Provision is made in the segment structures for chill bars which also provide for complete circulation of purging gas at the joint.

3,742,187

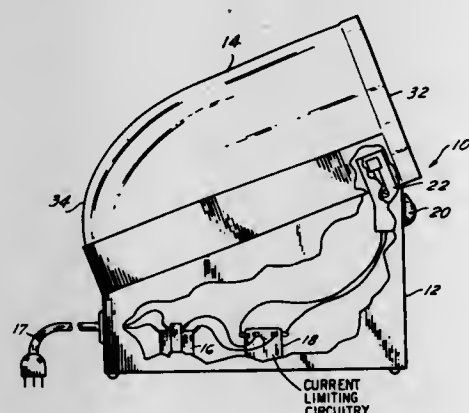
INOCULATION AND TRANSFER LOOP AND STERILIZER

Stanford G. Folus, Randallstown, Baltimore, Md., assignor to Becton, Dickinson & Company, East Rutherford, N.J.

Filed Oct. 22, 1970, Ser. No. 83,268
Int. Cl. H05b 3/00; A61 3/00; C12b 1/02

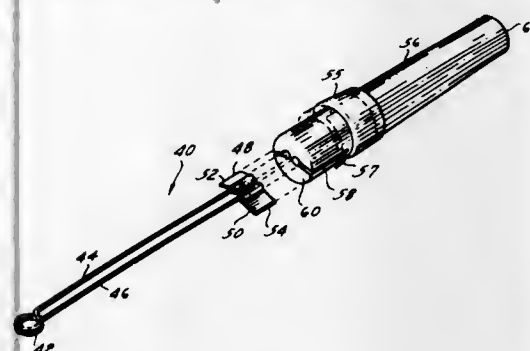
U.S. Cl. 219-240

2 Claims



An improved sterilizer is provided for inoculation and transfer loops, needles, and other instruments formed of metals of high electrical resistance. The sterilizer includes a member having a V-shaped groove therein adapted to receive and support an instrument. A pair of electrodes are positioned on opposite sides of the groove so that an instrument resting in the groove completes the electrical circuit between the electrodes. The sterilizer also includes a removable hood having a single opening at one end disposed above the electrodes. An improved instrument designed to insure proper contact with

the sterilizer electrodes is also provided. The instrument includes a loop and a pair of transverse tabs which extend out-



wardly from extensions of the loop for a distance greater than that between the electrodes.

3,742,188

DUMMY LOAD SYSTEM

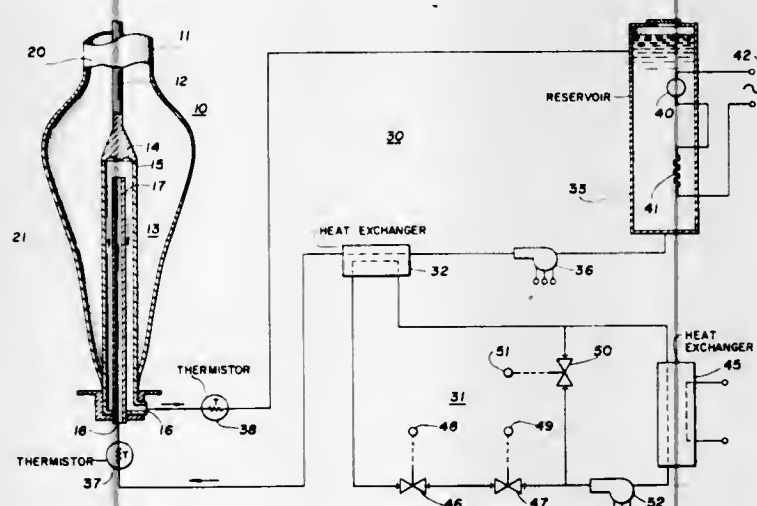
Earl W. Sundbye, Garland, Tex., assignor to Continental Electronics & Manufacturing Company, Dallas, Tex.

Filed Apr. 24, 1972, Ser. No. 247,062

Int. Cl. F24h 1/20

U.S. Cl. 219-323

15 Claims



A dummy load includes a resistive sodium nitrite resistive load directed by insulating tubes to flow in the load. The cooling circuit includes a primary circuit having inlet and outlet thermistors, and a secondary cooling circuit coupled thereto by a liquid to liquid heat exchanger. In the control circuit, the thermistors are serially connected in a bridge circuit, unbalances in the bridge being detected to directly control a motor for controlling a valve in series in the secondary loop. A pair of slower moving valves in series and shunt respectively in the secondary loop are controlled upon the movement of the directly controlled valve to a limit position.

3,742,189

SIMULATED FIREPLACE ASSEMBLY

Robert Conroy, San Francisco; Burton Hirsch, San Mateo, and Ray Redel, Albany, all of Calif., assignors to Fred Meyer of California, Emeryville, Calif.

Filed Sept. 20, 1971, Ser. No. 181,745

Int. Cl. H05b 1/00; G09f 13/34; F24h 3/04

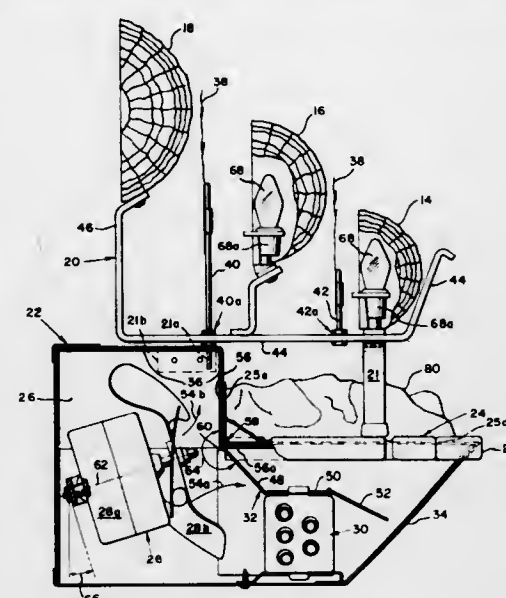
U.S. Cl. 219-367

25 Claims

A simulated fireplace assembly includes a housing having a fan located therein whose air flow axis is tilted upwardly, and a heating means. Air deflecting baffle plates are provided to divert the air stream from the fan into two streams, one generally vertical and the other horizontal; the horizontal stream passes the heating means and thence through an air-permeable front panel of the housing to heat the surrounding space, while the vertical air stream exists through an air-

permeable top panel of the housing to activate portions of a

of readings. If the device being measured is cylindrical and rotates, the cavity is along the edge of the rotational surface and may be subdivided so as to provide a chopper for the



flame simulator associated with an ornamental display of at least one log supported on the top of the housing.

3,742,190

APPARATUS FOR LABORATORY TESTING OF SUSTAINED RELEASE DRUGS

Celestino Giani, and Roberto Valducci, both of Province Milan, Italy, assignors to Eurand S.p.A., Balsamo, Milan, Italy

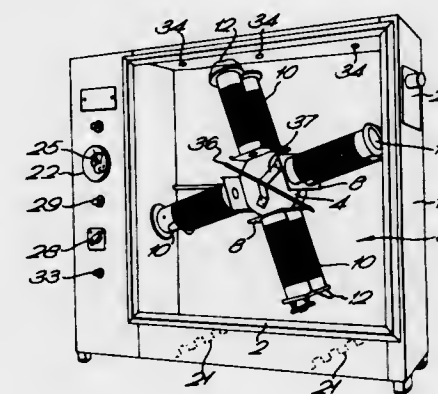
Filed July 21, 1971, Ser. No. 164,618

Claims priority, application Italy, July 22, 1970, 27733 A/70

Int. Cl. F27b 7/00; F27d 11/02

U.S. Cl. 219-389

3 Claims



An apparatus for lab testing sustained release drugs, characterized by the fact of consisting of a thermostatic chamber accurately regulated to a temperature falling within a very restricted range, said temperature being controlled by a mercury bulb thermometer with maximum and minimum contact points and a relay acting across a switch connected to a heat source, whose thermostatic chamber holds a rotating wheel-shaped device upon which is fixed a given number of elution bottle housings.

3,742,191

INFRARED TEMPERATURE SENSOR AND CONTROL FOR USE WITH HEATED, MOVING BODIES

Richard R. Poole, and David D. Bulkley, both of Norwalk, Conn., assignors to Irtronics, Inc., Stamford, Conn.

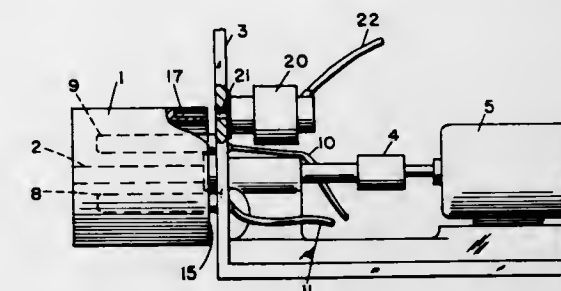
Division of Ser. No. 841,861, July 15, 1969, Pat. No. 3,652,263. This application May 4, 1971, Ser. No. 140,122

Int. Cl. H05b 1/02

U.S. Cl. 219-471

4 Claims

A temperature sensor is provided for measuring infrared radiation from a heated, moving processing device. The measurement is made from a "black body" cavity extending within the device being measured and so provides greater accuracy



readings. Control circuitry associated with the infrared detector allows the sensor to control heating elements within the device.

3,742,192

ELECTRICAL HEATING DEVICE AND METHOD

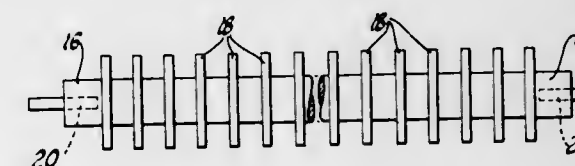
John T. Brzuszek, 26741 Woodmont, Centerline, Mich., and Emil J. Brzuszek, 7122 Jenerous, Roseville, Mich.

Filed Feb. 2, 1972, Ser. No. 222,948

Int. Cl. H05b 3/10

U.S. Cl. 219-553

2 Claims



In accordance with the invention there is provided an electrical heating device comprising a semiconductor body having bidirectional electric current conducting characteristics and having ohmic electrical contacts secured thereto at spaced points thereon for passing an electric current through at least a portion of said body, said body containing at least 99 percent by weight silicon and at least one other element uniformly dispersed therethrough.

3,742,193

DEVICE FOR SELECTING THE CALCULATING MECHANISM AND CONTROLLING THE MODE OF OPERATION OF A CASH REGISTER OR PRINTING ACCOUNTING MACHINE

Gunter Kleffman, Bielefeld, and Gerhard Rethmeier, Oldentrup, both of Germany, assignors to Anker-Werke AG, Bielefeld, Germany

Filed Apr. 26, 1972, Ser. No. 247,556

Claims priority, application Germany, Apr. 26, 1971, P 21 20 461.5

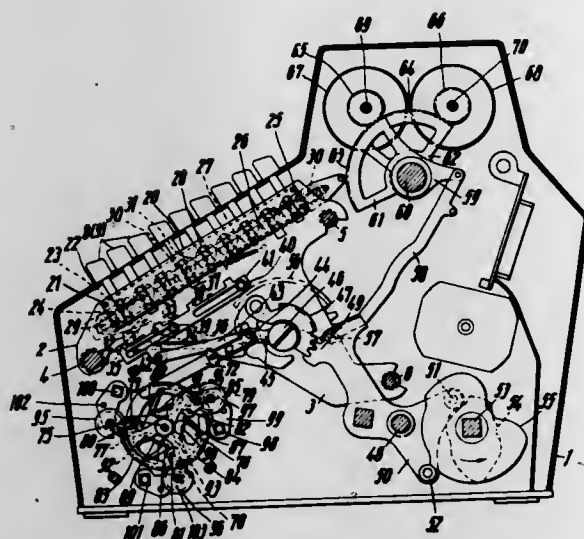
Int. Cl. G06c 23/00

U.S. Cl. 235-62 F

12 Claims

Device for selecting calculating mechanisms and controlling modes of operation of a cash register or printing accounting machine having manual or automatic selecting and controlling means associated one with the other for selecting the calculating mechanisms and the respective mode of operation of the machine and including a row of control keys, rows of calculator selecting keys and differential release mechanisms associated with the rows of keys, including control discs which, in automatically operative condition of the machine, for determining cross totals of the calculating mechanisms, are pre-adjustable stepwise by the machine drive into a new control position for a next succeeding machine operation, stop means for the control discs, and sensing means for determining in the next succeeding machine operation a setting for one of the rows of control keys and for the differential release mechanisms associated with the rows of calculator selecting

keys, upon which setting the selecting of the calculating



mechanisms and the controlling of the modes of operation are dependent.

3,742,194

METHOD AND APPARATUS FOR PROVIDING DIRECT REAL-TIME DETERMINATION OF A PARTICULATE POPULATION

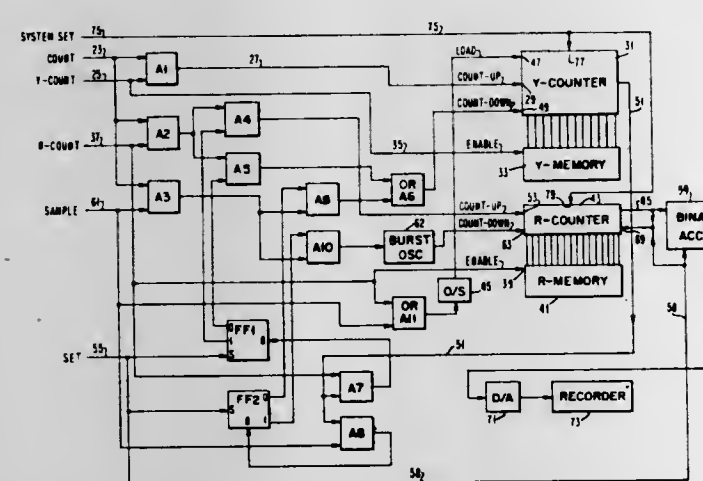
Stephen Caruso, Suffern; Henry D. Isenberg, Great Neck; Allen S. Reichler, Pearl River, all of N.Y., and Donald F. Wiseman, Wayne, N.J., assignors to Technican Instruments Corporation, Tarrytown, N.Y.

Filed May 3, 1971, Ser. No. 139,432

Int. Cl. G06m 11/02

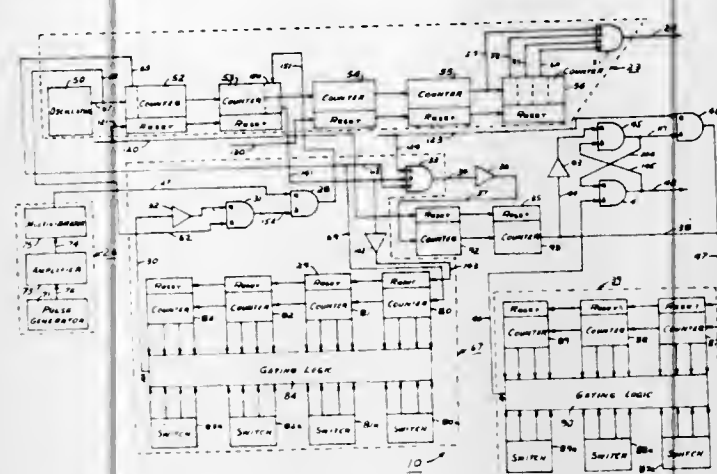
U.S. Cl. 235—92 PC

17 Claims



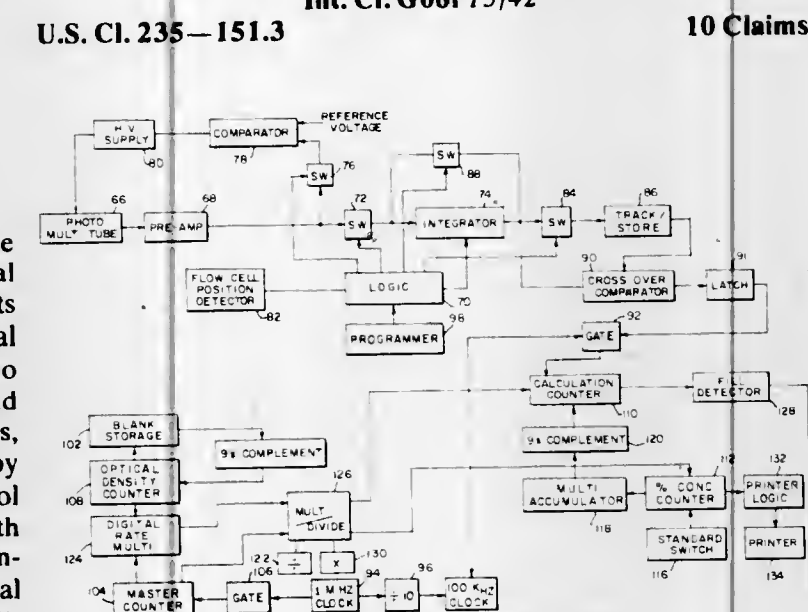
A method and apparatus is described for determining the susceptibility of a significant microorganism in a biological sample to different anti-microbial agents, and for providing its antibiotic susceptibility profile. Quotients of the biological sample are provided to a plurality of biological chambers, two of such chambers being used as internal "start" and "reference" controls. In the remaining biological chambers, proliferation of the significant microorganism is challenged by the addition of selected antibiotics. In the "start" control chamber the microorganisms are "killed" simultaneously with the addition of antibiotics to the biological chambers; after incubation, the microorganisms in the remaining biological chambers and, also, the "reference" control chambers are "killed" concurrently. Each of the biological chambers and the control chambers are sampled, and the total particulates, i.e., nonviable and "killed" microorganisms and, also, any dust or dirt particles, are counted in particular sequence, and the respective counts are logically related, so as to signify the susceptibility of the significant microorganism to each of the antibiotics. The results are graphically recorded, so as to provide an antibiotic susceptibility profile of the significant organisms.

3,742,195
RALLY RACE COMPUTER
William R. Randle, 2030 W. Livingston St., Orlando, Fla.
Filed Nov. 3, 1971, Ser. No. 195,318
Int. Cl. H03k 21/02
U.S. Cl. 235—92 EV
8 Claims



A rally race computer includes a circuit providing a time based pulse output, a circuit having a distance based pulse output, a programmable divider circuit, a circuit having a distance based pulse output which includes a programmable multiplier circuit, a summation and visual display circuit for additively counting the time based pulse output and subtractively counting the distance based output, a circuit controllable to steer the distance based pulse output into a selected additive or subtractive mode in the summation circuit, and means manipulatable to control the steering circuit. Gating means of the multiplier circuit and a divider circuit component of the multiplier circuit, operate in dependency upon the oscillator output of the time based pulse providing circuit.

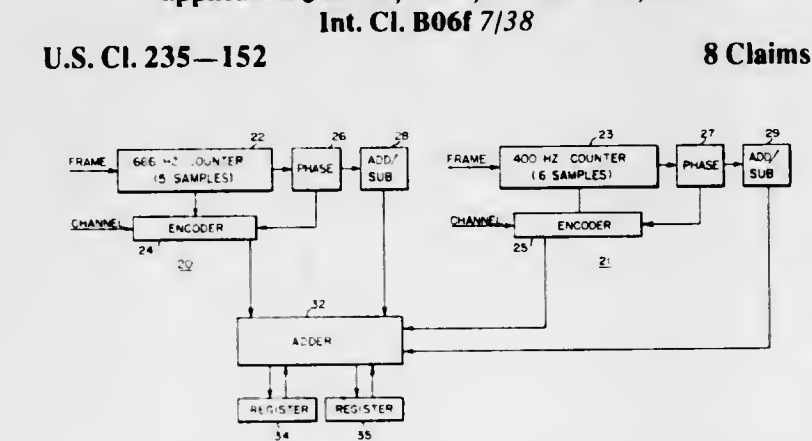
3,742,196
METHOD AND ELECTRONIC CONTROL FOR THE ANALYSIS OF SERUM CHEMISTRIES
Larry George Durkos, Indianapolis; Robert Wayne Cole, Zionsville, and Jerry William Denney, Carmel, all of Ind., assignors to American Monitor Corp., Indianapolis, Ind.
Filed Sept. 9, 1971, Ser. No. 179,135
Int. Cl. G06f 15/42
U.S. Cl. 235—151.3
10 Claims



An electronic control logic system for processing the results of a spectrophotometer analysis of a serum chemistry comprised of a serum and one or more chemical reagents. The spectrophotometer output representing air as a light path and another output representing the test chemistry as a light path are integrated and the air path integrated value allowed to exponentially decay until its value is equal to that of the integrated test chemistry path value. The decay time is con-

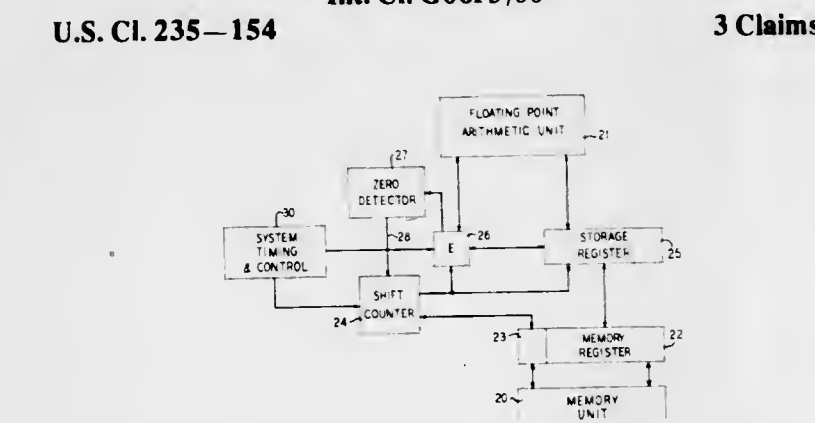
verted into a train of digital pulses representative of the optical density of the test chemistry. These pulses are counted and their total stored for comparison with the corresponding optical density of a standard solution. The concentration of the element for which the particular test was designed to detect is known for the standard solution, so the percentage concentration of that element in the test chemistry may be thereby ascertained. Programmable variations are provided to enable the evaluation of test results from a kinetic or an end point test. The results of the analysis, together with a test identification number and a patient identification number is selectively applied by a printer control logic section for suitable printing of the data.

3,742,197
SYNTHESIS OF DIGITAL SIGNALS CORRESPONDING TO SELECTED ANALOG SIGNALS
Uwe A. Pommerening, Webster, N.Y., assignor to Stomberg-Carlson Corporation, Rochester, N.Y.
Continuation of Ser. No. 4, Jan. 2, 1970, abandoned. This application Jan. 14, 1972, Ser. No. 217,988
Int. Cl. B06f 7/38
U.S. Cl. 235—152
8 Claims



Digital signals for use in a time-divided multiplex signalling system are synthesized directly in digital form. Binary signals indicative of the differences between the values of successive time-spaced samples of preselected analog signals are fed through gates to an up-and-down accumulator under control of a counter and phase and polarity discriminators. The output of the accumulator at any instant represents the algebraic sum of all previous signals received by it. The preselected analog signals are preferably of the kind that can be represented by the sums of one or more simple trigonometric functions, so the sample values need be calculated only for a quarter wave.

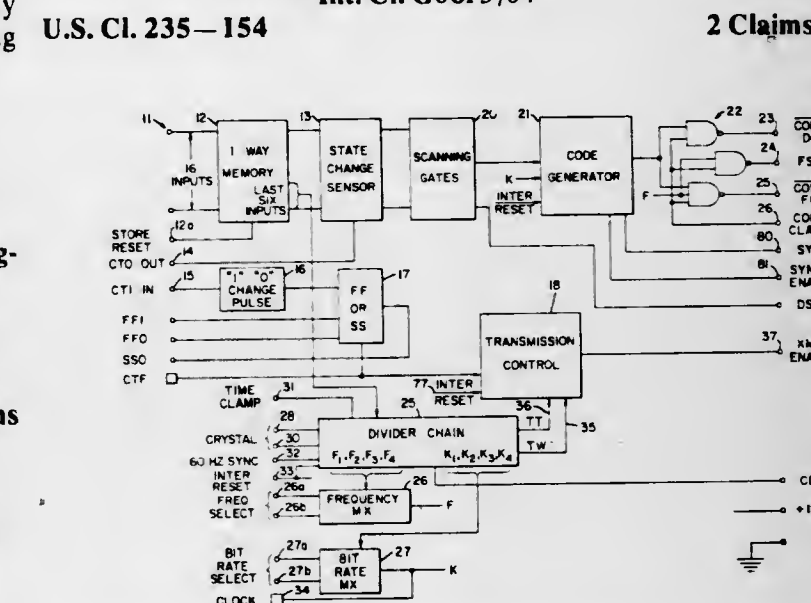
3,742,198
APPARATUS FOR UTILIZING A THREE-FIELD WORD TO REPRESENT A FLOATING POINT NUMBER
Robert Morris, Millington, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Mar. 19, 1971, Ser. No. 126,016
Int. Cl. G06f 3/00
U.S. Cl. 235—154
3 Claims



Apparatus and method embodying a novel representation of a floating point number. The novel representation utilizes a computer word having two fields of fixed length one of which is subdivided into two fields of variable length, thereby effec-

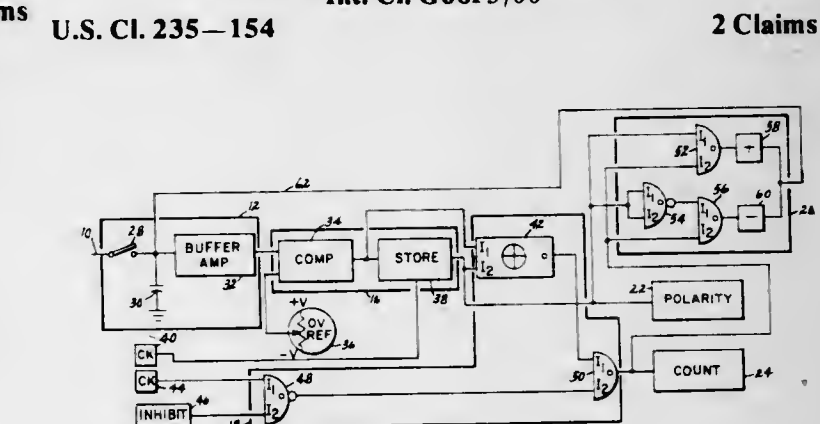
tively resulting in three fields. This novel representation allows a large trade-off to be made between accuracy and exponent range within the bounds of a single fixed-length data word.

3,742,199
BINARY CODE COMMUNICATION SYSTEM
Daniel P. Lubarsky, San Mateo, Calif., assignor to Larse Corporation, Palo Alto, Calif.
Filed Sept. 21, 1970, Ser. No. 73,935
Int. Cl. G06f 3/04
U.S. Cl. 235—154
2 Claims



A binary code communication system in which the binary bits are formatted for transmission into a sequence of code elements, each code element comprising four bits beginning with a timing bit having a first binary value followed by two consecutive data bits in turn followed by a second timing bit having a second binary value. One or more encoders receive binary data bits from a plurality of parallel inputs, serially convert the binary data bits into a data string, generate appropriate timing bits, and logically gate the data bits and timing bits into code elements. The code elements are grouped into words for transmission. One or more decoders receive, analyze and decode the transmitted encoded data sampling the bit values and bit transitions within each code element to determine the occurrence of errors. Error-free decoded data is passed to output while erroneous data is flagged. A system for transmission of encoded data from a plurality of remote stations on a single channel is described.

3,742,200
ANALOG TO DIGITAL CONVERSION APPARATUS FOR USE WITH TRACING SYSTEM TO PRODUCE A STORED PROGRAM THEREFROM
Thomas C. Marley, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio
Filed May 6, 1971, Ser. No. 140,756
Int. Cl. G06f 3/00
U.S. Cl. 235—154
2 Claims



An apparatus for use with a tracing system, the apparatus converting an analog deflection signal generated by the tracing stylus into a quantized pulse signal and a polarity signal to

be received by the accumulator of a numerical control system to produce a stored program therefrom.

3,742,201 TRANSFORMER SYSTEM FOR ORTHOGONAL DIGITAL WAVEFORMS

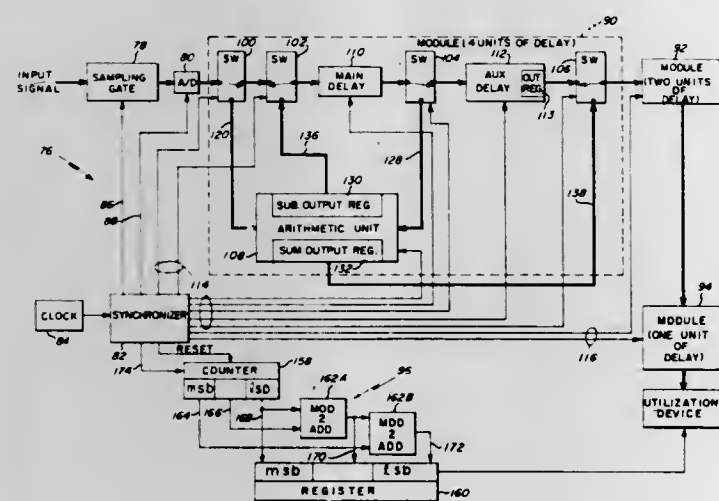
Herbert L. Groginsky, Wellesley, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Feb. 22, 1971, Ser. No. 117,472

Int. Cl. G06f 7/38, 15/34

U.S. Cl. 235-156

10 Claims



A transformation system for transforming a set of input data samples into a set of output transform components, the transformation being based on the use of a set of orthogonal digitally generated waveforms analogous to the use of sinusoids in a Fourier spectral analysis. The transformation is accomplished by sequentially storing, summing, and subtracting selected data samples and combinations thereof to effect a matrix multiplication of the set of input data samples.

3,742,202 PEAK INTEGRATOR

Ernst Spreltzhofer, Nussdorf, Germany, assignor to Bodenseewerk Perkin-Elmer & Co., GmbH, Überlingen/Bodensee, Germany

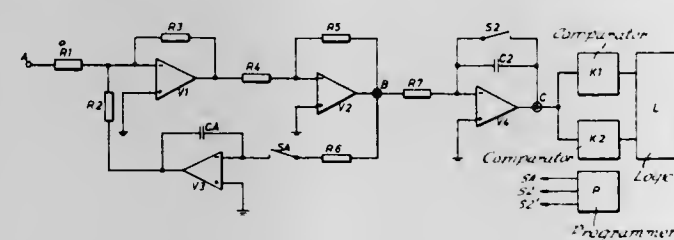
Filed Nov. 18, 1971, Ser. No. 199,901

Claims priority, application Germany, Nov. 20, 1970, P 20 56 998.6

Int. Cl. G06g 7/18; H03k 5/20

U.S. Cl. 235-183

3 Claims



An integrator apparatus for measuring the area under peaks in an input signal includes a main integrator for measuring such peaks, and a slope detector for comparing the signal change during each of a regular sequence of short measuring time intervals (the beginning and end of each of which is controlled by a repetitive timing pulse generator or programmer) and resetting the integrator to zero if the input signal does not change by more than a significant (threshold) amount during such a measuring interval. Thus the integrator continues to accumulate the input signal during each peak, including that part found in the first measuring time interval in which the beginning of the peak is detected, but the integrator is reset to zero after all measuring time intervals in which no signal peak exists, including those in which a peak has ended and those in which only noise is present.

3,742,203 ADJUSTABLY ILLUMINATED PICTURE FRAME

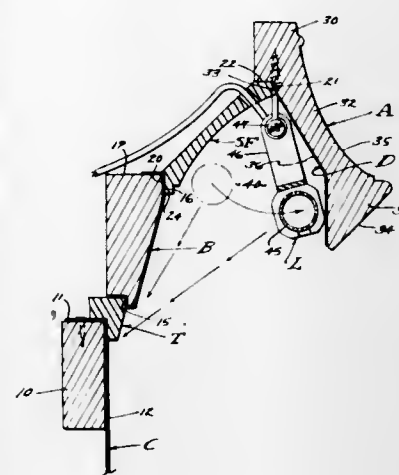
Joe T. Noe, 308 Joaquin Road, Arcadia, Calif.

Filed Sept. 10, 1971, Ser. No. 179,501

Int. Cl. F21v 33/00

U.S. Cl. 240-4

20 Claims



A frame for the mounting of paintings or pictures and the like, and wherein at least one margin of the frame carries recessed lighting extending longitudinally thereof and adjustable either directly or remotely to vary the angularity of the light source, there being a reflective diffuser that spreads the light, and to the end that efficient illumination is obtained for the display of the art work as circumstances require.

3,742,204 KNOB ASSEMBLIES FOR GEAR-SELECTOR LEVERS IN MOTOR VEHICLES

Ernest James Price, 15 Harvard Road, Solihull, England

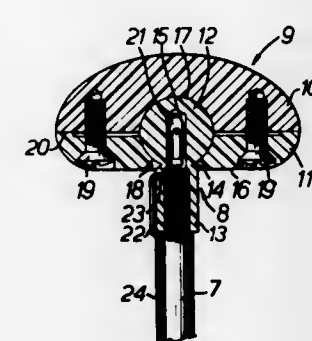
Filed Mar. 11, 1971, Ser. No. 123,364

Claims priority, application Great Britain, Mar. 13, 1970, 12,102/70

Int. Cl. B60q 3/00

U.S. Cl. 240-7.1 R

8 Claims



A knob for the gear-selector lever of a motor vehicle is so mounted that it can rock about at least one axis. In use this axis is preferably transverse to the direction of motion of the car. There may be a ball-and-socket connection between the knob and the lever allowing the knob to rock universally. The knob may be retained in position by friction, and the frictional resistance to rocking may be adjustable. There may be an electric lamp inside the knob.

3,742,205 RETRACTABLE HEAD LAMP ASSEMBLY

Rejean Beauregard, and Yvon Cote, both of Valcourt, Quebec, Canada, assignors to Bombardier Limited, Valcourt, Quebec, Canada

Filed Sept. 20, 1971, Ser. No. 181,687

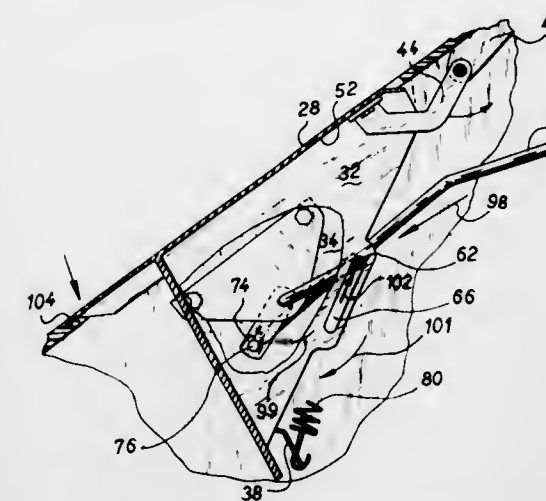
Int. Cl. B60q 1/00, 3/00

U.S. Cl. 240-7.1 H

7 Claims

The disclosure herein describes a retractable head lamp assembly consisting of a housing which is pivotable in and out of

an opening provided in the cab of a snowmobile. It also includes a light projector secured to the housing and a lever assembly operable at the driver station for the pivotal movement of the housing through the opening.



assembly operable at the driver station for the pivotal movement of the housing through the opening.

3,742,206 KALIEDO-LIGHT

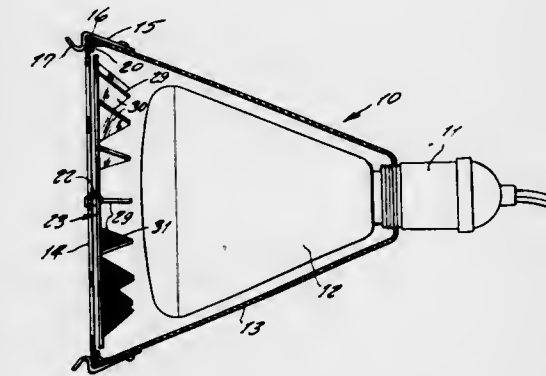
Frank Summa, 22 Starbuck St., Staten Island, N.Y.

Filed July 9, 1971, Ser. No. 161,202

Int. Cl. F21v 11/00, 13/00

U.S. Cl. 240-10.1

1 Claim



A luminous display device for projecting various colored light rays in a moving effect, the device consisting of an electric light socket fitted with a standard flood light or spot light lamp bulb and which is enclosed within an outer shade, the shade being open at its front end within which there is a front frame support secured by means of spring clips, the front frame support having a series of openings therethrough so to permit light rays from the bulb to pass therethrough, and the front frame support supporting a rotatable metallic conductor reflector with a series of tabs struck out therefrom, the tabs being bent up at right angles to the plane of the metallic conductor reflector, one side of the tabs having a highly polished surface on one side while the opposite side thereof has a dull matte black applied thereto, the conductor reflector of the device being caused to rotate by convection currents generated by the heat of the bulb, and each of the struck out openings in the conductor reflector being fitted with variously colored glass through which the light rays penetrate.

3,742,207 THROW-AWAY FLASHLIGHT

Howard J. Strauss, Bloomington, Minn., assignor to Gould Inc., Mendota Heights, Minn.

Filed May 15, 1972, Ser. No. 252,977

Int. Cl. F21l 7/00

U.S. Cl. 240-10.68

5 Claims

The case of the flashlight comprises a paper shell within a metal tube. At one end is a metal ferrule having a peripheral flange which is trapped between the crimped end of the tube

and the shell. This ferrule holds a light bulb. At the other end is a second metal ferrule also having a peripheral flange trapped between the crimped end of the tube and the shell. A



metal plunger extending through the latter ferrule is resiliently held away from the dry batteries within the tube by a plastic spring. When the plunger is pushed against the adjacent end of the dry cells an electrical circuit is completed to light the light.

3,742,208 LIGHTING FIXTURES USING CIRCULAR, TUBULAR FLUORESCENT LAMPS

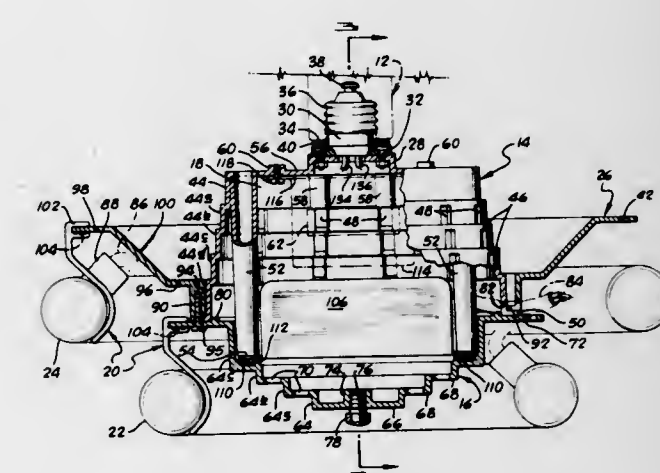
Arnold Mills, Novato, Calif., assignor to Alvin Corkland, Mill Valley, Calif.

Filed Dec. 7, 1971, Ser. No. 205,580

Int. Cl. H05b 33/02

U.S. Cl. 240-51.12

19 Claims



A lighting fixture utilizing one or more circular fluorescent lamps and connectable to conventional screw-in or bayonet type sockets comprises a pair of upper and lower housing members which cooperate to provide a supporting enclosure for ballast and starter components required for the lamps. The housings are shaped and provided with openings so as to assure constant cooling of these components by circulating ambient air. An intermediate annular member fixed to the housing members supports an additional circular lamp and also serves as a reflector. The fixture is adaptable for installation in an upright position to a ceiling socket or alternatively in the reverse position to a floor or table lamp structure.

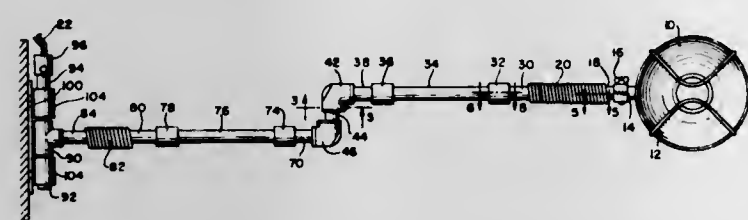
3,742,209 LIGHTING FIXTURE

Charles S. Williams, P.O. Box 6534, Lubbock, Tex.
Continuation-in-part of Ser. No. 58,622, July 27, 1970, which is a continuation-in-part of Ser. No. 846,000, July 30, 1969, abandoned. This application May 28, 1971, Ser. No. 147,835

Int. Cl. F26s 1/00

U.S. Cl. 240—73 BJ

13 Claims



A light support portion is interconnected to a first spring means. The first spring means is interconnected with a second spring means by an intermediate relatively rigid means which may include a swivel joint connected at an intermediate point thereof. The second spring means is interconnected with a mounting means which movably mounts the lighting fixture for movement with respect to a support means, the lighting fixture being supported in a generally horizontal relationship. The second spring means is shorter and more rigid than the first spring means and serves mainly to absorb vertical forces while the first spring means absorbs both vertical and horizontal forces.

3,742,210 COLLAPSIBLE LAMP SHADE

Paul Fraser Chapman, Aberaeron, Wales, assignor to Kenneth George Chapman, Aberaeron, Wales

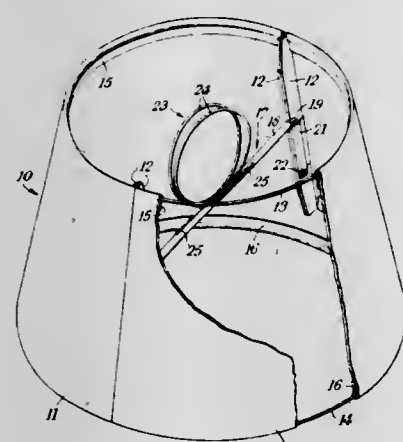
Filed Jan. 25, 1972, Ser. No. 220,639

Claims priority, application Great Britain, Jan. 27, 1971, 3,289/71

Int. Cl. F21v 1/06

U.S. Cl. 240—108 R

7 Claims



A lampshade which is capable of being flattened and comprising a tubular shade constituted by two halves formed with turned flanges joined together at diametrically opposite points, springs in each half of the shade which extend between the flanges at top and bottom of the shade and can yield to permit the shade to be flattened, supporting means for supporting the shade in the expanded condition and a fitting carried by the supporting means for attaching the shade to a lamp to be shaded.

3,742,211 LAMP REMOVAL ARRANGEMENT

Marlo Wayne Groezinger, Freeport, Ill., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Sept. 1, 1972, Ser. No. 285,839

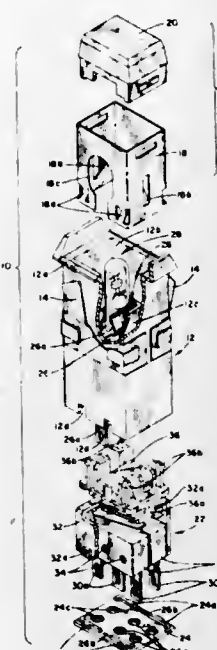
Int. Cl. F21v 1/00; H01r 13/62

U.S. Cl. 240—152

6 Claims

A lamp removal arrangement for a panel mounted illuminated device having a tubular housing in which a wedge

base lamp is supported and further having a light transmitting closure which includes resilient fingers that pass over the tubular position of the lamp during assembly of the closure to



the housing and that rigidly engage the portion of the lamp located between the tubular portion and the base portion upon removal of the closure from the housing so as to thereby cause the lamp to be removed therewith.

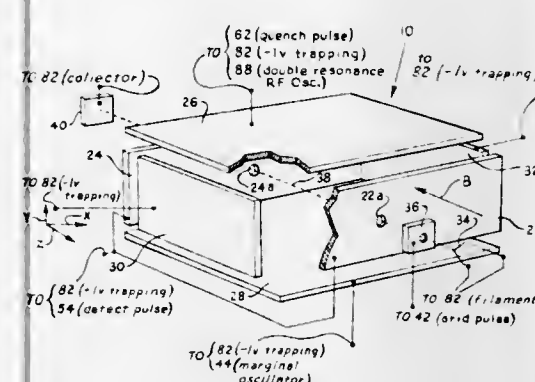
**3,742,212
METHOD AND APPARATUS FOR PULSED ION CYCLOTRON RESONANCE SPECTROSCOPY**
Robert T. McIver, Jr., Stanford, Calif., assignor to The Board of Trustees of the Leland Stanford Junior University, Stanford, Calif.

Filed Feb. 16, 1971, Ser. No. 115,216

Int. Cl. B01d 59/44

U.S. Cl. 250—41.9 DS

24 Claims



A method and apparatus for pulsed ion cyclotron resonance spectroscopy is disclosed in which a gas sample within an analyzer cell is ionized by means such as a pulse of an electron beam. The ions are subjected to a combined action of a plurality of static electric fields and a magnetic field thereby trapping the ions and causing them to move orbitally within the cell. Following ionization by said pulse of an electron beam and after a reaction time delay period, ions of a given charge-to-mass ratio are brought into resonance with an oscillating electric field applied transversely to the lines of force of the magnetic field. During such detection period those ions in resonance with the oscillating electric field absorb energy therefrom, which absorbed energy is detected as a measure of the resonant ions. The ions are then swept from the cell. By

3,742,214 APPARATUS FOR PERFORMING CHEMICAL ANALYSIS BY ELECTRON SPECTROSCOPY

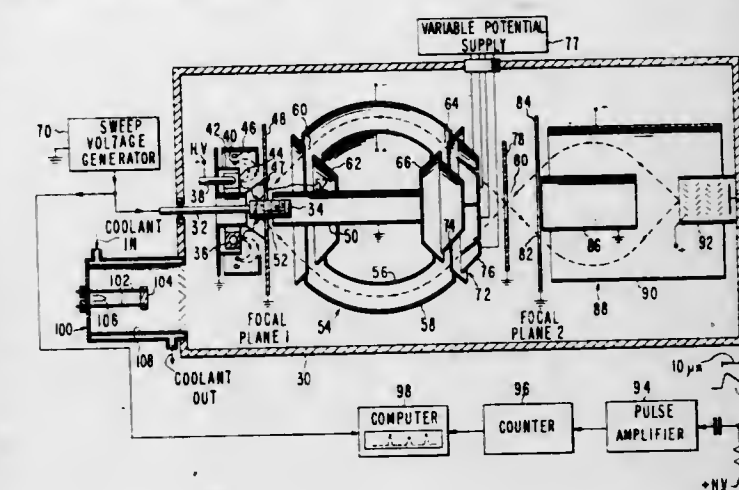
John C. Helmer, Menlo Park, and Norbert H. Weichert, Palo Alto, both of Calif., assignors to Varian Associates, Palo Alto, Calif.

Continuation of Ser. No. 763,691, Sept. 30, 1968. This application Oct. 18, 1971, Ser. No. 190,265

Int. Cl. H01j 37/26

U.S. Cl. 250—49.5 AE

40 Claims



An electron spectrometer enabling the determination of the binding energies of the electrons surrounding the atoms of a given sample material. Novel sample irradiation apparatus, annular slit means and electron analyzing apparatus are disclosed including a novel arrangement which enables the electron spectrum to be swept without altering the parameters of the analyzer and further enables unusually large slit widths to be used in order to achieve extremely high instrument sensitivity.

3,742,213 APPARATUS AND METHODS FOR DETECTING, SEPARATING, CONCENTRATING AND MEASURING ELECTRONEGATIVE TRACE VAPORS

Martin J. Cohen, West Palm Beach, and Robert W. Crowe, Lake Worth, both of Fla., assignors to Franklin Gno Corporation, West Palm Beach, Fla.

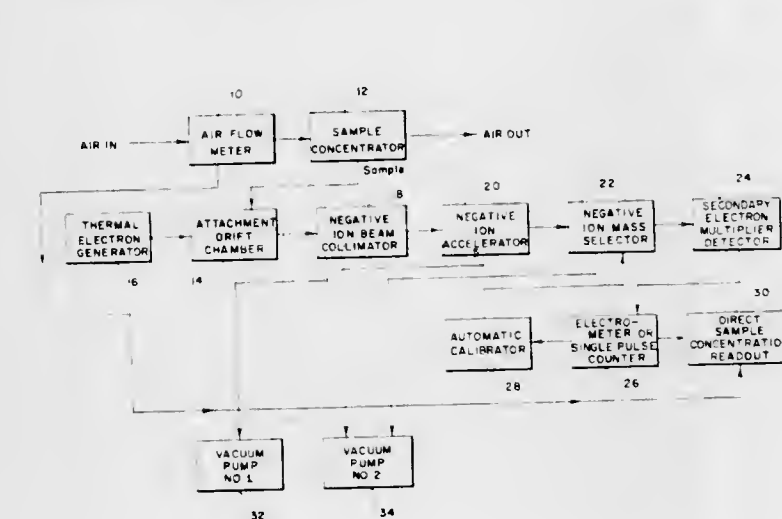
Continuation of Ser. No. 618,635, Feb. 27, 1967, abandoned.

This application Jan. 28, 1971, Ser. No. 110,634

Int. Cl. H01j 39/34; B01d 59/44

U.S. Cl. 250—41.9 TF

18 Claims



Apparatus and methods for detecting gases (such as those indicative of human activity) and for gas analysis, concentration, or purification. Negative ions formed by electron attachment to electronegative components of a gaseous sample are separated from neutral molecules and quantized. In one embodiment negative ions formed at atmospheric pressure are classified according to their mobility in an electric field and are collimated, accelerated, and detected in vacuo.

3,742,215 METHOD AND APPARATUS FOR A SEMICONDUCTOR RADIATION DETECTOR

Johannes Meuleman, Caen, France, assignor to U.S. Philips Corporation, New York, N.Y.

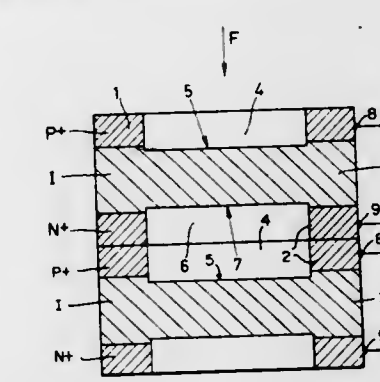
Filed Jan. 22, 1971, Ser. No. 108,799

Claims priority, application France, Jan. 26, 1970, 7002619

Int. Cl. G01t 1/24

U.S. Cl. 250—83 R

4 Claims

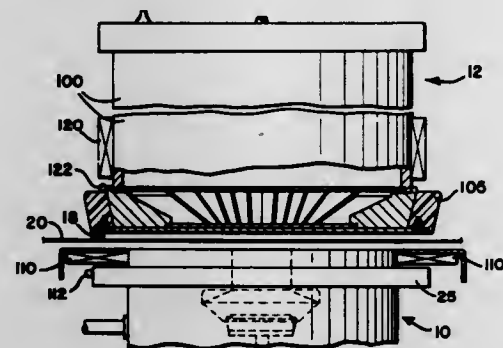


Semiconductor nuclear detector and method of manufacturing the same, the detector comprising a semiconductor crystal having two outer regions of opposite conductivity types and separated by an intermediate, intrinsic region and each having a recess; these recesses are located opposite each other and have substantially similar configurations. One recess serves as an entrance window for the radiation and has a depth at least equal to the thickness of the outer region concerned, whereas contacts are made at the peripheries of said outer regions. The depth of the recess opposite that serving as an entrance window for the radiation is at least equal to the thickness of the outer region in which it is provided.

3,742,216 NUCLEONIC GAUGE FOR MEASURING PROPERTIES OF THIN MATERIALS

Linus K. Hahn, Columbus, Ohio, assignor to Industrial Nucleonics Corporation, Columbus, Ohio
Filed Nov. 17, 1969, Ser. No. 877,166
Int. Cl. G01n 23/16; G21f 5/02
U.S. Cl. 250—83.3 D

10 Claims

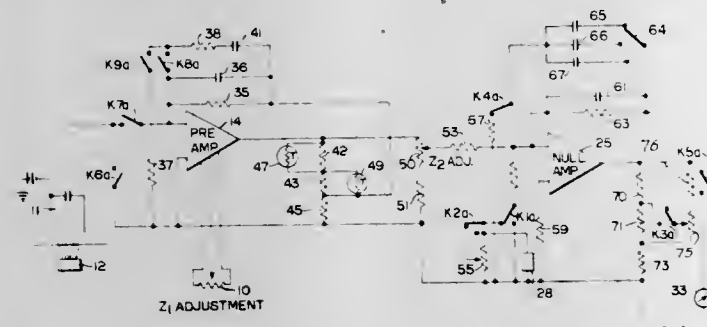


A nucleonic gauge for measuring thin materials such as paper tissue, plastic film or the like has a source head with an annular cavity containing Krypton 85 and a beta energy shifting or softening target. The softened reflected beta rays are directed through a centrally positioned aperture and the extent of interaction by the material under measurement in the pass gap is measured by a detector head. The source includes a shutter which forms a portion of the target material in the retracted position of the shutter. The shutter is axially movable into an aperture closing position. The target material is removable and interchangeable for selecting the desired degree of beta softening. Good sensitivity is maintained by reducing the air column in the head and in the detector, and by maintaining a temperature of both heads at substantially that of the material being measured.

3,742,217 NUCLEAR RADIATION GAUGE STANDARDIZING SYSTEM

Stephen L. Eakman, Framingham, and David F. Wood, Acton, both of Mass., assignors to LFE Corporation (formerly Laboratory for Electronics, Inc.), Waltham, Mass.
Continuation-in-part of Ser. No. 790,649, Jan. 13, 1969, abandoned. This application Jan. 18, 1971, Ser. No. 107,257
Int. Cl. G01t 1/16
U.S. Cl. 250—83.3 R

12 Claims



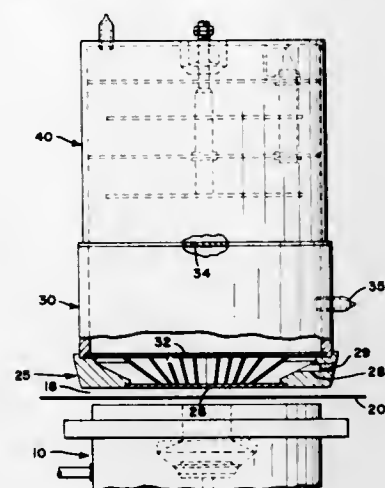
A nuclear radiation thickness gauging system including a radioactive source and an ion chamber connected through a switching arrangement to a preamplifier. The output signal from the preamplifier is a voltage signal having an amplitude representing the detector signal amplitude over the full range of operation. The system is arranged to produce two standardizing full amplitude signals, one for zero absorber conditions and one for maximum absorber conditions. The three signals are used in an output circuit to generate standardized measurement signals representing the thickness of a material being measured. The output circuit in one embodiment is a nulling measurement circuit which utilizes the standardizing signals to adjust the preamplifier characteristic and the system

gain. In another embodiment the output circuit is a computer which standardizes the measurement signals mathematically.

3,742,218 AIR COLUMN DENSITY VARIATION INSENSITIVE NUCLEONIC GAUGING SYSTEM

John W. Fleming, Jr., Columbus, Ohio, assignor to Industrial Nucleonics Corporation, Columbus, Ohio
Continuation of Ser. No. 877,196, Nov. 17, 1969, abandoned.
This application Jan. 31, 1972, Ser. No. 222,171
Int. Cl. G01n 23/00, 23/16
U.S. Cl. 250—381

7 Claims



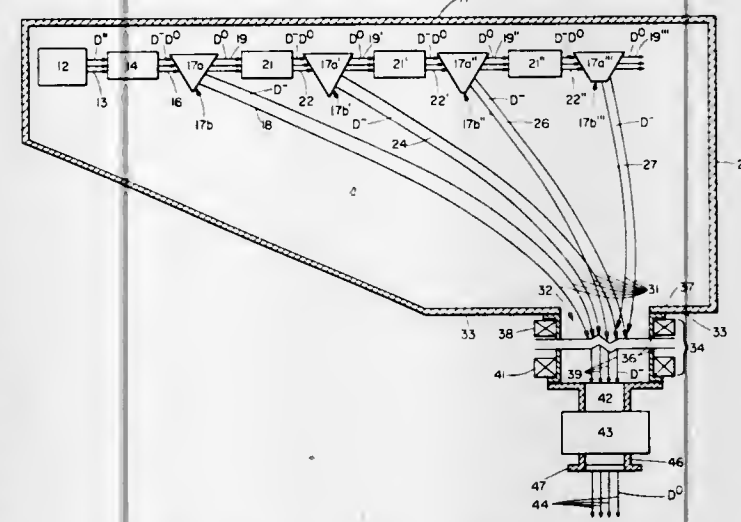
A nucleonic gauge includes a source in a sealed housing and a spaced detector and in which the space between the detector and the pass gap is substantially evacuated, and in which the space between the source and the source window is substantially evacuated to eliminate variations in air density in the air column which otherwise exists between the source and the detector. A standard ion chamber is employed for the detector with a second chamber inserted between the source and the ion chamber which may form part of the collimator which second chamber is pumped to a near vacuum. The arrangement maintains a reasonable spacing between the source and the detector and reduces the effects of vertical deflection on gauge sensitivity.

3,742,219 HIGH ENERGY NEUTRAL PARTICLE BEAM SOURCE

Charles C. Damm, John E. Osher, both of Alamo, and Richard F. Post, Walnut Creek, all of Calif., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed June 23, 1971, Ser. No. 155,984
Int. Cl. H01j 37/00

U.S. Cl. 250—84

9 Claims



An ion source directs a beam of low energy positive ions through a first gas charge exchange cell forming a beam of neutral particles with some negative ions therein. The neutral

particle component of the beam is then directed through an aligned series of similar charge exchange cells in each of which some of the neutral particles are converted into negative ions. A magnetic field is applied to the mixed particle beam emerging from each cell to deflect the negative ions so as to converge to form a common negative ion beam which is passed through a charged particle accelerator to yield a high energy negative ion beam then through a gas cell to strip electron therefrom forming a high energy neutral particle beam which may then be directed into the magnetic containment zone of a controlled fusion reactor to be ionized and trapped to form a plasma therein.

ERRATA

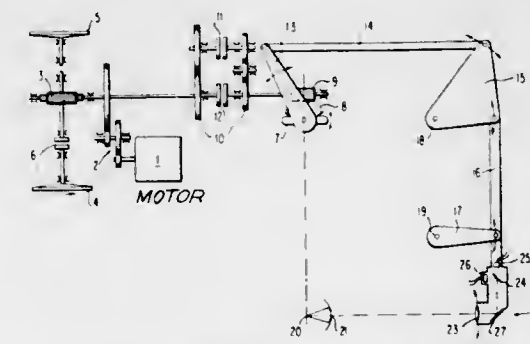
For Classes 250—106 and 250—391 see:
Patents Nos. 3,742,366 and 3,742,367

3,742,220 DRIVING MEANS FOR AUTOMATIC CURVED LINE FOLLOWING DEVICE

Toshiyuki Okuma, and Hisakuni Nagai, both of Tokyo, Japan, assignors to Fuji Photo Film Co., Ltd., Minami Ashigara-shi, Kanagawa, Japan
Filed Apr. 20, 1972, Ser. No. 246,021
Claims priority, application Japan, Apr. 20, 1971, 46/24963
Int. Cl. G05b 19/36; G06k 11/02

U.S. Cl. 250—202

4 Claims



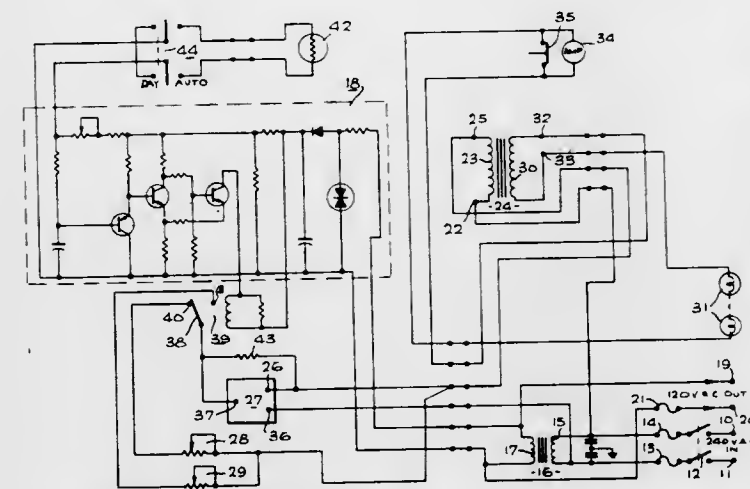
An optical detection system generates signals in response to line deviation of a steering wheel to selectively control clutches which transmit bidirectional motion to the steering wheel of the line following device.

3,742,221 INTENSITY CONTROL CIRCUIT FOR VISUAL APPROACH SLOPE INDICATOR INSTALLATION

Robert H. Horner, Huntington Beach, Calif., assignor to Hughey and Phillips, Inc., Burbank, Calif.
Filed Nov. 15, 1971, Ser. No. 198,506
Int. Cl. H01j 39/12

U.S. Cl. 250—206

7 Claims



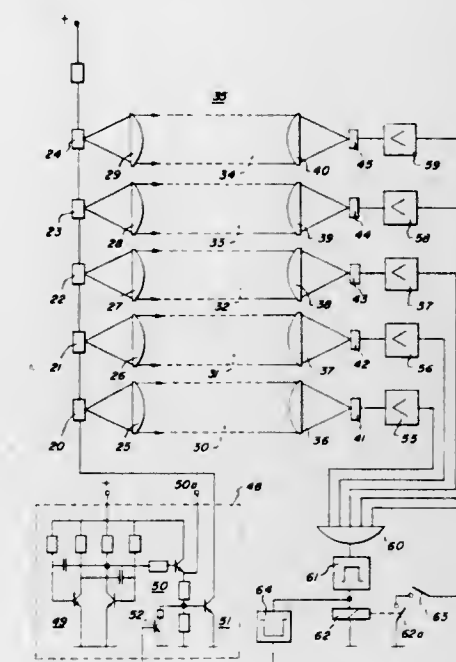
An improved light intensity control circuit for visual approach slope indicator (VASI) installations at airports is described which gives a continuously adjustable control of the

VASI light intensity for two separate sets of operation; day operation and night operation; with low heat generation and long life in the control circuit.

3,742,222 PHOTOELECTRIC SENSING SYSTEM

Alfons Endl, c/o Endl Elektronik GmbH Co., Paul-Hasch-Strasse 40, 8 Munich 60, Germany
Filed Feb. 9, 1971, Ser. No. 114,001
Claims priority, application Germany, Feb. 20, 1970, P 20 07 840.4
Int. Cl. H01j 39/12; G08b 13/18
U.S. Cl. 250—209

15 Claims



A multiple light beam sensing system with pulsed light sources, plural light sensors and a digital circuit responsive to each of the sensors to detect the interruption of light to any sensor. One digital detector circuit uses an AND gate; and another has a series of bistable circuits actuated between stable states by pulses from the sensors. An output signal is present so long as no beam is broken. The interruption of one beam or the failure of any component is indicated by the loss of the output signal.

A current generator light sensor is shunted by an inductor which has a low impedance at the frequency of ambient light and a high impedance at the light source pulse repetition rate, providing a high degree of discrimination against ambient light.

The light source and light sensor are mounted adjacent each other at one side of the sensing area. A reflector is mounted at the other side. A single lens directs light from the source to the reflector and directs reflected light to the sensor.

3,742,223 WIDE ANGLE LATERAL PHOTO-DETECTOR MEANS

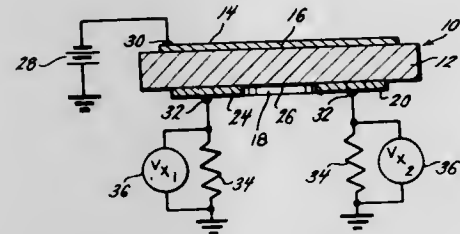
Theodore G. Carr, Middlesex County, Mass.; Jon C. Richmond, Florissant; James E. Dueker, St. Louis County, and Robert G. Wagner, University City, all of Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo.
Filed May 25, 1970, Ser. No. 40,227
Int. Cl. H01l 15/00

U.S. Cl. 250—211 J

16 Claims

A wide angle photo-detector device for use in optical systems including optical sighting, tracking and guidance systems, said detector including a semi-conductor wafer element having a transparent or semi-transparent conductive barrier forming layer on one surface thereof and one or more electrodes arranged on the opposite surface in such manner that when incident emitted or reflected light received from a remote location impinges on the rectifying barrier layer output signals will be produced at the said electrodes, which

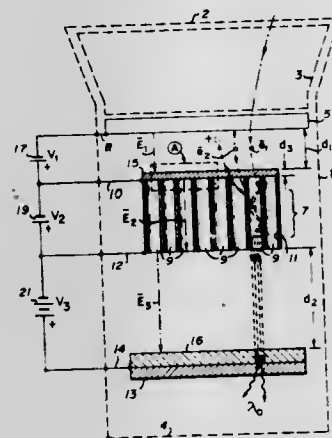
signals are responsive to the location on the device where the



3,742,224 LIGHT AMPLIFIER DEVICE HAVING AN ION AND LOW ENERGY ELECTRON TRAPPING MEANS

Bernard Caesar Einstein, Redwood Estates, Calif., assignor to Litton Systems, Inc., San Carlos, Calif.
Continuation-in-part of Ser. No. 124,107, March 15, 1971, abandoned. This application Mar. 23, 1972, Ser. No. 237,343
Claims priority, application Germany, Feb. 29, 1972, P 22 09 533.6; Feb. 29, 1972, P 72 07 607.4; Great Britain, Mar. 1, 1972, 9,642/72; Netherlands, Mar. 10, 1972, 7203218
Int. Cl. H01j 31/50, 39/12, 43/00
U.S. Cl. 250—213 VT

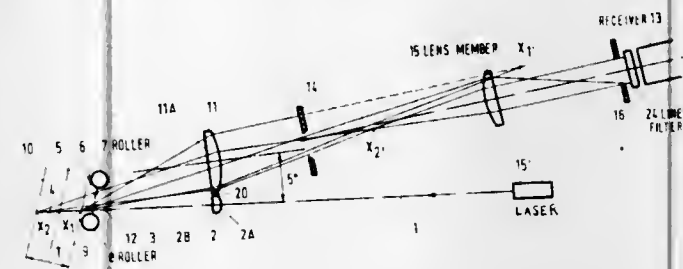
27 Claims



A light amplification device such as an image intensifier or low level sensing device is disclosed which includes a photocathode spaced from an aluminized target electrode and a microchannel plate intermediate said cathode and target. A thin non-self-supporting substantially optically transparent layer of material of a substance and thickness so as to be essentially transparent to high energy electrons, on the order of 100 to 1,000 electron volts, and light is situated atop the front end of the microchannel plate, covering the passages therein, in order to trap ions, which otherwise would travel to the photocathode, neutral gas ions, and to absorb scattered low energy electrons generated by secondary emission at the rim portion of the individual tubes in said microchannel plate, which would otherwise travel into the microchannel plate passages and to pass any light which passes through the photocathode and transmit any light which penetrates through the photocathode. The microchannel plate is spaced by a predetermined first distance from the photocathode, with its covered end facing the photocathode, and is spaced by a second distance, larger than the first distance, from the aluminized target electrode. A first voltage is applied between the photocathode and the microchannel plate and a second voltage, at least twice as great as the first voltage, is applied between the microchannel plate and the target electrode, and a third voltage is applied across the microchannel plate.

3,742,225
READER MECHANISM FOR OPTICALLY DISCERNIBLE CHARACTERS
Erwin Sick, Jcking; Gernot Pinior, Germering, and Johann Plockl, Unterhaching, all of Germany, assignors to Zellweger AG Apparate- und Maschinenfabriken Uster, Uster, Switzerland
Filed Jan. 28, 1972, Ser. No. 221,704
Claims priority, application Switzerland, Mar. 22, 1971, 4239/71
Int. Cl. G01n 21/30; G06k 7/00; G06m 7/00
U.S. Cl. 250—219 D

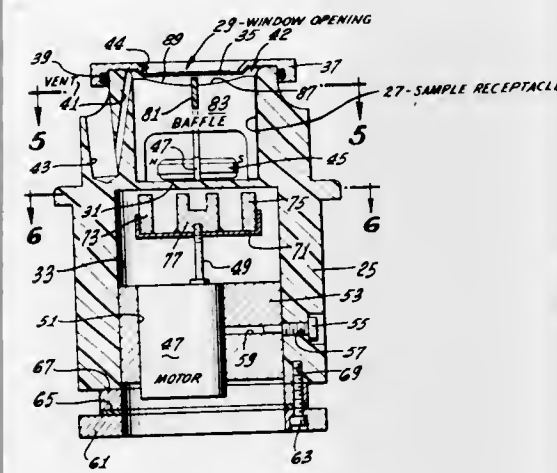
15 Claims



A reader mechanism for optically discernible characters, especially characters associated with an article and applied thereat or thereto, wherein a transmitted beam linearly scans a reference plane and a received beam derived from a scanned character impinges upon a receiver which delivers an electrical output signal as a function of the light current of the received light beam. Two cylinder lens members are located at the region of the reference plane and extend parallel thereto and to the scanning direction. These two cylinder lens members each possessing a length sufficient for respectively operatively engaging with the transmitted light beam and the received light beam. One of the cylinder lens members is covered by a fine transmitted light beam and possesses a width which is less than that of the other cylinder lens member. This other cylinder lens member deflects light emanating from the reference plane or at a defined location before or after such reference plane to the receiver.

3,742,226
LIQUID CELL FOR X-RAY FLUORESCENCE ANALYSIS
Allan H. Smallbone, La Crescenta, Calif., assignor to Applied Research Laboratories, Inc., Sunland, Calif.
Filed May 14, 1971, Ser. No. 143,462
Int. Cl. G01n 21/00
U.S. Cl. 250—51.5

6 Claims



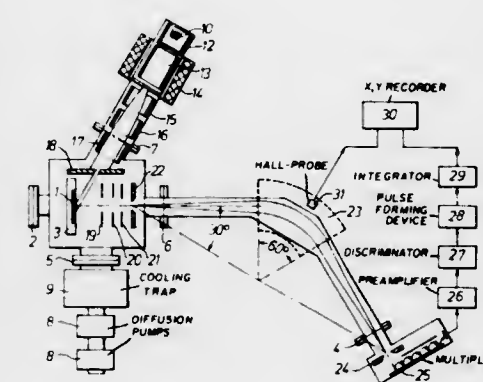
Solids in a slurry batch or batch mixtures of liquids of different densities the upper surfaces of which are presented in a liquid cell for X-ray analysis are prevented from separating by an impeller causing rotary movement of the slurry or liquid mixture within the cell; the liquid surface being maintained substantially planar by baffles which inhibit the creation of a vortical cavity.

3,742,227
PROCESS AND APPARATUS FOR THE MASS SPECTROMETRIC ANALYSIS OF SURFACES OF SOLIDS
Alfred Benninghoven, Cologne, Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Germany
Filed Nov. 12, 1970, Ser. No. 88,747
Claims priority, application Germany, Nov. 14, 1969, P 19 57 311.6

Int. Cl. G01n 23/22

U.S. Cl. 250—282

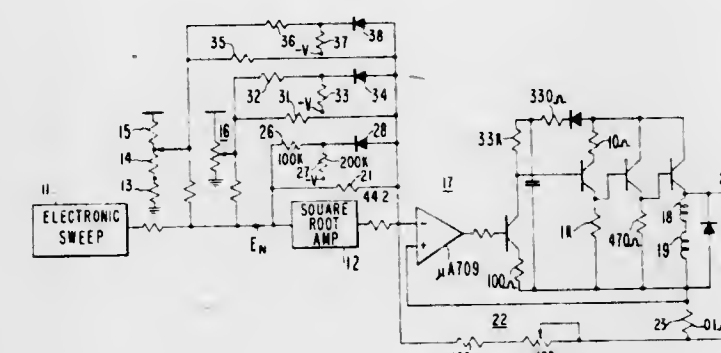
9 Claims



Surfaces of solids, in particular the uppermost monolayer, are analyzed by means of secondary ion spectrometry. The primary ion currents used for bombarding the surface of the solid are transmitted at such low current densities that the time required for disintegration of a monolayer, in particular the uppermost monolayer of the solid, is long compared with the time taken for recording a spectrum.

3,742,228
MAGNET CONTROL CIRCUIT UTILIZING SQUARE ROOT CIRCUIT AND ADDITIONAL COMPENSATION CIRCUIT
Russell S. Gutow, Jr., Mountain View, Calif., assignor to Varian Associates, Palo Alto, Calif.
Filed Mar. 4, 1971, Ser. No. 121,115
Int. Cl. B01d 59/48; G06g 7/20
U.S. Cl. 250—41.9 ME

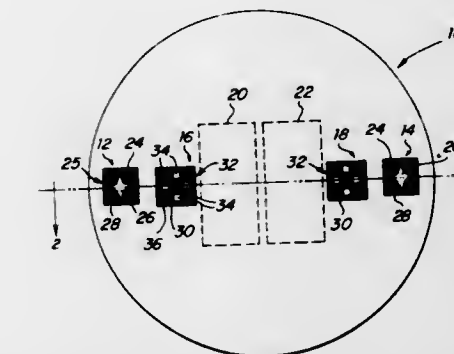
9 Claims



A magnet control circuit for the electromagnet of a mass spectrometer wherein a sweep voltage input linear with time is supplied to a square root amplifier where it is converted to a current proportional to the square root thereof, said current being utilized to energize the magnet windings and thus produce a change in magnet flux density rendering the mass numbers of the ion groups proportional to sweep time. One or more circuits are provided to by-pass the square root amplifier and produce a magnet current proportional to said sweep voltage to thereby compensate for a decreasing rate of flux density versus magnet current at higher magnet current levels.

3,742,229
SOFT X-RAY MASK ALIGNMENT SYSTEM
Henry I. Smith, Sudbury; David L. Spears, Acton, and Ernest Stern, Concord, all of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.
Filed June 29, 1972, Ser. No. 267,667
Int. Cl. G01n 21/34
U.S. Cl. 250—65 R

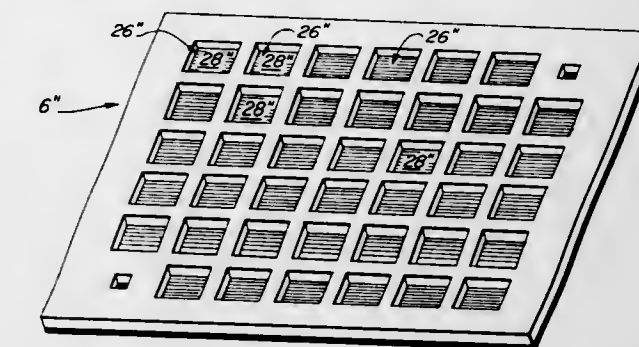
15 Claims



An alignment system for a soft X-ray lithographic system for aligning a mask with a substrate to be printed with a pattern including a first registration means on the mask and second registration means on the substrate; one of the registration means being a first soft X-ray absorber means of a predetermined form; the other registration means being a second soft X-ray absorber means having a space in it with the same predetermined form, and one of the registration means being carried over a soft X-ray transparent registration window on the mask, the other registration means being carried over a soft X-ray transparent registration window on the substrate.

3,742,230
SOFT X-RAY MASK SUPPORT SUBSTRATE
David L. Spears, Acton; Henry I. Smith, Sudbury, and Ernest Stern, Concord, all of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.
Filed June 29, 1972, Ser. No. 267,672
Int. Cl. G01n 21/34
U.S. Cl. 250—65 R

16 Claims



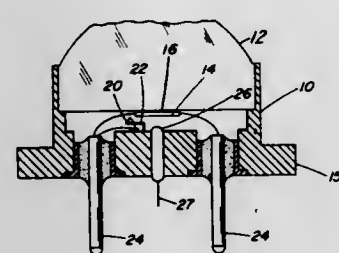
A soft X-ray mask support substrate including a thick peripheral support structure; a thin, taut membrane, transparent to soft X-rays and carried by the support structure covering the area within the periphery; and a soft X-ray absorber layer arranged in a predetermined pattern on the membrane within the periphery of the support structure.

3,742,231
THERMISTOR BOLOMETER HAVING A BUILT-IN SOURCE
Seymour C. Spielberger, North Hempstead, N.Y., assignor to Barnes Engineering Company, Stamford, Conn.
Filed Jan. 7, 1971, Ser. No. 104,717
Int. Cl. G01j 5/02
U.S. Cl. 250—338

6 Claims

A thermistor bolometer having a bolometer housing is provided with an active thermistor flake mounted in the housing

for providing a means of measuring radiation applied thereto. A light-emitting diode is mounted in the housing for applying radiation directly on the back of the active flake. The light-emitting diode provides a fully controllable source of radiant energy which may be utilized to test, calibrate, or function with the detector and the system in which the detector is em-



ployed in a variety of programmed ways. The thermistor bolometer may be of the immersed type, in which the active flake is mounted on an infrared window or lens, or may be of the solid-backed variety in which the solid-back substrate is transparent to the radiation applied to the back of the active flake by the light-emitting diode.

3,742,232

METHOD AND APPARATUS FOR EVALUATING THE OPERATION OF MACHINES FOR THE PRODUCTION AND/OR PROCESSING OF SMOKERS' PRODUCTS

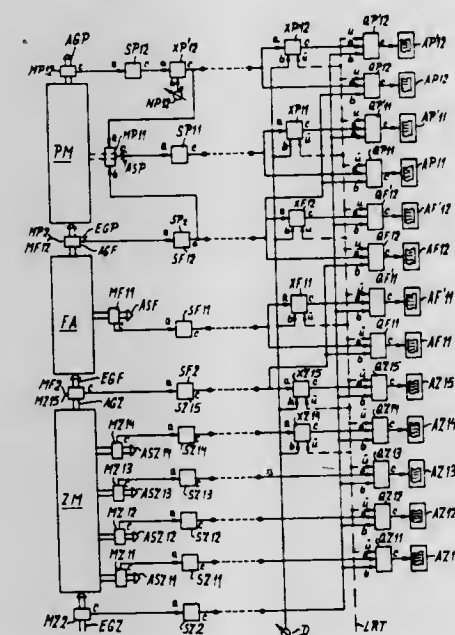
Jurgen Koehn, Gunter Wahle, and Frank-Dieter Lehmann, all of Wentorf, Germany, assignors to Hauni-Werke Korber & Co. KG, Hamburg, Germany

Filed Mar. 30, 1971, Ser. No. 129,370

Claims priority, application Germany, Apr. 2, 1970, P 20 15 619.8

Int. Cl. G061 15/46

U.S. Cl. 235—151.3



The operation of a single machine or a group of two or more machines for the production and/or processing of smokers' products is monitored by detectors serving to measure the quantity of comminuted tobacco or filter material which is admitted at each inlet and discharged at each outlet of the machine or machines. The detectors produce electric signals for evaluation by a computer or by a system of totalizing, multiplying and/or dividing circuits which furnish indications of the ratio of admitted to discharged quantities of tobacco or filter material.

3,742,233 MOTION DISPLACEMENT TRANSDUCER

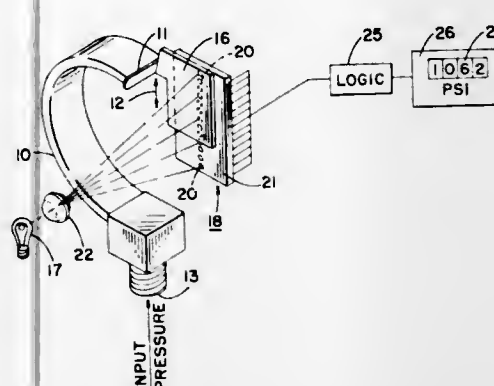
Joseph E. Gorgens, Trumbull; William A. Heske, Fairfield, and Randall Goff, Weston, all of Conn., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Aug. 20, 1971, Ser. No. 173,517

Int. Cl. G01d 5/34

U.S. Cl. 250—231 R

18 Claims



A transducer for converting motion displacement into a digital electrical signal. A radiation impervious vane or shield member secured to a motion producing device moves conjointly therewith in a motion path extending intermediate a predetermined radiation sensitive or emitting array pattern and a radiation source or sensor. Movement of the vane acts to interrupt the light beam between the source and sensor and the extent to which the beam is interrupted is a measured function of vane displacement. Continual updated logic count analysis of the array units interrupted by vane position produces an electrical digital output signal for remote utilization in correspondence to the logic count.

3,742,234

HIGH SPEED SMALL DEFLECTION INTERLACE MIRROR

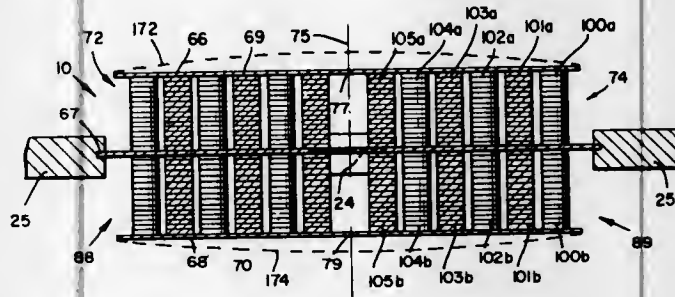
Peter Laakmann, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed June 23, 1971, Ser. No. 155,955

Int. Cl. H01j 5/16

U.S. Cl. 250—235

11 Claims



A small deflection scanning mirror having a sufficiently high resonant frequency so as to be suitable for high speed interlace operation. The mirror structure includes a balanced pair of mirror surfaced plates arranged parallel to each other on opposite sides of mounting plate and with a honeycomb core therebetween formed of an array of stacks of linear motion transducers or motors. Each stack may have selected numbers of the transducers connected either in series or in parallel or in series-parallel combinations. The stacks in the array are arranged to develop a deflection profile over the plates chosen for minimum bending of the surfaces while providing the required total deflection in response to drive waveforms of proper polarities. Because the drive is applied in a distributed manner, resonant frequency considerations apply mainly to the crystal structure of the stacks and the amount of distributed mass loading from the mirror plates, and the mirror size or total mass is no longer a significant resonant consideration.

3,742,235 BOLOMETRIC DETECTOR UTILIZING ELECTRON PARAMAGNETIC RESONANCE

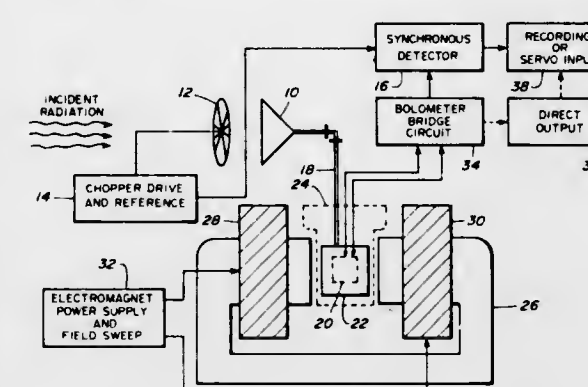
Lynn A. Boatner, Duncanville, Tex., assignors to Advanced Technology Center, Inc., Grand Prairie, Tex. and Gray Tech Industries, Inc., Mohnton, Pa.

Continuation-in-part of Ser. No. 123,539, March 12, 1971, abandoned. This application Mar. 6, 1972, Ser. No. 232,017

Int. Cl. G01j 3/00; B28b 7/04; E04b 1/16, 1/32

U.S. Cl. 250—250

22 Claims



Bolometric techniques are employed in conjunction with electron paramagnetic resonance to detect electromagnetic radiation. A crystal doped with a rare earth ion, iron group ion, or free radical, selectively absorbs a certain bandwidth of frequencies from the incoming radiation effectively converts this energy to a temperature rise in the host material by means of spin-lattice relaxation mechanisms. Attached in intimate thermal contact with the paramagnetic resonant material is a sensitive bolometer element that responds to this temperature rise. The temperature rise and associated bolometer signal, is an effective monitor of the presence of incoming radiation incident on the doped crystal or free radical material. To produce human readable intelligence concerning the incoming radiation incident on the resonant absorber, the bolometer element intimately contacting the crystal is also made part of a bridge circuit or other measuring means having an indicating meter or digital readout circuitry. The resonance absorption frequency may be tuned magnetically over a significantly wide range. Either waveguide feeds or optical focusing may be used to direct the incoming radiation energy to the area of the doped crystal or free radical crystal. Depending upon the nature of the resonant absorber, the absorption band may be made narrow or broad and positioned anywhere from a few GHz to several thousand GHz.

3,742,236

METHOD AND APPARATUS FOR VARIABLE DEPTH LAMINAGRAPHY

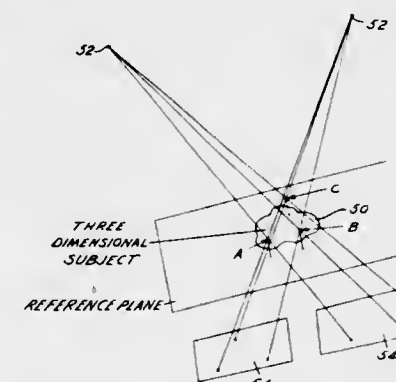
Albert G. Richards, 395 Rock Creek Dr., Ann Arbor, Mich.

Filed Oct. 7, 1970, Ser. No. 78,880

Int. Cl. G01n 23/02

U.S. Cl. 250—321

13 Claims



Method and apparatus for variable depth laminagraphy including means to be exposed with the subject to provide reference points on exposed film to facilitate the cutting of reference edges of the film, these edges serving to locate vari-

ous film exposures relative to each other in a viewing apparatus designed to control relative shifting of the film to create laminal planes for inspection and study.

3,742,237

A. C. CORONA CHARGING APPARATUS

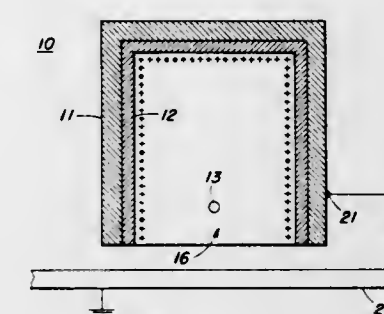
Delmer G. Parker, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 21, 1971, Ser. No. 136,125

Int. Cl. G03g 15/00

U.S. Cl. 250—324

7 Claims



A method of increasing the current flow from an a.c. corona charging apparatus and the apparatus therefor are provided in accordance with the teachings of the present invention. According to one embodiment of this invention a.c. corona charging apparatus is provided with a corona discharge electrode and a dielectric shield disposed in partially surrounding relationship with respect to said corona discharge electrode. Conductive means is mounted on the external surface of said dielectric shield such that said conductive shield is contiguous with and collateral with said dielectric shield. The conductive means is adapted to be supplied with a reference potential such that when a corona generating a.c. voltage is applied to said corona discharge electrode an a.c. corona current is produced having a magnitude significantly in excess of that heretofore obtainable.

3,742,238

TWO AXES ANGULARLY INDEXING SCANNING DISPLAY

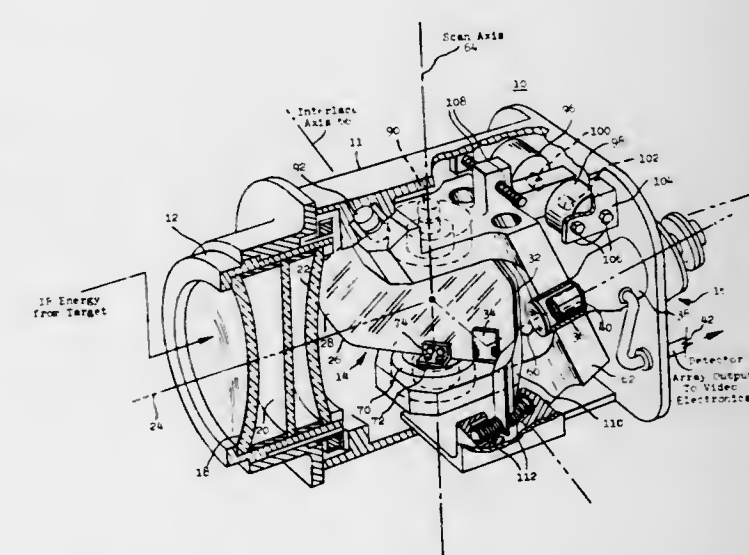
Richard G. Hoffman, II, Allen, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 14, 1970, Ser. No. 97,753

Int. Cl. G01j 1/04

U.S. Cl. 250—347

24 Claims



A radiant energy display system incorporating a reflecting surface mounted for rotation about scan and interlace axes, said scan and interlace axes positioned less than 90° from one another. Incoming radiant energy is scanned by the reflecting surface and reflected to a detector which is responsive to that

energy. Video processing circuitry interconnecting the detector with a light source array modulates the light source array which thereby emits a modulated visible beam. This beam causes modulation of a visible light source that in turn impinges upon the back portion of the reflecting surface. The back portion of the reflecting surface provides a scan identical to the front portion and by the above process produces a visible display.

3,742,239

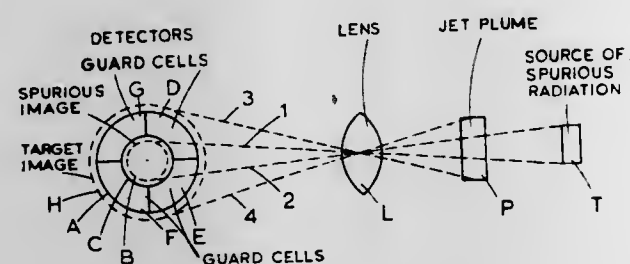
DISCRIMINATING DEVICES

Frederick Henry Gale, Hillingdon, England, assignor to EMI Limited, Hayes, Middlesex, England
Filed June 6, 1961, Ser. No. 115,593

Claims priority, application Great Britain, June 9, 1960, 20,401/60

Int. Cl. H01j 39/00

2 Claims



1. A target discriminating device comprising a plurality of radiation sensitive elements distributed in rows and columns over an image area, means for condensing incident radiation to form an image on said area, a plurality of row conductors corresponding to the rows of said sensitive elements, a plurality of column conductors corresponding to the columns of said sensitive elements, the row conductors being coupled to the column conductors by the sensitive elements in the respective rows and columns, means for sequentially sampling said column conductors to cause a signal to appear selectively in the row conductors in dependence upon the excitation of the said sensitive elements, an output channel common to said row conductors, coupling means including isolating two-state devices, one for each row conductor to the output channel once only within a predetermined time interval and means for additionally applying a signal to said output channel at each sampling instant, other than via the row conductors, in response to excitation of any sensitive element in the respective column, said output channel including means for generating an output signal only in response to a plural number of successively applied discrete signals within said time interval.

3,742,240 METER FOR MEASURING TANNING CAPABILITY OF SUNLIGHT

Oliver Joseph Jonasson, Edmonton, Alberta, Canada, assignor to Sundial Manufacturing Corporation Limited, Edmonton, Alberta, Canada

Filed Jan. 8, 1971, Ser. No. 104,928

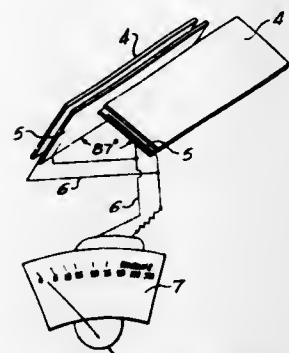
Int. Cl. G01j 1/42

U.S. Cl. 250-372

7 Claims

The meter comprises a housing having a pair of angularly disposed apertures formed therein. A selenium photovoltaic barrier layer cell is mounted beneath each aperture. The cells are connected in parallel to a microammeter for measuring the current generated by them. A filter is provided over each aperture. This filter is adapted to pass only ultraviolet radiation having wavelengths between 300 and 390 millimicrons in amounts which are proportional to their tanning effectiveness

tion having wavelengths between 300 and 390 millimicrons in amounts which are proportional to their tanning effectiveness



and relative abundance. The reading given by the microammeter gives a measure of the tanning capability of sunlight at any given moment.

3,742,241

FABRICATED BEDPLATE STRUCTURE FOR A MACHINE

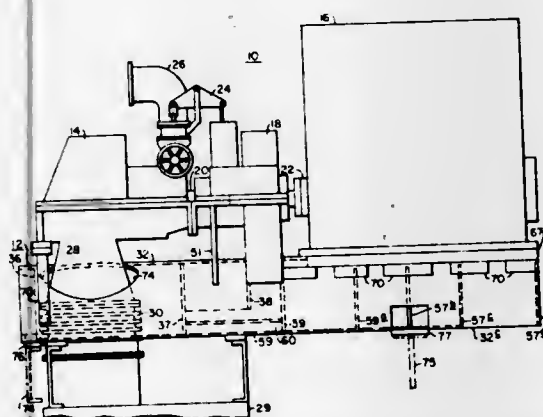
James M. Gate, Saratoga; Allen D. Levy, Sunnyvale, and Louis Nunez, Jr., Los Gatos, all of Calif., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 26, 1971, Ser. No. 192,469

Int. Cl. H02k 7/18

U.S. Cl. 290-52

9 Claims



A fabricated bedplate for rigidly supporting a machine, especially a unitary turbine-generator power plant, in which the main strength member is a plate member having a cross section which is a segment of a circle. Transverse support members are welded to the main strength member to stiffen the latter against deformation from its circular shape.

3,742,242

HIGH AND LOW VOLTAGE REGULATING CIRCUIT

Minoru Morio, Tokyo; Tadahiko Suzuki, Yokohama, and Yutaka Nakagawa, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

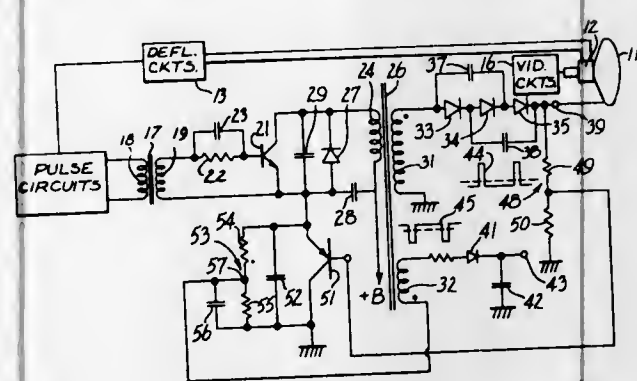
Filed June 8, 1972, Ser. No. 260,907

Claims priority, application Japan, June 9, 1971, 46/48560

Int. Cl. H02m 7/24; G05f 1/64

U.S. Cl. 307-17

12 Claims



A circuit is provided in which current pulses through a first semi-conductor device and through one winding of a trans-

former generate high voltage and low voltage pulses in two other windings. Rectifiers are connected to the latter two windings to produce high direct voltage and low direct voltage. A semi-conductor control device is connected to the high voltage rectifier circuit to respond to changes in the high voltage and is connected to the control device to adjust its output impedance as necessary to cause the amplitude of pulses applied to the transformer to increase when the high direct voltage tends to drop, thereby keeping the high voltage constant. However, in order to keep the magnitude of the low direct voltage from changing in response to changes in the pulse amplitude, the control semi-conductor is connected to the low voltage rectifier circuit to provide a compensating direct voltage.

3,742,243

PULSE GENERATOR

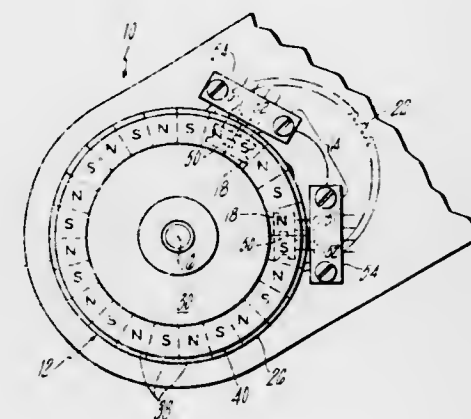
John G. Gamble, Simsbury, Conn., assignor to Veeder Industries, Inc., Hartford, Conn.

Filed Sept. 27, 1971, Ser. No. 183,945

Int. Cl. G01p 3/48

U.S. Cl. 307-106

14 Claims



A rotary pulse generator having a magnetic readout head with a Hall sensor and a rotor cooperable with the readout head for applying an alternating magnetic field to the Hall sensor for producing an electrical signal for each predetermined increment of angular displacement of the rotor. In one version the rotor comprises a pair of spaced coaxial magnet rings providing in an axial gap therebetween an annular alternating magnetic field to be applied to the Hall sensor as the rotor rotates. In other versions, the magnetic readout head employs a bistable magnetic shunt which cooperates with equiangularly spaced teeth or poles of the rotor for applying an alternating magnetic field to the Hall sensor as the rotor rotates.

3,742,244

CONTROL MEANS FOR PRINTING APPARATUS, IN PARTICULAR FOR OFFSET PRINTING MACHINES

Hermann Raible, St. Georgen, Black Forest, Germany, assignor to Mathias Bauerle GmbH, Georgen, Black Forest, Germany

Filed Sept. 1, 1971, Ser. No. 176,930

Claims priority, application Germany, Mar. 5, 1970, P 20 10 434.1

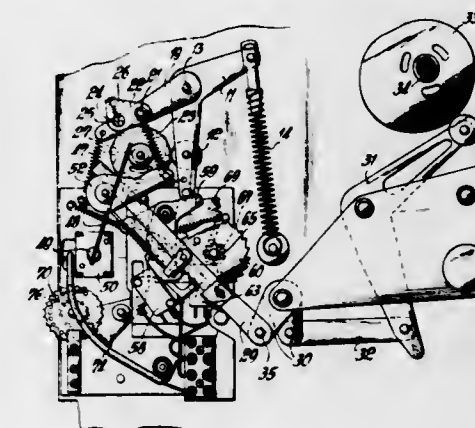
Int. Cl. H02b 1/24

U.S. Cl. 307-112

10 Claims

A control shaft for an offset printing machine, provided with cams, levers and the like for controlling the various operations during a printing cycle, is provided with a knob for manual rotation and with a ratchet wheel for step-by-step rotation by a pawl oscillated cyclically by a cam rotatable with one of the cylinders of the printing machine. The ratchet wheel has a number of switching ratchet teeth corresponding to the number of switching stages of the printing machine.

Certain of the ratchet teeth have a sawtooth shape whereby, when engaged by the pawl, the ratchet wheel is advanced by one step. Other teeth of the ratchet wheel have a special shape including a protuberance on the flank leading to the radial portion of the tooth normally engaged by the pawl. These protuberances cause the pawl to travel out of its normal path of movement when engaged with one of these special form teeth. A spring biased locking disc is arranged adjacent the pawl and is axially displaceable by energization of an elec-



tromagnet. The locking disc is biased to engage beneath the ratchet pawl, when the pawl is displaced out of its normal path of movement due to engagement with a tooth of special shape, and the locking disc thereby prevents engagement of the pawl with the next succeeding tooth of the ratchet wheel even though the pawl continues to be oscillated. When the electromagnet is energized, the locking disc is axially displaced from its pawl blocking position, against the bias of a spring, allowing the pawl to again cooperate in a normal manner with the teeth of the ratchet wheel.

3,742,245

MOUNTING MEANS FOR A LEVEL SENSING DEVICE

Jan-Ake Hallen, Partille, and Lars Stjernstrom, Goteborg, both of Sweden, assignors to Ingenjorsfirman Gunnar Abrahamson AB, Malmo, Sweden

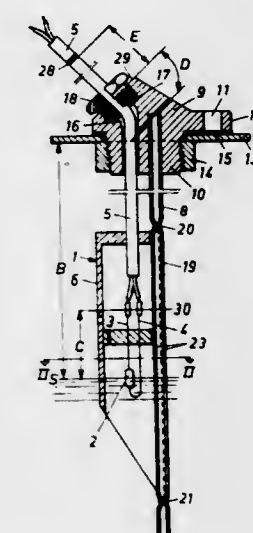
Filed July 9, 1971, Ser. No. 161,115

Claims priority, application Sweden, July 9, 1970, 9522/70; Aug. 24, 1970, 11460/70

Int. Cl. H01h 35/18

U.S. Cl. 307-118

3 Claims



There are a number of types and sizes of containers intended to hold liquids, and it is difficult to stock level sensing devices suitable to all requirements. To simplify mounting and make possible the adjustment of an apparatus to fit a large number of different installations a level sensing apparatus includes a contact device and an attachment, which are interconnected by a carrier slidably fitted to at least one of said

device or attachment. The carrier preferably is a rod provided with a scale to make possible a direct positioning of the device, and is further made of soft material or shaped in such a manner that it is easily deformed to both sides of the device, thereby definitely locking the latter in the desired position.

To make possible a check of the position of the apparatus, when the latter as been fitted into the container, a control member is fitted to the device and extends outside the container. This member is provided with a mark, and the distance between this mark and the wall of the container is a clear indication of the location of the device.

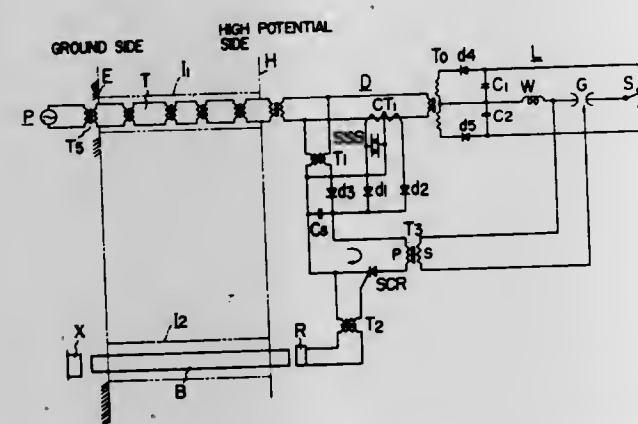
3,742,246

CONTROL DEVICE FOR A CIRCUIT BREAKER

Yoshio Nitta; Nobuaki Kiyokuni, and Kikuo Kawasaki, all of Kawasaki, Japan, assignors to Fuji Denki Seizo Kabushiki Kaisha, Kawasaki-shi, Kanagawa-ken, Japan
Filed Nov. 15, 1971, Ser. No. 198,795
Int. Cl. H01h 47/00

U.S. Cl. 307-143

7 Claims



Described herein is a control device for a circuit breaker, which is so arranged that an electric power is supplied to a high potential side through an insulating transformer thereby to charge a capacitor, said capacitor being discharged by an operating signal thereby to start a switching operation at a great rate; in which a current limit device is provided on the ground side of the said insulating transformer as a result of which the insulating transformer can be made smaller, a switching operation can be achieved even in the re-charging period of the capacitor, and a recharging time of the capacitor is made shorter, and furthermore a pressure or stress wave propagating in an insulation bar is utilized so as to accurately transfer an operating signal issued from the ground side to a discharge gap placed on the high potential side without time delay.

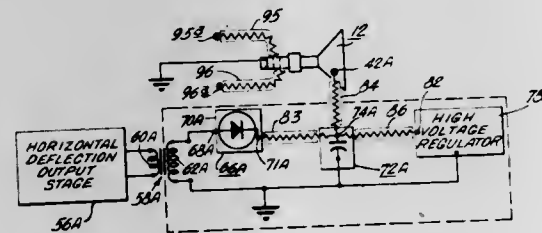
3,742,247

HIGH VOLTAGE INTERCONNECTION SYSTEM FOR CATHODE-RAY TUBES AND THE LIKE

David E. Sunstein, 464 Conshohocken State Road, Bala-Cynwyd, Pa.
Filed Nov. 27, 1970, Ser. No. 93,017
Int. Cl. H02h 7/20

U.S. Cl. 307-202

6 Claims



One or more linearly distributed resistance elements, such as flexible cables having an outer layer of high-voltage insulat-

ing material surrounding an inner continuous core of partially conductive material, are utilized as the interconnecting high-voltage wires in a high-voltage supply, whereby the intensities and frequencies of currents produced in the interconnecting wires upon the occurrence of an arc-over in the high-voltage supply are reduced below the values which would otherwise induce damaging effects in nearby sensitive elements such as transistors, semiconductor diodes or other similar solid-state devices. Similar linearly distributed resistance elements may also be used to connect to other elements to which arc-over from a high-voltage conductor may occur.

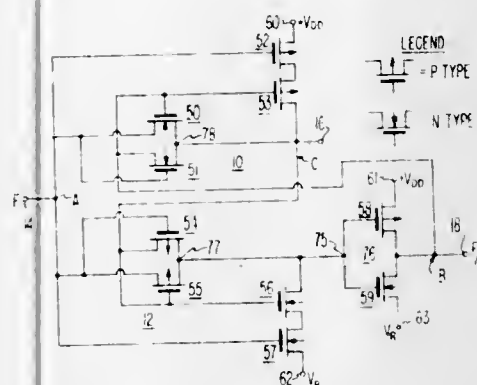
3,742,248

FREQUENCY DIVIDER

Sargent Sheffield Eaton, Jr., Phillipsburg, N.J., assignor to RCA Corporation, Princeton, N.J.
Filed Oct. 26, 1971, Ser. No. 192,242
Int. Cl. H03k 21/00

U.S. Cl. 307-225

10 Claims



A circuit utilizing either two cross-coupled exclusive OR or two cross-coupled exclusive NOR logic gates and which functions as a frequency divider. By establishing appropriate operating conditions for the logic gates, the circuit is forced into a frequency division condition, e.g. a divide-by-two condition.

3,742,249

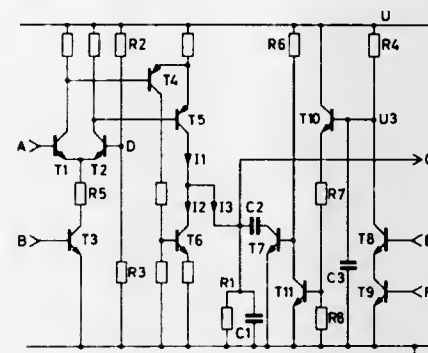
CIRCUIT FOR PHASE COMPARISON

Albrecht Gerlach, Emmendingen, and Rolf-Dieter Burth, Windenreute, both of Germany, assignors to ITT Industries, Inc., New York, N.Y.
Filed Mar. 10, 1971, Ser. No. 122,897
Claims priority, application Germany, Mar. 26, 1970, P 20 14 692.3

Int. Cl. H03k 5/20

U.S. Cl. 307-232

4 Claims



An apparatus and method for phase comparison wherein a local oscillator generates a delta voltage containing a D.C. component. The delta voltage is compared with a threshold voltage derived from the delta voltage, resulting in a control signal the polarity of which depends on the outcome of the comparison. This control signal sets the frequency of the local oscillator.

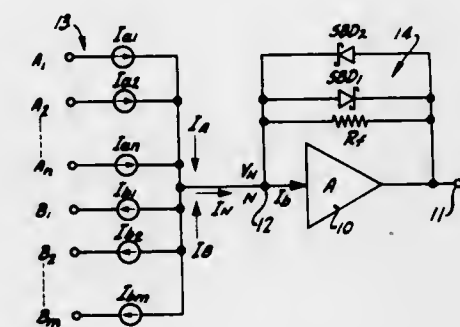
3,742,250

ACTIVE REGION LOGIC CIRCUIT

David T. Kan, Santa Clara, Calif., assignor to Signetics Corporation, Sunnyvale, Calif.
Filed Apr. 7, 1971, Ser. No. 132,143
Int. Cl. H03k 5/20

U.S. Cl. 307-237

5 Claims



A logic gate including a transistor amplifier with back-to-back Schottky negative feedback diodes causes the input of the amplifier to form a current input summing junction. The Schottky diodes maintain the amplifier always in operating region with the output voltage swing limited by the diodes in each direction. The summing input junction provides weighted voting by use of input control signals of opposite polarity and of different weights.

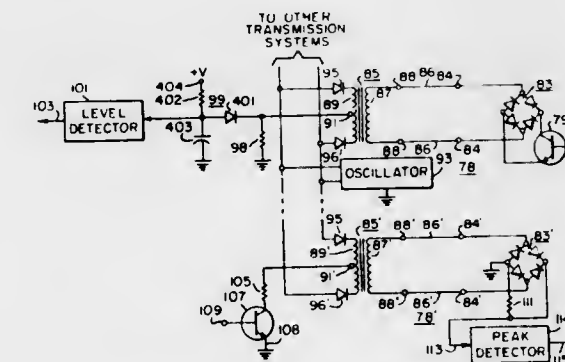
3,742,251

POWER REGULATION SYSTEM

Francis T. Thompson, Murrysville, Pa., and Andre Wavre, Neuchatel, Switzerland, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Division of Ser. No. 798,912, Feb. 13, 1969. This application
Aug. 31, 1971, Ser. No. 176,594
Int. Cl. H03k 17/00

U.S. Cl. 307-242

8 Claims



This invention contemplates a digital transmission circuit to effect transmission of digital signals in a high noise level environment. The circuit includes a transformer whose secondary is gated by a binary input and is effectively shorted in response to a first binary input to induce a large current flow within the primary, representative thereof. The secondary is effectively open circuited in response to a second binary input signal establishing a relatively small current within the primary winding, indicative thereof. The secondary gating circuit is formed from a transistor, diode bridge, parallel arrangement requiring no reference voltage, while a rectified oscillator voltage is coupled across the primary and the transmission output is conducted from a primary center tap to a level detector that reproduces the binary input for further communication.

A second embodiment includes a transformer having a rectified oscillator signal connected across its primary. The primary is gated at a center tapped location by a transistor gate which effectively opens the primary in response to a first

binary input and closes the primary in response to a second binary input. The secondary circuit includes means for providing a signal proportional to the absolute value of the secondary current and means responsive thereto to provide a binary output representation of the input.

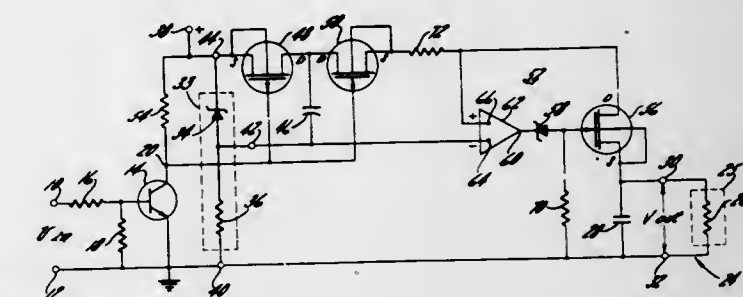
3,742,252

SIGNAL CONVERSION CIRCUIT

Richard Brzostek, Rockford, Ill., assignor to Woodward Governor Company, Rockford, Ill.
Filed Jan. 6, 1972, Ser. No. 215,859
Int. Cl. H03k 17/60

U.S. Cl. 307-246

12 Claims



A circuit for producing successive pulses of equal charge content in response to successive cycles of an alternating input signal. A reference circuit supplied by a DC source establishes first, second and third voltages at successively higher DC levels. A capacitor referenced to the second DC level is selectively charged to the voltage at the third DC level during a first portion of each input cycle, while a load circuit referenced to the first voltage level is selectively controlled to provide a discharge path for the capacitor during a second portion of each input cycle, the respective voltage levels for the capacitor and the load circuit being such that the same amount of charge is transferred to the load circuit from the capacitor during each input cycle. In the preferred embodiment the load is a resistor-capacitor parallel combination so that the DC voltage developed across the load is proportional to the input frequency. Alternately, the load may be purely resistive or purely capacitive, in which case other characteristics of the load voltage vary in accordance with the frequency of the input signal.

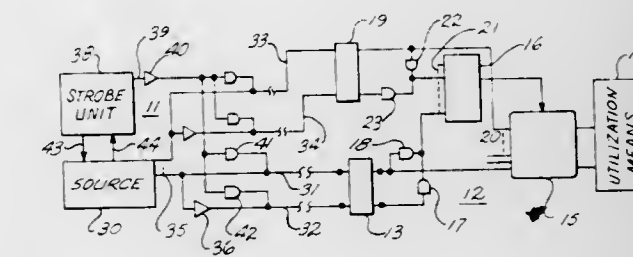
3,742,253

THREE STATE LOGIC DEVICE WITH APPLICATIONS

Reinard Kurt Kronies, Glendora, Calif., assignor to Burroughs Corporation, Detroit, Mich.
Filed Mar. 15, 1971, Ser. No. 123,959
Int. Cl. H03k 17/18

U.S. Cl. 307-247

4 Claims



An electronic circuit responsive to three combinations of binary input signals is disclosed. The circuit has two input terminals and two output terminals and is responsive to three combinations of binary input signals with the combination of two binary zeros following two binary ones being forbidden as an input to the circuit. The electronic circuit may advantageously be designed to be used as an RS flip-flop and is useful in the transmission of asynchronous information and

may be employed with a transmission gate on the input side which applies a binary one to each input when there is no data to be transferred through the electronic device or when there is inconsistent data from plural sources at the inputs of the device.

3,742,254

AUTOMATIC MOS GROUNDING CIRCUIT

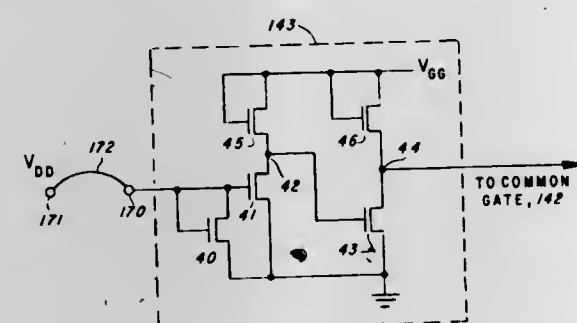
W. S. Henrion, and Chang-Kiang Kuo, both of Houston, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 27, 1971, Ser. No. 110,083

Int. Cl. H03k 17/60

U.S. Cl. 307—251

3 Claims



An automatic grounding circuit has first and second insulated gate field effect transistor switches. The second transistor switch is coupled to the first transistor switch such that the second transistor switch is activated when the first transistor switch is grounded and deactivated when the first transistor switch is activated.

The second transistor switch transmits a voltage signal when the first transistor switch is activated and a ground signal when the first transistor switch is grounded.

3,742,255

DUAL-MODE SOLID STATE RELAY

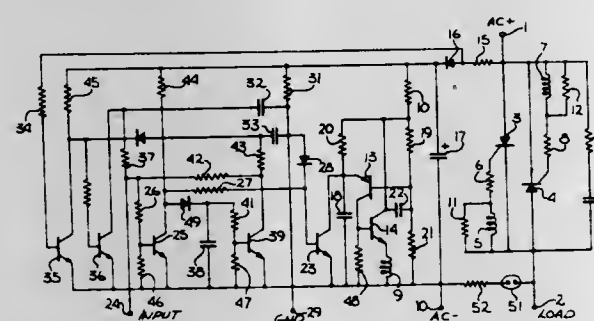
Cafile R. Stevens, 1000 Ironwood Place, Alamo, Calif.

Filed Oct. 12, 1971, Ser. No. 188,417

Int. Cl. H03k 17/72

U.S. Cl. 307—252 T

8 Claims



A solid state power relay which may optionally provide either a fast turn-on, as is preferred for luminous gas discharge lamps, or a gradual turn-on, as is preferred for incandescent lamps to prolong filament life. Interchanging from one mode to the other is readily accomplished to provide interchangeability in standard traffic signal controllers or like applications.

3,742,256

FUEL PUMP DRIVER CIRCUIT

Thomas M. Frederiksen, San Jose, Calif., and Ronald W. Russell, Ariz., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Oct. 15, 1971, Ser. No. 189,580

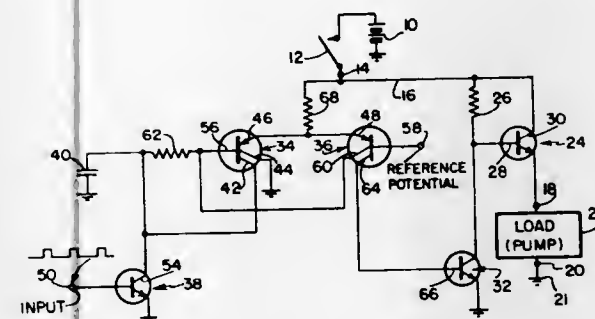
Int. Cl. H03k 17/30

U.S. Cl. 307—254

10 Claims

A fuel pump driver circuit for an internal combustion engine includes a voltage supply which energizes the fuel pump

through an output or switch transistor. The output transistor is turned off to stop the pump by a control transistor, which is controlled by a differential amplifier or switch. The voltage supply is coupled through the ignition switch of the engine to the circuit, and the differential switch is in the on condition and causes the output transistor to conduct to energize the fuel pump. A capacitor is coupled to the differential switch and is charged thereby to actuate the differential switch to the



off condition to turn off the current to the fuel pump. When a signal responsive to the engine turning over is received, an input transistor discharges the capacitor and the differential switch is maintained in the on condition with one transistor thereof conducting and the current supply coupled to the fuel pump. Should the engine signal cease, the capacitor charges so that the differential switch actuates the control transistor to shunt the bias potential from the control electrode of the output transistor which applies the current to the fuel pump.

ERRATUM

For Class 307—260 see:
Patent No. 3,742,368

3,742,257

MONOSTABLE MULTIVIBRATOR PULSE-FORMING CIRCUIT

Ernst Wittenzellner, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany

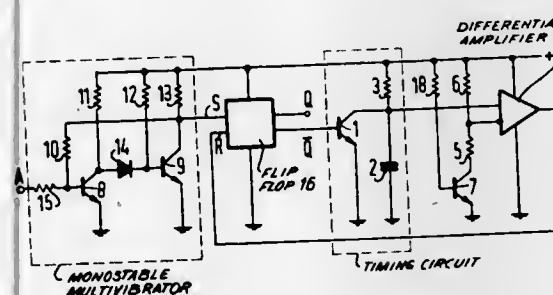
Filed Apr. 19, 1971, Ser. No. 135,011

Claims priority, application Germany, Apr. 23, 1970, P 20 19 804.3

Int. Cl. H03k 17/26

U.S. Cl. 307—273

3 Claims



A noise-immune pulse-forming circuit which is a monostable multivibrator having a diode for dynamic feedback. A flip flop follows the diode. A timing circuit has a time-determining capacitor which has nearly no voltage across it in the quiescent state. The timing circuit resets the flip-flop via one input of a differential amplifier.

3,742,258

MONOSTABLE MULTIVIBRATOR WITH A LONG TIME CONSTANT AND AN AUXILIARY TRANSISTOR FOR ENSURING TURN-ON OF THE TRANSISTOR CONDUCTING IN THE STABLE STATE

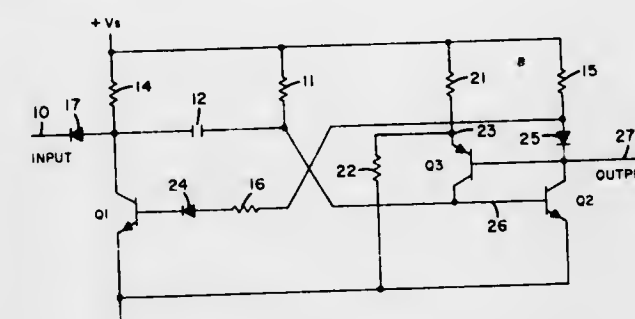
Thomas E. Clark, San Mateo, Calif., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Aug. 23, 1971, Ser. No. 173,888

Int. Cl. H03k 3/10

U.S. Cl. 307—273

5 Claims



This monostable multivibrator includes a pair of NPN transistors arranged in the conventional manner with a capacitor connected to the collector electrode of the first transistor which conducts in the astable state, and with the capacitor and a first resistor connected to the base electrode of the second transistor which conducts in the stable state. The values of the first resistor and capacitor define the time constant that determines the time duration of operation in the astable state. The series combination of a second resistor and a third transistor which is a PNP type is connected in shunt with the first resistor, the base and collector electrodes of the third transistor being connected to the collector and base electrodes, respectively, of the second transistor. The third transistor facilitates rapid turn-on of the second transistor to terminate operation in the astable state and enables the resistance of the first resistor to be made larger than the conventional limiting value thereof that is determined by the base drive current in the second transistor and to thereby increase the time duration of the astable state.

3,742,259

ELECTRONIC BAND-PASS FILTER OR OSCILLATOR

Raymond George Donald, North Andover, and Walter Richardson Spofford, Jr., Bedford, Daniel Ira Pomerantz, Lexington, all of Mass., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind.

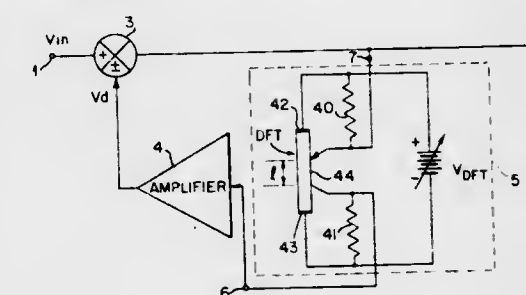
Continuation of Ser. No. 6,380, Jan. 28, 1970, abandoned.

This application Jan. 20, 1972, Ser. No. 219,577

Int. Cl. H03k 17/00

U.S. Cl. 307—295

5 Claims



The disclosure is directed to an electronic band-pass filter having improved characteristics including high band-pass selectivity and a highly amplified output signal. The circuitry used in the filter system is particularly amenable to hybrid and/or monolithic integration, without the need for large external L-C components commonly found in present electronic filters. In the integrated form, the filter is easily adjusted for both selected frequency (f_0) and gain and Q (figure of merit).

3,742,260

M. O. S. TRANSISTOR CIRCUITS FOR PULSE-SHAPING

Jean-Marie Boudry, Paris, France, assignor to SESCOSEM-Societe Europeenne de Semiconducteurs et de Microelectronique

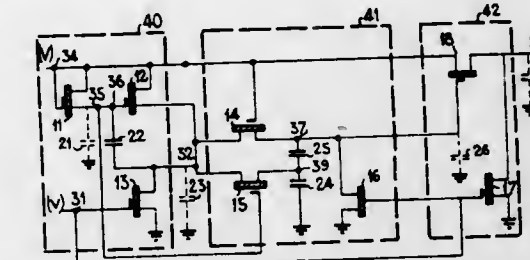
Filed May 6, 1971, Ser. No. 140,738

Claims priority, application France, May 13, 1970, 7017417

Int. Cl. H03k 17/60

U.S. Cl. 307—304

4 Claims



A voltage doubler comprises an input terminal to which is applied a square wave voltage, taking a positive voltage value during recurrent time intervals of fixed duration and the zero value, during recurrent time intervals of fixed duration. Two resistance capacitance circuits are connected to this terminal. The first circuit comprises a first resistor and first capacitor series connected between the ground and the input terminal. The second circuit comprises a resistor, a diode series connected between the input terminal and the output terminal, and a capacitor connected in series with the capacitor of the first circuit between the output terminal and the ground. The time constants of the first and second circuits are appropriately chosen.

3,742,261

SOLID STATE VACUUM TUBE REPLACEMENT

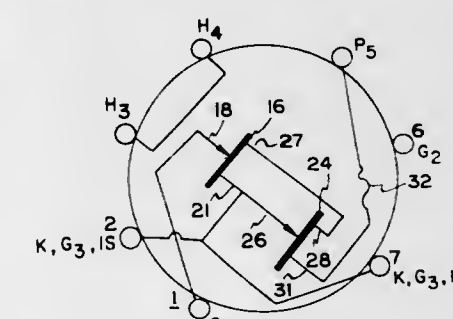
Emery J. Schneider, Sunnyvale, and Bruce G. Burman, Cupertino, both of Calif., assignors to Teledyne, Inc., Mountain View, Calif.

Filed Oct. 6, 1971, Ser. No. 187,006

Int. Cl. H03f 3/16

U.S. Cl. 307—304

5 Claims



A solid state assembly and base which can be plugged as a replacement directly into a vacuum tube socket in a vacuum tube circuit and provide the same characteristics as the vacuum tube which it replaces.

3,742,262

TRANSISTOR DETECTING CIRCUIT

Eisuke Ichinohe, Kitakawachi-gun, Osaka; Noriyoshi Kubo, Asahi-ku, Yokohama; Kazuhiro Nakamura, Kohoku-ku, Yokohama; Yoshinori Endo, Midori-ku, Yokohama, and Takeshi Katano, Kawasaki-shi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sept. 16, 1971, Ser. No. 181,033

Claims priority, application Japan, Sept. 18, 1970, 45/82355

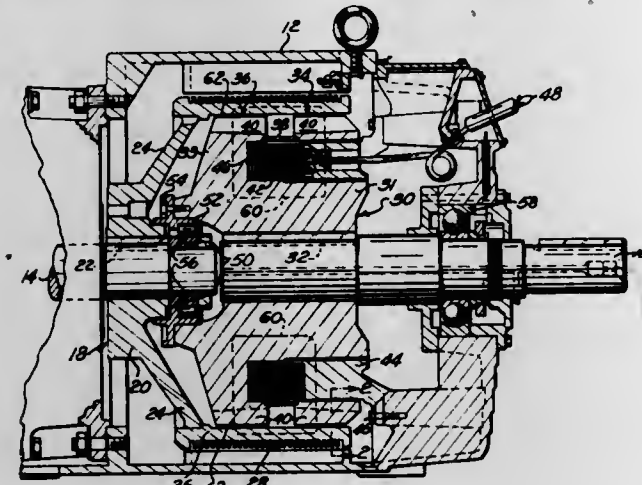
Int. Cl. H03k 17/00

U.S. Cl. 307—310

2 Claims

A transistor detecting circuit provided with a detecting sensitivity compensation transistor circuit having a compensation

thereon with the projections of the first set having one polarity and the projections of the second set having a polarity opposite the one polarity when the coil is energized. The annular sets of projections are located between the annular coil and the inductor drum. When the coil is energized a flux path is established through the field member, through the first set of



annular projections, through the inductor drum, through the second set of annular projections and back to the field member to operatively connect the input and output members. The present construction produces a reliable coupling having a torque transmitting capacity which is generally greater than the torque transmitting capacity of other similar sized couplings.

3,742,271

VERTICAL DYNAMOELECTRIC MACHINE WITH IMPROVED STATOR SUPPORT

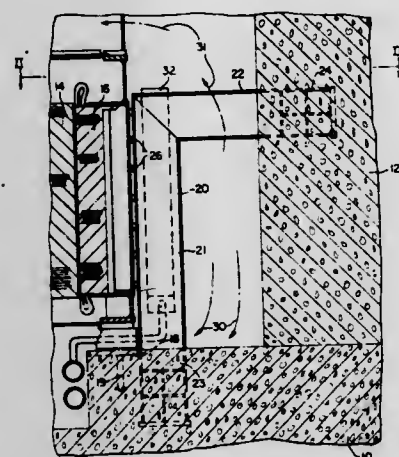
Eugene C. Whitney, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 18, 1971, Ser. No. 189,884

Int. Cl. H02k 5/00

U.S. Cl. 310-157

2 Claims



In a vertical dynamoelectric machine, such as a waterwheel generator, primary support is here provided by a rigid foundation and upstanding wall concentric with the machine elements, where the foundation and wall are of a material such as concrete. To permit limited movement of the stator core caused by thermal expansion and contraction of the stator core and by magnetic pull, there are a plurality of rigid beams surrounding the core, each having a vertical portion with its lower end embedded in the foundation and a radial portion with its outer end embedded in the wall. The stator is joined to the vertical portion by means of both radial and tangential members that are flexible compared with the wall and the stator. In this way secure support is provided while permitting changes in position due to thermal effects and magnetic forces without causing damage as would occur in normal construction where such vertical dynamoelectric machines are made of large size.

3,742,272 SPARK-SUPPRESSING BRUSH-BRUSH HOLDER ASSEMBLY FOR ROTATING MACHINES AND SLIDING CONTACTS

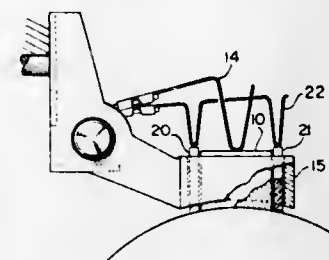
Donald P. Shattuck, Scotia, and John D. Harnden, Jr., Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Sept. 10, 1971, Ser. No. 176,852

Int. Cl. H02k 13/06

U.S. Cl. 310-220

29 Claims



The inclusion of a body of polycrystalline metal oxide varistor material in a brush or brush holder for the suppression of sparking between sliding contacts is disclosed. The body of metal oxide varistor material may form part of a brush contact at a leading or trailing edge thereof or may be the material comprising all, or part of a brush holder in slidable contact with the brush contact and a second contact. Accordingly, the initial electrical connection and, or the final electrical connection, between the brush contact and the other slidable contact is through the varistor material thereby reducing sparking as the sliding contacts make and break connection.

3,742,273

STRUCTURE FOR SUPPORTING A COMMUTATOR ASSEMBLY ON THE ROTOR OF A DYNAMO-ELECTRIC MACHINE

Werner Hell, Birr, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

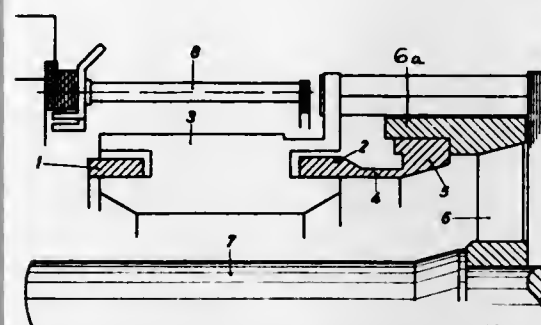
Filed Nov. 29, 1971, Ser. No. 202,995

Claims priority, application Switzerland, Dec. 3, 1970, 17931/70

Int. Cl. H02k 13/04

U.S. Cl. 310-236

4 Claims



Structure for supporting on the rotor shaft of a dynamoelectric machine a commutator composed of a cylindric assembly of commutator bars includes first and second shrink collars shrunk into place in annular recesses provided respectively at opposite ends of the commutator, and a third shrink collar integral with the second collar and inter-connected with the latter by means of a thin-walled tubular part which is elastic in the radial direction. The commutator is secured to the rotor shaft by means including the third shrink collar, and the thin-walled inter-connecting part which together with the second and third shrink collars is fabricated from a single piece of metallic material, due to its radially elastic characteristic serves to accommodate a change in diameter of the first and second shrink collars caused by heating and expansion of the commutator without affecting the diameter of the third shrink collar. The commutator is also free to expand axially in the direction of the first shrink collar by virtue of non-attachment to the rotor shaft.

3,742,274

NEUTRON DETECTOR

Martin J. O'Boyle, Export, and Richard J. Nodvik, Pittsburgh, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 4, 1971, Ser. No. 112,658

Int. Cl. H05h

U.S. Cl. 313-61

4 Claims



The employment of the isotope Pu-238, or its target material NP-237 in conjunction with Pu-238, is disclosed herein in combination with other fertile, fissile, and fissionable isotopes as an economically feasible regenerative material for use in detectors of the neutron detector type; more particularly, for use in miniature fixed in-core fission chambers, to extend the operating lifetime of the chamber.

3,742,275

ION SOURCE HAVING IMPROVED ION BEAM ALIGNMENT AND FOCUS STRUCTURE

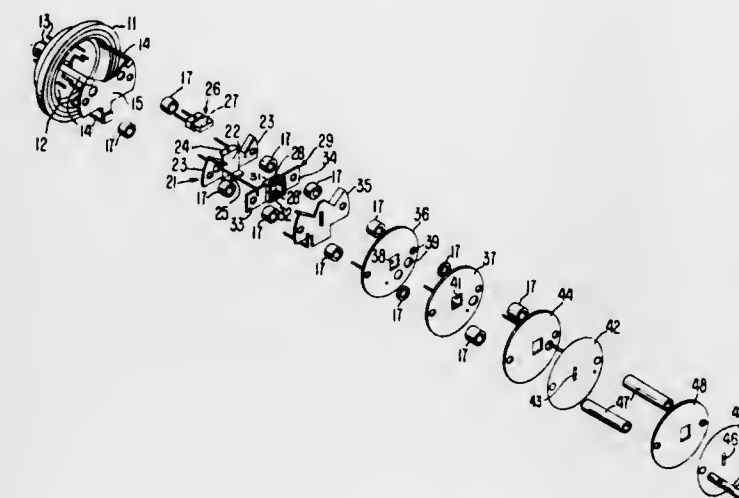
Russell S. Gutow, Jr., Mountain View, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Mar. 4, 1971, Ser. No. 121,114

Int. Cl. H05j 27/00

U.S. Cl. 313-63

2 Claims



An ion source comprising a plurality of components arranged along the ion beam path including a source body, repeller and extractor electrodes, a lens structure including an alignment electrode and a focus electrode, and an aperture plate. Certain of the components are made from common parts including the alignment and focus electrodes, each of which is formed by a metallic disk having a rectangular aperture centrally disposed therein but located slightly off axial center. The two electrodes are mounted along the beam path so that the two apertures are off-set in mutually opposite directions. Only a portion of the aperture of each electrode is aligned along the beam axis through which the beam passes for alignment and focussing.

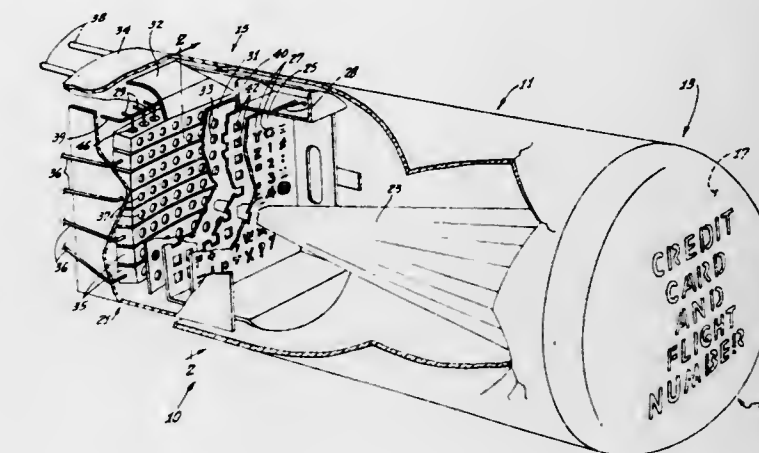
3,742,276 CATHODE RAY TUBE WITH REAR PROJECTION READOUT

Donald G. Gumpertz, Van Nuys, Calif., assignor to Industrial Electronic Engineers, Inc., Van Nuys, Calif.

Filed Mar. 30, 1972, Ser. No. 239,535

Int. Cl. H01j 29/46

15 Claims



A display tube for selectively providing a visual display of a plurality of characters, including a vacuum envelope with a display screen at one end thereof and a plurality of columns of first means providing a source of electrons at the other end thereof. An apertured mask disposed between the first means and the display screen energizable to accelerate the electrons into a different stream of electrons for each of the characters. A plurality of rows of grid control boxes disposed between the first means and the apertured mask each of the rows controlling a portion of the electrons provided by each of the columns of first means by inhibiting the effect of the apertured mask on the controlled portions. The rows of grid control boxes and columns of first means individually energizable so that a single stream of electrons is accelerated and a single one of the characters is displayed, wherein the number of characters displayable is equal to the product of the number of rows and the number of columns.

3,742,277

FLYING SPOT SCANNER HAVING SCREEN OF STRONTIUM THIOGALLATE COACTIVATED BY TRIVALENT CERIUM AND DIVALENT LEAD

Thomas E. Peters, Chelmsford, Mass., assignor to GTE Laboratory Incorporated, Waltham, Mass.

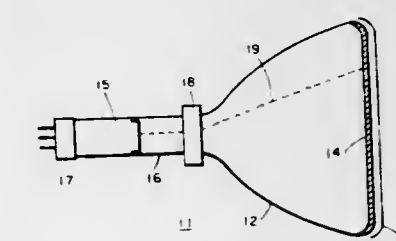
Continuation-in-part of Ser. No. 838,170, July 1, 1969, abandoned. This application Mar. 18, 1971, Ser. No. 125,611

The portion of the term of this patent subsequent to Nov. 30, 1988, has been disclaimed.

Int. Cl. H01j 29/20, 31/12; C09k 1/12

U.S. Cl. 313-92 PH

1 Claim



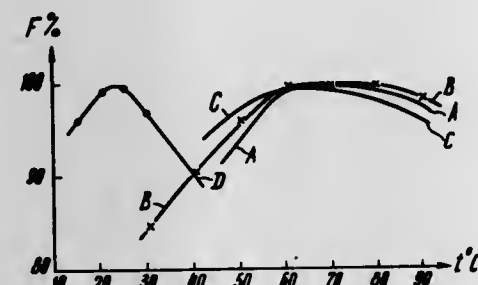
A flying-spot scanner tube for use in a color flying-spot scanner system. The tube has a phosphor screen wherein at least one of the phosphors included therein comprises a cerium and/or lead activated alkaline earth thioallate phosphor.

3,742,278 LOW-PRESSURE MERCURY-VAPOR GAS-DISCHARGE LAMP WITH AMALGAM

Jury Iosifovich Shindelman, ulitsa Kalinina, 3, kv. 57; Galina Iosifovna Akulova, ulitsa Tsiolkovskogo, 37, kv. 63; Galina Grigorjevna Snitka, ulitsa Birjuzova, 31, kv. 2; Nikolai Ivanovich Vasyagin, ulitsa Zygina, 42, kv. 54, and Vladimir Vasilievich Tyabirdin, ulitsa Zygina, 42, kv. 45, all of Poltava, U.S.S.R.

Filed Apr. 22, 1971, Ser. No. 136,482
Claims priority, application U.S.S.R., May 25, 1970, 1429909

Int. Cl. H01j 61/24
U.S. Cl. 313-109



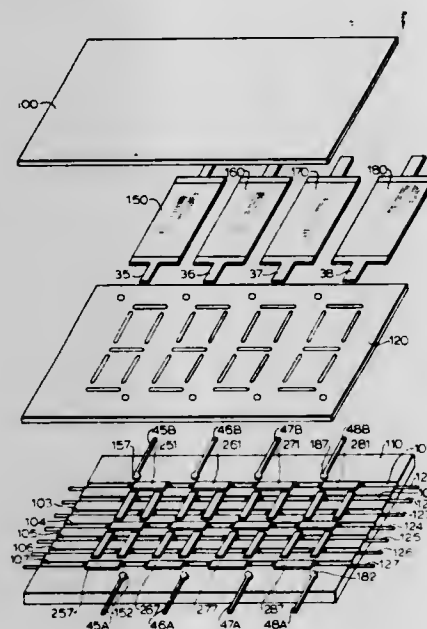
Low-pressure mercury-vapor gas-discharge lamps, particularly fluorescent ones, of high intensity and high specific power, containing an amalgam of the formulation:

mercury	15 - 20 at. per cent
cadmium	53 - 38 at. per cent
tin	20 - 25 at. per cent
bismuth	12 - 17 at. per cent

3,742,279 SEGMENTED ELECTRODE DISPLAY PANEL HAVING CLOSED STRUCTURE

George A. Kupsky, Milford, and Robert E. Kollmyer, Middlesex, both of N.J., assignors to Burroughs Corporation, Detroit, Mich.

Filed Feb. 10, 1971, Ser. No. 114,182
Int. Cl. H01j 7/42
U.S. Cl. 313-109.5



Multiple position display panels for displaying one or more characters side-by-side in one or more rows and including a plurality of parallel elongated conductors bearing a plurality of flat cathode segments along their length and an anode associated with each group of the display segments. Portions of the cathode-connecting conductors are offset and are disposed within grooves or depressions in an insulating sheet

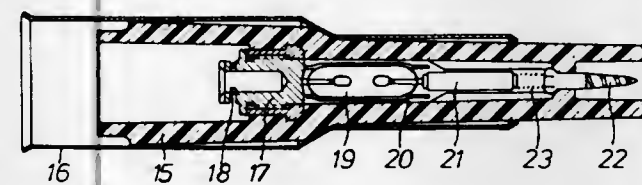
or are embedded in an insulating layer where the cathode elements cross them. A slotted insulating sheet is disposed between the cathode elements and the anodes, the slots being aligned with the cathodes, and the assembly is sealed in a gaseous atmosphere at a suitable pressure.

3,742,280 PRE-IGNITION GAP FOR COMBUSTION ENGINE IGNITION SYSTEMS

Gert Siegle, Renningen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany
Filed Nov. 12, 1971, Ser. No. 198,228

Claims priority, application Germany, Nov. 16, 1970, P 20 56 235.0

Int. Cl. H01t 13/54
U.S. Cl. 313-118



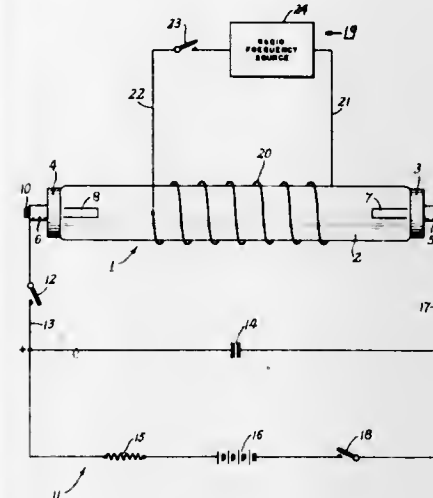
An ignition system for combustion engines includes a pre-ignition gap which consists of a closed compartment and a pair of electrodes in the compartment, the ends of the electrodes being spaced from each other. A gas which is chemically inert relative to the electrodes surrounds the electrodes at a pressure of between 1 and 10 atmospheres and, after each spark, allows an after-discharge between the electrodes without sparking. The free ends of the electrodes are spaced apart at a distance of between 1 and 5 mm and at last in the region of the free ends the electrodes are composed of a material which is resistant to vaporization and disintegration.

3,742,281 CONTROLLED SPECTRUM FLASH LAMP

John A. McNally, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Mar. 22, 1971, Ser. No. 126,737
Int. Cl. H01j 61/18

U.S. Cl. 313-184



A high intensity inert gas flash lamp adapted to be operated with a predetermined energy input, said lamp comprising a sealed elongated envelope formed of light transmitting material having a high melting point, electrodes operatively disposed within said envelope and adapted to sustain a pulsed arc discharge therebetween, a predetermined amount of a rare gas disposed within said envelope and a predetermined amount of at least one ionizable low vapor pressure metal or metal compound additive disposed on the tube wall, the relationship of the dimensions of said envelope and the amount of metal or metal compound additive in said envelope being such that

during operation of said lamp sufficient power is supplied across the electrodes to form a shock wave of sufficient amplitude to evaporate substantially all of said ionizable additive material from the tube wall, providing high intensity flash illumination, the emission range of which can be tailored by the addition of several emission modifying additives in combination.

3,742,282 ELECTRODES

Gert Siegle, Renningen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Aug. 3, 1971, Ser. No. 168,748
Claims priority, application Germany, Aug. 4, 1970, P 20 38 645.2

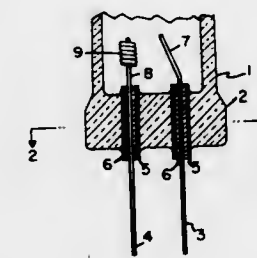
Int. Cl. H01j 17/04, 1/02
U.S. Cl. 313-311

Electrodes particularly adapted for use in gas filled spark gap and discharge containers comprising a material resistant to sputtering and vaporization consisting of at least one nitride of a metal of the group consisting of Hf, Zr and Ta and having an O₂ content bound as an oxide or oxynitride of less than 5 weight percent and a content of further impurities of less than 1.5 weight percent.

3,742,283 PRESS SEAL FOR LAMP HAVING FUSED SILICA ENVELOPE

Frederick A. Loughridge, Manchester, Mass., assignor to GTE Sylvania Incorporated, Danvers, Mass.

Filed Oct. 28, 1971, Ser. No. 193,520
Int. Cl. H01j 5/46, 5/50
U.S. Cl. 313-318



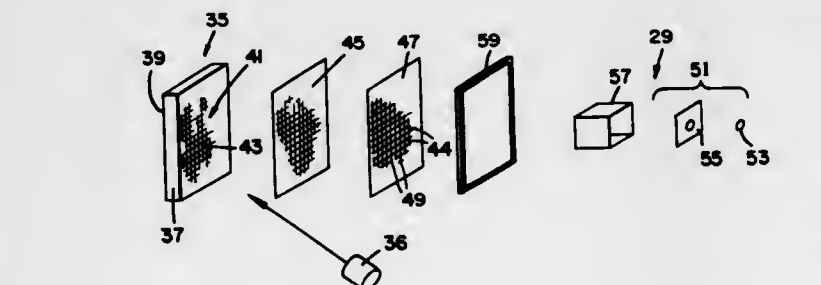
Lead-in wires of lamps are sealed in a vitreous silica envelope through the use of a graded seal in which two abutting segments of refractory metal wires are disposed in a tube or tubes of a cermet formed of an admixture of powder refractory metal and vitreous silica. The lead-in wires and cermet tubes are disposed in a specially formed press seal of a vitreous silica envelope.

3,742,284 ULTRASONIC CAMERA TUBE

George L. Sackman, Carmel Valley, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 2, 1971, Ser. No. 130,697

Int. Cl. H01g 31/48



An ultrasonic camera tube for converting a two-dimensional pattern of sound pressure into an electrical signal which

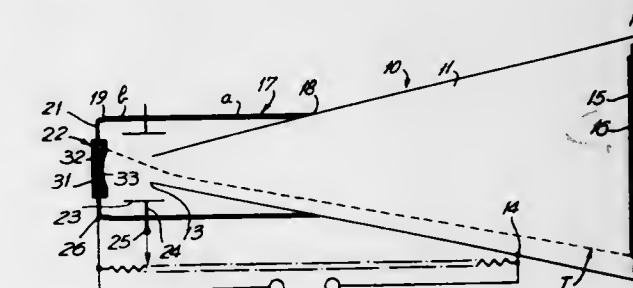
may be displayed by a television picture tube as an equivalent light pattern. The camera tube includes a piezoelectric transducer for converting the sound pressure pattern into an electrical charge pattern. A photocathode mosaic is deposited on the inner face of the transducer. The photocathode mosaic is flooded with light to achieve photoemission of electrons. The charged mosaic elements discharge in vacuum through an adjacent grid and proceed onward to charge the capacitive storage elements on a mosaic screen adjacent to the grid. An electron beam then scans the elements of both cathode and screen mosaics to return them to their original states and also provides the signal readout. Readout is obtained by sensing the current taken from the elements of the mosaic screen during scanning wherein the sensed current is used to reproduce the sound image on a television tube.

3,742,285 IMAGE INTENSIFIER DISPLAY SYSTEM

Jan J. Van Der Sande, Manhasset, and Johan H. Deltrap, Smithtown, both of N.Y., assignors to Astrophysics Research Corporation, Los Angeles, Calif.

Continuation of Ser. No. 832,584, June 12, 1969, abandoned.
This application, Ser. No. 184,285
Int. Cl. H01j 29/41

U.S. Cl. 315-12



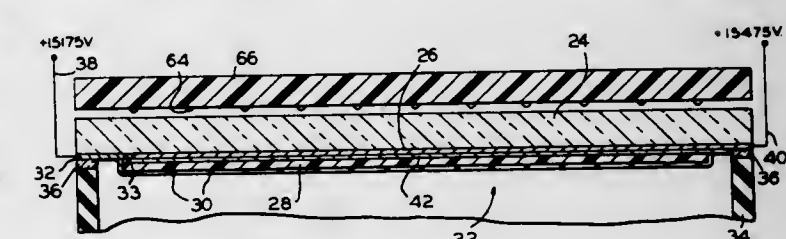
This invention relates to the art of image intensifier display systems including an electronic image intensifier display tube having fiber optic input window with an electron emitting surface and a display window of larger diameter having a phosphor coated surface to provide a magnified image of a scene being viewed.

3,742,286 FAST WRITING BISTABLE STORAGE TUBE AND METHOD OF OPERATION

Roger A. Frankland, and Christopher J. Curtin, both of Portland, Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.

Filed May 4, 1970, Ser. No. 34,072
Int. Cl. H01j 29/41

U.S. Cl. 315-12



A direct viewing bistable storage tube employing post deflection acceleration and method of operation is described in which the storage target includes a contacting collector mesh electrode and a target electrode provided on opposite sides of a phosphor storage dielectric. A more positive voltage is applied to the target electrode than to the collector electrode during writing. The result is an increase of the maximum stored writing speed of four to five times, apparently because the secondary electrons produced within the phosphor storage dielectric by the writing beam are attracted toward the target

electrode and away from the bombarded surface of such phosphor layer so that the initial voltage of the charge image is of a more positive potential. This causes the initial charge image to be above the first crossover voltage even at such faster writing speeds which enables such charge image to be stored bistably by the charging action of the low velocity flood electrons. An intermediate layer of light transparent insulating material may be provided between the target electrode and the phosphor layer to increase the breakdown voltage of the dielectric and thereby enable such target electrode to be maintained at a higher positive voltage with respect to the collector electrode.

3,742,287

ELECTRON TUBE VOLTAGE CONTROL DEVICE

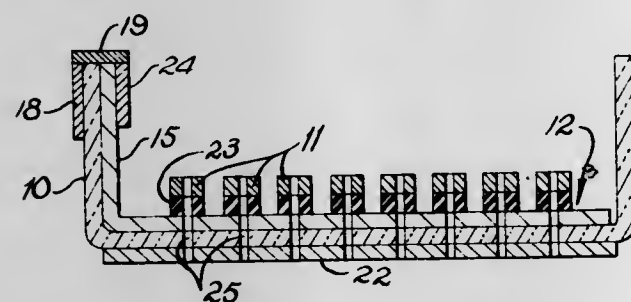
Richard Kaspar Orthuber, Sepulveda, and Hemmo Reint Alting-Mees, Granada Hills, both of Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Apr. 28, 1971, Ser. No. 138,088

Int. Cl. H01j 29/41

U.S. Cl. 315-12

11 Claims



A sequential device for two perpendicular sets of conductive strips employed with a channel-type electron multiplier to allow only one hole through the multiplier to accept and emit electrons at a time. The device may utilize an electron gun for each set of strips to provide an electron beam to scan each set simply by use of a sawtooth deflection voltage. An effective raster-type scan of the multiplier may thus be accomplished. The device is an improvement because arrangements requiring counters or staircase generators are much more expensive.

3,742,288

RASTER CONTROL DEVICE FOR CONTROLLING THE POSITIONING OF THE RASTER AT THE BEGINNING OF EACH NEW LINE

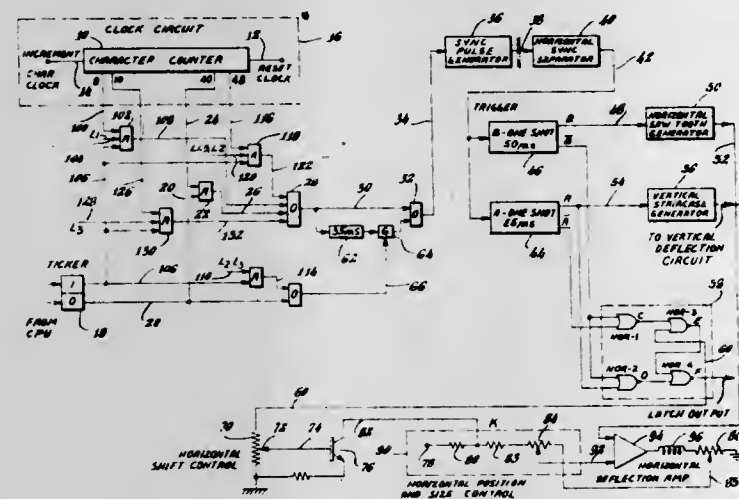
Francis E. Albrecht, Bridgeport; William D. Baxter, Seymour, both of Conn.; John De Michiel, Mamaroneck, N.Y.; Robert J. Duggan, Monroe, Conn.; Carl Greenblum, Stamford, Conn.; Stephen A. Grosky, Monroe, Conn., and Arthur Langer, Stamford, Conn., assignors to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Sept. 8, 1971, Ser. No. 178,691

Int. Cl. H01j 29/70

U.S. Cl. 315-18

17 Claims



A circuit for controlling the raster of a cyclically scanned display device such as a cathode ray tube (CRT). The circuit

may control both the horizontal and vertical positioning of the raster at the beginning of each new line of the display. The line positioning control responds to predetermined sync pulse patterns generated in response to detected raster position, data type, or other conditions. The raster may advance a predetermined number of full or partial line positions in response to a received sync pulse pattern, for example a single sync pulse, and may advance an additional like number of full or partial line positions in response to a variation in the received sync pulse pattern, such as for example the receipt of additional sync pulses. The horizontal position at which each line of the display commences is controlled by a circuit which is operative in response to variations in the received sync pulse pattern for altering the line starting position.

3,742,289

VIDEO DISPLAY SYSTEM CREATING BOTH HORIZONTAL AND VERTICAL SYNC PULSES FROM THE DISC TIME TRACK

Gerard D. Koeijmans, Dallas, Tex., assignor to Mobil Oil Corporation, Dallas, Tex.

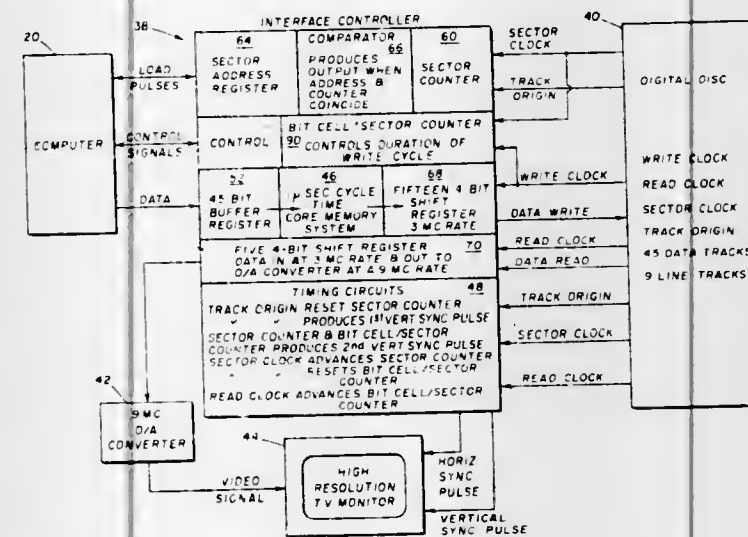
Continuation of Ser. No. 812,213, April 1, 1969, abandoned.

This application Oct. 30, 1970, Ser. No. 85,761

Int. Cl. H01j 29/70

U.S. Cl. 315-18

5 Claims



The video display system described consists of a digital disc which can store at least three seismic cross sections and a high resolution TV monitor. The monitor can show a cross section of 480 traces with 500 five-bit samples per trace. The electronic parts of the system control the flow of data to and from a computer through an interface controller. A high-speed D/A converter changes the digital seismic data into an analog video signal, and an external core memory is used to "bridge" the various speeds with which data flow from one point to another in the system. A graphical input device can be used to draw zones on the displayed cross section. This system can be an integral part of a complete computer graphics system.

3,742,290

SAMPLING SYSTEM

Kozu Uchida, c/o Iwatsu Electric Co., LTD., 7-41, Kugayama 1-chome, Suginami-ku, Tokyo, Japan

Continuation-in-part of Ser. No. 781,179, Dec. 4, 1968, abandoned. This application Feb. 11, 1971, Ser. No. 114,435

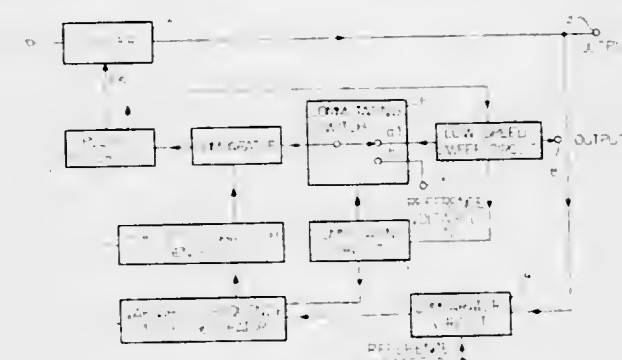
Int. Cl. H01j 29/70

U.S. Cl. 315-25

14 Claims

A pulse generator included in a sampling system generates sampling pulses, whereby a waveform similar to the input

signal waveform is obtained at the output terminal of the same conductive cylinder passing through the cathode and extending system. Synchronization of a sampling apparatus such as ing, as the electrodes do, with a cylindrical conductive wall



a oscilloscope with a measuring signal without using additional synchronized signals can be assured.

3,742,291

COLOUR DISPLAY TUBES

Isao Yamada, Ise, Japan, assignor to Ise Electronics Corporation, Mie Prefecture, Japan

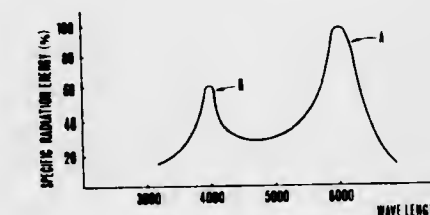
Filed Aug. 3, 1971, Ser. No. 168,682

Claims priority, application Japan, Aug. 4, 1970, 45/67896; Aug. 4, 1970, 45/67897

Int. Cl. H01j 29/52

U.S. Cl. 315-30

6 Claims



In a colour display tube of the type wherein a fluorescent screen is caused to luminesce by irradiating it with an electron beam, the fluorescent screen is coated with at least one phosphor having at least two discrete spectral peaks of different excitation and photo-persistence characteristics and there is provided means for varying the interval during which the electron beam is permitted to impinge upon the fluorescent screen whereby to cause it to luminesce at the selected one of the spectral peaks.

3,742,292

ELECTRONIC TUBES SUCH AS TETRODES FOR VERY HIGH-FREQUENCY OPERATION

Pierre Gerlach, and Gerard Sire, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Nov. 30, 1971, Ser. No. 203,360

Claims priority, application France, Dec. 4, 1970, 7043740

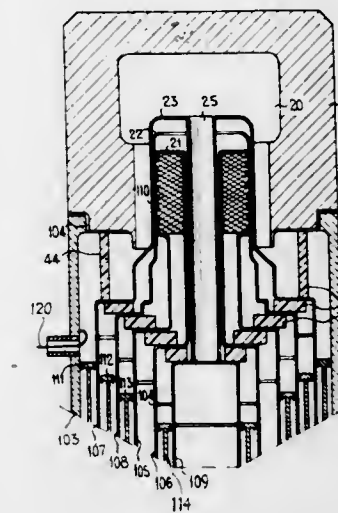
Int. Cl. H01j 7/46, 19/80

U.S. Cl. 315-39

4 Claims

Tetrode operating at very high frequencies according to a "grounded cathode" mode.

All the coaxial cylindrical electrodes are extended outside the exhausted enclosure, with cylindrical conductive walls forming coaxial cavities which are tunable by means of ring pistons. Furthermore, the screen-grid is connected to a central



constituting with that one extending from the cathode a cavity which is tuned for ensuring a high frequency short-circuit between the cathode and the screen-grid.

3,742,293

HIGH FREQUENCY CIRCUITS FOR ELECTRON TUBES AND TUBES COMPRISING SUCH CIRCUITS

Paul Chavanat; Bernard Epsstein, and Georges Mourier, all of Paris, France, assignors to Thomson-CSF, Paris, France

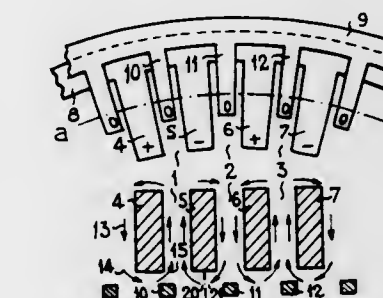
Filed Dec. 15, 1971, Ser. No. 208,157

Claims priority, application France, Dec. 22, 1970, 7046248

Int. Cl. H01j 25/50

U.S. Cl. 315-39.51

15 Claims



High frequency circuits for the anodes of electron tubes, in particular magnetrons.

There is associated with the usual cavities of said anodes a second high frequency circuit arranged in parallel with the first one constituted by said cavities, to provide coupling between adjacent cavities and to maintain their π mode operation despite possible geometrical differences. Moreover, by making the second circuit an absorptive one, other unwanted modes are suppressed.

3,742,294

SUSTAINER VOLTAGE GENERATORS FOR DRIVING GASEOUS DISCHARGE DISPLAY PANELS

David S. Wojcik, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Apr. 19, 1971, Ser. No. 135,022

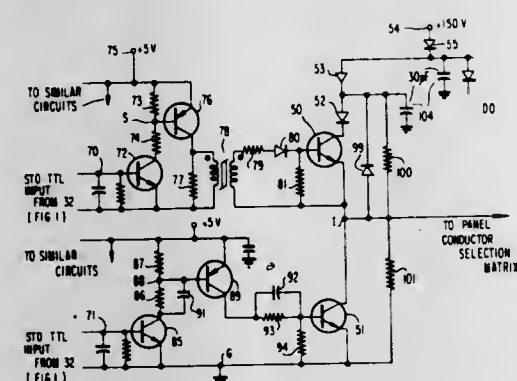
Int. Cl. H05b 37/00

U.S. Cl. 315-169 TV

5 Claims

There is disclosed improved sustaining voltage generators for supply 50kHz sustainer wave form to drive a gaseous

discharge display panel which are directly interfaceable with a low level logic system. Two embodiments of the invention are



disclosed both of which are uniquely oriented for driving gaseous discharge display panels of the type disclosed in Baker et al. U.S. Pat. No. 3,499,167.

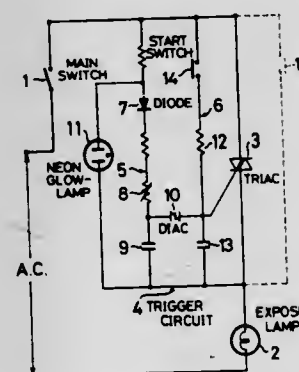
3,742,295 LIGHTING SYSTEM IN COPYING APPARATUS

Yutaka Irie, Toyokawa, Japan, assignor to Minolta Camera Kabushiki Kaisha, Minamiku, Osaka, Japan
Filed Mar. 17, 1971, Ser. No. 125,033
Claims priority, application Japan, Mar. 30, 1970, 45/26745

Int. Cl. H05b 37/02

U.S. Cl. 315—194

5 Claims



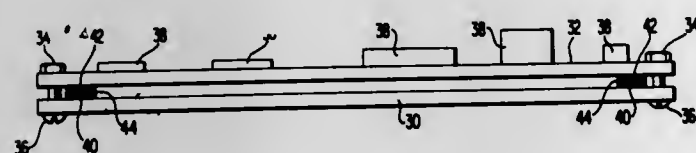
A lighting system comprises a triac included in the electric circuit of an exposure lamp in series therewith and a trigger circuit for triggering the triac into conduction at a small conduction angle simultaneously when a main switch is turned on and triggering the triac into conduction at a large conduction angle simultaneously when a start switch is turned on. The system protects the contacts and other switching elements of switches from possible damage to be caused when the exposure lamp is turned on and permits a short period of exposures.

3,742,296 CAPACITIVE-COUPLED CONNECTORS FOR GASEOUS DISCHARGE DISPLAY PANELS

George M. Krembs, Hyde Park, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Int. Cl. H05b 41/16

U.S. Cl. 315—169 R

4 Claims



A method and means for connecting the electrodes of a gaseous-discharge display panel to the drive circuits which

control the potential across the electrodes and thus the production of the gaseous discharge. It is demonstrated that a capacitive coupling, rather than an ohmic coupling, is practical and beneficial from a maintenance standpoint, since the gas display panel may be more easily replaced.

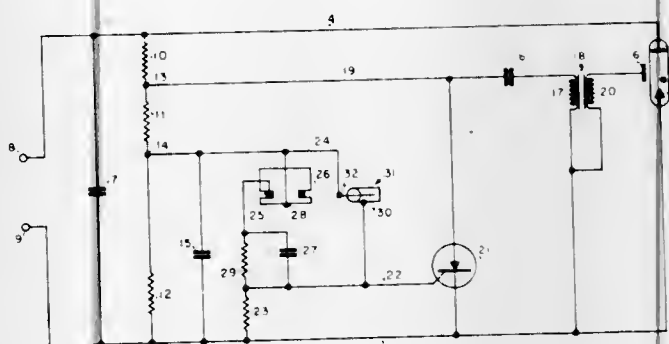
3,742,297 APPARATUS FOR CONTROLLING THE DISCHARGE OF A CAPACITOR

Roger G. Peacock, Denver, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Dec. 28, 1970, Ser. No. 101,778
Int. Cl. H05b 37/00

U.S. Cl. 315—239

9 Claims



A flash tube triggering capacitor and triggering transformer primary winding are connected in series across power supply resistors to charge the capacitor. The anode-cathode circuit of an SCR is connected across the series combination of the capacitor and winding. A bypass capacitor, a bias resistor, and the terminals of a hot shoe are connected in series across one of the power supply resistors. The gate-cathode circuit of the SCR is connected across the bias resistor. The terminals of a PC connector are connected across the series combination of the hot shoe terminals and the bypass capacitor. The completion of an electrical path between either the hot shoe terminals or the PC terminals places a turn-on voltage between the gate and cathode of the SCR and causes the latter to discharge the triggering capacitor into the winding to fire a flash tube.

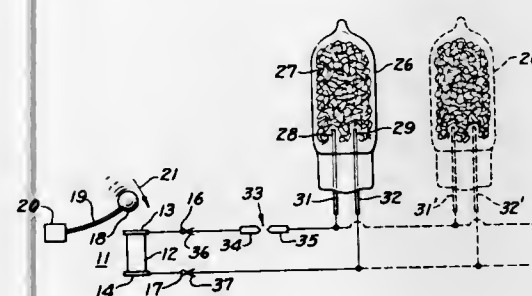
3,742,298 ARC GAP CIRCUITS FOR FLASHING HIGH-VOLTAGE PHOTOFLASH LAMPS

Paul T. Cote, Cleveland Heights, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed Mar. 24, 1971, Ser. No. 127,562
Int. Cl. H05b 37/00, 41/34; G03b 15/04

U.S. Cl. 315—323

7 Claims



Circuit arrangements of arc gaps in series with high-voltage photoflash lamps, for improving reliability of flashing and for causing sequential flashing of individual lamps of an array of photoflash lamps by means of high-voltage firing pulses such as are produced by impacting a piezoelectric element in synchronism with the opening of a camera shutter.

3,742,299 SPEED DETECTOR

Alan Ernest Gane, Burgess Hill, England, assignor to International Standard Electric Corporation, New York, N.Y.

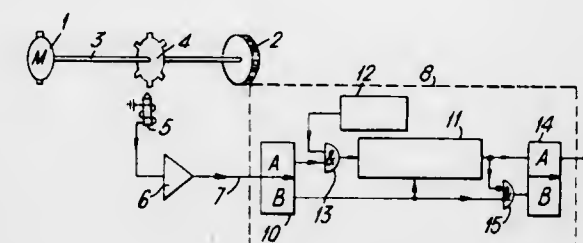
Filed Sept. 13, 1972, Ser. No. 288,572

Claims priority, application England, Oct. 7, 1971, 46,704/71

Int. Cl. H02p 7/00

U.S. Cl. 317—5

2 Claims



A device for producing a signal when, for example, a rotating body reaches a predetermined velocity. For example, a telegraphic printer will print with an unwanted orientation or in an undesired way if printing is permitted during start up of the mechanism. The device disclosed herein may thus be employed to inhibit printing until the mechanism gets up to speed.

3,742,300 SOLID END STATIC DISCHARGER

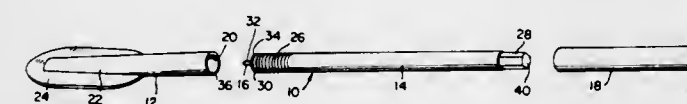
George M. Floyd, 514 Lansdowne Avenue, Camden, N.J.

Filed Dec. 8, 1971, Ser. No. 206,047

Int. Cl. B64d 45/02; H05f 3/00

U.S. Cl. 317—2 E

3 Claims



A solid end static discharger for use with aircraft, the discharger employing a solid resistive rod having pre-determined electrically conductive characteristics and terminating outwardly in a machined end. An electrically conductive ionization bypass may be employed to over-fit portions of the solid rod to shunt extremely high electrical energies to protect against electrical overload.

3,742,301 CORONA GENERATOR

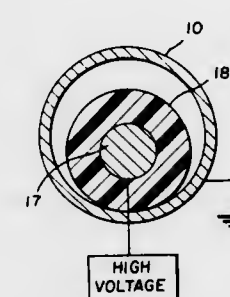
W. Alan Burris, 7 East Jefferson Circle, Pittsford, N.Y.

Filed May 11, 1972, Ser. No. 252,207

Int. Cl. H05b

U.S. Cl. 317—4

35 Claims



A corona generator is formed of simple, bendable or flexible tubing and includes a plastic dielectric for simplicity and economy. A long length of tubing is formed into a convenient coil, and the tubing is arranged in several combinations including electrodes, plastic dielectric, and a gap where a corona discharge is formed and through which a gas is passed.

3,742,302 MOTOR RELAY PROTECTION FOR REFRIGERANT COMPRESSOR MOTORS

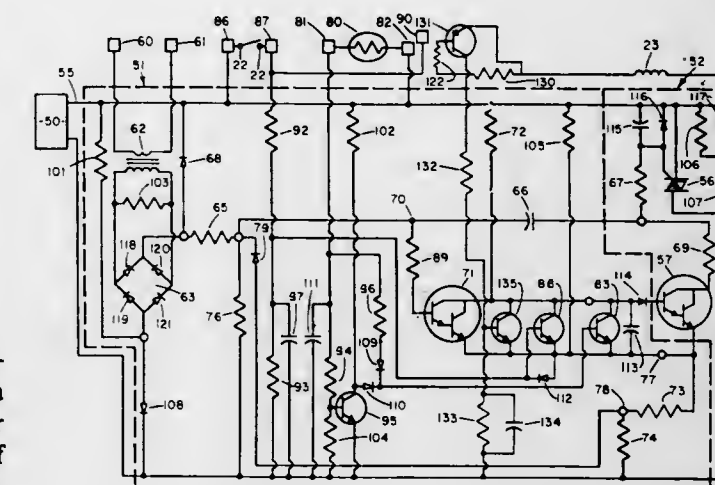
Donald E. Neill, Liverpool, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Oct. 12, 1971, Ser. No. 188,053

Int. Cl. H02h 3/08

U.S. Cl. 317—13 R

2 Claims



A refrigerant compressor motor is provided with a motor protection and control system providing various motor control functions in response to motor current, refrigeration system temperature, thermostat contact opening and closing and motor relay solenoid current. A resistor in series with the motor relay solenoid provides a voltage drop signal which is integrated to provide a control signal to a trip circuit which, in turn, deenergizes the motor relay in the event that the integrated relay current signal exceeds a predetermined trip threshold magnitude. If the solenoid current drops to a normal value after being initially energized, the integrator output remains below the trip threshold and the solenoid remains energized. In the event that the solenoid current fails to drop to a normal operating value after a period of time, the integrator output rises to a level which exceeds the trip level and deenergizes the solenoid. Additional time delay means is provided so that a period of time must elapse before the solenoid can be re-energized to permit it to cool.

3,742,303 COMPRESSOR PROTECTOR SYSTEM

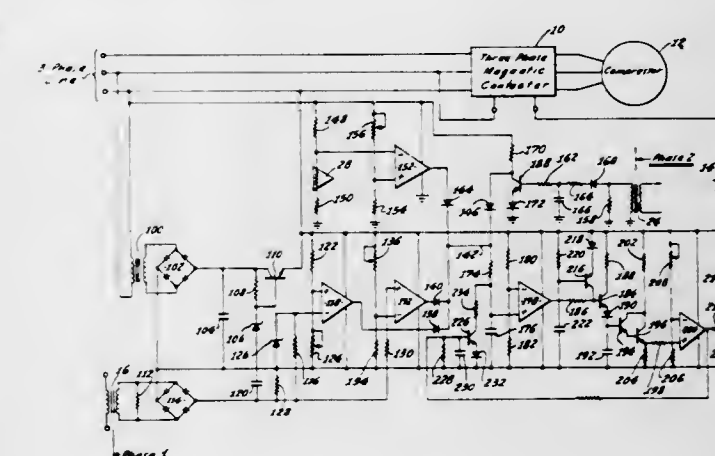
Ernest C. Dageford, Irvine, Calif., assignor to BEC Products, Inc., Davenport, Iowa

Filed Nov. 8, 1971, Ser. No. 196,603

Int. Cl. H02h 7/08

U.S. Cl. 317—13 A

10 Claims



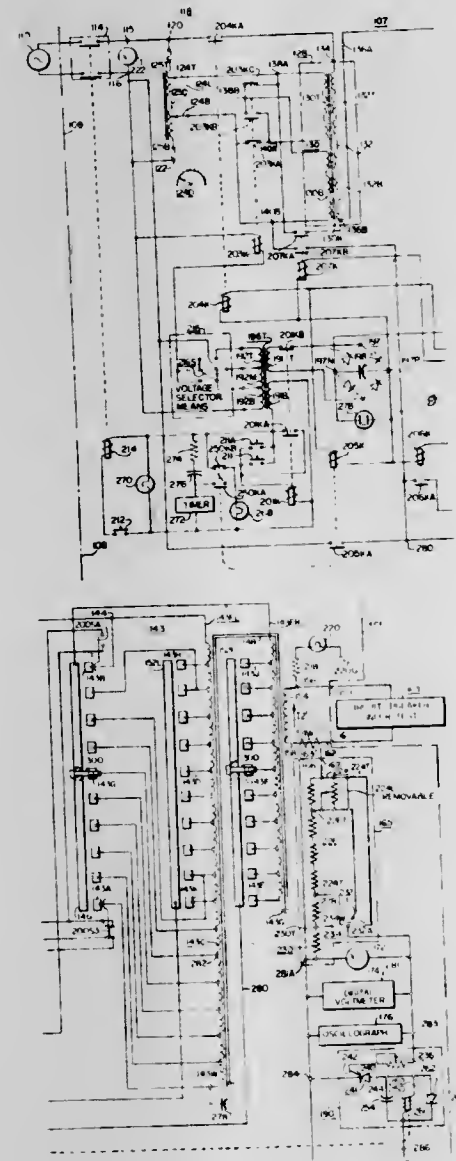
A compressor protector system for externally monitoring the internal temperature of a compressor motor by monitoring the level of the current supplied to the motor and for discon-

tinuing the supply of voltage to the motor when the current level is above or below a desired range of levels for a predetermined period of time. The compressor protector system may also directly monitor high temperature conditions within the compressor and a single phasing condition of the three-phase supply to the compressor motor so as to discontinue the supply of voltage under such high temperature or single phasing conditions. The compressor protector system automatically rechecks after a predetermined period of time to determine if the particular fault which resulted in a continuing of the voltage supply has cleared and then automatically restarts the compressor if the fault has cleared. The system also prevents short cycling in that once the compressor has been turned off it cannot be restarted until after a predetermined period of time.

3,742,304

TIMING MEANS FOR USE IN A PORTABLE CIRCUIT BREAKER TESTER

Frederick A. Elder, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Division of Ser. No. 26,196, April 7, 1970, Pat. No. 3,678,372.
This application Dec. 22, 1971, Ser. No. 211,141
Int. Cl. H01h 47/18
U.S. Cl. 317-141 R 2 Claims



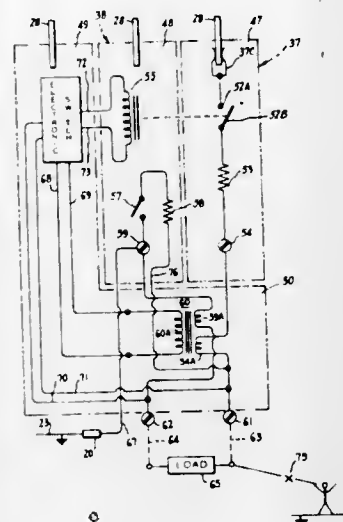
A tester for circuit breakers in which the tapped primary of a power transformer is used in conjunction with the secondary of a voltage boosting transformer controlled by a variable transformer to generate current in the circuit interrupter to be tested. The range of current is continuously variable from zero to approximately 50,000 amperes. A device for measuring the duration of the current in the circuit interrupter is provided

and a means for measuring quick surges of current which immediately trip a faulty or overloaded circuit interrupter is provided to determine duration of breaker engagement and maximum current flowing before interruption.

3,742,305

ELECTRIC SHOCK PROTECTOR FOR USE WITH PANEL ASSEMBLY

Charles F. Hobson, Jr., Southington, and Herbert M. Dimond, Hartford, both of Conn., assignors to General Electric Company, New York, N.Y.
Continuation of Ser. No. 60,584, Aug. 3, 1970, abandoned.
This application Aug. 13, 1971, Ser. No. 171,770
Int. Cl. H02h 3/28
U.S. Cl. 317-18 D 19 Claims

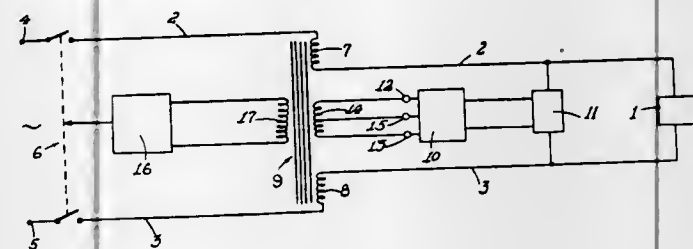


A unitary assembly comprising an insulating housing which includes an automatic electric circuit breaker, an electrically operated means for causing automatic opening of the circuit breaker in response to a given electric signal, highly sensitive ground-fault-detecting means for detecting a ground fault in a load circuit fed by the said circuit breaker and for generating an output signal in response thereto, and means for energizing said electrically operated means upon the occurrence of said output signal. The assembly has form and dimensions suiting it for mounting in a conventional panel assembly or load center of standard construction which may also contain conventional circuit protective devices. In a preferred form, the circuit breaker portion of the assembly comprises a prior art standard circuit breaker having a housing of prior art standard form and dimensions.

3,742,306

CORE BALANCE EARTH LEAKAGE PROTECTIVE SYSTEMS

Vivian Cohen, Johannesburg, and Sidney Charles Slocombe, Brakpan, both of South Africa, assignors to Fuchs Electrical Industries (Proprietary) Limited, Transvaal, South Africa
Filed Oct. 3, 1972, Ser. No. 294,564
Int. Cl. H02h 3/28
U.S. Cl. 317-18 D 10 Claims



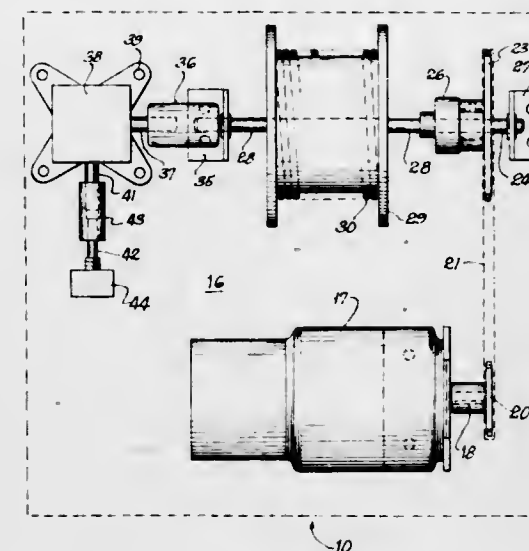
A core balance earth leakage protective system including a magnetic core; first and second sensing windings on the core; an electronic amplifier, the input to the amplifier being con-

nected to the first sensing winding on the core and the output from the amplifier being electro-magnetically coupled with the core; a polarized magnetic relay including an actuating coil which is connected to the second sensing winding on the core, the relay being operative to cause isolation of load windings associated with the core when the current through the relay coil exceeds a predetermined value.

3,742,307

BIN LEVEL INDICATOR

Thomas E. Patsch, Aurora, and Robert E. Farnham, Naperville, both of Ill., assignors to Barber-Greene Company, Aurora, Ill.
Filed Mar. 1, 1972, Ser. No. 230,754
Int. Cl. G01f 23/00
U.S. Cl. 318-482 6 Claims

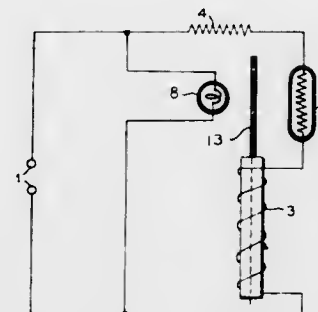


A reversible electric motor powers a drum through a drive train including a clutch. A weight is suspended from a length of cable, the latter being wound on the drum. The clutch is sensitive to the effect of the weight thereby to cause the drum to be rotated for unwinding the cable only when the weight is freely suspended. Indicator means including a potentiometer is responsive to rotation of the drum. A control circuit including timing means cyclically energizes the motor in up and down directions, the duration of time in the down direction of each cycle being greater than the duration of time in the up direction so as to cause the weight to be lowered a distance greater than the distance it is raised during each cycle of operation whereby the weight is in effect incrementally lowered to seek the level of material in the bin.

3,742,308

CURRENT CONTROL DEVICE

Shigeru Hayakawa, Osaka, Japan, assignor to Matsushita Electric Industrial Co. Ltd., Osaka, Japan
Filed Feb. 9, 1972, Ser. No. 224,800
Claims priority, application Japan, Mar. 15, 1971, 46/14483; Mar. 15, 1971, 46/14484
Int. Cl. H01h 47/24
U.S. Cl. 317-125 16 Claims



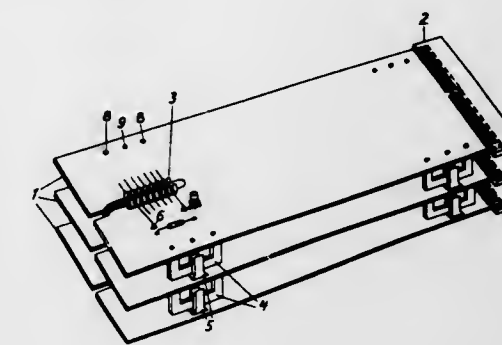
A current control device has a thermistor having an electric resistance which varies with a variation in the temperature, a

heat-radiation means changeable into and out of heat radiation relationship with the thermistor, and a controlling means coupled to the heat-radiation means. The control means is responsive to current flow through the thermistor for bringing the heat-radiation means into heat radiation relationship with the thermistor to control the temperature of the thermistor by negative feed-back upon variation of an electric resistance of the thermistor beyond a critical electrical resistance.

3,742,309

MOUNTING CLAMPS SUPPORTING STACKED PRINTED CIRCUIT BOARDS

Eric Sterner, Hagersten, Sweden, assignor to Telefonaktiebolaget L. M. Ericsson, Stockholm, Sweden
Filed Aug. 25, 1971, Ser. No. 174,800
Claims priority, application Sweden, Sept. 4, 1970, 12030/70
Int. Cl. H05k 1/14
U.S. Cl. 317-101 D 1 Claim

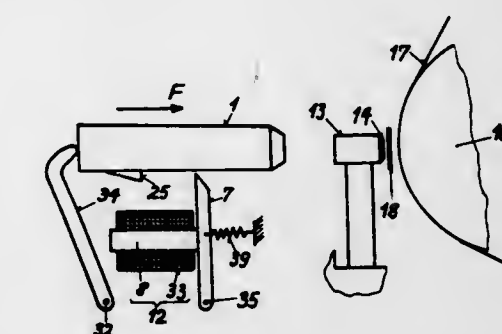


In an arrangement for assembling printed circuit cards with electronic components in mutually parallel positions each card is provided with two elements fixed along an edge of the cards. One of the elements is clamp formed and the other one consists of a spring clip, the central part of the clamp formed element is arranged to engage the spring clip element, whereby each card in a stack of cards can be displaced relatively to the other cards in the stack.

3,742,310

APPARATUS FOR MONITORING THE ACTION OF ELECTROMAGNETICALLY OPERATED PRINTING HAMMERS

Kurt Ehrat, Zurich, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland
Filed Apr. 6, 1971, Ser. No. 131,637
Claims priority, application Switzerland, Apr. 7, 1970, 5122/70
Int. Cl. H01h 47/00
U.S. Cl. 317-123 5 Claims



An electromagnetically operated print hammer monitoring apparatus is provided in which each hammer has an actuating element to trip an armature associated with the hammer to induce a voltage pulse in the coil of the electromagnet. The actuating element being arranged to trip the armature just as the hammer is about to print a character.

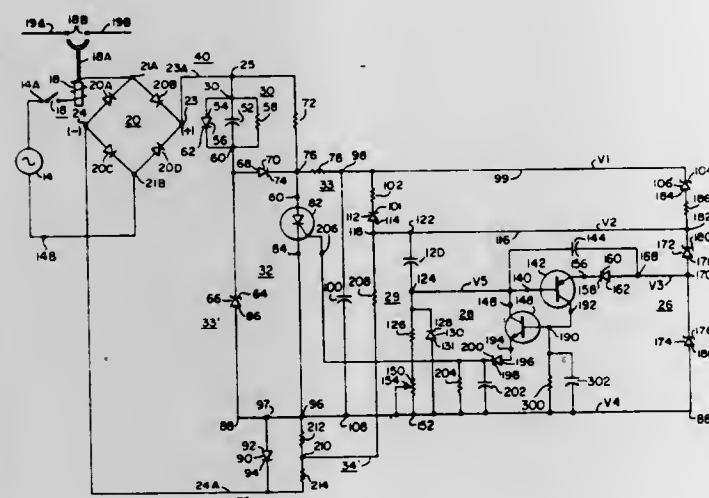
3,742,311 STATIC ON-DELAY CIRCUIT WITH IMPROVED HOLDING MEANS

Wardell Gary, Beaver, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 16, 1971, Ser. No. 153,504
Int. Cl. H01h 47/18, 47/32; H03k 17/60

U.S. Cl. 317-141 S

5 Claims



A two-terminal transformerless switching circuit adapted to be connected between a load, such as a relay coil, and a source of alternating current. When the switching circuit is energized by connecting it to the source of alternating current through an actuating means, such as a pushbutton switch, energization of the load is delayed by a timing and triggering circuit, the output of which is connected to the gate of a silicon controlled rectifier. The silicon controlled rectifier is connected across the output terminals of a full wave bridge rectifier in such a manner that when it is energized, alternating current will flow into the bridge and through the coil of the relay in sufficient magnitude to energize the relay and complete the switching operation. The complete switching action is delayed for a period of time determined by the charging of a capacitor through a variable resistor network. In addition, a diode array is connected in parallel with an energy storage capacitor 52 so that the capacitor charges to a voltage generally equal to the maximum possible voltage drop across a conducting diode array. When the full wave rectified pulses of current which are applied to the silicon controlled rectifier approach zero the diode array is reverse biased and the capacitor discharges through the then marginally conducting silicon controlled rectifier to sustain conduction in it until sufficient energy from the next half wave of current flows through the silicon controlled rectifier or thyristor. Both the timing and triggering circuits and the holding circuit are initially empowered from the output terminals of the full wave bridge rectifier upon actuation of the timing cycle by closing the previously mentioned pushbutton switch, for example. The amount of current necessary to initially empower these circuits being insufficient to actuate the connected load coil.

3,742,312 IGNITION COILS

Peter Thomas Hillyard, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Sept. 15, 1972, Ser. No. 289,274

Claims priority, application Great Britain, Sept. 15, 1971, 42,905/71

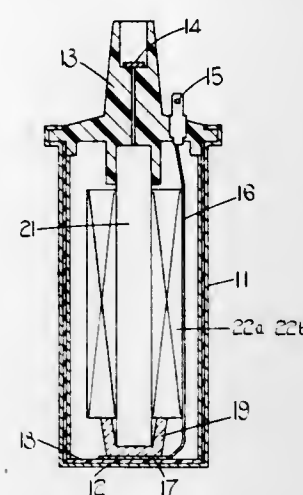
Int. Cl. H01f 27/00

U.S. Cl. 317-157.62

3 Claims

An ignition coil having a hollow casing closed at one end by an insulating cap which carries the high tension output terminal of the coil. The conductive core is housed within the casing and electrically connected to the core is one end of the secondary winding of the coil which encircles the core, the

core being also electrically connected to the high tension output terminal. A primary winding also encircles the core and a conductive member is spaced from the core by the insulating support member. This conductive member defines with the



core a capacitor the dielectric of which is the material of the support member and a terminal is provided on the cap of the ignition coil and electrically connected to the conductive member so that this terminal and the high tension output terminal constitute the terminals of the capacitor.

3,742,313 SINGLE-WIRE CONTROL OF RCCB OR RELAY

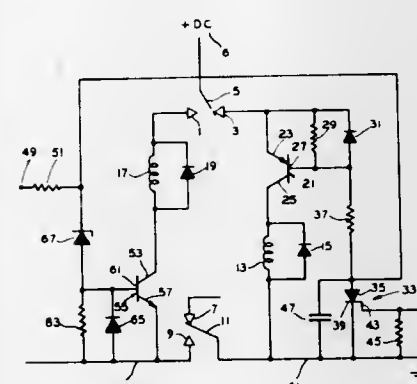
William Meyer Spencer, West End, N.J., assignor to The Bendix Corporation, Teterboro, N.J.

Filed June 11, 1970, Ser. No. 45,463

Int. Cl. H01h 47/00; H02h 1/00

U.S. Cl. 317-155.5

1 Claim



A circuit having single-wire control for operating a remote controlled circuit breaker with trip and reset coils, comprising switching means arranged to connect the trip or reset coil to a power source in response to a trip or reset signal applied to the single-wire control to energize the trip or reset coil for operating the circuit breaker accordingly.

3,742,314 SEMICONDUCTOR OSCILLATING ELEMENT

Masaya Yabe; Teizo Takahama; Masaru Kono, and Katsumi Hirono, all of Kawasaki, Japan, assignors to Fuji Denki Seizo Kabushiki Kaisha, Kanagawa-ken, Japan

Filed July 22, 1971, Ser. No. 165,185

Claims priority, application Japan, July 24, 1970, 45/64883; Apr. 16, 1971, 45/24368

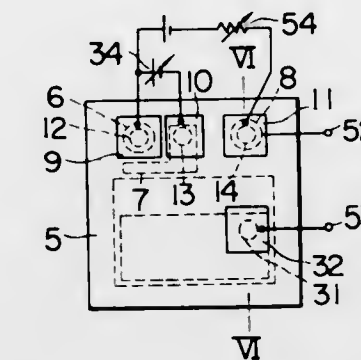
Int. Cl. H01l 1/10

U.S. Cl. 317-234 R

5 Claims

A semiconductor oscillating element comprising a semiconductor wafer which is provided with a first region of a conductivity type, a second region of a reverse conductivity type, a pn junction formed between said two regions, an injection elec-

trode means provided on said first region at a specific distance from said second region, a first ohmic contact-electrode means provided on said first region at specific distances, respectively, from said second region and from said injection



electrode means, and a second ohmic contact-electrode means provided on said first region so as to be near said injection electrode means. Furthermore, various modifications of the semiconductor oscillating element mentioned above and operation circuits utilizing said elements are also disclosed.

3,742,315 SCHOTTKY BARRIER TYPE SEMICONDUCTOR DEVICE WITH IMPROVED BACKWARD BREAKDOWN VOLTAGE CHARACTERISTIC

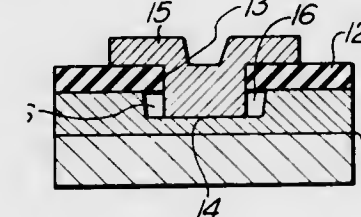
Mutsuo Iizuka, Osaka; Shohei Fujiwara, Takatsuki; Gota Kano, Kyoto; Hiromasa Hasegawa, Takatsuki; Iwao Teramoto, Ibaragi, and Hitoo Iwasa, Takatsuki, all of Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan

Division of Ser. No. 861,670, Sept. 29, 1969. This application Oct. 18, 1971, Ser. No. 189,931

Int. Cl. H01l 5/02, 7/50, 7/60

U.S. Cl. 317-234 R

2 Claims



A semiconductor device having a Schottky barrier junction formed in the bottom of a polygonal recess on a surface of a semiconductor substrate comprises an undercut in the recess beneath an insulating mask formed on the substrate, and a metal passing through the mask and extending to the bottom of the recess for forming said junction. The undercut provides an enclosed spacing encircling the junction portion of said metal and said semiconductor, thereby improving the backward breakdown voltage characteristic therein.

3,742,316 WIDE TEMPERATURE RANGE ELECTRONIC DEVICE WITH LEAD ATTACHMENT

Richard Farrell, Lowell, Mass., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Division of Ser. No. 868,775, Oct. 23, 1969, Pat. No. 3,665,589. This application Jan. 28, 1972, Ser. No. 221,833

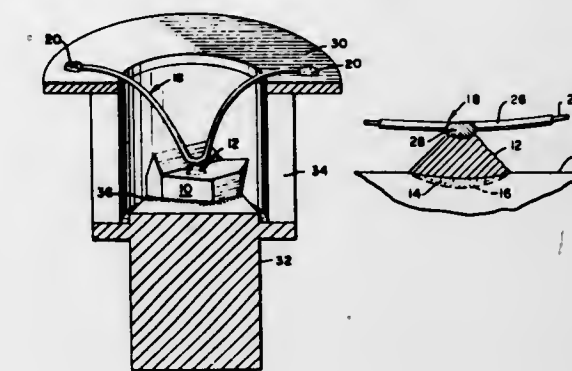
Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317-234 R

2 Claims

A electronic device including lead attachment structure which permits operation of the devices over a wide temperature range. The device comprises a core conductor having a thin coating of metal thereon whereby only a limited amount

of coating material is available to form an alloy which bonds the core conductor to the device electrode, the electrode



composition thus being affected only in the region adjacent the lead and the bond between the electrode and device being unaffected.

3,742,317 SCHOTTKY BARRIER DIODE

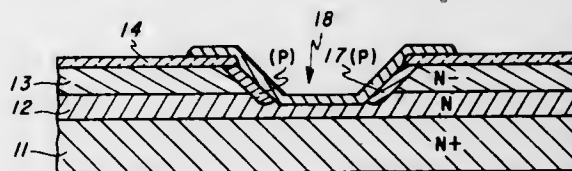
Tzu Fann Shao, Dallas, Tex., assignor to Instruments Incorporated, Dallas, Tex.

Filed Sept. 2, 1970, Ser. No. 69,062

Int. Cl. H01l 9/00

U.S. Cl. 317-235 R

4 Claims



Anisotropic etching is employed in the fabrication of a Schottky barrier diode to provide a recessed geometry having a guard ring of reduced area, thereby avoiding the objectionable degree of parasitic capacitance found in related planar devices. A low series resistance is also provided since the anisotropic etching step inherently permits a precise control of the distance between the surface barrier and a buried substrate layer of low resistivity.

3,742,318 FIELD-EFFECT SEMICONDUCTOR DEVICE

Akio Yamashita, Ikeda-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

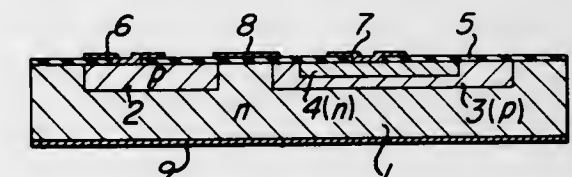
Filed Nov. 24, 1971, Ser. No. 201,660

Claims priority, application Japan, Nov. 26, 1970, 45/104285; Nov. 30, 1970, 45/106523

Int. Cl. H01l 9/12

U.S. Cl. 317-235 R

3 Claims



A field-effect semiconductor device having negative resistance characteristics which are controllable by means of an electric field. The device may serve as a solid-state switch.

3,742,319

R. F. POWER TRANSISTOR

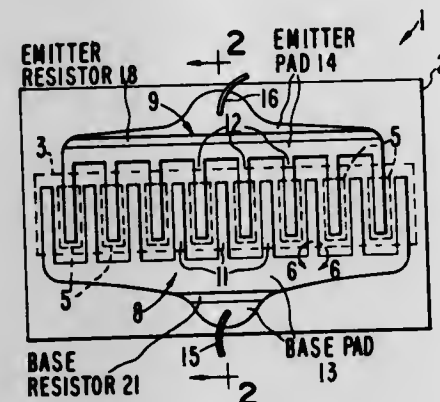
William S. Bryan, and Joseph H. Johnson, both of Santa Clara, Calif., assignors to Communications Transistor Corporation, San Carlos, Calif.

Filed Mar. 8, 1971, Ser. No. 121,907

Int. Cl. H011 11/06, 19/00

U.S. Cl. 317—235 R

4 Claims



A semiconductor substrate member has deposited thereon, collector, emitter, and base electrode structures connected to respective collector, emitter and base subregions of the semiconductor substrate member to form a radio frequency power transistor. The base electrode structure has a resistor incorporated therein, as by depositing a thin film resistor across a gap in the electrode structure, for increasing the electrical stability and electrical ruggedness of the power transistor.

ERRATA

For Classes 317—230 and 318—227 see:
Patents Nos. 3,742,369 and 3,742,370

3,742,320

TAPE FAST FEED CONTROL APPARATUS FOR ENDLESS MAGNETIC TAPE CARTRIDGE PLAYER

Itsuki Ban, 829, Higashi-Oizumimachi, Nerima-ku, Tokyo, Japan

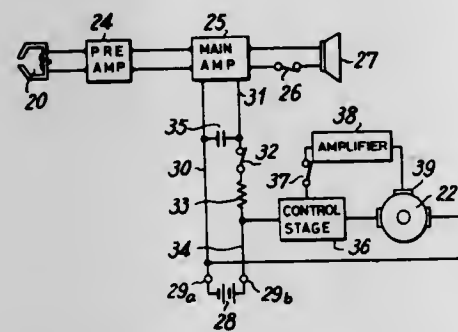
Filed May 10, 1971, Ser. No. 141,621

Claims priority, application Japan, May 11, 1970, 45/39292

Int. Cl. B65h 59/38

U.S. Cl. 318—6

8 Claims



A tape fast feed control apparatus for an endless magnetic tape cartridge player, which comprises a motor driven tape feeding means, the motor being adapted to selectively control its rotational speed so as to normally feed the tape at low speed or fast feed it at high speed, a switch for changing rotation of the motor from low speed to high speed, and a changing means for change-over operation of the switch, the changing means being arranged to normally maintain the switch in a first position where the motor is rotated at low speed, the changing means including an operating member and adapted to change over the switch to a second position where the

motor is rotated at high speed in response to manual operation of the operating member, the changing means being further adapted to change over the switch from the second position to the first position after the period proportional to a number of operations of the operating member, whereby the tape is fast fed by the period as designated by a number of operations of the operating member.

3,742,321

METHOD AND APPARATUS FOR STABILIZING MULTIPLE MOTOR DRIVEN SYSTEMS

Kjell Bergman; Arne Dybvig; Per Kain, and Frede Sorensen, all of Vasteras, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

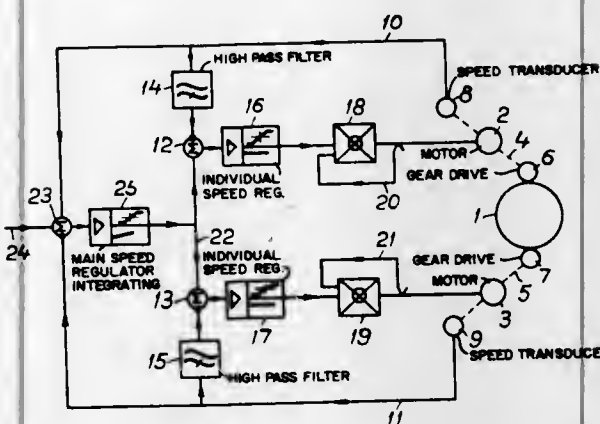
Filed May 7, 1971, Ser. No. 141,176

Claims priority, application Surtzerland, July 8, 1970, 9484/70

Int. Cl. H02p 5/46

U.S. Cl. 318—99

4 Claims



For stabilizing the operation of the motors in a system having a machine such as a rotary kiln driven by two motors, and where speed fluctuations of different frequencies may occur in the system, the motors are controlled through a single control member when the fluctuations are below a certain frequency whereas for fluctuation above that frequency a high pass filter permits the control signals to pass individually to the two motors.

3,742,322

ELECTRONIC ROTARY HAMMER

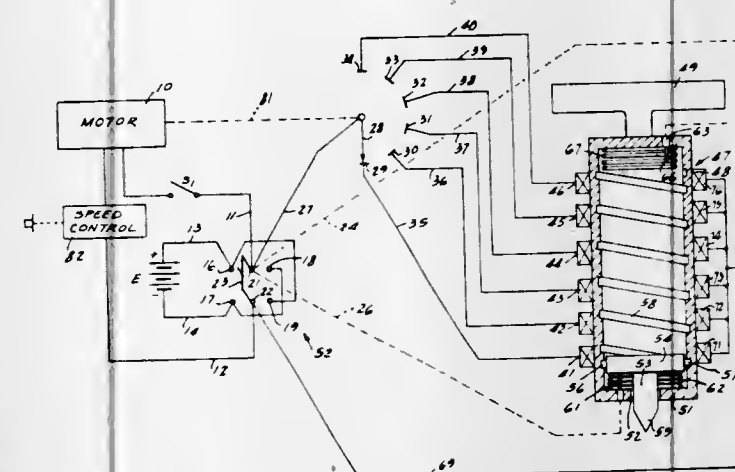
Dennis M. Michaelson, Chicago, Ill., assignor to Pan-Technic, Inc., Chicago, Ill.

Filed Oct. 20, 1971, Ser. No. 190,930

Int. Cl. H02k 33/00

U.S. Cl. 318—122

4 Claims



An electronic rotary hammer which utilizes a moving magnetic field to energize a rotary hammer having a cylindrical member formed with an internal groove in which a hammer member is supported so as to move longitudinally of the hammer in response to variations of the magnetic field. The hammer rotates as well as being moved upwardly and downwardly by a distributor which controls the application of a magnetic field so as to drive the hammer member.

3,742,323

FILMSTRIP PROJECTOR WITH SYNCHRONIZED SOUND

Frank C. Badalich, Chicago, and Roy H. Watterlohn, Morton Grove, both of Ill., assignors to Bell & Howell Company, Chicago, Ill.

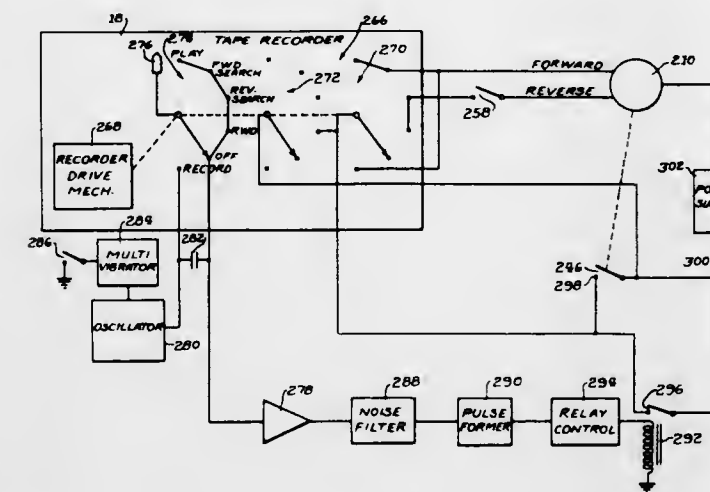
Division of Ser. No. 97,859, Dec. 14, 1970, Pat. No. 3,675,994.

This application Jan. 13, 1972, Ser. No. 221,462

Int. Cl. H02p 3/18

U.S. Cl. 318—467

1 Claim



A filmstrip projector provided with synchronized audio accompaniment. The filmstrip is framed with respect to a projection aperture by a manually operable framing means. Once framed, the filmstrip is advanced frame-by-frame by a motor driven film advance mechanism. The audio accompaniment is carried on a dual track audio tape one track of which carries the audio accompaniment. The remaining track carries control signals which serve to actuate the film advance mechanism to maintain synchronization between the audio track and the filmstrip.

ERRATUM

For Class 318—482 see:
Patent No. 3,742,307

3,742,324

CONTROL MODE SWITCHING SYSTEM FOR A SERVOMECHANISM

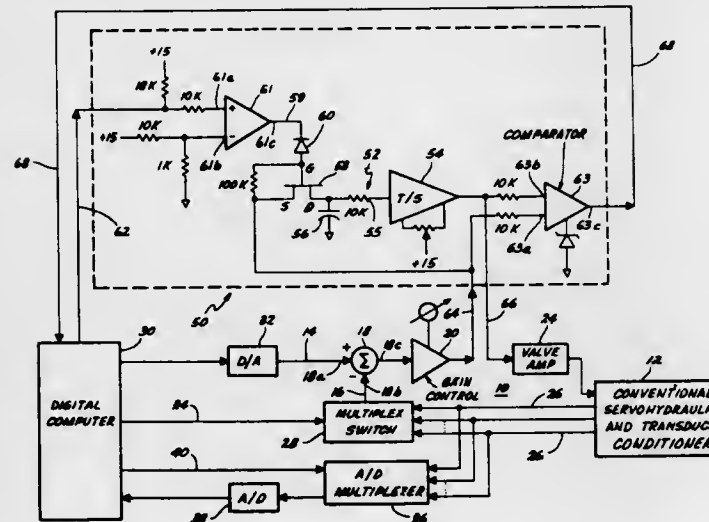
Alan E. Gross, Minnetonka; Rodney L. Larson, St. Louis Park, and Ralph E. Skoe, Minnetonka, all of Minn., assignors to MTS Systems Corporation, Minneapolis, Minn.

Filed July 14, 1971, Ser. No. 162,561

Int. Cl. G05b 7/00

U.S. Cl. 318—591

13 Claims



A track and store amplifier maintains a constant direct current error voltage to the servomechanism while transferring

911 O.G.—55

from one mode of control to another. A comparator supplies a logical 1 or 0 to a digital computer to generate a positive or negative command slew in predetermined increments to force the new direct current voltage to a value such that it equals the direct current error voltage that has been stored prior to the transfer. In this way, a smooth transition from one mode of control to another is realized.

3,742,325

PLURAL INPUT MODE SERVO DRIVEN AIR DATA COMPUTER

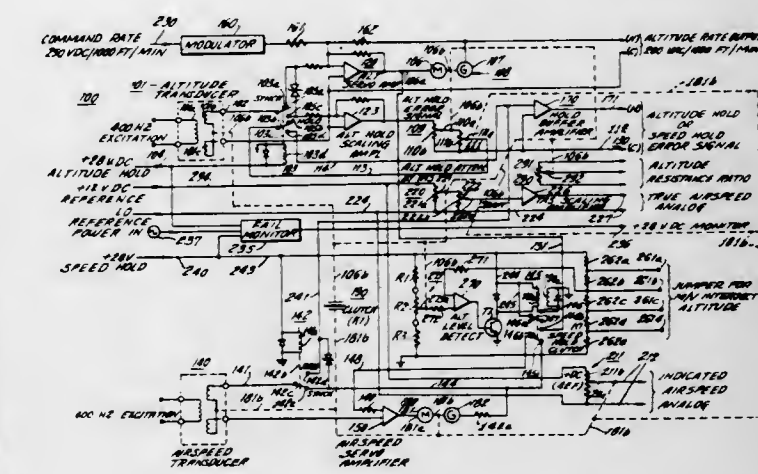
John H. Andresen, Jr., Hewitt, N.J., assignor to Intercontinental Dynamics Corporation, Englewood, N.J.

Filed Feb. 2, 1971, Ser. No. 111,955

Int. Cl. G05b 7/00

U.S. Cl. 318—591

10 Claims



A device for indefinitely holding and storing the value of any one of a plurality of function inputs at a given instant for generating a hold output representative of the deviation, magnitude and direction from the stored hold signal, which condition is continuously monitored for any time interval desired by the operator.

The system is especially adapted for use with an air data computer wherein it is desired to generate a hold signal from any one of a plurality of function inputs which normally may be comprised of altitude, altitude rate, airspeed and Mach. Any one of the function inputs may be selected by generation of an appropriate signal to couple one of the plurality of function inputs to a digital or electromechanical servo unit which functions to "remember" the function input applied thereto at the time the hold signal is desired and which continuously monitors and compares the selected function input against the stored value to develop a hold signal representative of any deviation therebetween.

3,742,326

DIGITAL SERVO-MECHANISM

Nobuo Ikuda, and Masahiko Sekiguchi, both of Yokohama, Japan, assignors to Tokyo Shibaura Electric Company, Ltd., Kawasaki-shi, Japan

Filed Sept. 16, 1971, Ser. No. 181,172

Claims priority, application Japan, Sept. 16, 1970, 45/80458; Sept. 16, 1970, 45/80459; Oct. 21, 1970, 45/91972; Dec. 11, 1970, 45/109713; Dec. 11, 1970, 45/109715

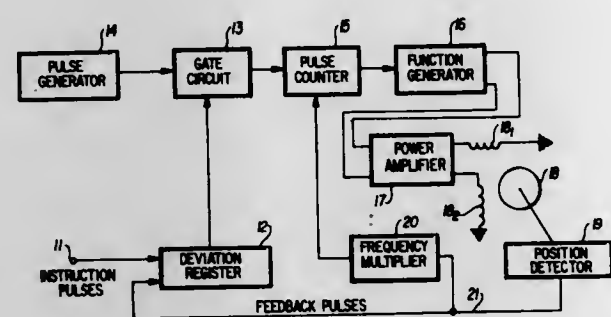
Int. Cl. G05b 19/28

U.S. Cl. 318—603

7 Claims

A digital servo-mechanism for controlling a frequency controlled two-phase servo-motor is provided. Instruction pulses for moving the servo-motor, by rotating the same through an angle proportional to the number of the instruction pulses, are fed to the servo-mechanism. A position angle detector, such as a synchro-resolver, detects the rotation angle of the servo-motor and produces feedback pulses proportional to the

rotated angle of the servo-motor. Any deviation between the instruction pulses and the feedback pulses is converted into



sine and cosine waves whose frequency is proportional to the deviation. The servo-motor is controlled by the sine and cosine waves.

3,742,327

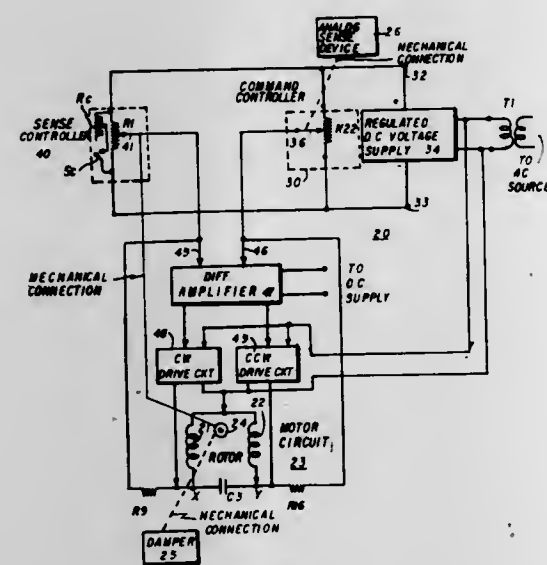
PROPORTIONAL MOTOR ACTUATOR CIRCUIT

Robert G. Nettles, Goshen, Ind., assignor to Johnson Service Company, Milwaukee, Wis.

Filed Jan. 15, 1971, Ser. No. 106,650
Int. Cl. G05F 1/00

U.S. Cl. 318-678

15 Claims



A motor actuator circuit for use in heating and air conditioning and process control systems to selectively rotate a motor shaft which positions a damper or valve. A command signal, such as a voltage, or a potentiometer controlled by a sensing element of the system provides a signal representing the desired position for the damper and a sense potentiometer provides a signal representing the actual shaft position; a signal comparator circuit including a differential amplifier having an output switching stage is responsive to a potential difference between the signals to effect energization of one of a pair of motor windings, the energized one of the pair being determined by the polarity of the difference signal; and detent circuits derive a detent signal from the voltage across the other one of the motor windings for coupling to the amplifier input to increase the potential difference, the sense potentiometer wiper being linked to the motor shaft so that the potential difference decreases as the shaft rotates to the desired position, and the motor is deenergized when the desired position is reached.

3,742,328

CLOSED LOOP STEPPING MOTOR SERVO-MECHANISM

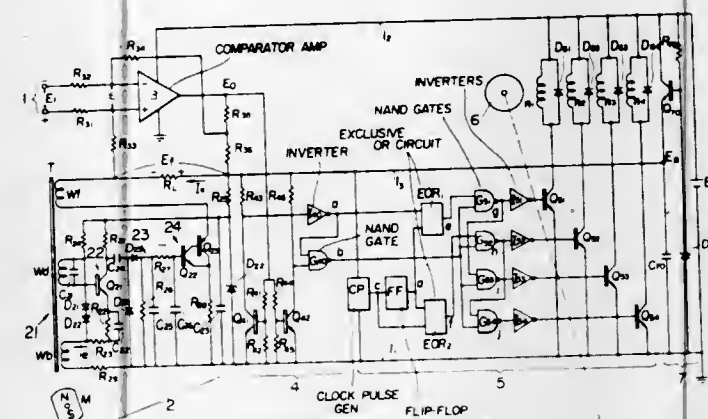
Susumu Ohta, Tokyo, Japan, assignor to Yokogawa Electric Works, Ltd., Tokyo, Japan

Filed Apr. 28, 1971, Ser. No. 138,189

Claims priority, application Japan, Apr. 30, 1970, 45/37330
Int. Cl. G05b 19/40

U.S. Cl. 318-685

3 Claims



A servo-mechanism utilizing a pulse motor comprises a comparator amplifier for producing an output corresponding to the difference between an input signal voltage and a feedback voltage, a signal conversion circuit for converting the output from the comparator amplifier into two bit level signals, and a pulse motor driving circuit for controlling the direction of the pulse motor in accordance with one of the two bit level signals and for controlling the start and stop of the pulse motor in accordance with the other of the two bit level signals.

3,742,329

STEPPING MOTOR CONTROL INCLUDING PULSE RESPONSIVE MEANS TO DEENERGIZE PRESENTLY ENERGIZED WINDINGS WHILE DELAYING ENERGIZATION OF WINDINGS TO BE ENERGIZED

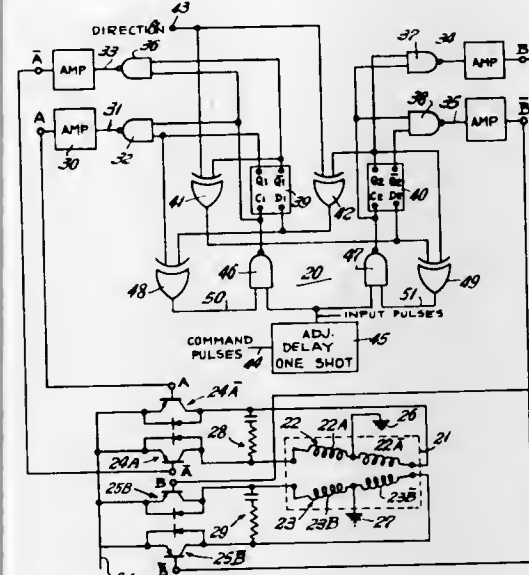
Irving Jules Giguere, Bristol, Conn., assignor to The Superior Electric Company, Bristol, Conn.

Filed Sept. 29, 1971, Ser. No. 184,730

Int. Cl. H02k 37/00

U.S. Cl. 318-696

9 Claims



A motor control circuit for accepting an input pulse and changing the energization of the windings of a stepping motor to produce an incremental movement. Each energization of a winding is delayed for a duration equal to the extent of the pulse which is adjustable to enable dissipation of energy in the winding being deenergized and to accommodate delay in semiconductor turn on and turn off times. The circuit includes gates and a pair of bistable means for directing the proper sequence of winding changes of energization.

ERRATUM

For Class 321-2 see:
Patent No. 3,742,371

3,742,330

CURRENT-MODE D. C. TO A. C. CONVERTERS

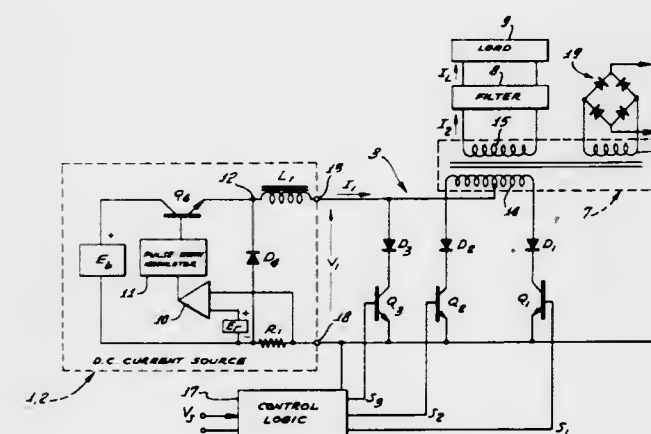
Leonard O. Hodges, Costa Mesa, and Larry R. Suelzle, Los Altos, both of Calif., assignors to Delta Electronic Control Corporation, Costa Mesa, Calif.

Filed Sept. 7, 1971, Ser. No. 178,112

Int. Cl. H02m 1/00

U.S. Cl. 321-9 A

12 Claims



Circuitry for controlling a load current, without feedback, comprises:

- a source of substantially constant current I_1 ,
- power switching circuitry connected to receive I_1 and to produce an output current a version of which is to be supplied to a load, and
- control means connected to control the power switching circuitry so as to cause the output current to switch between predetermined positive and negative values, and a value intermediate thereto.

ing which is surrounded by ring-shaped iron cores connected respectively to different metallic plates included in the bushing. The cores have control windings connected respectively to the control electrodes of the thyristors and the voltage distribution on the converter is made essentially equal to the voltage distribution on the control column to prevent flow of stray displacement currents over the cores.

3,742,332

PULSE TRANSFORMER FOR DRIVING THYRISTORS

Christian Koblick; Ernst Muller, both of Munich, and Klaus Rambold, Erlangen, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

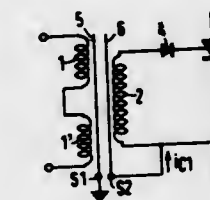
Filed Mar. 1, 1972, Ser. No. 230,621

Claims priority, application Germany, Mar. 4, 1971, P 21 10 276.1

Int. Cl. H02m 1/18

U.S. Cl. 321-11

12 Claims



In a pulse transformer used to drive thyristors two metal shields are provided to reduce undesirable displacement currents and other interference currents. The two overlapping metal shields, which are separated from each other, are arranged between the primary and secondary windings of the pulse transformer. One shield is connected with the cathode of the driven thyristor and the other is connected with chassis ground or the primary potential of the pulse transformer.

3,742,333

D-C VOLTAGE CONTROL WITH ADJUSTABLE PULSE WIDTH AND REPETITION RATE

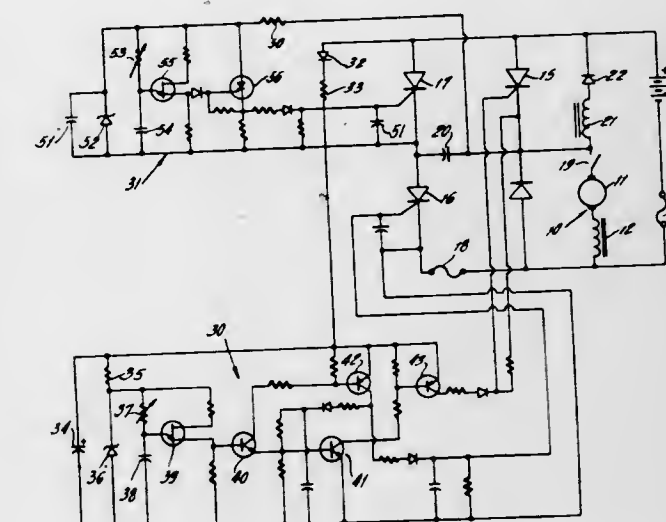
John J. Yurick, Fountain Valley, Calif., assignor to International Rectifier Corporation, Los Angeles, Calif.

Filed May 13, 1971, Ser. No. 143,111

Int. Cl. H02m 3/32

U.S. Cl. 321-45 C

2 Claims



A d-c voltage control circuit provides a controlled rectifier in series with a motor and battery and provides gating pulses to fire the controlled rectifier at an adjustable pulse repetition rate. A turn-off circuit for turning off the controlled rectifier is adjustable independently of the pulse repetition rate adjustment to adjust the length of time the controlled rectifier conducts after firing.

3,742,331

INDUCTIVE TYPE FIRING ARRANGEMENT FOR SERIES CONNECTED THYRISTORS IN A HIGH VOLTAGE RECTIFIER

Hans Jurg Bossi, Nussbaumen, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie., Baden, Switzerland
Continuation of Ser. No. 24,614, April 1, 1970, abandoned.

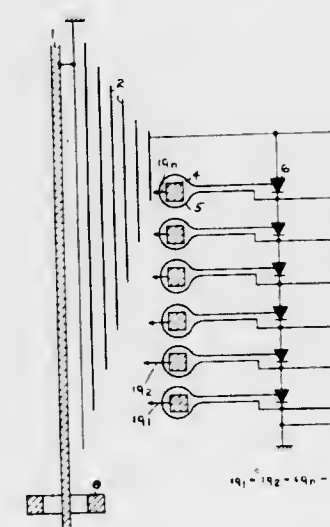
This application Jan. 18, 1972, Ser. No. 218,845

Claims priority, application Switzerland, Apr. 23, 1969, 6119/69

Int. Cl. H02m 1/08

U.S. Cl. 321-11

4 Claims



A control column for inductive ignition of a plurality of series-connected thyristors of a high-voltage converter comprises a primary conductor at the center of a condenser bush-

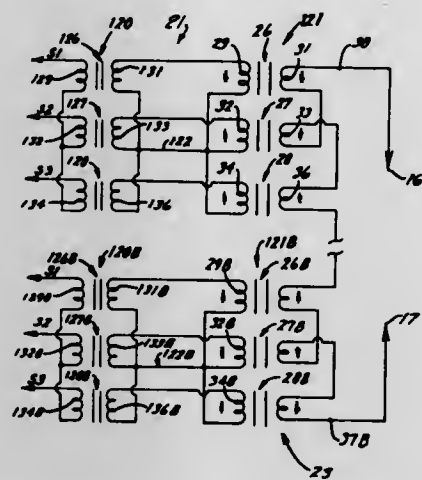
3,742,334

LOW INDUCTANCE UNIT PARTICULARLY FOR ELECTRIC WELDERS

Chester F. Leathers, 9326 E. Shore Drive, Portage, Mich.
Continuation-in-part of Ser. No. 25,055, April 2, 1970,
abandoned. This application July 2, 1971, Ser. No. 159,274
Int. Cl. H02m 5/14

U.S. Cl. 321—57

3 Claims U.S. Cl. 321—69 R



An electric transformer for transforming three-phase power from a three-phase power source into single-phase power. The transformer has a plurality of elongated and parallel shell-type transformer cores with each of the cores having a primary winding and a secondary winding associated therewith. The primary windings have input terminals terminating at one end of the plurality of elongated and parallel shell-type cores. The secondary windings comprise at least one turn associated with each of the shell-type cores with one turn associated with one of the cores being opposite in polarity to the other turns. The opposite ends of the secondary windings terminate at opposite longitudinal ends of the cores.

3,742,335

WAVEGUIDE COMPONENT COMPRISING NON-LINEAR ELEMENTS

Yoshihiro Konishi, Sagami-hara, Japan, assignor to Nippon Hoso Kyokai, Tokyo, Japan

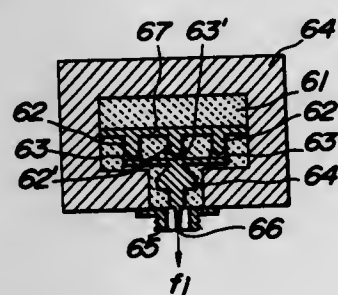
Filed Apr. 7, 1972, Ser. No. 242,167

Claims priority, application Japan, Apr. 28, 1971, 46/28334

Int. Cl. H02m 5/20; H03h 7/02

U.S. Cl. 321—69 W

6 Claims



A waveguide component for use in microwave range or in quasi-millimeter wave range such as, for instance, a frequency multiplier or a frequency down converter. The waveguide component comprises a strip line element functioning as an antenna for resonating at least two electromagnetic waves having different frequencies and a semiconductor element of which one end is connected to the strip line. Both the strip line and the semiconductor element are provided onto a dielectric base plate by means of printing circuit technique. The dielectric base plate is mounted in a waveguide in a manner that the strip line element extends parallel to a high frequency electric field in the waveguide. The waveguide component having above construction is able to be miniaturized by the elimination of the conventional tuning circuit elements and due to its improved semiconductor mounting it is suitable to be used in quasi-millimeter wave range.

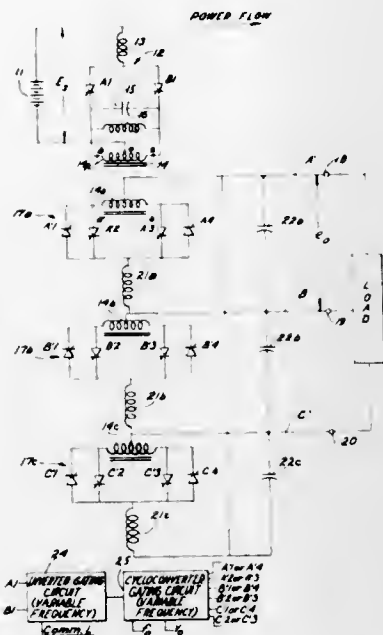
VERSATILE CYCLOINVERTER POWER CONVERTER CIRCUITS

Burnice D. Bedford, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Nov. 24, 1971, Ser. No. 201,673

Int. Cl. H02m 5/30

26 Claims



A family of high-frequency-link solid state power converters having an input and output switching circuit that function as a high frequency parallel capacitor commutated control inverter and a cycloconverter output circuit to supply variable frequency and variable voltage power to a load. The tuned commutation circuit for the inverter switches, preferably thyristors, includes commutating inductance in parallel with the commutation capacitor. By operating the inverter at a variable frequency greater than the resonant frequency, the commutating energy or commutating angle changes as a function of the load. The cycloconverter switches are phase controlled with respect to the high frequency inverter voltages. Depending on the circuit configuration, a-c or d-c supply voltage is converted to polyphase a-c, single phase a-c, or d-c output voltage, and power flow in either direction can be obtained. An application is a variable speed a-c motor drive.

3,742,337

PROTECTIVE SWITCHING CIRCUIT FOR PROVIDING POWER TO A LOAD FROM AN ALTERNATING CURRENT SOURCE HAVING PEAK-TO-PEAK EXCURSIONS WITHIN OR ABOVE A GIVEN RANGE

Henri Joseph Digneffe, Fexhe Slins, Belgium, assignor to RCA Corporation, New York, N.Y.

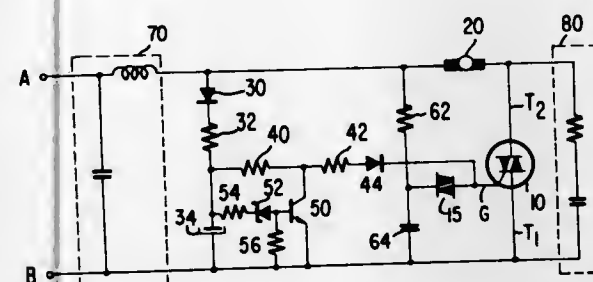
Filed Mar. 13, 1972, Ser. No. 234,188

Claims priority, application Great Britain,

Int. Cl. G05f 5/00

U.S. Cl. 323—19

14 Claims



First and second triggering circuits are provided within a switching circuit for supplying triggering signals to the gate of a thyristor as a function of an applied AC source. When the

source exceeds a given predetermined magnitude, disabling means are effectuated which prevents a given one of the triggering circuits from supplying a triggering signal. The switching circuit is designed so that the RMS voltage applied to a load is automatically regulated, independent of the magnitude of the applied AC source.

3,742,338

DC VOLTAGE REGULATOR CIRCUIT

Hitoshi Sugano, and Akio Tanaka, both of Takatsuki, Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan

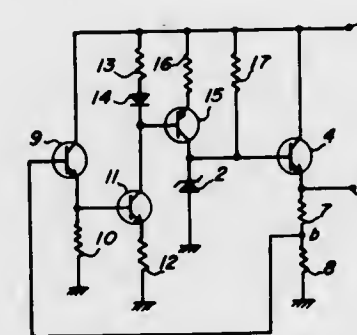
Filed Mar. 8, 1972, Ser. No. 232,792

Claims priority, application Japan, Mar. 15, 1971, 46/14481

Int. Cl. G05f 1/56

U.S. Cl. 323—22 T

5 Claims



A circuit in which the voltage derived from a reference diode or silicon zener diode is fed back through an emitter-follower circuit to the base of a transistor and the constant current flowing through the emitter-collector circuit of the transistor is in turn applied to the reference diode so that such a stabilized output voltage as cannot be attained by the zener diode alone may be obtained.

3,742,339

POWER SUPPLY AND PHASE RESPONSIVE APPARATUS

Balthasar H. Pinckaers, Edina, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

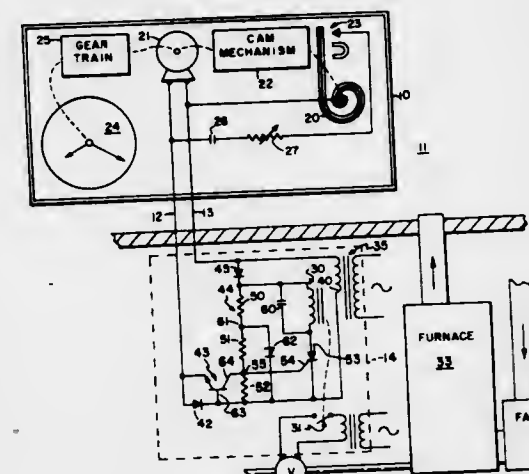
Division of Ser. No. 856,062, Sept. 8, 1969, Pat. No.

3,599,868. This application Nov. 9, 1970, Ser. No. 88,093

Int. Cl. G05f 5/00

U.S. Cl. 323—119

8 Claims



A power supply and phase responsive apparatus connected by two wires to a remote electric clock thermostat for supplying power to the clock motor and connecting a temperature responsive switch apparatus in the thermostat over the same two wires to a relay associated with the phase responsive apparatus for controlling temperature conditioning apparatus furnishing heated air from a furnace to the space containing the clock thermostat. The phase responsive apparatus

responding to the phase of the voltage and current supplied to the clock thermostat whereby normally with only the clock operating, the current lags the voltage, but upon the temperature responsive switch apparatus closing an additional capacitive circuit, the current is either in phase or leads the voltage to result in the energization of the relay and thus the conditioning apparatus.

3,742,340

INDUCTIVE ANGLE POSITION TRANSDUCER

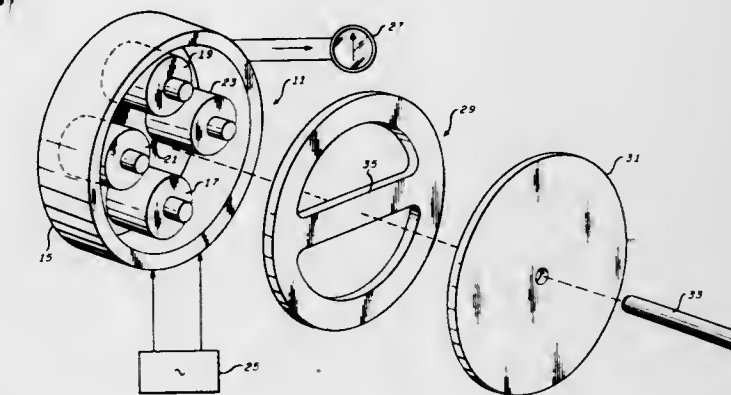
James A. Kiedrowski, Phoenix, Ariz., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Feb. 25, 1972, Ser. No. 229,365

Int. Cl. G01r 33/00

U.S. Cl. 323—51

12 Claims



An angular position transducer wherein the stator comprises a generally cup-shaped housing of high permeability material the bottom thereof supporting diametrically opposed primary and secondary pole pieces and windings and the side walls thereof constituting a portion of the return path for magnetic flux; the rotor comprises a windingless shorted turn member including a ring or annulus of electrically conductive, non-magnetic material with a diametric shorting portion and adapted to overlie the open ends of the side walls of the housing. The radial spacing of the primary and secondary pole pieces is less than the internal radius of the rotor ring and the diametric shorting portion of the rotor at its null position symmetrically overlies the secondary overlying pole pieces. The magnetic flux return path is provided as an integral part of the rotor and comprises a further ring or annulus of high permeability material concentric with the conductive non-magnetic ring but having an internal diameter substantially less than that of the conductive ring so that it overlies both primary and secondary pole pieces. Alternatively, the rotor flux return path can be a complete disk. This configuration provides an axial running clearance only and thereby eliminates the precision machining normally required with stationary iron-to-iron air gaps. The construction is such that the output signal null position is insensitive to axial and radial translations sometimes unavoidable in the bearings supporting the rotor. The transducer is simple in construction and economical to manufacture using conventional fabrication techniques.

3,742,341

INDUCTIVELY COUPLED METAL DETECTOR ARRANGEMENT

Garth A. Clowes, Palos Verdes, Calif., and Masamitsu Nagaoka, Tokyo, Japan, assignors to Entex Industries, Inc., Carson, Calif.

Filed Aug. 16, 1971, Ser. No. 172,200

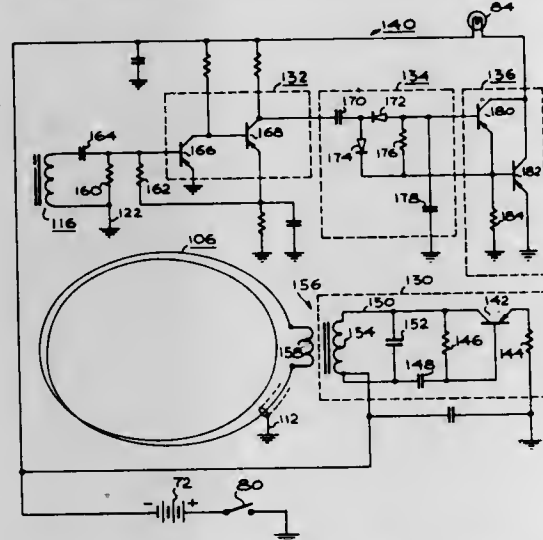
Int. Cl. G01v 3/10

U.S. Cl. 324—3

11 Claims

A metal detector arrangement for detecting the presence of a metal object in proximity thereto. A case means is provided in which there is a cavity. An electrically operated detector circuit is positioned within the cavity and the detector circuit

generally comprises a search coil connected to an oscillator. The oscillator has a tank circuit and the inductor of the tank circuit is connected to the primary of the transformer. The search coil is connected to the secondary of the transformer. The oscillator generates an output at a preset frequency. When a metal object is in proximity to the metal detector the impedance to the signal radiated by the search coil is changed thereby changing the inductance of the tank circuit. The change in inductance of the tank circuit in the presence of a metal object raises the frequency of the oscillator output signal. A receiver coil is positioned within the search coil and receives the radiated signal from the search coil. The receiver

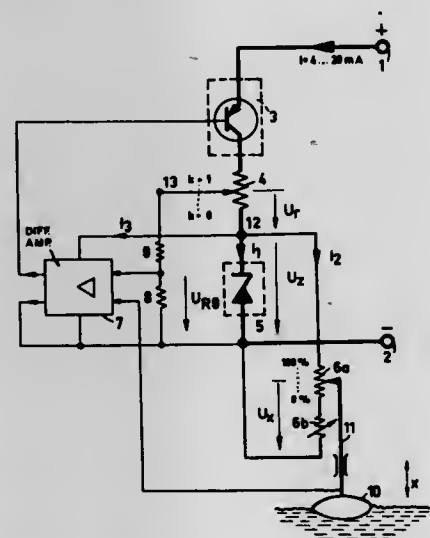


coil is connected to an amplifier and the response of the amplifier is such that the increase in frequency of the radiated oscillator output signal changes the magnitude of the amplifier output signal. An indicator, such as a light bulb, is coupled to the amplifier through a switch means and the light bulb changes in intensity in proportion to the change in the magnitude of the amplifier output signal. The switch means turns off the indicator for the amplifier output having a preselected magnitude. A sensitivity control means is also provided to increase the magnitude of the amplifier output signal for the condition of the presence of a given mass of metal at a given distance from the detector and, thus, provide a variable sensitivity to aid in the detection of very small metal objects.

3,742,342
MEASURING TRANSDUCER WITH COMBINED POWER INPUT AND SIGNAL OUTPUT LINES
Gunter Schick, Tillystrasse 9, 495, Minden/Westf., Germany
Filed Oct. 12, 1970, Ser. No. 79,810
Claims priority, application Germany, Oct. 13, 1969, P 19 51 523.2

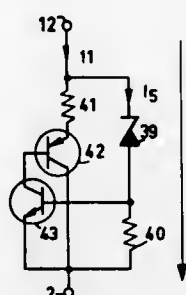
Int. Cl. G01f 23/10, 23/18
U.S. Cl. 323-4

10 Claims



A measuring transducer for converting a quantity to be measured into an electrical signal, the transducer having but

two lead-in wires for providing voltage and current to the transducer as power supply therein, and wherein the measured quantity is represented by an electrical signal that passes through resistance such as a transistor, a feedback resistor for deriving therefrom a signal that is proportional to current, and a constant voltage device such as a "Zener" diode connected in series to each other, is connected to the lead-in wires, so that at least substantially all of the power supply current



passes through the adjustable resistance and a portion of the load current flows through the constant voltage device to obtain the constant voltage thereacross. The transducer has a pick-up for the quantity to be measured such as a float-operated adjustable resistor or an oscillator biased magnetic pick up device is energized by the constant voltage device and provides an electrical signal, which, together with the feedback signal adjusts the resistance so that the current represents the quantity to be measured.

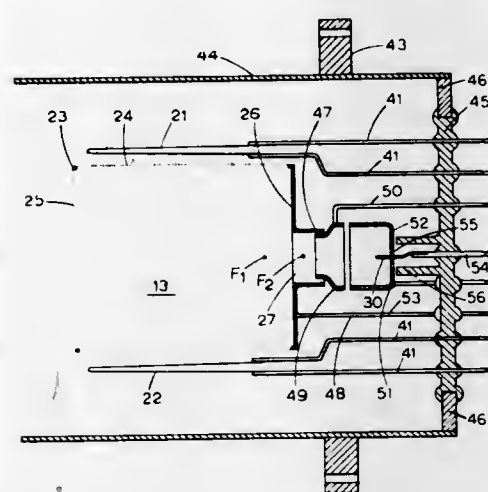
ERRATUM

For Class 324-3 see:
Patent No. 3,742,341

3,742,343
ION GAUGES
Lawrence Graham Pittaway, Crawley, Sussex, England, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 29, 1970, Ser. No. 85,157
Claims priority, application Great Britain, Oct. 29, 1969, 53,007/69

Int. Cl. G01n 27/00, 27/62
U.S. Cl. 324-33

7 Claims

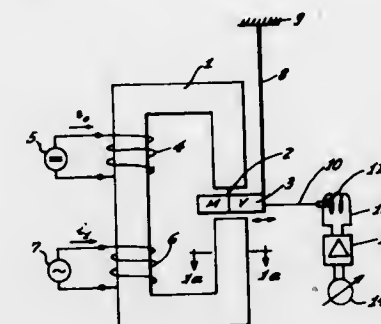


An ion gauge comprising a conducting cylinder closed at one end; a pair of cathodes within the cylinder; a cylindrical grid between the cathodes and having a wire mesh peripheral walls relatively transparent to electrons, which grid is bounded at one end by a wire mesh wall and at the opposite end nearer the closed end of the conducting cylinder by an apertured metal wall; means adjacent to the aperture for extracting and converging ions, and an electrode for collecting extracted ions.

3,742,344
APPARATUS FOR MEASURING THE DIFFERENCES IN MAGNETIC SUSCEPTIBILITIES OF GASES
Heinz Hummel, Fasanenweg 14, Königstein-Johanniswald, Germany
Filed Dec. 29, 1971, Ser. No. 213,576
Int. Cl. G01r 33/12

U.S. Cl. 324-36

11 Claims

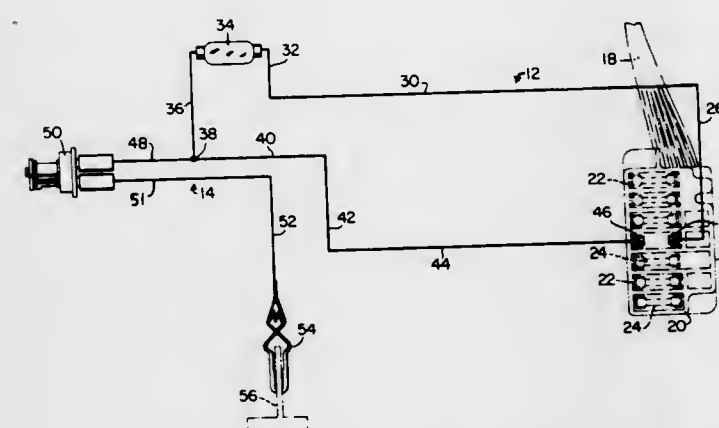


Apparatus for measuring the difference in magnetic susceptibility of a sample gas and of a reference gas, the reference gas having particular, constant susceptibility; a magnetic circuit has at least one measuring gap with a plane or line of symmetry as to the magnetic field in the gap or of the gaps; a test body including two chambers of symmetrical configuration in relation to each other, one chamber provided for the reference gas, the other for the sample gas is resiliently suspended in the gap so that for zero reaction force the test body is symmetrically disposed in the gap or gaps with reference to the plane or line of symmetry (equilibrium position) when the contents of the chambers have equal magnetic susceptibility whereby the body extends in zones of magnetic inhomogeneity with similar volume as to portions of the body defining the two chambers.

3,742,345
SHORT FINDER WITH A PAIR OF INDICATORS HAVING DIFFERENT RESISTANCE VALUES AND ACTUATED BY DIFFERENT CURRENT MAGNITUDES
Benjamin R. Lacey, 8238 Forrest Avenue, Philadelphia, Pa.
Continuation-in-part of Ser. No. 818,575, April 23, 1969, abandoned. This application May 12, 1971, Ser. No. 142,765
Int. Cl. G01r 31/08

U.S. Cl. 324-52

1 Claim



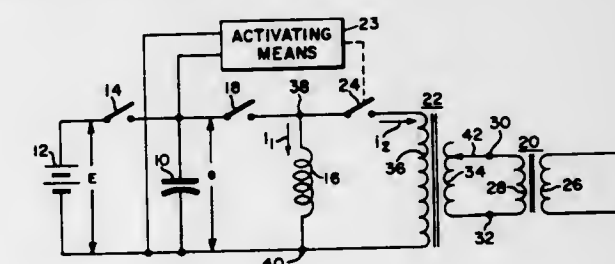
A Short Finder including a primary circuit connected into an automotive terminal block, with the primary circuit having indicating means such as a bulb that is actuated by a high current. The primary circuit is linked to a secondary circuit which includes a buzzer. Until the short in an accessory circuit is located and corrected, the resistance added to the primary circuit is very low (because of the short) and therefore the indicator light of the primary circuit will remain lit because of the high current. When the short in the accessory circuit is located and corrected, the resistance in the primary circuit becomes relatively large and is large as compared to the re-

sistance in the secondary circuit. Therefore the secondary circuit now draws a sufficient amount of current to actuate the buzzer in the secondary circuit. In view of the foregoing the technician knows that so long as the bulb in the primary circuit is lit, he has not found and corrected the short, in the accessory circuit. As soon as the short is located and corrected the bulb will go out and the buzzer will sound, and in this way the technician knows he has completed his job. It is preferred that the secondary circuit have a resistance of at least 10 times the primary circuit (excluding the resistance of the accessory-circuit, dash lights, etc.—in the particular accessory circuit involved).

3,742,346
SURGE GENERATOR FOR TRANSFORMER TESTING
Theodore R. Specht, Sharon, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Aug. 23, 1971, Ser. No. 173,746
Int. Cl. G01r 31/02, 31/06

U.S. Cl. 324-55

7 Claims

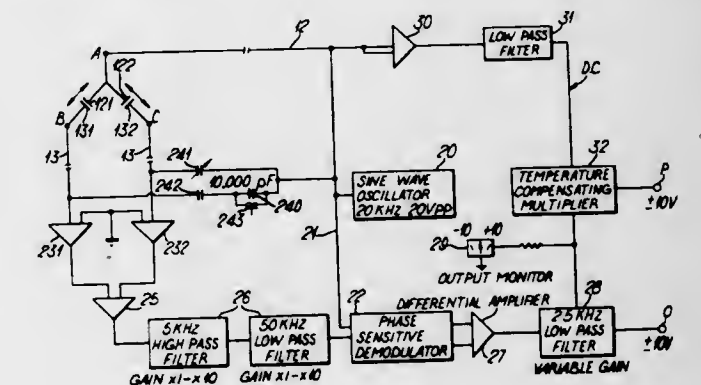


Apparatus and method for testing short-circuited power transformers. A capacitor, which has been charged to a predetermined voltage, is connected in parallel with an inductor. When the voltage of the discharging capacitor goes through zero, the shorted transformer being tested is connected across the inductor. A matching transformer may be used between the transformer being tested and the inductor for adjusting the surge generator voltage and impedance to match that of the short-circuited power transformer.

3,742,347
SHAFT MOVEMENT/DIFFERENTIAL PRESSURE MEASURING APPARATUS EMBODYING CAPACITIVE TRANSDUCERS
Hyman Walton, Seascale, England, assignor to United Kingdom Atomic Energy Authority, London, England
Continuation-in-part of Ser. No. 135,224, April 19, 1971. This application Aug. 25, 1971, Ser. No. 174,874
Int. Cl. G01r 27/26

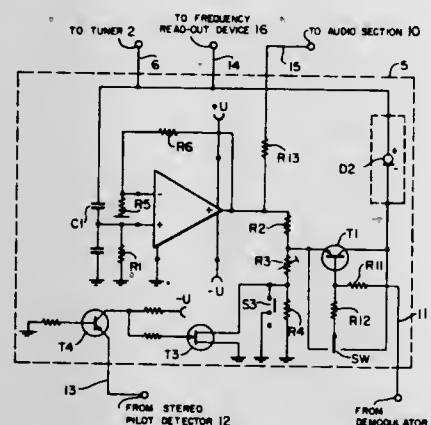
U.S. Cl. 324-61 R

6 Claims



Measuring apparatus including a capacitive transducer which comprises members between which a first capacitance increases and a second capacitance simultaneously decreases in accordance with the magnitude of the physical quantity being measured. The first and second capacitances are connected as two arms of a four-arm bridge having as each of the

the transistor in its conductive state. The reverse sweep continues until another signal exceeding the threshold in the opposite direction is detected to disable the transistor. Facilities



are provided to lock out mono stations during each sweep, as well as to provide auxiliary pre-select tuning and AFC capabilities.

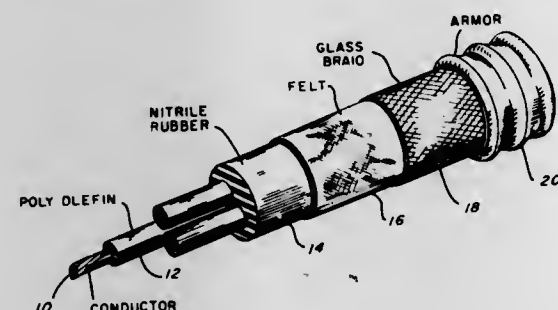
3,742,363 SUBMERSIBLE MOTOR CABLE FOR SEVERE ENVIRONMENT WELLS

Joseph T. Carle, Tulsa, Okla., assignor to Oil Dynamics, Inc., Tulsa, Okla.

Filed June 23, 1971, Ser. No. 155,872
Int. Cl. H01b 7/18

U.S. Cl. 174-102 R

5 Claims



An oil well cable for submersible motors for use in medium to severe environmental conditions including high temperature, high pressures and/or chemical corrosiveness. The insulated conductor and/or groups or conductors are supported by exterior wrappings of felt about which is a supportive glass braid material. Further support is provided by a metallic armor wrap.

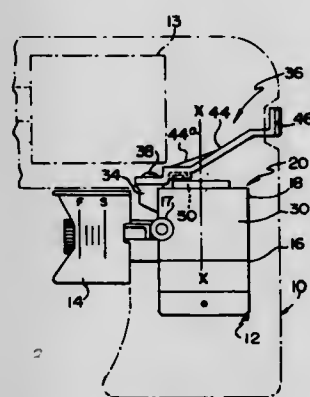
3,742,364 REVERSING SWITCH LEVER

Benjamin H. Matthews, Peninsula, Ohio, assignor to Lucerne Products, Inc., Northfield, Ohio

Filed Oct. 22, 1971, Ser. No. 191,746
Int. Cl. H01h 9/06, 21/10

U.S. Cl. 200-157

9 Claims



A portable electric tool including a reversible rotary electric motor and switch mechanism for reversing the direction of

rotation of the motor. The switch mechanism includes a rotary holder member and an operating lever for the rotary holder member of the reversing switch mechanism. The lever extends obliquely outwardly relative to the rotary axis of the holder member and toward the rear side of the tool and slot means are provided on the lever coacting with projection means on the holder member for causing rotation of the holder member upon pivotal movement of the lever, to thus cause reversal of the direction of rotation of the motor.

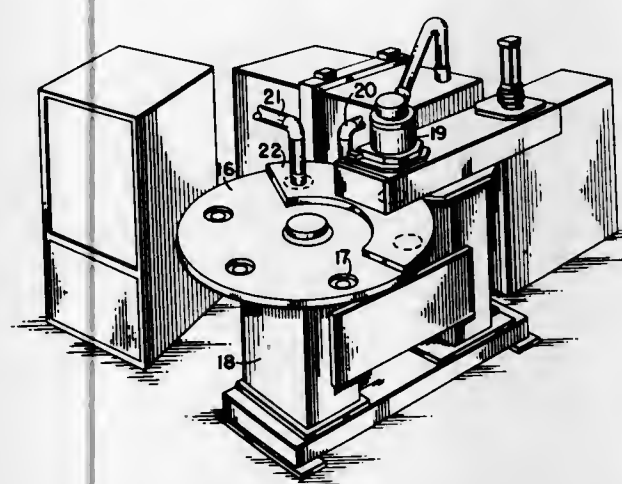
3,742,365 ELECTRON BEAM WELDER INCORPORATING SLIDING SEAL MEANS

David Sciaky, Chicago, Ill., assignor to Welding Research, Inc., Chicago, Ill.

Filed Feb. 15, 1972, Ser. No. 226,611
Int. Cl. B23k 15/00

U.S. Cl. 219-121 EB

7 Claims



The present invention relates to apparatus for welding by means of an electron beam and describes a sealing system which allows a machine member carrying an electron beam gun and a second member carrying parts to be welded to slide one with respect to the other while maintaining a low pressure in the electron gun and the area surrounding the parts to be welded. The sliding seal apparatus is applied to linear or rotary translation of the electron beam gun support means with respect to the work holding means.

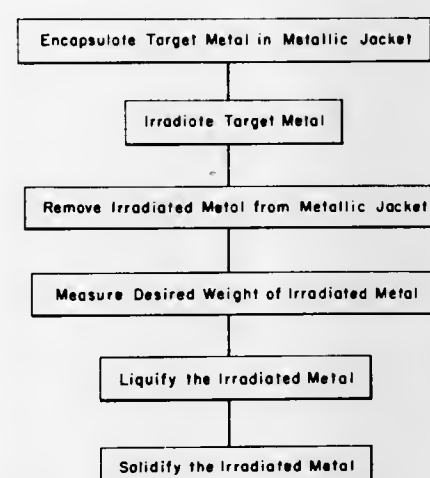
3,742,366 DENSIFICATION OF IRRADIATED METAL

Delmar W. France, Fremont, and Arlo D. Ketcham, Livermore, both of Calif., assignors to General Electric Company, San Jose, Calif.

Filed Nov. 18, 1970, Ser. No. 90,517
Int. Cl. G21h 5/00

U.S. Cl. 250-106 S

11 Claims



A method of producing dense bodies of irradiated metal in various geometrical shapes to achieve near theoretical density

specimens of such metal is presented. These specimens are excellent radiation sources of high specific activity for medical therapeutic and industrial radiographic applications. The process starts with a target metal which is encapsulated in a metallic jacket and irradiated with a flux sufficient to convert a substantial portion of the target metal to a radioisotope. The irradiated metal is removed from the capsule and a given amount of the irradiated metal sufficient to give a known energy output is segregated and either (a) arc melted or (b) inductively cast to achieve a desired configuration as a radiation source. The process gives irradiated metal with a very small focal point and a very high density.

3,742,367 NON-DESTRUCTIVE DETECTION PROCESS FOR NUCLEAR FUEL RODS

Leonard N. Grossman, Livermore, Calif., assignor to General Electric Company, San Jose, Calif.

Filed Sept. 22, 1970, Ser. No. 74,470
Int. Cl. G01t 3/00

U.S. Cl. 250-391

10 Claims

A method of detecting moisture and reactive gases in assembled nuclear fuel rods is disclosed in which an alloy of zirconium, nickel and titanium is added to the fuel rod. The fuel rod is uniformly heated for a sufficient time to vaporize moisture in the fuel rod enabling reaction between the alloy and the moisture and reactive gases. The presence of reaction products containing hydrogen can be detected by neutron radiography.

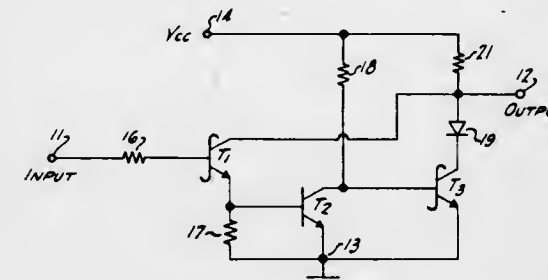
3,742,368 PULSE GENERATOR USING SCHOTTKY EFFECT TRANSISTORS

Amando E. Gelabert, San Jose, Calif., assignor to Signetics Corporation, Sunnyvale, Calif.

Filed Apr. 24, 1972, Ser. No. 246,884
Int. Cl. H03k 5/00

U.S. Cl. 307-260

9 Claims

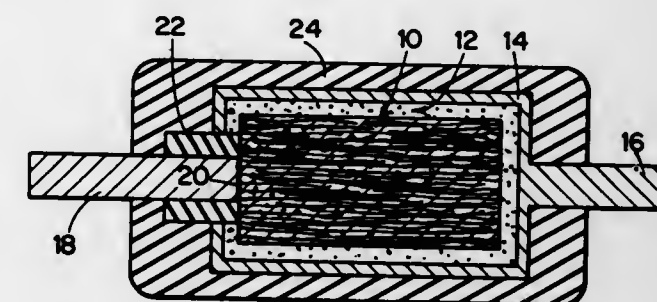


A pulse generating circuit which produces a single output pulse in response to a step signal change at its input. The circuit includes first, second and third transistors with the first and third transistors having commonly connected outputs. The first transistor is driven by the input signal and it in turn drives the second transistor which in turn drives the third transistor. In accordance with one embodiment the first and third transistors having commonly connected outputs are Schottky effect transistors having a very small turn off delay compared to the turn off delay of the second transistor. The first and second transistors are normally on so that the output terminal is low. The third transistor is normally off. In response to a step signal change at the input of the first transistor, the first transistor goes off. Since the second transistor is a slow turn off device compared to the first and third transistors, the third transistor also stays off for a time. With both the first and third transistors off the output terminal goes high. After a period equal to the turn off delay of the second transistor, however, the second transistor turns off which turns on the third transistor, thus causing the output terminal to again go low. The duration of this pulse at the output terminal is proportional to the turn off delay of the second transistor.

3,742,369
CAPACITOR WITH FIBERED VALVE METAL ANODE
Richard W. Douglass, 12 Oakland Ave., Needham, Mass.
Division of Ser. No. 839,024, July 3, 1969, abandoned, which is a continuation-in-part of Ser. No. 807,129, March 13, 1969, abandoned, and a continuation-in-part of Ser. No. 869,404, March 13, 1969, Pat. No. 3,681,063, said Ser. No. 807,129, is a continuation of Ser. No. 626,773, March 29, 1967, abandoned, said Ser. No. 869,404, is a division of Ser. No. 626,773, March 29, 1967, abandoned. This application Nov. 8, 1971, Ser. No. 196,812
Int. Cl. H01g 9/05

U.S. Cl. 317-230

4 Claims



Capacitor anodes are produced in situ by sintering a powdered valve metal into a porous compact, impregnating the compact with another material in fluid or soft form which fills the pores of the compact, solidifying or hardening the second material and working the compact through the application of compressive forces to elongate it to thereby fiber the powders of the compact and to fiber the impregnant. The thus produced fiber compact is leached to remove the impregnant materials, to produce a bundle of interconnected fibers with an interconnected pore structure which can be filled with anodizing medium and later with electrolyte to comprise the capacitor. Alternatively, the impregnant can be the valve metal and the original compact can be removed after elongation and fibering.

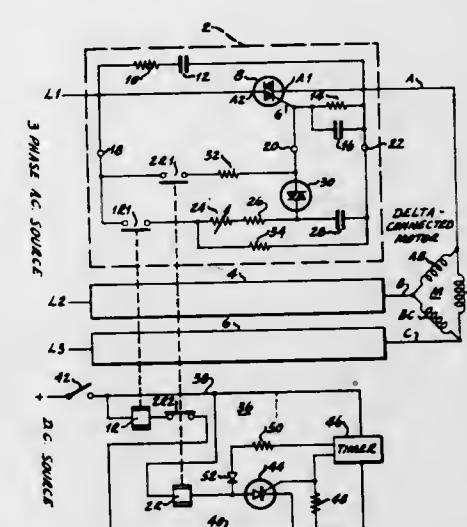
3,742,370 SOFT START A.C. MOTOR CONTROL

James E. Hansen, Milwaukee, Wis., assignor to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Dec. 20, 1971, Ser. No. 210,023
Int. Cl. H02p 5/40

U.S. Cl. 318-227

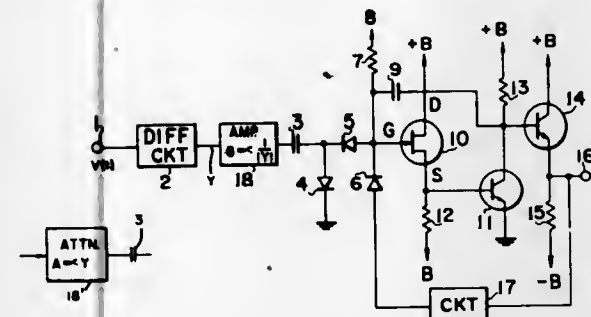
12 Claims



A soft start control for a delta-connected motor or an ungrounded Y-connected (star-connected) motor or the like polyphase system. To reduce the accelerating torque of a polyphase motor and thereby obtain a soft start characteristic that reduces stress and strain on the driven parts until normal running speed is reached, a gated A.C. switching device such

as a triac is used in the power lines of the polyphase A.C. source. A simple time delay firing circuit connected across each triac controls the latter so that current flow is interrupted in each of the phases for a predetermined period of time during each half-cycle in repetitive sequence, the net effect being to reduce the effective voltage applied to the motor. After a predetermined time of reduced voltage acceleration sufficient to bring the motor up to or near running speed, a timer controls the firing circuit to apply full line voltage to the motor.

condition. The frequency adjustment progresses over a predetermined range and is reset when it reaches the end of the range. The adjustment is advanced by a time derivative

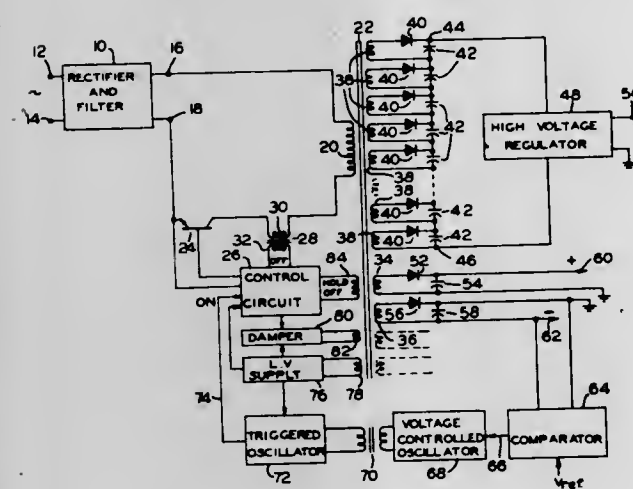


3,742,371 WIDE RANGE REGULATED POWER SUPPLY UTILIZING OPTIMIZED ENERGY STORAGE

Arthur H. Seibt, Portland, and Frank T. Churchill, Beaverton, both of Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.
Continuation of Ser. No. 16,340, March 4, 1970. This application Dec. 16, 1971, Ser. No. 208,992
Int. Cl. H02m 3/32

U.S. Cl. 321-2

11 Claims



signal derived from the asynchronous condition and is arrested by the time derivative being minimum which corresponds to the synchronous condition.

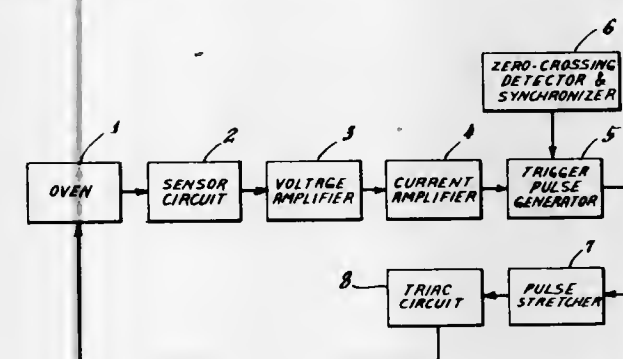
3,742,373 PULSE GENERATORS

John Patrick Armstrong, Flackwell Heath, and Melvin Alexander Tennant, Holmer Green, both of England, assignors to Perkin-Elmer Limited, Beaconsfield, Bucks, England
Filed Nov. 5, 1971, Ser. No. 196,013
Claims priority, application Great Britain, Nov. 6, 1970, 52,903/70

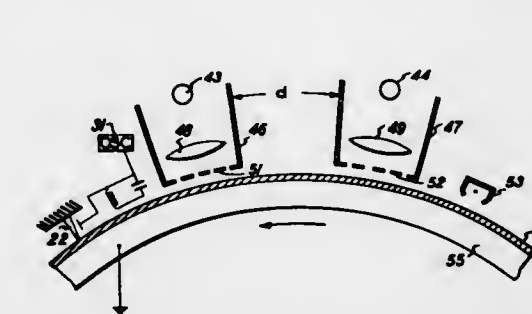
U.S. Cl. 328-63

Int. Cl. H03k 1/02, 1/16

7 Claims



trostatically chargeable material is augmented by an increase in potential applied to the electrodes. The transducer measures or reads out the potential or charge patterns on the elec-



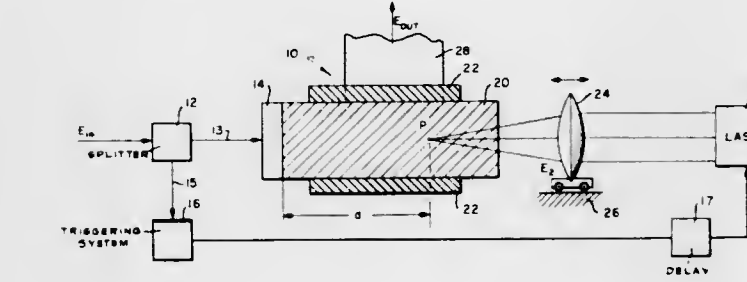
trostatically chargeable material which may be a semiconductor, dielectric or other charge carrying surface and converts the force variations into electrical signals.

3,742,375 CONTINUOUSLY VARIABLE DELAY LINE

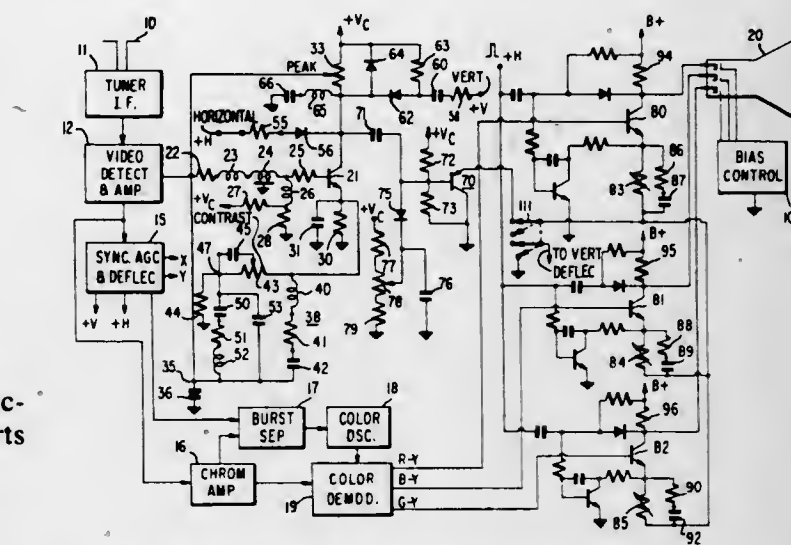
Oscar G. Farah, Vienna, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed May 25, 1972, Ser. No. 256,750
Int. Cl. H03h 7/30; 333 30 R

U.S. Cl. 330-5.5

2 Claims



while further serving to introduce a second resonant circuit in shunt with a first circuit via the same capacitor.



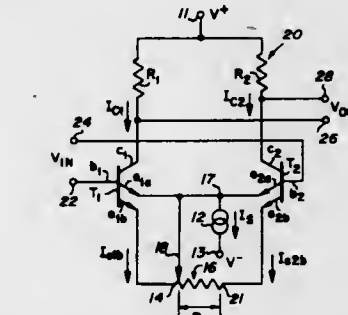
These circuits may also be advantageously combined in a single video amplifier.

3,742,377 DIFFERENTIAL AMPLIFIER WITH MEANS FOR BALANCING OUT OFFSET TERMS

Robert C. Dobkin, Menlo Park, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.
Filed July 8, 1971, Ser. No. 165,796
Int. Cl. H03f 3/68

U.S. Cl. 330-30 D

4 Claims



A differential amplifier comprising a first amplifying circuit including a dual emitter transistor, a second amplifying circuit in parallel with the first amplifying circuit and having a second dual emitter transistor with one of its emitters coupled to one of the emitters of the first transistor and a potentiometer having a resistance element with one end coupled to the other emitter of the first transistor and its other end coupled to the other emitter of the second transistor and its wiper contact coupled to the commonly coupled emitters whereby the collector currents of the first and second transistors can be selectively adjusted by adjusting the potentiometer of the wiper contact relative to the resistance element.

3,742,378 DEVICE FOR PRODUCING STIMULATED INFRARED EMISSION, AN IRASER, BY MEANS OF AN ELECTRIC DISCHARGE IN A GAS MIXTURE WHICH CONSISTS PARTLY OF CARBON DIOXIDE, AND DISCHARGE TUBE FOR SUCH A DEVICE

Abraham Timmermans, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Nov. 3, 1971, Ser. No. 195,328
Claims priority, application Netherlands, Nov. 7, 1970, 7016333

U.S. Cl. 331-94.5
The invention relates to a device for producing stimulated infrared emission, an iraser, by means of an electric discharge

A fly-back type power supply includes a transformer, the primary winding of which is periodically connected to a DC source to establish current through such winding. When this current increases to a predetermined optimum value, the current flow through the primary winding is interrupted for producing collapse of the transformer's magnetic field and generation of an output in the transformer's secondary windings. The frequency at which the primary is periodically connected to the DC source is controlled by a secondary output voltage such that the frequency is increased when such output voltage tends to decrease. A plurality of secondary windings are each connected to a rectifier and filter capacitor combination, wherein the filter capacitors are coupled in series for production of a high voltage output.

3,742,372 AUTOMATIC SYNCHRONIZING SYSTEM WITH REPETITIVE SEARCH AND RAPID ACQUISITION

Kozo Uchida, Naohisa Nakaya, and Koji Suzuki, all of Tokyo, Japan, assignors to Iwatsu Electric Company Limited, Tokyo, Japan
Filed Aug. 20, 1969, Ser. No. 851,588
Claims priority, application Japan, Aug. 23, 1968, 43/59920
Int. Cl. H03k 1/00

U.S. Cl. 328-63
In a system for deriving a synchronizing output signal by sampling the input signal with the derived output signal, a control signal is derived in response to the sampled asynchronous condition of the input and output signals for adjusting the frequency of the output signal to achieve the synchronous

A trigger pulse generator circuit for controlling, for example, an AC thyristor system which in turn controllably supplies a final device (e.g., an electrical heater for a temperature-controlled oven), in which the relative number of pulses supplied (of the maximum possible during a given period) is proportional to the input ("demand") signal. Thus the supply to the final device is quantitatively proportional to the measured demand (e.g., by a temperature sensor), thereby causing close tracking of the desired condition (e.g., temperature). In fact, the entire system may be operated in the "open loop" mode since the supply inherently tends to match quantitatively the required amount (i.e., the "demand") to cause the final device to reach a desired setpoint. In closed loop operation, excursions of the effect of the final device from the setpoint are smaller than with existing systems using nonquantitatively supplied pulses where any time lag in the sensor relative to the condition will tend to cause "overshoot" (e.g., too many pulses before the sensor responds to the change).

3,742,374 TRANSDUCER DEVICE

Christopher Snelling, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Division of Ser. No. 802,370, Feb. 26, 1969, Pat. No. 3,638,110. This application June 9, 1971, Ser. No. 151,407
Int. Cl. G06g 5/00, 15/00

U.S. Cl. 328-110
A transducer applying the Johnsen-Rahbek effect wherein the frictional force between two electrodes separated by elec-

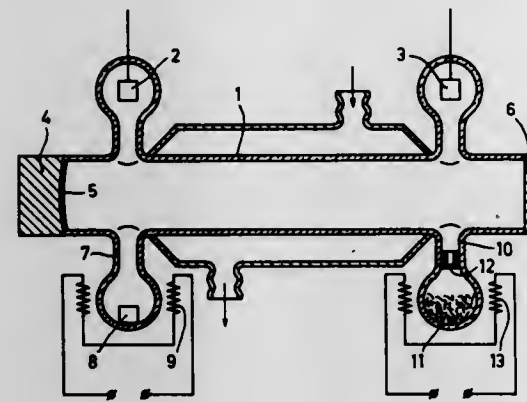
3,742,376 VIDEO AMPLIFIERS

Donald Henry Willis, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.
Division of Ser. No. 37,780, May 15, 1970, Pat. No. 3,619,488.
This application July 6, 1971, Ser. No. 159,778
Int. Cl. H03f 3/04

U.S. Cl. 330-21
A transistor video amplifier employs coupling from a collector load potentiometer to an emitter common terminal. The variable arm of the potentiometer is coupled to a peaking capacitor and is further coupled to the emitter electrode through selective networks. At one setting of the potentiometer maximum peaking is obtained by an AC ground provided for the selective networks, and at a second setting the capacitor shunts the collector to depeak the response.
The emitter circuit of a transistor video amplifier includes a contrast control which serves to change the gain of the transistor amplifier while maintaining constant peaking. This is afforded by using a bypass capacitor for increasing gain

5 Claims

in a gas mixture which mainly consists of carbon dioxide, nitrogen, helium and water vapour and in which the gas mixture is in contact with a quantity of zeolite which is partly saturated with water. The invention furthermore relates to an electric discharge tube for such a device.



ture is in contact with a quantity of zeolite which is partly saturated with water. The invention furthermore relates to an electric discharge tube for such a device.

3,742,379

VOLTAGE TO FREQUENCY CONVERTER

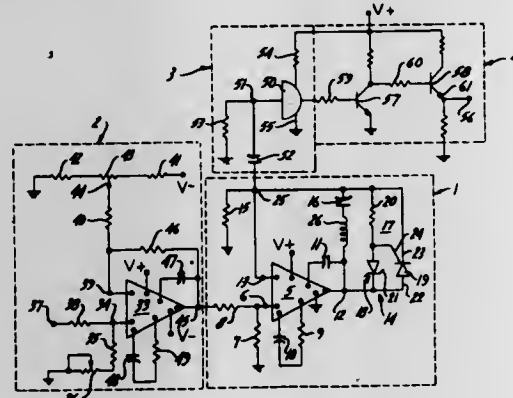
Michael B. McLean, Franksville, Wis., assignor to Johnson Service Company, Milwaukee, Wis.

Filed Nov. 12, 1970, Ser. No. 88,850

Int. Cl. H03k 4/56

U.S. Cl. 331-111

5 Claims



An operational amplifier having a feedback circuit produces a periodic signal having a frequency linearly proportional to the magnitude of an analog input voltage. The feedback circuit includes three parallel paths, one of which includes a resistor in series with a Zener diode, the second of which includes a controlled rectifier having a gate connected to the junction of the resistor and diode and the third of which includes a capacitor. The capacitor charges to the Zener breakdown voltage which then conducts and biases the controlled rectifier into conduction to discharge the capacitor. An output circuit is connected to the capacitor to receive the discharge pulses, which are converted into a square wave signal by a Schmitt trigger circuit. The analog input voltage is amplified by a differential amplifying section.

3,742,380

PN JUNCTION SEMICONDUCTOR OSCILLATOR DEVICE CONTROLLED BY LIGHT

Masaya Yabe; Masaru Kono; Teizo Takahama, and Katsumi Hirano, all of Kawasaki, Japan, assignors to Fuji Denki Seizo Kabushiki Kaisha, Kanagawa-ken, Japan

Filed Nov. 8, 1971, Ser. No. 196,297

Claims priority, application Japan, Nov. 11, 1970, 45/97613

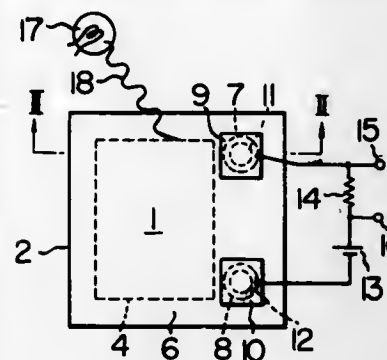
Int. Cl. H03b 3/04, 5/24

U.S. Cl. 331-66

8 Claims

An oscillating device comprising a semiconductor oscillating element, an electric source connected to apply a voltage necessary for causing an oscillation to the element, a means

for taking out the oscillation output of the element and a means for irradiating light to control the oscillation conditions of the element, said semiconductor oscillating element comprising a semiconductor wafer which comprises a first region of a conductivity type, a second region of a reverse conductivity type and a PN junction formed between said both re-



gions, an injection electrode means provided on said first region at a specific distance from said second region, and an ohmic electrode means provided on said first region at specific distances respectively, from said second region and said injection electrode means. Various modifications and applications of said oscillating device are described.

3,742,381

WIDEBAND DIGITAL PSEUDO-GAUSSIAN NOISE GENERATOR

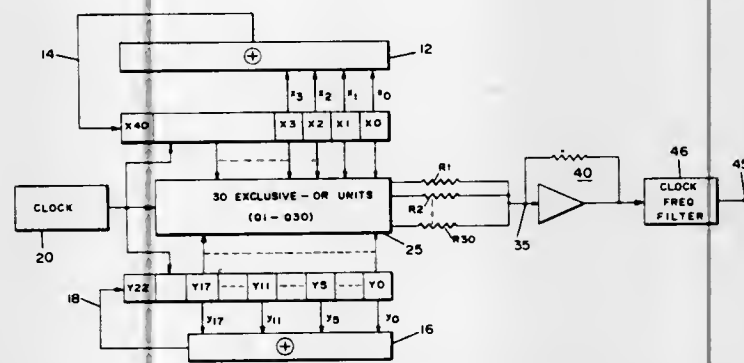
William J. Hurd, La Canada, Calif., assignor to California Institute of Technology, Pasadena, Calif.

Filed June 9, 1971, Ser. No. 151,305

Int. Cl. H03b 29/00

U.S. Cl. 331-78

13 Claims



A wideband digital pseudo-gaussian noise generator is disclosed. It includes two feedback shift registers which provide maximal length pseudo noise sequences. Selected stages of the two registers are fed as inputs to 30 exclusive-OR gates, the stages being selected so that their outputs represent distinct phase shifts of a product sequence. The outputs of the gates are summed to provide the generator's output which approximates gaussian noise over a useful bandwidth of 10MHz.

3,742,382

APPARATUS FOR STABILIZING A LASER TO A GAS ABSORPTION LINE

Peter William Smith, Colts Neck, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 3, 1972, Ser. No. 240,479

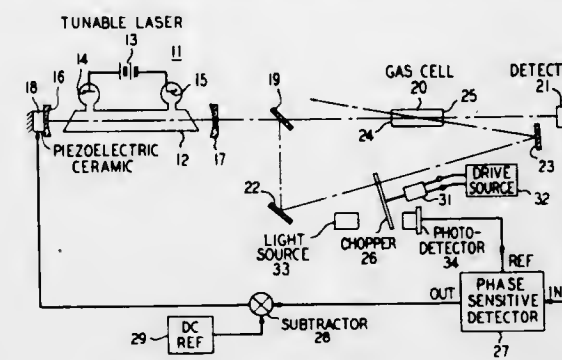
Int. Cl. H01s 3/10

U.S. Cl. 331-94.5

2 Claims

There is disclosed a frequency-stabilized laser in which a first component of the output beam is passed through a gaseous frequency standard cell in a first direction and then detected while a second component of the beam is passed through the cell in a second direction slightly less than 180° from the first direction so as to avoid subsequent interaction with the apparatus. The detected signal as a function of frequency has a narrow peak centered on the absorption line

of the gas. The width of this peak is the homogeneous linewidth of the absorbing gas, which is typically much narrower than the Doppler-broadened absorption line. The detected signal is applied through a feedback loop to control the tuning of the laser resonator.



rower than the Doppler-broadened absorption line. The detected signal is applied through a feedback loop to control the tuning of the laser resonator.

3,742,383

PULSING SYSTEM

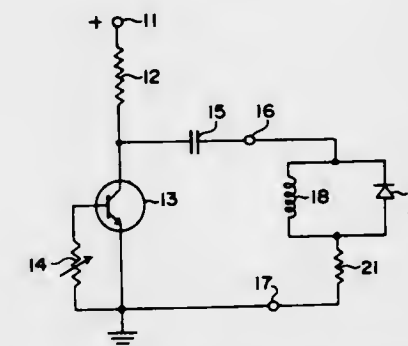
Ernest E. Hollis, Bedford, Mass., assignor to Sanders Associates, Inc., Nashua, N.H.

Filed July 12, 1971, Ser. No. 161,754

Int. Cl. H03k 3/335

U.S. Cl. 331-111

3 Claims



A pulsing system is described in which a capacitor is charged until it reaches the avalanche breakdown voltage of a transistor whereupon it discharges through the transistor and the load. Included in series with the load is the parallel combination of a small inductance and a diode poled to be conductive in the direction of capacitor discharge. During capacitor discharge, the diode short circuits the inductance so as to permit a fast rise time. When the capacitor has discharged and the transistor has again become non-conductive, the reverse voltages caused by the stray reactances appear principally across the small inductance instead of across the load thereby preventing overshoot.

3,742,384

VARIABLE FREQUENCY OSCILLATOR

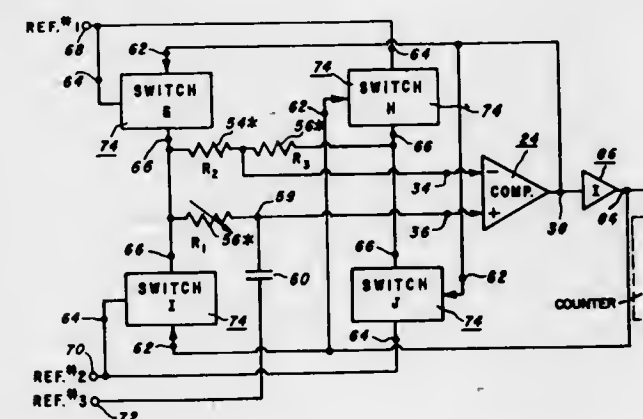
John F. Breitzmann, Richardson, and Robert P. Lackey, Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed June 7, 1971, Ser. No. 150,498

Int. Cl. H03k 4/50

U.S. Cl. 331-111

9 Claims



An oscillator circuit comprising a differential comparator having multiple inputs, an inverter, a reference signal genera-

tor for producing a two level reference signal connected to one of said inputs, and a timing signal generator for generating a substantially sawtooth shaped timing signal interconnected to the other of said comparator inputs. The oscillator is substantially free of temperature induced variations or variations induced by changes in the offset voltages of the comparator. The oscillator circuit is particularly advantageous when implemented as an MOS integrated circuit.

3,742,385

CROSS-COUPLED COMPLEMENTARY TRANSISTOR CIRCUIT FOR SINGLE COIL ELECTRO-MECHANICAL OSCILLATOR

Hans Keller, and Wolfgang Sauer, both of Freiburg, Germany, assignors to ITT Industries, Inc., New York, N.Y.

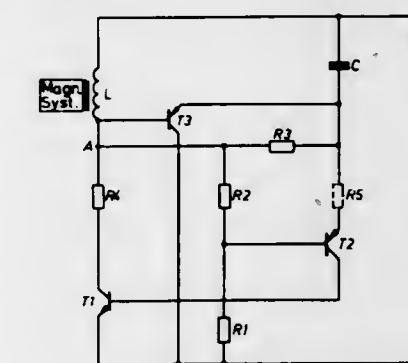
Filed Feb. 18, 1972, Ser. No. 227,369

Claims priority, application Germany, Mar. 3, 1971, P 21 10 023.2

Int. Cl. G04c 3/00; H03b 5/30

U.S. Cl. 331-116 M

2 Claims



This is a circuit for driving an electro-mechanical oscillator having one coil and two complementary transistors. The emitter resistor of the control transistor is connected to that end of the coil not facing the supply voltage. The emitter capacitor of the control transistor is connected to the supply voltage. A resistor is connected between the coil and the collector of the driving transistor. An auxiliary transistor complementary to the driving transistor is provided so that the base is connected to the connecting point of the resistor and the coil.

3,742,386

AMPLITUDE STABILIZED TRANSISTOR DRIVE CIRCUIT FOR TIME KEEPING DEVICES

Erich Gerum, Nurnberg, Germany, assignor to Diehl, Nurnberg, Germany

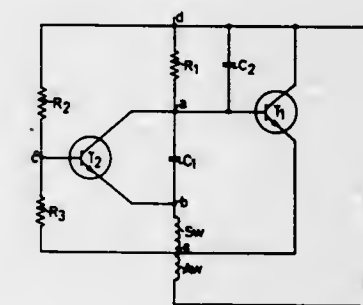
Filed June 25, 1971, Ser. No. 156,869

Claims priority, application Germany, June 26, 1970, P 20 31 671.6

Int. Cl. H03b 3/02, 5/36

U.S. Cl. 331-116 M

7 Claims



A transistorized amplifier, especially for driving a time-keeping device, in which two transistors, one a driving transistor and the other a control transistor, in the form of an integrated circuit have the collector-emitter path of the driving transistor in circuit with a battery and a driving coil while a control coil and a capacitor is in the base-emitter path thereof.

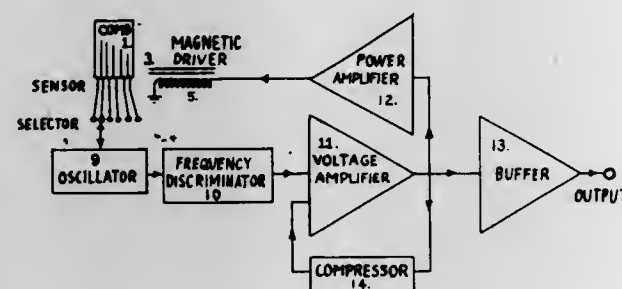
A charging condenser is in the base-collector path of the driving transistor. The control transistor has the collector-emitter path in parallel with the capacitor and is connected to receive opening pulses to the base thereof which are opposed in phase to the opening pulses supplied to the base of the driving transistor.

3,742,387

MULTI-FREQUENCY MASS SPRING OSCILLATORS
Manfred Davis, 5958 Delafield Avenue, New York, N.Y.
Filed Dec. 8, 1971, Ser. No. 205,873
Int. Cl. H03b 5/30

U.S. Cl. 331-156

4 Claims



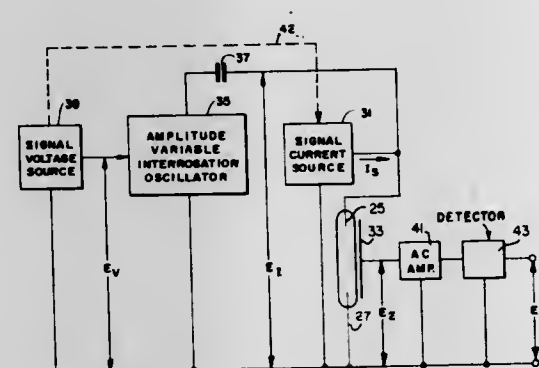
A multi frequency signal generator employing a cantilever beam comb wherein each beam has a different natural vibration frequency. The beams are selectively coupled through capacitive pickups to frequency modulate a high frequency oscillator. The modulated oscillator frequency is passed through a frequency discriminator, and the amplified output of the discriminator supplies the signal generator output and also is applied to a magnetic drive circuit for sustaining the selected beam in vibration at its natural frequency.

3,742,388

COULOMETER CONTROLLED METHOD AND APPARATUS FOR GENERATING AN ELECTRICAL FUNCTION
Eugene P. Finger, Brewster, N.Y., assignor to Curtis Instruments, Inc., Mount Kisco, N.Y.
Filed July 13, 1971, Ser. No. 162,147
Int. Cl. H03c 1/46

U.S. Cl. 332-2

9 Claims

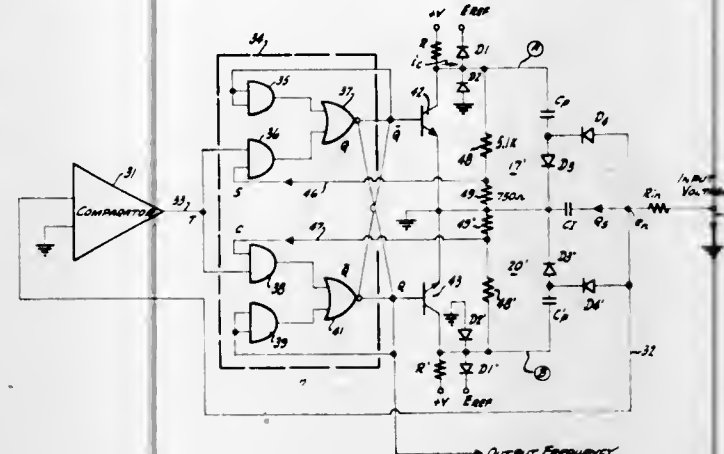


A method and apparatus for generating an electrical function utilizing a coulometer integrator which modulates an AC signal in accordance with the integral of a variable DC input current. The modulated signal is amplified and demodulated by a detector and fed to a utilization device. Both the AC signal source and the variable DC current source may be controlled by the same or separate control signals, thereby generating a signal having the form of the integral of a function multiplied by either the same function or by a different function.

3,742,389
VOLTAGE TO FREQUENCY CONVERTER HAVING DUAL STANDARD CHARGE DISPENSERS
Gary C. Henrickson, Palo Alto, Calif., assignor to Vidar Corporation, Mountain View, Calif.
Filed June 23, 1971, Ser. No. 155,848
Int. Cl. H03c 3/08

U.S. Cl. 332-19

6 Claims

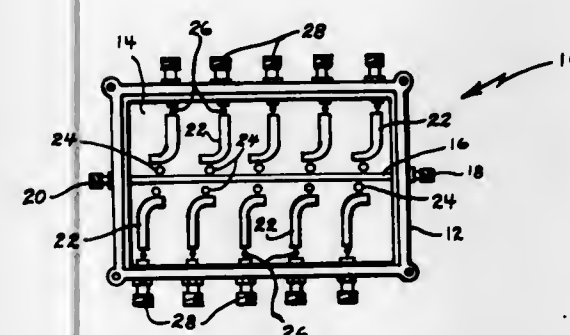


A voltage to frequency converter having a pair of standard charge dispensers each generating a ramp function, the ramp function being utilized in an AND-OR invert gate to provide a free mode of operation.

3,742,390
MULTI-FREQUENCY MICROSTRIP FILTER-DETECTOR
Martin R. Stiglitz, Waltham, and James C. Sethares, Lexington, both of Mass., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.
Filed Nov. 23, 1971, Ser. No. 201,348
Int. Cl. H01p 3/08, 5/12; H03h 7/02

U.S. Cl. 333-6

4 Claims



A filter-detector for selecting one or a number of narrow band microwave signals from either a wide band of microwave signals or from a source of spurious signals including a microstrip circuit with coupling strips for coupling frequencies predetermined by resonators located on the circuit board and diodes at the output of each coupler branchline for detecting the signal.

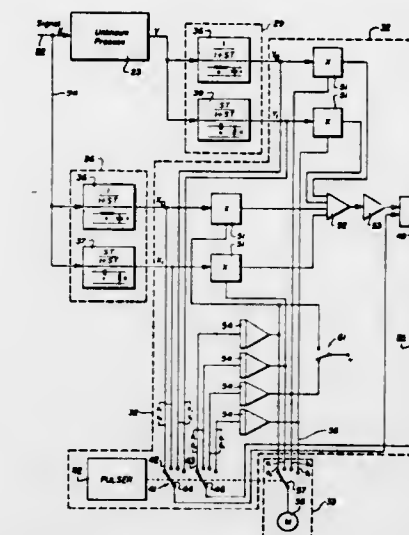
3,742,391
METHOD, APPARATUS AND SYSTEM FOR THE IDENTIFICATION OF THE RELATIONSHIP BETWEEN TWO SIGNALS
Otto J. M. Smith, 612 Euclid Avenue, Berkeley, Calif.
Continuation-in-part of Ser. Nos. 826,085, May 15, 1969, Pat. No. 3,526,761, and Ser. No. , Division of Ser. No. 826,085, May 15, 1969, Pat. No. 3,526,761. This application Mar. 12, 1970, Ser. No. 18,849
Int. Cl. H03h 7/06; H03k 5/00

U.S. Cl. 333-6

13 Claims

A set of circuits with a common input and several outputs, wherein the second output signal is the time derivative of the

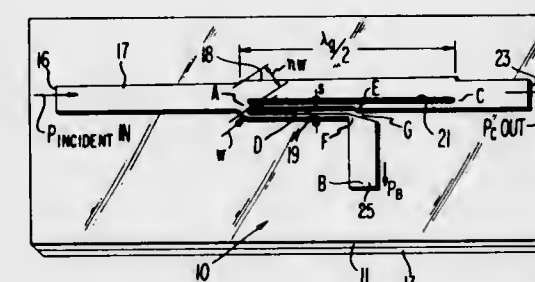
first output signal, and the third output signal is the second time derivative of the first output signal, and wherein the



3,742,392
SELF LOADED UNEVEN POWER DIVIDER
Alfred Schwarzmann, Mount Laurel Township, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Dec. 13, 1971, Ser. No. 207,405
Int. Cl. H01p 5/12

U.S. Cl. 333-9

3 Claims

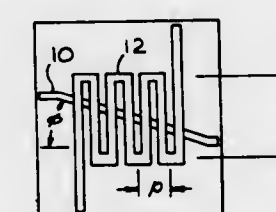


An uneven power divider in strip transmission line is provided by branching the narrow conductor into, for example, two appropriately uneven width mutually coupled narrower conductor sections with a distributed resistance therebetween.

3,742,393
DIRECTIONAL FILTER USING MEANDER LINES
Arthur Karp, Palo Alto, Calif., assignor to Stanford Research Institute, Menlo Park, Calif.
Filed Apr. 19, 1972, Ser. No. 245,526
Int. Cl. H01p 5/14, 3/08; H03h 7/46

U.S. Cl. 333-10

8 Claims



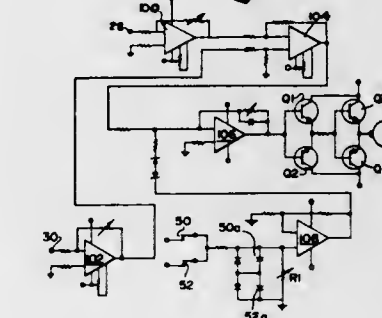
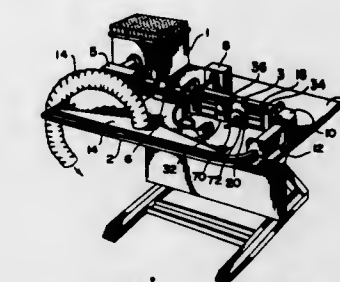
A frequency-selective directional coupler is provided which comprises a fast-wave transmission line placed in proximity to a slow-wave transmission line. The fast wave line can be a waveguide, strip-line, or microstrip line which follows a fairly direct path between two points. The slow wave line can be a helix or a meander line.

3,742,394
TUNING MEANS IN A MICROWAVE HEATING APPARATUS

Allan Leroy VanKoughnett, and Walter Wyslouzil, both of Ottawa, Ontario, Canada, assignors to Canadian Patents and Development Limited, Ottawa, Ontario, Canada
Filed Dec. 20, 1971, Ser. No. 209,518
Claims priority, application Canada, Mar. 8, 1971, 107,117
Int. Cl. H03h 7/00

U.S. Cl. 333-17

6 Claims

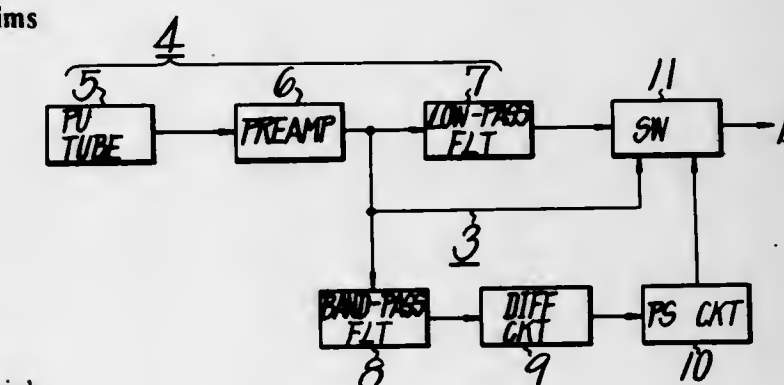


Tuning means in a microwave heating apparatus comprises a slotted waveguide section connecting a microwave energy source to a microwave heating means, a tuning probe extending into the slotted waveguide section through the slot, a motor driven carriage slidable along the slot and mounting the tuning probe, two voltage standing wave pattern sensing probes attached to the carriage and extending into the slotted waveguide through the slot, and a control circuit connected to the sensing probes and the electric motor for tuning the apparatus by moving the tuning probe along the slot. Two further probes, which are similar to the sensing probes, may be provided together with further circuitry for indicating on a voltmeter when adjustment is necessary of the depth that the tuning probe extends into the slotted waveguide section.

3,742,395
VARIABLE BANDWIDTH APPARATUS FOR TRANSMISSION SYSTEM
Masahide Yoneyama, Kawasaki, Japan, assignor to Nippon Columbia Co., Ltd., Tokyo, Japan
Filed Oct. 15, 1971, Ser. No. 189,559
Claims priority, application Japan, Oct. 21, 1970, 45/92644; Oct. 21, 1970, 45/92645
Int. Cl. H03h 7/12

U.S. Cl. 333-17

4 Claims



A variable bandwidth apparatus for a signal transmission system having a circuit for changing the bandwidth in response to the spectrum of a signal to be transmitted.

3,742,396

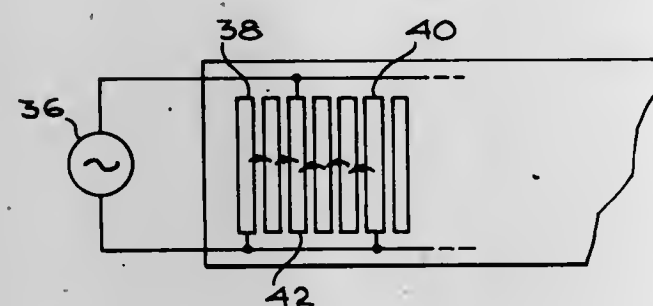
GRATING SURFACE ACOUSTIC WAVE TRANSDUCER
 Alfred J. Bahr, Mountain View, and Allen F. Podell, Palo Alto, both of Calif., assignors to Stanford Research Institute, Menlo Park, Calif.

Filed July 23, 1971, Ser. No. 165,655

Int. Cl. H03h 7/30, 9/02, 9/32

U.S. Cl. 333-30

4 Claims



A transducer for exciting and/or detecting surface acoustic waves at both UHF and microwave frequencies in piezoelectric materials comprises a plurality of parallel spaced conductors deposited on the surface of the piezoelectric material.

3,742,397

ELECTRONIC OVEN WITH FERRITE RF REJECTION FILTERS

Louis H. Fitzmayer, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

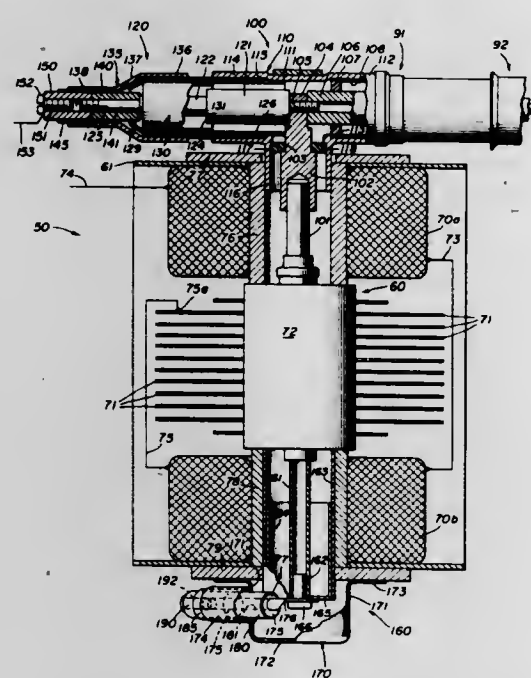
Division of Ser. No. 877,989, Nov. 19, 1969, Pat. No.

3,626,135. This application July 16, 1971, Ser. No. 163,336

Int. Cl. H03h 7/04

U.S. Cl. 333-70 S

14 Claims



There is disclosed an electronic oven comprising a generator of microwave energy of a predetermined frequency coupled to a cooking cavity and to a source of DC and 60 cycle operating potentials by a coupling structure, the coupling structure including an RF rejection filter comprising coaxial inner and outer conductors insulated from each other, the inner conductor having a cylindrical ferrite member and a cylindrical metal slug therein of such diameter that the filter operates as a lossy transmission line, terminated in a capacitance for highly attenuating the predetermined frequency and all harmonics thereof up to the seventh harmonic.

DISTRIBUTED RESISTOR-CAPACITOR NETWORK AND METHODS OF FABRICATING A DISTRIBUTED RESISTOR-CAPACITOR NETWORK

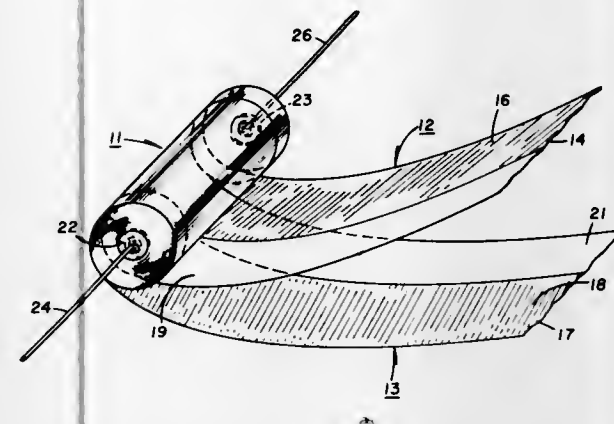
Donald R. Brown, Downers Grove, Ill., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Oct. 26, 1971, Ser. No. 192,389

Int. Cl. H03h 7/10, 9/00

U.S. Cl. 333-70 CR

16 Claims



Two network forming strips are wound to form a distributed resistance-capacitance network roll, each strip being a sheet of dielectric material having a contiguous layer of metal on one side thereof. Two solder termination blocks, one at each end of the network roll, each electrically contact a convoluted length of the edge of a different one of the metal layers, the electrical contacts beginning at the same end of each of the metal layers. The metal layers so contacted form a discrete capacitor in parallel with a distributed capacitor formed by the metal layers not contacted, the metal layers not contacted also forming a distributed resistor in series with both the discrete and the distributed capacitors.

3,742,399

VERTICAL TAPELINE MICROWAVE COUPLER FOR PARAMAGNETIC SPIN RESONANCE

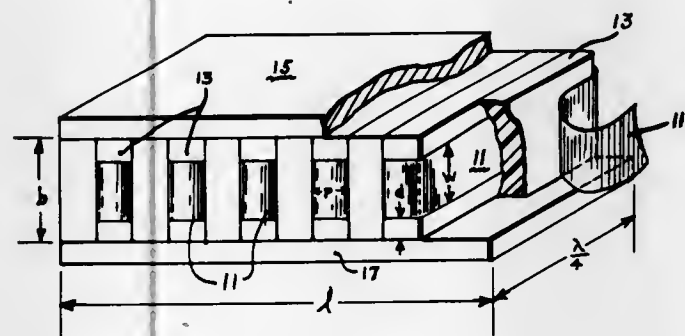
Owen Lewis, Syracuse, N.Y., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed May 19, 1971, Ser. No. 144,956

Int. Cl. H01p 7/00, 7/02, 3/08

U.S. Cl. 333-82 R

4 Claims



A device for coupling RF energy for use in magnetic spin resonance which includes a series of rectangular solids constructed of paramagnetic material. An electrically conducting folded ribbon is interlaved between the rectangular solid in the longitudinal direction. The ribbon and the rectangular solids are in surface contact with each other and the rectangular solids are in surface contact with upper and lower ground planes.

3,742,400

DIFFERENTIAL RADIUS TRANSMISSION LINE LENGTH ADJUSTER

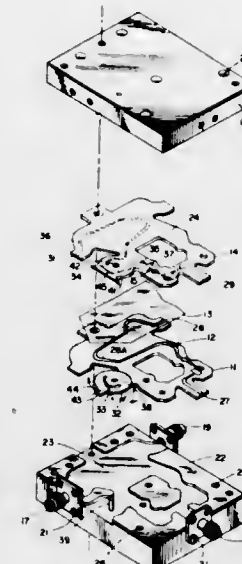
Lawrence O. Friend, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed July 8, 1971, Ser. No. 160,626

Int. Cl. H01p 3/00, 3/08

U.S. Cl. 333-84 M

8 Claims



Means are disclosed for very accurately adjusting the length of a strip transmission line wherein the transmission line has two open radial ends of different radii disposed adjacent each other and a rotatable transmission line having two radial portions which overlie the radial open ends to complete the circuit. The radial portions are joined by a continuously smooth transitional section, and the change in length is inversely proportional to difference in radii of the two radial portions.

3,742,401

MULTI-POLE LATCH SYSTEM HAVING MEANS TO DEFEAT SINGLE POLE LATCHING

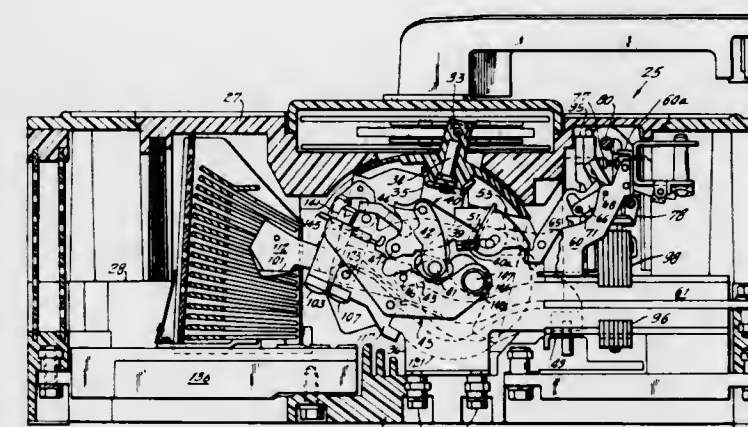
Albert Strobel, Cherry Hill, N.J., assignor to ITE Imperial Corporation, Philadelphia, Pa.

Filed July 27, 1972, Ser. No. 275,623

Int. Cl. H01h 73/02

U.S. Cl. 335-9

8 Claims



A multi-pole circuit breaker having an individual spring powered overcenter toggle operating mechanism with a releasable cradle is provided with a defeater means, independent of the cradle latches, to prevent closing of the contact mechanism until such time as the cradles of all operating mechanisms are latched.

3,742,402

CIRCUIT BREAKER WITH ON, OFF, AND TRIP INDICATION

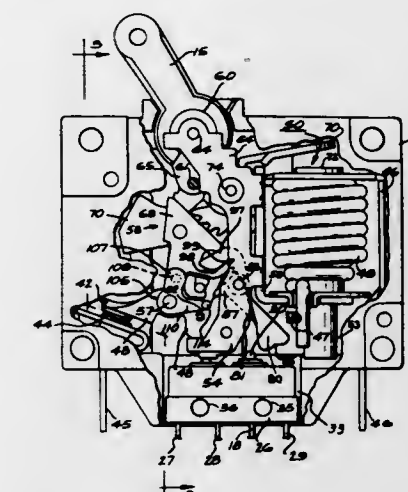
Ronald Nicol, and Ralph B. Davis, both of Trenton, N.J., assignors to Heinemann Electric Company, Trenton, N.J.

Filed Oct. 1, 1970, Ser. No. 77,257

Int. Cl. H01h 73/12

U.S. Cl. 335-13

14 Claims



A circuit breaker including a case which houses a fixedly mounted stationary contact, a movable contact carried by a movable arm, a handle link, and a collapsible linkage mechanism coupled between the movable arm and the handle link, the linkage mechanism including a collapsible toggle assembly. A pair of unitary switches are supported within an auxiliary cavity of the case and are activated to indicate whether the circuit breaker is "on," "off" or electrically tripped "off."

The circuit breaker contacts are opened in response either to rotation of the handle link, in which event the linkage mechanism undergoes a first motion along a first path, or to the occurrence of an electrical overload, in which instance the linkage mechanism undergoes a second motion along a second path and different from said first motion.

A sensing arrangement responds to the distinct motion of the linkage mechanism when moving to the contacts "open" position due to an electrical overload. The sensing arrangement comprises an actuating lever pivotally carried by the frame of the circuit breaker and having an upper portion adjacent the linkage mechanism, the upper portion forming a U-shaped space defined by upper and lower arms, and a lower portion for engaging a switch means upon rotation. During the first motion, a driving member, secured to the toggle assembly of the linkage mechanism, freely enters the U-shaped space of the lever, but during said second motion the driving member engages the upper arm, thereby rotating the lower portion of the lever into holding engagement with one of the unitary switches. When the contacts are subsequently closed by rotating the handle link, the actuating lever is reset by abutment between the driving member and the lower arm of the lever. The other of said switches responds to the movement of the movable arm in opening and closing the contacts.

3,742,403

CIRCUIT BREAKER WITH ON, OFF, AND TRIP INDICATION

Ronald Nicol, Trenton, N.J., assignor to Heinemann Electric Company, Trenton, N.J.

Filed Oct. 1, 1970, Ser. No. 77,258

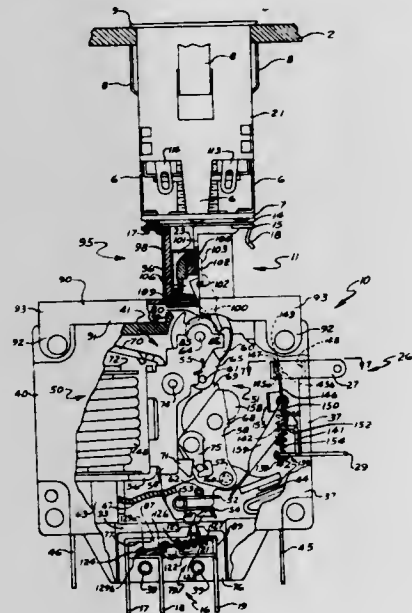
Int. Cl. H01h 73/12

U.S. Cl. 335-13

36 Claims

A circuit breaker including a case formed of two approximate-half-cases, a pair of contacts enclosed by the case and a collapsible linkage mechanism to move one of the contacts between contacts "closed" and "open" positions, the mechanism including a pivotal "handle" link. The circuit breaker also includes electrical means for sensing predetermined electrical conditions and collapsing said mechanism to

electrically trip "open" said contacts at such time. A unitary adapter is secured to the case and includes an actuator movable generally linearly into engagement with the pivotal "handle" link and automatically retracted back to a neutral position out of engagement with the pivotal "handle" link to operate the mechanism for moving one of the contacts to the contacts "closed" or "open" positions while permitting the pivotal "handle" link to freely move when the mechanism is collapsed on predetermined electrical conditions. The circuit breaker also includes an auxiliary switch means responsive to whether said contacts are "closed," "open" or tripped "open" in response to a preselected condition. The auxiliary switch



means includes a first unitary switch carried in an auxiliary cavity formed intermediate the half-cases and jointly supported by said half-cases. A second switch is carried by one of the half-cases and located on a margin of the circuit breaker case adjacent the collapsible linkage mechanism and responds to the distinct collapsing movement of the linkage mechanism. A push button module is secured to the unitary adapter and has a plunger engageable with the unitary adapter for actuating the latter. The push button module contains electrical lamps connected to the first and second auxiliary switches for illumination to indicate whether said contacts are "closed," "open" or tripped "open."

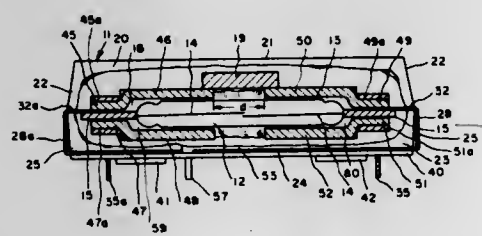
3,742,404

MAGNETIC LATCHING REED RELAY

Harry I. Hamilton, Jr., Frederick, Md., assignor to North American Philips Corporation, New York, N.Y.
Filed Mar. 16, 1972, Ser. No. 235,368
Int. Cl. H01h 51/22, 51/27

U.S. Cl. 335-153

10 Claims

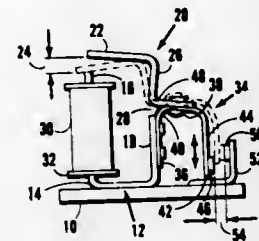


A reed relay of the multi-pole type having a magnetic latching feature. The coil for producing a flux to operate the relay is wound about an iron core which has two pair of spaced apart extended pole pieces of a substantially L shape. The plurality of reed switch capsules are accommodated in a side-by-side arrangement between the spaced pairs of pole pieces so that the coil flux is more uniformly distributed to each reed switch through the iron magnetic circuit. A permanent magnet is placed over the pole pieces so as to provide a latching feature.

3,742,405
SMALL HIGH CURRENT DC RELAY STRUCTURE
Rodney Hayden, Stoney Creek, Ontario, and Dennis Herbert MacDonald, Hamilton, Ontario, both of Canada, assignors to TRW Inc., Cleveland, Ohio
Filed Aug. 2, 1970, Ser. No. 277,202
Int. Cl. H01h 50/18

U.S. Cl. 335-187

7 Claims

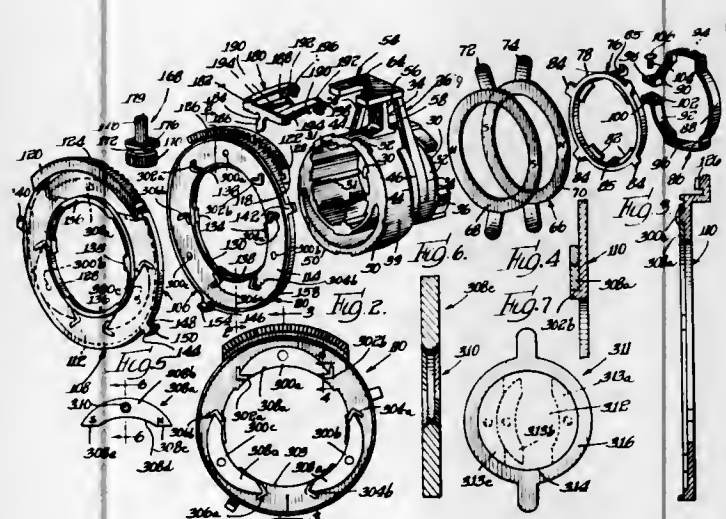


A small high-current DC relay having a closed-loop magnetic core divided by two core gaps into a stationary and a movable core part; a spring armature pivotally connecting the core parts; and a coil mounted on the stationary core part. The armature is formed of a single strip of electrically conductive spring material and includes an anchorage end portion rigidly secured to the stationary core part, a supporting portion rigidly secured to the movable core part, an arcuate fulcrum portion connecting the supporting and anchorage portions and defining a sole fulcrum about which the movable core part can pivot through a first angle, a free contact portion at the other end of the armature and carrying a contact, and a flexible arm portion connecting the contact and supporting portions and defining a second angle of pivotal movement of the contact portion about the fulcrum, smaller than the first angle. Upon energization of the coil, the difference between the two pivotal angles will bow the flexible arm portion, wiping the contact across a co-operating stationary contact upon closing and opening of the contacts.

3,742,406
BLUE LATERAL AND PURITY MAGNET STRUCTURE
Lloyd A. Erickson, Niles, Ill., assignor to Illinois Tool Works, Inc., Chicago, Ill.
Division of Ser. No. 883,938, Dec. 10, 1969, Pat. No. 3,646,669. This application Oct. 21, 1971, Ser. No. 191,447
Int. Cl. H01f 1/00

U.S. Cl. 335-212

12 Claims

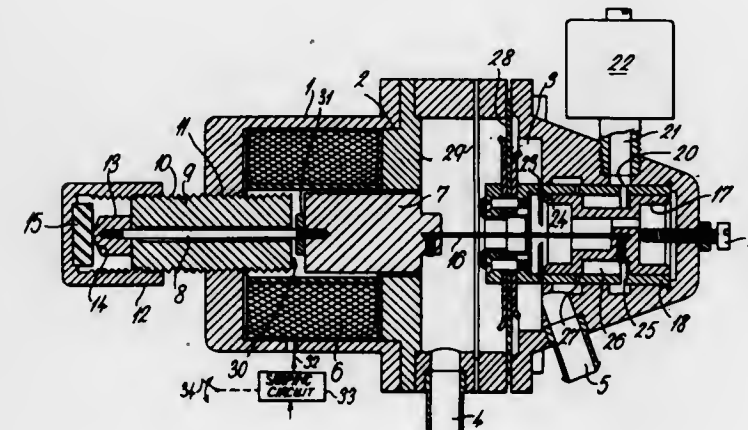


A plurality of lateral magnets and purity magnets for use in a magnetic correction device and a method for making the same. The purity magnet comprises a ring and the lateral magnets are stamped from what would normally be the scrap from the center of the ring.

3,742,407
SOLENOID DEVICE
Kenneth Hugh Frederic Cardew, Windsor, and Stuart Peter Fitzmaurice Petty, Camberley, both of England, assignors to National Research Development Corporation, London, England
Filed Oct. 6, 1971, Ser. No. 186,932
Claims priority, application Great Britain, Oct. 7, 1970, 47,598/70

Int. Cl. H01f 7/08
U.S. Cl. 335-258

3 Claims

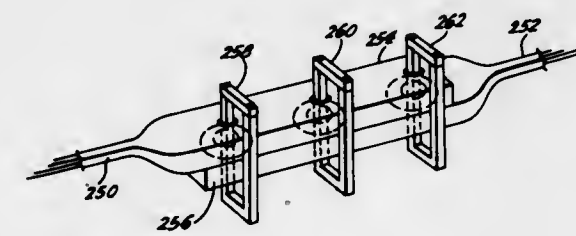


A solenoid device capable, by variation of coil current, of holding the core at positions intermediate the ends of its working range of movement. A force matching device, for example a resilient pad mounted on the coil and lying in the path of the core, opposes the approach of the core to the coil. The characteristics of this device are chosen to match the increasing electromagnetic force of attraction between coil and core as they approach and as coil current rises. The solenoid device may be used in an electromagnetic control valve in which the valve setting is required to be proportionate to the input signal.

3,742,408
INDUCTIVELY COUPLED CONNECTOR
John E. Jaeger, San Diego, Calif., assignor to The Bissett-Berman Corporation, Santa Monica, Calif.
Filed Dec. 12, 1969, Ser. No. 884,594
Int. Cl. H01f 17/06, 40/10

U.S. Cl. 336-5

3 Claims

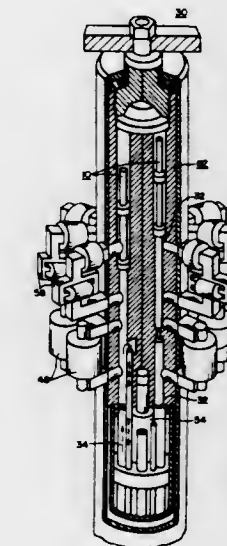


An inductively coupled connector is provided wherein a source of signals is coupled to a first potted toroid. The load for the source of signals is also coupled to a second potted toroid. The toroids are placed adjacent to each other and are interconnected using a single-turn loop. The single-turn loop has some sort of quick fastener so that the toroids may be easily connected or disconnected in an environment such as an underwater environment.

3,742,409
MAGNETIC POSITION INDICATOR
Dean C. Santis, Pittsburgh, Andre Wavre, Monroeville, and Andras I. Szabo, Export, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Nov. 27, 1970, Ser. No. 93,343
Int. Cl. H01f 21/06

U.S. Cl. 336-45

16 Claims

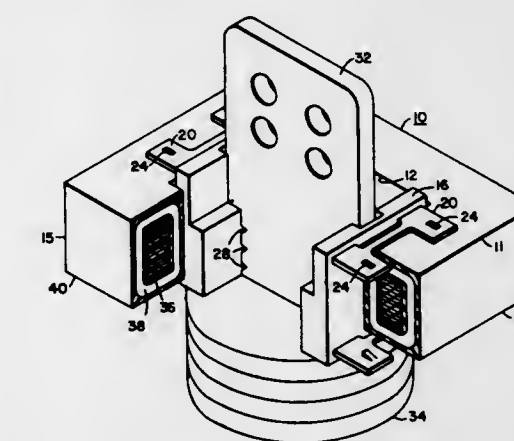


A new type of position indicator is disclosed herein for detecting the presence or absence of magnetic material which operates on the principle of either saturating or not saturating a transformer. The indicator comprises a modified E core having two magnetic flux paths with a portion thereof common to both flux paths. An AC excitation winding is wound in transformer relationship with a secondary detection winding and generates the flux in one of the magnetic paths. The flux in the second magnetic path is generated by a DC excitation winding, which provides a means of saturation control over the E transformer. The DC magnetic circuit is opened or closed by the absence or presence of the magnetic material being detected; the detection winding in the AC circuit being responsive to the corresponding change in flux.

3,742,410
ADAPTOR FOR MOUNTING CONVENTIONAL THROUGH-TYPE CURRENT TRANSFORMERS ON FLAT SPADE TERMINALS
James E. Smith, Masury, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Oct. 12, 1971, Ser. No. 188,302
Int. Cl. H01f 15/02, 27/30

U.S. Cl. 336-65

5 Claims



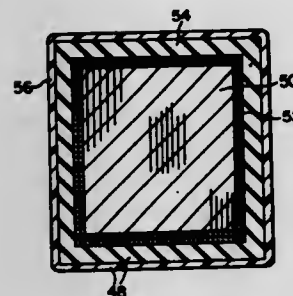
A grooved adaptor, two of which may be mounted by means of spring clips inside the window of a conventional through-type current transformer to permit the transformer to be

mounted on a flat spade-type terminal for current metering. The adaptors have grooves therein which are opposite to each other when the adaptors are properly positioned in the window of the transformer. The grooves receive opposite edges of the flat spade terminal. The grooves have flexible ribs or teeth extending thereinto which may be removed to permit the grooves to receive spade-terminals of different thicknesses.

3,742,411
CORE AND COIL WITH PROTECTIVE COVERING
Robert J. Hill, Sharon, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Oct. 15, 1971, Ser. No. 189,620
Int. Cl. H01f 27/02

U.S. Cl. 336-96

4 Claims

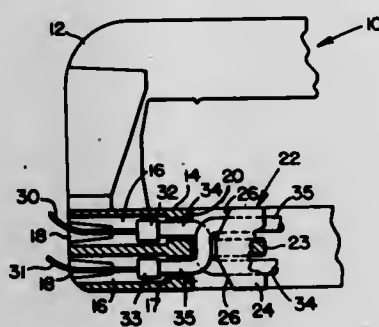


Current-type instrument transformer adaptable for placement in close proximity with oil filled apparatus. The insulation of the current transformer includes a layer of a butyl rubber disposed adjacent to the magnetic core and winding structure of the current transformer. A thin layer of a polyurethane-based material is disposed over the rubber insulation to protect it from transformer oil and other elements which are chemically destructive to the rubber insulation layer.

3,742,412
ELECTRIC COIL WITH LEAD LOCKING MEANS
Bryan L. Lakin, Springfield, Mo., assignor to Fasco Industries, Inc., Rochester, N.Y.
Filed Apr. 14, 1972, Ser. No. 244,172
Int. Cl. H01f 15/10

U.S. Cl. 336-192

8 Claims

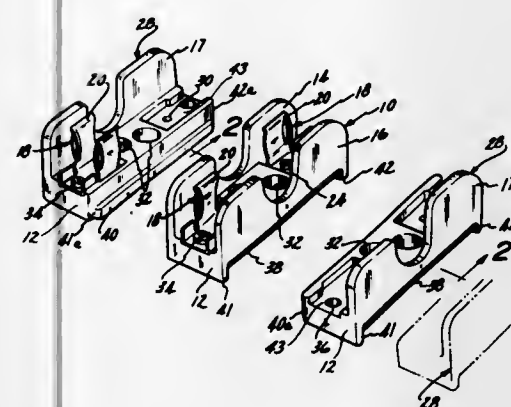


A wire coil is wound on a tubular core form having rectangular end flanges. Projecting from one corner of each flange is a lug having therethrough two parallel bores which open on a plane surface formed on the inner end of the lug normal to the associated end flange. A cord lock, which projects from each flange, has a base registering with the space between the bores in the adjacent lug, and a head projecting laterally beyond opposite sides of the base. A pair of wire leads are inserted through the bores of a lug and connected (e.g. by soldering) to opposite ends of the coil, are then drawn back through the bores until the coil and lead wire junctures are housed in these bores, and then are crossed one over the top of the other in the space between this lug and the adjacent cord lock, and are forced beneath the head on the cord lock to secure the junctures against any external strain applied to the leads.

3,742,413
SECTIONAL ASSEMBLY OF INSULATING ENCLOSURES FOR FUSES
Philip W. Taylor, Howell, Mich., assignor to Taylor Industries, Inc., Howell, Mich.
Filed Jan. 17, 1972, Ser. No. 218,298
Int. Cl. H01h 85/02

U.S. Cl. 337-201

7 Claims

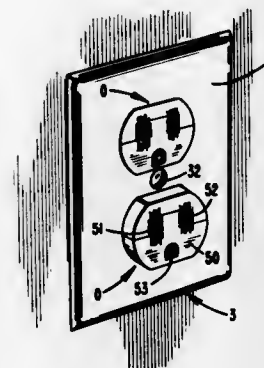


An assembly for enclosing a plurality of fuses in separate electrically insulating enclosures or boxes. The assembly includes a first double-sided insulating enclosure with provision at each side of a groove arrangement for receiving additional one-sided enclosures to provide a complete electrical insulation for the fuses, one from the other. Each additional one-sided or L-shaped enclosure further includes provision for attaching to it still further like enclosures to provide a final relatively rigid insulating assembly.

3,742,414
ELECTRICAL WIRING SYSTEM AND EJECTABLE DEVICE THEREIN
Alvin S. Gittin, 1900 South Eads St., Arlington, Va., and Ralph E. McDonald, 11717 Larry Road, Fairfax, Va., assignor to said Gittin by said McDonald
Continuation-in-part of Ser. No. 867,024, Oct. 16, 1969, Pat. No. 3,612,953. This application June 25, 1971, Ser. No. 156,616
Int. Cl. H01h 85/30

U.S. Cl. 337-206

18 Claims

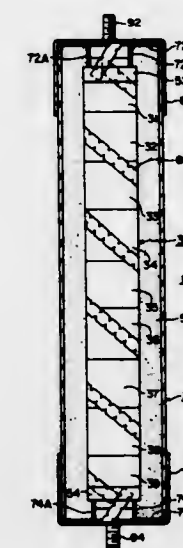


Electrical devices such as outlet receptacles and switches provided with built-in safety-fuse elements which are adapted to be inserted into housings forming part of a wiring system network, particularly in multi-story buildings, embodying feed wires extending vertically through the several stories of the buildings, without need for conventional panel boards. Each of the devices incorporates its own circuit breaker upon the occurrence of an electrical fault in the wiring or in the unit connected thereto, at which time the device is ejected, at least partially, from its housing to indicate the location of the fault, and the point of interruption of the electrical service in the system which is protected thereby.

3,742,415
CURRENT LIMITING FUSE
Frank L. Cameron, Irwin, and Harold L. Miller, West Elizabeth, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 30, 1971, Ser. No. 185,201
Int. Cl. H01h 85/44

U.S. Cl. 337-279

10 Claims

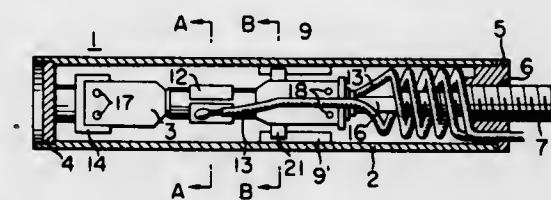


A current limiting fuse structure comprising a generally tubular electrically insulating casing having terminal means disposed adjacent to the opposite ends thereof. One or more fusible elements or links is connected between the terminal means. An electrically insulating support member on which each fusible element is disposed is positioned within the associated casing and extends axially between the respective terminal means. At least the axially intermediate portion of the support member is formed from a material which evolves one or more gases which assist or aid in arc extinction in the presence of the arc which results when an associated fusible element melts. The last-mentioned material is also electrically non-tracking in the presence of an arc.

3,742,416
THERMOSTAT
Kenshi Kondo, No. 6-3 Seta-machi, Tamagawa, Setagaya-ku, Tokyo, Japan
Filed Sept. 28, 1971, Ser. No. 184,428
Int. Cl. H01h 37/12

U.S. Cl. 337-392

1 Claim

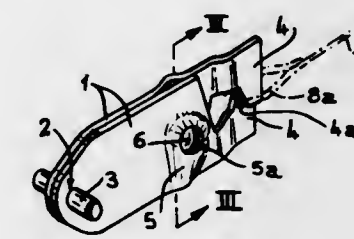


A thermostat wherein a pair of contact plates are inserted into a heat sensing cylinder. Ends of the contact plates are fixed at an end of the heat sensing cylinder and the other ends engage a contact plate tension member extending from the other end of the heat sensing cylinder. Due to difference in the heat expansion of the heat sensing cylinder and the contact plates caused from variation of temperature, the contact plates open or close the contact point. Setting of the temperature is accomplished by movement of the tension member by the use of a screw member. Means are provided for removing the backlash present in the screw members, whereby the thermostat is activated to operate accurately in conformity with the present temperature.

3,742,417
THERMAL TRIPPING DEVICES FOR SAFETY INSTALLATIONS AND THE LIKE
Jacques Snipeliski, La Tronche, France, assignor to Cotherm S.A., La Tronche (Isere), France
Filed Dec. 13, 1971, Ser. No. 207,299
Claims priority, application France, Mar. 2, 1971, 7107584
Int. Cl. H01h 37/76

U.S. Cl. 337-401

4 Claims

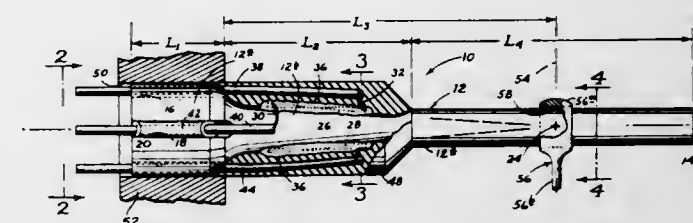


A thermal tripping device for fire protection installations in which an alarm, valve or other appliance is operated by release of a spring biased rod having at one end an eye normally held between two oppositely facing and overlapping hooked or nose shaped parts each formed on an end of two superimposed plate-like arms mounted at their other ends on a common pivot. Each arm has a concave part facing the other to define a free space which contains a bulb which explodes above a predetermined temperature to allow the arms to pivot open and release the rod, but while in an intact state the bulb holds the arms locked together.

3,742,418
ELECTROMECHANICAL DEFLECTION SENSING DEVICE
George J. J. Randolph, Jr., 1505 177th Avenue N.E., Bellevue, Wash.
Filed Aug. 3, 1970, Ser. No. 60,526
Int. Cl. G01l 1/22

U.S. Cl. 338-5

4 Claims



A sensing device including an elongated beam having an outer surface of revolution and including a generally conical medial portion whose sides taper toward a point disposed on the beam's longitudinal axis and located within an adjacent end portion in the beam. An elongated ceramic-encapsulated piezoresistive element is bonded through such encapsulating material to the outside of the beam's medial portion, and is disposed in a common plane with the beam's longitudinal axis.

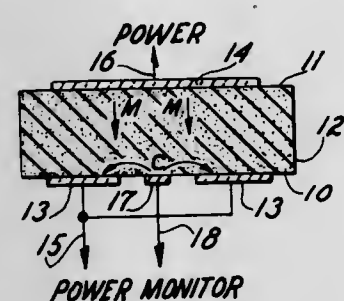
3,742,419
INTEGRAL SENSOR FOR MONITORING A METAL OXIDE VARISTOR
Francis D. Martzloff, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed Sept. 30, 1971, Ser. No. 185,184
Int. Cl. H01c 7/10

U.S. Cl. 338-20

13 Claims

A body of sintered metal oxide material having first and second opposed surfaces and a third surface disposed therebetween has first and second electrodes in contact with the first two opposed surfaces for establishing a main conductive path through the device and a third electrode in contact with one of the two opposed surfaces and spaced very close to

the corresponding electrode for establishing a monitoring conductive path for sensing the operating temperature of the body as a function of the resistance thereof. The monitoring path may also be established by a pair of third electrodes positioned



on opposite sides of the surface interconnecting the first two surfaces whereby the monitoring path intersects the main conductive path. The sintered metal oxide material has varistor characteristics.

3,742,420

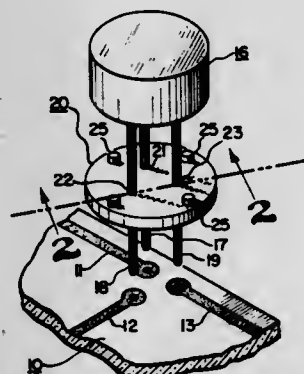
PROTECTIVE ELECTRICAL FEED-THROUGH ASSEMBLIES FOR ENCLOSURES FOR ELECTRICAL DEVICES

John D. Harnden, Jr., 1078 Parkwood Boulevard, Schenectady, N.Y.

Filed Oct. 21, 1971, Ser. No. 191,167
Int. Cl. H01c 7/12

U.S. Cl. 338—21

4 Claims



A wafer of metallic oxide varistor material having a pair of opposed surfaces is provided with a plurality of apertures, each extending through the wafer from one opposed surface to the other opposed surface thereof. Each of the apertures are adapted to receive a respective conductive electrode of an electrical device and provide conductive contact between each of the electrodes and the wafer. The material has an alpha in excess of 10 when the current is of the current density range of 10^{-3} to 10^2 amperes per square centimeter. The proportions of the apertures of the wafer in contact with the electrodes are spaced to provide a current flow between a pair of electrodes which is low when normal operating voltages appear across the pair of electrodes and when voltages in excess of the normal voltage appear across the electrodes a rapidly decreasing impedance is presented by the wafer in accordance with the alpha of the material of the wafer thereby limiting the voltage across the electrodes.

3,742,421

POTENTIOMETER HAVING A TRANSPORT SCREW AND DIAMOND SHAPED CONTACT SPRING

Jan Van Rooijen, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Phillips Corporation, New York, N.Y.

Filed Oct. 18, 1971, Ser. No. 190,057

Claims priority, application Netherlands, Oct. 20, 1970, 7015318

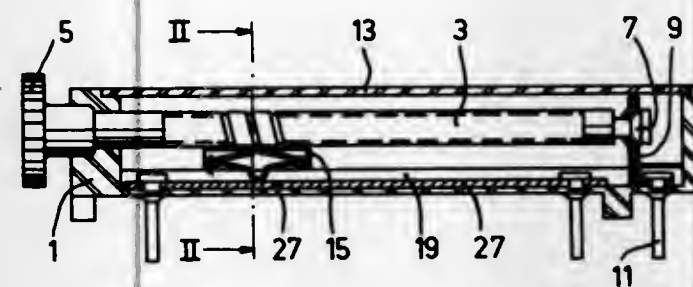
Int. Cl. H01c 9/02

U.S. Cl. 338—180

4 Claims

A potentiometer having a slide, comprising a diamond-

shaped contact spring, which is rectilinearly displaceable by means of a transport screw spindle, one half of said contact



spring cooperating with the screw spindle as a nut and pressing the slide onto a guide, the other half serving as a wiper.

3,742,422

HIGH VOLTAGE RESISTOR

Arthur L. Rozema; Carlton M. Osburn, and John D. Van Benthuyzen, all of Elkhart, Ind., assignors to CTS Corporation, Elkhart, Ind.

Filed Nov. 22, 1971, Ser. No. 200,765
Int. Cl. H01c 1/14

U.S. Cl. 338—257

23 Claims



A high voltage electrical resistor comprises a resistive path supported on a dielectric hollow cylindrical substrate, termination means electrically connected to the resistive path, an insulation system and a heat dissipation system. The high voltage end of the substrate is spaced from the wall of an insulative jacket by means of projections extending radially inwardly from the wall. The low voltage end of the substrate is spaced from the wall of the jacket by means of a heat dissipating mounting member. The termination means include insulated lead wires electrically connected to the resistive path with a lead wire adjacent the high voltage end of the substrate passing through a tubular projection of the jacket. A heat shrunk sleeve forms a tight seal between the tubular projection and the lead wire. Dielectric material fills the space between the substrate and the jacket forming a moisture impervious barrier around the resistive path and improving the dielectric strength of the resistor.

3,742,423

ELECTRICAL RESISTOR

George F. Chadwick, North Tonawanda, N.Y., assignor to Airco, Inc., New York, N.Y.

Division of Ser. No. 690,897, Dec. 15, 1967, abandoned, which is a continuation-in-part of Ser. No. 410,091, Nov. 10, 1964, Pat. No. 3,382,574. This application July 13, 1970, Ser. No. 61,045

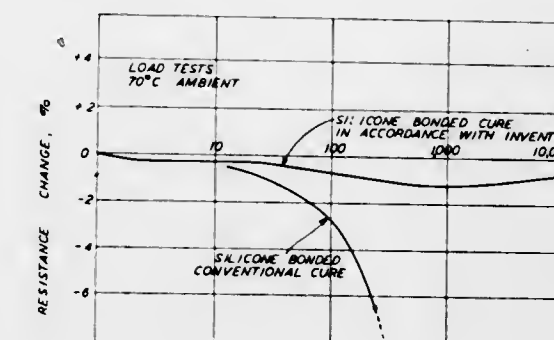
Int. Cl. H01c 13/00

U.S. Cl. 338—334

1 Claim

A carbon composition resistor and method for manufacture thereof is disclosed, the resistor being characterized as having

a body comprising a conductive particulate component, a nonconductive particulate component, and a silicone resin



binder for said components, said binder being advanced and cross-linked entirely in situ in the body.

3,742,424

ELECTRICAL CONNECTOR ASSEMBLY

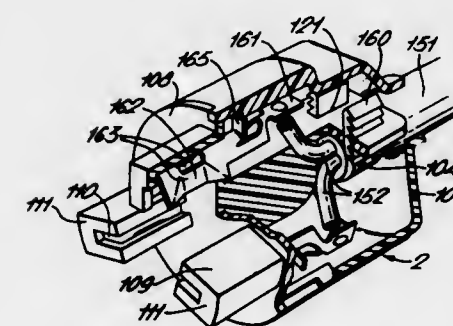
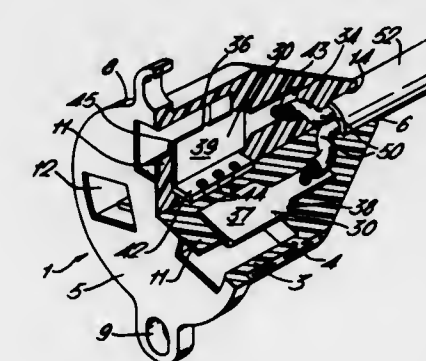
Kenneth John Startin, Hemel Hempstead, Hertfordshire, England, assignor to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 21, 1972, Ser. No. 236,722

Claims priority, application Great Britain, Apr. 15, 1971, 9,558/71

Int. Cl. H01r 3/06

U.S. Cl. 339—14 P



An electrical connector assembly comprising first and second releasably matable electrical connectors, each electrical connector including a housing of electrically insulating material and a contact of electrically conductive material.

3,742,425

COAXIAL CABLE CONNECTOR FOR CIRCUIT BOARD

Ronald W. Peltola, Beaverton, and Richard F. Guarnero, Lake Oswego, both of Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.

Filed Dec. 7, 1970, Ser. No. 95,627

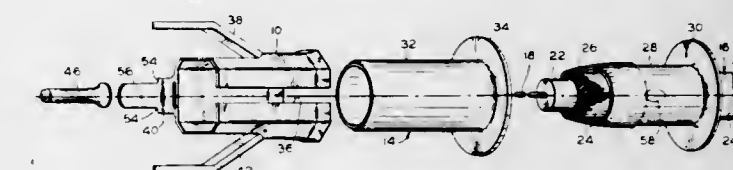
Int. Cl. H01r 17/18; H05k 1/10

U.S. Cl. 339—17 R

10 Claims

Connector apparatus for connecting a coaxial cable to a strip transmission line on an etched circuit board is described including a resilient socket member mounted on the circuit board and a plug member attached to the end of the cable.

The plug includes a tubular inner eyelet crimped onto the jacket of the cable and surrounded by an outer eyelet which clamps a portion of the outer conductor of the cable between such two eyelets by an interference fit. One end of the inner conductor of the coaxial cable extends out of the eyelets and is inserted into a hole in the circuit board which may contain a



separate tubular inner socket member for connection to the signal conductor of the strip line. An outer socket member in the form of a split sleeve having a plurality of legs attached to the circuit board is connected to the ground conductor of the strip line and resiliently holds the plug member inserted therein.

3,742,426

FIRE RESISTANT PLUGGABLE CONTACT AND RECEPTACLE

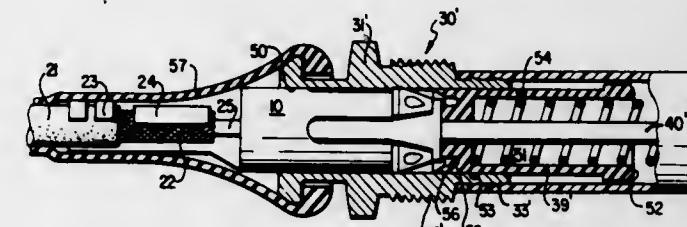
John Henry Huber, Harrisburg, and Robert Volinskie, Hershey, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed May 20, 1971, Ser. No. 145,371

Int. Cl. H01r 11/08, 13/54

U.S. Cl. 339—45 R

1 Claim



An electrical connector adapted for connecting a coaxial cable to the firing system of aircraft-carried rockets is provided which features a plug contact member for crimpingly engaging a coaxial cable, a receptacle having a substantially tubular shell threadably engageable with an aircraft housing, a cap member at one end to be positioned inside the housing, a non-conductive member movably disposed in the shell for preventing rocket exhaust flow into the receptacle, a spring disposed between the non-conductive member and the cap member and an elongate contact pin extending axially through the cap member and the non-conductive member to engage the coaxial cable center conductor upon insertion of the plug contact member into the receptacle, and means for normally securing the plug contact member within the receptacle.

3,742,427

SEALABLE ELECTRICAL CONNECTOR

Albert S. Ballard, 3962 Broadlawn, San Diego, Calif.

Filed Aug. 26, 1971, Ser. No. 175,119

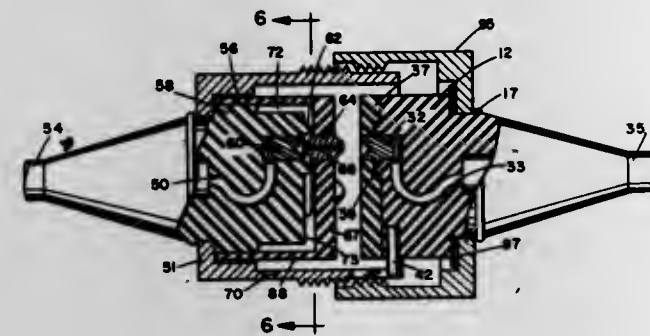
Int. Cl. H01r 13/54, 11/02

U.S. Cl. 339—60 M

14 Claims

A re-usable, sealable, electrical connector for making an electrical connection in adverse environments, which electrical connection is made by drawing two bodies of relatively hard, insulating material together with electrical conducting tips projecting through layers of resilient and less hard material that is positioned between the body surfaces. The body surfaces have rings projecting therefrom that encircle the con-

ducting tips and project into the softer layer. The softer layer has less thickness and thus an increased pressure gradient im-



mediately around the conducting tips that forces fluid out of this area forming a sealed surface around the electrical conducting tips.

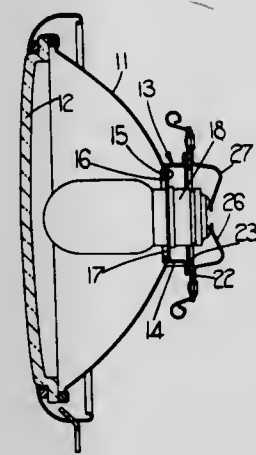
3,742,428 BULB HOLDERS

Walter Howard Rathband, Burntwood, near Walsall, England, assignor to Butlers Limited, Birmingham, England
Filed Aug. 25, 1971, Ser. No. 174,768

Claims priority, application Great Britain, Aug. 25, 1970, 40,861/70

Int. Cl. H01r 13/54; G03b 15/02; F21v 17/00
U.S. Cl. 339—75 R

6 Claims



A bulbholder for an electric lamp includes a hollow conductive sleeve which is secured to the lamp reflector, and which is provided with a bulb engaging surface defined by an internal shoulder. The fulcrum part is provided at one end of the sleeve, and at the same end of the sleeve diametrically opposite the fulcrum part there is provided a latch part. The latch part is in the form of a gate terminal and an insulating contact plate carrying resilient contact member is pivotally engaged with the fulcrum part. The plate carrying the contact member can be pivoted to a position wherein the contact member is stressed against the terminal of a bulb and urges the bulb into engagement with the bulb engaging surface of the sleeve, and the plate can be retained in the operative position by a latch member in the form of a connector which engages the latch part defined by the blade terminal.

3,742,429

LAMP MOUNTING WITH SCARFING DEVICE

Charles R. Morrison, Frewsburg, N.Y., assignor to Truck-Lite Company, Inc., Jamestown, N.Y.

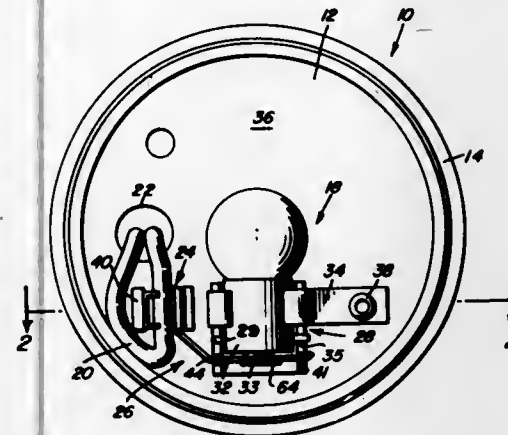
Filed Aug. 20, 1971, Ser. No. 173,585

Int. Cl. H01v 9/06

U.S. Cl. 339—97 L

The reflector mounting member of a lamp is provided with a receptacle for the base of a bulb having its terminal in contact

inserted into the clip which slices the insulation sheathing of the conductor to establish an electrical connection to the bulb terminal.



3,742,430

ELECTRICAL TERMINAL

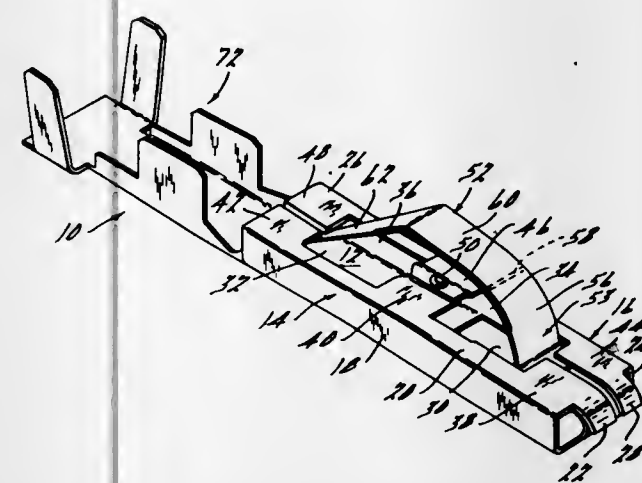
Thomas M. Cairns, Detroit, and Robert D. Kennedy, Northville, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Feb. 24, 1972, Ser. No. 228,878

Int. Cl. H01r 13/06

U.S. Cl. 339—252 R

12 Claims



Disclosed is an electrical terminal whose principal use is in connecting a lead to a terminal area on a printed circuit board. The terminal is formed so that substantially all of the contact area on the terminal is brought into engagement with the terminal area on the printed circuit board. The terminal is also designed so that a spring pressure is applied at both the front and the rear of the terminal's contact area so that this area is constantly biased against the circuit board's terminal area thereby assuring an electrical junction between the two areas capable of carrying a substantial current load.

3,742,431

WIRE CONNECTOR

Herman H. Kobayner, Forest Hills, N.Y., assignor to Arrow-Hart, Inc., Hartford, Conn.

Filed July 23, 1971, Ser. No. 165,496

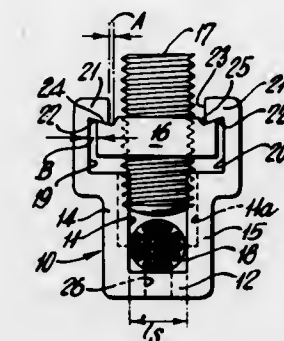
Int. Cl. H01r 11/10

U.S. Cl. 339—272 VC

The invention contemplates a so-called lay-in wire connector wherein a clamp nut is retained by spaced arms of a U-shaped body, adapted to receive an electrical conductor at the bottom of the U-shape. The nut carries a clamp screw and is longitudinally guided by and retained between the spaced arms. Interengaging parallel concave and convex V-formations on overlapping surfaces of the nut and arms (a) assure

9 Claims

against arm-spreading when the clamp is applied to the conductor, and (b) assure against such clamped permanent deformation of the arms as might otherwise interfere with later removal and reassembly of the same nut and screw, as when changing the conductor in a re-wiring operation.



3,742,432

ELECTRICAL TERMINAL HAVING FOLDED BLADE AND METHOD OF MANUFACTURING SAME

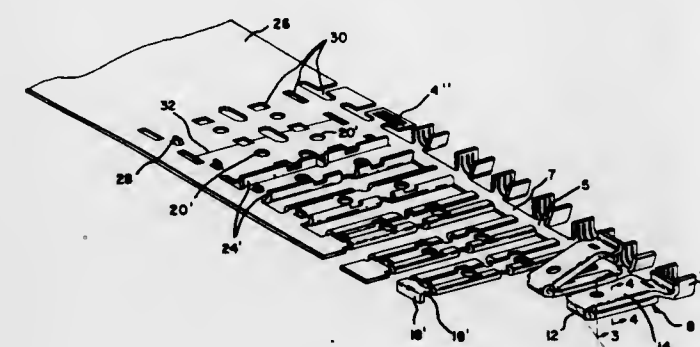
Charles Robert Curtis, "La Hacienda", Atizapan de Lopez Mateos, Mexico, and John Theodore Lawrence, Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Apr. 24, 1972, Ser. No. 247,034

Int. Cl. H01r 5/00, 11/08

U.S. Cl. 339—276 T

3 Claims



Electrical contact terminal has a folded blade type contact portion, the marginal edges of each section of the blade being bent inwardly towards the center of the blade and tucked between the two sections of the blade to provide rigidity and strength for the full length of the blade.

3,742,433

DETECTION APPARATUS

Leslie Kay, Brighton, Mass., and Graeme Leslie James, Christchurch, New Zealand, assignors to National Research Development Corporation, London, England

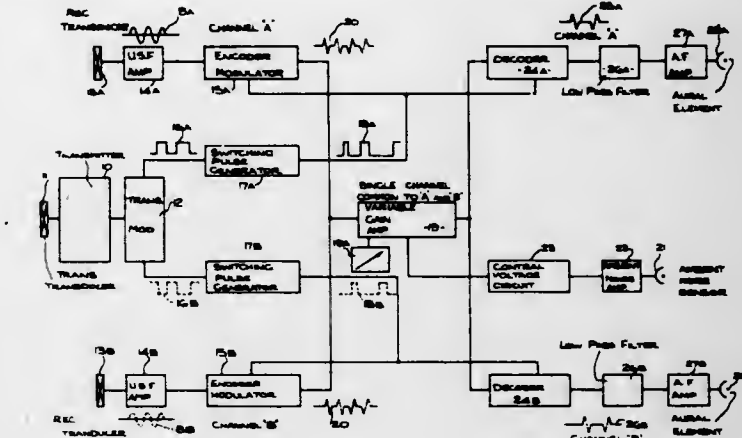
Filed June 18, 1971, Ser. No. 154,476

Int. Cl. G01s 9/68

U.S. Cl. 340—1 R

An apparatus for detecting and providing positional information as to an object in a field of view primarily for aiding blind persons comprising a frequency swept transmitting transducer and two receiving channels receiving reflected frequency swept incoming signals sampled in the channels respectively by encoders fed with time staggered switching pulses to generate a multiplex signal fed to a single variable

4 Claims



derived from the incoming signals received by the receiving transducers, the amplifier having a gain control circuit responsive to the output of an ambient noise sensor.

3,742,434

AUTOMATIC DOOR-OPENING SYSTEM USING AN ACOUSTIC OBJECT DETECTION SYSTEM

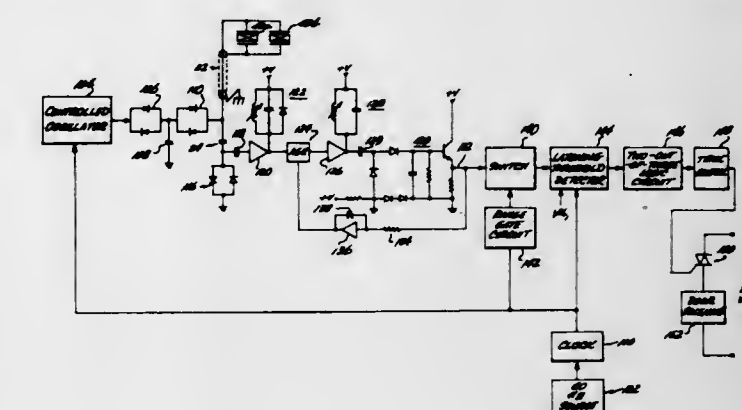
Warren L. Leyde, and Delbert E. Marker, both of Seattle, Wash., assignors to Republic Industries, Inc., Chicago, Ill.

Filed Sept. 30, 1971, Ser. No. 185,073

Int. Cl. G01s 9/66

U.S. Cl. 340—1 R

7 Claims



An object detection system is disclosed which makes use of an acoustic transducer for generating compressional waves in the air and detecting return pulses from an object lying within the detection zone. A transducer mounting system includes a transducer slug mounted for generating acoustic waves from both ends of the slug. The antenna system includes a reflector housing adapted to accommodate variable surfaces for controlling the energy pattern. Details of the electronic circuitry associated with the transducer mounting system and a door opening system are disclosed.

3,742,435

FATHOMETER MEANS AND METHOD

Keh Pann, and Steven A. Stubblefield, both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Filed June 3, 1971, Ser. No. 149,595

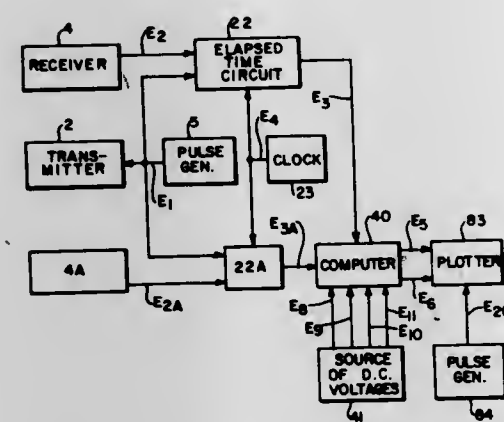
Int. Cl. G01s 9/68

U.S. Cl. 340—3 R

A fathometer, for measuring the depth in water to a sloping bottom surface, includes a transmitter, periodically providing pulses in the water, and at least a pair of receivers arranged in a predetermined manner with the transmitter. Each receiver receives reflection pulses of the transmitted pulses from the sloping surface. Synchronizing pulses coinciding with the transmitted pulse and outputs from corresponding receivers

7 Claims

control elapsed time circuits to provide signals corresponding to time intervals. Each time interval starts with the transmission of a pulse by the transmitter and the reception of a reflection pulse by a corresponding receiver. An analog computer provides outputs corresponding to the water's measured depth



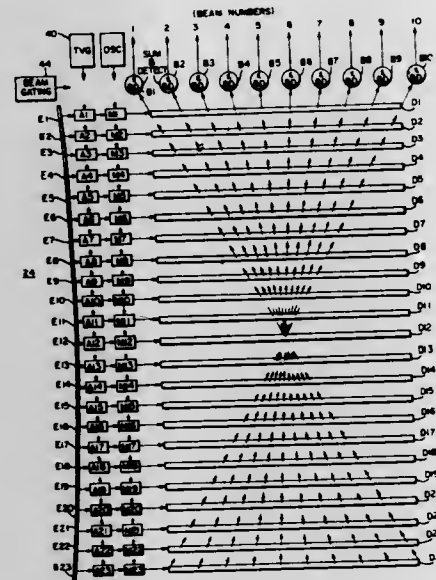
and to the location of the depth measurement in accordance with the time interval signals and the known predetermined arrangement of the transmitter and the receivers. A recorder provides a record of the depth measurement and its proper location in accordance with the outputs from the analog computer.

3,742,436 SIDE LOOKING SONAR APPARATUS

Charles H. Jones, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Mar. 24, 1971, Ser. No. 127,654
Int. Cl. G01s 9/66

U.S. Cl. 340—3 R

12 Claims



A side looking sonar transmitter projects acoustic energy to sonify a certain area on the sea bottom. A receiver apparatus forms a plurality of receiver beams for receiving reflected projected acoustic energy from a plurality of adjacent receiver strips. A display apparatus is provided for portraying signals associated with these strips. The area portrayed is made equal to or less than the area sonified and the apparatus is utilized in a linear mode or a rotating mode.

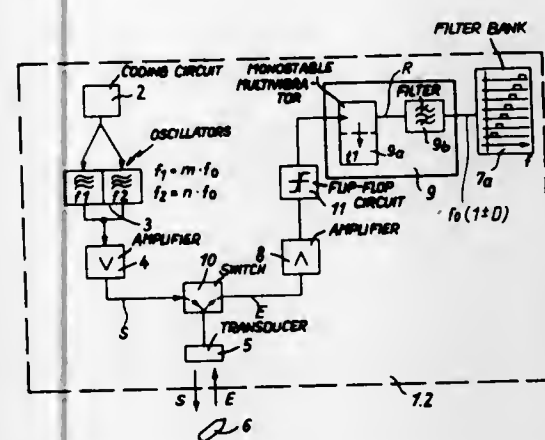
3,742,437 SIGNAL TRANSMISSION SYSTEM

Rudolf Thiele, Bremen, Germany, assignor to Fried-Krupp Gesellschaft mit Beschränkter Haftung, Essen, Germany
Filed Feb. 29, 1972, Ser. No. 230,291
Claims priority, application Germany, Mar. 26, 1971, P 21 14 675.8

Int. Cl. G01s 9/66

U.S. Cl. 340—3 D

6 Claims



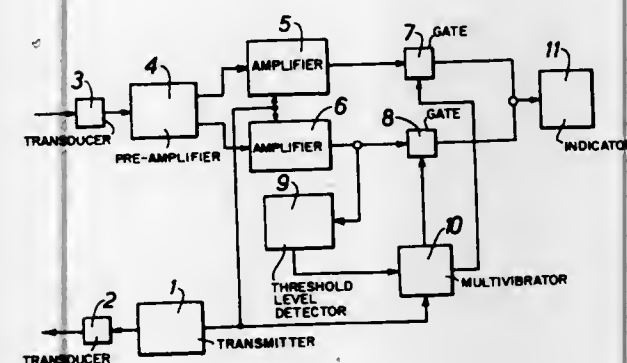
A frequency keyed signal system having a transmitter which generates and transmits coded frequency keyed signals having a sequence of intervals of identical time durations. A plurality of different frequencies are utilized, each of the frequencies being a respective whole positive number multiple of a fundamental frequency. A receiver responsive to the transmitted coded frequency keyed signals is provided. The receiver includes a frequency divider responsive to the received signals. The frequency divider has a variable dividing ratio and produces on its output an output signal of the fundamental frequency with any Doppler shift as may be present. A frequency analyzer is coupled to the output of the frequency divider and is responsive to its output signal.

3,742,438 ECHO SOUNDING APPARATUS WITH AUTOMATICALLY REGULATED RECEIVER GAIN

Raymond Brede, Borre, and Erik Stenresen, Horten, both of Norway, assignors to Simrad A.S., Horten, Norway
Filed Nov. 9, 1971, Ser. No. 196,919
Int. Cl. G01s 9/70

U.S. Cl. 340—3 R

4 Claims



The present invention discloses an echo sounding apparatus with two receiver channels, each having individually variable receiver gain regulated in accordance with a suitable predetermined time function during each sounding period. The gain regulations of the channels are operatively adapted to compensate for the scattering and dissipation losses of the sounding signals, in order to obtain appropriate relative indications of fish echo signals and bottom echo signals, respectively; a common indication organ being switched from the channel regulated with respect to fish echoes, to the other channel

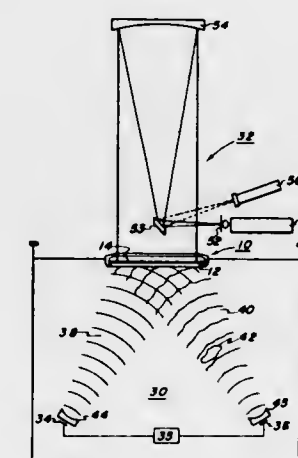
upon the reception of a bottom echo signal, and back to the validation logic arrangement responsive to each received acoustic wave for verifying the simultaneous presence and

3,742,439 IMAGING SYSTEM

Nicholas K. Sheridan, Fairfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Continuation of Ser. No. 804,539, March 5, 1969, abandoned.
This application Jan. 12, 1972, Ser. No. 217,164
Int. Cl. G01n 29/04

U.S. Cl. 340—5 H

59 Claims



An imaging member comprising a substrate, at least partially transparent to ultrasonic radiation, with a thin layer of liquid thereon, the layer preferably of a particular preferred thickness, is used for the detection of the interference pattern resulting from the interference of two phase correlated beams of ultrasonic energy, one beam typically being a reference beam and the other an object modulated beam. The free surface of the thin liquid layer is deformed by the interference pattern to form an acoustic hologram which may be used to reconstruct an optical image of the object and may be used in other advantageous ways as described herein. Electric field techniques to amplify the ultrasonically produced pattern of deformation of the free surface of the thin liquid layer; a diverging acoustic lens and a method of making a preferred elastomeric liquid layer are also described.

3,742,440 SYSTEM FOR ACTIVATING A REMOTE UNDERWATER DEVICE

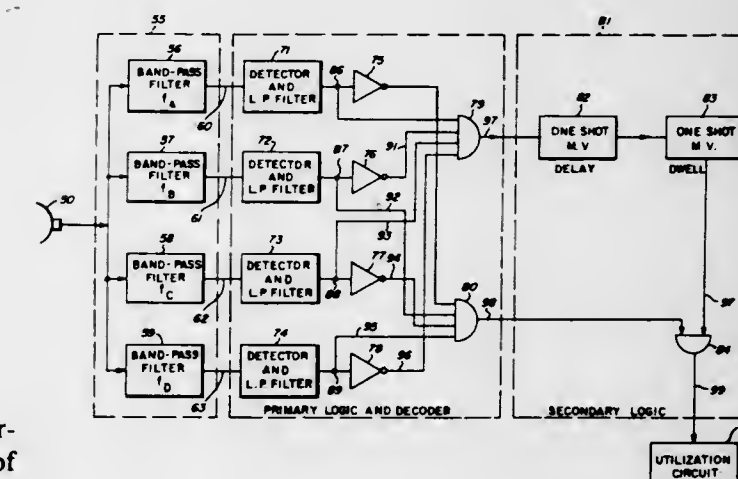
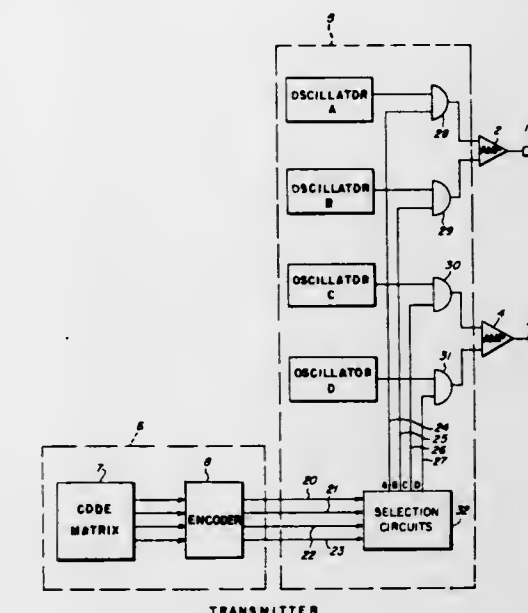
Stanley L. Ehrlich, Middletown, and Robert E. Kirkland, Barrington, both of R.I., assignors to Raytheon Company, Lexington, Mass.

Continuation of Ser. No. 871,740, Aug. 12, 1969, and a continuation of Ser. No. 679,785, Nov. 1, 1967, abandoned.
This application Nov. 1, 1971, Ser. No. 194,591
Int. Cl. H04b 11/00

U.S. Cl. 340—5 T

9 Claims

A system for activating a remote underwater device using a frequency coded acoustic wave generator having at least one notch frequency in the transmission spectrum. The generator is adapted to transmit simultaneous assertion and negation frequencies. An acoustic responsive receiver is located at the remote underwater device. The receiver includes a code



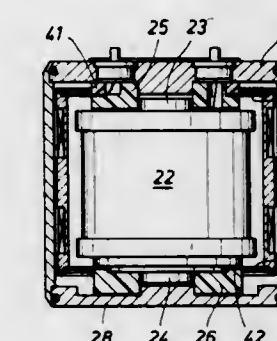
absence of the assertion and negation frequencies. A utilization circuit, also in the receiver, is responsive only to a verification signal from the validation logic.

3,742,441 SEISMOMETER

Travis E. Riley, Houston, Tex., assignor to Mark Products, Inc., Houston, Tex.
Filed Mar. 25, 1970, Ser. No. 22,622
Int. Cl. G01v 1/16

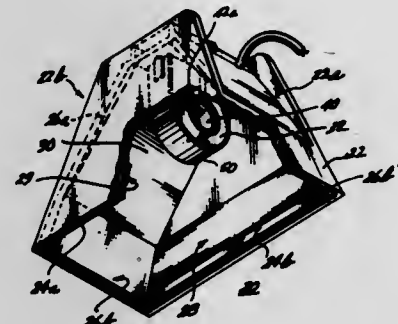
U.S. Cl. 340—17

15 Claims



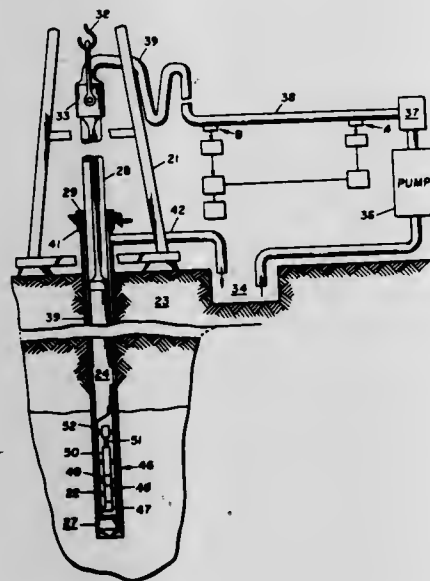
The moving element of the seismometer is supported by spring spiders, the outer portions of which are stiffened by stiffening members integrally attached to the outer portions. By stiffening the outer portions of the spiders, the distortion of the output signal that was due to the transverse or radial bending of the outer portion of the springs as the springs flexed is substantially reduced.

3,742,442
ACOUSTIC OBJECT DETECTION SYSTEM
 Warren L. Leyde, and Delbert E. Marker, both of Seattle, Wash., assignors to Pacific Technology, Inc., Renton, Wash.
 Filed Sept. 30, 1971, Ser. No. 185,072
 Int. Cl. H04b 1/100
 U.S. Cl. 340—15



An object detection system is disclosed which makes use of an acoustic transducer for generating compressional waves in the air and detecting return pulses from an object lying within the detection zone. A transducer mounting system includes a transducer slug mounted for generating acoustic waves from both ends of the slug. The antenna system includes a reflector housing adapted to accommodate variable surfaces for controlling the energy pattern. Details of the electronic circuitry associated with the transducer mounting system and a door opening system are disclosed.

3,742,443
APPARATUS FOR IMPROVING SIGNAL-TO-NOISE RATIO IN LOGGING-WHILE-DRILLING SYSTEM
 Manus R. Foster, Irving, and Bobbie J. Patton, Dallas, both of Tex., assignors to Mobil Oil Corporation, New York, N.Y.
 Continuation-in-part of Ser. No. 884,441, Dec. 12, 1969, abandoned. This application July 27, 1970, Ser. No. 58,378
 Int. Cl. G01v 1/00
 U.S. Cl. 340—18 LD

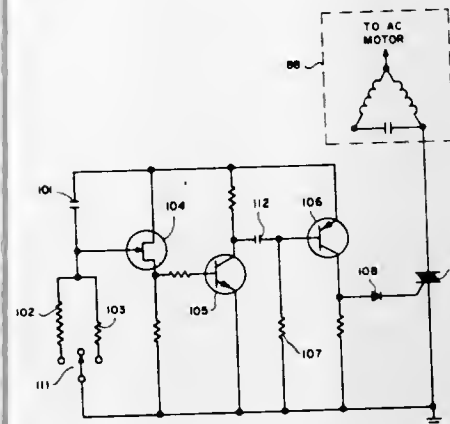


The specification discloses a method and apparatus for substantially reducing the uphole noise in a logging-while-drilling system wherein a signal representative of a downhole parameter is generated down a well and is transmitted to the surface in the form of an acoustical wave in the drilling fluid, e.g., mud. Two spaced transducers measure the acoustical pressure at two points in the mudline between the pumps and the well and convert these pressures to corresponding signals. One of these signals is time shifted an amount equal to the travel time of sound in the mud between the two transducers and, after

18 Claims

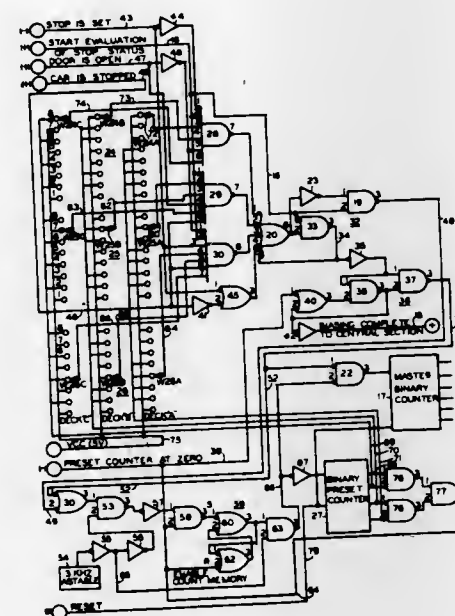
one of these signals has had its polarity reversed, the two signals are added to reduce the uphole noise substantially. By filtering one of the pressure measurement signals with a filter having characteristics related to the distortion of the flow path between the two spaced transducers, noise is further reduced. The combined signals are further filtered with a Wiener type filter which best recovers the signal.

3,742,444
DE-SYNCHRONIZING SYSTEM
 James M. Lindsey, Houston, Tex., assignor to Sperry Sun Well Surveying Company, Sugar Land, Tex.
 Filed Nov. 4, 1970, Ser. No. 86,915
 Int. Cl. G01v 1/40; H02k 27/20; H02p 5/34
 U.S. Cl. 340—18 R



The particular embodiment described herein as illustrative of one form of the invention utilizes a circuit for desynchronizing a first synchronous motor. The motor drives a surface indicating apparatus which displays light signals in timed relation with the downhole detection of borehole parameters. Such downhole detection is accomplished with the use of a second synchronous motor driven from the same power supply as the first synchronous motor. Desynchronization of the first motor permits the display signals to be moved with respect to a scale, and thereby be more easily interpreted by an operator.

3,742,445
ELEVATOR CAR STOPPING STATUS EVALUATION MEANS
 Robert J. Lauer, Toledo, Ohio, assignor to Reliance Electric Company, Euclid, Ohio
 Filed June 10, 1971, Ser. No. 151,861
 Int. Cl. B66b 1/14
 U.S. Cl. 340—19 R

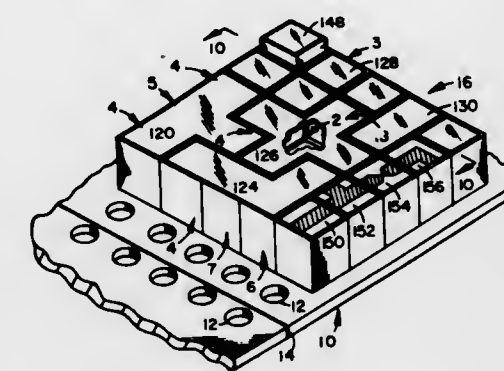


A means of defining the anticipated delay until a stopped automatically restarted elevator car at any of a number of means.

9 Claims

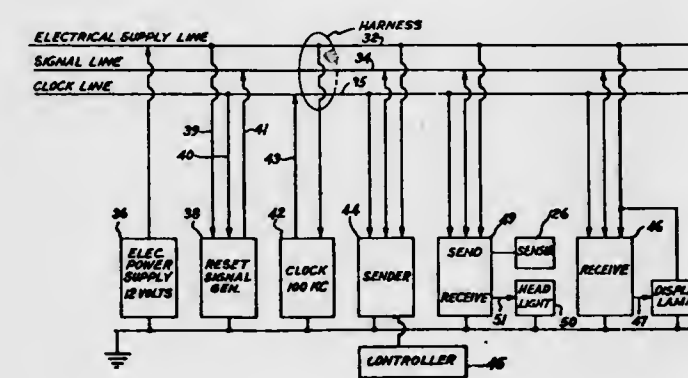
landing will again be running. Signals issued in conventional automatic elevator stopping sequences and characteristic of predetermined instances spaced in time during the stopping sequences are employed to gate portions of a pulse train to a pulse counter. The number of pulses gates is scaled to the anticipated delay so that the count in the counter is indicative of that anticipated delay either alone or combined with other factors characteristic of delays to indicate a car's availability for service.

3,742,446
MODULAR LIGHT DISPLAY PANEL
 Robert R. Wells, Anaheim, and Donal O. Nelson, Orange, both of Calif., assignors to Staco-Switch, Inc., Costa Mesa, Calif.
 Filed Aug. 26, 1971, Ser. No. 175,179
 Int. Cl. G09f 9/40
 U.S. Cl. 340—381



A lighting system comprising a series of lights for displaying information on a translucent panel thereover in accordance with the respective inputs to the lights. The lights are disposed to light a panel or individual segregated lenses in a series of modules or combinations of modules. The modules are formed from rectangular shells and surround the lights or combination of lights and are connected by an interlocking flange and recess or grooves for isolating light from each module or desired grouping thereof. The interlocking recesses and flanges lock the system together to prevent the transfer of light and attendant shadows from traveling to other lighting groups to provide an attendant clear, finely enunciated distinguishable display.

3,742,447
DIGITAL INDICATING AND CONTROL APPARATUS AND METHOD
 Peter W. Sognefest, Glenshaw, and Bay E. Estes, III, Murrysville, both of Pa., assignors to Essex International Inc., Fort Wayne, Ind.
 Filed Aug. 17, 1970, Ser. No. 64,283
 Int. Cl. B60q 1/00
 U.S. Cl. 340—52 F



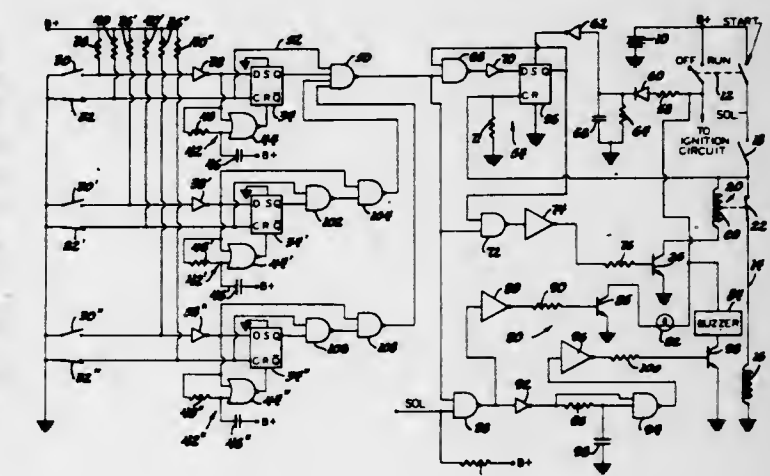
The disclosure describes an improved apparatus and methods for electrically activating a desired load device and for determining whether the desired load device is operating

911 O.G.—56

properly. The preferred embodiment described in the specification comprises a sensor, such as a photoelectric cell, for generating an indicating signal if the desired load device, such as an automobile headlight, is operating properly. The sensor is connected to a send-receive module that applies a coded control signal to a signal transmitting path in response to the indicating signal. The signal transmitting path is connected to a receive module that receives the coded control signal and activates a control device, such as a display lamp, which indicates whether the automobile headlight is operating properly. The send-receive module receives another coded control signal over the signal transmitting path that operates the load device. Both the send-receive module and the receive module preferably comprise binary counters that respond to the coded control signals.

3,742,448
VEHICLE SEAT BELT WARNING AND CONTROL SYSTEM
 Phillip R. Motz, Milwaukee, Wis., assignor to General Motors Corporation, Detroit, Mich.
 Filed Feb. 2, 1972, Ser. No. 222,840
 Int. Cl. B60r 21/10
 U.S. Cl. 340—52 E

6 Claims



A starter control circuit including first logic means comprising a delay flip-flop and a gate connected with a seat belt in-use responsive switch and a seat occupancy responsive switch for providing a START logic-level output when and only when the seat belts are in use and are placed in use subsequent to seat occupancy. Second logic means including a delay flip-flop and additional gates are provided for producing a START output which is independent of seat belt operation once a START output is initially obtained from the first logic means. Third logic means are provided for producing a START output in response to a START output from either of said first or second logic means. A starter circuit interrupt relay and control transistor responsive to the output of the third logic means is provided for controlling the starting of the vehicle. Visual and delayed audible warning means are included for providing a warning signal if the seat belts are unfastened after the vehicle has been placed in motion. Additional seat occupancy responsive switch means and seat belt in-use responsive switch means are provided for actuation by passengers of the vehicle upon seat occupancy and belt use and logic circuitry responsive to operation of these switches is connected as inputs to the gate in the first logic means and prevent starting of the vehicle if the passenger seats are occupied unless the seat belts are fastened subsequent to seat occupancy.

3,742,449 BURST AND SINGLE ERROR DETECTION AND CORRECTION SYSTEM

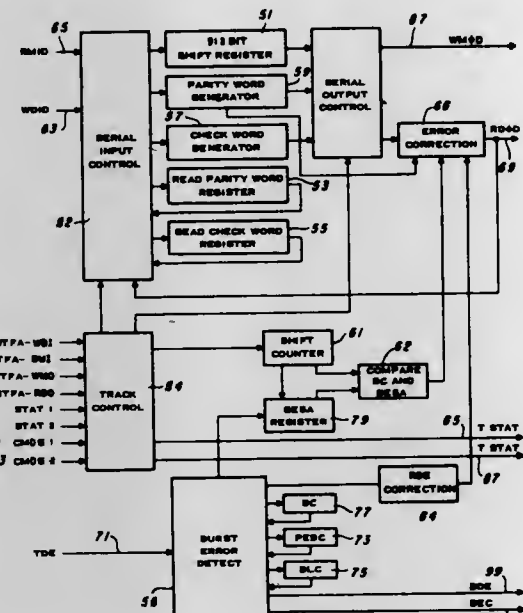
Charles M. Blair, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed June 14, 1971, Ser. No. 152,824

Int. Cl. G06f 11/12

U.S. Cl. 340-146.1 AL

5 Claims



A data communication system has a source of data. The data is divided into data segments. When a burst error is indicated, the location of the burst error is determined and the burst error is corrected. After the burst error has been corrected, the data segment is checked for single bit errors.

3,742,450 ISOLATING POWER SUPPLY FOR COMMUNICATION LOOP

David Reis Weller, Bernardsville, N.J., assignor to Bell Telephone Laboratories, Inc., Murray Hill, N.J.

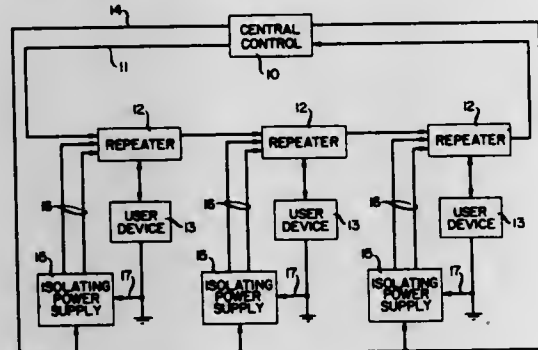
Division of Ser. No. 142,628, May 12, 1971, Pat. No.

3,703,678. This application July 14, 1972, Ser. No. 271,752

Int. Cl. H04b 3/24, 3/44

U.S. Cl. 340-147 R

2 Claims



An isolating power supply having direct-current power as its input and providing a direct-current output having a ground that is independent of the input power lines.

3,742,451 CREDIT SALES SYSTEM

W. Waverly Graham, III, and John M. Jamieson, both of Atlanta, Ga., assignors to Valcometric Corporation, New York, N.Y.

Filed Apr. 13, 1971, Ser. No. 133,533

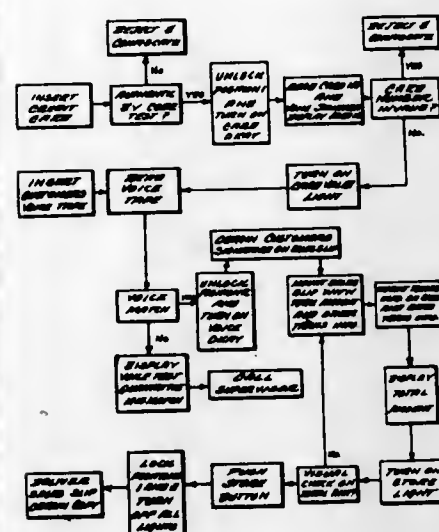
Int. Cl. H01m 1/00; H04q 9/00; G11b 5/00

U.S. Cl. 340-149 A

19 Claims

A credit method and system including a plurality of individual, separated credit stations each provided with a mag-

netic tape having credit information, such as the numbers of invalid cards. A central station periodically, for instance once each night, transmits, preferably by frequency modulated radio waves, updating credit information to the credit stations, which replace the information on their tape with the updating information. To check a card, it is first presented to a credit station where credit information coded in or on the card in



magnetic ink or otherwise is compared with information on the tape. In addition, a voice pattern on the card can be compared with the voice pattern of the person presenting the card at the station as derived from his enunciation of a code word or phrase. If the card is accepted, the transaction is preferably manually entered into and displayed at the credit station before being stored, preferably at a plurality of locations, on another magnetic tape.

3,742,452 SELECTIVE POLLING OF TERMINALS VIA A SEQUENTIALLY COUPLED BROADBAND CABLE

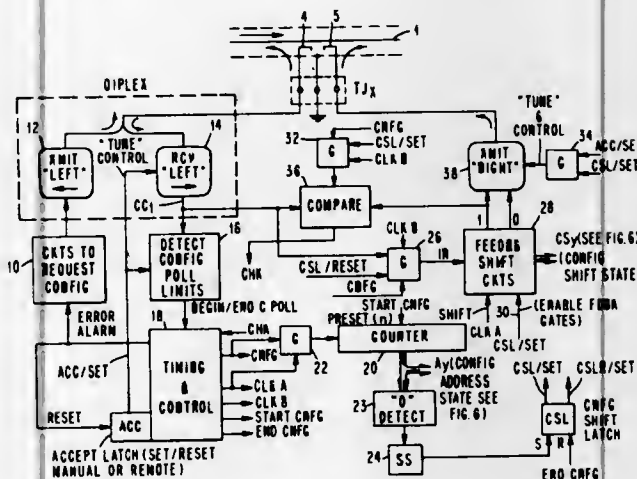
Leo M. Audretsch, Jr., Poughkeepsie; Burt E. Bliss, Hyde Park; James T. Dervan, III, Salt Point; Matthew Elsner, Poughkeepsie, all of N.Y.; Leroy E. Griffith, Boulder, Colo., and Robert A. Thorpe, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 29, 1971, Ser. No. 193,829

Int. Cl. H04j 3/02

U.S. Cl. 340-147 R

20 Claims



Multiple terminals linked to one broadband cable in a sequence are interrogated by directionally coupled configuring signals and service polling signals. Configuring signals are utilized to permit selectively participating terminals to order themselves into service polling groups. Service polling signals offer successive terminals in a polling group exclusive access to a facility shared by all terminals of the group (e.g. time or

frequency channel on the cable) which has not been seized by a preceding terminal of the group. Isochronal feedback shifting techniques are employed in the configuring and polling selection processes. Participating terminals progressively attach supplementary signals to the configuring and service polling signal trains "on-the-fly", without otherwise modifying or delaying the trains, by isochronally matching the signals of the passing train, extrapolating the supplementary signals and transmitting the supplementary signals immediately behind the end of the passing train through appropriate directional transmission coupling to the cable.

3,742,453 AUTOMATIC HOTEL SECURITY SYSTEM USING CODED MAGNETIC CARD

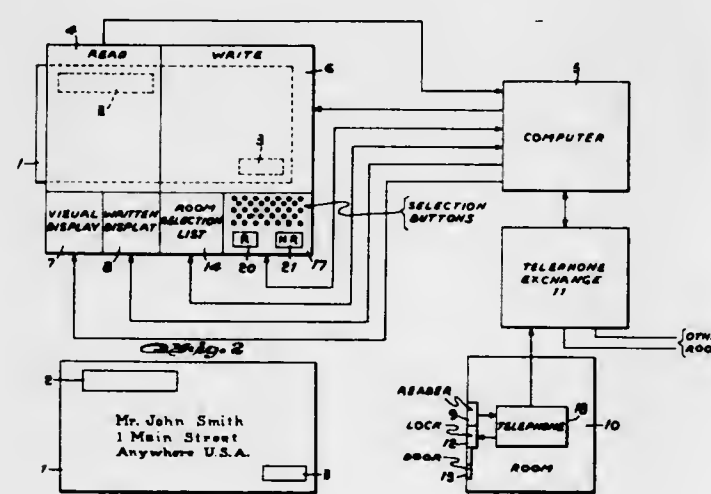
Michael C. Poylo, New York, N.Y., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Continuation-in-part of Ser. No. 71,040, Sept. 10, 1970. This application Dec. 16, 1971, Ser. No. 208,715

Int. Cl. H04q 5/16

U.S. Cl. 340-149 A

6 Claims



This invention relates to a method and apparatus for providing an automatic registration and security system for use primarily in hotels. A person seeking accommodations possesses a magnetic card which he inserts into a card reader. A magnetic recorder reads fixed information, i.e., name, address, card number, and transmits this information to a computer. The computer generates a coded number which is temporarily assigned to a particular room number, and a magnetic recorder associated with the card reader records this coded number on a second magnetic area on the card. The room number is also displayed to the holder of the card. The card holder then proceeds to the room which he has been assigned and again inserts his card into a second card reader located at the room. The variable coded room number and a fixed room identification code are transmitted via the local telephone line to the computer where they are compared with the previously stored information. If an affirmative comparison is made, a signal is transmitted over the telephone lines which unlocks the appropriate hotel room door.

3,742,454 DATA RETRIEVAL MEANS HAVING MULTIPLE POSITION SWITCHES

Hugh M. Baker, Jr., Washington, D.C., and Roland E. Genter, Falls Church, Va., assignors to H. B. Engineering Corporation, Silver Spring, Md.

Filed Aug. 28, 1970, Ser. No. 67,787

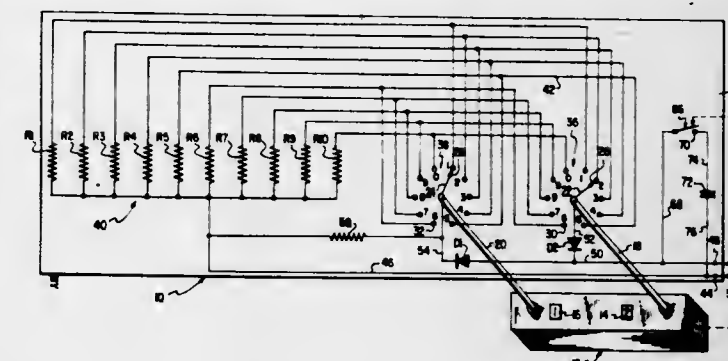
Int. Cl. H04q 1/30

U.S. Cl. 340-151 R

22 Claims

A data obtaining system wherein the closed contacts of a

plurality of multiple position switches are resistively read. Means are provided to distinguish between the resistive



readings obtained from different switches. The condition of a separate on-off switch is ascertained.

3,742,455 CENTRAL CONTROL RECEIVER

Hans Fenner, and Hanspeter Looser, both of Uster, Switzerland, assignors to Zellweger AG, Uster, Switzerland

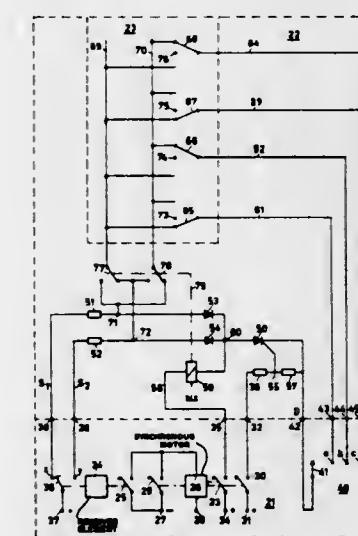
Filed Jan. 20, 1971, Ser. No. 107,983

Claims priority, application Switzerland, Mar. 26, 1970, 4601/70

Int. Cl. H04q 9/00

U.S. Cl. 340-164 R

13 Claims



A control receiver for selective evaluation of pulse images characterizing remote control commands. The receiver embodies a bistable switching element shifted no later than at the beginning of a received pulse image into a predetermined second condition of two possible conditions thereof, a switching mechanism associated with the aforementioned bistable switching element compares the received pulse image with at least one pulse image associated with the receiver. The bistable switching element returns to its first condition upon non-coincidence of the received and associated pulse image, whereas upon coincidence thereof and until the end of the pulse image this switching element retains its second condition, and upon interrogation causes the performance of a command. Now, according to important aspects of the present invention the aforementioned switching mechanism embodies a stepping switch, each respective switching position thereof being associated with a respective time interval of the pulse image associated with the central control receiver. Furthermore, the switching mechanism additionally possesses a command coding mechanism coupled with the outputs of the aforementioned stepping switch and with at least one current supply network of the bistable switching element. The conductor arrangement at the command coding mechanism for each of the switching positions, depending upon whether the

time interval associated with each such switching position of the pulse image associated with the central control receiver exhibits a pulse interval or a pulse, connects the corresponding output of the stepping switch with a first or second current supply network, whereas on the other hand, no such connection is established if the interval associated with the respective switching position is an interval which is not to be monitored. Additionally, the inventive equipment is manifested by the further features that, by means of the aforementioned switching mechanism and the aforementioned connections only upon non-coincidence of the pulse images which are compared with one another there is present a shunt to the bistable switching element, by means of which there can be removed from the bistable switching element the energy supply required for maintaining its second switching condition or state.

3,742,456

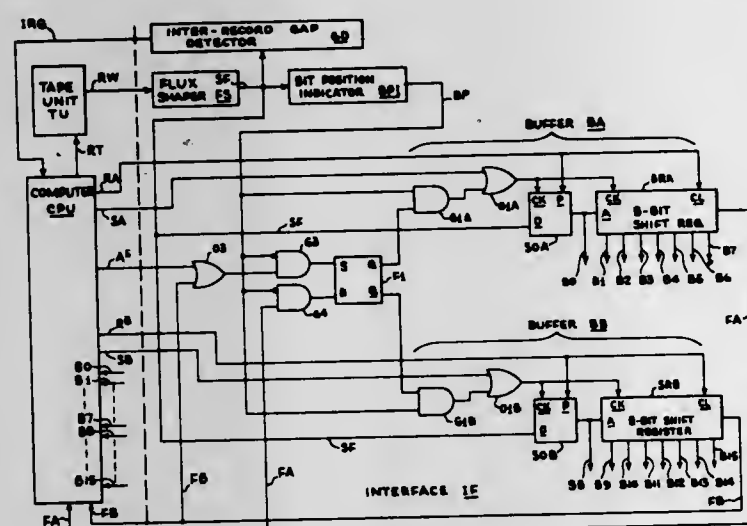
APPARATUS FOR SELECTIVELY FORMATTING SERIAL DATA BITS INTO SEPARATE DATA CHARACTERS

Robert B. McFiggans, Stamford, and Howell A. Jones, Jr., Fairfield, both of Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.

Filed Apr. 5, 1972, Ser. No. 241,265
Int. Cl. G06f 1/00

U.S. Cl. 340-172.5

4 Claims



Interface apparatus which formats bits of data serially received from, for example, a data cassette into preassigned groups of bits, such as, for example, alphanumerics which are transmitted in parallel to a data utilization device, such as, for example, a digital computer. The interface apparatus includes at least one shift register which is preshifted a number of positions before accepting data bits and then serially receives the data bits which are also shifted in the register. When a given total number of shifts has occurred, the contents of the shift register are transferred bits in parallel to the data utilization device.

3,742,457

HIGH SPEED DATA TRANSFER FOR A PERIPHERAL CONTROLLER

Jaime Calle, Glendale; Richard Thomas Flynn, and Marion Gene Porter, both of Phoenix, all of Ariz., assignors to Honeywell Information Systems Inc., Waltham, Mass.

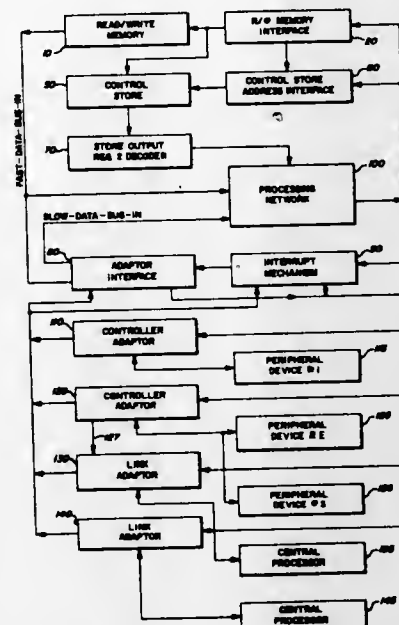
Filed May 15, 1972, Ser. No. 260,336
Int. Cl. G06f 3/00

U.S. Cl. 340-172.5

6 Claims

A microprogrammable controller is provided which has the capability of transmitting and receiving data simultaneously. This effectively doubles the transmission rate as compared with alternating receiving and transmitting operations. Special

features are incorporated in a microprogrammable controller, having arithmetic and logical data processing capability, in



order to support these functions. Furthermore, the transfer functions can be combined with a read/write memory function.

3,742,458

MEMORY PROTECTION SYSTEM PROVIDING FIXED, CONDITIONAL AND FREE MEMORY PORTIONS CORRESPONDING TO RANGES OF MEMORY ADDRESS NUMBERS

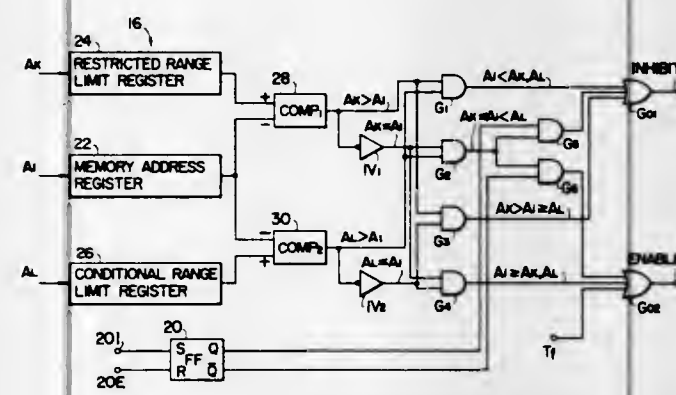
Tadanari Inoue; Shigeru Yamamoto, and Yutaka Wakasa, all of Tokyo, Japan, assignors to Yokogawa Electric Works, Ltd., Tokyo, Japan

Filed Sept. 10, 1971, Ser. No. 179,293
Claims priority, application Japan, Sept. 30, 1970, 45/86031

Int. Cl. G06f 1/00

U.S. Cl. 340-172.5

4 Claims



A method and apparatus for flexible protection against overwriting and destruction of the contents of selected portions of a computer memory device formed of a multiplicity of memory units. Each memory unit is assigned a unique memory address number which serves to identify the memory unit in instructions to write data into the memory. The address numbers are segregated into ranges of numbers defining separate memory portions to be protected, with the numbers at the limits or boundaries of the ranges being entered in registers which can be reset to flexibly determine the protected ranges. The memory device is separated in this fashion into three different portions: one permitting free writing access to the memory units, one withholding all writing access to the memory units, and one being conditioned to grant or withhold writing access according to the setting of a device such as flip-flop which can be arranged for manual or programable con-

trol. Whenever an instruction to alter a memory unit arises, the associated address number is entered in a register and compared by means of digital comparators with the range boundary numbers in their registers. Gate means grant or withhold access to the memory unit in accordance with the comparison, thereby controlling the insertion of data into each memory unit and providing protection for selected portions of the memory device.

3,742,459

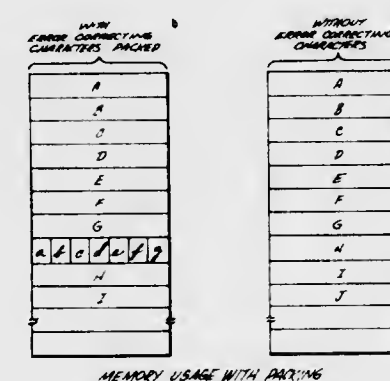
DATA PROCESSING METHOD AND APPARATUS ADAPTED TO SEQUENTIALLY PACK ERROR CORRECTING CHARACTERS INTO MEMORY LOCATIONS

Floyd W. Looschen, Arcadia, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed Nov. 26, 1971, Ser. No. 202,342
Int. Cl. G06f 1/10

U.S. Cl. 340-172.5

18 Claims



A memory has a plurality of addressable locations each having a fixed number of bit storing devices. A data processor produces data units along with raw address information to point to memory locations that will store the data units. An error correcting character is produced to accompany each data unit. The error correcting character has a shorter field length than the data unit. Apparatus responsive to the raw address information produces an actual memory address to select a location for storing each data unit. The apparatus also selects another location and a subset of the bit storing devices therein for storing the accompanying error correcting character. By selecting different subsets of bit storing devices, the apparatus operates to pack a plurality of error correcting characters together in the same location.

3,742,460

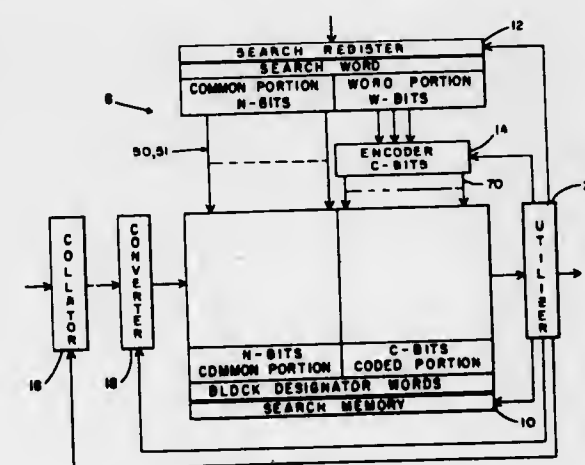
SEARCH MEMORY

Robert M. Englund, Golden Valley, Minn., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Dec. 20, 1971, Ser. No. 209,963
Int. Cl. G11c 15/00

U.S. Cl. 340-172.5

4 Claims



A Search memory organization using as the designator words, which words are the words that are stored in the Search

memory and that are compared to the one search word held in the search register, words that are generated from blocks of data words is disclosed. Each of the (block) designator words includes two portions: a first common portion that includes the binary data that are common to all the data words of the block; and, a second word portion that includes the binary data that are not common to all the data words of the block. Thus, all the data words in each block are represented by only a single block designator word whereby only one block designator word need be searched for comparison to the one search word rather than all the data words of the block.

3,742,461

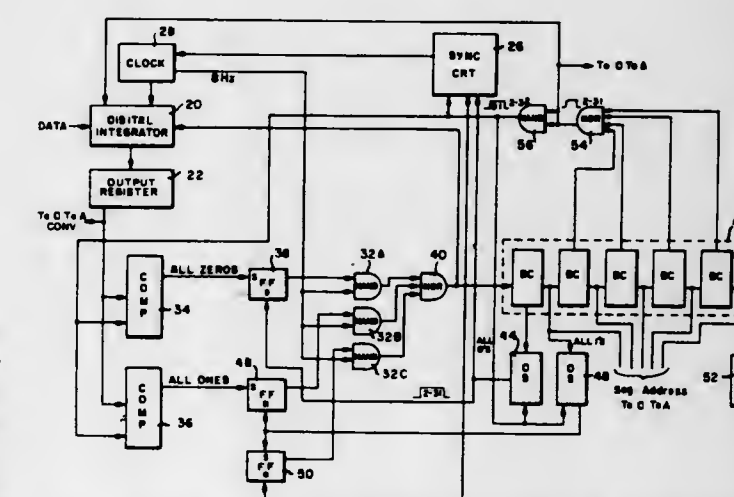
CALIBRATE LOCK-ON CIRCUIT AND DECOMMUTATOR

Donald F. Forbes, Oakton, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 22, 1972, Ser. No. 228,187
Int. Cl. H04l 7/00

U.S. Cl. 340-172.5

2 Claims



The invention relates to digital circuitry for automatically upon receipt of a calibrate signal locking on to received analog data and decommutating said data for further processing. The circuit locks on to the beginning of each frame and maintains this lock on while a counter counts the segments of the frame and resets the circuitry for the receipt of a new frame upon the end of the previous frame. The digital data is comprised of 32 segments the first two of which are approximately all zeros and approximately all ones. The remainder of which are at varying digital levels between all zeros and all ones. The calibrate circuit looks for the calibrate signal, all zeros and then for all ones before allowing the data to go on for further processing in the digital to analog converter.

3,742,462

DATA SYNCHRONIZING UNIT FOR DATA TRANSMISSION SYSTEM

Donald E. Haselwood, Deerfield, and Carl M. Solar, Glenview, both of Ill., assignors to A. C. Nielsen Company, Chicago, Ill.

Division of Ser. No. 15,696, March 2, 1970, Pat. No. 3,651,471. This application Feb. 17, 1972, Ser. No. 227,143
Int. Cl. H04l 7/04

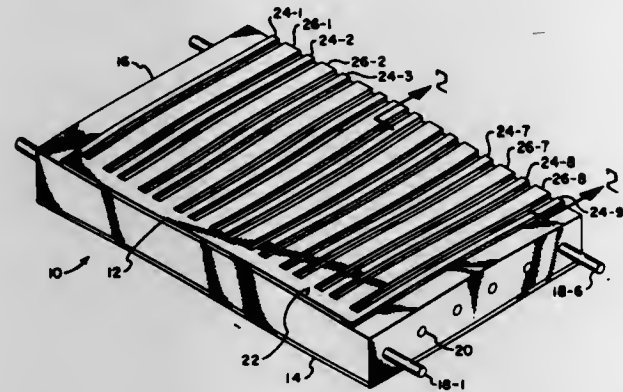
U.S. Cl. 340-172.5

7 Claims

A data synchronizing unit analyzes an incoming data signal and generates a strobe signal at times when data bits may be extracted from the incoming data signal with the least chance of error. The synchronizing unit makes it possible to transmit a continuous stream of data bits from one location to another without using stop and start codes and without transmitting a stream of timing or synchronization signals along with the data bits. A variable-mod counter generates a square wave signal the leading edge of which is the desired strobe-signal. A con-

3,742,469
HALF-TURN WORD LINE RETURN FOR PLATED-WIRE MEMORY ARRAY
 Clinton D. Crosby, Minneapolis, Minn., assignor to Sperry Rand Corporation, New York, N.Y.
 Filed Apr. 4, 1972, Ser. No. 240,915
 Int. Cl. G11c 11/14, 7/02
 U.S. Cl. 340—174 DC

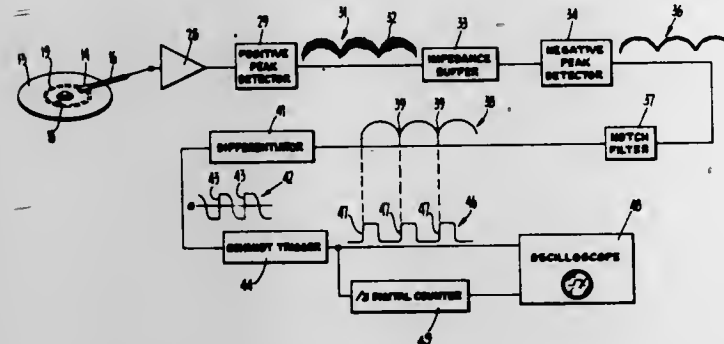
3 Claims



A plated-wire memory system tunnel structure and method of operation are disclosed. The tunnel structure is comprised of a planar insulative base member having a plurality of tunnel-oriented plated-wire memory elements passing therethrough. On one planar surface of the base member there is formed a comb-like copper member of alternately relatively-narrow return lines and interstitial relatively-wide word lines. In operation, the word current flows down the one selected word line, splits and returns back to ground through the parallel grounded return lines. The return current flowing back through the two return lines that are adjacent to the one selected word line provide a net word drive field that is substantially uncoupled from the next two adjacent word lines providing minimum disturb pulse effects thereon.

3,742,470
MEMORY DISC PACK DRIVE HAVING ACCURATE READ/WRITE HEAD POSITIONING
 In W. Ha; Carl P. Hollstein, Jr., and Frank D. Ruble, all of San Jose, Calif., assignors to Information Storage Systems, Inc., Cupertino, Calif.
 Filed Dec. 30, 1971, Ser. No. 214,050
 Int. Cl. G11b 21/10
 U.S. Cl. 340—174.1 B

8 Claims

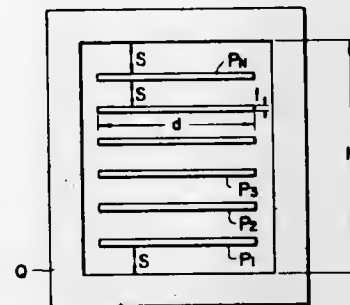


An apparatus is described which is incorporated into a memory disc pack drive mechanism to enable each read/write head thereof to be properly positioned with respect to corresponding disc pack recording surfaces. The positioning of each head is checked with the use of a test disc pack having a prerecorded data pattern at a prescribed reference location on each of its recording surfaces. The data pattern is made up of a pair of differing high frequency signals which are applied concentrically and quite close together on each surface, but eccentrically with respect to the axis of rotation of the surface. The head whose positioning is being checked is used to simultaneously pick up the pair of frequencies to generate an out-

put signal having a repeating, closed loop tracing defining beat frequency null points and an envelope characteristic of the head alignment. The invention conditions the output signal to precisely delineate the envelope by separating such envelope from its carrier frequencies, and then differentiating the same to provide high resolution signals representative of the head positioning. The differentiated signal is shaped and adjacent portions of the resulting signal are superimposed and displayed on an oscilloscope to enable an operator to visually check the same to learn of any required adjustments to the head positioning.

3,742,471
BUBBLE DOMAIN APPARATUS
 Itsuo Mikami, Tokyo, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
 Filed Feb. 24, 1972, Ser. No. 228,899
 Claims priority, application Japan, Feb. 24, 1971, 46/8648
 Int. Cl. G11c 11/14
 U.S. Cl. 340—174 S

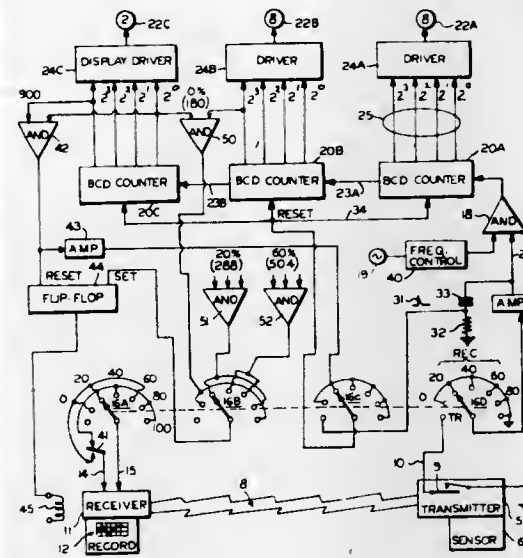
3 Claims



Bubble domain apparatus comprising a plurality of bubble domain elements, each of which has a bias magnetic field applied thereto by a permanent magnet sheet having an equivalent diameter sufficiently large relative to its thickness and being magnetized normally to the sheet surface, and which are received in a magnetic shielding box so that the permanent magnet sheets may be in parallel arrangement. In the bubble domain apparatus, even when one of said bubble domain elements is taken out from said apparatus, the bias magnetic fields applied to the respective bubble domain elements change scarcely.

3,742,472
ELECTRONIC TELEMETERING CALIBRATOR
 John A. Bryant; Orion P. Horne, and Edwin L. Mullikin, Jr., all of Owensboro, Ky., assignors to Texas Gas Transmission Corporation, Owensboro, Ky.
 Filed Dec. 27, 1971, Ser. No. 211,980
 Int. Cl. G08c 19/22, 15/12
 U.S. Cl. 340—177 CA

5 Claims

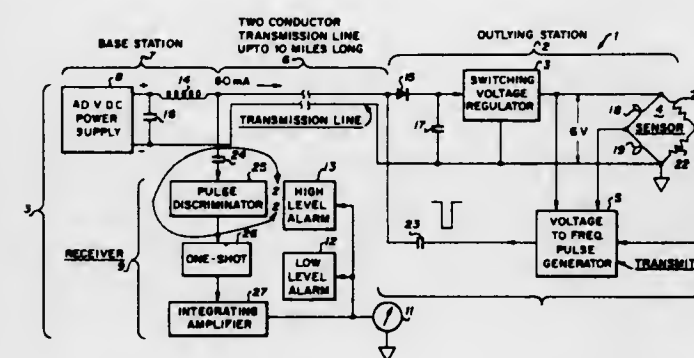


A special-purpose electronic time interval instrument is described which is used to calibrate both transmitting and

receiving mechanical equipment operating at opposite ends of a telemetering link providing pulse-width modulated signals. The instrument provides a count-down of pulses from an oscillator source to establish specified time intervals for both receiver and transmitter calibration. To calibrate the telemeter transmitter, the transmitted pulse resets and gates the counter to give a counter readout indicative of the elapsed time. Control circuits provide for converting standard pulse shapes produced on telemeter links directly into counts representative of the percentage of full-scale readout transmitted. In order to calibrate the receiver, the control circuits preset the count to generate pulse intervals for various percentages of full-scale signals.

3,742,473
PULSE DISCRIMINATOR AND TELEMETERING SYSTEMS USING SAME
 David M. Hadden, 700 Saratoga Avenue, San Jose, Calif.
 Filed Aug. 12, 1970, Ser. No. 63,178
 Int. Cl. G08c 19/16
 U.S. Cl. 340—210

17 Claims



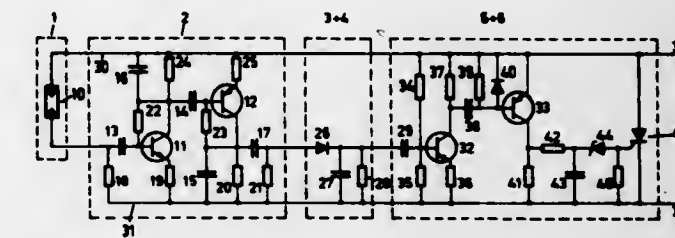
A telemetering system is disclosed having a transmitter located at an outlying station for generating a train of pulses having a certain parameter which is a function of a quantity to be measured. The pulses are transmitted over a two wire transmission line to a receiver located at a base station. The receiver includes a pulse discriminator for discriminating both the minimum height and the minimum pulse width of the pulses to be metered by the receiver. The pulse discriminator includes a pulse generator, such as a unijunction transistor, having a storage capacitor connected across its input terminals. The capacitor is charged up through a resistor such that the time to reach the triggerable level for the pulse generator is equal to the minimum pulse width to be discriminated. The charging cycle for the capacitor is controlled through a switching transistor biased such that input pulse to be discriminated must have a certain pulse height to cause the transistor to switch current to the capacitor and the switching transistor is held "on" only so long as the pulse height exceeds the minimum level. The capacitor charging cycle is reset each time the input pulse falls below the predetermined pulse height reference level.

3,742,474
FLAME DETECTOR
 Peter Muller, Oetwil a. See, Switzerland, assignor to Cerberus AG, Mannedorf, Switzerland
 Filed Apr. 7, 1971, Ser. No. 131,898
 Claims priority, application Switzerland, Mar. 4, 1971, 3248/71
 Int. Cl. G08b 17/12; H01j 39/00
 U.S. Cl. 340—228.2

23 Claims

The output from a photosensitive transducer, such as a photo diode or the like, exposed to a flame, is applied to a circuit which is capable of filtering out regularly recurring a-c components to distinguish the randomly occurring components upon flame detection from regularly recurring variations of light sensed by the transducer, for example due to reflections from rotating machines, line disturbances and the

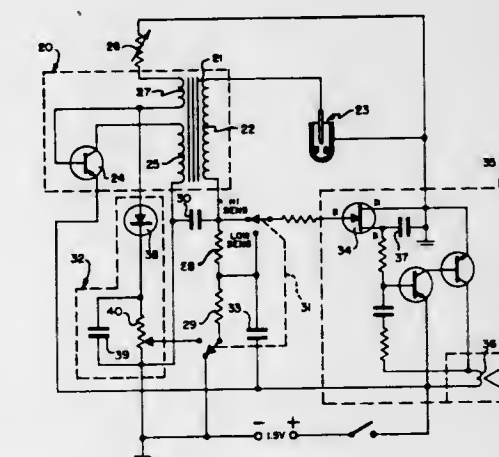
like. The circuit includes a demodulator and filter, having a pass range of about 2-40 Hz to demodulate the signal, and a further detector circuit detecting randomly recurring com-



ponents within a lower frequency range, for example 1 Hz or less and providing an output signal if a certain threshold is exceeded. Signals arising in the circuit can be used to additionally control the sensitivity of the flame-sensitive detector.

3,742,475
GASEOUS IMPURITY DETECTOR EMPLOYING CORONA DISCHARGE PHENOMENON
 Leonard N. Liebermann, La Jolla, and Stanley H. Lai, San Diego, both of Calif., assignors to T I F Instruments, Inc., Miami, Fla.
 Filed Mar. 16, 1971, Ser. No. 124,794
 Int. Cl. G08b 21/00
 U.S. Cl. 340—237 R

9 Claims



A method is disclosed of detecting gaseous impurities, particularly halogens, in an ambient atmosphere by repeatedly pulsing a pair of electrodes disposed in that atmosphere with a voltage sufficient to cause a corona discharge in the continuous corona region, and detecting the average (d.c.) current component of such discharge, changes in which correspond to changes in the concentration of such gaseous impurities. Apparatus is disclosed for detecting such impurities in concentrations as low as 1 ppm.

3,742,476
FLUID FLOW INDICATING SYSTEM
 Robert B. Withrow, San Diego, Calif., assignor to Apex Supply Co. of San Diego, San Diego, Calif.
 Continuation of Ser. No. 48,859, June 12, 1970, abandoned, which is a continuation of Ser. No. 797,373, Feb. 3, 1969, abandoned, which is a continuation of Ser. No. 485,155, Sept. 7, 1965, abandoned. This application Nov. 5, 1971, Ser. No. 196,237
 Int. Cl. G08b 21/00
 U.S. Cl. 340—239 R

3 Claims

A system utilizing a probe for ascertaining the rate of flow of a stably maintained fluid, i.e., a fluid which is not being subjected to a change from a liquid to a gas or vapor, or vice ver-

signal is detected in the master station, coded, and transmitted to the appropriate one of the slave stations. This phase information is responded to in the appropriate slave station to adjust the phase of its timing signals so that data bursts of each of the slave stations appear in the proper time slot of the TDM format at the repeater. The ground station responds to the phase of the received master reference signal and the phase information of the ranging signal to provide a measure of the satellite-to-slave station range at the ground station. In a single satellite system, the altitude of the slave stations and the rate of change or range, obtained from measuring the doppler of the carrier signal received at the associated slave station and is transmitted to the ground station in slow speed data channels provided during the synchronizing interval of each of the data bursts. These two bits of information together with the satellite-to-slave station range enables the ground station to locate the position of a particular slave station. In a two satellite system, the equipment for determining the satellite-to-slave station range is duplicated for cooperation with a second satellite so that the altitude of the slave station and the satellite-to-repeater range for both satellites enable the position location of a particular slave station at the ground station.

3,742,499

PULSE DOPPLER MOVING-TARGET RADAR

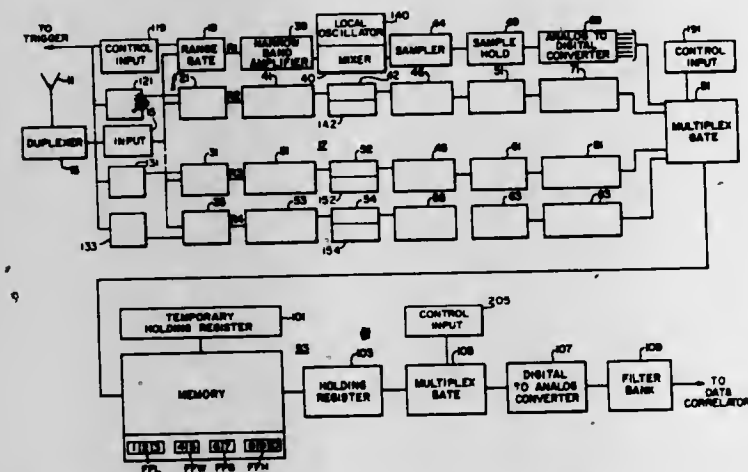
William W. Beydler, Laurel, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Continuation-in-part of Ser. No. 797,932, Feb. 10, 1969, abandoned.

Filed May 25, 1971, Ser. No. 146,743

Int. Cl. G01s 9/42

U.S. Cl. 343—7.7

10 Claims

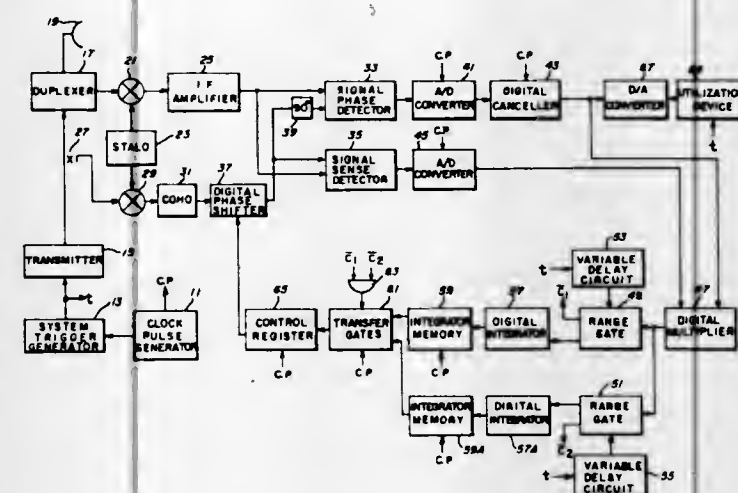


Multi-channel pulse-doppler moving-target radar with a single filter bank is disclosed in which received signals are passed through range channels during a succession or cycle of range sub-intervals of the main interval between transmitted pulses. Wave signals of the doppler shift frequency are derived from these range signals and these are sampled and converted into digital values, typically made up of six digit words, and stored in a three-dimensional, typically ferrite, memory core in the order in which they are received; that is, the magnitudes for all channels in succession during a cycle of first sample interval, the magnitudes for all channels during a cycle of second sample interval and so on. During storing the core is filled level by level along the height. The signals in the memory core for each channel in its turn; that is, all signals for the first channel, then all signals for the second channel, and so on are then passed through a filter bank and the data correlated. The signals are removed from the core in groups in a rearrangement of the order in which they are stored but in the same level by level order. The desired speed in presenting the data is achieved by removing a plurality of words from the memory core during each successive removal operation. The storage and removal is effected by selective operation of counters. The invention provides facilities for operating into all channels with a single filter bank without complicated storage and removal functions and without a core requiring complicated matrix wiring.

3,742,500
MTI RADAR
Nathan Freedman, West Newton, Mass., assignor to Raytheon Company, Lexington, Mass.
Filed Aug. 24, 1970, Ser. No. 66,394
Int. Cl. G01s 9/42

U.S. Cl. 343—7.7

1 Claim



A radar system adapted to discriminate between signals from clutter and moving targets. The disclosed system includes at least one digital canceller and an associated digital correction circuit which together are operative to produce a digital signal indicative of the average Doppler frequency of all targets within a selected group of range cells. Such digital signal, in turn, is applied to a digital phase shifter in circuit with the output signal from a reference oscillator to shift the frequency of such output signal until the clutter rejection notch of the digital canceller is centered on the average Doppler frequency of the targets within the selected group of range cells.

3,742,501
RADAR APPARATUS WITH DIRECTIONAL DISCRIMINATION AND INCREASED RADAR SENSITIVITY

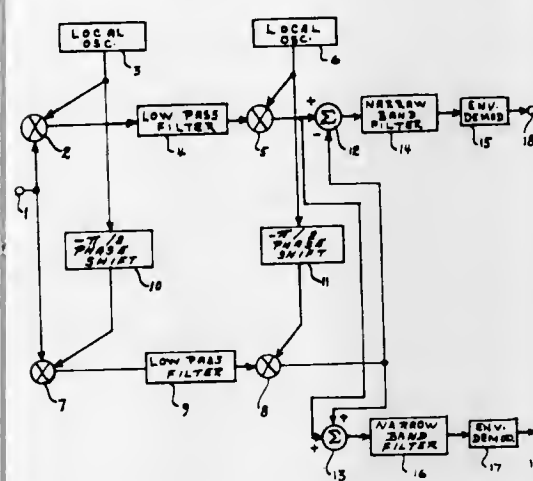
Harry Urkowitz, Philadelphia, Pa., and Samuel M. Sherman, Moorestown, N.J., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Mar. 21, 1972, Ser. No. 236,630

Int. Cl. G01s 9/42

U.S. Cl. 343—7.7

3 Claims



A radar apparatus with directional discrimination and improved detection is provided. A monostatic radar system has its transmitter and receiving antenna at the same location. Target motion toward or away from the radar is discovered by determining the direction of the doppler frequency shift imposed upon the reflected electromagnetic energy after impinging on a target. Directional capability is obtained by determin-

ing whether the doppler frequency shift is positive or negative and simultaneously there is also provided increased radar signal sensitivity.

3,742,502

POLARIZATION REFERENCE FOR BEAM FLYING

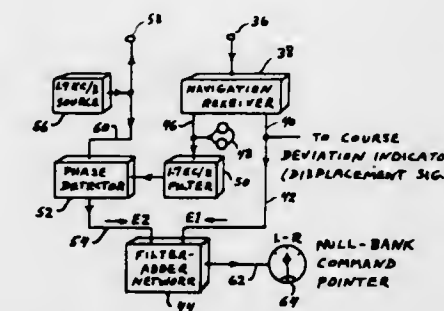
Frank B. Brady, 5322 Carvel Road, Washington, D.C., and Chester B. Watts, Jr., 6505 Pinecrest Court, Fairfax County, Va.

Filed Jan. 9, 1970, Ser. No. 1,742

Int. Cl. G01s 1/14

U.S. Cl. 343—107

11 Claims



This invention relates to airborne antenna systems for the reception of signals from stations transmitting bearing information as displacement from a course-line or fixed beam such as VOR or runway localizer stations.

In addition to the usual antenna for receiving the course displacement signals, an antenna element is provided having an output signal which is responsive to the attitude of the airplane as referred to the polarization-plane of the radio field. This polarization-referenced signal is modulated for identification prior to being applied, together with the regular antenna signal, to the input terminal of a standard navigation receiver. At the receiver output, the modulation is recovered and applied to a phase-detector to provide an attitude signal containing information, necessary for stable beam flight, which would otherwise have to be obtained from gyro-horizon and directional gyro instruments.

3,742,503

AIR TRAFFIC CONTROL SYSTEMS

Andrew Stratton, Farnborough, England, assignor to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

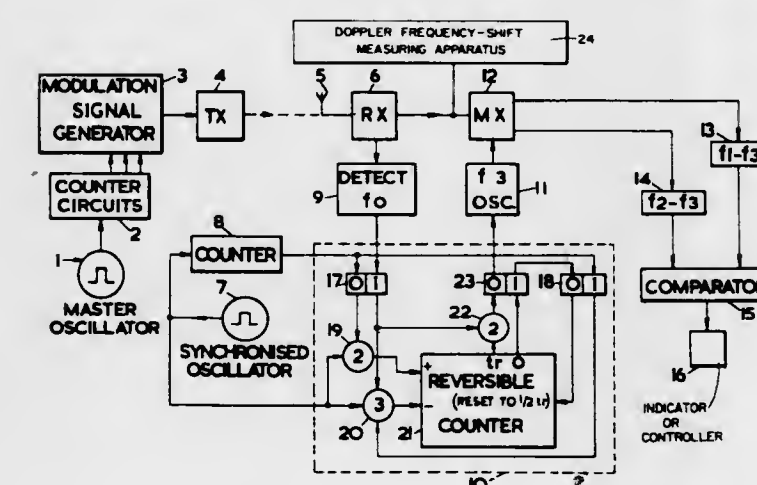
Filed May 19, 1971, Ser. No. 144,838

Claims priority, application Great Britain, May 20, 1970, 24,413/70

Int. Cl. G08g 5/00

U.S. Cl. 343—112 TC

6 Claims



An air traffic headway control system comprises a ground transmitter located en route and a receiver in each aircraft. The transmitter transmits cyclic sequences of distinctive

signals whose timing is controlled by a highly stable master oscillator. These are received in the aircraft which also has a stable oscillator synchronized to the master oscillator of the transmitter.

Reference pulses which are timed with respect to the stable oscillator are generated in the receiver and a comparison is made between the timing of the reference pulses and the time of reception of the sequences of distinctive signals to provide an indication of the position of the aircraft in the lane. A perturbation is applied to the timing of the beginning of each sequence which represents the desired motion of the aircraft. The receiver also includes means for controlling the speed of the aircraft in accordance with its indicated position so as to maintain or correct its position. The means for making the comparison in timing preferably includes a correlation detector.

3,742,504

AIRCRAFT COLLISION AVOIDANCE SYSTEM BY PASSING MEANS

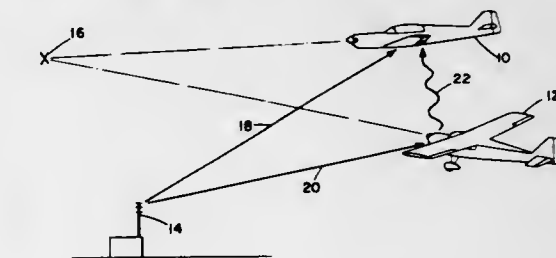
Marvin W. Shores, Pomona, Calif., assignor to General Dynamics Corporation, Pomona, Calif.

Filed June 21, 1971, Ser. No. 154,969

Int. Cl. G01s 3/02

U.S. Cl. 343—112 CA

4 Claims



A passive collision avoidance system, having particular applicability to aircraft collision avoidance, comprising two receivers operating out of antennas which have a differing sensitivity to the polarization of the incoming signals from a ground broadcast facility. The differing sensitivity ensures that the direct and reflected signals will predominate in different receivers and therefore when the outputs of the receivers are combined the resultant fade rate will give an indication of the movement of the intruding aircraft with respect to the equipped aircraft. Interpretation of the fade rate allows the equipped aircraft to change course until a non-collision course is attained.

3,742,505

IDENTIFICATION OF ELEVATION ANGLE OF ARRIVAL OF MULTIPLE IONOSPHERIC REFLECTIONS

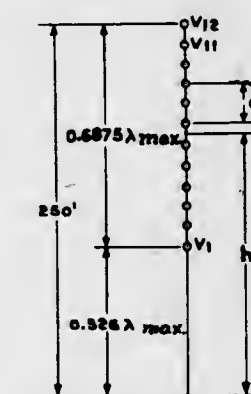
Arthur F. Lyle Rocke, Olney, Md., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed May 27, 1971, Ser. No. 147,550

Int. Cl. G01s 3/46

U.S. Cl. 343—113 R

8 Claims



This invention relates to a method for measuring the elevation angles of arrival of radio waves including those due to

multiple ionospheric reflections. The wave interference of multimode C.W. signals is displayed as a Lissajous figure which contains information concerning elevation angle and relative magnitude of each mode. Any one mode can be removed from the display by the proper height selection of the vertically disposed antenna elements.

3,742,506

DUAL FREQUENCY DUAL POLARIZED ANTENNA FEED WITH ARBITRARY ALIGNMENT OF TRANSMIT AND RECEIVE POLARIZATION

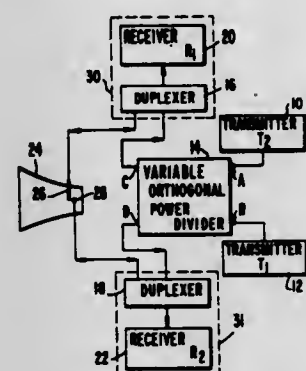
Ernest James Wilkinson, Sudbury, Mass., assignor to Communications Satellite Corporation, Washington, D.C.

Filed Mar. 1, 1971, Ser. No. 119,768

Int. Cl. H01q 3/26

U.S. Cl. 343-176

10 Claims



Dual polarization transmission and reception is accomplished in an antenna feed system which divides first and second transmission signals into components which recombine in an antenna radiator to form cross polarized transmission signals. Frequency separating duplexers enable the simultaneous transmission and reception of pairs of dual polarized transmit and receive signals. The radiator includes first and second linearly polarized probes positioned along the axes of the received cross polarized signals. Faraday rotation can be compensated for by varying the planes of polarization of the transmit signals with respect to the planes of polarization of the receive signals. The latter variation is accomplished by varying the power division of the first and second transmission signals.

3,742,507

AUTOMATIC GOLF BAG CART

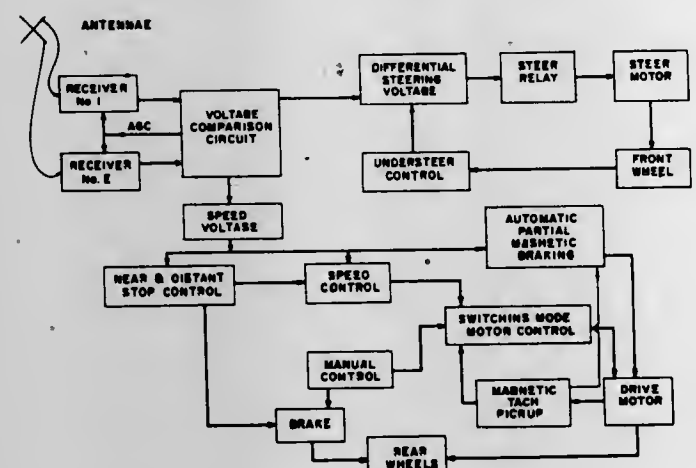
John E. Pirre, 136 Cold Spring Road, Stamford, Conn.

Filed Sept. 10, 1970, Ser. No. 71,113

Int. Cl. G08c 17/00; A63h 30/00

U.S. Cl. 343-22 S

13 Claims



A battery-powered golf bag cart responsive to signals from a movable transmitter carried in the pocket of a golfer, the cart and transmitter being preferably electromagnetically coupled to each other, a receiver in the cart for picking up signals from

the transmitter, a battery powered motor for moving the vehicle along the ground towards the transmitter, means for steering the vehicle in the direction of the golfer, brake means for sometimes preventing movement of the vehicle, speed control means in the receiver and responsive to signals within a given range of signal strength for actuating the motor to drive the vehicle towards the golfer, steer control means in the receiver for sensing the position of the golfer and for steering the vehicle towards the golfer, and a stop-control circuit in the receiver responsive to signals (or no signal) falling outside of the predetermined range of signal strength for actuating the brakes and for simultaneously preventing actuation of the drive motor.

3,742,508

INCONSPICUOUS VEHICLE MOUNTED RADIO ANTENNA

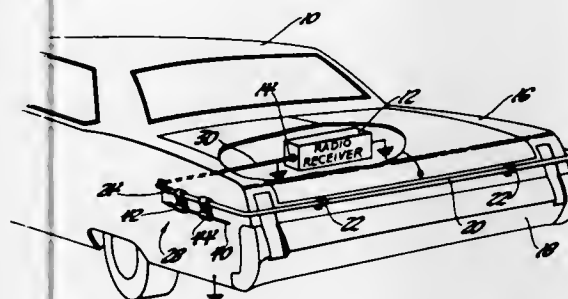
Donald E. Tomaszewski, Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed June 1, 1971, Ser. No. 148,546

Int. Cl. H01q 1/32

U.S. Cl. 343-713

1 Claim



A conductive rod is mounted in spaced relationship to the outer body of an automotive vehicle to provide a decorative ornament for the vehicle and to provide an inconspicuous antenna for a radio receiver contained within the vehicle. The capacitance developed between the conductive rod and the vehicle body tunes the rod to act as a quarter wavelength antenna. An adjustable connector assembly couples the conductive rod to the radio receiver so as to match the output impedance of the antenna to the input impedance of the radio receiver.

3,742,509

SUBSURFACE TRAVELING WAVE ANTENNA

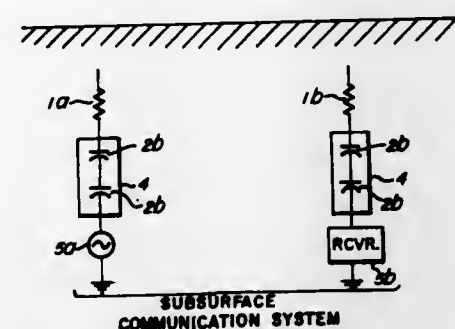
Joseph T. DeBettencourt, West Newton, and Carson K. H. Tsao, Braintree, both of Mass., assignors to Raytheon Company, Lexington, Mass.

Continuation of Ser. No. 48,889, June 15, 1970, abandoned, which is a continuation of Ser. No. 742,074, July 2, 1968, abandoned. This application Nov. 11, 1971, Ser. No. 197,989

Int. Cl. H01q 1/04

U.S. Cl. 343-719

2 Claims



A subsurface traveling wave antenna for generating and receiving primarily surface waves in either the vertical or horizontal position below the surface. The antenna comprises an insulated linear radiating element terminated with a matched load for coupling a portion of the surface wave com-

ponent. Impedance elements interconnecting portions of the radiating element at periodic intervals along its extent provide speed matching between the phase velocity of the wave propagating down the radiating element and the surface wave component.

3,742,510

MULTIMODE DISCONE ANTENNA

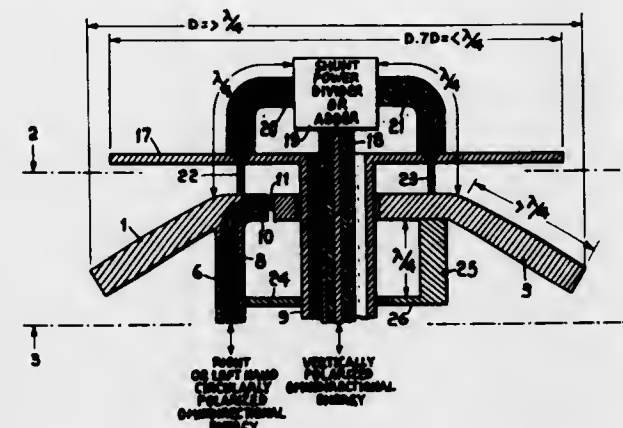
William M. Spanos, Wayne, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Feb. 12, 1971, Ser. No. 105,884

Int. Cl. H01q 1/00

U.S. Cl. 343-730

10 Claims



A turnstile antenna includes four arms disposed concentric of a vertical axis and orthogonally related to each other so that diagonally related arms form a dipole. The four arms are physically and electrically coupled to a circular member disposed coaxially of the vertical axis. The four arms extend downward at an angle less than 90° with respect to the vertical axis. The pair of dipoles have a first energy coupling arrangement for orthogonal energy coupled to adjacent orthogonal arms to provide right and left hand circularly polarized omnidirectional patterns. A cylinder disposed coaxially of the vertical axis and spaced from the circular member extends through the turnstile antenna to support a disc therefrom in a perpendicular relation to the vertical axis and above the turnstile antenna. A second energy coupling arrangement for inphase energy is coupled to the disc and diagonally disposed arms of the turnstile antenna. The thusly formed combination provides a disccone antenna having a vertically polarized omnidirectional pattern. Two variations of both the first and second energy coupling arrangements are disclosed.

3,742,511

LOW-LOSS ANTENNA SYSTEM WITH COUNTERPOISE INSULATED FROM EARTH

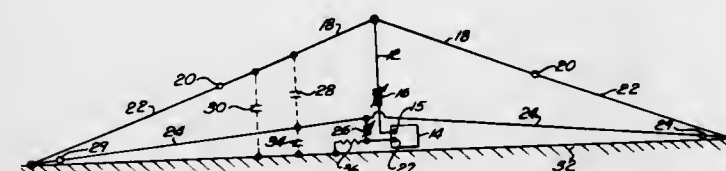
Carl E. Smith, and John D. Musselman, both of Brecksville, Ohio, assignors to Smith Electronics, Inc., Brecksville, Ohio

Filed June 15, 1971, Ser. No. 153,372

Int. Cl. H01q 1/48, 9/00

U.S. Cl. 343-750

10 Claims



An improved antenna system for transmitting and/or receiving electromagnetic waves, having a counterpoise insulated from the earth and in which the counterpoise is connected to

one terminal of a transmitter or receiver through an inductance. The inductance is tuned in conjunction with the tuning of a conventional loading inductance coil so as to maximize the field strength radiated by the antenna into the far field. The power lost in the earth or other antenna supporting surface is unusually small, so that radiated power is large.

3,742,512

DIRECTIONAL ANTENNA SYSTEM WITH CONICAL REFLECTOR

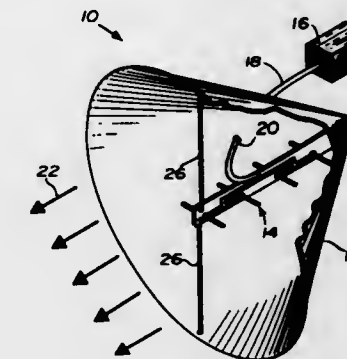
Robert E. Munson, Boulder, Colo., assignor to Ball Brothers Research Corporation, Boulder, Colo.

Filed Dec. 18, 1970, Ser. No. 99,438

Int. Cl. H01q 21/12

U.S. Cl. 343-814

2 Claims



A directional antenna system is disclosed and generally includes a passive conical reflector and an active feed assembly comprising a plurality of effective half-wave dipoles or element radiators and extending perpendicular thereto. The dipoles are simultaneously excited by in-phase signal energy so as to produce electromagnetic wave energy which is directed to the conical reflector and reflected therefrom in a direction parallel with the axis thereof.

3,742,513

OPTIMIZED REFLECTOR ANTENNA

Hermann W. Ehrenspeck, 94 Farnham St., Belmont, Mass.

Filed Feb. 15, 1972, Ser. No. 226,478

Int. Cl. H01q 19/10

U.S. Cl. 343-817

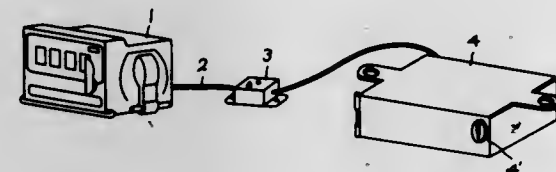
17 Claims



An optimized reflector antenna is provided which includes a reflector with a rim of adjustable width around its perimeter and a feed system having a predetermined spacing from the reflector. The rim is excited by radiation coupling and its edge acts like a secondary radiator that yields a substantial and unique effect on the radiation patterns of the antenna by preselecting the rim dimensions in amplitude and phase in reference to the feed system.

3,742,514 RECORDING APPARATUS FOR USE WITH A TAXIMETER

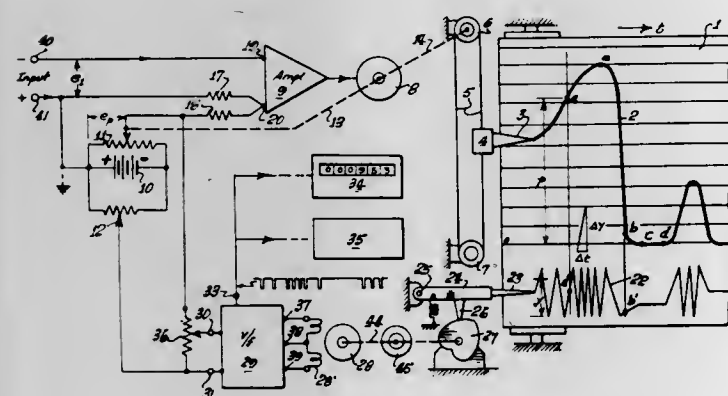
Sadaji Sugimura, Shimada, Japan, assignor to Yazaki Corporation, Tokyo, Japan
Filed Nov. 19, 1970, Ser. No. 91,049
Int. Cl. G07b 13/00
U.S. Cl. 346—33 R



An apparatus to be used with a taximeter for recording in a continuous form the working of a taxicab, which comprises a transmitter means operable to transmit electrical signals in response to the working and actuation of the taximeter and a signal receiving and recording means operable, upon its receipt of said signals, to actuate a recording device which converts the electrical signals received thereby to records made onto a strip of a continuous form, said strip being mountable onto a calculator for counting up various data of the working of taxicab.

3,742,515 CHART RECORDER DATA INTEGRATOR

John O. Yeiser, Mission Viejo, Calif., assignor to Milton Roy Company, St. Petersburg, Fla.
Filed Aug. 21, 1970, Ser. No. 65,950
Int. Cl. G01d 1/04, 9/30
U.S. Cl. 346—49



An integrator for continuously computing the area under a curve drawn by a chart recorder, and displaying the area information along the edge of the chart. The integrator uses a volt-

5 Claims

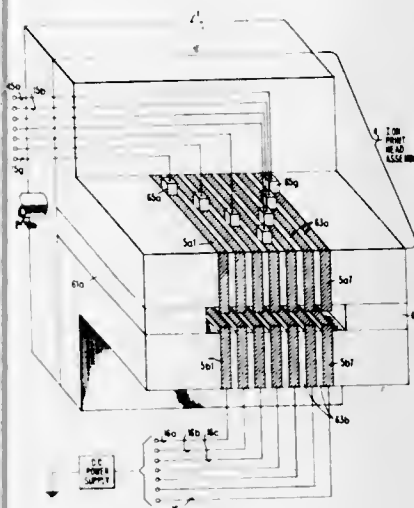
age-to-frequency converter which derives its input from the slidewire circuitry of a potentiometric null-balance recorder of known type. The converter output drives a stepping motor at a rate depending on the ordinate position on the main recording pen. The stepping motor drives a cam which moves an auxiliary pen back and forth, to draw a triangular wave of variable spatial frequency. The area under any selected portion of the chart curve is found by counting cycles of this wave. The converter also delivers a pulse output which may be fed to an external counter, or recorded, as on magnetic tape, for later recovery or for processing with respect to other tapes or data in a digital computer.

3,742,516 ELECTRO-IONIC PRINTING APPARATUS

Lawrence R. Cavanaugh, Chenango Bridge, and Robert E. McCurry, Vestal, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 16, 1972, Ser. No. 235,186
Int. Cl. G11b 9/08

U.S. Cl. 346—74 R

5 Claims



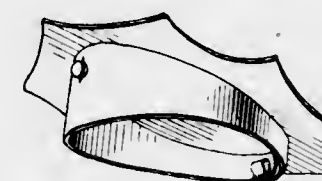
An improved printing head for forming electrostatic images on a dielectric surface by controlling the relative ion concentration in a gas stream moving through a slot and directed upon said dielectric surface. Application of an electric field across selected pairs of an array of spaced electrodes in the slot enables the stream to vary in ion concentration so as to cause the formation of a desired linear charge configuration on the dielectric. Selective application of low voltage electric fields to selected arrays of the electrodes causes formation of desired image charge configurations on the dielectric surface.

DESIGNS

JUNE 12, 1973

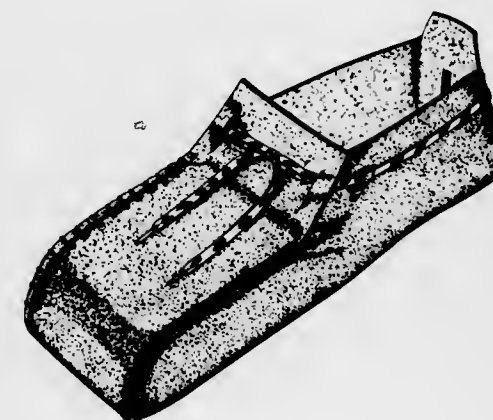
227,418
NURSES CAP
Evelyn Waites, 793 Fairmont Place,
Bronx, N.Y. 10460
Filed May 2, 1972, Ser. No. 249,756
Term of patent 14 years
Int. Cl. 2—03

U.S. Cl. D2—230



227,419
MOCCASIN
Horst Lachmayr, Columbus, Ohio, assignor to SCOA Industries, Inc., Columbus, Ohio
Filed Feb. 25, 1972, Ser. No. 229,612
Term of patent 7 years
Int. Cl. D2—04

U.S. Cl. D2—268



227,420
BOOT
Tatsuo Fukuoka, 3-3-Ban, 2-chome,
Shin-Minami-Fukushima, Japan
Filed Nov. 4, 1971, Ser. No. 195,896
Claims priority, application Japan, Oct. 1, 1971
Term of patent 14 years
Int. Cl. D2—04

U.S. Cl. D2—275



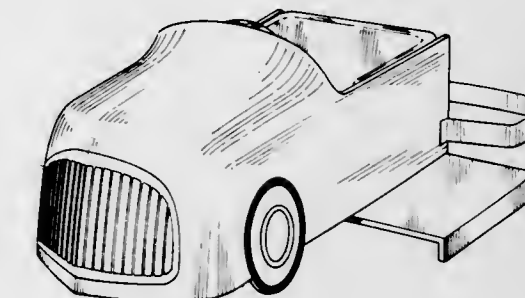
227,421
PULL FOR A SLIDE FASTENER
Michel Louis Dupon, Rue de Luynes 80-Airaines, France
Filed Apr. 29, 1971, Ser. No. 138,858
Term of patent 3½ years
Int. Cl. D2—07

U.S. Cl. D2—415



227,422
BARBER CHAIR ATTACHMENT FOR CHILDREN
Rodger D. McClellan, P.O. Box 551,
Bristolville, Ohio 44402
Filed May 17, 1971, Ser. No. 144,373
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D6—09



227,423
INFLATABLE CHAIR
Sutematsu Anjo, Tokyo, Japan, assignor to Century Products, Inc., Cleveland, Ohio
Filed May 4, 1971, Ser. No. 140,310
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D6—12



227,424
INFLATABLE CHAIR
 Sutematsu Ando, Tokyo, Japan, assignor to
 Century Products, Inc., Cleveland, Ohio
 Filed May 6, 1971, Ser. No. 141,081
 Term of patent 14 years
 Int. Cl. D6—02

U.S. Cl. D6—12



227,425
INFLATABLE CHAIR
 Sutematsu Ando, Tokyo, Japan, assignor to
 Century Products, Inc., Cleveland, Ohio
 Filed May 7, 1971, Ser. No. 141,257
 Term of patent 14 years
 Int. Cl. D6—02

U.S. Cl. D6—12



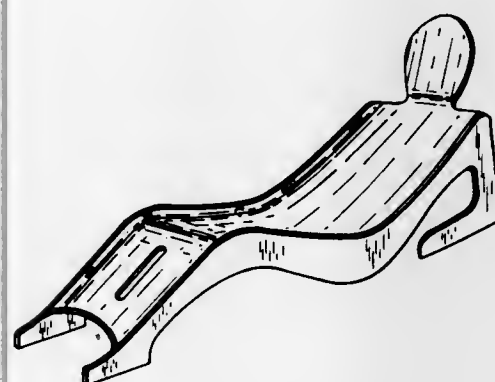
227,426
END FRAME FOR A CRIB
 Allen D. Jacobs, Los Angeles, Calif., assignor to
 Questor Corporation, Toledo, Ohio
 Filed Mar. 21, 1972, Ser. No. 236,800
 Term of patent 14 years
 Int. Cl. D6—06

U.S. Cl. D6—14



227,427
CHAIR
 Stanley H. Hutchinson, Sierra Madre, Calif., assignor to
 David E. Vaughn, Owosso, Mich.
 Filed Oct. 12, 1971, Ser. No. 188,655
 Term of patent 14 years
 Int. Cl. 6—01

U.S. Cl. D6—37



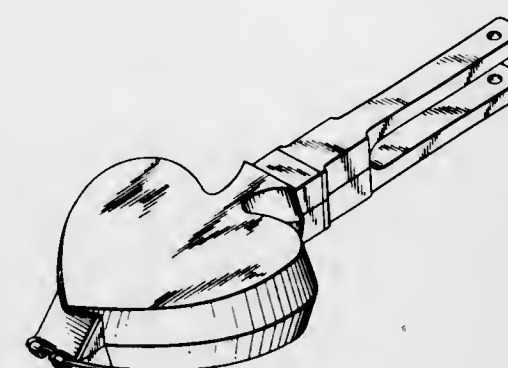
227,428
SKILLET OR SIMILAR ARTICLE
 John Di Lorenzo, 235 W. 46th St.,
 New York, N.Y. 10036
 Filed Feb. 7, 1972, Ser. No. 224,374
 Term of patent 14 years
 Int. Cl. D7—02

U.S. Cl. D7—85



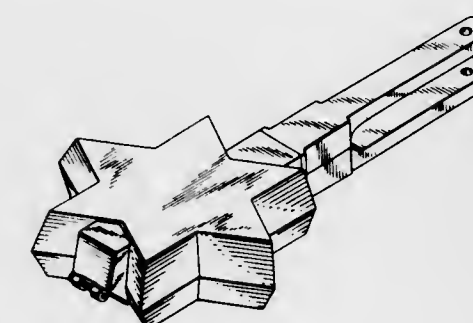
227,429
SKILLET OR SIMILAR ARTICLE
 John Di Lorenzo, 235 W. 46th St.,
 New York, N.Y. 10036
 Filed Feb. 1, 1972, Ser. No. 222,713
 Term of patent 14 years
 Int. Cl. D7—02

U.S. Cl. D7—85



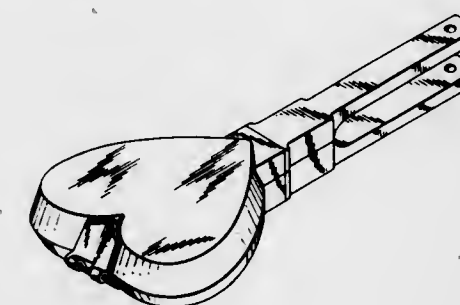
227,430
SKILLET OR SIMILAR ARTICLE
 John Di Lorenzo, 235 W. 46th St.,
 New York, N.Y. 10036
 Filed Feb. 1, 1972, Ser. No. 222,715
 Term of patent 14 years
 Int. Cl. D7—02

U.S. Cl. D7—85



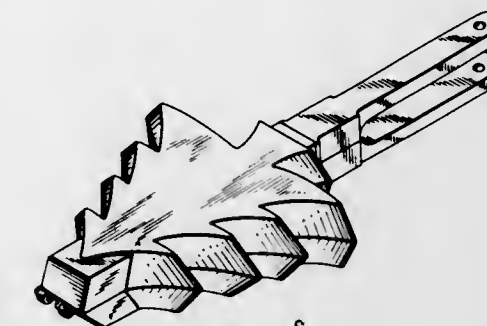
227,431
SKILLET OR SIMILAR ARTICLE
 John Di Lorenzo, 235 W. 46th St.,
 New York, N.Y. 10036
 Filed Feb. 1, 1972, Ser. No. 222,716
 Term of patent 14 years
 Int. Cl. D7—02

U.S. Cl. D7—85



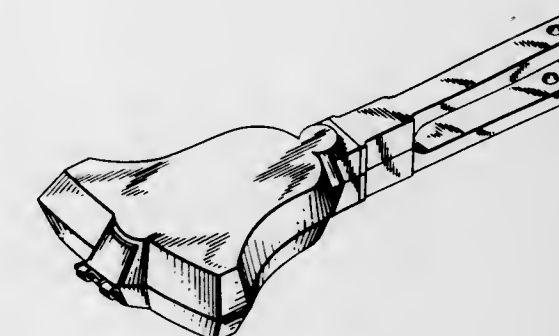
227,432
SKILLET OR SIMILAR ARTICLE
 John Di Lorenzo, 235 W. 46th St.,
 New York, N.Y. 10036
 Filed Feb. 1, 1972, Ser. No. 222,718
 Term of patent 14 years
 Int. Cl. D7—02

U.S. Cl. D7—85



227,433
SKILLET OR SIMILAR ARTICLE
 John Di Lorenzo, 235 W. 46th St.,
 New York, N.Y. 10036
 Filed Feb. 7, 1972, Ser. No. 224,414
 Term of patent 3½ years
 Int. Cl. D7—02

U.S. Cl. D7—85

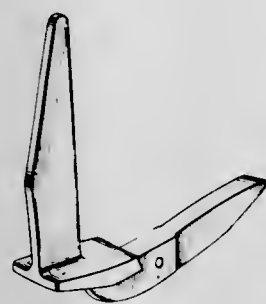


227,434
SPOON OR SIMILAR ARTICLE OF FLATWARE
 Richard C. Gavette, Hampton, N.H., assignor to
 Fortunoff Silver Sales, Inc., Westbury, N.Y.
 Filed Aug. 7, 1972, Ser. No. 278,406
 Term of patent 14 years
 Int. Cl. D7—03

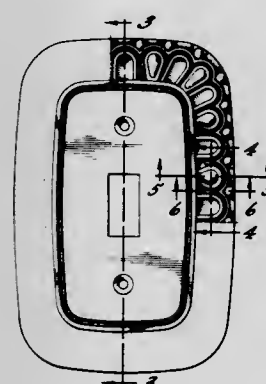
U.S. Cl. D7—137



227,435
GRIP-LIFT ADAPTER FOR DOOR LATCHES
 OR THE LIKE
 Robert E. Brown, 3725 Baldwin St., El Monte, Calif. 91731; and Clyde L. Vance, 10320 Pinehurst Ave., South Gate, Calif. 90280
 Filed Apr. 10, 1972, Ser. No. 242,890
 Term of patent 14 years
 Int. Cl. D8—06
 U.S. Cl. D8—161



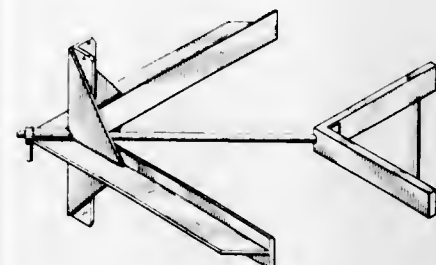
227,436
ELECTRIC WALL PLATE
 Martin R. Lambertz, New Hamburg, Ontario, Canada, assignor to Amerock Corporation, Rockford, Ill.
 Original design application May 25, 1970, Ser. No. 23,119, now Patent No. D. 223,746, granted June 6, 1972.
 Divided and this application Aug. 2, 1971, Ser. No. 168,521
 Term of patent 14 years
 Int. Cl. D8—09
 U.S. Cl. D8—181



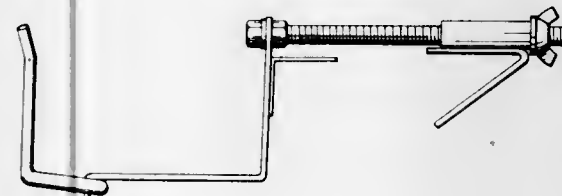
227,437
DRAWER PULL FOR CABINETS OR THE LIKE
 James L. Pruitt, Great Falls, Mont. (P.O. Box 262, Strawn, Tex. 76475)
 Original design application June 18, 1970, Ser. No. 23,563. Divided and this application Oct. 25, 1972, Ser. No. 300,453
 Term of patent 14 years
 Int. Cl. D8—06
 U.S. Cl. D8—189



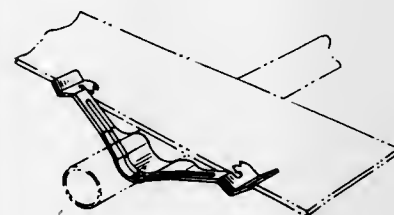
227,438
CLAMP FOR CORNER CONCRETE FORMS
 Daniel Priore, 2265 SW. 15th St., Miami, Fla. 33145
 Filed Sept. 15, 1971, Ser. No. 180,939
 Term of patent 14 years
 Int. Cl. D8—08, 05
 U.S. Cl. D8—228



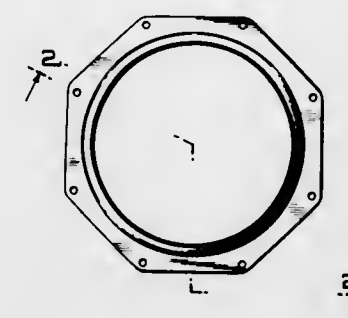
227,439
HOLDER FOR PAINT CANS ON LADDERS
 Alvin O. Brothers, 2001 E. Franklin St., Evansville, Ind. 47711
 Filed July 26, 1971, Ser. No. 166,330
 Term of patent 14 years
 Int. Cl. D8—08
 U.S. Cl. D8—233



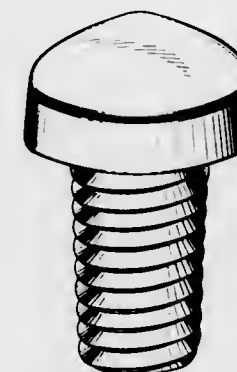
227,440
CONDUIT CLIP
 Raymond L. Martz, Palatine, Ill., assignor to Minerallac Electric Company, Chicago, Ill.
 Filed June 26, 1972, Ser. No. 247,910
 Term of patent 14 years
 Int. Cl. D8—08
 U.S. Cl. D8—235



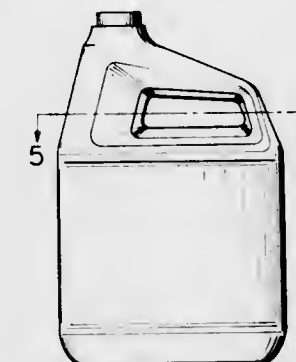
227,441
TAG HOLDER
 Vyto Simkus, Chicago, Ill., assignor to American Flange & Manufacturing Co., Inc., New York, N.Y.
 Filed Mar. 19, 1971, Ser. No. 126,383
 Term of patent 14 years
 Int. Cl. D8—08
 U.S. Cl. D8—243



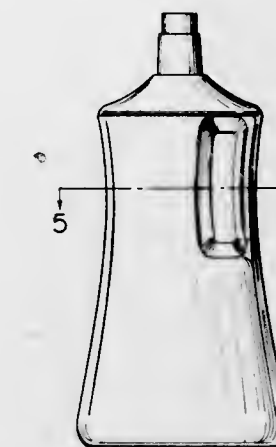
227,442
SCREW
 Masahito Ebi, Aichi-ken, Japan, assignor to Chukyo Dies Co., Ltd., Konan-shi, Aichi-ken, Japan
 Filed July 11, 1972, Ser. No. 270,824
 Term of patent 14 years
 Int. Cl. D8—08
 U.S. Cl. D8—267



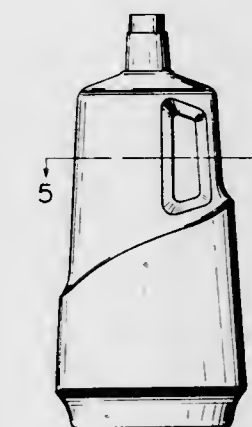
227,443
JUG
 Richard L. Weckman, Perrysburg, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
 Filed Mar. 27, 1972, Ser. No. 238,755
 Term of patent 14 years
 Int. Cl. D9—01
 U.S. Cl. D9—40



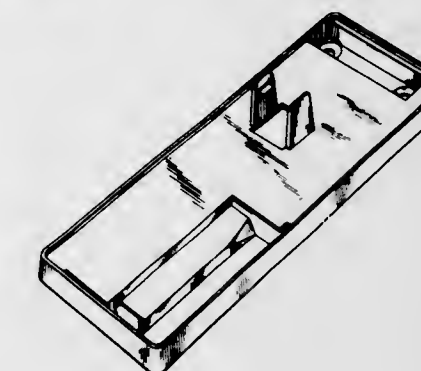
227,444
JUG
 Gordon A. Strand, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
 Filed Mar. 31, 1972, Ser. No. 240,333
 Term of patent 14 years
 Int. Cl. D9—01
 U.S. Cl. D9—40



227,445
JUG
 Gordon A. Strand, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio
 Filed Mar. 31, 1972, Ser. No. 240,323
 Term of patent 14 years
 Int. Cl. D9—01
 U.S. Cl. D9—42



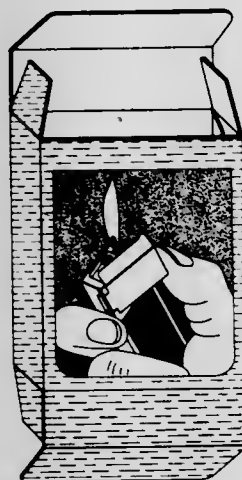
227,446
HOLDER FOR A RAZOR AND A BLADE DISPENSER
 Martin Glaberson, Ardsley, N.Y., assignor to Warner-Lambert Company, Morris Plains, N.J.
 Filed Apr. 17, 1972, Ser. No. 245,042
 Term of patent 14 years
 Int. Cl. D9—03
 U.S. Cl. D9—186



**227,447
FOLDABLE BOX**

Gotz Pinkert, Aschaffenburg, Germany, assignor to Braun Aktiengesellschaft, Frankfurt, Germany
Filed Aug. 27, 1971, Ser. No. 175,805
Claims priority, application Germany Mar. 1, 1971
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—226



**227,448
TOWER**

Joel H. Rosenblatt, Silver Spring, Md., assignor to National Gettysburg Battlefield Tower, Inc., Bethesda, Md.
Filed Sept. 10, 1971, Ser. No. 179,610
Term of patent 14 years
Int. Cl. D25—03

U.S. Cl. D13—1 R



**227,449
BUILDING**

Max D. Chapman, Dallas, Tex., assignor to Steak and Ale Restaurants of America, Inc., Dallas, Tex.
Filed Feb. 7, 1972, Ser. No. 224,390
Term of patent 14 years
Int. Cl. D25—03

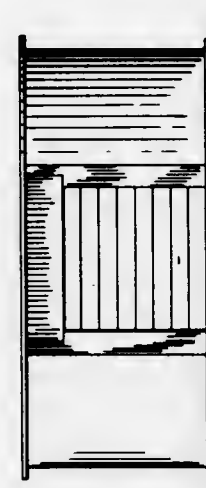
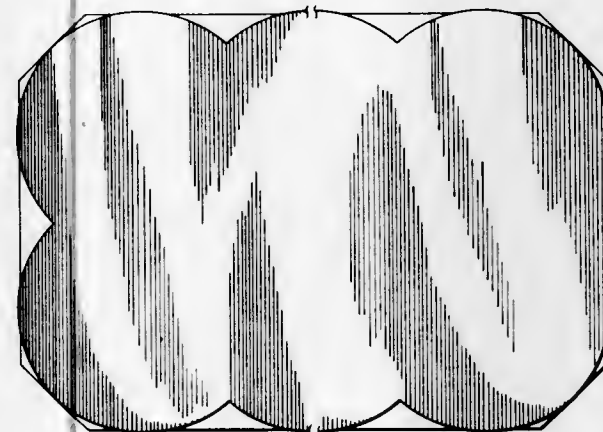
U.S. Cl. D13—1 B



**227,450
BUILDING**

Charles R. Turner, Hopkins, Mo., assignor to Advance Concrete and Asphalt Co., Maryville, Mo.
Filed Feb. 17, 1972, Ser. No. 227,338
Term of patent 14 years
Int. Cl. D25—03

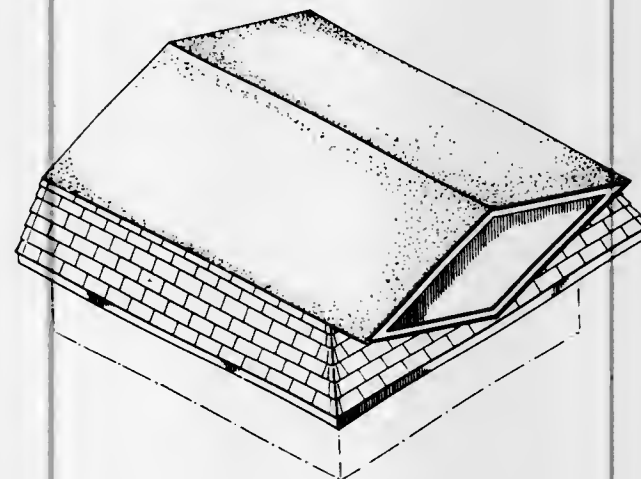
U.S. Cl. D13—1 R



**227,451
ROOF CONSTRUCTION FOR A BUILDING
STRUCTURE**

William Seibert, Haddonfield, N.J., assignor to The Frostie Company, Camden, N.J.
Filed Mar. 20, 1972, Ser. No. 236,575
Term of patent 14 years
Int. Cl. D25—02

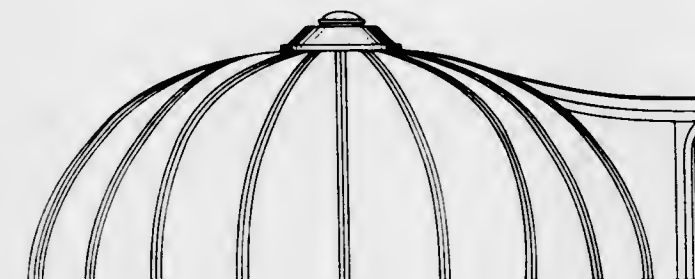
U.S. Cl. D13—1 R



**227,452
SHELTER**

Charles W. Moss, Ann Arbor, Mich., assignor to Tension Structures, Inc., Plymouth, Mich.
Filed May 25, 1972, Ser. No. 257,072
Term of patent 14 years
Int. Cl. D25—03

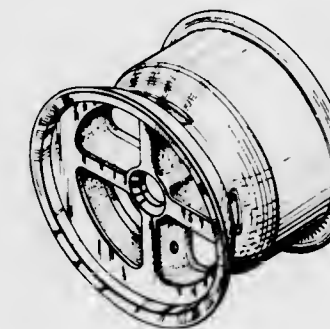
U.S. Cl. D13—1 E



**227,453
RACING WHEEL**

Maurice Phillippe, Redondo Beach, Calif., assignor to Vel's Ford Sales Co., Inc.
Filed Apr. 12, 1972, Ser. No. 243,534
Term of patent 14 years
Int. Cl. D12—08

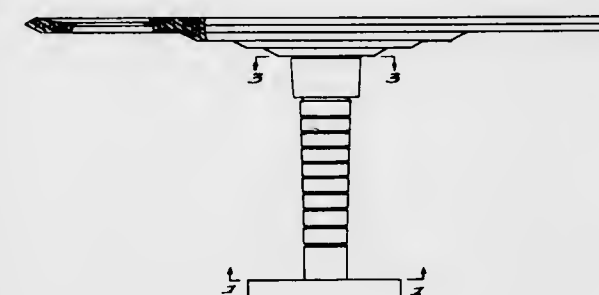
U.S. Cl. D14—30 R



**227,454
CANOPY**

Jimmie L. Jones, Salt Lake City, Utah, assignor to Ute Indian Tribe of the Uintah and Ouray Reservation, Uintah County, Utah
Filed May 2, 1972, Ser. No. 249,748
Term of patent 14 years
Int. Cl. D25—03

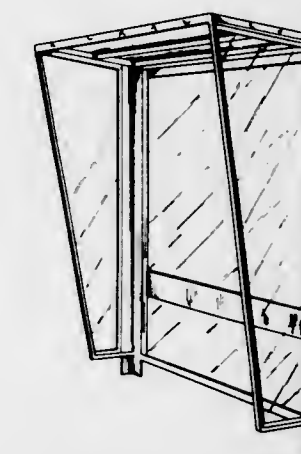
U.S. Cl. D13—1 D



**227,455
BUS SHELTER**

Richard L. Sklaar, 13 Terrace Circle, Great Neck, N.Y. 11021
Filed May 10, 1972, Ser. No. 252,150
Term of patent 14 years
Int. Cl. D25—03

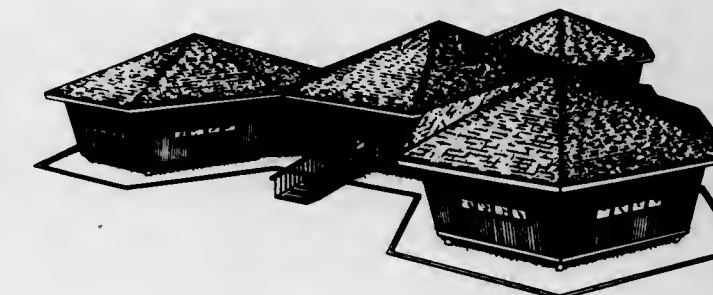
U.S. Cl. D13—1 D



**227,456
RESTAURANT BUILDING**

William O. Fulmer, Columbia, S.C., assignor to Shuck 'N Shell Shrimp Shacks, Inc., Columbia, S.C.
Filed May 16, 1972, Ser. No. 253,916
Term of patent 14 years
Int. Cl. D25—03

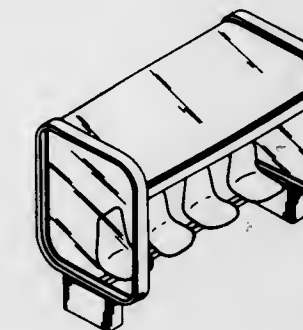
U.S. Cl. D13—1 B



**227,457
SHELTER**

William Sklaroff, Bala Cynwyd, Pa., assignor to Tubular Products, Inc., Souderton, Pa.
Filed July 3, 1972, Ser. No. 268,405
Term of patent 14 years
Int. Cl. D25—99

U.S. Cl. D13—1 D



227,458
CAPSULE

Nick C. Pogachich, Centerline, and Richard J. Graham, Grosse Pointe, Mich., assignors to Parke, Davis & Company, Detroit, Mich.
Filed Aug. 3, 1971, Ser. No. 168,802
Term of patent 14 years
Int. Cl. D28—01

U.S. Cl. D16—3

227,461
VITAMIN TABLET OR SIMILAR ARTICLE

Ian C. Modelevsky, Pleasantville, Benjamin S. De Young, Sands Point, and Donald Nevins, East Elmhurst, N.Y., and Anthony Stern, Mexico City, Mexico, assignors to Bristol-Myers Company, New York, N.Y.
Filed June 27, 1972, Ser. No. 266,774
Term of patent 14 years
Int. Cl. D1—01; D28—01

U.S. Cl. D16—3

227,459
VITAMIN TABLET OR SIMILAR ARTICLE

Ian C. Modelevsky, Pleasantville, Benjamin S. De Young, Sands Point, and Donald Nevins, East Elmhurst, N.Y., and Anthony Stern, Mexico City, Mexico, assignors to Bristol-Myers Company, New York, N.Y.
Filed June 27, 1972, Ser. No. 266,762
Term of patent 14 years
Int. Cl. D1—01; D28—01

U.S. Cl. D16—3

227,460
VITAMIN TABLET OR SIMILAR ARTICLE

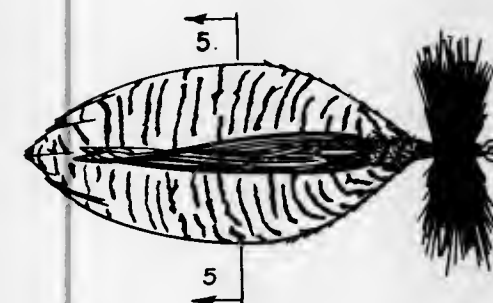
Ian C. Modelevsky, Pleasantville, Benjamin S. De Young, Sands Point, and Donald Nevins, East Elmhurst, N.Y., and Anthony Stern, Mexico City, Mexico, assignors to Bristol-Myers Company, New York, N.Y.
Filed June 27, 1972, Ser. No. 266,763
Term of patent 14 years
Int. Cl. D1—01; D28—01

U.S. Cl. D16—3

227,462
FISHING FLY

Randolph A. Skeie, 4460 Darley Ave., Boulder, Colo. 80203
Filed July 28, 1971, Ser. No. 167,065
Term of patent 14 years
Int. Cl. D22—05

U.S. Cl. D22—27

227,463
FISHING LURE

George S. Perrin, Fort Smith, Ark., assignor to Plastic Research and Development Corporation, Fort Smith, Ark.
Filed June 5, 1972, Ser. No. 260,051
Term of patent 14 years
Int. Cl. D22—05

U.S. Cl. D22—27

227,464
FISHING LURE

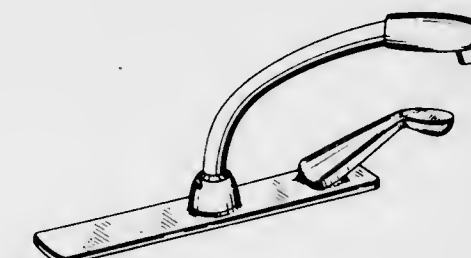
Dallas F. Weldon, 612 W. Hickory St., Sylacauga, Ala. 35150
Filed Aug. 29, 1972, Ser. No. 284,599
Term of patent 14 years
Int. Cl. D22—05

U.S. Cl. D22—27

227,465
COMBINED KITCHEN FAUCET AND HANDLE

Donald M. Genaro, Haworth, N.J., and Charles W. Pelly, Scarsdale, N.Y., assignors to American Standard Inc., New York, N.Y.
Filed Mar. 6, 1972, Ser. No. 232,356
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—23

227,466
HANDLE FOR A PLUMBING FITTING

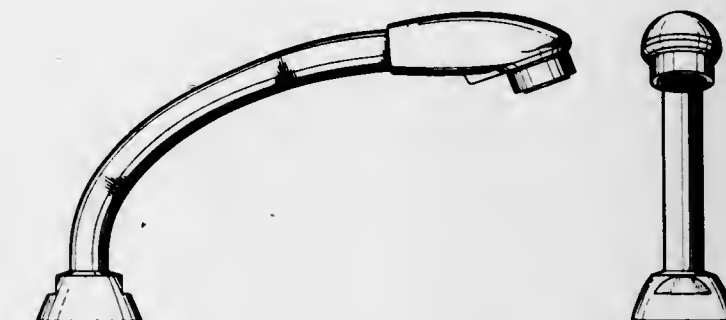
Donald M. Genaro, Haworth, N.J., and Charles W. Pelly, Scarsdale, N.Y., assignors to American Standard Inc., New York, N.Y.
Filed Mar. 6, 1972, Ser. No. 232,348
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—29

227,467
SPOUT

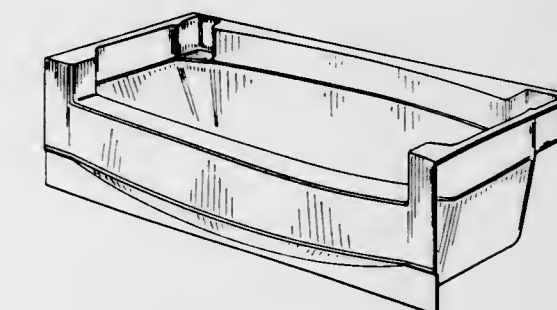
Donald M. Genaro, Haworth, N.J., and Charles W. Pelly, Scarsdale, N.Y., assignors to American Standard Inc., New York, N.Y.
Filed Mar. 6, 1972, Ser. No. 232,358
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—32

227,468
BATHTUB

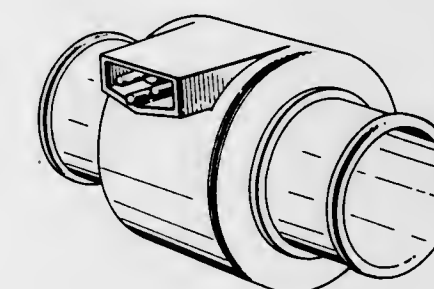
Merritt W. Seymour, Sylvania, Ohio, assignor to Owens-Corning Fiberglas Corporation
Original design application Jan. 11, 1971, Ser. No. 105,791. Divided and this application Mar. 31, 1972, Ser. No. 240,343
Term of patent 14 years
Int. Cl. D23—02

U.S. Cl. D23—55

227,469
ENGINE PREHEATER

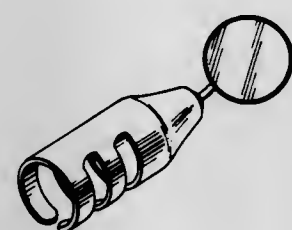
Bernard H. Pickard, Toronto, Ontario, Canada, assignor to Bardon Research and Development Limited, Toronto, Ontario, Canada
Filed July 6, 1971, Ser. No. 160,269
Term of patent 14 years
Int. Cl. D23—03

U.S. Cl. D23—86



227,470
DENTAL MIRROR STRUCTURE
 James Vannes Boone, Meadows Bldg.,
 Dallas, Tex. 75206
 Filed July 17, 1972, Ser. No. 272,445
 Term of patent 14 years
 Int. Cl. D24—02

U.S. Cl. D24—1 D



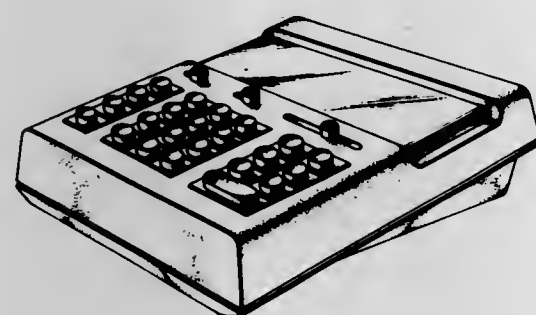
227,471
CALCULATING MACHINE
 Mititaka Yamamoto, Kyoto, Koichi Yada, Osaka, and
 Hisashi Maeda, Kyoto, Japan, assignors to Omron
 Tateisi Electronics Co., Kyoto-shi, Japan
 Filed Sept. 16, 1971, Ser. No. 181,279
 Claims priority, application Japan Mar. 16, 1971
 Term of patent 14 years
 Int. Cl. D14—02

U.S. Cl. D26—5 C



227,472
ELECTRONIC CALCULATOR
 Koji Hikawa, Tokyo, Japan, assignor to Kabushiki
 Kaisha Ricoh, Tokyo, Japan
 Filed Apr. 13, 1972, Ser. No. 243,916
 Claims priority, application Japan Oct. 20, 1971
 Term of patent 3½ years
 Int. Cl. D14—02

U.S. Cl. D26—5 C



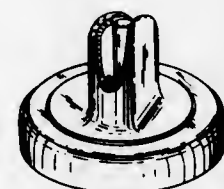
227,473
CALCULATOR
 George J. Lampel, Los Angeles, Calif., assignor to Citizen
 America Corporation, Beverly Hills, Calif.
 Filed June 5, 1972, Ser. No. 260,054
 Term of patent 14 years
 Int. Cl. D14—02

U.S. Cl. D26—5 C



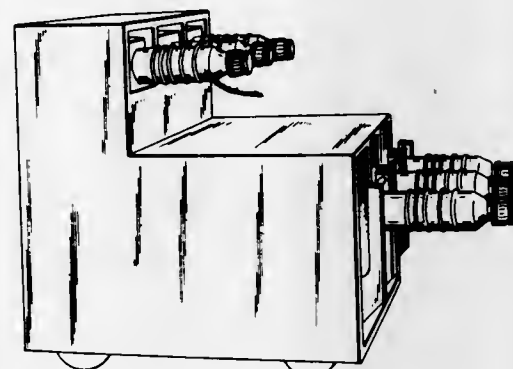
227,474
FLUORESCENT LAMP HEAD
 James F. Sullivan, Eastchester, N.Y., assignor to Kulka
 Electric Corp., Mount Vernon, N.Y.
 Filed Mar. 16, 1972, Ser. No. 235,465
 Term of patent 14 years
 Int. Cl. D26—04

U.S. Cl. D26—8



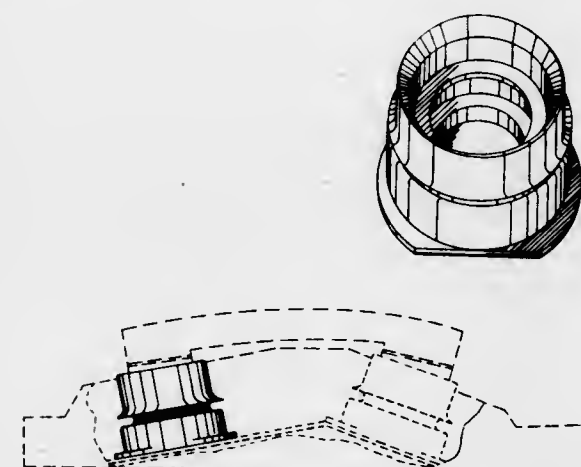
227,475
**LOW PROFILE HIGH-VOLTAGE, TRUCK-
 MOUNTED CIRCUIT BREAKER WITH
 STAGGERED TERMINALS, OR THE LIKE**
 Philip C. Netzel, Millmont Park, Pa., assignor to I-T-E
 Imperial Corporation, Philadelphia, Pa.
 Filed June 26, 1972, Ser. No. 266,484
 Term of patent 14 years
 Int. Cl. D13—03

U.S. Cl. D26—13 R



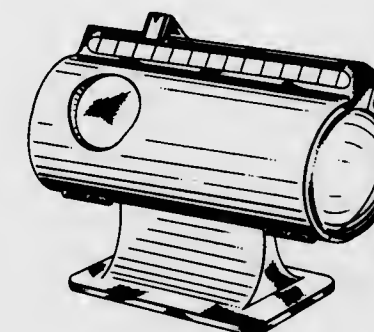
227,476
CUP FOR AN ACOUSTICAL COUPLER
 John P. Kennedy, 2198 Woodstock Road,
 Columbus, Ohio 43221
 Filed Sept. 9, 1971, Ser. No. 179,253
 Term of patent 14 years
 Int. Cl. D14—03

U.S. Cl. D26—14 A



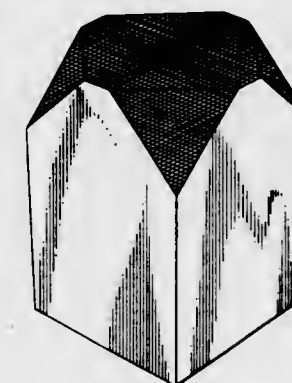
227,477
TELEPHONE DIRECTORY DEVICE
 Alwin John Stahel II, New Brighton, Minn., assignor to
 The Holes-Webay Co., St. Cloud, Minn.
 Filed Aug. 14, 1972, Ser. No. 280,154
 Term of patent 14 years
 Int. Cl. D14—03

U.S. Cl. D26—14 A



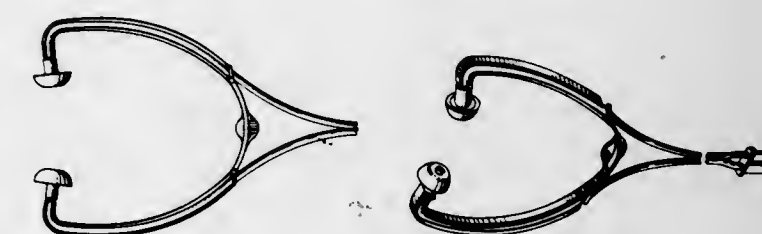
227,478
LOUD SPEAKER
 Hans Ingvar Ekdahl, Staffanstorp, and Sten Egon Oskar
 Olofsson, Malmo, Sweden, assignors to Handelsbolaget
 Under Firma Handels-Och Konsultfirman Ekdahl &
 Olofsson, Malmo, Sweden
 Filed Oct. 26, 1971, Ser. No. 192,689
 Claims priority, application Sweden Apr. 27, 1971
 Term of patent 14 years
 Int. Cl. D14—03

U.S. Cl. D26—14.6



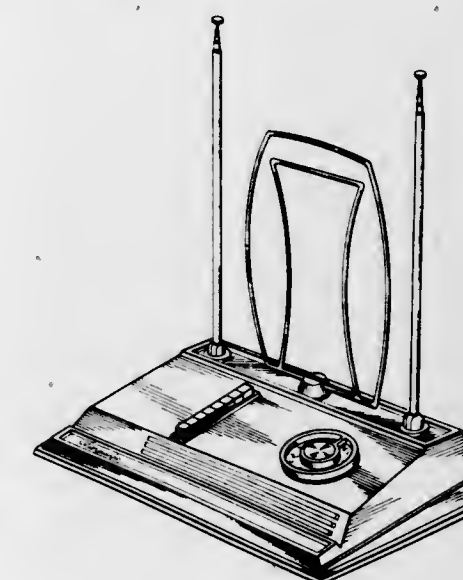
227,479
SOUND TUBE HEAD SET
 Thomas Albert Scanlon, Barrington, R.I., assignor to
 Avid Corporation, East Providence, R.I.
 Filed Feb. 28, 1972, Ser. No. 230,198
 Term of patent 14 years
 Int. Cl. D14—03

U.S. Cl. D26—14 H



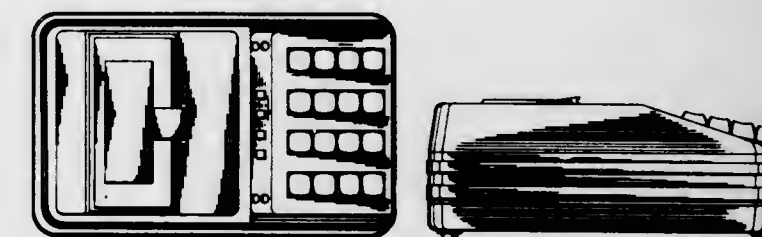
227,480
INDOOR TELEVISION ANTENNA
 John Franzone, 2301 York Road, Lutherville-
 Timonium, Md. 21093
 Continuation-in-part of abandoned design applications
 Ser. Nos. 149,875, 149,876 and 149,877, all June 3,
 1971. This application July 21, 1972, Ser. No. 242,866
 Term of patent 14 years
 Int. Cl. D14—03

U.S. Cl. D26—14 F

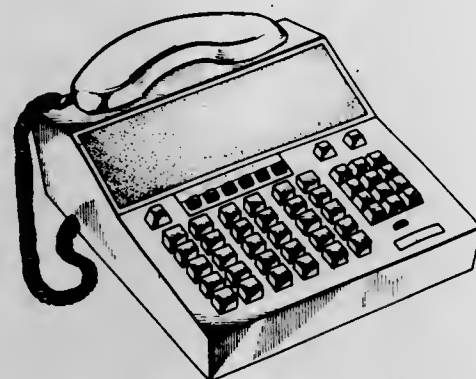


227,481
**DATA STORAGE CASSETTE FOR ACOUSTIC
 COUPLING OF INFORMATION**
 John P. Kennedy, 2198 Woodstock Road,
 Columbus, Ohio 43215
 Filed Apr. 20, 1972, Ser. No. 246,109
 Term of patent 14 years
 Int. Cl. D14—03

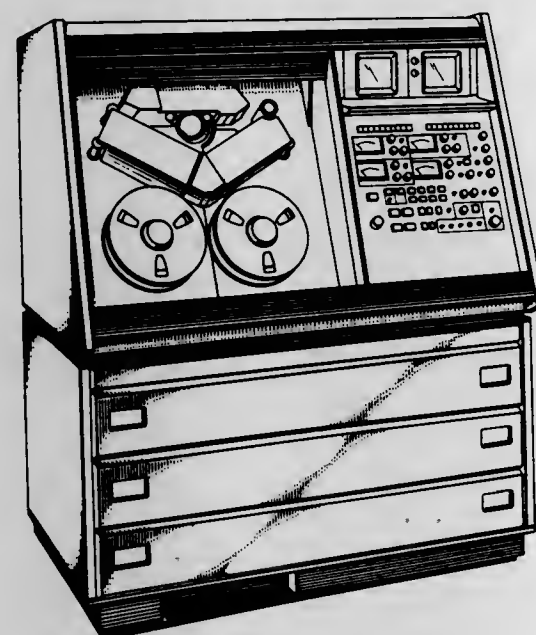
U.S. Cl. D26—14 A



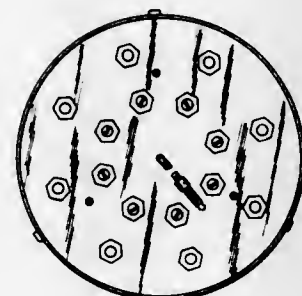
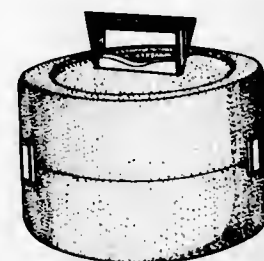
227,482
TELEPHONE INSTRUMENT
 Ronald Binks, Chambersburg, Pa., assignor to Global Systems Design Corporation, Chambersburg, Pa.
 Filed May 30, 1972, Ser. No. 258,212
 Term of patent 14 years
 Int. Cl. D14—03
 U.S. Cl. D26—14 A



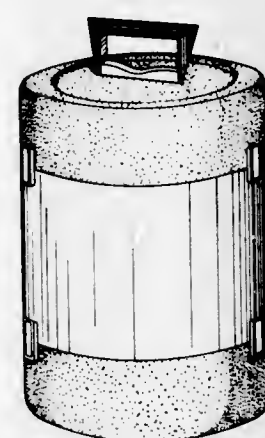
227,483
VIDEOTAPE RECORDER
 Hart Matsuda, Evanston, Ill., assignor to International Video Corporation, Sunnyvale, Calif.
 Filed June 7, 1972, Ser. No. 260,715
 Term of patent 14 years
 Int. Cl. D14—01, 02
 U.S. Cl. D26—14 B



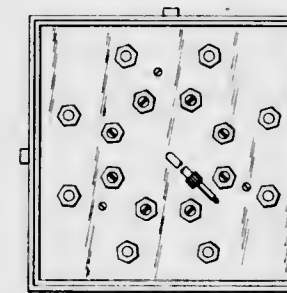
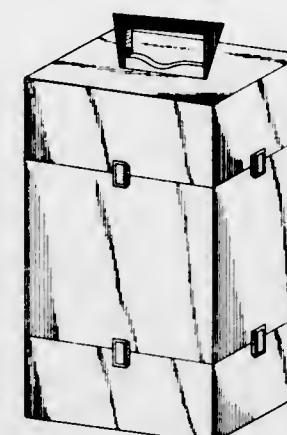
227,484
PORTABLE SOUND MANIFOLD
 Alan French, Warwick, and Arthur Edward Pryde, Providence, R.I., assignors to Avid Corporation, East Providence, R.I.
 Filed July 13, 1972, Ser. No. 271,372
 Term of patent 14 years
 Int. Cl. D14—03
 U.S. Cl. D26—14 G



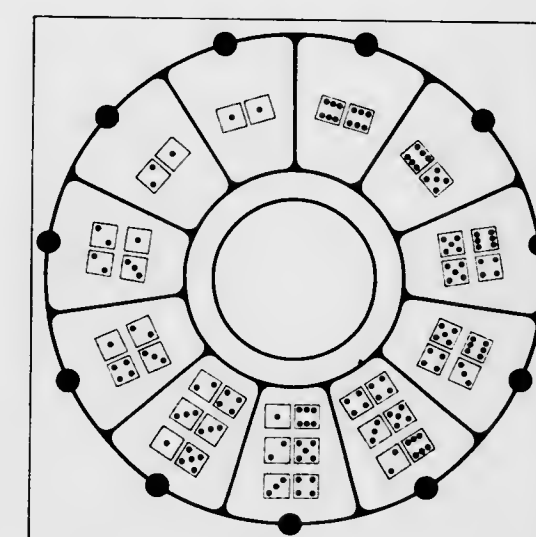
227,485
PORTABLE SOUND MANIFOLD
 Alan French, Warwick, and Arthur Edward Pryde, Providence, R.I., assignors to Avid Corporation, East Providence, R.I.
 Filed July 13, 1972, Ser. No. 271,573
 Term of patent 14 years
 Int. Cl. D14—03
 U.S. Cl. D26—14 G



227,486
PORTABLE SOUND MANIFOLD
 Alan French, Warwick, and Arthur Edward Pryde, Providence, R.I., assignors to Avid Corporation, East Providence, R.I.
 Filed July 31, 1972, Ser. No. 276,760
 Term of patent 14 years
 Int. Cl. D14—03
 U.S. Cl. D26—14 G

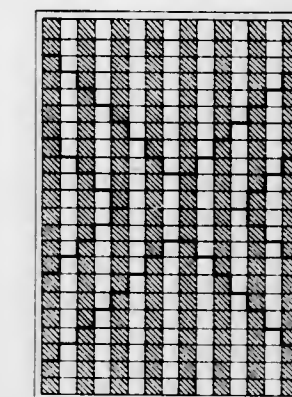


227,487
GAME BOARD
 Stephen Corey, 6258 Rhodes, St. Louis, Mo. 63109
 Filed Sept. 2, 1971, Ser. No. 177,533
 Term of patent 14 years
 Int. Cl. D21—01
 U.S. Cl. D34—5 SS

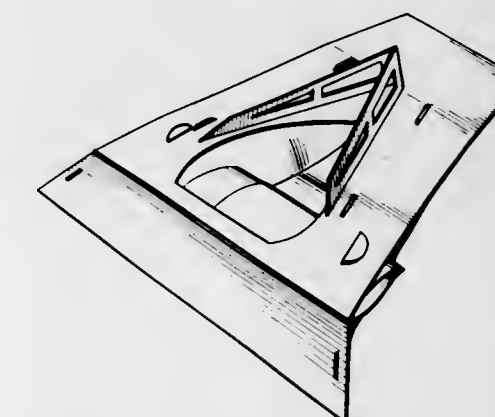


911 O.G.—57

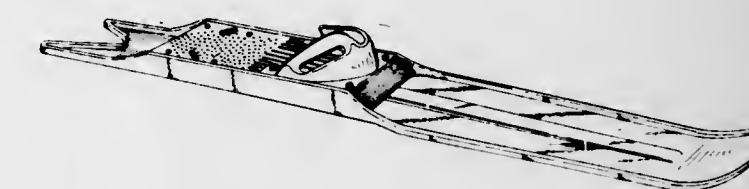
227,488
GAME BOARD OR A SIMILAR ARTICLE
 Samuel M. Spencer, 10147 Rustic Lane 45215, and James R. Davis, 8725 Hood Court 45231, both of Cincinnati, Ohio
 Filed Apr. 21, 1972, Ser. No. 246,519
 Term of patent 14 years
 Int. Cl. D21—01
 U.S. Cl. D34—5 SS



227,489
CHILD'S ROCKING TOY
 Ron J. Lenius, 422 Vernon St., Oakland, Calif. 94610
 Substituted for abandoned design application Ser. No. 22,730, Apr. 30, 1970. This application Sept. 7, 1972, Ser. No. 286,875
 Term of patent 14 years
 Int. Cl. D21—01
 U.S. Cl. D34—5 D

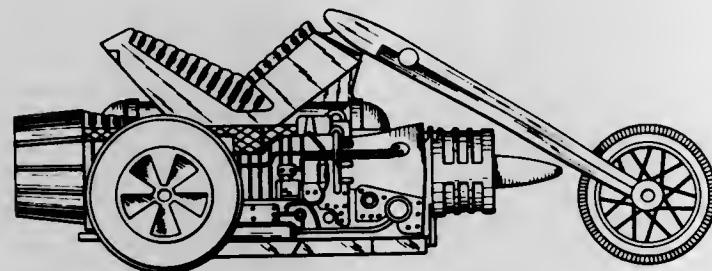


227,490
SKI
 Irving Leonard Kaplan, Cleveland Heights, Ohio, assignor to Skijor Manufacturing Company, Cleveland, Ohio
 Filed June 21, 1971, Ser. No. 155,410
 Term of patent 14 years
 Int. Cl. D21—02
 U.S. Cl. D34—14 D



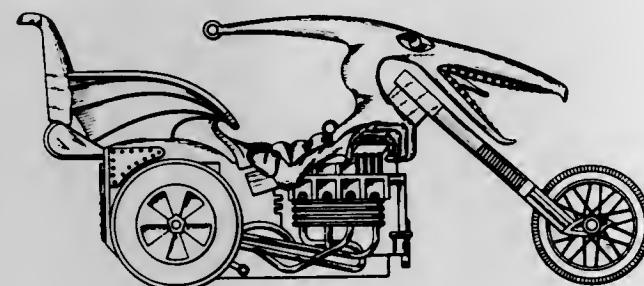
227,491
TOY MOTORCYCLE

Robert B. Lovejoy, Hermosa Beach, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Aug. 7, 1972, Ser. No. 278,686
Term of patent 14 years
Int. Cl. D21-01
U.S. Cl. D34-15 AJ



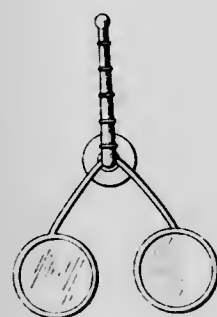
227,492
TOY MOTORCYCLE

Larry R. Wood, Redondo Beach, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Aug. 7, 1972, Ser. No. 278,687
Term of patent 14 years
Int. Cl. D21-01
U.S. Cl. D34-15 AJ



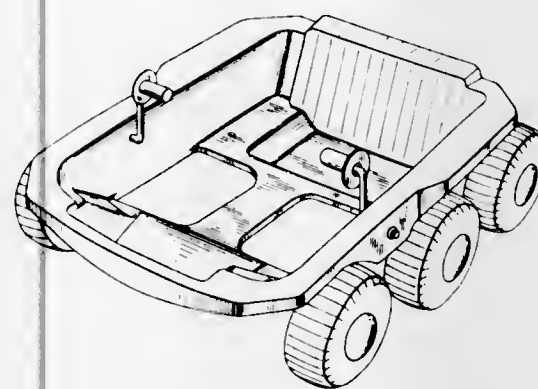
227,493
FOREHEAD MOUNTABLE NOVELTY EYEGLASS DEVICE

Orben M. Lindley, P.O. Box 3485, Pensacola, Fla. 32506
Filed June 10, 1971, Ser. No. 152,017
Term of patent 14 years
Int. Cl. D21-01
U.S. Cl. D34-15 A



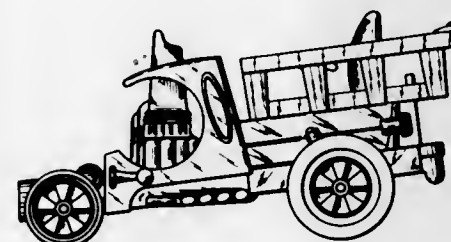
227,494
CHILD'S RIDING VEHICLE

Laurie J. Campbell and Robert T. Auer, Erie, Pa., assignors to Louis Marx & Co., Inc. (Delaware), New York, N.Y.
Filed Mar. 13, 1972, Ser. No. 234,445
Term of patent 14 years
Int. Cl. D21-01
U.S. Cl. D34-15 AJ



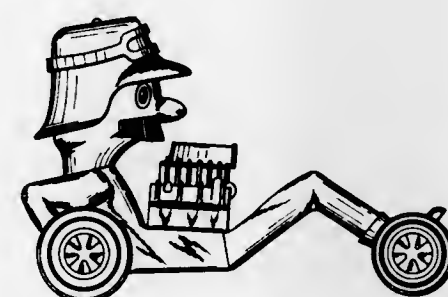
227,495
TOY VEHICLE

Larry R. Wood, Redondo Beach, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Apr. 19, 1972, Ser. No. 245,686
Term of patent 14 years
Int. Cl. D21-01
U.S. Cl. D34-15 AJ



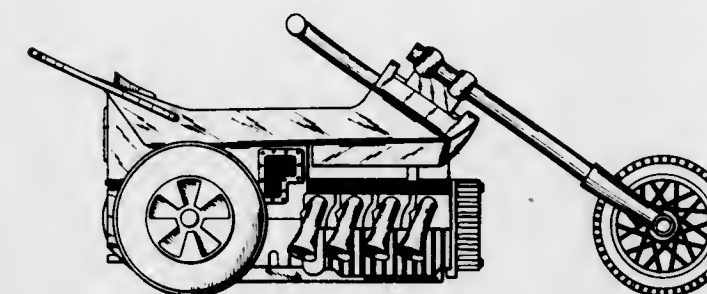
227,496
FIGURE TOY VEHICLE

Adolph E. Goldfarb, Tarzana, Delmar K. Everitt, Woodland Hills, Ronald F. Chesley, La Crescenta, and Richard D. Friedlich, Canoga Park, Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed May 1, 1972, Ser. No. 248,914
Term of patent 14 years
Int. Cl. D21-01
U.S. Cl. D34-15 AN



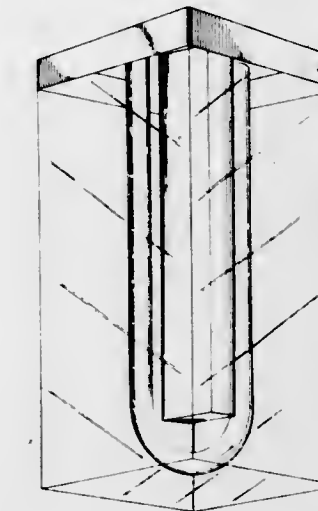
227,497
TOY MOTORCYCLE

Robert B. Lovejoy, Hermosa Beach, Calif., assignor to Mattel, Inc., Hawthorne, Calif.
Filed Aug. 7, 1972, Ser. No. 278,685
Term of patent 14 years
Int. Cl. D21-01
U.S. Cl. D34-15 AJ



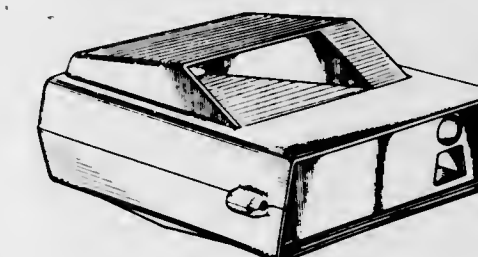
227,499
CEILING MOUNTED FLUORESCENT FIXTURE

Ernest Monte, Pasadena, Calif., assignor to Sunbeam Lighting Co., Los Angeles, Calif.
Filed June 24, 1971, Ser. No. 156,576
Term of patent 14 years
Int. Cl. D26-05
U.S. Cl. D48-23 A



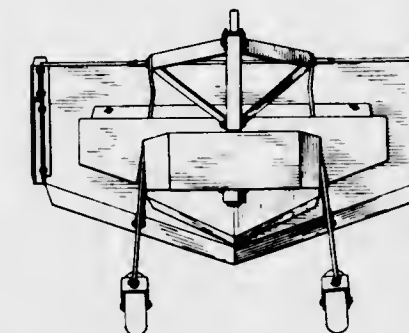
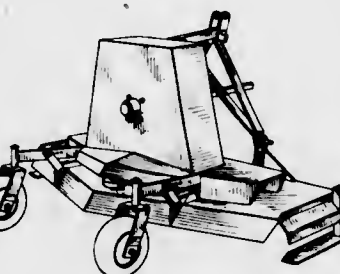
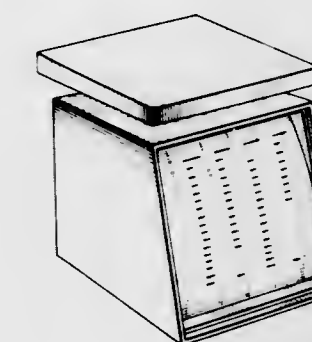
227,500
ELECTRONIC THERMOMETER

Stephens N. Sato, San Diego, Calif., assignor to Ivac Corporation, San Diego, Calif.
Filed Feb. 22, 1972, Ser. No. 228,437
Term of patent 14 years
Int. Cl. D10-04
U.S. Cl. D52-7 R



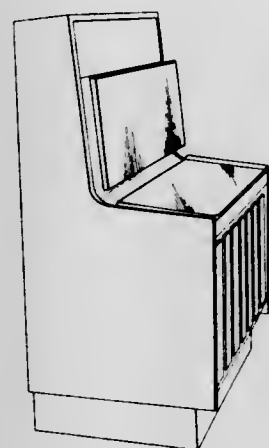
227,501
SCALE

Dana Warren Mox, Glenview, Ill., assignor to Hanson Scale Company, Chicago, Ill.
Filed July 10, 1972, Ser. No. 270,447
Term of patent 14 years
Int. Cl. D10-04
U.S. Cl. D52-10 R



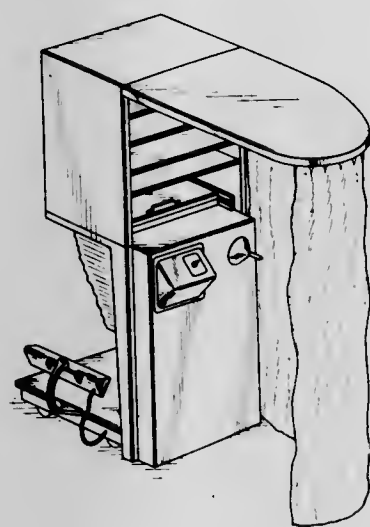
227,502
PHONOGRAPH OR SIMILAR ARTICLE
 Wilhelm Menke, Schillerstr. 1, Bingen (Rhine), Germany
 Filed Dec. 31, 1968, Ser. No. 15,158
 Claims priority, application Germany Oct. 10, 1968
 Term of patent 7 years
 Int. Cl. D14—01

U.S. Cl. D56—4



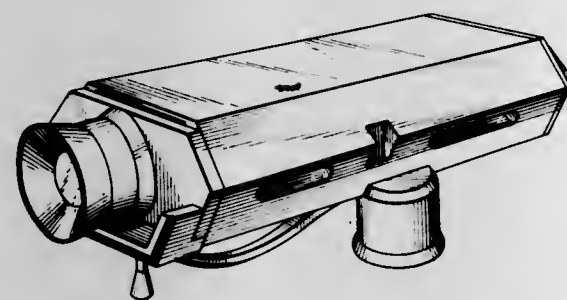
227,503
MOBILE PHOTOCOPY CAMERA UNIT
 Gary E. Raymond, P.O. Box 531, Kenvil, N.J. 07847
 Filed Oct. 20, 1971, Ser. No. 190,964
 Term of patent 14 years
 Int. Cl. D16—03

U.S. Cl. D61—1 Q



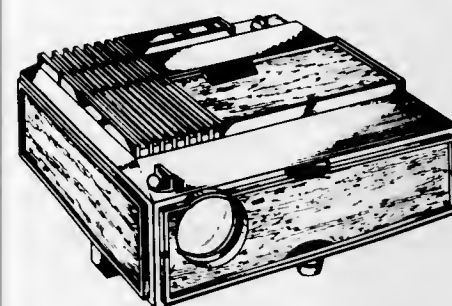
227,504
CASING FOR A CAMERA OR THE LIKE
 Paul Wentworth Lang, Hollywood, Calif., assignor of a fractional part interest to Michael H. Du Pont, Los Angeles, Calif.
 Filed Feb. 22, 1972, Ser. No. 228,454
 Term of patent 14 years
 Int. Cl. D16—01

U.S. Cl. D61—1 B



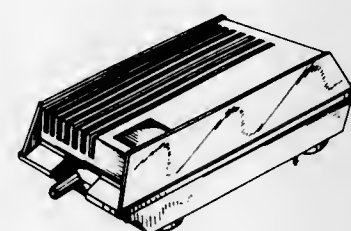
227,505
SLIDE PROJECTOR
 Gerald J. Frey, Suite 202, 3887 State St., Santa Barbara, Calif. 93105
 Filed July 17, 1972, Ser. No. 272,453
 Term of patent 14 years
 Int. Cl. D16—02

U.S. Cl. D61—1 J



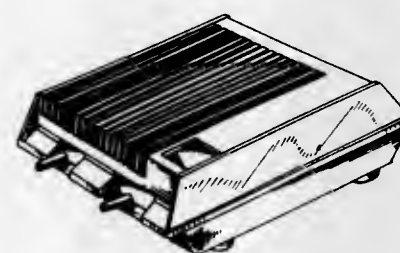
227,506
AIR-PUMP FOR AN AQUARIUM OR THE LIKE
 Ryozo Kondo, 19-5 Ikegami 1-chome, Ota-ku, Tokyo, Japan
 Filed Feb. 16, 1972, Ser. No. 226,997
 Term of patent 3½ years
 Int. Cl. D15—02

U.S. Cl. D65—1



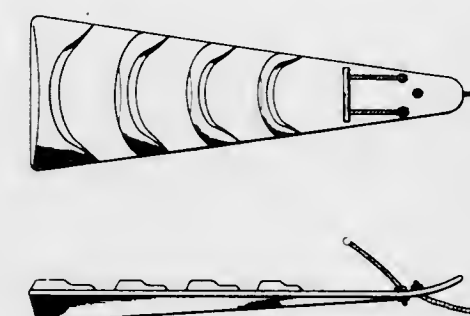
227,507
AIR-PUMP FOR AN AQUARIUM OR THE LIKE
 Ryozo Kondo, 19-5 Ikegami 1-chome, Ota-ku, Tokyo, Japan
 Filed Feb. 16, 1972, Ser. No. 227,000
 Term of patent 3½ years
 Int. Cl. D15—02

U.S. Cl. D65—1



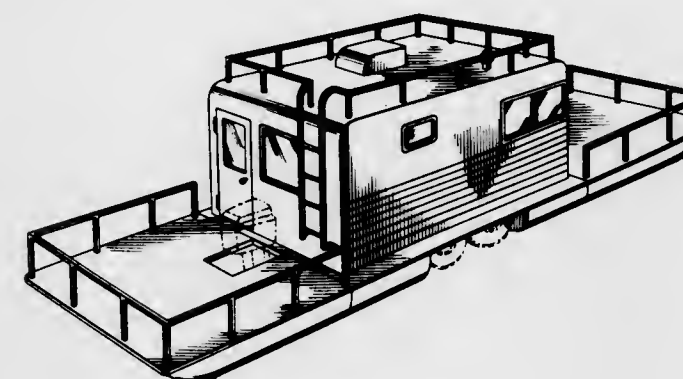
227,508
WATER SCOOTERS
 Jack R. Bedient, 55 Richardson Drive, Henderson, Nev. 89015
 Filed June 8, 1971, Ser. No. 151,164
 Term of patent 14 years
 Int. Cl. D21—03

U.S. Cl. D71—1 CC



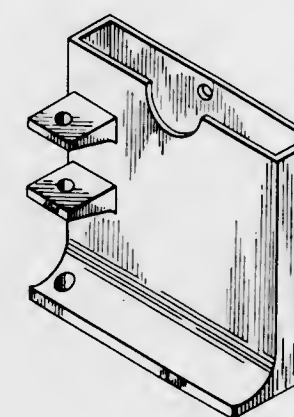
227,509
CONVERTIBLE HOUSEBOAT-CAMPING TRAILER
 Barvo N. Walker, 4004 Argus St., Fort Worth, Tex. 76116
 Filed June 1, 1972, Ser. No. 258,930
 Term of patent 14 years
 Int. Cl. D12—06, 10

U.S. Cl. D71—1 V



227,510
HOLDER FOR A PEN AND PAPER
 Anthony J. Pisciotto, 10439 W. Medill Ave., Melrose Park, Ill. 60164
 Filed June 1, 1972, Ser. No. 258,948
 Term of patent 7 years
 Int. Cl. D19—02

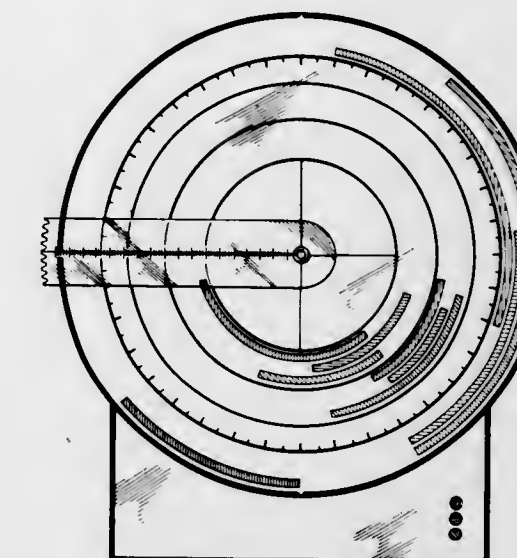
U.S. Cl. D74—5 A



911 O.G.—58

227,511
MEDICAL INDICATING DEVICE
 Arseny W. Spilewsky and Julius C. Kerekes, Los Angeles, Calif., assignors to Intermed Inc.
 Filed Apr. 24, 1972, Ser. No. 247,224
 Term of patent 14 years
 Int. Cl. D24—99; D10—99

U.S. Cl. D83—1 R



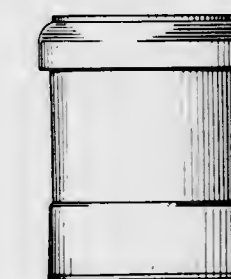
227,512
BABY BOTTLE
 Phillip V. Kantz, Skokie, Ill., assignor to The Kendall Company, Boston, Mass.
 Filed June 28, 1972, Ser. No. 266,870
 Term of patent 14 years
 Int. Cl. D24—04; D9—01

U.S. Cl. D83—8 A



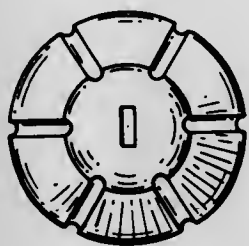
227,513
BABY BOTTLE HOLDER
 Roland Edward Lievendag, 100 SW. 12th Ave., Boca Raton, Fla. 33432
 Filed Aug. 9, 1971, Ser. No. 170,424
 Term of patent 14 years
 Int. Cl. D24—04

U.S. Cl. D83—8 R



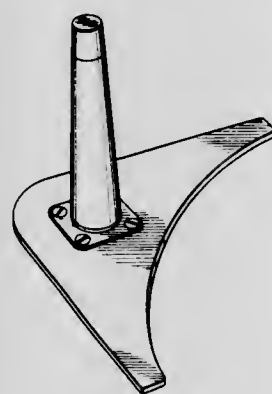
227,514
ELECTRO-SURGICAL HANDLE
 Eugene Olsen, Lafayette, Calif.
 (3820 Broadway, Oakland, Calif. 94611)
 Filed Feb. 22, 1972, Ser. No. 228,429
 Term of patent 14 years
 Int. Cl. D24—02

U.S. Cl. D83—12



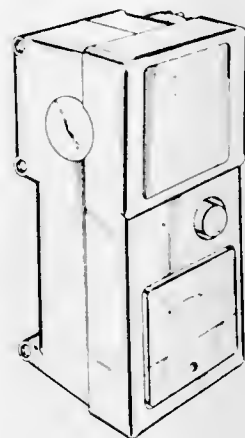
227,515
WIG DRESSING STAND
 John T. Mergens and Paulita D. Mergens, San Diego, Calif. (both of 9250 Kenwood Drive, Spring Valley, Calif. 92114)
 Filed July 23, 1971, Ser. No. 165,871
 Term of patent 14 years
 Int. Cl. D28—03

U.S. Cl. D86—10 A



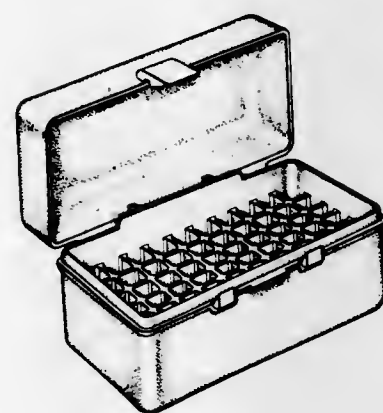
227,516
PORTABLE WATER TEMPERATURE SENSING AND REMOTE READOUT UNIT
 Robert F. Turner, El Paso, Tex., assignor to Jetco Electronic Industries, Inc., El Paso, Tex.
 Filed Feb. 4, 1972, Ser. No. 223,805
 Term of patent 14 years
 Int. Cl. D10—04

U.S. Cl. D52—7 R



227,517
AMMUNITION BOX
 William J. Minneman, Montgomery County, Ohio (Crestway Drive, Clayton, Ohio 45315)
 Filed Apr. 5, 1971, Ser. No. 131,590
 Term of patent 14 years
 Int. Cl. D3—02

U.S. Cl. D87—1 R



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 26TH DAY OF JUNE, 1973

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- Baumann, Frederick W.; Smith, William R.; MacNary, Robert G.; Miller, Albert R.; Pangburn, William W.; Rosenberry, George M., Jr.; and Kaczowski, Bernard C., to General Electric Company. Automated method of manufacturing finned machine frames. 3,741,278, Cl. 164-114.000.
- Baumann, Frederick W.; La Bahn, William C.; MacNary, Robert G.; and Miller, Albert R., to General Electric Company. Dismemberable mold for centrifugally casting finned structures. 3,741,707, Cl. 425-435.000.
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- Baynes, William R.; and Larsson, Ake L., to Mattel, Inc. Sequential phonograph toy. 3,741,566, Cl. 274-9.000.
- Bean, Frank J.; and Sheridan, John F. Lens circumference measuring instrument. 3,740,855, Cl. 33-141.000.
- Beasley, Donald L., to Townsend Engineering Company. Stripper means for meat skinning machines. 3,741,105, Cl. 99-589.000.
- Beasley, Maurice Trevor, to Lucas, Joseph, (Industries) Limited. Apparatus for hot runner injection moulding. 3,741,704, Cl. 425-245.000.
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- Becker, James F., to Beloit Corporation, Downingtown Division. Retractable overhead crimper. 3,740,924, Cl. 53-380.000.
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- Becton, Dickinson and Company: See—
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- Beden, Moses. Valve. 3,741,228, Cl. 137-614.200.
- Bedford, Burnice D., to General Electric Company. Versatile cycloinverter power converter circuits. 3,742,336, Cl. 321-69.000.
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- Bell, Robert Graham; Collins, James Edward; and Griffiths, Gwylfa George, to National Standard Company Limited. Manufacture of bead wires for tyres. 3,741,262, Cl. 140-92.200.
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- Bennud, Vernal M.; and Horst, Richard L., to Sperry Rand Corporation. Sense-digit line selection matrix for memory system. 3,742,467, Cl. 340-174.000.
- Benson, Wilfred Y.; and Andrews, James T., to Mohawk Data Sciences Corporation. Type carrier assembly. 3,741,109, Cl. 101-93.000.
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- Berger, Julius, Firma: See—
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- Bergerhoff, Klaus-Peter; and Becke, Theobald, to Demag Aktiengesellschaft. Shelf loader for long materials. 3,741,419, Cl. 214-730.000.
- Bergevin, Charles R. Spring-coiling machine. 3,740,984, Cl. 72-30.000.
- Bergh, George G.; and Bergh, Robert G. Container. 3,741,430, Cl. 220-38.000.
- Bergh, Robert G.: See—
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- Bergman, Kjell; and Dybvig, Arne, to Allmanna Svenska Elektriska Aktiebolaget. Method and apparatus for stabilizing multiple motor driven systems. 3,742,321, Cl. 318-99.000.
- Bergum, Bernard C.; and Lonnebotn, Trygve, to ESB Incorporated. Battery having gas pervious, liquid impervious member sealed over hole in top. 3,741,813, Cl. 136-107.000.
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- Berne, Charles, to Edwards Company Inc. Audible signal apparatus. 3,742,493, Cl. 340-388.000.
- Bernstein, Bernard J. Automatic gas torch. 3,741,708, Cl. 431-28.000.

- Berrer, Dagmar; and Vogel, Christian, to Ciba-Geigy Corporation. Herbicidal 2-alkylthio 4,6-diamino-s-triazines. 3,741,745, Cl. 71-93.000.
- Berriman, Lester P., to Dresser Industries, Inc. Fluid compensator valve. 3,741,240, Cl. 137-483.000.
- Berthiez, Charles William. Production of bodies of revolution. 3,741,070, Cl. 90-11.000.
- Berton, Roger J.; Daniel, Roger P.; and Reuter, Conrad N., to Ford Motor Company. Crash dummy viscous neck. 3,740,871, Cl. 35-17.000.
- Besch, Alois Ruppert, to Bunker-Ramo Corporation, The. Apparatus for the operation of a tool. 3,741,562, Cl. 269-96.000.
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- Beuther, Harold; Chun, Sun W.; Hamilton, Harry A.; and McIlvried, Howard G., to Gulf Research & Development Company. Oxidative sweetening with a calcined cogelled composite of silica and iron salt impregnated with a copper salt. 3,741,888, Cl. 208-191.000.
- Bevacqua, Peter V. Portable holder and saw blade guide slot for rigidly camping and cutting flexible armored electrical cable at right angles to the cable axis. 3,741,061, Cl. 83-454.000.
- Beydler, William W., to Westinghouse Electric Corporation. Pulse doppler moving-target radar. 3,742,499, Cl. 343-7.700.
- Beyerlin, Hans-Peter, to Giegle, G., & Co., GmbH. Fluorescent pigments having an isocyanate resin base. 3,741,907, Cl. 252-301.20r.
- Bialous, Charles A., to General Electric Company. Thermally stable polycarbonate composition. 3,742,083, Cl. 260-824.00r.
- Bialous, Charles A., to General Electric Company. Thermally stable polycarbonate composition. 3,742,085, Cl. 260-827.000.
- Bidlack, Richard Henry; McKelvey, William John; and Rezelman, James Alan, to Bell Telephone Laboratories, Incorporated. Continuous inband testing of trunks with automatic trunk substitution upon detecting a defective trunk. 3,742,154, Cl. 179-175.300.
- Bienert, Klaus; Lang, Winfried; and Kremer, Fritz, to Wacker-Chemtronic Gesellschaft fur Elektronik Grundstoffe m.b.H. Process for producing monocrystals from III-V compounds melts with a boron oxide rim. 3,741,817, Cl. 148-1.600.
- Bienert, Walter B.; and Trimmer, Donald S., to Sinclair & Valentine Company, Inc. Pressureless non-contact electrostatic printing. 3,741,117, Cl. 101-426.000.
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- Blades, Charles E., to Air Products and Chemicals, Inc., mesne. Telomers of vinyl alkanoates and a methyl substituted benzene compound. 3,742,037, Cl. 260-488.00d.
- Blagg, Leon. Trailer-borne horse corral. 3,741,529, Cl. 256-26.000.
- Blair, Charles M., to Texas Instruments, Incorporated. Burst and single error detection and correction system. 3,742,449, Cl. 340-146.1al.
- Blake, George H.; and Clowes, Ernest J., to Aluminum Company of America. Blankholding assembly. 3,740,997, Cl. 72-465.000.
- Blacklock, William L.; and Whitehurst, Marcus G., to Piedmont Machine Shop, Inc. Apparatus for preventing splitting of textile fiber laps. 3,740,796, Cl. 19-155.000.
- Blanch, William O.: See—
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- Blavos, Nicholas G.; Chi Lin, Kou; and Dobson, Le Roy E., to Westinghouse Electric Corporation. Electrical connector. 3,742,122, Cl. 174-94.00r.
- Bleuer, Keith T. Razor cartridge and holder therefor. 3,740,842, Cl. 30-40.001.
- Bliss, Burt E.: See—
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- Blood, Raymond; and Marriott, Eric Walter, to William Cotton Limited. Straight bar knitting machines. 3,740,973, Cl. 66-88.000.
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- Blue, John, Company; a division of Subscription Television, Inc.: See—
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- Boatner, Lynn A., to Advanced Technology Center, Inc. Bolometric detector utilizing electron paramagnetic resonance. 3,742,235, Cl. 250-83.00h.
- Bockhorn, Henning; Fetting, Fritz; Herberitz, Hans-Adolf; and Galdo, Norberto, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Process and device for the production of acetylene-ethylene mixtures. 3,741,736, Cl. 48-113.000.
- Bodenseewerk Perkin-Elmer & Co., GmbH: See—
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- Boehly, Michael A.; and Kavanaugh, Paul K. Framing system for T-carrier telephony. 3,742,139, Cl. 178-69.50r.
- Boehringer Ingelheim G.m.b.H.: See—
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- Alberti, John; and Manning, William W., 3,741,504.
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- Bofors (Gt. Britain) Company Limited: See—
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- Bohanec, August. Camera strap retractor. 3,741,092, Cl. 95-86.000.
- Boissier, Jacques Robert; and Ratouis, Roger, to Societe anonyme dite: Societe Industrielle pour la Fabrication des Antibiotiques (SIFA). 3,742,070, Cl. 260-615.00f.
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- Bond, Anthony John: See—
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- Bond, John W. Air venting device for a toilet. 3,740,771, Cl. 4-215.000.
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- Bonds, James V.: See—
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- Bone, David Charles, to British Aluminium Company Limited, The. Heating of molten metal. 3,741,751, Cl. 75-65.000.
- Bonvicini, Alberto; and Cantatore, Giuseppe, to Montecatini Edison S.p.A. Dye retentive olefin polymer compositions containing a basic polyamide. 3,741,930, Cl. 260-41.00c.
- Boor, Francis H., to Fairfield Manufacturing Co. Speed reduction gear assembly. 3,741,041, Cl. 74-801.000.
- Booth, John L. Method for producing continuous compressed honeycomb. 3,741,840, Cl. 156-197.000.
- Bordeaux, Jean. Carburetor flow stand. 3,741,006, Cl. 73-118.000.
- Bordeaux, Jean. Carburetor flow stand. 3,741,007, Cl. 73-118.000.
- Bordeaux, Jean, to ACF Industries, Incorporated. Carburetor flow stand. 3,741,009, Cl. 73-118.000.
- Bordenca, Carl, to SCM Corporation. Diisophorone derivatives and compositions containing same. 3,742,052, Cl. 260-566.00b.
- Borel, Melvin J.: See—
Wilson, Jesse C.; Borel, Melvin J.; and Weaver, Charles B., 3,742,124.
- Borheim, Lewis A., to Petersen, Ross K. Air pre-cleaner. 3,740,932, Cl. 55-394.000.
- Bort, Inc.: See—
Purcell, Jack A., Jr.; Leonard, Jerome A.; and Juratovic, John S., 3,741,429.
- Bortoli, Ettore. Automatic brake for skis. 3,741,575, Cl. 280-11.13b.
- Bosch, Hendrik: See—
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- Bosch, Robert, G.m.b.H.: See—
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Boshinski, Edwin E.; Clark, Walter W.; Riehl, Roger W.; and Watson, William M., to Hobart Manufacturing Company, The. Weighing scale with digital display. 3,741,324, Cl. 177-3.000.
Bossi, Hans Jurg, to Aktiengesellschaft Brown, Boveri & Cie. Inductive type firing arrangement for series connected thyristors in a high voltage rectifier. 3,742,331, Cl. 321-11.000.
Bossi, Oscar, to Honeywell Information Systems Italia. High speed on-the-fly printer providing arresting of the type characters in the printing positions. 3,741,110, Cl. 101-93-c.
Bossons, Walter Howard; and Lindstaedt, Horst, to Masson Scott Thirissell Engineering Limited. Web splicing methods. 3,741,079, Cl. 93-1.100.
Boudry, Jean-Marie, to SESCOSEM-Societe Europeenne de Semiconducteurs et de Microelectronique. MOS transistor circuits for pulse-shaping. 3,742,260, Cl. 307-304.000.
Bouligny, R. H., Inc.: See—
Pierce, John H.; Credle, Walter Carl; and Crawford, Lewis O., 3,741,453.
Bourat, Guy; and Margraff, Rodolphe, to Rhone-Poulenc S.A. Vinyl alcohol copolymers containing hydroxy sulfonyl groups. 3,741,945, Cl. 260-79.30r.
Bourdale, Lucien R. Device for filtering a particle-laden fluid. 3,741,892, Cl. 210-65.000.
Bourgeois, Alain Charles, to Elastelle Paul Fontanille & Fils. Elastic ribbon having a band of fancy designs and a method of manufacture of this ribbon. 3,740,974, Cl. 66-193.000.
Bouthors, Pierre; and Lefevre, Andre, to Regie Nationale des Usines Renault et Automobiles Peugeot. Electric motor and reduction gearing unit. 3,741,024, Cl. 74-220.000.
Bowen, Rafael L.; and Argentar, Harold, to United States of America, Health, Education, and Welfare. Tertiary aromatic amine accelerators in dental compositions. 3,740,850, Cl. 32-15.000.
Bowermaster, Allan H. Screen guard for gutters having a dual purpose manual operator. 3,740,787, Cl. 15-105.000.
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Bowman, Edward W., to Bowman, E. W., Incorporated. Apparatus for annealing, conveying, transferring, and spraying glassware. 3,741,744, Cl. 65-348.000.
Boyd, John A.; Bond, Scott R.; Elliott, Ralph K.; Gisolfi, John J.; and Merkin, Eugene, said Bond, Elliott, Gisolfi and Merkin assors. to Union Environmental Corporation. Portable refuse handling apparatus. 3,741,107, Cl. 100-215.000.
Boyer, Charles B.; Orcutt, Franklin D.; Shaw, Robert L.; and Gregg, Galen C., to Battelle Memorial Institute. Apparatus for loading a high-pressure furnace. 3,741,718, Cl. 432-253.000.
Boyum, Oystein; Eriksen, Karsten Egil; Solberg, Per; and Tveten, Kjell, to Norsk Hydro A.S. Process for the preparation of anhydrous $MgCl_2$ prills. 3,742,100, Cl. 264-14.000.
Bradford, Frederick D., to Sperry Rand Corporation. Active stabilizer for marine vessels. 3,741,145, Cl. 114-125.000.
Bradley, Robert W., to USM Corporation. High frequency cavity press. 3,742,180, Cl. 219-10.810.
Brady, Frank B.; and Watta, Chester B., Jr. Polarization reference for beam flying. 3,742,502, Cl. 343-107.000.
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Brandenburg, Lane Howard; Gopinath, Bhaskarpillai; and Kurshan, Robert Paul, to Bell Telephone Laboratories, Incorporated. Interconnected loop digital transmission system. 3,742,144, Cl. 179-15.00r.
Brandenstein, Manfred, to SKF Kugellagerfabriken GmbH. Clutch release bearing. 3,741,361, Cl. 192-110.00r.
Brax, Harri J.; Porinchak, Joseph F.; and Weinberg, Alan S., to Grace, W. R., & Co. Laminates of ethylene/vinyl acetate polymers and polymers of vinylidene chloride. 3,741,253, Cl. 138-137.000.
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Brede, Raymond; and Stenresen, Erik, to Simrad A.S. Echo sounding apparatus with automatically regulated receiver gain. 3,742,438, Cl. 340-3.00r.
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Bregi, Benjamin F.; Motz, Carl H.; and Bassoff, Arthur B., to Lear Siegler, Inc. Gear rolling machine. 3,740,987, Cl. 72-94.000.
Breitling, Julius; and Pollack, Bernard, to Sight & Sound Wedding Albums, Ltd. Talking-photograph album. 3,741,565, Cl. 274-4.00c.

- Breitmann, John F.; and Lackey, Robert P., to Texas Instruments, Incorporated. Variable frequency oscillator. 3,742,384, Cl. 331-111.000.
Brenholdt, Irving R., to Farrand Optical Co., Inc. Measuring apparatus. 3,741,654, Cl. 356-4.000.
Brennan, James A., to Mobil Oil Corporation. Dimerization of olefins with boron trifluoride. 3,742,082, Cl. 260-683.900.
Brenner, Charles Herbert, to Motorola, Inc. Optical target sensor. 3,741,111, Cl. 102-70.20p.
Brenner, Richard L., to Dow Chemical Company, The. Explosive composition containing a vinylidene chloride polymeric latex. 3,741,831, Cl. 149-41.000.
Bretthauer, Frank N. Adjustable jig for portable electric saws. 3,741,063, Cl. 83-745.000.
Breuer, Hermann, to Squibb, E. R., & Sons, Inc. Alpha-thioureidocephalosporanic acid compounds. 3,741,962, Cl. 260-243.00c.
Brewer, Howell K. Quick change pneumatic tire. 3,741,268, Cl. 152-175.000.
Brichta, Franz; and Driesel, Franz, to SFK Kugellagerfabriken GmbH. Apparatus for mounting carrier arms in spinning machines. 3,740,798, Cl. 19-267.000.
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Brock, Blanchard M.; and Josephson, Paul R., Jr., to Eastman Kodak Company. Method for producing plates having enlarged halftone patterns and article produced by said process. 3,741,652, Cl. 355-132.000.
Brock, Leslie E., to Kerant Electronics Ltd. Testing apparatus for light emitting diodes and method therefor. 3,742,356, Cl. 324-158.00d.
Brodowski, Walter: See—
Frank, Dieter; Brodowski, Walter; and Hentschel, Peter, 3,741,933.
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Brooks, Dean P.; Fell, Ferol S.; Garrison, Harold Keith; and Job, Richard W., to Heaton Corporation. Stack feeding method and apparatus. 3,741,051, Cl. 83-23.000.
Brooks, S. Hunter W., to Rust Engineering Company, The. Method of recycling waste cellulosic materials. 3,741,863, Cl. 162-4.000.
Brown, Donald R., to Western Electric Company, Inc. Distributed resistor-capacitor network and methods of fabricating a distributed resistor-capacitor network. 3,742,398, Cl. 333-70.00r.
Brown, Gertrude T.: See—
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Brown, Robert G.; deceased (by Brown, Gertrude T.; and Brown, Robert C.; heirs); and Grant, Gene Louise, 100% to Magni-Case, Inc., mesne. Pocket holder with magnetic clasp. 3,741,376, Cl. 206-5.00r.
Brown, Robert Hulme, to C.A.V. Limited. Vehicle transmission control systems. 3,741,036, Cl. 74-752.00d.
Brown Well Service & Supply Company: See—
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Brown, William Ray, to Mallory, P. R., & Co., Inc. Multi-cam timer with clutch means allowing independent cam adjustment and rotation of cam assembly independent of motor. 3,742,159, Cl. 200-38.00r.
Browne, John Patrick, to Sandall Precision Company Limited. Fluid control valves. 3,741,237, Cl. 137-332.000.
Bruch, Walter, to Licentia Patent-Verwaltungs-GmbH. Method for recording a PAL color television signal. 3,742,127, Cl. 178-5.40c.
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- Bryan, William S.; and Johnson, Joseph H., to Communication Transistor Corporation. R.F. power transistor. 3,742,319, Cl. 317-235.00r.
Bryant, Gladys. Composite indefinitely reusable decorative candle. 3,741,711, Cl. 431-125.000.
Bryant, John A.; Horne, Orion P.; and Huklikin, Edwin L., Jr., to Texas Gas Transmission Corporation. Electronic telemetering calibrator. 3,742,472, Cl. 340-177.00a.
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Brzuszek, John T.; and Brzuszek, Emil J., 3,742,192.
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Buckley, William R., to Polaroid Corporation. Container device for treating photographic film with a liquid. 3,741,099, Cl. 95-98.000.
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Kozheurov, Vsevolod Rodionovich; Berezin, Leonid Georgievich; Safarov, Georgy Samuilovich; and Bulgakov, Petr Lavrentievich, 3,741,280.
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- Buttle, Robert L., to United States of America, Atomic Energy Commission, mesne. Coating molybdenum with pure gold. 3,741,735, Cl. 29-198.000.
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Carley, Adam L. Method for electronic lithography. 3,741,118, Cl. 101-451.000.
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Castaldi, John A.; and Goetz, Herbert, to Supreme Equipment & Systems Corporation. Encoding and marking apparatus. 3,741,469, Cl. 234-90.000.
Castiglioni, Albino, to SIMA Societa Italiana Macchine Automatiche S.r.l. Loading device particularly for feeding screw blanks and the like to a processing machine. 3,741,367, Cl. 198-33.0aa.
Castro, Radolfo; Newton, William J.; Toscano, Esteban J.; and Viosca, Felix Jerome, to Hughes Aircraft Company. Optical element protection in laser apparatus. 3,742,183, Cl. 219-121.001.
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Cesaro, Richard S. Tethered airborne communications and information transfer system. 3,742,358, Cl. 325-3.000.
Chadwick, George F., to Aircor, Inc. Electrical resistor. 3,742,423, Cl. 338-334.000.
Chambon, Rene, to Societe Francaise d'Equipment Menager. Method of producing cutting teeth on cutting tools. 3,741,046, Cl. 76-104.00r.
Chaplygin, Igor Jurievich; Mitjushin, Dmitry Nikolaevich; Zapolnov, Dmitry Petrovich; Karamzina, Natalia Nikolaevna; Lebedeva, Valentina Grigorievna; and Lomagina, Irina Mikhailovna. Centrifugal suspension pump. 3,741,531, Cl. 259-96.000.
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Chapman, Paul Fraser, to Chapman, Kenneth George. Collapsible lamp shade. 3,742,210, Cl. 240-108.00r.
Chappelow, Cecil C., Jr.; and Engel, James F., to Kerr-McGee Corporation. Fluorinated beta-diketones. 3,742,062, Cl. 260-592.000.
Chavanat, Paul; Epstein, Bernard; and Mourier, Georges, to Thomson-CSF. High frequency circuits for electron tubes and tubes comprising such circuits. 3,742,293, Cl. 315-39.510.
Chavasse, Nicholas H., Jr.; and Withers, James C., to General Technologies Corporation. Low density, high-strength boron on beryllium reinforcement filaments. 3,741,797, Cl. 117-106.00r.
Chemagro Corporation: See—
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Chollet, Pierre; and Gervais, Edouard, to Noranda Metal Industries Limited. Method of preparing low density wrought zinc alloy with improved strength and low temperature ductility. 3,741,819, Cl. 148-11.50r.
Chopard, Pierre, to Omega Louis Brandt & Frere S.A. Protective casing for a wrist watch. 3,740,944, Cl. 58-105.000.
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Christensen, Richard Hans; Combs, Earl Edward; and Petrone, Mario Albert. Process for preparation of a protected granule and dishwashing composition formed therewith. 3,741,904, Cl. 252-99.000.
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Christian, Manfred, to Daimler-Benz Aktiengesellschaft. Cylinder head of an air-cooled internal combustion engine. 3,741,173, Cl. 123-41.57.
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Chun, Sun W.; Hamilton, Harry A.; and Montagna, Angelo A., to Gulf Research & Development Company. Oxidative sweetening with a calcined composite of an alkali metal silicate, an iron salt and a copper salt. 3,741,887, Cl. 208-191.000.
Chun, Sun W.; Hamilton, Harry A.; and Montagna, Angelo A., to Gulf Research & Development Company. Oxidative sweetening of hydrocarbons with a calcined copper-containing precipitate of silica sol and iron salt. 3,741,889, Cl. 208-191.000.
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Clark, James M.; and Haussmann, Robert H., to International Telephone and Telegraph Corporation. Asynchronous time division multiplexer and demultiplexer. 3,742,145, Cl. 179-15.0ba.
Clark, Louis D., to Koehring Company. Solid state safety control for fuel burning apparatus. 3,741,709, Cl. 431-79.000.
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Cohen, Vivian; and Slocombe, Sidney Charles, to Fuchs Electrical Industries (Proprietary) Limited. Core balance earth leakage protective systems. 3,742,306, Cl. 317-18.00d.
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- Crescent Toy Company Limited, The: See—
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- Crivello, James V., to General Electric Company. Polyimides. 3,741,942, Cl. 260-78.00a.
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- Crook, Edward J., Jr., to American Hoist & Derrick Company. Safety hook. 3,741,600, Cl. 294-82.00r.
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- Cusano, Carmen M.: See—
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- Danjczek, William E.; Leuenberger, Jean Pierre; Micale, Fortunato J.; and Wagner, Ralph W., to Koh-I-Noor Rapidograph Inc. Method of venting a stylographic pen. 3,741,668, Cl. 401-258.000.
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- Davis, Owen K.; Haupt, Robert C.; Hansen, Kenneth N.; and Slosiarek, Michael L., to Allis-Chalmers Manufacturing Company. Chassis suspension on vehicle frame. 3,741,329, Cl. 180-89.00r.
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- deBettencourt, Joseph T.; and Tsao, Carson K. H., to Raytheon Company. Subsurface traveling wave antenna. 3,742,509, Cl. 343-719.000.
- Decafix Limited: See—
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- DeCaplo, Alfred F., Jr., to United States Surgical Corporation. Three-stage medical instrument. 3,740,994, Cl. 72-407.000.
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- Deering Milliken Research Corporation: See—
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- Defenbaugh, Loyd F. Liquid filtering apparatus. 3,741,394, Cl. 210-282.000.
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- Deibler, Robert R.; and Patterson, Tom W., to Hydr-O-Matic Pump Company. Ball check valve assembly. 3,741,243, Cl. 137-528.000.
- Delatroniche, Claude, to Elf-Union S.A. Supply system for a light hydrocarbon-water emulsion burner. 3,741,712, Cl. 431-190.000.
- Delplace, Michel. Garment construction. 3,740,765, Cl. 2-67.000.
- Delta Electronic Central Corporation: See—
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- Deltuvia, John Joseph, Sr.: See—
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- Demag Aktiengesellschaft: See—
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- DeMet Engineering Company: See—
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- Depenheuer, Otto, to ITT Industries, Inc. Pressure medium control arrangement for an antiskid system. 3,741,611, Cl. 303-21.00f.
- Dervan, James T., III: See—
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- Deushane, Maurice L.; and Rohrer, David A., to Beckman Instruments, Inc. Electrochemical electrode liquid junction structure and method for producing same. 3,741,884, Cl. 204-195.00r.
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- Diamond, Julius; and Auyang, King, to Rorer, William H., Inc. Phosphonium compounds. 3,742,064, Cl. 260-606.50f.
- Dick, John M. Blood sample container. 3,741,400, Cl. 210-516.000.
- Diehl: See—
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- Diekhoff, Hans H.; and Schrecker, Howard D., to Aluminum Company of America. Tab element. 3,741,141, Cl. 113-1.00f.
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- Dietrich, Heinz J.; and Steiger, Edward L., to Owens-Illinois, Inc. Mesomorphic composition of matter. 3,742,054, Cl. 260-566.00f.
- Diez, Jose Arnaiz. Tile for coating and decorating surfaces. 3,740,914, Cl. 52-515.000.
- Digneffe, Henri Joseph, to RCA Corporation. Protective switching circuit for providing power to a load from an alternating current source having peak-to-peak excursions within or above a given range. 3,742,337, Cl. 323-19.000.
- Dijet Industrial Company, Limited: See—
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- Dittrich, Walter H., to United States of America, Air Force. Multicylinder shell of fragmented metal. 3,741,123, Cl. 102-67.000.
- Dobkin, Robert C., to National Semiconductor Corporation. Differential amplifier with means for balancing out offset terms. 3,742,377, Cl. 330-30.00d.
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- Douglass, Richard W. Capacitor with fibered valve metal anode. 3,742,369, Cl. 317-230.000.
- Douglass, Robert F. Drill guide. 3,741,671, Cl. 408-114.000.
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- Dowling, Robert V., to Pauli & Griffin Company. Abrasive blasting equipment and self-cleaning abrasive trap therefor. 3,741,738, Cl. 51-12.000.
- Downing, Donald M. Traffic control sign. 3,741,147, Cl. 116-63.00r.
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- Dunham, Thomas E., to General Electric Company. Metal products and process of preparation. 3,741,734, Cl. 29-182.500.
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- Murman, Fernando; Lewis, George E.; Dunn, Allen I.; and O'Brien, Charles E., 3,741,296.
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- Harnden, John D., Jr., to General Electric Company. Induction cooking appliance including temperature sensing of food in inductively heated vessel with immersion-type temperature sensing means. 3,742,175, Cl. 219-10.490.
- Harnden, John D., Jr., to General Electric Company. Induction cooking appliance including cooking vessel having means for wireless transmission of temperature data. 3,742,178, Cl. 219-10.770.
- Harnden, John D., Jr., to General Electric Company. Induction cooking appliance including wireless transmission of temperature data. 3,742,179, Cl. 219-10.770.
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- Hartline, Ernst F.; Large, Donald M.; and Montone, Gregory E., to Western Electric Company, Incorporated. Handling of magnetically asymmetrical articles. 3,741,436, Cl. 221-156.000.
- Hartmann, Ludwig A., to ICI America Inc. Process for preparing cyclic ketals. 3,741,986, Cl. 260-340.900.
- Hartmannsgruber, Rudolf: See—
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- Hartnett, Laurence John: See—
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- Hartz, Cledith L.: See—
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- Haruna, Takashi: See—
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- Harvey, Donald M., to Eastman Kodak Company. Photographic apparatus for handling film units of the self-processing type. 3,741,095, Cl. 95-13.000.
- Hasbiss, Denise: See—
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- Hasbro Industries, Inc.: See—
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- Hasegawa, Osamu: See—
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- Haselwood, Donald E.; and Solar, Carl M., to Nielsen, A. C., Company. Data synchronizing unit for data transmission system. 3,742,462, Cl. 340-172.500.
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- Hassing-Hansen, Jens, to Aktieselskabet Brodrene Hartmann. Article-revealing carton fragile objects. 3,741,461, Cl. 229-2.500.
- Hastie, Edgar G.: See—
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- Hastwell, Peter John: See—
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- Hatano, Tadao: See—
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- Hattori, Hiroyuki: See—
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- Haub, Le Roy E. Insulator for electric wires. 3,742,123, Cl. 174-138.000.
- Haubein, Albert Howard, to Hercules Incorporated. Certain O-(2-pyrimidyl) phosphates and their use as insecticides. 3,741,968, Cl. 260-251.000.
- Hauni-Werke Korber & Co., KG: See—
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- Hauni-Werke Korbers & Co., KG: See—
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- Hauser-Lienhard, Hans-Ulrich, to Grunzweig & Hartmann Aktiengesellschaft. Apparatus for carrying out full form casting process. 3,741,281, Cl. 164-253.000.
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- Havel, John F.: See—
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- Hay, Donald A.: See—
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- Hayakawa, Shigeru, to Matsushita Electric Industrial Co., Ltd. Current control device. 3,742,308, Cl. 317-125.000.
- Hayano, Fusakazu: See—
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- Hayashibara Company: See—
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- Ueda, Seinosuke; and Kato, Koso, 3,741,873.
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- Hayes, John C., to Universal Oil Products Company. Dehydrogenation with a catalyst containing platinum, germanium and an alkali or alkaline earth metal. 3,742,078, Cl. 260-668.000.
- Hayter, Rex G. Agricultural apparatus having bracing means for laterally extending pivotal frame sections. 3,741,312, Cl. 172-448.000.
- Heath, John R. Road vehicle having a below-bed storage compartment for a lift truck. 3,741,604, Cl. 296-1.000.
- Hebel, August G.; and Hebel, August G., III. Method for stress relieving metal. 3,741,820, Cl. 148-12.900.
- Hebel, August G., III: See—
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- Hedberg, Nils Rune. Adjustable tool holder. 3,741,672, Cl. 408-146.000.
- Hederich, Volker; Gehrke, Gunter; and Neeff, Rutger. Process for the continuous dyeing of polyester fibers. 3,741,720, Cl. 8-39.000.
- Hedrick, John R., to Hall International Inc., mesne. Shaft brake assembly. 3,741,352, Cl. 188-170.000.
- Hegedus, Balhasar, and Krasso, Anna, to Hoffmann-La Roche Inc. Process for the purification of L-serine. 3,742,034, Cl. 260-482.000.
- Heil, Werner, to Aktiengesellschaft Brown, Boveri & Cie. Structure for supporting a commutator assembly on the rotor of a dynamo-electric machines. 3,742,273, Cl. 310-236.000.
- Heilmann, William J., to Gulf Research & Development Company. Process for the preparation and recovery of esterified copolymers containing maleic anhydride. 3,741,940, Cl. 260-78.500.
- Heimann, Alfred; and Sugland, Wolfgang, to Kochs Adler AG., mesne. Sewing equipment for simultaneously sewing a plurality of button-holes. 3,741,138, Cl. 112-67.000.
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- Heisler, Raymond A. Apparatus and method for orienting and case packing bailed containers. 3,740,919, Cl. 53-26.000.
- Heller, Paul R.; Ying, Sui-Chun; and Luzader, James E., to Westinghouse Electric Corporation. Liquid cooled rotor for dynamoelectric machines. 3,742,266, Cl. 310-54.000.
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- Helmer, John C.; and Weichert, Norbert H., to Varian Associates. Apparatus for performing chemical analysis by electron spectroscopy. 3,742,214, Cl. 250-49.500.
- Henderson, Harvey. Display system having flexible gear. 3,742,490, Cl. 340-371.000.
- Henderson, Rosetta M., to Du Pont de Nemours, E. I., and Company. Aromatic acetamidoxime-O-carbamates. 3,742,056, Cl. 260-564.000.
- Hendrickson, Roger R.; Munson, William O.; Reed, Russell; and Shaw, Graham C., to Thiokol Chemical Corporation. Low temperature nitrogen gas generating composition. 3,741,585, Cl. 280-150.000.
- Henniger, Peter Wolfgang, to Koninklijke Nederlandse Gist-en Spiritusfabriek N.V. 6-Aminopenicillanic acid derivatives and process for producing them. 3,741,958, Cl. 260-239.100.
- Henrad, Armand; Kehrer, Fritz; and Wasem, Hans, to Sandoz Ltd. Guanidiniosulfonylphenyl azo pigments having acetamidophenyl coupling component radicals. 3,741,953, Cl. 260-193.000.
- Henrickson, Gary C., to Vidar Corporation. Voltage to frequency converter having dual standard charge dispensers. 3,742,389, Cl. 332-19.000.
- Henrion, W. S.; and Kuo, Chang-Kiang, to Texas Instruments, Incorporated. Automatic MOS grounding circuit. 3,742,254, Cl. 307-251.000.
- Henschke, Ernest J.; Logemann, George H.; Moorad, Stanley; and Savio, Lino P., to Ekco Products, Inc. Separator. 3,741,410, Cl. 214-8.500.
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- Hering, Donald R.; and Lindsey, James M., to Sperry-Sun Well Surveying Company. Signal responsive display apparatus. 3,741,013, Cl. 73-151.000.
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- Herwig, Walter; Uebe, Rudolf; and Freund, Gunter, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Thermoplastic molding compositions based on saturated polyesters. 3,741,936, Cl. 260-75.000.
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- Heslinga, Adolf; and Napjus, Petrus Jan, to Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek ten behoeve van Nijverheid, Handel en Verkeer. Method for hardening an epoxy having at least two 1,2-epoxy groups. 3,741,934, Cl. 260-47.000.
- Hess, Fritz K.; Stewart, Patrick B.; Zeile, Karl; and Freter, Kurt, to Boehringer Ingelheim G.m.b.H. 1-(p-Benzamido)-3-methyl-triazenes. 3,741,951, Cl. 260-140.000.
- Hesston Corporation: See—
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- Hinckley, John N., to Beloit College. Start-up mechanism for rotary combustion engine. 3,741,170, Cl. 123-8.270.
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- Hodson, Harold Francis, to Burroughs Wellcome & Co. (U.S.A.) Inc. Chemical compounds, processes for their preparation, and pharmaceutical compositions incorporating the same. 3,742,050, Cl. 260-564.00r.
- Hoecker, August C., to Nicholson, Dean. Alarm device for detecting removal of or tampering with appliances or other articles. 3,742,480, Cl. 340-280.000.
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- Hoffman, Richard G., II, to Texas Instruments, Incorporated. Two axes angularly indexing scanning display. 3,742,238, Cl. 250-83.30h.
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- Hoffmann-La Roche Inc. See—
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- Hollis, Ernest E., to Sanders Associates, Inc. Pulsing system. 3,742,383, Cl. 331-11.000.
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- Hunter, Anthony John; and Forbes, Robert Graham, to A.I. Welders Limited. Friction welding. 3,740,827, Cl. 29-470.300.
- Hunter, Edward A.; and Muenker, Adolf H., to Esso Research and Engineering Company. High-energy propellants with polymeric fluorocarbon binder and hydrozine diperchlorate. 3,741,829, Cl. 149-19.000.
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- Hunter, Robert H., to ICI America Inc. Purification of polyglycerols. 3,742,069, Cl. 260-615.00r.
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Chaplygin, Igor Jurievich; Mitjushin, Dmitry Nikolaevich; Zapolnov, Dmitry Petrovich; Karamzina, Natalia Nikolaevna; Lebedeva, Valentina Grigorievna; and Lomagina, Irina Mikhailovna, 3,741,531.
Karbo, Richard S., to Brunswick Corporation, mesne. Arrowhead with removable blades. 3,741,542, Cl. 273-106.50b.
Karlsson, Bengt-Ake: See—

Andersson, John-Erik; Gustafsson, Jan Kenneth; Haggstrom, Rolf Paul; and Karlsson, Bengt-Ake, 3,741,328.
Karmas, George, to Ortho Pharmaceutical Corporation. Aryl substituted-hydroxy substituted cyclohexenecarboxylic acids and esters. 3,742,028, Cl. 260-479.00r.
Karp, Arthur, to Stanford Research Institute. Directional filter using meander lines. 3,742,393, Cl. 333-10.000.
Karski, Leo W.: See—
Gage, Wayne T.; and Karski, Leo W., 3,741,485.
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Yamamoto, Tadaaki; and Kasai, Toshiyuki, 3,741,661.
Kasin, Hans; and Thvedt, Odd Krane, to Spigwoerk, Christiania, Division Jobu. Loading and conveying device to be mounted on a tractor or the like. 3,741,526, Cl. 254-139.100.
Katano, Takeshi: See—
Ichinohe, Eisuke; Kubo, Noriyoshi; Nakamura, Kazuhiro; Endo, Yoshinori; and Katano, Takeshi, 3,742,262.
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Katsuragi, Mamoru, to Minolta Camera Kabushiki Kaisha. Sheet-shaped film holding mechanism in projector. 3,741,637, Cl. 353-120.000.
Katsuyama, Takehiro: See—
Kubota, Masaichi; Yamamura, Taro; Kawai, Atsushi; Katsuyama, Takehiro; Ikeda, Masamichi; and Omoto, Seiichi, 3,741,862.
Katz, Silas; and Hastie, Edgar G., to United States of America, Army. Fluidic angular rate sensor. 3,741,018, Cl. 73-506.000.
Kaule, Walter, to Krautkramer, J. u. H., Dr., Gesellschaft fur Elektrophysik. Method and apparatus for measuring thickness by exciting and measuring free resonance frequency. 3,741,334, Cl. 181-5np.
Kaupp, Donald H. Jig-saw puzzle board with framing inserts having variously shaped openings. 3,741,548, Cl. 273-157.00r.
Kavanaugh, Paul K.: See—
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Kavera, Alexandr Alexandrovich; Nikovskikh, Anatoly Anatolevich; Grigoriev, Vladimir Andreevich; Pashkov, Arkady Borisovich; and Epstein, Yakov Vulfovich. Device for liquid treatment of granulated products. 3,741,223, Cl. 134-191.000.
Kawabata, Yasuhiro: See—
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Kawada, Shin-ichi; Hirokawa, Yoichi; and Masuzawa, Isao, to Kabushiki Kaisha Tokyo Keiki (Tokyo Keiki Co., Ltd.). Autopilot system. 3,741,474, Cl. 235-150.100.
Kawaguchi, Katsuyuki, to Mitsubishi Jukogyo Kabushiki Kaisha. Combustion air supply arrangement for gas turbines. 3,741,483, Cl. 239-400.000.
Kawai, Atsushi: See—
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Kawamata, Isamu. Ice shaving device for home use. 3,741,486, Cl. 241-95.000.
Kawamura, Sadao; and Matsuno, Hideo, to Toray Engineering Co., Ltd. Bobbin winder, method and yarn package produced thereby. 3,741,489, Cl. 242-18.000.
Kawasaki, Kikuo: See—
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Kay, Leslie; and James, Graeme Leslie, to National Research & Development Corporation. Detection apparatus. 3,742,433, Cl. 340-1.00r.
Keener, Richard N., to American Seating Company. Segmental multi-unit study table. 3,741,852, Cl. 161-37.000.
Kehrer, Fritz: See—
Henrard, Armand; Kehrer, Fritz; and Wasem, Hans, 3,741,953.
Keisier, Frank Z.; and Smolker, Gary S., to United States of America, Navy. Single layer self-destruct circuit produced by co-deposition of tungstic oxide and aluminum. 3,742,120, Cl. 174-68.500.
Keller, Hans; and Sauer, Wolfgang, to ITT Industries, Inc. Cross-coupled complementary transistor circuit for single coil electro-mechanical oscillator. 3,742,385, Cl. 331-116.00m.
Keller, Leo. Method of and apparatus for controlling lithographic printing. 3,741,115, Cl. 101-148.000.
Kellett, Eric, to C.A.V. Limited. Hot gas generator employing rotary turbine. 3,740,948, Cl. 60-261.000.
Kelly, Lonnie M. Tripod type jack assembly. 3,741,509, Cl. 248-171.000.
Kenaga, Paul E. Panel construction. 3,740,916, Cl. 52-629.000.
Kendall Company, The: See—
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Kieffer, Richard, to UGINE-CARBONE. Sintered hard alloy and method of making: 3,741,733, Cl. 29-182.500.
Kiehn, Jürgen; Wahle, Gunter; and Lahmann, Rank-Dieter, to Hauni Werke Korbers & Co., KG. Method and apparatus for evaluating the operation of machines for the production and/or processing of smokers products: 3,742,232, Cl. 235-151.300.
Kienzler, Wolfgang; and Burgdorf, Martin, to Kabel- und Metallwerke Gutehoffnungshütte Aktiengesellschaft. Forming hollow blanks: 3,740,992, Cl. 72-361.000.
Killmann, Irolt G.; and Matto, Lawrence R., to Avco Corporation. Split housing piloting device: 3,741,680, Cl. 415-219.00r.
Kimberly-Clark Corporation: See—
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Kingston, Kenneth D. Shag rug groomer: 3,740,788, Cl. 15-142.000.
Kinoshita, Yoshiaki, to Mitsui Shipbuilding Engineering Co., Ltd. Floating structure for unloading liquid cargo: 3,741,264, Cl. 141-383.000.
Kipling, Barry John, to Pye Limited. Medical respirators: 3,741,209, Cl. 128-145.800.
Kipsch, Ernst-Günter, to Herlag Holzwarenfabrik Kommanditgesellschaft. Perambulator: 3,741,579, Cl. 280-47.380.
Kirkland, Robert E.: See—
Ehrlich, Stanley L.; and Kirkland, Robert E., 3,742,440.
Kirsch, Andrew F., to Westinghouse Electric Corporation. Static elevator supervisory system: 3,741,347, Cl. 187-29.00r.
Kirtion, Lionel A.: See—
Youmans, Albert P.; and Kirtion, Lionel A., 3,740,900.
Kishino, Shigeo; Yamada, Yasuo; Kurahashi, Yoshio; and Kume, Toyohiko, to Farbenfabriken Bayer Aktiengesellschaft. Cyanophenyl O,S-dialkyl phosphorothiolates: 3,742,094, Cl. 260-940.000.
Kishiwada, Susumu: See—
Shiraishi, Tatsuo; Kishiwada, Susumu; Shimizu, Shinkichi; Honmaru, Shigeru; Toshiro, Hiroshi; and Naogaoka, Yoshio, 3,741,910.
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Kitai, Kiyoshi, to Kabushiki Kaisha Hattori Tokeiten. Electric shutter exposure-time control circuit having counter light compensation: 3,741,087, Cl. 95-10.00r.
Kiuchi, Hiroshi; Oshima, Keisuke; Nishidoi, Takashi; and Aya, Toshihiko, to Toray Industries, Inc. Thermoplastic resin composition containing an ethylene-vinyl acetate graft copolymer: 3,742,090, Cl. 260-876.00r.
Kiyokuni, Nobuaki: See—
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Kjelland-Fosterud, Einar, to Sentralinstitutt for Industrielle Forskning. Method of shaping brittle foamed clay by curshing with a blunt roller: 3,742,110, Cl. 264-321.000.
Kjellgren, Ove Allan Valentin, to Alfa-Laval AB. Centrifugal separator: 3,741,467, Cl. 233-41.000.
Klaus, Kaspar. Device for the parking of vehicles on several platforms arranged above each other: 3,741,412, Cl. 214-16.1ed.
Kleffman, Gunter; and Rethmeier, Gerhard, to Anker-Werke AG. Device for selecting the calculating mechanism and controlling the mode of operation of a cash register or printing accounting machine: 3,742,193, Cl. 235-62.00r.
Klein, Harold T.; and Porter, Wilson B., to Robbins Company. Boring machine having internal access feature and disassembly method: 3,741,318, Cl. 173-152.000.
Klein, Larry. Mechanical knife with holding means: 3,740,845, Cl. 30-136.000.
Klein, Willi: See—
Witzig, Emil Karl; Frank, Rudolf; and Klein, Willi, 3,741,674.
Kleiner, Walter Gustav; and Hoenig, Ernst Josef, to Stauble AG. Adjuster in the connection path between a shed-forming device and a heddle frame: 3,741,257, Cl. 139-66.00r.
Kleinfelter, Clarence R. Transportable incineration system: 3,741,133, Cl. 110-8.00a.
Kliever, Waldo H.; and Mart, Clyde, said Kliever assor. to said Mart, Clyde. Power driven meat trimming and cutting knife: 3,740,847, Cl. 30-272.00a.
Klink, Wolf Dieter: See—
Fiala, Ernst, 3,741,494.
Klockner-Humboldt-Deutz Aktiengesellschaft: See—
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Klusmier, Kenneth L., to Morgan Construction Company. Transfer apparatus: 3,741,408, Cl. 214-1.00g.
Kmiciek, James Edward; and Schulze, Heinz, to Jefferson Chemical Company, Inc. Metal catalyzed cyclization of organic nitriles and amino alcohols or amino thiols: 3,741,961, Cl. 260-243.00r.
Knapp, Wilhelm, to ITT Industries, Inc. Actuating and returning devices for disc brakes: 3,741,350, Cl. 188-72.600.
Knapsack Aktiengesellschaft: See—
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Knechtel, Wilhelm; Petersdorf, Gerhard; and Sandner, Winfried, to Canon Kabushiki Kaisha, mesne. Copying apparatus: 3,741,646, Cl. 355-50.000.
Knight, Robert K.: See—
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Pass, Peter John; Carr, Douglas Wesley; Knight, Rogers Evert; Gelder, Ronald; Morrell, Moreton; Smith, Leslie William; Harris, Leonard Frederick; and Van Bastelaere, Karel Leon August, 3,741,236.
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Kobayashi, Tetsuo, to Nippon Cable System Inc. Single lever control apparatus for marine engine: 3,741,045, Cl. 74-876.000.
Kobayashi, Yoichi: See—
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Kobe Steel Ltd.: See—
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Koblick, Christian; Muller, Ernst; and Rambold, Klaus, to Siemens Aktiengesellschaft. Pulse transformer for driving thyristors: 3,742,332, Cl. 321-11.000.
Kobylarz, Edward J. Golf gloves: 3,740,766, Cl. 2-161.00a.
Kobyner, Herman H., to Arrow-Hart, Inc. Wire connector: 3,742,431, Cl. 339-272.0vc.
Kocay, Witold R., to Monsanto Company. Polyester meat shroud: 3,741,260, Cl. 139-420.00r.
Kochs Adler AG., mesne: See—
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Koehring Company: See—
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Koeijmans, Gerard D., to Mobil Oil Corporation. Video display system creating both horizontal and vertical sync pulses from the disc time track: 3,742,289, Cl. 315-18.000.
Koga, Toshikuni: See—
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Koga, Yukinori: See—
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Kogel, Wilhelm Georg; and Dahlqvist, Bernt Henry Roland, to Aktiebolaget Electrolux. Apparatus for defrosting cooling units of absorption refrigeration systems: 3,740,965, Cl. 62-278.000.
Koh-I-Noor Rapidograph Inc.: See—
Danjczek, William E.; Leuenberger, Jean Pierre; Micale, Fortunato J.; and Wagner, Ralph W., 3,741,668.
Kohl, Alois; and Hartmannsgruber, Rudolf, to Wacker-Werke KG. Apparatus for automatic lubrication of vibration generators: 3,741,344, Cl. 184-69.000.
Kohnke, Richard. Parachute canopy: 3,741,506, Cl. 244-145.000.
Koleske, Joseph V.; and Magnus, George, to Union Carbide Corporation. Poly (oxyacetyl)-polyurethane products: 3,741,918, Cl. 260-2.5ay.
Kollmyer, Robert E.: See—
Kupsky, George A.; and Kollmyer, Robert E., 3,742,279.
Komiya, Yoshio, to Canon Inc. Method of manufacturing flexible optical fiber strand for transmitting images and apparatus therefor: 3,741,839, Cl. 156-174.000.
Komori, Shigehiro; Kurahashi, Akira; and Hattori, Hiroyuki, to Canon Kabushiki Kaisha. Wet type developing apparatus: 3,741,093, Cl. 95-89.00r.
Komoto, Hiroshi; Hayano, Fusakazu; and Takami, Toshio, to Asahi Kasei Kabushiki Kaisha. Method for producing bis(4-amino-cyclohexyl) alkane: 3,742,049, Cl. 260-563.00d.
Kondo, Chitoshi: See—
Mori, Hiroshi; Yamamoto, Michio; Kondo, Chitoshi; Kimoto, Teruhisa; Takahashi, Satoshi; and Ochi, Toshiyuki, 3,742,027.
Kondo, Kenshi. Thermostat: 3,742,416, Cl. 337-392.000.
Konenklijke Netherlandische Gist-en Spiritusfabriek N.V.: See—
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- Konishi, Tatsuo: See—
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Kono, Masaru: See—
Yabe, Masaya; Takahama, Teizo; Kono, Masaru; and Hirono, Katsumi, 3,742,314.
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Konrat, Jean-Paul; and Le Roux, Louis, to Etat Francais Delegation Ministerielle pour l'Armement. Trinitrophenyl chloroformates and carbonate and a process of preparing same: 3,742,011, Cl. 260-463.000.
Kopczynski, John F. Wire twisting machine: 3,740,938, Cl. 57-58.360.
Kopecky, Louis E. Rake device for shag carpets: 3,740,783, Cl. 15-3.000.
Koppe, Herbert; Engelhardt, Albrecht; Ludwig, Gerhard; and Zeile, Karl, to Boehringer Ingelheim G.m.b.H. Novel 1-substituted phenox-y-2-hydroxy-3-isopropylamino-propanes: 3,742,023, Cl. 260-471.00r.
Koppes, David Nelson, to Bell Telephone Laboratories, Incorporated. Apparatus for cleaning waveguide and similar pipes: 3,740,790, Cl. 15-312.00r.
Kordas, Martin W., Jr., to Remington Arms Company, Inc. Expendable shotshell: 3,741,122, Cl. 102-43.00p.
Kornrump, William P.; and Harnden, John D., Jr., to General Electric Company. Method and equipment for cooking electronically by specifying watts setting: 3,742,173, Cl. 219-10.410.
Koshi, Yoichihiro; Barozzi, Gian Piero; and Horeschi, Giancarlo, to Citizen Watch Co., Ltd. Adding machine: 3,741,470, Cl. 235-60.0tk.
Kosonocky, Walter Frank: See—
Rajchman, Jan A.; and Kosonocky, Walter Frank, 3,742,464.
Kotone, Eimatsu, to Nippon Pneumatic Manufacturing Co. Impact wrench: 3,741,319, Cl. 173-163.000.
Kowalik, John J., to International Harvester Company. Close coupled frame steered all crawler tractor: 3,741,331, Cl. 180-9.440.
Koyano, Akio, to Sumitomo Special Metal Company Limited. Piezoelectric ceramics: 3,741,899, Cl. 252-62.900.
Kozheurov, Vsevolod Rodionovich; Berezin, Leonid Georgievich; Safarov, Georgy Samuilovich; and Bulgakov, Petr Lavrentievich. Mould for the production of metal ingots: 3,741,280, Cl. 164-250.000.
Kozusnik, Karel, to Sigma Lutín, narodní podnik. Method for manufacturing pump spindle: 3,740,811, Cl. 29-156.400.
Krasso, Anna: See—
Hegeudus, Balhasar; and Krasso, Anna, 3,742,034.
Kraus, James R.: See—
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Krause, Johannes; and Portz, Wilhelm, to Knapsack Aktien-gesellschaft. Installation for cooling calcium carbide run off into ves-sels: 3,741,414, Cl. 214-44.00r.
Krause, Konrad A., to International Business Machines Corporation. Electrophotographic plate cleaning apparatus: 3,741,157, Cl. 118-637.000.
Krautkramer, J. u. H. Dr., Gesellschaft fur Elektrophysik: See—
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Krellen, Norman L. Contact lens case: 3,741,377, Cl. 206-5.00a.
Krembs, George M., to International Business Machines Corporation. Capacitive-coupled connectors for gaseous discharge display panels: 3,742,296, Cl. 315-169.00r.
Kremsler, Fritz: See—
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Kripak, Leonid M.: See—
Glass, Marvin I.; Kripak, Leonid M.; and Meyer, Burton C., 3,740,896.
Kronies, Reinard Kurt, to Burroughs Corporation. Three state logic device with applications: 3,742,253, Cl. 307-247.000.
Krosby, Johannes Anders, to Kvaerner Brugs Kjoelavdeling A/S. Circulation pump for refrigeration plant: 3,741,688, Cl. 417-372.000.
Kroy Knitting Developments Limited: See—
Francourt, Terence, 3,740,972.
Krumm, Charles G.: See—
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Krysiuk, Genadij; and Meier, Johann H., to International Business Machines Corporation. Position controlling system: 3,741,357, Cl. 192-12.00d.
Kubo, Moritada; Asano, Kumiji; and Obama, Masao, to Tokyo Shibaura Electric Co., Ltd. Noncontact electric apparatus for magnetically measuring strains: 3,742,357, Cl. 324-34.0st.
Kubo, Noriyoshi: See—
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Kubo, Seitoku: See—
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Kubota, Masaichi; Yamamura, Taro; Kawai, Atsushi; Katsuyama, Takehiro; Ikeda, Masamichi; and Omoto, Seiichi, to Mitsubishi Rayon Co., Ltd. Highly crimped polyonitic fibers: 3,741,862, Cl. 161-173.000.
Kuethe, Arnold M. Boundary layer control of flow separation and heat exchange: 3,741,285, Cl. 165-1.000.
Kuh, Stephen J., to Dow Chemical Company. The 2-(Alpha, alpha-bis(trifluoromethyl)benzyloxy) acetic acid and esters thereof: 3,742,043, Cl. 260-521.00a.
Kuhnle, Paul; Calkler, Fritz; and Gassmann, Willy, to Fr. Hesser Maschinenfabrik Aktiengesellschaft. Bag forming and manipulating machine: 3,741,080, Cl. 93-8.00r.
Kulhanek, Willy Paul, to General Tire & Rubber Company. The. Method of improving paint adhesion to low-shrink polyester-based resins: 3,741,799, Cl. 117-138.80f.
Kull, Leo; and Landis, Bruce B., to Rowe International Inc. Fifth leg for merchandising machine cabinet: 3,741,620, Cl. 312-276.000.
Kumada, Shoji; and Tanaka, Tadashi, to Kabushiki Kaisha Yaskawa Denki Seisakusho. Method of producing a coreless armature: 3,740,836, Cl. 29-598.000.
Kume, Toyohiko: See—
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Kuntz, Charles H. Projector device for drawing: 3,741,624, Cl. 350-121.000.
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Kuo, Chang-Kiang: See—
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Kupsky, George A.; and Kollmyer, Robert E., to Burroughs Corporation. Segmented electrode display panel having closed structure: 3,742,279, Cl. 313-109.500.
Kurahara, Koji: See—
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Kuroda, Shigeharu. Method for producing a seamless tubing: 3,742,105, Cl. 264-89.000.
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Laakmann, Peter, to Hughes Aircraft Company. High speed small deflection interface mirror: 3,742,234, Cl. 250-235.000.
Lacey, Benjamin R. Short finder with a pair of indicators having different resistance values and actuated by different current magnitudes: 3,742,345, Cl. 324-52.000.
Lacey, Edward H. Irrigation hose coupling and pull end: 3,741,238, Cl. 137-344.000.
Lacheta, Ireneusz: See—
Prasnar, Tadeusz; Rulinski, Jozef; Zglobicki, Edward; Lyzwinski, Ryszard; Lacheta, Ireneusz; Szczepanik, Aleksander; Piaskowski, Stanislaw; and Godyn, Adam, 3,740,990.
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Lagally, Ralph W.; and Schulz, Johann G. D., to Gulf Research & Development Company. Preparation of amines: 3,742,060, Cl. 260-585.00a.
Laguilharre, Pierre Robert. Drying installation: 3,740,865, Cl. 34-57.00c.
Lahmann, Rank-Dieter: See—
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Laing, Nikolaus. Separating wall for magnetic machine: 3,741,690, Cl. 417-420.000.
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- LaMonaca, Philip A., to Polaroid Corporation. Photographic film unit for producing images in color. 3,741,766, Cl. 96-76.00c.
- Land, Cecil E.: See—
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- Landen, William James, to Eyelet Specialty Company. Bottle closure. 3,741,424, Cl. 215-43.00r.
- Landis, Bruce B.: See—
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- Landures, John, to Dynasty Oil and Minerals Corporation. Device for monitoring golf practice swings. 3,741,550, Cl. 273-186.00r.
- Lane, Clyde H., to United States of America, Air Force. Method for packaging hybrid circuits. 3,740,920, Cl. 53-39.000.
- Lang, Winfried: See—
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- Langdon, Vernon L.: See—
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- Lange, Werner, to VEB Pentacon Dresden Kamera- und Kinowerke. Apparatus for feeding the pile board of a sheet separating device. 3,741,537, Cl. 271-61.000.
- Langer, Arthur: See—
Albrecht, Francis E.; Baxter, William D.; De Michiel, John; Dugan, Robert J.; Greenblum, Carl; Grosky, Stephen A.; and Langer, Arthur, 3,742,288.
- Langer, Arthur W., Jr.: See—
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- Langille, Justin E., III: See—
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- Lannert, Kent P., to Monsanto Company. Detergency builders. 3,742,045, Cl. 200-535.00p.
- Lanphere, Ralph C., and Elton, Robert L., to Case, J. I., Company. Combination sign board and truck removable wall. 3,740,882, Cl. 40-129.00c.
- Lapkin, Milton, to Olin Corporation. Flame retardant polyurethane foams based on polyether from 4,4,4-trichloro-1,2-epoxybutane. 3,741,921, Cl. 260-2.5as.
- LaPointe, Andre E., to United States of America, Navy. Stabilized rocket head. 3,741,125, Cl. 102-49.400.
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- Larie Corporation: See—
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- Larimer, Robert W., Sr. Highway safety kit. 3,741,382, Cl. 206-47.00r.
- Larson, Rodney L.: See—
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- Latal, Werner; and Schneebeli, Willi, to Aktiengesellschaft Brown, Boveri & Cie. Minimum-oil circuit breaker including movable braking member for applying braking force thereto proportional to gas pressure generated in arc-quenching chamber. 3,742,168, Cl. 200-150.00b.
- Latal, Rby C., to O'Brien Manufacturing Company, Inc. Hydraulic sewer pipeline cleaner. 3,740,785, Cl. 15-104.12.
- Lau, Dicksen T. W. Racing dragon boat. 3,740,781, Cl. 9-25.000.
- Lauer, Robert J., to Reliance Electric Company. Elevator car stopping status evaluation means. 3,742,445, Cl. 340-19.00r.
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- Lawson, Peter James; and Kocsis, Ferenc, to Besson, A. P., & Partner Limited. Tone device having positive feedback common emitter amplifier. 3,742,491, Cl. 340-384.00c.
- Lazarus, Alan R. Headboard support. 3,740,776, Cl. 5-296.000.
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- Leadbetter, Orren R. Shelf extender. 3,741,131, Cl. 108-97.000.
- Leaman, Graham, to Crescent Toy Company Limited, The. Toy pistols. 3,740,885, Cl. 42-58.000.
- Lear Siegler, Inc.: See—
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- Leathers, Chester F. Low inductance unit particularly for electric welders. 3,742,334, Cl. 321-57.000.
- Leavitt, Minard A.; and Roulund, Poul B., to Culter-Hammer, Inc. Film handling method and apparatus. 3,741,650, Cl. 355-91.000.
- Lebeau, Rene D., to Woodworking Engineering & Machinery Co., Inc. Sound reducing unit for machinery. 3,741,335, Cl. 181-33.00k.
- Lebedeva, Valentina Grigorievna: See—
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- Lee, Hue R. Vehicle with detachable auxiliary parts. 3,741,605, Cl. 296-10.000.
- Lee, Lewis R.; Whybro, Robert S. D.; and Bennett, William A., to Ford Motor Company. Vehicle carrying an implement. 3,741,415, Cl. 214-138.00c.
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- Lefevre, Andre: See—
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- Lefevre, George; and Angelie, Philippe, to Societe d'Etudes Recherches et Constructions Electroniques (S.E.R.C.E.L.). Sample amplifiers having automatic regulation of the amplification factor by discrete values. 3,742,489, Cl. 340-347.0ad.
- Leichliter, Wayne K., to Eaton Corporation. Fluid coupling. 3,741,359, Cl. 192-58.00b.
- Leighton, Sally C.: See—
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- Leimgruber, Willy; and Weigle, Manfred, to Hoffmann-La Roche Inc. Process for the preparation of aminomethylene malononitrile. 3,742,015, Cl. 260-465.50r.
- Lejeune, Pierre, to Creusot-Loire. Apparatus for making a continuous sheet by filtration of particles in suspension in a liquid. 3,741,865, Cl. 162-317.000.
- Lekarski, Simeon: See—
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- Leposavic, Wayne V., to Lamatex, Inc. Keyboard switch assembly with improved movable contact. 3,742,157, Cl. 200-5.00a.
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- Levand, Victor A., Jr.; and Holcomb, Richard H., to General Electric Company. Oxidation-resistant seal. 3,742,117, Cl. 174-50.064.
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- Levinger, Paul, to Pale Corporation. Watch end. 3,740,804, Cl. 24-265.0ws.
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- Lewiner, Jacques; and Biquard, Pierre, to Agence Nationale de Valorisation de la Recherche (ANVAR). Ultrasonic transducers. 3,742,152, Cl. 179-111.00c.
- Lewis, Fred; and Useldinger, Ronald E., to Useldinger, Ronald E. Friction type exercising device mounted on a collapsible structure. 3,741,538, Cl. 272-58.000.
- Lewis, George E.: See—
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- Lewis, Morton, to Swift & Company. Urethane composition prepared from polyisocyanates and phosphonated polyoxyalkylene ester. 3,741,919, Cl. 260-2.5ar.
- Lewis, Owen, to United States of America, Air Force. Vertical tapeline microwave coupler for paramagnetic spin resonance. 3,742,399, Cl. 333-82.00r.
- Leyde, Warren L.; and Marker, Delbert E., to Republic Industries, Inc. Automatic door-opening system using an acoustic object detection system. 3,742,434, Cl. 340-1.00r.
- Leyde, Warren L.; and Marker, Delbert E., to Pacific Technology, Inc. Acoustic object detection system. 3,742,442, Cl. 340-15.000.
- LFE Corporation (formerly Laboratory for Electronics Inc.): See—
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- Liden, Sam P., to Sperry Rand Corporation. CMG fine attitude control system. 3,741,500, Cl. 244-1.0sa.
- Liebermann, Leonard N.; and Lai, Stanley H., to TIF Instruments, Inc. Gaseous impurity detector employing corona discharge phenomenon. 3,742,475, Cl. 340-237.00r.
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- Lincoln, Herbert R., to Star Cutter Company. Centrifugal separation with internal scraper blades. 3,741,465, Cl. 233-7.000.
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- Radscheit, Kurt; Stache, Ulrich; Fritsch, Werner; Haede, Werner; and Lindner, Ernst, 3,741,956.
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- Loomis, Charles M. Gauge frame for elevator shaft entrance opening. 3,740,907, Cl. 52-205.000.
- Looschen, Floyd W., to Burroughs Corporation. Data processing method and apparatus adapted to sequentially pack error correcting characters into memory locations. 3,742,459, Cl. 340-172.500.
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Morgan, George H.; and Nehrig, Robert Harlan, to Auto Specialties Manufacturing Company. Scissors jack. 3,741,524, Cl. 254-122.000.
Morgan, Willis Ema. Non-slip retention means for use on a wearer's head. 3,741,202, Cl. 128-76.00b.
Morgren, C. A., Limited: See—
Pass, Peter John; Carr, Douglas Wesley; Knight, Rogers Evert; Gelder, Ronald; Morrell, Moreton; Smith, Leslie William; Harris, Leonard Frederick; and Van Bastelaere, Karel Leon August, 3,741,236.
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Morrisey, William D. Cleaner device for balls. 3,740,784, Cl. 15-21.00a.
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Mueller, Wolfgang H.; and Oswald, Alexis A., to Esso Research and Engineering Company. Process for preparing diadducts of hydrocarbylthiophosphoric acids. 3,742,097, Cl. 260-968.000.
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Murtaugh, Justin J.; and Brown, Robert C., to Drackett Company, The. Cleaning composition. 3,741,900, Cl. 252-89.000.
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- Odetics, Inc.: See—
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- Oelschlaeger, Daniel J., to Display Corporation International. Device for displaying price information. 3,740,878, Cl. 40-28.00c.
- Oerter, Manfred: See—
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- Ogle, James A., to Burroughs Corporation. Video display system using display panel. 3,742,483, Cl. 340-324.00m.
- Ogura, Katsuyuki: See—
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- Ohata, Susumu, to Yokogawa Electric Works, Inc. Closed loop stepping motor servo-mechanism. 3,742,328, Cl. 318-685.000.
- Ohi, Atsushi: See—
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- Ohi, Reiichi: See—
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- Sugiyama, Mitsunori; Ohi, Reiichi; Shishido, Tadao; and Omura, Masaki, 3,741,950.
- Ohlson, John L.; Scanlon, Patricia M.; and Gaudette, Roger R., to Grace, W. R., & Co. Iron chelates useful for supplying iron to plants growing in calcareous soil. 3,742,002, Cl. 260-439.00r.
- Ohmura, Hiroshi, to Fuji Photo Film Co., Ltd. Single blade electric shutter. 3,741,091, Cl. 95-59.000.
- Ohno, Richard J., to Sargent and Company. Protective guard for a mortise type lock. 3,741,597, Cl. 292-1.000.
- Ohsato, Nobuyoshi, to Nippon Sheet Glass Co., Ltd. Process and apparatus for the preparation of surface-modified glass ribbon. 3,741,741, Cl. 65-99.00a.
- Oil Dynamics, Inc.: See—
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- Okada, Hiroaki: See—
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- Okamoto, Eisaku, to Nippon Gakki Seizo Kabushiki Kaisha. Automatic rhythm instrument. 3,742,112, Cl. 84-1.030.
- O'Kane, Patrick T.: See—
Evans, David John Ivor; Veltman, Herbert; and O'Kane, Patrick T., 3,741,752.
- Okita, Taisuke; and Yoshida, Nobuyuki, to Toaka Dyestuffs Manufacturing Co., Ltd. Rubber composition. 3,741,924, Cl. 260-27.00r.
- Okuda, Nobuo; and Sekiguchi, Masahiko, to Tokyo Shibaura Electric Company. Digital servo-mechanism. 3,742,326, Cl. 318-603.000.
- Okumura, Shigeo: See—
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- Oldershaw, C. G.; and De Kramer, Don, to General Foods Corporation. Apparatus for inspecting and selecting products. 3,741,371, Cl. 198-38.000.
- O'Leary, James D. Brick veneer wall construction. 3,740,911, Cl. 52-388.000.
- Olin Corporation: See—
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- Miller, John A., 3,741,121.
- Oliver, John H.: See—
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- Olson, Jack Edward; and Catalano, Guy G. Probing device for microcircuits. 3,741,022, Cl. 74-102.000.
- Olsson, Frank C., to AMF Incorporated. Self-leveling dispenser. 3,741,512, Cl. 248-399.000.
- Olsson, Sven Gunnar: See—
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- Olsson, Tore Bertil Reinhold, to Aktiebolaget Bofors. Picture generating unit of the scanning type. 3,742,136, Cl. 178-6.800.
- Oltman, John E.: See—
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- Oltra, Claude H.: See—
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- Olympus Optical Co., Ltd.: See—
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- Olyphant, Murray, Jr.; and Bridenbecker, Arno Don, to Minnesota Mining and Manufacturing Company. Corona-resistant electrically insulating organic polymeric compositions. 3,742,084, Cl. 260-827.000.
- Omega Louis Brandt & Frere S.A.: See—
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- Omoto, Seiichi: See—
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- Omura, Masaki: See—
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- Ono, Isao; Yanagihara, Tadahisa; Koga, Toshikuni; Kato, Takao; and Okada, Hiroaki, to Toyo Soda Manufacturing Co., Ltd. Process for producing 1,4-diacetoxy-2-butene from butadiene. 3,742,039, Cl. 260-497.00a.
- Ono, Nobuyuki: See—
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- Ooishi, Tadashi: See—
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- Ooka, Toshiwo; and Takata, Koji, to Sumitomo Electric Industries, Ltd. Friction pad pressing apparatus for use in disc brakes. 3,741,354, Cl. 188-345.000.
- Optima Maschinenfabrik Inhaber Dr. Max Buhler: See—
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- Optogram, Inc.: See—
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- Orain, Michel, to Societe Anonyme: Glaenger Spicer. Stabilized bellows coupling for transmitting rotary movement. 3,740,968, Cl. 64-11.00b.
- Orcutt, Franklin D.: See—
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- Orenstein & Koppel Aktiengesellschaft: See—
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- Ores, Bernard; and Rauber, Claude, to Roussel-UCLAF. Extraction of bacitracin with non-ionic resins. 3,741,949, Cl. 260-112.500.
- Organisation Ralfs KG: See—
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- Orkowitz, Harry; and Sherman, Samuel M., to United States of America, Air Force, mesne. Radar apparatus with directional discrimination and increased radar sensitivity. 3,742,501, Cl. 343-7.700.
- Ornstein, Leonard: See—
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- Ortho Pharmaceutical Corporation: See—
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- Orthuber, Richard Kaspar; and Alting-Mees, Hemmo Reint, to International Telephone and Telegraph Corporation. Electron tube voltage control device. 3,742,287, Cl. 315-12.000.
- Osborn, Lloyd, to V-M Corporation. Clutch arrangement for tape transport. 3,741,499, Cl. 242-201.000.
- Osburn, Carlton M.: See—
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- Osor, Astriel, to Hydro Chemical & Mineral Corporation. Process and systems for extracting salts, concentrated brine, and/or pore-water pure water saline water. 3,741,878, Cl. 202-173.000.
- Osher, John E.: See—
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- Oshima, Keisuki: See—
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- Osieka, Hans; Kiefer, Hans; and Fischer, Adolf, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. N-alkyl-N-bi-tri- or tetracycloalkyl thiolcarbamates. 3,742,007, Cl. 260-455.00a.
- Osterlund, Dennis E.: See—
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 Pirooz, Perry P., to Owens-Illinois, Inc. Glass-ceramic having a reflective surface and process for making same. 3,741,740, Cl. 65-32.000.
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- Pontecorvo, Nicholas E., to Pontecorvo R & D Company. Preparation of Ricotta cheese. 3,741,773, Cl. 99-116.000.
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- Porter, Robert J.; and Mc Farlin, Stanley B., to Gorman-Rupp Company. The Self-priming centrifugal pump with automatic air release valve. 3,741,675, Cl. 415-11.000.
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Rubricuis, Jeannette L., to LeVeen, Harry H. Surgical device. 3,740,779, Cl. 7-14.10r.

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Rude, Steven L. Sled. 3,741,577, Cl. 280-18.000.

Ruether, Peter Gade, to Bell Telephone Laboratories, Incorporated. Communication call holding and supervising circuit. 3,742,151, Cl. 179-99.000.

Rugger, Warren E. Concrete form securing means. 3,741,516, Cl. 249-216.000.

Rulinski, Jozef: See—
Prajnar, Tadeusz; Rulinski, Jozef; Zglobicki, Edward; Lyzwinski, Ryszard; Lacheta, Ireneusz; Szczepanik, Aleksander; Piaskowski, Stanislaw; and Godyn, Adam, 3,740,990.

Runkel, William J.: See—
Forsythe, David M.; and Runkel, William J., 3,741,853.

Rupp, Warren, Company, The: See—
Rupp, Warren E., 3,741,689.
Rupp, Warren E., 3,741,692.

Rupp, Warren E., to Rupp, Warren, Company, The. Air operated diaphragm pump. 3,741,689, Cl. 417-393.000.

Rupp, Warren E., to Rupp, Warren, Company, The. Surge suppressor for fluid lines. 3,741,692, Cl. 417-540.000.

Russell, Michael Frederick, to C.A.V. Limited. Pulleys. 3,741,025, Cl. 74-230.400.

Russell, Ronald W.: See—
Frederiksen, Thomas M.; and Russell, Ronald W., 3,742,256.

Russell, Sidney Major. Suspension units for files. 3,741,402, Cl. 211-104.000.

Rust Engineering Company, The: See—
Brooks, S. Hunter W., 3,741,863.

Ryan, Trevor B., to Jury & Spiers Proprietary Limited. Method of making expanded metal products. 3,740,812, Cl. 29-155.00c.

S.A. Francois Salomon & Fils: See—
Salomon, Georges Pierre Joseph, 3,741,576.

Sackman, George L., to United States of America, Navy. Ultrasonic camera tube. 3,742,284, Cl. 315-11.000.

Safarov, Georgy Samuilovich: See—
Kozheurov, Vsevolod Rodionovich; Berezin, Leonid Georgievich; Safarov, Georgy Samuilovich; and Bulgakov, Petr Lavrentievich, 3,741,280.

Sagami Chemical Research Center: See—
Tsuchihashi, Genichi; and Ogura, Katsuyuki, 3,742,066.

Sakakibara, Naoki; Kawabata, Yasuhiro; and Tsukuba, Korehiko, to Aisin Seiki Kabushiki Kaisha. Safety device for motor-vehicle engine-speed governor. 3,741,332, Cl. 180-108.000.

Saladin, Lawrence J., to Accurate Manufacturing Co. Punch device. 3,741,056, Cl. 83-140.000.

Saleh, Adel Abdel Moneim, to Bell Telephone Laboratories, Incorporated. Polarization-insensitive millimeter-wave directional coupler. 3,741,625, Cl. 350-147.000.

Salensky, George A., to Union Carbide Corporation. Epoxide molding compositions containing meta-tolylene diamine and a silicious filler. 3,741,928, Cl. 260-37.0ep.

Salkeld, Robert J. Self monitoring strike system. 3,741,501, Cl. 244-3.140.

Salomon, Georges Pierre Joseph, to S.A. Francois Salomon & Fils. Ski bindings. 3,741,576, Cl. 280-11.35h.

Samsonite Corporation: See—
Workman, David E., 3,741,130.

Samuels, W. Edward. Self-powered feedback-controlled volatile liquid dispensing apparatus. 3,741,230, Cl. 137-804.000.

San Saba Development Association: See—
Ellis, Sloan E., 3,741,195.

Sandall Precision Company Limited: See—
Browne, John Patrick, 3,741,237.

Sanden, Gerald: See—
Spellman, Patrick J.; Oltman, John E.; and Sanden, Gerald, 3,741,812.

Sanders Associates, Inc.: See—
Hollis, Ernest E., 3,742,383.

Sanders, Robert G.: See—
Guilbault, George G.; Sanders, Robert G.; and Zimmerman, Robert L., 3,741,876.

Sanders, William I., Jr., to DeMet Engineering Company. Modular blending system. 3,741,440, Cl. 222-132.000.

Sandiford, Burton B.; and Knight, Robert K., to Union Oil Company of California. Oil recovery method. 3,741,307, Cl. 166-273.000.

Sandner, Winfried: See—
Knechtel, Wilhelm; Petersdorf, Gerhard; and Sandner, Winfried, 3,741,646.

Sandoz Ltd.: See—
Altermatt, Ruedi, 3,741,954.
Henrard, Armand; Kehrler, Fritz; and Wasem, Hans, 3,741,953.

Sandoz-Wander, Inc.: See—
Griot, Rudolf G., 3,741,974.
Houlihan, William J.; and Nadelson, Jeffrey, 3,741,980.
Ott, Hans, 3,741,969.

Sangou, Isao; and Konishi, Tatsuo, to Nippon Electric Company, Limited. Drum servo system of a video tape recorder for an electronic editing. 3,742,132, Cl. 178-6.60p.

Santen Pharmaceutical Co., Ltd.: See—
Toshioka, Nobuo; Okumura, Shigeo; and Mita, Itaru, 3,741,975.

Santis, Dean C.; Wavre, Andre; and Szabo, Andras I., to Westinghouse Electric Corporation. Magnetic position indicator. 3,742,409, Cl. 336-45.000.

Sanz, Manuel C.; and Revillet, Georges, to Micromedic Systems, Inc. Percussion apparatus for blood sampling. 3,741,197, Cl. 128-2.00f.

Sargent and Company: See—
Ohno, Richard J., 3,741,597.

Sargent, Charles L., to Therman Corporation. Method and apparatus for disposing of human waste in a vehicle. 3,740,773, Cl. 4-114.000.

Sardis, Harry. Semi automated retail store. 3,741,345, Cl. 186-1.00r.

Sarkisov, Rafael; Stepanian, Ernst Arakelovich; Ovanesov, Jury Vagarshevich; and Maltsev, Vladimir Vasilievich. Automatic transfer press with vertical stamping surfaces for stamping concentric parts of sheet material. 3,741,055, Cl. 83-132.000.

Sasaki, Kenji, to Mitsui Mining & Smelting Co., Ltd. Electric conductor for use in metallic salt electrolytic cell. 3,741,885, Cl. 204-288.000.

Sato, Kazuo; Hisatsune, Tomio; and Watanabe, Hisashi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Safety device for vehicle passengers. 3,742,497, Cl. 343-7.0ed.

Sato, Masamichi: See—
Matsumoto, Seiji; Honjo, Satoru; Sato, Masamichi; and Fukushima, Osamu, 3,741,644.

Sato, Yo, to Kabushiki Kaisha Sato Kenkyujo. Hand labeler. 3,741,847, Cl. 156-384.000.

Saubestre, Edward B.; and Durney, Lawrence J., to Enthone Incorporated. Preparation of through hole printed circuit boards, and compositions useful therefor. 3,741,905, Cl. 252-142.000.

Sauer, Gale E.; and Mapes, Carl R., to National Gypsum Company. Fire retardant shaft wall. 3,740,912, Cl. 52-479.000.

Sauer, Wolfgang: See—
Keller, Hans; and Sauer, Wolfgang, 3,742,385.

Saunders, Richard J., to Cohermet Radiation. Method for scanning mask forming hole with a laser beam. 3,742,182, Cl. 219-121.01m.

Savage, Albert B.: See—
Glomski, Ronald L.; and Savage, Albert B., 3,741,922.

Savin Business Machines Corporation: See—
Smith, Ian Edward; Hastwell, Peter John; and Vermeulen, Marinus Corneius, 3,741,643.

Savio, Lino P.: See—
Henschke, Ernest J.; Logemann, George H.; Moorad, Stanley; and Savio, Lino P., 3,741,410.

Sayigh, Adnan A. R.; Stuber, Fred A.; and Ulrich, Henri, to Upjohn Company, The. Method for bonding a polyurethane coating to an organic polymeric substrate. 3,741,794, Cl. 117-93.310.

Sayles, David C., to United States of America, Army. Gas generator compositions containing a substituted glyoxime. 3,741,828, Cl. 149-19.000.

Scanlon, Patricia M.: See—
Ohlson, John L.; Scanlon, Patricia M.; and Gaudette, Roger R., 3,742,002.

Scanlon, Patricia M.; and Young, Elwyn R., to Grace, W. R., & Co. Imidothei and amidine derivatives of substituted fatty amides. 3,742,000, Cl. 260-404.500.

Scaramucci, Domer; and Adams, Ladd M., to Balon Corporation. Seat for ball valve. 3,741,523, Cl. 251-315.000.

Schaefer, Carl A., to Square D Company. Pressure switch. 3,742,166, Cl. 200-83.0sa.

Schaer, Glenn R., to United States of America, Army. Method of electrodepositing a lusterless, electrically conductive coating. 3,741,882, Cl. 204-42.000.

Schaller, Albert L., to General Motors Corporation. Dampened shock absorbing bumper. 3,741,560, Cl. 267-134.000.

Schanzer, Oswald: See—
Gansheimer, Josef; and Schanzer, Oswald, 3,741,897.

Schenek, Leslie M.: See—
Eiseman, Fred S.; and Schenek, Leslie M., 3,741,801.

Schenk, Bernard H.: See—
Urbatis, Algimantas P.; Schenk, Bernard H.; Risany, Joseph J.; and Marbach, Walter V., 3,741,779.

Schering, AG: See—
Berndt, Hans-Detlef; and Wiechert, Rudolf, 3,741,997.

Schick, Gunter. Measuring transducer with combined power input and signal output lines. 3,742,342, Cl. 323-4.000.

Schimizzi, Ernest Joseph: See—
Schimizzi, Gregory Frank; and Schimizzi, Ernest Joseph, 3,740,980.

Schimizzi, Gregory Frank; and Schimizzi, Ernest Joseph. Automobile trunk lock mechanism (anti-theft device). 3,740,980, Cl. 70-417.000.

Schlumberger Technology Corporation: See—
McGill, Howard L., 3,741,304.
Young, David E.; Kisling, James W., III; and Nutter, Benjamin P., 3,741,305.

Schmid, Emmerich, to Sulzer Brothers Ltd. Apparatus for adsorbing carbon dioxide from air in a storage system. 3,740,928, Cl. 55-179.000.

Schmid, Leopold F. Ball joint, especially for steering devices and wheel suspensions of motor vehicles. 3,740,986, Cl. 72-84.000.

Schmidt, Gunter, to Du Pont de Nemours, E. I., and Company. X-ray film package. 3,741,386, Cl. 206-62.00r.

Schmidt, John E., to Square D Company. Tap-off section for a feeder bus duct run. 3,742,121, Cl. 174-72.00b.

Schmidt, Peter; and Raff, Lothar, to Bosch, Robert, G.m.b.H. Pulse generator for controlling the valves of an internal combustion engine. 3,741,176, Cl. 123-90.120.

Schmuck, Peter: See—
Unterschweiger, Josef; and Schmuck, Peter, 3,741,317.

Schneebeil, Willi: See—
Latal, Werner; and Schneebeil, Willi, 3,742,168.

Schneider, Emery J.; and Burman, Bruce G., to Teledyne, Inc. Solid state vacuum tube replacement. 3,742,261, Cl. 307-304.000.

Schneider, Erich, to Organisation Ralfs KG. Conveyor address system. 3,741,369, Cl. 198-38.000.

Schneider, Felix; Oerter, Manfred; and Walser, Rudolf, to Rheinstahl Ag. Driving transmission for opening and closing sliding roof parts. 3,741,027, Cl. 74-337.000.

Schneider, George: See—
Hamilton, Andrew Joseph; and Schneider, George, 3,741,747.

Schneider, Otto. Precision spiral steel staircase. 3,740,906, Cl. 52-187.000.

Schnetzler, Robert F.: See—
Moseley, Wallace Frederick; and Schnetzler, Robert F., 3,741,075.

Schnoes, Heinrich K.: See—
Deluca, Hector F.; Schnoes, Heinrich K.; Holick, Michael F.; and Semmler, Erich, 3,741,996.

Scholl, Leo: See—
Johnston, John, 3,741,210.

Schrecker, Howard D.: See—
Diekhoff, Hans H.; and Schrecker, Howard D., 3,741,141.

Schreiner, Gerhart: See—
Stocker, August; Marti, Othmar; Pfammatter, Theodul; and Schreiner, Gerhart, 3,741,976.

Schroeder, Irvin H.; Hosea, Melvin E.; Caggiano, Vincent J.; and Miller, Leo C., to United States of America, Navy. Long range missile programmer. 3,741,502, Cl. 244-3.130.

Schroeter, Siegfried H., to General Electric Company. Curable compositions of maleimido substituted aromatic material. 3,742,089, Cl. 260-873.000.

Schroll, Josef; and Sroke, Werner, to VEB Ingenieurburo Schiffbau. Apparatus for centrifugal casting. 3,741,283, Cl. 164-287.000.

Schrott, Erwin; Bier, Gerhard; and Gumboldt, Albert Gustav Martin, to Hercules Incorporated, meane. Polymerization and copolymerization of aryl-substituted olefins containing halogen in the nucleus. 3,741,947, Cl. 260-91.500.

Schuder, Maurice E.: See—
Murray, Stephen F.; and Schuder, Maurice E., 3,742,160.

Schuessler, Richard D. Knitted headwear with wind barrier. 3,740,767, Cl. 2-173.000.

Schultz, Thomas C., to Ford Motor Company. Carburetor throttle valve positioner. 3,741,177, Cl. 123-97.00b.

Schulz, Gordon, to Odetics, Inc. Tri-capstan tape transport. 3,741,564, Cl. 274-4.00d.

Schulz, Johann G. D.: See—
Lagally, Ralph W.; and Schulz, Johann G. D., 3,742,060.

Schulze, Heinz: See—
Kmieciak, James Edward; and Schulze, Heinz, 3,741,961.

Schulze, Kurt-Jurgen; and Jung, Joachim, to Glanzstoff AG. Apparatus for immersing steel wires in molten lead both including floating particulate-stripper means. 3,741,151, Cl. 118-123.000.

Schwartz, A. William, to Tenneco Chemicals Inc. Hot melt process for forming resin layer on polyurethane foam. 3,741,844, Cl. 156-244.000.

Schwarzmann, Alfred, to RCA Corporation. Selfloaded uneven power divider. 3,742,392, Cl. 333-9.000.

Schwerdtfeger, Wilbur E., to International Harvester Company. Single lever control. 3,741,031, Cl. 74-471.0xy.

Schwesig, Helmut: See—
Nordsiek, Karl-Heinz; Sommer, Neithart; and Schwesig, Helmut, 3,741,927.

Schwietter, Ulrich: See—
Gutmann, Hugo; and Schwietter, Ulrich, 3,742,038.

Schwing, Friedrich Wilhelm. Hydraulic piston pump assembly. 3,741,691, Cl. 417-517.000.

Sciaky, David, to Welding Research, Inc. Electron beam welder incorporating sliding seal means. 3,742,365, Cl. 219-121.0eb.

SCM Corporation: See—
Bordene, Carl, 3,742,052.
Markakis, Michael J., 3,741,086.

Scott, Blayne J. Fishing lure. 3,740,889, Cl. 43-42.090.

Scott Paper Company: See—
Endres, Dan D., 3,741,212.

Seovill Manufacturing Company: See—
Thacker, Stephen Ernest William, 3,741,267.

Scraper, Robert D., to Mid-America Testing Service, Inc. Apparatus for weighing samples. 3,741,326, Cl. 177-59.000.

Seaboard Systems, Inc.: See—
Sullivan, Joseph L. O., 3,742,133.

Sears, Edgar A., Jr.; and Taylor, Harry M., to Hydrii Company. Retention of pressure line to well tubing. 3,740,801, Cl. 24-81.0cc.

Sears, James H.; and Jones, Bernard H., to Owens-Corning Fiberglass Corporation. Apparatus for treatment of linear elements. 3,741,153, Cl. 118-405.000.

Seastrom Manufacturing Co., Inc.: See—
Seastrom, Wesley D., 3,741,450.

Seastrom, Wesley D., to Seastrom Manufacturing Co., Inc. Compartment organizer. 3,741,450, Cl. 224-42.42r.

Security Technology Corporation: See—
Crepinsek, Alois, 3,740,979.

Seibt, Arthur H.; and Churchill, Frank T., to Tektronix, Inc. Wide range regulated power supply utilizing optimized energy storage. 3,742,371, Cl. 321-2.000.

Seiko Seiki Kabushiki Kaisha: See—
Nemoto, Kenji; and Ozawa, Fumihiko, 3,741,572.

Seki, Takashi; Toki, Katsuyuki; Nakatani, Hiroshi; Suzuki, Yoshio; Fukushima, Hideaki; and Nawashiro, Yoshio, to Sumitomo Chemical Co., Ltd. N-substituted amides of natural fatty acids. 3,741,999, Cl. 260-404.000.

Seikiguchi, Masahiko: See—
Okuda, Nobuo; and Seikiguchi, Masahiko, 3,742,326.

Sekmakas, Kazys, to DeSoto, Inc. Production of maleic acid copolymers and hydroxy derivatives thereof. 3,741,943, Cl. 260-78.50t.

Seldin, Ira L.: See—
Ciccarelli, Roger N.; Seldin, Ira L.; and Belli, Frank G., 3,741,759.

Sellers, John: See—
Wood, William; Griffiths, Mary; and Sellers, John, 3,741,259.

Selwitz, Charles M.: See—
Bacha, John D.; and Selwitz, Charles M., 3,742,073.

Semmler, Erich: See—
Deluca, Hector F.; Schnoes, Heinrich K.; Holick, Michael F.; and Semmler, Erich, 3,741,996.

Semple, Harry F.: See—
Palkovic, Victor; and Semple, Harry F., 3,741,535.

Sentralinstitut for Industrielle Forskning: See—
Kjelland-Fosterud, Einar, 3,742,110.

Servillat, Gabriel, to Verdol S.A. Preparation of perforated jacquard cards or papers. 3,741,468, Cl. 234-65.000.

SESCOSEM- Societe Europeenne de Semiconducteurs et de Microelectronique: See—
Boudry, Jean-Marie, 3,742,260.

Sessions, Robert W. Grounding plate or electrode for electromedical equipment. 3,741,219, Cl. 128-417.000.

Sethares, James C.: See—
Stiglitz, Martin R.; and Sethares, James C., 3,742,390.

Seybold, Rolf, to Evertz, Egon. Method and apparatus for measuring the internal volume of moulds and similar cavity members. 3,741,011, Cl. 73-149.000.

Seymour, Samuel L., to PPG Industries, Inc. Glass sheet shaping frame. 3,741,743, Cl. 65-287.000.

SFK Kugellagerfabriken GmbH: See—
Brichta, Franz; and Driesel, Franz, 3,740,798.

Shah, Rajendra P., to Vendo Company, The. Alternating feed for coins or the like. 3,741,362, Cl. 194-1.00f.

Shakespear Company: See—
Howard, Arthur M., 3,741,784.

Shakhlin, Vladimir Ilich: See—
Freidenberg, Anatoly Samuilovich; Basias, Igor Pavlovich; Shakhlin, Vladimir Ilich; Trifonov, Alexei Grigorievich; Shunin, Timofei Grigorievich; Filatov, Andrei Dmitrievich; Privalov, Mikhail Moiseevich; and Ovchinnikov, Gennadiy Elizarovich, 3,741,083.

Shane, Hugh J. S., to Hart Chemical Limited. Phosphate-free detergent composition. 3,741,911, Cl. 252-527.000.

- Shao, Tzu Fann, to Texas Instruments, Incorporated. Schottky barrier diode. 3,742,317, Cl. 317-235.00r.
- Shapiro, William A., to Bendix Corporation, The. Fill lever measuring device. 3,741,656, Cl. 356-103.000.
- Sharpe, John E., to Wilkinson Sword Limited. Clinical blood pressure measuring apparatus. 3,741,199, Cl. 128-2.05m.
- Shattuck, Donald P., and Hamden, John D., Jr., to General Electric Company. Spark-suppressing brush-brush holder assembly for rotating machines and sliding contacts. 3,742,272, Cl. 310-220.000.
- Shaufus, Charles P.; Rose, Robert E.; and Rising, Donald B., to Millipore Corporation. Method and apparatus for collecting and growing micro-organisms. 3,741,877, Cl. 195-127.000.
- Shaw, Graham C.: See—
- Hendrickson, Roger R.; Munson, William O.; Reed, Russell; and Shaw, Graham C., 3,741,585.
- Shaw, Noel S. Hydrostatic-mechanical transmission. 3,741,040, Cl. 74-794.000.
- Shaw, Robert L.: See—
- Boyer, Charles B.; Orcutt, Franklin D.; Shaw, Robert L.; and Gregg, Galen C., 3,741,718.
- Shealy, Noah A.: See—
- Lindenfeld, John A.; Hartz, Cledith L.; and Shealy, Noah A., 3,741,343.
- Sheeran, Patrick J., to Du Pont de Nemours & E. I. and Company. N-sulfamoyl-2-thiopenecarboxamides. 3,741,984, Cl. 260-332.20c.
- Sheinhart, Irving; Finlay, Walter L.; and Hay, Donald A., to Copper Range Company. Decorative textured metallic surfaces. 3,741,788, Cl. 117-9.000.
- Shell Oil Company: See—
- Papadopoulos, Michael N.; and Ueber, Russel C., 3,741,306.
- Quick, Carolyn M., 3,741,191.
- Sheppard, Albert S., to Exitaire Co., The. Gravity operated ventilator unit. 3,741,101, Cl. 98-86.000.
- Sheridan, John F.: See—
- Bean, Frank J.; and Sheridan, John F., 3,740,855.
- Sheridan, Nicholas K., to Xerox Corporation. Imaging system. 3,742,439, Cl. 340-5.00h.
- Sherman, Leigh E.; Adams, Walter P.; and Crawford, Lynn D., to Mobility Systems, Inc. Inductively coupled data communication apparatus. 3,742,150, Cl. 179-82.000.
- Sherman, Samuel M.: See—
- Orkowitz, Harry; and Sherman, Samuel M., 3,742,501.
- Sheritt Gordon Mines Limited: See—
- Evans, David John Ivor; Veltman, Herbert; and O'Kane, Patrick T., 3,741,752.
- Fustukian, David A. W.; Norris, Leon F.; Fraser, Robert W.; and Evans, David John Ivor, 3,741,748.
- Shiba, Hiroshi; and Tsunemitsu, Hideo, to Nippon Electric Company, Limited. Method of forming electrical connections in a semiconductor integrated circuit. 3,741,880, Cl. 204-15.000.
- Shim, Kyung S., to Stauffer Chemical Company. Polymeric tertiary alkylamine vulcanizing agents and method of preparation. 3,742,058, Cl. 260-583.00c.
- Shimamura, Isao: See—
- Iwano, Haruhiko; Shimamura, Isao; Ohi, Reiichi; and Shishid, Tadao, 3,741,765.
- Shimizu, Shinkichi: See—
- Shiraishi, Tatsuo; Kishiwada, Susumu; Shimizu, Shinkichi; Honmaru, Shigery; Toshiro, Hiroshi; and Naogaoka, Yohishi, 3,741,910.
- Shimizu, Yasuhiro. Nether limbs training implement. 3,741,540, Cl. 272-83.00r.
- Shin, Yoichi: See—
- Otsubo, Hiro; Shin, Yoichi; Kobayashi, Yoichi; and Sumiyoshi, Makoto, 3,741,860.
- Shindelman, Jury Iosifovich; Akulova, Galina Iosifovna; Snitka, Galina Grigorievna; Vasyagin, Nikolai Ivanovich; and Tyabirdin, Vladimir Vasilievich. Low-pressure mercury-vapour gas-discharge lamp with amalgam. 3,742,278, Cl. 313-109.000.
- Shinoda, Masaichi; and Igarashi, Masaru, to Fujitsu Limited. Method of manufacturing variable capacitance diodes. 3,741,826, Cl. 148-178.000.
- Shinoda, Yoshie, to Tomy Kogyo Co., Ltd. Pneumatically operated walking doll. 3,740,893, Cl. 46-44.000.
- Shioya, Kazuma, to Dijet Industrial Company, Limited. Cutter, particularly for gear hobbing. 3,740,808, Cl. 29-105.00r.
- Shiraishi, Tatsuo; Kishiwada, Susumu; Shimizu, Shinkichi; Honmaru, Shigery; Toshiro, Hiroshi; and Naogaoka, Yohishi, to Sumitomo Chemical Company, Limited. Catalyst for the production of acrylonitrile. 3,741,910, Cl. 252-437.000.
- Shishid, Tadao: See—
- Iwano, Haruhiko; Shimamura, Isao; Ohi, Reiichi; and Shishid, Tadao, 3,741,765.
- Shishido, Tadao: See—
- Sugiyama, Mitsunori; Ohi, Reiichi; Shishido, Tadao; and Omura, Masaki, 3,741,950.
- Shieler, William W. Tobacco smoking and smoke processing device. 3,741,221, Cl. 131-210.000.
- Shopalovich, Predrag, to United States of America, Army. Drive-off aid for wheeled vehicles and method. 3,741,479, Cl. 238-14.000.
- Shores, Marvin W., to General Dynamics Corporation. Aircraft collision avoidance system by passive means. 3,742,504, Cl. 343-112.00a.
- Shotton, Brian Alfred, to Motor Gear & Engineering Company Limited. The. Universal joints. 3,740,969, Cl. 64-17.00a.
- Shuler, Bernard R., to American Air Filter Company, Inc. Air filtering unit including a clamping assembly. 3,740,934, Cl. 55-490.000.
- Shunin, Timofei Grigorievich: See—
- Freidenberg, Anatoly Samuilovich; Basias, Igor Pavlovich; Shakhlin, Vladimir Ilich; Trifonov, Alexei Grigorievich; Shunin, Timofei Grigorievich; Filatov, Andrei Dmitrievich; Privalov, Mikhail Mosevich; and Ovchinnikov, Gennady Elizarovich, 3,741,083.
- Shy, Lamar G.: See—
- Frost, Wade W.; and Shy, Lamar G., 3,741,052.
- Sick, Erwin; Pinior, Gernot; and Plock, Johann, to Zellweger AG Apparate-und Maschinenfabriken Uster. Reader mechanism for optically discernible characters. 3,742,225, Cl. 250-219.000.
- Siebold, Howard E., to Liquid Controls Corporation. Valve. 3,741,234, Cl. 137-202.000.
- Siegel, Eric J., 50% Electronic Visions, Inc., mesne. Color video abstract synthesizer. 3,742,125, Cl. 178-5.20r.
- Siegmund, Richard, to Dual Gerbruder Steidinger, Firma. Apparatus for reception of a cassette with a recording carrier material. 3,741,498, Cl. 242-199.000.
- Siegle, Gert, to Bosch, Robert, G.m.b.H. Pre-ignition gap for combustion engine ignition systems. 3,742,280, Cl. 313-118.000.
- Siegle, Gert, to Bosch, Robert, G.m.b.H. Electrodes. 3,742,282, Cl. 313-311.000.
- Siemens Aktiengesellschaft: See—
- Eggett, Horst, 3,742,169.
- Koblick, Christian; Muller, Ernst; and Rambold, Klaus, 3,742,332.
- Muther, Manfred, 3,742,167.
- Pfaler, Carl-Eric V., 3,741,613.
- Volkrodt, Wolfgang, 3,742,268.
- Wittenzellner, Ernst, 3,742,257.
- Sight & Sound Wedding Albums, Ltd.: See—
- Breitling, Julius; and Pollack, Bernard, 3,741,565.
- Sigma Lutin, narodni podnik: See—
- Kozusnik, Karel, 3,740,811.
- Signetics Corporation: See—
- Gelabert, Amando E., 3,742,368.
- Kan, David T., 3,742,250.
- Younmans, Albert P.; and Kirtan, Lionel A., 3,740,900.
- Signorino, Charles A., to Colorcon Incorporated. Tablets for oral use coated with a stabilized shellac sealing coating. 3,741,795, Cl. 117-100.00a.
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- Simko, Aladar O., to Ford Motor Company. Fluid or fuel injection pump assembly. 3,741,685, Cl. 417-214.000.
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- Simon-Hartley Limited: See—
- Robertson, William Swan, 3,741,682.
- Simons, Robert E.: See—
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- Simons, Sanford L. Fluid test apparatus and method. 3,741,002, Cl. 73-64.100.
- Simrad A.S.: See—
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- Sinclair & Valentine Company, Inc.: See—
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- Singer Company, The: See—
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- Newman, Albert L., 3,741,618.
- Singleton, Fred G., to Robertson, H. H. Company. Method of making protected metal article. 3,740,822, Cl. 29-419.000.
- Sinoski, Donald Alexander. Membrane roof structure. 3,740,902, Cl. 52-2.000.
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- Sistig, Eberhard; and Reinermann, Karl-Heinz, to Chemische Werke Huls Aktiengesellschaft. Process and apparatus for the continuous determination of water in gases. 3,741,728, Cl. 23-232.00c.
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- Asberg, Sture, 3,741,030.
- SKF Kugellagerfabriken GmbH: See—
- Brandenstein, Manfred, 3,741,361.
- Skidmore, Charles L. Analog to digital converter. 3,742,486, Cl. 340-347.00p.

- Skidmore, Richard H., to Welding Engineers, Inc. Method of separating an insoluble liquid from polymer composition. 3,742,093, Cl. 260-893.000.
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- Gross, Alan E.; Larson, Rodney L.; and Skoe, Ralph E., 3,742,324.
- Skoli, Sigmond P.; Witt, Chester J.; and Mojonier, Harry G. System and method for carbonating beverages. 3,741,552, Cl. 261-140.000.
- Slam, Jack, to Dominion Luggage Co., Limited. Soft sided luggage case. 3,741,355, Cl. 190-49.000.
- Slant/Fin Corporation, The: See—
- Limoni, Uri, 3,741,291.
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- Smagala-Romanoff, Edward A., 12% to Coles, Charles F., 10% to Weld, Christopher M., 1% to Leighton, Sally C., 1% to Hornblower, Henry, 1% to Perrin, Michael J., 1% to Gikas, John and 1% to Tenn, James. Writing implements. 3,741,665, Cl. 401-117.000.
- Smallbone, Allan H., to Applied Research Laboratories, Inc. Liquid cell for X-ray fluorescence analysis. 3,742,226, Cl. 250-51.500.
- Smedley, William L. Pump-pulling apparatus for wells. 3,741,525, Cl. 254-139.000.
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- Sylvest, Karl Jens, 3,741,715.
- Smith, Carl E.; and Musselman, John D., to Smith Electronics, Inc. Low-loss antenna system with counterpoise insulated from earth. 3,742,511, Cl. 343-750.000.
- Smith, Carl M., to Minnesota Mining and Manufacturing Company. Curable epoxy organopolysiloxanes having pendant chromophoric groups. 3,741,932, Cl. 260-46.50c.
- Smith, Clair C.: See—
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- Smith, George R. Fish fillet aid. 3,740,794, Cl. 17-70.000.
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- Smith, Henry I.; Spears, David L.; and Stern, Ernest, to Massachusetts Institute of Technology. Soft-X-ray mask alignment system. 3,742,229, Cl. 250-65.00r.
- Smith, Horace L., Jr., to Smith Industries, Inc. Freeze drying method and apparatus. 3,740,860, Cl. 34-5.000.
- Smith, Ian Edward; Hastwell, Peter John; and Vermeulen, Marinus Cornelius, to Savin Business Machines Corporation. Pneumatic assembly for removing excess developer liquid from photoconductive surfaces. 3,741,643, Cl. 355-10.000.
- Smith, James E., to Westinghouse Electric Corporation. Adaptor for mounting conventional through-type current transformers on flat spade terminals. 3,742,410, Cl. 336-65.000.
- Smith, Joseph E.; DeTroyer, Georges D.; and DeSantis, Raymond P., to Wolverine-Pentronix, Inc. Remote control system for powder compacting presses. 3,741,697, Cl. 425-78.000.
- Smith, Joseph L., Jr., to Massachusetts Institute of Technology. Superconducting apparatus with double armature structure. 3,742,265, Cl. 310-52.000.
- Smith, Judson D.: See—
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- Smith Kline & French Laboratories: See—
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- Smith, Otto J. M. Method, apparatus and system for the identification of the relationship between two signals. 3,742,391, Cl. 333-6.000.
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- Smith, Raymond P., Jr., to Craftmaster, Inc. Leak prevention system for an oil pipeline. 3,741,233, Cl. 137-117.000.
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- Smith, Vernon O.; and Binns, John W., to Overhead Door Corporation. Latch and lock structure. 3,740,978, Cl. 70-100.000.
- Smith, William R.: See—
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- Soberski, George A., to Eaton Yale & Towne Inc. Valve for evaporative loss control. 3,741,232, Cl. 137-102.000.
- Sobierski, Leo J., to Bendix Corporation, The. Vacuum intensifier. 3,741,684, Cl. 417-14.000.
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- William Cotton Limited: See—
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- Williams, Charles S. Lighting fixture. 3,742,209, Cl. 240-73.00j.
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- Williams, George J. Window alarm particularly useful with metal windows. 3,742,479, Cl. 340-274.000.
- Williams, Gerald H., to Evans Products Company. Trolley system for freight bracing bulkhead assemblies. 3,741,127, Cl. 105-376.000.
- Williams, Harold R. Film dryer. 3,740,866, Cl. 34-58.000.
- Williams, Ralph P.; and Louthen, Rector P., to Phillips Petroleum Company. Metal tarnish removers. 3,741,834, Cl. 252-542.000.
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- Williams, Willie V. Method of splicing synthetic thermoplastic carpet yarn ends. 3,741,836, Cl. 156-158.000.
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- Wilson, Anthony Ian, to Teleflex Limited. Vehicle seats, especially aircraft seats. 3,741,513, Cl. 248-429.000.
- Wilson, Edward McKenzie: See—
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- Windsor, Meredith M.; and Heller, Ronald D., to D-D-D Engineering & Service Corporation. Wire terminating apparatus. 3,741,261, Cl. 140-1.000.
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- Wuthrich, Paul, to Timex Corporation. Low amplitude indexing mechanism for horological instruments. 3,740,942, Cl. 58-28.00r.
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- Young, David E.; Kisting, James W., III; and Nutter, Benjamin P., to Schlumberger Technology Corporation. Methods for offshore drill stem testing. 3,741,305, Cl. 166-250.000.
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- Young, Russell L., Jr. Signalling means for a fishing rod. 3,740,888, Cl. 43-17.000.
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- Yurick, John J., to International Rectifier Corporation. D-C voltage control with adjustable pulse width and repetition rate. 3,742,333, Cl. 321-45.00c.
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- Zimmerman, Lester, to Vermitron Medical Products, Inc. Disposable human blood dialysis device. 3,741,395, Cl. 210-321.000.
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LIST OF DEFENSIVE PUBLICATIONS

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DEFENSIVE PUBLICATIONS WERE ISSUED ON THE 26TH DAY
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Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O. G. 687.

- Anantha, Narasipur G., and K. G. Ashar, to International Business Machines Corp. Surface barrier diode and method of making. T911,021, 6-26-73, Cl. 317-234.
- Ashar, Kanu G.: See—
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- Drury, Emma-Jane E., and D. C. Herting. N-Butyric acid having anti-fungal activity. T911,019, 6-26-73, Cl. 99-6.
- Du Pont de Nemours, E. I., and Co.: See—
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- Moore, Edward J. T911,016.
- Garkisch, Hans D., H. W. Yant, and J. F. Patterson, to Westinghouse Electric Corp. Nuclear core positioning system. T911,015, 6-26-73, Cl. 176-85.
- Gee, Robert E., Jr.: See—
Stanin, Theodore E., and Gee, T911,020.
- Hercules Inc.: See—
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- Herting, David C.: See—
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- Imperial Chemical Industries Ltd.: See—
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- Klug, Eugene D., to Hercules Inc. Reconstituted tobacco. T911,017, 6-26-73, Cl. 131-17.
- Liesemer, Ronald N., to E. I. du Pont de Nemours and Co. Sprayable, sag-resistant methacrylate syrup and process for preparing a final gel coat therefrom. T911,012, 6-26-73, Cl. 260-28.50.
- Moore, Edward J., to E. I. du Pont de Nemours and Co. Tubular preparation of thermoplastic film. T911,016, 6-26-73, Cl. 264-95.
- Morgans, David E. B., and F. Smith, to Imperial Chemical Industries Ltd. Heat exchangers. T911,013, 6-26-73, Cl. 165-168.
- Patterson, John F.: See—
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- Radigan, Michael T. Quick change adapter for ripper shanks and the like with tip angle adjustment. T911,018, 6-26-73, Cl. 37-142.
- Smith, Frank: See—
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- Stanin, Theodore E., and R. E. Gee, Jr. Isomerization of cyclohexanedicarboxylic acid esters. T911,020, 6-26-73, Cl. 260-468.
- Watson, Thomas A. W. K. System for a rotary mechanical translating device. T911,014, 6-26-73, Cl. 74-190.5.
- Westinghouse Electric Corp.: See—
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- Yant, Howard W.: See—
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LIST OF REISSUE PATENTEEES

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- Hausmann, Elise and H. Device for holding and emptying tubes. Re. 27,689, 6-26-73, Cl. 222-100.
- Hausmann, Heinrich: See—
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- Kennametal Inc.: See—
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- Kniff, Thomas J., to Kennametal Inc. Pick type mining bit and support block therefor. Re. 27,686, 6-26-73, Cl. 299-86.
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- Speese, Donald V., and C. B. Brown, to Ciba-Geigy Corp. Quenching the fluorescence of optical brightener compounds in paper by means of hydroxymethylamino nitrile. Re. 27,687, 6-26-73, Cl. 162-158.
- White, Donald C.: See—
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- Duffett, William E., to Framptons Nurseries Ltd. Chrysanthemum plant. 3,369, 6-26-73, Cl. 78.
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ISSUED JUNE 26, 1973

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2.1R	3,740,763	3,740,816	42.09	3,740,899	29	3,740,961	424	3,741,030	11.001 3,741,094
67	3,740,764	3,740,817	100	3,740,892	66	3,740,962	471XY	3,741,031	11.5R 3,741,090
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CLASS 19	58	3,740,865	429	3,740,933	461	3,740,996	1.16	3,742,114	287 3,741,115
155	3,740,796	3,740,866	490	3,740,934	465	3,740,997	319	3,742,115	426 3,741,116
156.3	3,740,797	3,740,867	CLASS 56	3,740,935	1A	3,740,998	470	3,742,116	451 3,741,117
267	3,740,798	3,740,868	16.4	3,740,935	1C	3,740,999	478	3,742,117	CLASS 102
CLASS 23	9C	3,740,869	246	3,740,936	28	3,741,001	CLASS 85	3,741,068	23 3,741,119
230R	3,741,726	3,740,870	CLASS 57	3,740,937	32	3,741,002	72	3,741,069	34 3,741,120
232E	3,741,727	3,740,871	34R	3,740,938	64.1	3,741,003	CLASS 89	3,741,069	37.8 3,741,121
267R	3,741,728	3,740,872	58.36	3,740,938	67.7	3,741,004	11	3,741,070	43P 3,741,122
277C	3,741,730	3,740,873	77.45	3,740,939	67.85	3,741,004	CLASS 90	3,741,071	49.4 3,741,123
312R	3,741,731	3,740,874	140R	3,740,940	95	3,741,005	11C	3,741,072	67 3,741,124
CLASS 24	43	3,740,875	CLASS 58	3,740,941	118	3,741,006	11R	3,741,073	70.2P 3,741,125
33B	3,740,799	3,740,876	23BA	3,740,942	CLASS 59	3,741,007	CLASS 91	3,741,074	70.2R 3,741,126
73HS	3,740,800	3,740,877	28A	3,740,943	141R	3,741,008	290	3,741,075	96 3,741,127
81CC	3,740,801	3,740,878	28R	3,740,944	149	3,741,009	363A	3,741,076	377 3,741,128
261R	3,740,803	3,740,879	105	3,740,945	150A	3,741,010	375A	3,741,077	CLASS 104
263HA	3,740,804	3,740,880	CLASS 60	3,740,946	151	3,741,011	480	3,741,078	376 3,741,129
265WS	3,740,804	3,740,881	204	3,740,947	151	3,741,012	CLASS 92	3,741,079	377 3,741,130
CLASS 26	54	3,740,882	215	3,740,948	194A	3,741,013	57	3,741,080	CLASS 105
38C	3,740,806	3,740,883	261	3,740,949	425.4P	3,741,014	244	3,741,081	377 3,741,131
96R	3,740,807	3,740,884	267	3,740,950	462	3,741,015	CLASS 93	3,741,082	1 3,741,780
105R	3,740,808	3,740,885	459	3,740,951	480	3,741,016	1.1	3,741,083	162 3,741,781
148.4D	3,740,809	3,740,886	465	3,740,952	506	3,741,017	8R	3,741,084	180 3,741,782
155C	3,740,812	3,741,416	477	3,740,953	CLASS 74	3,741,018	36R	3,741,085	189 3,741,783
156.4	3,740,811	3,741,417	489	3,740,954	3.5	3,741,019	51R	3,741,086	268 3,741,784
157T	3,740,813	3,741,418	542	3,740,955	5.46	3,741,020	53R	3,741,087	299 3,741,785
182.5	3,741,733	3,740,887	CLASS 61	3,740,956	7R	3,741,021	61R	3,741,088	43 3,741,129
198	3,741,735	3,740,888	IF	3,740,957	102	3,741,022	CLASS 95	3,741,089	64 3,741,130
		3,740,889	46.5	3,740,958	110	3,741,023	4.5	3,741,090	97 3,741,131
			48	3,740,957	220	3,741,024	10CT	3,741,091	52 3,741,132
			72.1	3,740,958	230.4	3,741,025			
					242.9	3,741,026			

CLASS 110	66	3,741,201	178	3,741,826	12	3,741,313	CLASS 173	49	3,741,355	104	3,741,402	CLASS 211	202	3,742,220	239BD	3,741,957	609A	3,742,066	24	3,741,578	118	3,742,280
8A	3,741,133	71	3,741,202	19	3,741,828	93.6	3,741,314	3.61	3,741,356	135	3,741,403	CLASS 233	206	3,742,221	239.1	3,741,958	609R	3,742,065	47.38	3,741,579	184	3,742,281
8R	3,741,134	76B	3,741,203		3,741,829	105	3,741,315	105	3,741,357	148	3,741,404	211J	209	3,742,222		3,741,959	613A	3,742,067	96.2R	3,741,581	311	3,742,282
22R	3,741,135	82	3,741,204		3,741,830	107	3,741,316	107	3,741,358	177	3,741,405	213VT	219D	3,742,223	243C	3,741,960	615R	3,742,068	124F	3,741,582	318	3,742,283
165R	3,741,136	92B	3,741,205	41	3,741,831	109	3,741,317	109	3,741,359	22	3,741,406	231R	235	3,742,224		3,741,961	618F	3,742,069	150AB	3,741,580		
		133D	3,741,206	109	3,741,832	152	3,741,318	152	3,741,360	110B	3,741,407	CLASS 213	235	3,742,225		3,741,962	621R	3,742,070		3,741,583	11	3,742,284
6	3,741,137	133	3,741,207		3,741,833	163	3,741,319	163	3,741,361	18C	3,741,409	CLASS 214	235	3,742,226	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285
CLASS 112	145.6	3,741,208		21B	3,741,266	34	3,742,116		3,742,117	18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
67	3,741,138	145.8	3,741,209		3,741,267	50.064	3,742,117		3,742,118	18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
79A	3,741,139	153	3,741,210		3,741,268	52S	3,742,118		3,742,119	18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
102	3,741,140	221	3,741,211		3,741,269	65R	3,742,119		3,742,120	18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
CLASS 113	287	3,741,212		21B	3,741,269	68.5	3,742,120		3,742,121	18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
1F	3,741,141	303R	3,741,213		3,741,270	72B	3,742,121		3,742,122	18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
121C	3,741,142	305	3,741,214		3,741,271	94R	3,742,122		3,742,123	18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
CLASS 114	346	3,741,216		21B	3,741,272	102R	3,742,123		3,742,124	18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
5	3,741,143	349	3,741,217		3,741,273	138F	3,742,123		3,742,124	18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
67A	3,741,144	373	3,741,218		3,741,274					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
125	3,741,145	417	3,741,219		3,741,275					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
CLASS 115	70	3,741,146		21B	3,741,276					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
1R	3,741,146	70	3,741,147		3,741,277					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
CLASS 116	210	3,741,221		21B	3,741,278					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
63R	3,741,147	210	3,741,148		3,741,279					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
124R	3,741,148	8C	3,741,222		3,741,280					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
CLASS 117	3.1	3,741,786		21B	3,741,281					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
3.1	3,741,786	3	3,741,804		3,741,282					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
9	3,741,787	4	3,741,805		3,741,283					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
16	3,741,788	24	3,741,807		3,741,284					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
17.5	3,741,789	38R	3,741,808		3,741,285					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
46CA	3,741,791	171	3,741,809		3,741,286					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
46FC	3,741,792	191	3,741,810		3,741,287					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
93.31	3,741,794	1R	3,741,811		3,741,288					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
93.4NC	3,741,795	5.2	3,741,812		3,741,289					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
100A	3,741,796	62	3,741,813		3,741,290					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
105.2	3,741,797	86A	3,741,814		3,741,291					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
106R	3,741,798	138.8E	3,741,815		3,741,292					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
132B	3,741,798	138.8F	3,741,816		3,741,293					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
138.8E	3,741,799	139.5CQ	3,741,817		3,741,294					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
138.8F	3,741,799	237	3,741,818		3,741,295					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
139.5CQ	3,741,800		3,741,819		3,741,296					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
237	3,741,802		3,741,820		3,741,297					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
CLASS 118	2	3,741,149		21B	3,741,298					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
2	3,741,149	166	3,741,821		3,741,299					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
405	3,741,152	228	3,741,822		3,741,300					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
503	3,741,153	6	3,741,823		3,741,301					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
634	3,741,154	101	3,741,824		3,741,302					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
636	3,741,155	102	3,741,825		3,741,303					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
637	3,741,156	107	3,741,826		3,741,304					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
637	3,741,157	111	3,741,827		3,741,305					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
CLASS 119	3	3,741,158		21B	3,741,306					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
3	3,741,158	332	3,741,828		3,741,307					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
4	3,741,159	344	3,741,829		3,741,308					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
5	3,741,160	408	3,741,830		3,741,309					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
14.36	3,741,161	504	3,741,831		3,741,310					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
51.13	3,741,162	558	3,741,832		3,741,311					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
54	3,741,163	554	3,741,833		3,741,312					18C	3,741,409	18C	3,741,409	243R	3,741,963	621R	3,742,071		3,741,584	12	3,742,285	
CLASS 122	6.5	3,741,165		21B	3,741,313					18C	3,741,409	18C	3,741,409	24								

CLASSIFICATION OF PATENTS

94.5	3,742,378	20	3,742,419	173CA	3,742,463	225	3,742,507	88	3,741,649	14	3,741,684
111	3,742,382	21	3,742,420	173LS	3,742,465	713	3,742,508	91	3,741,650	214	3,741,685
	3,742,379	180	3,742,421	173LS	3,742,466	719	3,742,509	100	3,741,651	240	3,741,686
	3,742,383	257	3,742,422	173RC	3,742,466	730	3,742,510	132	3,741,652	317	3,741,687
	3,742,384	334	3,742,423	174DC	3,742,469	750	3,742,511			372	3,741,688
116M	3,742,385			174RC	3,742,467	814	3,742,512	4	3,741,654	393	3,741,689
	3,742,386			174S	3,742,471	817	3,742,513	5	3,741,655	420	3,741,690
	3,742,387			174LB	3,742,468			51	3,741,656	517	3,741,691
156		14P	3,742,424		3,742,470			100	3,741,657	540	3,741,692
		17R	3,742,425		3,742,470			106LR	3,741,658		
		45R	3,742,426	177CA	3,742,472	33R	3,742,514	106S	3,741,658		
2	3,742,388	60M	3,742,427	210	3,742,473	49	3,742,515				
19	3,742,389	75R	3,742,428	228.2	3,742,474	74R	3,742,516				
		97L	3,742,429	237R	3,742,475						
6	3,742,390	252R	3,742,430	239R	3,742,476	40	3,741,622				
	3,742,391	272VC	3,742,431	259	3,742,477	103	3,741,623				
	3,742,392	276T	3,742,432	262R	3,742,478	121	3,741,624				
9				274	3,742,479	147	3,741,625				
10	3,742,393			280	3,742,480	150	3,741,626				
17	3,742,394	IR	3,742,433	311R	3,742,481		3,741,627				
	3,742,395		3,742,434	324AD	3,742,482	160LC	3,741,629				
30	3,742,396	3D	3,742,437	324A	3,742,484	160P	3,741,628				
70CR	3,742,398	3R	3,742,435	324M	3,742,483	183	3,741,621				
70S	3,742,397		3,742,436	339	3,742,485	214	3,741,630				
82R	3,742,399		3,742,438	347AD	3,742,488	267	3,741,631				
84M	3,742,400	5H	3,742,439	347DA	3,742,487	281	3,741,632				
		5T	3,742,440	347P	3,742,486	302	3,741,633				
9	3,742,401	15	3,742,442	371R	3,742,490		3,741,634				
13	3,742,402	17	3,742,441	381	3,742,446	57	3,741,635				
153	3,742,403	18LD	3,742,443	384E	3,742,491	123	3,741,636				
187	3,742,404	18R	3,742,444		3,742,492	180	3,741,637				
212	3,742,405	19R	3,742,445		3,742,493		3,741,638				
258	3,742,406	52E	3,742,448		3,742,494		3,741,639				
	3,742,407	52F	3,742,447		3,742,495		3,741,640				
		146.1AL	3,742,449		3,742,496		3,741,641				
5	3,742,408	147R	3,742,450		3,742,497		3,741,642				
45	3,742,409		3,742,462		3,742,498		3,741,643				
65	3,742,410	149A	3,742,451		3,742,499		3,741,644				
96	3,742,411		3,742,453		3,742,500		3,741,645				
192	3,742,412	151R	3,742,454		3,742,501		3,741,646				
		164R	3,742,455		3,742,502		3,741,647				
		172.5	3,742,456		3,742,503		3,741,648				
201	3,742,413		3,742,457		3,742,504		3,741,649				
206	3,742,414		3,742,458		3,742,505		3,741,650				
279	3,742,415		3,742,459		3,742,506		3,741,651				
392	3,742,416		3,742,460		3,742,507		3,741,652				
401	3,742,417		3,742,461		3,742,508		3,741,653				
			3,742,462		3,742,509		3,741,654				
5	3,742,418				3,742,510		3,741,655				

CLASSIFICATION OF DESIGNS

D 2—	230	227,418	D 8—	161	227,435		227,452	D24—	86	227,469		227,486		10	227,501	
	268	227,419		181	227,436		227,454	D24—	1	227,470	D34—	5	227,487	D56—	4	227,502
	275	227,420		189	227,437		227,455	D26—	5	227,471		227,488	D61—	1	227,503	
	415	227,421		228	227,438		227,456			227,472		227,489			227,504	
D 6—	9	227,422		233	227,439		227,457			227,473		227,490			227,505	
	12	227,423		235	227,440	D14—	30	227,453	8	227,474		227,496	D65—		227,506	
	227,424		243	227,441	D16—	3	227,458		13	227,475	15	227,491			227,507	
	227,425		267	227,442		227,459			14	227,476		227,492	D71—		227,508	
	14	227,426	D 9—	40	227,443		227,460			227,477		227,493			227,509	
	37	227,427		42	227,444		227,461			227,478		227,494	D74—	5	227,510	
D 7—	85	227,428		42	227,445	D22—	27	227,462		227,479		227,495	D83—	1	227,511	
	227,429		186	227,446		227,463		227,480		227,480		227,497		8	227,512	
	227,430		226	227,447		227,464		227,481		227,481	D40—	1	227,498		227,513	
	227,431		D13—	1	227,448	D23—	23	227,465		227,482	D48—	23	227,499		227,514	
	227,432			227,449		227,466		227,483		227,483	D52—	7	227,500	D86—	10	227,515
	227,433			227,450		227,467		227,484		227,484		227,501		D87—	1	227,516
137	227,434			227,451		227,468		227,485		227,485		227,502				

CLASSIFICATION OF PLANTS

P. —	68	3,365	P. —	3,366	P. —	73	3,367	P. —	77	3,368	P. —	78	3,369
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GEOGRAPHICAL INDEX
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PATENTS

1	3,741,335	3,741,132	3,741,559	3,742,214	3,742,238	3,740,993
	3,741,647	3,741,134	3,741,564	3,742,219	3,742,297	3,741,069
	3,741,679	3,741,135	3,741,566	3,742,221	3,742,468	3,741,123
	3,741,729	3,741,143	3,741,570	3,742,224	3,742,480	3,741,158
4	3,741,828	3,741,157	3,741,593	3,742,226	3,742,512	3,741,196
	3,740,866	3,741,162	3,741,596	3,742,228	9	3,740,787
	3,740,930	3,741,167	3,741,602	3,742,234		3,740,823
	3,741,085	3,741,169	3,741,610	3,742,241		3,740,884
	3,741,111	3,741,183	3,741,628	3,742,250		3,741,602
	3,741,120	3,741,184	3,741,645	3,742,253		3,740,942
	3,741,500	3,741,191	3,741,650	3,742,255		3,740,984
	3,741,708	3,741,194	3,741,660	3,742,256		3,740,994
	3,742,340	3,741,205	3,741,676	3,742,258		3,741,122
	3,742,400	3,741,207	3,741,677	3,742,261		3,741,235
	3,742,457	3,741,222	3,741,683	3,742,275		3,741,248
5	3,740,861	3,741,240	3,741,722	3,742,276		3,741,424
	3,741,527	3,741,245	3,741,731	3,742,284		3,741,512
6	Re.27,685	3,741,252	3,741,770	3,742,287		3,741,597
	3,740,763	3,741,284	3,741,773	3,742,303		3,741,654
	3,740,776	3,741,289	3,741,786	3,742,319		3,741,666
	3,740,781	3,741,295	3,741,807	3,742,330		3,741,794
	3,740,801	3,741,296	3,741,809	3,742,333		3,741,824
	3,740,802	3,741,301	3,741,815	3,742,341		3,741,849
	3,740,824	3,741,306	3,741,816	3,742,356		3,741,891
	3,740,830	3,741,307	3,741,843	3,742,366		3,741,905
	3,740,833	3,741,345	3,741,867	3,742,367		3,742,040
	3,740,835	3,741,352	3,741,868	3,742,368		3,742,147
	3,740,839	3,741,378	3,741,884	3,742,377		3,742,151
	3,740,848	3,741,381	3,741,886	3,742,381		3,742,165
	3,740,856	3,741,382	3,741,890	3,742,389		3,742,191
	3,740,857	3,741,386	3,741,895	3,742,391		3,741,605
	3,740,879	3,741,393	3,741,896	3,742,393		3,742,305
	3,740,900	3,741,394	3,741,902	3,742,396		3,742,329
	3,740,946	3,741,400	3,741,931	3,742,408		3,742,456
	3,740,975	3,741,422	3,741,985	3,742,427		3,742,482
	3,740,979	3,741,439	3,741,987	3,742,446		3,742,493
	3,740,996	3,741,440	3,742,005	3,742,459		3,742,507
	3,741,006	3,741,450	3,742,107	3,742,470	10	3,740,924
	3,741,007	3,741,459	3,742,118	3,742,473		3,740,940
	3,741,009	3,741,471	3,742,120	3,742,475		3,741,780
	3,741,034	3,741,476	3,742,131	3,742,476		3,741,785
	3,741,053	3,741,497	3,742,150	3,742,490		3,741,926
	3,741,061	3,741,501	3,742,157	3,742,504		3,741,941
	3,741,066	3,741,509	3,742,182	3,742,515		3,741,968
	3,741,086	3,741,515	3,742,183	3,741,000		3,741,984
	3,741,092	3,741,516	3,742,186	3,741,002		3,741,986
	3,741,100	3,741,538	3,742,189	3,741,004		3,742,012
	3,741,101	3,741,541	3,742,199	3,741,022		3,742,056
	3,741,106	3,741,542	3,742,203	3,741,119		3,742,080
	3,741,108	3,741,547	3,742,208	3,741,432		3,742,233
	3,741,130	3,741,558	3,742,212	3,741,906	11	3,742,454
					12	Re.27,688
						3,740,950
						3,740,954
						3,740,959
						3,741,003

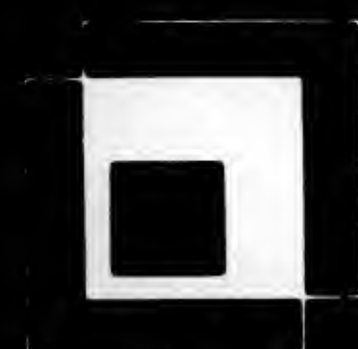
3,741,040	3,740,907	3,741,127	3,742,477	3,740,810	3,742,281
3,741,056	3,741,051	3,741,154	3,742,511	3,740,831	3,742,285
3,741,068	3,741,229	3,741,160	3,740,788	3,740,844	3,742,296
3,741,082	3,741,326	3,741,177	3,741,152	3,740,845	3,742,301
3,741,116	3,741,607	3,741,178	3,741,571	3,740,849	3,742,302
3,741,121	3,741,619	3,741,179	3,741,671	3,740,851	3,742,336
3,741,133	3,740,814	3,741,188	3,741,180	3,740,858	3,742,348
3,741,187	3,740,934	3,741,261	3,741,686	3,740,862	3,742,374
3,741,206	3,741,057	3,741,279	3,741,864	3,740,870	3,742,387
3,741,217	3,741,633	3,741,285	Re 27,687	3,740,872	3,742,388
3,741,219	3,741,808	3,741,287	3,740,766	3,740,888	3,742,399
3,741,225	3,741,822	3,741,288	3,740,790	3,740,890	3,742,419
3,741,227	3,742,397	3,741,336	3,740,797	3,740,912	3,742,420
3,741,231	3,742,472	3,741,343	3,740,799	3,740,920	3,742,423
3,741,232	3,740,886	3,741,343	3,740,805	3,740,938	3,742,429
3,741,234	3,741,300	3,741,360	3,740,819	3,740,980	3,742,431
3,741,242	3,741,876	3,741,365	3,740,820	3,740,983	3,742,439
3,741,331	3,742,057	3,741,374	3,740,846	3,741,017	3,742,452
3,741,342	3,740,837	3,741,429	3,740,919	3,741,028	3,742,453
3,741,376	3,740,850	3,741,465	3,740,927	3,741,049	3,742,479
3,741,380	3,740,906	3,741,466	3,740,931	3,741,063	3,742,484
3,741,384	3,740,961	3,741,478	3,740,945	3,741,071	3,742,487
3,741,405	3,740,966	3,741,480	3,740,985	3,741,073	3,742,516
3,741,406	3,741,018	3,741,480	3,741,012	3,741,095	3,740,774
3,741,410	3,741,117	3,741,496	3,741,020	3,741,113	3,740,796
3,741,427	3,741,124	3,741,525	3,741,149	3,741,145	3,741,211
3,741,445	3,741,125	3,741,539	3,741,150	3,741,181	3,741,254
3,741,455	3,741,481	3,741,543	3,741,164	3,741,189	3,741,255
3,741,532	3,741,502	3,741,560	3,741,166	3,741,190	3,741,379
3,741,535	3,741,626	3,741,580	3,741,241	3,741,192	3,741,453
3,741,536	3,741,725	3,741,588	3,741,246	3,741,203	3,741,528
3,741,549	3,741,727	3,741,594	3,741,247	3,741,224	3,742,014
3,741,552	3,741,789	3,741,598	3,741,293	3,741,265	3,742,166
3,741,586	3,741,811	3,741,663	3,741,341	3,741,278	3,740,932
3,741,591	3,742,187	3,741,670	3,741,347	3,741,291	3,741,137
3,741,617	3,742,358	3,741,685	3,741,348	3,741,292	3,740,794
3,741,622	3,742,404	3,741,693	3,741,351	3,741,310	3,740,821
3,741,642	3,742,499	3,741,697	3,741,387	3,741,357	3,740,838
3,741,711	3,742,502	3,741,820	3,741,448	3,741,371	3,740,847
3,741,730	3,742,505	3,741,831	3,741,456	3,741,372	3,740,897
3,741,738	3,740,828	3,741,852	3,741,464	3,741,377	3,740,915
3,741,774	3,740,834	3,741,881	3,741,545	3,741,383	3,740,929
3,741,777	3,740,855	3,741,908	3,741,620	3,741,385	3,740,947
3,741,779	3,740,901	3,741,912	3,741,625	3,741,389	3,740,978
3,741,793	3,740,903	3,741,922	3,741,629	3,741,395	3,740,982
3,741,904	3,740,981	3,741,944	3,741,656	3,741,421	3,740,989
3,741,919	3,741,099	3,741,957	3,741,662	3,741,431	3,741,067
3,741,943	3,741,109	3,741,973	3,741,694	3,741,433	3,741,075
3,741,952	3,741,118	3,741,990	3,741,724	3,741,444	3,741,081
3,741,989	3,741,140	3,741,991	3,741,732	3,741,447	3,741,114
3,742,001	3,741,185	3,742,059	3,741,735	3,741,452	3,741,128
3,742,008	3,741,228	3,742,068	3,741,746	3,741,462	3,741,129
3,742,045	3,741,373	3,742,089	3,741,783	3,741,469	3,741,142
3,742,065	3,741,397	3,742,155	3,741,797	3,741,485	3,741,148
3,742,078	3,741,408	3,742,172	3,741,800	3,741,518	3,741,174
3,742,113	3,741,430	3,742,192	3,741,801	3,741,548	3,741,221
3,742,137	3,741,434	3,742,207	3,741,802	3,741,565	3,741,230
3,742,211	3,741,479	3,742,236	3,741,829	3,741,621	3,741,243
3,742,252	3,741,653	3,742,334	3,741,832	3,741,634	3,741,266
3,742,269	3,741,657	3,742,413	3,741,845	3,741,639	3,741,268
3,742,307	3,741,665	3,742,430	3,741,879	3,741,640	3,741,271
3,742,322	3,741,755	3,742,486	3,741,894	3,741,641	3,741,290
3,742,323	3,741,766	3,740,842	3,741,928	3,741,649	3,741,324
3,742,365	3,741,788	3,740,883	3,741,963	3,741,652	3,741,330
3,742,398	3,741,877	3,740,963	3,741,978	3,741,707	3,741,418
3,742,406	3,741,929	3,741,001	3,741,980	3,741,726	3,741,423
3,742,462	3,742,000	3,741,065	3,741,983	3,741,757	3,741,451
3,742,463	3,742,002	3,741,155	3,741,993	3,741,758	3,741,457
3,740,892	3,742,133	3,741,273	3,742,015	3,741,759	3,741,460
3,741,019	3,742,148	3,741,487	3,742,028	3,741,760	3,741,519
3,741,032	3,742,180	3,741,577	3,742,037	3,741,775	3,741,573
3,741,041	3,742,201	3,741,710	3,742,042	3,741,778	3,741,587
3,741,074	3,742,217	3,741,769	3,742,072	3,741,790	3,741,592
3,741,102	3,742,223	3,741,771	3,742,079	3,741,791	3,741,615
3,741,131	3,742,229	3,741,932	3,742,082	3,741,803	3,741,618
3,741,136	3,742,230	3,742,084	3,742,098	3,741,823	3,741,624
3,741,339	3,742,259	3,742,164	3,742,104	3,741,825	3,741,635
3,741,353	3,742,264	3,742,324	3,742,138	3,741,844	3,741,675
3,741,370	3,742,265	3,742,339	3,742,143	3,741,875	3,741,689
3,741,499	3,742,283	3,742,359	3,742,145	3,741,917	3,741,692
3,741,554	3,742,316	3,742,460	3,742,154	3,741,942	3,741,696
3,741,600	3,742,353	3,742,467	3,742,181	3,741,965	3,741,706
3,741,684	3,742,369	3,742,469	3,742,198	3,741,979	3,741,718
3,741,709	3,742,383	3,742,478	3,742,248	3,741,992	3,741,734
3,741,754	3,742,390	3,740,841	3,742,279	3,742,058	3,741,739
3,741,804	3,742,433	3,740,782	3,742,300	3,742,081	3,741,740
3,741,900	3,742,465	3,740,783	3,742,313	3,742,088	3,741,750
3,742,083	3,742,466	3,740,793	3,742,325	3,742,095	3,741,753
3,742,085	3,742,500	3,740,908	3,742,382	3,742,096	3,741,756
3,742,126	3,742,506	3,741,008	3,742,392	3,742,114	3,741,762
3,742,159	3,742,509	3,741,218	3,742,401	3,742,125	3,741,784
3,742,160	3,742,513	3,741,260	3,742,402	3,742,130	3,741,799
3,742,196	3,740,771	3,741,362	3,742,403	3,742,139	3,741,805
3,742,327	3,740,800	3,741,473	3,742,450	3,742,144	3,741,882
3,742,349	3,740,871	3,741,511	3,742,464	3,742,173	3,741,914
3,742,376	3,740,871	3,741,544	3,742,483	3,742,174	3,742,010
3,742,422	3,740,913	3,741,569	3,742,488	3,742,175	3,742,032
3,742,508	3,740,918	3,741,603	3,742,496	3,742,178	3,742,053
3,740,791	3,740,933	3,741,603	3,742,498	3,742,179	3,742,054
3,740,904	3,740,958	3,741,871	3,742,501	3,742,194	3,742,067
3,740,935	3,740,962	3,741,964	3,742,510	3,742,197	3,742,092
3,740,957	3,740,977	3,742,046	3,741,627	3,742,206	3,742,117
3,741,105	3,740,987	3,742,047	3,741,648	3,742,231	3,742,119
3,741,210	3,741,048	3,742,062	3,740,769	3,742,237	3,742,121
3,741,482	3,741,077	3,742,123	3,740,779	3,742,272	3,742,129
3,740,853	3,741,126	3,742,412	3,740,789	3,742,277	3,742,162

	3,742,185	3,741,198	3,742,009	3,741,253	3,741,669	
	3,742,200	3,741,204	3,742,044	46 : 3,741,238	3,740,880	53 : 3,740,825
	3,742,216	3,741,212	3,742,051	3,741,505	3,741,717	3,740,880
	3,742,218	3,741,233	3,742,060	47 : 3,741,213	3,741,737	3,740,905
	3,742,243	3,741,263	3,742,064	3,741,785	3,741,796	3,741,298
	3,742,294	3,741,270	3,742,069	3,741,925	3,741,898	3,741,318
	3,742,298	3,741,282	3,742,073	3,742,077	3,741,961	3,741,420
	3,742,364	3,741,368	3,742,093	3,742,141	3,742,063	3,741,425
	3,742,410	3,741,409	3,742,102	3,742,355	3,742,071	3,741,504
	3,742,445	3,741,413	3,742,103	3,740,762	3,742,124	3,741,508
	3,742,495	3,741,416	3,742,122	3,740,894	3,742,188	3,741,604
40 :	3,741,147	3,741,436	3,742,158	3,740,925	3,742,209	3,741,701
	3,741,182	3,741,441	3,742,170	3,740,926	3,742,235	3,741,764
	3,741,274	3,741,514	3,742,247	3,740,966	3,742,254	3,742,434
	3,741,523	3,741,553	3,742,251	3,741,003	3,742,289	3,742,442
	3,741,533	3,741,557	3,742,266	3,740,964	3,742,317	3,742,492
	3,741,546	3,741,561	3,742,271	3,741,003	3,742,361	54 : 3,740,768
	3,741,568	3,741,595	3,742,274	3,741,013	3,742,384	3,741,742
	3,741,713	3,741,599	3,742,304	3,741,015	3,742,435	3,741,918
	3,741,834	3,741,609	3,742,311	3,741,047	3,742,441	3,740,807
	3,742,006	3,741,668	3,742,345	3,741,163	3,742,443	3,740,877
	3,742,091	3,741,678	3,742,346	3,741,165	3,742,444	3,740,878
	3,742,363	3,741,681	3,742,351	3,741,195	3,742,449	3,740,881
41 :	3,740,803	3,741,699	3,742,409	3,741,202	3,742,485	3,740,882
	3,740,854	3,741,700	3,742,411	3,741,216	3,741,550	3,740,887
	3,740,916	3,741,743	3,742,415	3,741,249	3,741,585	3,740,911
	3,741,398	3,741,744	3,742,426	3,741,269	3,741,772	3,741,010
	3,741,401	3,741,747	3,742,436	3,741,294	3,741,830	3,741,170
	3,741,853	3,741,749	3,742,447	3,741,297	3,741,889	3,741,226
	3,742,286	3,741,795	44 : 3,740,804	3,741,299	3,741,659	3,741,329
	3,742,371	3,741,810	3,740,840	3,741,302	3,740,795	3,741,356
	3,742,418	3,741,848	3,741,215	3,741,303	3,740,860	3,741,403
	3,742,425	3,741,851	3,741,491	3,741,304	3,740,891	3,741,581
42 :	Re. 27,686	3,741,859	3,741,520	3,741,305	3,740,917	3,741,812
	3,740,784	3,741,887	3,741,721	3,741,308	3,740,949	3,741,813
	3,740,822	3,741,888	3,741,837	3,741,321	3,741,107	3,741,814
	3,740,868	3,741,889	3,741,921	3,741,337	3,741,193	3,741,901
	3,740,889	3,741,893	3,742,440	3,741,390	3,741,340	3,741,996
	3,740,997	3,741,915	45 : 3,740,937	3,741,517	3,741,529	3,742,055
	3,741,033	3,741,935	3,740,970	3,741,555	3,741,589	3,742,070
	3,741,039	3,741,940	3,740,976	3,741,555	3,741,601	3,742,370
	3,741,054	3,741,946	3,741,139	3,741,601	3,742,375	3,742,379
	3,741,141	3,741,960	3,741,153	3,741,668	3,742,414	3,742,448
				3,741,608	3,742,461	56 : 3,741,364



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